

IBM Tivoli zEnterprise Monitoring Agent
Version 6.2.3.2

User's Guide



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Note

Before using this information and the product it supports, read the information in "Notices" on page 329.

This edition applies to version 6, release 3 of IBM Tivoli Monitoring (product number 5724-C04) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Tivoli zEnterprise monitoring agent overview

The IBM® Tivoli® zEnterprise® Monitoring Agent is an application built specifically to monitor the components of the IBM zEnterprise platform.

The Tivoli zEnterprise monitoring agent collects performance, availability, and configuration information from the hardware level up to the virtual server level. It is based on the IBM Tivoli Monitoring technology and as such, is integrated seamlessly into the monitoring infrastructure that is in place for other monitors, such as the Monitoring Agent for AIX®.

The data collected by the Tivoli zEnterprise monitoring agent helps you to monitor the health, performance, and availability of the workloads for a zEnterprise *ensemble*. This ensemble is a collection of one or more System z® nodes (including any attached zBladeCenter Extension, or zBX) that are managed as a single logical virtualized system by the zManager, through the use of a Hardware Management Console. Specifically, this agent monitors the following information:

- The configuration of zEnterprise ensembles and the nodes in those ensembles
- The physical layer of the environment (such as resources, central processing complexes (CPCs), chassis, and blades)
- The virtual layer of the environment (such as virtual servers and virtualization hosts)
- The performance characteristics of the environment (such as workloads, performance policies, service classes, performance indexes, and workload service level indexes)

To help you understand the underlying causes of potential problems, the zEnterprise monitoring agent provides *views* that relate zEnterprise workload resource groups to the underlying physical and virtual infrastructure, including networking devices and storage resources. From high-level views, you can drill down to more detailed views that answer specific questions about both physical and virtual resources, such as what platform a virtual server is running on and what other virtual servers are running on the same hypervisor. Detailed information about workload resource groups helps you understand service classes, the virtual servers associated with a particular service class, and whether these servers are meeting their service class goals. All of this easy-to-access and easy-to-understand information helps you deliver the 24-7 availability that your zEnterprise users expect.

Tivoli zEnterprise monitoring and discovery architecture

The components of the Tivoli zEnterprise monitoring and discovery environment is discussed in detail in the following sections.

Use Figure 1 on page 2 as a reference in the discussion.

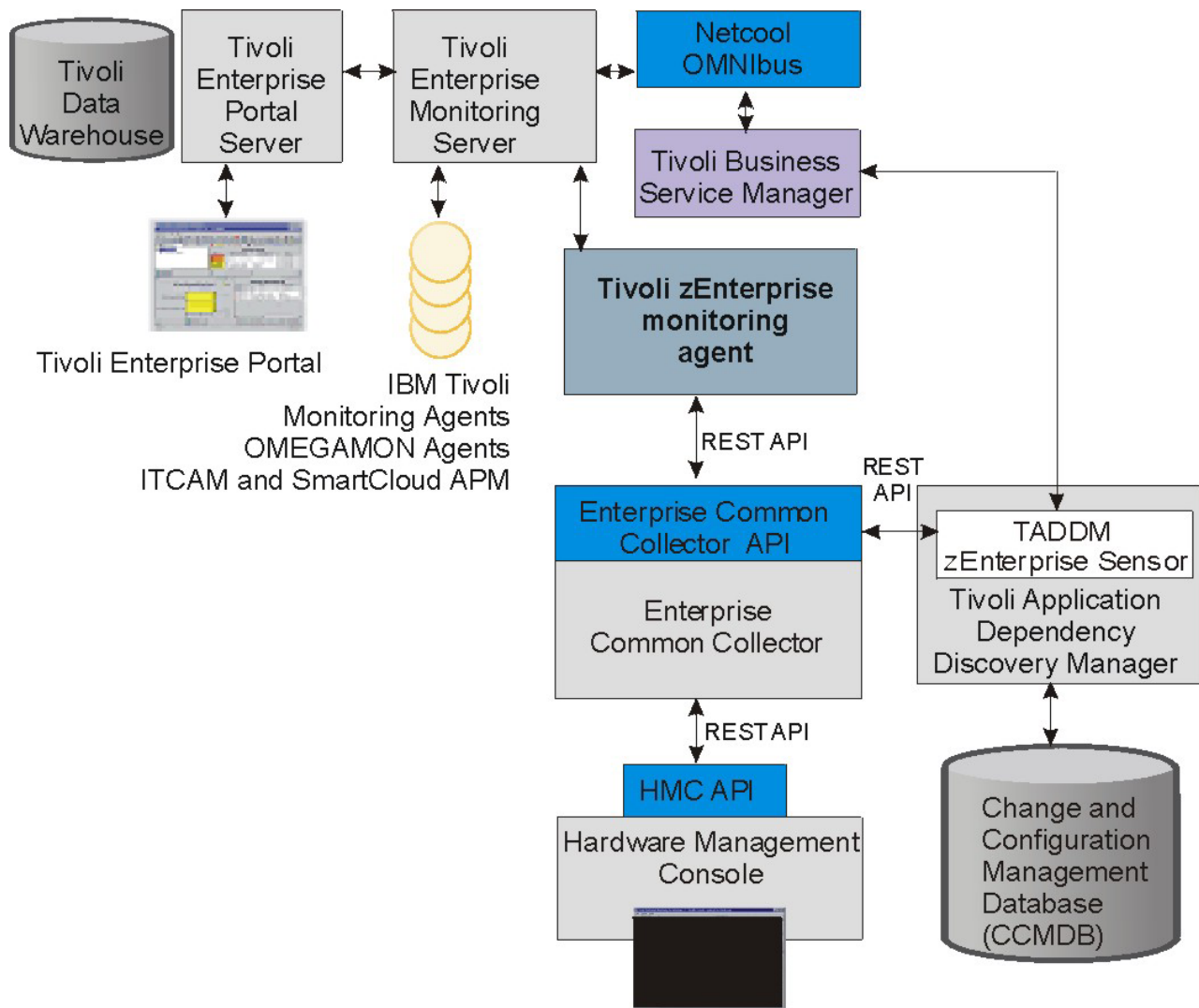


Figure 1. Tivoli zEnterprise monitoring and discovery architecture overview

Enterprise Common Collector

The *Enterprise Common Collector* (collector) is a common data repository that extracts and stores data from the zEnterprise System z Hardware Management Console (HMC) for use by a number of different components, including the Tivoli zEnterprise monitoring agent.

The collector is the central collection point for zEnterprise data gathered from one or more System z HMCs. This component polls the HMCs for zEnterprise configuration and monitoring data from physical, virtual, and logical resources. The collector caches the data for use by requesting applications, such as the Tivoli zEnterprise monitoring agent or the TADDM zEnterprise sensor. Data is exchanged between the collector and the TADDM zEnterprise Sensor, and between the collector and Tivoli zEnterprise monitoring agent, using a *Representational State Transfer (REST) interface*. REST is a client-server software architectural style for distributed hypermedia systems such as the Worldwide Web that consists of a set of HTTP request and response flows.

When the collector is started, its database is populated with resources described in the HMC. After this initial operation to populate the database, the collector receives and stores the property changes, status changes, workload resource group states, and performance and availability metrics of all managed objects

(physical, logical, and virtual) for the enterprise. The collector maintains the discovered data in its most current state by listening to notifications emitted by the HMCs and periodically rediscovers and updates the data.

The collector has the following capabilities:

- Manages individual connections to zEnterprise System z Hardware Management Consoles (HMCs)
- Collects data in parallel from multiple zEnterprise HMCs
- Processes monitoring and inventory requests and background data collection activities concurrently
- Reflects inventory, status, and property changes in data requested from the collector API

The collector provides these additional benefits to programs that use the collector services:

- Reduces the processing load on the HMC by providing an alternative source of performance and inventory data.
- Enables greater sharing of information currently available only to the limited set of users with access to the HMC and also decreases the amount of traffic to and from the console.
- Relieves client programs of the burden of message handling normally required to keep data current.
- Is available over an IP-network to allow the collector and consuming products to be installed on different physical or virtual servers.
- Adds value to HMC performance information by deriving deltas and generating new metrics based on the sampled data.

One instance of the collector can connect to one or more HMCs in the enterprise.

zEnterprise attributes, workspaces, and situations

The Tivoli zEnterprise monitoring agent is an IBM Tivoli monitoring agent.

Like other such agents, this agent uses Tivoli Enterprise Portal as its primary interface. The full set of attribute groups and attributes defined at the zEnterprise monitoring agent can be seen using the Tivoli Enterprise Portal interface. This interface supports the traditional workspaces, situations, and queries familiar to any user of IBM Tivoli Monitoring agents.

All IBM Tivoli Monitoring agents support historical data collection, summarization and pruning using the Tivoli Warehouse Proxy, and a Summarization and Pruning agent for management of warehouse data.

Events are supported by user-defined or product-provided situations that can be forwarded to IBM Tivoli OMNIBus/Netcool for resolution. This set of capabilities enables users to maximize their investment in IBM monitoring by adding zEnterprise resources to the long list of monitored elements. For more information about setting up event forwarding for this monitoring agent, see the "Event Integration support" appendix of the *IBM Tivoli zEnterprise Monitoring Agent: Installation and Configuration Guide*.

The Tivoli Enterprise Portal gathers performance data from monitoring agents residing on the managed systems and stores this data in system elements called *attributes*. An attribute table contains attributes that define characteristics of monitored resources. You can use these attributes to monitor system performance, build custom workspaces, and build situations to alert you of pending problems. Each of the workspaces contains one or more related attribute tables for a specific monitored resource or resource type. To review the attribute groups provided by the Tivoli zEnterprise monitoring agent, see Chapter 4, "Attributes reference," on page 31.

A comprehensive set of workspaces on the Tivoli Enterprise Portal (TEP) is provided for the daily monitoring tasks, at differing levels of detail showing both physical and virtual resources. Links enable users to navigate back and forth within as well as between these hierarchies. The workspaces provide detailed information about zEnterprise BladeCenter® Extensions (zBX) information with its blades (System p®, System x®, ISAOPT, and DataPower® XI50z), information about virtual servers and their

hosts, about virtual networks, and detailed workload information. Users can navigate by mouse click between Tivoli Enterprise Portal views and use the capabilities provided by the underlying user interface infrastructure. To understand the workspaces provided with this product, see Chapter 3, “Workspaces reference,” on page 15. A typical workspace is shown in Figure 2:

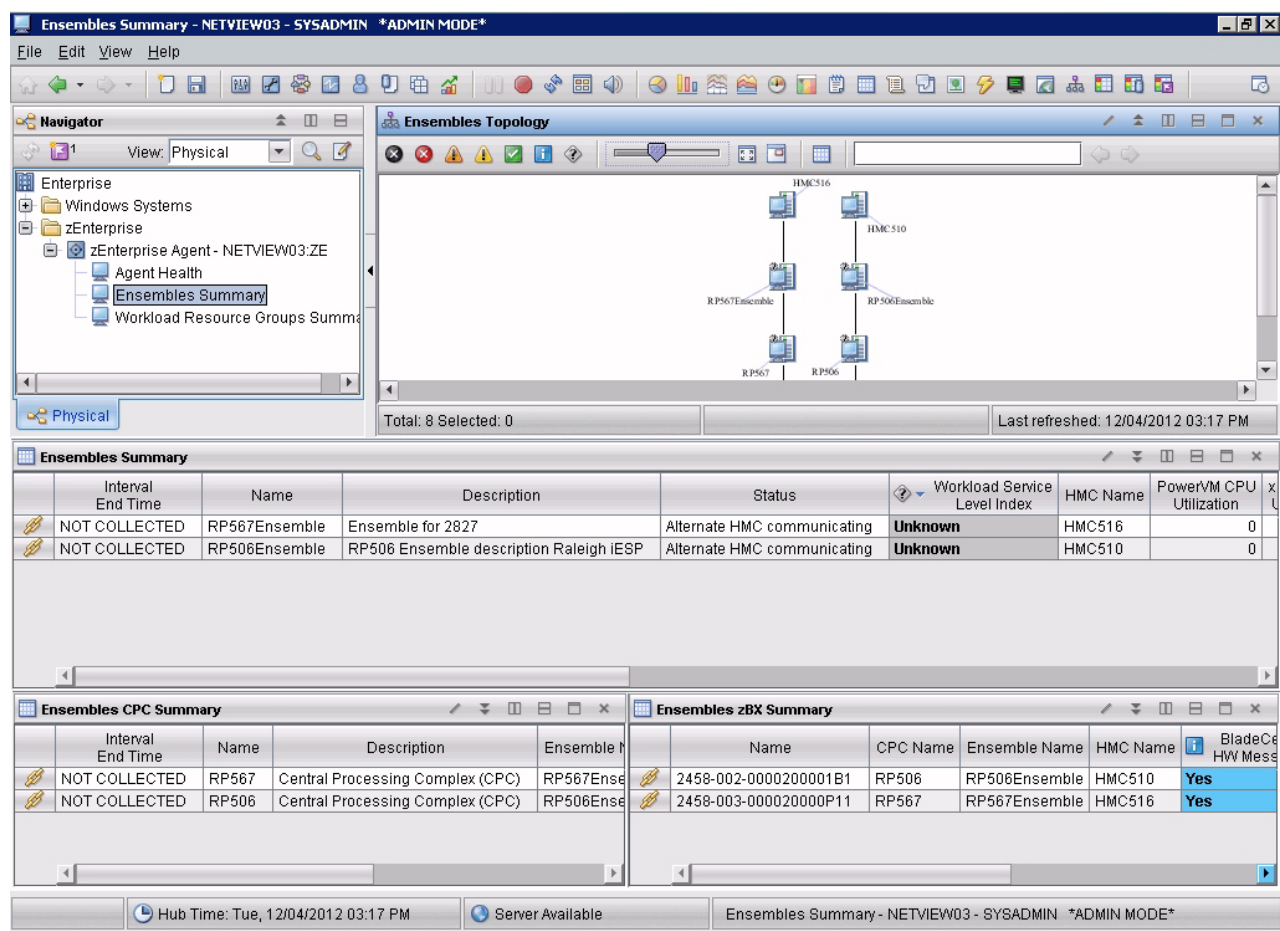


Figure 2. A typical Tivoli zEnterprise monitoring agent workspace

A list of the predefined *situations* is also provided with the Tivoli zEnterprise monitoring agent. These situations include descriptions and formulas and can be found in the user assistance distributed with the product or in Chapter 5, “Situations reference,” on page 225.

Tivoli Application Dependency Discovery Manager zEnterprise sensor

The IBM Tivoli zEnterprise monitoring product can share information about zEnterprise resources with Tivoli Application Dependency Discovery Manager (TADDM) by sharing the Enterprise Common Collector component with TADDM.

TADDM is IBM's solution for automating application infrastructure discovery and visualization. TADDM Version 7.2.2 and later include a zEnterprise sensor for discovering the physical and virtual elements of zEnterprise systems.

The TADDM zEnterprise sensor provides visibility into zEnterprise resource as defined at the System z Hardware Management Console (HMC) and integrates them into TADDM views and reports.

The TADDM zEnterprise sensor utilizes the Enterprise Common Collector to retrieve information about the zEnterprise environment. Optionally, the resources that TADDM discovers using the zEnterprise sensor can be stored in the SmartCloud Control Desk (which includes the Change and Configuration Management Database).

Having the zEnterprise resources available in TADDM, the SmartCloud Control Desk, or both results in cost savings and adds a new dimension to the management capabilities of TADDM.

For additional information about installing the Enterprise Common Collector independent of the Tivoli zEnterprise monitoring agent, see the *IBM Tivoli Application Dependency Discovery Manager Version 7.2.2 Enterprise Common Collector Configuration Guide and Reference*. This solution uses the TADDM interface exclusively instead of Tivoli Enterprise Portal, the interface used by the Tivoli zEnterprise monitoring agent.

For more information about the TADDM zEnterprise sensor, see *IBM Tivoli Application Dependency Discovery Manager: Sensor Reference*.

Use the information provided in the Tivoli Application Dependency Discovery Manager documentation to configure TADDM to discover zEnterprise resources using the TADDM zEnterprise sensor.

If you plan to include both TADDM and the IBM Tivoli zEnterprise monitoring agent in your environment, install only one shared instance of the Enterprise Common Collector.

Agent Management Services

You can use IBM Tivoli Monitoring Agent Management Services to manage the Tivoli zEnterprise Monitoring Agent.

Agent Management Services is available for the following IBM Tivoli Monitoring OS agents: Windows, Linux, and UNIX. The services are designed to keep the Tivoli zEnterprise Monitoring Agent available, and to provide information about the status of the product to the Tivoli Enterprise Portal. IBM Tivoli Monitoring V6.2.2, Fix Pack 2 or later provides support for Agent Management Services. For more information about Agent Management Services, see *Agent Management Services* in the *IBM Tivoli Monitoring Administrator's Guide*.

Components of the IBM Tivoli Monitoring environment

After you install and set up the Tivoli zEnterprise Monitoring Agent, you have an environment that contains the client, server, and monitoring agent implementation for Tivoli Monitoring.

This Tivoli Monitoring environment contains the following components:

Tivoli Enterprise Portal client

The portal has a user interface based on Java™ for viewing and monitoring your enterprise.

Tivoli Enterprise Portal Server

The portal server is placed between the client and the Tivoli Enterprise Monitoring Server and enables retrieval, manipulation, and analysis of data from the monitoring agents. The Tivoli Enterprise Portal Server is the central repository for all user data.

Tivoli Enterprise Monitoring Server

The monitoring server acts as a collection and control point for alerts received from the monitoring agents, and collects their performance and availability data. The Tivoli Enterprise Monitoring Server is also a repository for historical data.

Tivoli zEnterprise Monitoring Agent

This monitoring agent collects data and distributes the data to the Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, Tivoli Enterprise Portal, Tivoli Data Warehouse, and Tivoli Integrated Portal.

IBM Tivoli Netcool/OMNIBus

Tivoli Netcool/OMNIBus is an optional component and the recommended event management component. The Netcool/OMNIBus software is a service level management (SLM) system that delivers real-time, centralized monitoring of complex networks and IT domain events. Event information is tracked in a high-performance, in-memory database and presented to specific users through individually configurable filters and views. The software includes automation functions that you can use to perform intelligent processing on managed events. You can use this software to forward events for Tivoli Monitoring situations to Tivoli Netcool/OMNIBus.

IBM Tivoli Enterprise Console[®]

The Tivoli Enterprise Console is an optional component that acts as a central collection point for events from various sources, including events from other Tivoli software applications, Tivoli partner applications, custom applications, network management platforms, and relational database systems. You can view these events through the Tivoli Enterprise Portal (by using the event viewer), and you can forward events from Tivoli Monitoring situations to the Tivoli Enterprise Console component. If you do not already use Tivoli Enterprise Console and need an event management component, you can choose to use IBM Tivoli Netcool/OMNIBus.

IBM Tivoli Common Reporting

Tivoli Common Reporting is a separately installable feature available to users of Tivoli software that provides a consistent approach to generating and customizing reports. Some individual products provide reports that are designed for use with Tivoli Common Reporting and have a consistent look and feel.

IBM Tivoli Application Dependency Discovery Manager (TADDM)

TADDM delivers automated discovery and configuration tracking capabilities to build application maps that provide real-time visibility into application complexity.

IBM Tivoli Business Service Manager

The Tivoli Business Service Manager component delivers real-time information to help you respond to alerts effectively based on business requirements. Optionally, you can use this component to meet service-level agreements (SLAs). Use the Tivoli Business Service Manager tools to help build a service model that you can integrate with Tivoli Netcool/OMNIBus alerts or optionally integrate with data from an SQL data source. Optional components provide access to data from other IBM Tivoli applications such as Tivoli Monitoring and TADDM.

IBM Dashboard Application Services Hub

The Dashboard Application Services Hub has a core set of components that provide such administrative essentials as network security and database management. This component replaces the Tivoli Integrated Portal component after version 2.2.

Tivoli Integrated Portal

Tivoli Integrated Portal helps the interaction and secure passing of data between Tivoli products through a common portal. You can launch from one application to another and within the same dashboard view research different aspects of your managed enterprise. This component is installed automatically with the first Tivoli product that uses the Tivoli Integrated Portal framework. Subsequent products can install updated versions of Tivoli Integrated Portal. After version 2.2, this component is replaced by the Dashboard Application Services Hub.

User interface options

Installation of the base IBM Tivoli Monitoring software and other integrated applications provides various interfaces that you can use to work with your resources and data.

The following interfaces are available:

Tivoli Enterprise Portal user interface

You can run the Tivoli Enterprise Portal as a desktop application or a browser application. The client interface is a graphical user interface (GUI) based on Java on a Windows or Linux workstation. The browser application is automatically installed with the Tivoli Enterprise Portal Server. The desktop application is installed by using the Tivoli Monitoring installation media or with a Java Web Start application. To start the Tivoli Enterprise Portal browser client in your Internet browser, enter the URL for a specific Tivoli Enterprise Portal browser client installed on your Web server.

Command-line interface

You can use Tivoli Monitoring commands to manage the Tivoli Monitoring components and their configuration. You can also run commands at the Tivoli Enterprise Console event server or the Tivoli Netcool/OMNIbus ObjectServer to configure event synchronization for enterprise situations.

Manage Tivoli Enterprise Monitoring Services window

You can use the window for the Manage Tivoli Enterprise Monitoring Services utility to configure the agent and start Tivoli services not designated to start automatically.

IBM Tivoli Netcool/OMNIbus event list

You can use the Netcool/OMNIbus event list to monitor and manage events. An event is created when the Netcool/OMNIbus ObjectServer receives an event, alert, message, or data item. Each event is made up of columns (or fields) of information that are displayed in a row in the ObjectServer alerts.status table. The Tivoli Netcool/OMNIbus web GUI is also a web-based application that processes network events from one or more data sources and presents the event data in various graphical formats.

IBM Tivoli Enterprise Console

You can use the Tivoli Enterprise Console to help ensure the optimal availability of an IT service for an organization. The Tivoli Enterprise Console is an event management application that integrates system, network, database, and application management. If you do not already use Tivoli Enterprise Console and need an event management component, you can choose to use Tivoli Netcool/OMNIbus.

IBM Tivoli Common Reporting

Use the Tivoli Common Reporting web user interface for specifying report parameters and other report properties, generating formatted reports, scheduling reports, and viewing reports. This user interface is based on the Dashboard Application Services Hub for Tivoli Common Reporting 3.1 and on Tivoli Integrated Portal for earlier versions.

IBM Tivoli Application Dependency Discovery Manager

The Discovery Management Console is the TADDM client user interface for managing discoveries.

IBM Tivoli Business Service Manager

The Tivoli Business Service Manager console provides a graphical user interface that you can use to logically link services and business requirements within the service model. The service model provides an operator with a second-by-second view of how an enterprise is performing at any moment in time or how the enterprise performed over a time period.

IBM Dashboard Application Services Hub

The Dashboard Application Services Hub provides an administrative console for applications that use this framework. It is a web-based console that provides common task navigation for

products, aggregation of data from multiple products into a single view, and the passing of messages between views from different products. This interface replaces the Tivoli Integrated Portal component after version 2.2.

Tivoli Integrated Portal

Web-based products that are built on the Tivoli Integrated Portal framework share a common user interface where you can launch applications and share information. After version 2.2, this interface is replaced by the Dashboard Application Services Hub.

New since Version 6.2.3 of the Tivoli zEnterprise monitoring agent

The following changes were introduced to the Tivoli zEnterprise monitoring agent since the initial release (Version 6.2.3).

The initial release of the Tivoli zEnterprise monitoring agent focused on the new capabilities that were introduced with the IBM zEnterprise Systems. Specifically, the agent provided detailed monitoring of the zBX blades, hypervisors and virtual servers that reside on these blades, as well as the overall health and composition of Ensembles and Workload Resource Groups.

In version 6.2.3.2, new capabilities have been added to show detailed monitoring information on the CPC logical partitions (including zAware logical partitions), hypervisors, and virtual servers to complement the hypervisor and virtual server information that was available for the zBX in the initial release. Additionally, a new Ensemble Networks Summary workspace has been added to provide insight into the performance of each of the virtual networks defined in an Ensemble. The last major improvement in the zEnterprise monitoring agent is the ability to monitor the connections from the Enterprise Common Collector to the System z Hardware Management Consoles that are being monitored.

New workspaces

The following workspaces were added in version 6.2.3.2.

Table 1. New workspaces in version 6.2.3.2.

Workspace name	Description	Associated attribute groups
Agent Health	Displays self-diagnosis information about the Tivoli zEnterprise monitoring agent, as well as monitoring the connections between the Enterprise Common Collector (ECC) and the System z Hardware Management Consoles (HMCs).	• Agent Operations Log (OPLOG) • ECC Data Sources (KZEECCDS) • IBM Audit Log (KRAAUDIT) • Performance Object Status, (KZEPOBJST)
Ensemble Networks Summary	Displays information about the virtual networks and virtualization host network uplinks in the ensemble.	• Ensembles (KZEENSEMBL) • Uplinks (KZEUPLINK)
PR/SM Virtual Server Details	Displays detailed information about a specific virtual server on a PR/SM hypervisor and the CPU, memory, and network utilization associated with the virtual server.	• PR/SM Virtual Server (KZEPSMVS) • Workload Virtual Server (KZEWKLVSV)
z/VM Virtual Server Details	Displays detailed information about a specific virtual server on a z/VM hypervisor and the CPU, memory and network utilization associated with the virtual server.	• z/VM Virtual Server (KZEZVMVSV) • PR/SM Virtualization Host (KZEPSMVH) • Workload Virtual Server (KZEWKLVSV)

Table 1. New workspaces in version 6.2.3.2. (continued)

Workspace name	Description	Associated attribute groups
z/VM Virtualization Host Details workspace	Displays detailed information about a specific virtualization host representing a z/VM operating system instance, along with the resource (CPU, memory and network) utilization and virtual servers associated with the virtualization host.	- z/VM Virtualization Host (KZEZVMVH) - z/VM Virtual Server (KZEZVMVSV) - Uplinks (KZEUPLINK)

New attributes and attribute groups

The following new attributes and attribute groups were added in version 6.2.3.2.

Table 2. New attributes and attribute groups

Attribute group	Table prefix	New or changed information
ECC Data Sources	KZEECCDS	Represents the characteristics and current status of connections defined from the Enterprise Common Collector to IBM System z Hardware Management Consoles.
Logical Partitions	KZELPAR	Represents the characteristics and performance metrics of Logical Partitions.
PR/SM Virtual Servers	KZEPSMVS	Represents the characteristics and performance metrics of PR/SM Virtual Servers.
PR/SM Virtualization Hosts	KZEPSMVH	Represents the characteristics and performance metrics of PR/SM Virtualization Hosts.
Virtual Networks	KZEVNET	Represents the characteristics and performance metrics of Virtual Networks defined in an Ensemble.
z/VM Virtual Servers	KZEZVMVS	Represents the characteristics and performance metrics of z/VM Virtual Servers.
z/VM Virtualization Hosts	KZEZVMVH	Represents the characteristics and performance metrics of z/VM Virtualization Hosts.

New situations

The following new pre-defined situations were provided in this release. None of these situations are enabled by default.

Table 3. New situations

Situation	Description
LPR_AcceptableStatus_Crit (Red): LPRACCSTAT = No	The current status for the logical partition not Acceptable.
Data_Source_Disabled_Crit (Red): CDSEENABLED = No && CDSREASON != User_Disabled Not_Started	The ECC data source is not enabled.
Data_Source_Status_Crit (Red): CDSSTATUS != Connected && CDSSTATRC != Unknown	The status of the connection between the ECC and HMC is not Acceptable."
MVS_AcceptableStatus_Crit (Red): MVSACCSTAT = No	The current status for the PR/SM virtual server not Acceptable."
ZVS_AcceptableStatus_Crit (Red): ZVSACCSTAT = No	The current status for the z/VM virtual server not Acceptable.

Updated workspaces and navigation

A new Agent Health navigator item launches the Agent Health workspace, which has been updated to display self-diagnosis information about the Tivoli zEnterprise monitoring agent.

The zEnterprise Agent Summary workspace, which displays information about the Tivoli zEnterprise monitoring agent, has been updated to include data presented in this view is from the ECC Data Sources (KZEECCDS) attribute group. This attribute group shows configuration and status information for the attribute groups associated with the Enterprise Common Collector.

The CPC workspace was updated to include a Logical Partition Summary table that displays configuration and performance information for each logical partition defined in a CPC. Some of the circular gauges were combined to improve usability.

Chapter 2. Scenarios overview

The scenarios in this section help you understand how to use the Tivoli zEnterprise monitoring agent to diagnose real-world issues with your zEnterprise systems.

This section outlines typical users of the Tivoli zEnterprise monitoring agent, and uses these roles to explain the work flows in the scenarios.

To see these scenarios running as demonstrations, see <http://www.ibm.com/developerworks/wikis/display/tivolimediagallery/Tivoli+zEnterprise+Monitoring+Agent>. For additional information about using this monitoring agent, see <https://www.ibm.com/developerworks/mydeveloperworks/groups/service/html/communityview?communityUuid=d9bc1396-0aa4-459e-9070-3bde7a47996c>

Users of the Tivoli zEnterprise monitoring agent product

The Tivoli zEnterprise monitoring agent can be useful across a broad range of user roles.

Primary roles

- Capacity Planner: Needs to effectively manage the resources purchased for highest value.
- L2 Operator: Monitors an event console for events related to performance and availability.
- System Administrator: Is responsible for setting up the monitoring environment and the Enterprise Common Collector (collector). This user also reviews the zEnterprise performance and availability reports.
- Network Administrator: Is responsible for setting up the network environment. This person is not responsible for setting up the zEnterprise environment. This person also reviews the zEnterprise performance and availability reports.
- Storage Administrator: Is responsible to setting up storage for the environment and the Enterprise Common Collector. This person is not responsible for setting up the zEnterprise environment.
- Performance Analyst: Reviews the zEnterprise performance and availability reports. This person is also knowledgeable about network and storage issues.
- Security Administrator: Sets up permissions for the System z Hardware Management Console (HMC) and other Tivoli zEnterprise monitoring agent components and is responsible for LDAP (lightweight directory access protocol).

Secondary roles

- HMC Administrator: Configures the zEnterprise environment and sets up user IDs and security for how the System z Hardware Management Console (HMC) interacts with the Tivoli zEnterprise monitoring agent.
- Usage and Accounting: Needs access to long-term historical data and the ability to hold someone accountable for physical and virtual resources.
- Service and Support: Understands how to collect information for serviceability and interact with the IBM service organization.
- Business System Owner: Needs to understand zEnterprise workload performance relative to the overall business service and service level agreement (SLA) and IBM Tivoli Business Service Manager (TBSM).
- Application Administrator: Understands the topology of a particular application and focuses on application environment details.

Scenario 1: Determining workload health

In this scenario, the Tivoli zEnterprise Monitoring agent detects a workload resource group with a service class of high business importance that has exceeded its defined velocity threshold.

The performance analyst views the Workload Resource Groups Summary workspace and, seeing one with a Workload Service Level Index that is Critical, navigates to the Workload Resource Group Details workspace for that workload. On this workspace, the performance analyst reviews the list of service classes to determine which high priority service class in the workload resource group is missing its goals, and then reviews the list of virtual servers to determine which virtual server associated with that specific service class may be having issues.

The analyst suspects that this virtual server is not getting CPU resource when it needs it. This organization's standard for critical CPU delay is 20%, and they have defined a threshold to cause the resource to show Critical (red) status when this threshold is reached. That is, 20% of the time, the virtual server was ready for work but did not get the CPU it needed from the hypervisor, so could not complete the queued work.

1. By navigating to the Workload Resource Groups Summary Workspace, the performance analyst discovers that the Workload Resource Group for one of its monitored workload resources groups has a Critical Workload Service Level Index. That is, one of the High Business Importance Service Classes for this Workload Resource Group is not meeting its performance goals.
2. The performance analyst right-clicks the monitored workload resource group row and selects the **Workload Resource Group Details** link.
3. The Workload Resource Group Details Workspace provides in-depth metrics about the workload resource group that is displayed, as well as the Active Performance Policy and the Service Classes defined for that Performance Policy. The Performance Index service class is greater than 1 (1.29). A Performance Index greater than one tells the analyst that the goal for the Service Class is not being met.

The Virtual Servers for this Workload Resource Group view provides details about the virtual servers in the Workload Resource Group. Each virtual server in the table has a column indicating the Service Class to which that virtual server belongs. One of the virtual servers in the under-achieving service class shows a high Virtualization Host CPU Delay.

4. The analyst right-clicks on problem virtual server in the Virtual Servers for this Workload Resource Group view and selects **PowerVM® Virtual Server Details** link. The next view is filtered to show only information about the selected virtual server.
5. The Virtual Server Details workspace contains detailed performance metrics about problem virtual server. By looking at the Workload Resource Groups Summary for Virtual Server view, the analyst can discover what other workload resource groups this problem virtual server is participating in. This is useful information for understanding the potential impact that other workload resource groups have on this poorly-performing virtual server.
6. The high virtualization host CPU delay indicates that the virtual server was ready for work, but it had to wait for CPU from the virtualization host before it could carry out the work. The analyst wonders if this delay indicates a problem with the virtualization host. The analyst right-clicks on the **Virtual Server CPU and Memory Details** table and selects the **PowerVM Virtualization Host Details** workspace for the virtualization host that hosts the problem virtual server.
7. The filtered Virtualization Host Details workspace provides detailed performance metrics for the related virtualization host. The PowerVM Virtualization Host Details view shows that physical CPU Utilization for this virtualization host is at 95%. This high CPU utilization is causing the CPU delay for the problem virtual server. This issue is the real problem.

At this point, the analyst can look at the other virtual servers on this same virtualization host to determine the cause of this extreme CPU contention. When all the information is gathered, the analyst can then decide whether to move work off of this virtualization host to another virtualization host with more available capacity.

Scenario 2: Consolidated event management

In this scenario, the zEnterprise monitoring agent has a situation that is triggered when a central processor complex (CPC) exceeds its defined CPU utilization threshold for its CP dedicated processors.

The system programmer is notified by an event displayed in the event console and also indicated by a flag in the navigator that the CPU utilization of a CPC's dedicated CP processors has exceeded its defined threshold. He navigates from the Ensembles Summary workspace to the CPC Details workspace and determines that CPU constraints are affecting the virtual server and contacts a hardware engineer who can address this problem.

1. A custom situation has been defined to create an event when the CPU utilization for a CPC's CP Dedicated processors has reached 99%. The IBM Tivoli Monitoring infrastructure detects that a CPC's CP Dedicated processors in the enterprise has a CPU utilization of 99% and creates an event. This event is displayed in the event console and also indicated by a flag in the navigator. Hovering over the Ensembles Summary node in the navigator causes the link to the Situation Event workspace for this situation to be displayed.
2. The system programmer clicks on the link by the situation name in the pop-up window to see the Situation workspace. The Situation workspace displays the current values for the CPC that has High CPU utilization for the CP Dedicated processors, as well as the values at the time the event was created
3. The system programmer navigates to the CPC Detail Workspace and looks at the historical data for CPU utilization for CP Dedicated processors for the CPC. He determines that the CPU utilization has been close to 100% for over 24 hours. He contacts the Hardware Engineer to remediate the problem.

Chapter 3. Workspaces reference

A workspace is the working area of the Tivoli Enterprise Portal application window. The Navigator tree contains a list of the workspaces provided by the agent.

About workspaces

Use the Navigator tree to select the workspace you want to see. As part of the application window, the status bar shows the Tivoli Enterprise Portal Server name and port number to which the displayed information applies and the ID of the current user.

When you select an item in the Navigator tree, a default workspace is displayed. When you right-click a Navigator item, a menu that includes a Workspace item is displayed. The Workspace item contains a list of workspaces for that Navigator item. Each workspace has at least one view. Some views have links to other workspaces. You can also use the Workspace Gallery tool as described in the *Tivoli Enterprise Portal User's Guide* to open workspaces.

The workspaces in the Navigator are displayed in a Physical view that shows your enterprise as a physical mapping or a dynamically populated logical view that is agent-specific. You can also create a Logical view. The Physical view is the default view.

This monitoring agent provides predefined workspaces. You cannot modify or delete the predefined workspaces, but you can create new workspaces by editing them and saving the changes with a different name.

Workspace views can be any combination of query-based views, event views, and special purpose views.

Additional information about workspaces

For more information about creating, customizing, and working with workspaces, see "Using workspaces" in the *Tivoli Enterprise Portal User's Guide*.

For a list of the predefined workspaces for this monitoring agent and a description of each workspace, see Predefined workspaces and the information about each individual workspace.

Some attribute groups for this monitoring agent might not be represented in the predefined workspaces or views for this agent. For a full list of the attribute groups, see "Attribute groups for the monitoring agent" on page 31.

Predefined workspaces

The Tivoli zEnterprise Monitoring Agent provides predefined workspaces, which are organized by Navigator item.

- Tivoli zEnterprise Monitoring Agent Navigator item
 - Tivoli zEnterprise Monitoring Agent workspace
- Agent Health Navigator item
 - Agent Health workspace
- Ensembles Summary Navigator item
 - CPC Details workspace
 - Ensemble Details workspace
 - Ensemble Networks Summary workspace

- Ensembles Summary workspace
- PowerVM Virtual Server Details workspace
- PowerVM Virtualization Host Details workspace
- PowerVM Virtualization Host Storage Resources workspace
- PR/SM Virtual Server Details workspace
- x Hyp Virtual Server Details workspace
- x Hyp Virtualization Host Details workspace
- x Hyp Virtualization Host Storage Resources workspace
- z/VM Virtual Server Details workspace
- z/VM Virtualization Host Details workspace
- zBX Details workspace
- Workload Resource Groups Summary Navigator item
 - Ensemble Workload Resource Groups Summary workspace
 - Workload Resource Group Details workspace
 - Workload Resource Groups Summary workspace

Workspace descriptions

Each workspace description provides information about the workspace such as the purpose and a list of views in the workspace.

Workspaces are listed under Navigator items.

Tivoli zEnterprise Monitoring Agent Navigator item

The workspace descriptions are organized by the Navigator item to which the workspaces are relevant.

Tivoli zEnterprise Monitoring Agent workspace

The zEnterprise Agent Summary workspace displays information about the Tivoli zEnterprise monitoring agent. This workspace is displayed when the user selects the zEnterprise Agent - yourHostName:ZE node in the Tivoli Enterprise Portal Navigator view. Historical data is enabled for this workspace.

This workspace contains the following views:

zEnterprise Agent - Agent Operations Log

A table that shows information about situation and connectivity messages that occur on the managed system. This information is useful for diagnostic research with IBM Software Support. It includes message-related information about the Tivoli zEnterprise monitoring agent. The data presented in this table is obtained from IBM Tivoli Monitoring, not from the Tivoli zEnterprise monitoring agent.

zEnterprise Agent - ITM Audit Log

A table that shows the IBM Tivoli Monitoring audit log for the agent. These attributes provide information on critical state-changing events in the monitoring environment, including the following: what type of action the event represents; when did the event happen; what database, application, or permission was manipulated; on which machine did this event happen; which system is the source of the event; and which system is the target of the event. The data presented in this table is obtained from IBM Tivoli Monitoring, not from the Tivoli zEnterprise monitoring agent.

Enterprise Common Collector - Data Sources

A table that shows configuration and status information for the data sources defined to the Enterprise Common Collector (ECC). Each data source is represented by a row in this table. This attribute group is most often used to determine why data is not available from a particular data source in the other zEnterprise Monitoring Agent workspaces. Data presented in this table is from the Data Source attribute group.

zEnterprise Agent - Performance Object Status

A table that shows performance information for the attribute groups that make up the Tivoli zEnterprise monitoring agent. This information reflects the status of other attribute groups so you can see the status of all of the performance objects that make up this application all at once. Each of these other performance attribute groups is represented by a row in this table. The status for an attribute group reflects the result of the last attempt to collect data for that attribute group, which allows you to see whether the agent is performing correctly. Unlike other attribute groups, the Performance Object Status attribute group does not reflect the state of the monitored application. This attribute group is most often used to determine why data is not available for one of the performance attribute groups. Data presented in this table is from the Performance Object Status attribute group.

Agent Health Navigator item

The workspace descriptions are organized by the Navigator item to which the workspaces are relevant.

Agent Health workspace

The zEnterprise Agent Summary workspace displays information about the Tivoli zEnterprise monitoring agent. This workspace is displayed when the user selects the Agent Health node in the Tivoli Enterprise Portal Navigator view. Historical data is enabled for this workspace.

This workspace contains the following views:

zEnterprise Agent - Agent Operations Log

A table that shows information about situation and connectivity messages that occur on the managed system. This information is useful for diagnostic research with IBM Software Support. It includes message-related information about the Tivoli zEnterprise monitoring agent. The data presented in this table is obtained from IBM Tivoli Monitoring, not from the Tivoli zEnterprise monitoring agent.

zEnterprise Agent - ITM Audit Log

A table that shows the IBM Tivoli Monitoring audit log for the agent. These attributes provide information on critical state-changing events in the monitoring environment, including the following: what type of action the event represents; when did the event happen; what database, application, or permission was manipulated; on which machine did this event happen; which system is the source of the event; and which system is the target of the event. The data presented in this table is obtained from IBM Tivoli Monitoring, not from the Tivoli zEnterprise monitoring agent.

Enterprise Common Collector - Data Sources

A table that shows configuration and status information for the data sources defined to the Enterprise Common Collector (ECC). Each data source is represented by a row in this table. This attribute group is most often used to determine why data is not available from a particular data source in the other zEnterprise Monitoring Agent workspaces. Data presented in this table is from the Data Source attribute group.

zEnterprise Agent - Performance Object Status

A table that shows performance information for the attribute groups that make up the Tivoli zEnterprise monitoring agent. This information reflects the status of other attribute groups so you can see the status of all of the performance objects that make up this application all at once. Each of these other performance attribute groups is represented by a row in this table. The status for an attribute group reflects the result of the last attempt to collect data for that attribute group, which allows you to see whether the agent is performing correctly. Unlike other attribute groups, the Performance Object Status attribute group does not reflect the state of the monitored application. This attribute group is most often used to determine why data is not available for one of the performance attribute groups. Data presented in this table is from the Performance Object Status attribute group.

Ensembles Summary Navigator item

The workspace descriptions are organized by the Navigator item to which the workspaces are relevant.

CPC Details workspace

The CPC Details workspace displays detailed information about a specific central processor complex (CPC) and the utilization of the CPU and channel resources associated with the CPC. This workspace is displayed when the user selects the CPC Details link from the CPC Summary table of the Ensemble Details workspace or a CPC node in the Ensembles Topology view or the Ensembles CPC Summary table of the Ensembles Summary workspace. Historical data is enabled in this workspace.

This workspace contains the following views:

CP CPU Utilization

Circular gauges that show the percentage of usage of shared and dedicated CP processors. The gauges are defined with a range from 0 to 100, with color coding for the following sub-ranges: green (low, 0% to 90%), yellow (medium, between 91% and 95%), or red (high, 96% to 100%). Data presented in this view is from the Central Processor Complex attribute group.

IFL CPU Utilization

Circular gauges that show the percentage of usage of shared and dedicated Integrated Facility for Linux (IFL) processors. The gauges are defined with a range from 0 to 100, with color coding for the following sub-ranges: green (low, 0% to 90%), yellow (medium, between 91% and 95%), or red (high, 96% to 100%). Data presented in this view is from the Central Processor Complex attribute group.

zIIP CPU Utilization

Circular gauges that show the percentage of usage of shared and dedicated Integrated Information Processor (zIIP) processors. The gauges are defined with a range from 0 to 100, with color coding for the following sub-ranges: green (low, 0% to 90%), yellow (medium, between 91% and 95%), or red (high, 96% to 100%). Data presented in this view is from the Central Processor Complex attribute group.

zAAP CPU Utilization

Circular gauges that show the percentage of usage of shared and dedicated Application Assist Processor (zAAP) processors. The gauges are defined with a range from 0 to 100, with color coding for the following sub-ranges: green (low, 0% to 90%), yellow (medium, between 91% and 95%), or red (high, 96% to 100%). Data presented in this view is from the Central Processor Complex attribute group.

CPC Details

A table showing the detailed attributes and metrics of the central processor complex (CPC). Data presented in this view is from the Central Processor Complex attribute group.

Logical Partitions Summary

A table showing the summarized attributes and metrics for all logical partitions defined to the central processor complex (CPC). Data presented in this table is from the Logical Partition attribute group. Right-clicking on a link icon in this table links to the PR/SM Virtual Server Details workspace, filtered to show only data relevant to the selected PR/SM virtual server. If the logical partition is Operating, and the OS Type indicates the operating system is z/VM, then a conditional link is displayed to the System workspace of the OMEGAMON XE on z/VM and Linux instance associated with the selected logical partition. If this conditional link is not shown, then the OMEGAMON XE for z/VM and Linux product workspaces are not available.

Ensemble Details workspace

The Ensemble Details workspace displays detailed information about a specific ensemble, its per-platform CPU and memory usage information, and summary information for the central processor complexes (CPCs) and the zEnterprise BladeCenter Extensions (zBXs) associated with the ensemble. This workspace is displayed when the user selects the Ensemble Details link from the Ensembles Summary table or from ensemble nodes in the Ensembles Topology view of the Ensembles Summary workspace. Historical data is enabled in this workspace.

This workspace contains the following views:

CPU Utilization by Platform

A bar chart, where each bar represents a virtualization host type (PowerVM, x Hyp, z/VM, or PR/SM) and the height of each bar is the average aggregate CPU utilization for the virtualization hosts on the platform in the ensemble, where the Y axis shows average CPU utilization, expressed as a percentage. Data presented in this view is from the Ensemble attribute group.

Memory Utilization by Platform

A bar chart, where each bar represents a virtualization host type (PowerVM, x Hyp, z/VM, or PR/SM) and the height of each bar is the average aggregate memory utilization for the virtualization hosts on the platform in the ensemble, where the Y axis shows average Memory utilization, expressed as a percentage. Data presented in this view is from the Ensemble attribute group.

Ensemble Details

A table showing the detailed attributes and metrics of the ensemble. Data presented in this view is from the Ensemble attribute group.

CPC Summary

A table showing the central processor complexes (CPCs) in the ensemble and the associated summary attribute and metric information. Data presented in this view is from the Central Processor Complex attribute group. Right-clicking the link icon for a row in this table provides access to the CPC Details workspace, filtered for the selected CPC.

zBX Summary

A table showing the zEnterprise BladeCenter Extensions (zBXs) in the ensemble and the associated summary attribute and metric information. Data presented in this view is from the BladeCenter Extension attribute group. Right-clicking the link icon for a row in this table provides access to the zBX Details workspace, filtered for the selected zBX.

Ensemble Networks Summary workspace

The Ensemble Networks Summary workspace displays information about the virtual networks and virtualization host network uplinks in the ensemble. This workspace is displayed when the user selects the Ensemble Networks Summary link from either the Ensembles Summary table of the Ensembles Summary workspace or the Ensemble Details table of the Ensembles Details workspace. Historical data is enabled in this workspace.

This workspace contains the following views:

Virtual Networks with Highest Packets Dropped and Discarded

A bar chart that shows the top ten virtual networks in the ensemble with respect to the number of packets being dropped and discarded, where each pair of bars represents a virtual network, with one bar in each pair showing the number of packets dropped and the other showing the number of packets discarded. Data presented in this view is from the Virtual Network attribute group.

Virtual Networks Summary

A table showing a summary of the virtual networks in the ensemble. Data presented in this table is from the Virtual Networks attribute group.

Uplinks Summary

A table showing shows a summary of the uplinks for all virtualization hosts in the ensemble. Data presented in this table is from the Uplinks attribute group.

Ensembles Summary workspace

The Ensembles Summary workspace displays summary information about the Ensembles in the zEnterprise environment and the Central Processor Complexes (CPCs) and zEnterprise BladeCenter Extensions (zBXs) in those ensembles. This workspace is displayed when the user clicks the Ensembles Summary item in the Navigator pane. Historical data is enabled in this workspace for all views except the Ensembles Topology view.

This workspace contains the following views:

Ensembles Topology

A topology diagram of the System z Hardware Management Consoles (HMCs), ensembles, central processor complexes (CPCs), and zEnterprise BladeCenter Extensions

(zBXs) in the zEnterprise environment. Data presented in this view is from the Topology attribute group. Flyover text for each node displays relevant information (such as type and description) for the node. Node status is color-coded for quick recognition and response. See the user guide for information to interpret the status colors and codes.

Ensembles Summary

A table showing data about all the ensembles in the zEnterprise environment and the associated summary attribute and metric information. Rows in this table are displayed so that the ensemble with the highest Workload Service Level Index appears at first. Data presented in this view is from the Ensemble attribute group. Right-clicking the link icon for a row in this table provides access to a filtered version of the Ensemble Workload Resource Groups Summary workspace or a filtered view of the Ensemble Details workspace (the default).

Ensembles CPC Summary

A table showing data about all the central processor complexes (CPCs) in all the ensembles in the zEnterprise environment and the associated summary attribute and metric information. Only the CPCs that are part of an ensemble are shown in this view. Data presented in this view is from the Central Processor Complex attribute group. Right-clicking the link icon in the Ensembles CPC Summary table links to the CPC Details workspace, filtered to show only the data relevant to the selected CPC.

Ensembles zBX Summary

A table showing data about all the zEnterprise BladeCenter Extensions (zBXs) in the ensembles of the zEnterprise environment and the associated summary attribute and metric information. Only the zBXs that are part of an ensemble are shown in this view. Data presented in this view is from the BladeCenter Extension attribute group. Right-clicking the link icon in the Ensembles zBX Summary table links to the zBX Details workspace, filtered to show only data relevant to the selected zBX.

PowerVM Virtual Server Details workspace

The PowerVM Virtual Server Details workspace displays detailed information about a specific virtual server on a PowerVM hypervisor and the CPU, memory, and network utilization associated with the virtual server. This workspace is displayed when the user selects the PowerVM Virtual Server Details link from the Virtual Servers table of the Workload Resource Group Details workspace. This link is available for rows in the Virtual Servers table that have a Platform Type of PowerVM. This workspace is also displayed when the user selects the PowerVM Virtual Server Details link from the PowerVM Virtual Servers Summary table of the PowerVM Virtualization Host Details workspace. Historical data is enabled in this workspace.

This workspace contains the following views:

CPU Utilization and Delay

A plot chart showing two lines, plotting the percentage of CPU utilization and the percentage of virtualization host CPU delay for the virtual server over time. The X-axis shows the time associated with each value plotted in the plot chart, and the Y-axis shows a percentage value. Data presented in this view is from the PowerVM Virtual Server attribute group.

Packets Discarded and Dropped

A bar chart showing four bars, representing Packets Sent Discarded, Packets Received Discarded, Packets Sent Dropped, and Packets Received Dropped. The Y-axis shows the number of packets, represented by the height of each bar. Data presented in this view is from the PowerVM Virtual Server attribute group.

PowerVM Virtual Server CPU and Memory Details

A table showing the detailed CPU and memory metrics of the virtual server. Data presented in this view is from the PowerVM Virtual Server attribute group. Right-clicking the link icon for a row in this table provides access to the PowerVM Virtualization Host Details workspace. If the GPMP Status is Operating, the OS Type indicates the operating system is AIX, and the TCP/IP Hostname is available, then a conditional link is displayed

to the UNIX OS workspace of the Monitoring Agent for UNIX OS instance associated with the selected virtual server. If this conditional link is not shown, then the UNIX OS agent product workspaces are not available.

PowerVM Virtual Server Network Summary

A table showing network metrics aggregated over all the virtual network adapters and virtual networks of the virtual server. Data presented in this view is from the PowerVM Virtual Server attribute group. Right-clicking the link icon for a row in this table provides access to the PowerVM Virtualization Host Details workspace. If the GPMP Status is Operating, the OS Type indicates the operating system is AIX, and the TCP/IP Hostname is available, then a conditional link is displayed to the UNIX OS workspace of the Monitoring Agent for UNIX OS instance associated with the selected virtual server. If this conditional link is not shown, then the UNIX OS agent product workspaces are not available.

Workload Resource Groups Summary

A table showing summary information about the workload resource groups of which the selected PowerVM virtual server is a member, sorted so that the workload resource group with the highest Workload Service Level Index value appears first. Data presented in this view is from the Workload Virtual Server attribute group. Right-clicking the link icon for a row in this table provides access to the Workload Resource Group Details workspace, filtered to show only data relevant to the selected Workload Resource Group.

PowerVM Virtualization Host Details workspace

The PowerVM Virtualization Host Details workspace displays detailed information about a specific virtualization host on a PowerVM Blade, along with the resource (CPU, memory and network) utilization and virtual servers associated with the virtualization host. This workspace is displayed when the user selects the PowerVM Virtualization Host Details link from the Blades Summary table of the zBX Details workspace. This link is available only for rows in the Blades Summary table that have a Platform Type of POWER. This workspace is also displayed when the user selects the PowerVM Virtualization Host Details link from either the PowerVM Virtual Server CPU and Memory Details table or the PowerVM Virtual Server Network Summary table of the PowerVM Virtual Server Details workspace. Historical data is enabled in this workspace.

This workspace contains the following views:

CPU, Memory, and Network Usage

A plot chart, where the three lines plot the percent CPU utilization, percent memory utilization and percent network utilization attributes for the selected virtualization host over time. The X-axis shows the time, and the Y-axis shows the percentage of utilization. Data presented in this view is from the PowerVM Virtualization Host attribute group.

Storage Rate

A plot chart, where the line plots the storage transfer rate for the virtualization host over time. The X-axis shows times when the values were plotted, and the Y-axis shows storage transfer rate, expressed as KB per second. Data presented in this view is from the PowerVM Virtualization Host attribute group.

PowerVM Virtualization Host Details

A table showing the detailed CPU, memory, network and I/O metrics of the virtualization host. Only one row is presented in this table because the data is filtered by the selected virtualization host. Data presented in this view is from the PowerVM Virtualization Host attribute group. Right-clicking the link icon for a row in this table links to the PowerVM Virtual Host Storage Resources workspace, filtered to show only data relevant to the selected PowerVM virtualization host.

Virtual Server Configuration

A table showing the detailed virtual server configuration settings for the virtual servers hosted on this virtualization host. Only one row is presented in this table because the data is filtered by the selected virtualization host. Data presented in this view is from the PowerVM Virtualization Host attribute group. Right-clicking the link icon for a row in this table links to the PowerVM Virtual Host Storage Resources workspace, filtered to show only data relevant to the selected PowerVM virtualization host.

PowerVM Virtual Servers Summary

A table showing summary information for the virtual servers hosted on this virtualization host. The rows in this table are sorted so that by default, the rows with the highest CPU utilization appears first in the table. Data presented in this view is from the PowerVM Virtual Server attribute group. Right-clicking the link icon for a row in this table links to the PowerVM Virtual Server Details workspace, filtered to show only data relevant to the selected PowerVM Virtual Server.

Uplinks Summary

A table showing network metrics for the uplinks associated with this virtualization host. Data presented in this view is from the Uplink attribute group.

PowerVM Virtualization Host Storage Resources workspace

The PowerVM Virtualization Host Storage Resources workspace displays information about the storage resources associated with a specific virtualization host on a POWER Blade. This workspace is displayed when the user selects the PowerVM Virtualization Host Storage Resources link from the PowerVM Virtualization Host Details table of the PowerVM Virtualization Host Details workspace. Historical data is not enabled in this workspace.

This workspace contains the following views:

Total Storage Resources Size

A pie chart that shows the aggregated size of all storage resources (total size of fibre-channel attached storage resources in GB) of the virtualization host. Data presented in this view is from the Storage Resource attribute group.

Storage Resources Summary

A table showing summary information for the storage resources for this virtualization host. Data presented in this view is from the Storage Resource attribute group.

PR/SM Virtual Server Details workspace

The PR/SM Virtual Server Details workspace displays detailed information about a specific virtual server on a PR/SM hypervisor and the CPU, memory, and network utilization associated with the virtual server. This workspace is displayed when the user selects the PR/SM Virtual Server Details link from the Virtual Servers table of the Workload Resource Group Details workspace. This link is available for rows in the Virtual Servers table that have a Platform Type of prsm. This workspace is also displayed when the user selects the PR/SM Virtual Server Details link from the Logical Partitions Summary table of the CPC Details workspace. Historical data is enabled in this workspace.

This workspace contains the following views:

CPU Utilization

A plot chart, where the lines plot the percent CPU utilization for the virtual server over time. Data presented in this view is from the PR/SM Virtual Server attribute group.

Packets Discarded and Dropped

A bar chart that shows the numbers of discarded and dropped packets for the selected virtual server, where the X axis represents Packets Sent Discarded, Packets Received Discarded, Packets Sent Dropped, and Packets Received Dropped and the Y axis indicates the number of packets. Data presented in this view is from the PR/SM Virtual Server attribute group.

PR/SM Virtual Server CPU and Memory Details

A table showing the detailed CPU and memory metrics for a specific virtual server. Data presented in this table is from the PR/SM Virtual Server attribute group. Right-clicking on a link icon in this table links to the CPC Details workspace, filtered to show only data relevant to the selected central processor complex (CPC).

PR/SM Virtual Server Network Summary

A table showing network metrics aggregated over all the virtual network adapters and virtual networks of the virtual server. Data presented in this table is from the PR/SM Virtual Server attribute group. Right-clicking on a link icon in this table links to the CPC Details workspace, filtered to show only data relevant to the selected central processor complex (CPC).

Workload Resource Groups Summary

A table showing summary information for the workloads of which this virtual server is a member. Data presented in this table is from the Workload Virtual Server attribute group. Right-clicking on a link icon in this table links to the Workload Resource Group Details workspace, filtered to show only data relevant to the selected workload resource group.

x Hyp Virtual Server Details workspace

The x Hyp Virtual Server Details workspace displays detailed information about a specific virtual server on an x Hyp hypervisor and the CPU, memory and network utilization associated with the virtual server. This workspace is displayed when the user selects the x Hyp Virtual Server Details link from the Virtual Servers table of the Workload Resource Group Details workspace. This link is available for rows in the Virtual Servers table that have a Platform Type of x Hyp. This workspace is also available when the user selects the x Hyp Virtual Server Details link from the x Hyp Virtual Servers Summary table of the x Hyp Virtualization Host Details workspace. Historical data is enabled in this workspace.

This workspace contains the following views:

CPU Utilization and Delay

A plot chart, where the lines plot the percentage of CPU utilization and percentage of virtualization host CPU delay for the virtual server over time. Data presented in this view is from the x Hyp Virtual Server attribute group.

Packets Discarded and Dropped

A bar chart, where the bars represent the Packets Sent Discarded, Packets Received Discarded, Packets Sent Dropped, and Packets Received Dropped for this virtual server, and the height of each bar represents the number of packets. Data presented in this view is from the x Hyp Virtual Server attribute group.

x Hyp Virtual Server CPU and Memory Details

A table showing the detailed CPU and memory metrics of this virtual server. Data presented in this view is from the x Hyp Virtual Server attribute group. Right-clicking the link icon for a row in this table provides access to the x Hyp Virtualization Host Details workspace. If the GPMP Status is Operating, the OS Type indicates the operating system is Linux, and the TCPIP Hostname is available, then a conditional link is displayed to the Linux OS workspace of the Monitoring Agent for Linux OS instance associated with the selected virtual server. If this conditional link is not shown, then the Linux OS agent product workspaces are not available. If the GPMP Status is Operating, the OS Type indicates the operating system is Windows, and the TCPIP Hostname is available, then a conditional link is displayed to the Windows OS workspace of the Monitoring Agent for Windows OS instance associated with the selected virtual server. If this conditional link is not shown, then the Windows OS agent product workspaces are not available.

x Hyp Virtual Server Network Summary

A table showing network metrics aggregated over all the virtual network adapters and virtual networks of the virtual server. Data presented in this view is from the x Hyp Virtual Server attribute group. Right-clicking the link icon for a row in this table links to the x Hyp Virtualization Host Details workspace, filtered for the selected virtualization host. If the GPMP Status is Operating, the OS Type indicates the operating system is Linux, and the TCPIP Hostname is available, then a conditional link is displayed to the Linux OS workspace of the Monitoring Agent for Linux OS instance associated with the selected virtual server. If this conditional link is not shown, then the Linux OS agent product workspaces are not available. If the GPMP Status is Operating, the OS Type indicates the operating system is Windows, and the TCPIP Hostname is available, then a conditional link is displayed to the Windows OS workspace of the Monitoring Agent for Windows OS instance associated with the selected virtual server. If this conditional link is not shown, then the Windows OS agent product workspaces are not available.

Workload Resource Groups Summary

A table showing summary information for the workload resource groups of which this virtual server is a member, sorted so that the workload resource group with the highest Workload Service Level Index value appears first. Data presented in this view is from the

Workload Virtual Server attribute group. Right-clicking the link icon for a row in this table provides access to the Workload Resource Group Details workspace, filtered to show only data relevant to the selected Workload Resource Group.

x Hyp Virtualization Host Details workspace

The x Hyp Virtualization Host Details workspace displays detailed information about a specific virtualization host on a System x Blade, along with the resource (CPU, memory and network) utilization and virtual servers associated with the virtualization host. This workspace is displayed when the user selects the x Hyp Virtualization Host Details link from the Blades Summary table of the zBX Details workspace. This link is available only for rows in the Blades Summary table that have a Platform Type of System x. This workspace is also displayed when the user selects the x Hyp Virtualization Host Details link from either the x Hyp Virtual Server CPU and Memory Details table or the x Hyp Virtual Server Network Summary table of the x Hyp Virtual Server Details workspace. Historical data is enabled in this workspace.

This workspace contains the following views:

CPU, Memory, and Network Usage

A plot chart, where the lines plot the percentage of CPU utilization, percentage of memory utilization, and percentage of network utilization for the virtualization host over time. Data presented in this view is from the x Hyp Virtualization Host attribute group.

Storage Rate

A plot chart, where the line plots the storage transfer rate for the virtualization host over time. The X-axis shows times when the values were plotted, and the Y-axis shows storage transfer rate, expressed as KB per second. Data presented in this view is from the x Hyp Virtualization Host attribute group.

x Hyp Virtualization Host Details

A table showing the detailed CPU, memory, network, and I/O metrics of the virtualization host. Data presented in this view is from the x Hyp Virtualization Host attribute group. Right-clicking the link icon for a row in this table links to the x Hyp Virtual Host Storage Resources workspace, filtered to show only data relevant to the selected x Hyp virtualization host.

Virtual Server Configuration

A table showing the detailed virtual server configuration settings for the virtual servers hosted on this virtualization host. Only one row is presented in this table because the data is filtered by the selected virtualization host. Data presented in this view is from the x Hyp Virtualization Host attribute group. Right-clicking the link icon for a row in this table links to the x Hyp Virtual Host Storage Resources workspace, filtered to show only data relevant to the selected x Hyp virtualization host.

x Hyp Virtual Servers Summary

A table showing summary information for the virtual servers hosted on this virtualization host. The rows in this table are sorted so that by default, the rows with the highest CPU utilization appear first in the table. Data presented in this view is from the x Hyp Virtualization Host attribute group. Right-clicking the link icon for a row in this table links to the x Hyp Virtual Server Details workspace, filtered to show only data relevant to the selected x Hyp Virtual Server.

Uplinks Summary

A table showing network metrics for the uplinks associated with this virtualization host. Data presented in this view is from the Uplink attribute group.

x Hyp Virtualization Host Storage Resources workspace

The x Hyp Virtualization Host Storage Resources workspace displays information about the storage resources associated with a specific virtualization host on a System x Blade. This workspace is displayed when the user selects the x Hyp Virtualization Host Storage Resources link from the x Hyp Virtualization Host Details table of the x Hyp Virtualization Host Details workspace. Historical data is not enabled in this workspace.

This workspace contains the following views:

Total Storage Resources Size

A pie chart that shows the aggregated size of all storage resources (total size of

fibre-channel attached storage resources in GB) of the virtualization host. Data presented in this view is from the Storage Resource attribute group.

Storage Resources Summary

A table showing summary information for the storage resources for this virtualization host. Data presented in this view is from the Storage Resource attribute group.

z/VM Virtual Server Details workspace

The z/VM Virtual Server Details workspace displays detailed information about a specific virtual server on a z/VM hypervisor and the CPU, memory, and network utilization associated with the virtual server. This workspace is displayed when the user selects the z/VM Virtual Server Details link from the Virtual Servers table of the Workload Resource Group Details workspace. This link is available for rows in the Virtual Servers table that have a Platform Type of zvm. This is also displayed when the user selects z/VM Virtual Server Details link from the z/VM Virtual Servers Summary table of the z/VM Virtualization Host Details workspace. Historical data is enabled in this workspace.

This workspace contains the following views:

CPU Utilization and Delay

A plot chart, where the lines plot the percent CPU utilization and percent virtualization host CPU delay for the virtual server over time. Data presented in this view is from the z/VM Virtual Server attribute group.

Packets Discarded and Dropped

A bar chart that shows the numbers of discarded and dropped packets for the selected virtual server, where the X axis represents Packets Sent Discarded, Packets Received Discarded, Packets Sent Dropped, and Packets Received Dropped and the Y axis indicates the number of packets. Data presented in this view is from the z/VM Virtual Server attribute group.

z/VM Virtual Server CPU and Memory Details

A table showing the detailed CPU and memory metrics of the virtual server. Data presented in this table is from the z/VM Virtual Server attribute group. Right-clicking on a link icon in this table links to the z/VM Virtualization Host Details workspace, filtered to show only data relevant to the selected z/VM virtualization host.

z/VM Virtual Server Network Summary

A table showing network metrics aggregated over all the virtual network adapters and virtual networks of the virtual server. Data presented in this table is from the z/VM Virtual Server attribute group. Right-clicking on a link icon in this table links to the z/VM Virtualization Host Details workspace, filtered to show only data relevant to the selected z/VM virtualization host.

Workload Resource Groups Summary

A table showing summary information for the workloads of which this virtual server is a member. Data presented in this table is from the Workload Virtual Server attribute group. Right-clicking on a link icon in this table links to the Workload Resource Group Details workspace, filtered to show only data relevant to the selected workload resource group.

z/VM Virtualization Host Details workspace

The z/VM Virtualization Host Details workspace displays detailed information about a specific virtualization host representing a z/VM operating system instance, along with the resource (CPU, memory, and network) utilization and virtual servers associated with the virtualization host. This workspace is displayed when the user selects the z/VM Virtualization Host Details link from the Logical Partitions Summary table of the CPC Details workspace. This link is available for rows in the Logical Partitions Summary table that have a Platform Type of zvm. This link is also displayed when the user selects the z/VM Virtualization Host Details link from either the z/VM Virtual Server CPU and Memory Details table or the z/VM Virtual Server Network Summary table of the z/VM Virtual Server Details workspace. Historical data is enabled in this workspace.

This workspace contains the following views:

CPU, Memory, and Network Usage

A plot chart, where the lines plot the percent CPU utilization, percent memory utilization

and percent network utilization for the virtualization host over time.. Data presented in this view is from the z/VM Virtualization Host attribute group.

z/VM Virtualization Host Details

A table showing the detailed CPU, memory, network, and I/O metrics of the virtualization host. Data presented in this table is from the z/VM Virtualization Host attribute group.

Virtual Server Configuration

A table showing the detailed virtual server configuration settings for the virtual servers hosted on this virtualization host. Data presented in this table is from the z/VM Virtualization Host attribute group.

z/VM Virtual Servers Summary

A table showing summary information for the virtual servers hosted on this virtualization host. Data presented in this table is from the z/VM Virtual Server attribute group. Right-clicking on a link icon in this table links to the z/VM Virtual Server Details workspace, filtered to show only data relevant to the selected zVM virtual server.

Uplinks Summary

A table showing network metrics for the uplinks associated with this virtualization host. Data presented in this view is from the Uplink attribute group.

zBX Details workspace

The zBX Details workspace displays detailed information about a specific zEnterprise BladeCenter Extension (zBX) and the CPU and memory utilization of the blades in the zBX. This workspace is displayed when the user selects the zBX Details link from the zBX Summary table of the Ensemble Details workspace or a zBX node in the Ensembles Topology view or the Ensembles zBX Summary table of the Ensembles Summary workspace. Historical data is enabled for this workspace.

This workspace contains the following views:

Blades with Highest CPU Utilization

A bar chart that shows the top 10 blades with respect to CPU utilization, where each bar represents a blade and the height of the bar represents the percentage of CPU Utilization of that blade. Data presented in this view is from the Blade attribute group.

Blades with Highest Memory Utilization

A bar chart that shows the top 10 blades with respect to memory utilization, where each bar represents a blade and the height of the bar represents the percentage of Memory Utilization of that blade. Data presented in this view is from the Blade attribute group.

zBX Configuration and Status Summary

A table with only one row showing a summary of the zEnterprise BladeCenter Extension (zBX) configuration. Data presented in this view is from the BladeCenter Extension attribute group.

Blades Summary

A table showing a summary of the blades in this zEnterprise BladeCenter Extension (zBX). Data presented in this view is from the Blade attribute group. Right-clicking the link icon for a row in this table might cause a conditional link to be displayed, depending on the Platform Type. If the Platform Type is POWER, a conditional link to the PowerVM Virtualization Host Details workspace is displayed, filtered to show only the data relevant to the PowerVM virtualization host of the selected POWER blade. If the Platform Type is System x, a conditional link to the x Hyp Virtualization Host Details workspace is displayed, filtered to show only data relevant to the x Hyp virtualization host of the selected System x blade.

Workload Resource Groups Summary Navigator item

The workspace descriptions are organized by the Navigator item to which the workspaces are relevant.

Ensemble Workload Resource Groups Summary workspace

The Ensemble Workload Resource Groups Summary workspace displays summary information about the workload resource groups in a specific ensemble of the zEnterprise environment and the workload service level index and virtual server CPU utilization distribution of each workload

resource group. This workspace is displayed when the user selects the Ensemble Workload Resource Groups Summary link from the Ensembles Summary table of the Ensembles Summary workspace. Historical data is enabled in this workspace.

This workspace contains the following views:

Workload Service Level Index

A bar chart, where each bar represents one Workload Service Level Index value and the height of each bar represents the number of workload resource groups in the ensemble reporting that index value. Data presented in this view is from the Workload Resource Group attribute group.

Server CPU Distribution

A bar chart, where each bar represents a relative CPU utilization, either low (less than 40%), medium (between 40% - 90%), or high (greater than 90%), and the height of each bar is the number of virtual servers in the workload resource groups of the ensemble reporting that CPU utilization. Data presented in this view is from the Ensemble attribute group.

Workload Resource Groups Summary

A table showing all the workload resource groups in the ensemble and the associated summary attribute and metric information. This table is sorted so that workload resource groups with the highest Workload Service Level Index value appear first. Data presented in this view is from the Workload Resource Group attribute group. Right-clicking the link icon for a row in this table provides access to the Workload Resource Group Details workspace, filtered to show only the data relevant to the selected workload resource group.

Workload Resource Group Details workspace

The Workload Resource Group Details workspace displays detailed information about a specific workload resource group, including server CPU utilization distribution, the workload service level index trend of the workload resource group, the active performance policy for this workload resource group, its service classes, and the virtual servers associated with the workload resource group. This workspace is filtered to show only data that is relevant to the selected workload resource group and its active performance policy. This workspace is displayed when the user selects the Workload Resource Group Details link from the Workload Resource Groups Summary table of the Workload Resource Groups Summary workspace, the Ensemble Workload Resource Groups Summary workspace, the PowerVM Virtual Server Details workspace or the x Hyp Virtual Server Details workspace. Historical data is enabled in this workspace.

This workspace contains the following views:

Server CPU Distribution

A bar chart, where each bar represents a relative CPU utilization, either low (less than 40%), medium (between 40% and 90%), or high (greater than 90%), and the height of each bar is the number of virtual servers in the named workload resource group reporting that CPU utilization. Data presented in this view is from the Workload Resource Group attribute group.

Workload Service Level Index

A plot chart representing the Workload Service Level Index of the named workload resource group over time. The X-axis shows the time associated with each value plotted in the line chart, and the Y-axis shows the Workload Service Level Index value. Data presented in this view is from the Workload Resource Group attribute group.

Workload Resource Group Details

A table showing the detailed attributes and metrics of the named workload resource group. Data presented in this view is from the Workload Resource Group attribute group.

Performance Policy

A table showing the detailed attributes of the active performance policy for the named workload resource group. Data presented in this view is from the Performance Policy attribute group.

Service Classes

A table showing the service classes in the active performance policy of the named

workload resource group and the associated attribute and metric information. Data presented in this view is from the Service Class attribute group.

Virtual Servers

A table showing the virtual servers in the named workload resource group and the associated attribute and metric information. Data presented in this view is from the Workload Virtual Server attribute group. If the Platform Type of the virtual server is PowerVM or x Hyp, a conditional link to the PowerVM or x Hyp Virtual Server Details workspace is available, filtered to show only data relevant to the selected virtual server. If the Platform Type of the workload resource group is x Hyp, the GPMP Status is Operating, the OS Type indicates the operating system is Windows, and the TCPIP Hostname is available, then a conditional link is displayed to the Windows OS workspace of the Monitoring Agent for Windows OS instance associated with the selected virtual server. If the Platform Type of the workload resource group is PowerVM, the GPMP Status is Operating, the OS Type indicates the operating system is AIX, and the TCPIP Hostname is available, a conditional link is displayed to the UNIX OS workspace of the Monitoring Agent for UNIX OS instance associated with the selected virtual server. If the GPMP Status is Operating, the OS Type indicates the operating system is Linux, and the TCPIP Hostname is available, then a conditional link is displayed to the Linux OS workspace of the Monitoring Agent for Linux OS instance associated with the selected virtual server. Note that links to the Linux OS workspace for zVM virtual servers may not work properly if the zVM guest name and TCPIP hostname for the target virtual server are not the same. If any of these OS conditional links is not shown, then the Linux, UNIX, or Windows OS agent product workspaces are not available.

Workload Resource Groups Summary workspace

The Workload Resource Groups Summary workspace displays summary information about the workload resource groups in the zEnterprise environment and the workload service level indexes and virtual server CPU utilization distribution of those workload resources groups. This workspace is displayed when the user clicks the Workload Resource Groups Summary item in the Navigator pane. Historical data is enabled for this workspace.

This workspace contains the following views:

Workload Service Level Index

A bar chart, where each bar represents one Workload Service Level Index value and the height of each bar represents the number of workload resource groups reporting that index value. Data presented in this view is summarized from the Workload Resource Group attribute group.

Server CPU Distribution

A bar chart, where each bar represents a relative CPU utilization, either low (less than 40%), medium (between 40% and 90%), or high (greater than 90%), and the height of each bar is the number of virtual servers in the workload resource group reporting that CPU utilization. Data presented in this view is summarized from the Ensemble attribute group.

Workload Resource Groups Summary

A table showing all the workload resource groups in the zEnterprise environment and the associated attribute and summary metric information, sorted so that workload resource groups with the highest Workload Service Level Index value appear first. Data presented in this view is from the Workload Resource Group attribute group. Right-clicking the link icon for a row in this table provides access to the Workload Resource Group Details workspace.

Dynamic workspace links

Dynamic workspace linking allows you to easily navigate between workspaces that are provided by multiple products.

This feature aids problem determination and improves integration across different monitoring agents, allowing you to quickly determine the root cause of a problem. Predefined cross-product links provided

by the Tivoli zEnterprise monitoring agent allow you to obtain additional information about systems, subsystems, resources, or network components that are being monitored by other monitoring agents.

When you right-click a link, the list of links is displayed. This list might contain links to workspaces provided by one or more monitoring agents. The monitoring agents you are linking to must be installed and configured.

Note: Your Tivoli Enterprise Portal user ID must be authorized to access the target product. Otherwise links to workspaces in the targeted monitoring agent are not included in the list.

Table 4. Dynamic workspace links

Tivoli zEnterprise monitoring agent workspace	Target application or monitoring agent	Name of workspace in target application or monitoring agent	Attributes used to enable/disable the dynamic workspace link	Attributes used to locate target workspace
CPC Details System	OMEGAMON XE on z/VM and Linux	System	• Name • OS Type	• Name • OS Type
PowerVM Virtual Server Details	IBM Tivoli Monitoring: UNIX OS Agent	UNIX OS	• Platform Type • GPMP Status • OS Name • OS Type • TCPIP Hostname	• Platform Type • OS Name • OS Type • TCPIP Hostname
Workload Resource Group Details	IBM Tivoli Monitoring: Linux OS Agent	Linux OS	• Platform Type • GPMP Status • OS Name • OS Type • TCPIP Hostname	• Platform Type • OS Name • OS Type • TCPIP Hostname
Workload Resource Group Details	IBM Tivoli Monitoring: Windows OS Agent	Windows OS	• Platform Type • GPMP Status • OS Name • OS Type • TCPIP Hostname	• Platform Type • OS Name • OS Type • TCPIP Hostname
Workload Resource Group Details	IBM Tivoli Monitoring: UNIX OS Agent	UNIX OS	• Platform Type • GPMP Status • OS Name • OS Type • TCPIP Hostname	• Platform Type • OS Name • OS Type • TCPIP Hostname
x Hyp Virtual Server Details	IBM Tivoli Monitoring: Windows OS Agent	Windows OS	• Platform Type • GPMP Status • OS Name • OS Type • TCPIP Hostname	• Platform Type • OS Name • OS Type • TCPIP Hostname
x Hyp Virtual Server Details	IBM Tivoli Monitoring: Linux OS Agent	Linux OS	• Platform Type • GPMP Status • OS Name • OS Type • TCPIP Hostname	• Platform Type • OS Name • OS Type • TCPIP Hostname

Chapter 4. Attributes reference

Attributes are the application properties that are being measured and reported by the Tivoli zEnterprise Monitoring Agent.

About attributes

Attributes are organized into attribute groups. Attributes in an attribute group relate to a single object such as an application, or to a single kind of data such as status information.

Attributes in a group can be used in queries, query-based views, situations, policy workflows, take action definitions, and launch application definitions. Chart or table views and situations are two examples of how attributes in a group can be used:

- Chart or table views

Attributes are displayed in chart and table views. The chart and table views use queries to specify which attribute values to request from a monitoring agent. You use the Properties editor to apply filters and set styles to define the content and appearance of a view based on an existing query.

- Situations

You use attributes to create situations that monitor the state of your operating system, database, or application. A situation describes a condition you want to test. When you start a situation, the values you assign to the situation attributes are compared with the values collected by the Tivoli zEnterprise Monitoring Agent and registers an *event* if the condition is met. You are alerted to events by indicator icons that are displayed in the Navigator.

Additional information about attributes

For more information about using attributes and attribute groups, see the *Tivoli Enterprise Portal User's Guide*.

For a list of the attribute groups, a list of the attributes in each attribute group, and descriptions of the attributes for this monitoring agent, see “Attribute groups for the monitoring agent” and “Attributes in each attribute group” on page 33.

Attribute groups for the monitoring agent

The Tivoli zEnterprise Monitoring Agent contains the following attribute groups. The table name depends on the maximum table name limits of the target database being used for the Tivoli Data Warehouse. If the maximum name is 30 characters, any warehouse table name longer than 30 characters is shortened to 30 characters.

- Attribute group name: Blade
 - Table name: KZEBLADE
 - Warehouse table name: KZE_BLADE
- Attribute group name: BladeCenter Extension
 - Table name: KZEZBX
 - Warehouse table name: KZE_BLADECENTER_EXTENSION or KZEZBX
- Attribute group name: Central Processor Complex
 - Table name: KZECPC
 - Warehouse table name: KZE_CENTRAL_PROCESSOR_COMPLEX or KZECPC
- Attribute group name: Data Source

- Table name: KZEECCDS
- Warehouse table name: KZE_DATA_SOURCE or KZEECCDS
- Attribute group name: Ensemble
 - Table name: KZEENSEMBL
 - Warehouse table name: KZE_ENSEMBLE or KZEENSEMBL
- Attribute group name: Logical Partition
 - Table name: KZELPAR
 - Warehouse table name: KZE_LOGICAL_PARTITION or KZELPAR
- Attribute group name: Performance Object Status
 - Table name: KZEPOBJST
 - Warehouse table name: KZE_PERFORMANCE_OBJECT_STATUS or KZEPOBJST
- Attribute group name: Performance Policy
 - Table name: KZEPERFPOL
 - Warehouse table name: KZE_PERFORMANCE_POLICY or KZEPERFPOL
- Attribute group name: PowerVM Virtual Server
 - Table name: KZEPVMVSV
 - Warehouse table name: KZE_POWERVM_VIRTUAL_SERVER or KZEPVMVSV
- Attribute group name: PowerVM Virtualization Host
 - Table name: KZEPVMVH
 - Warehouse table name: KZE_POWERVM_VIRTUALIZATION_HOST or KZEPVMVH
- Attribute group name: PRSM Virtual Server
 - Table name: KZEMVMVSV
 - Warehouse table name: KZE_PRSM_VIRTUAL_SERVER or KZEMVMVSV
- Attribute group name: PRSM Virtualization Host
 - Table name: KZEPRSMVH
 - Warehouse table name: KZE_PRSM_VIRTUALIZATION_HOST or KZEPRSMVH
- Attribute group name: Service Class
 - Table name: KZESVCLASS
 - Warehouse table name: KZE_SERVICE_CLASS or KZESVCLASS
- Attribute group name: Storage Resource
 - Table name: KZEVHSTRSC
- Attribute group name: Take Action Status
 - Table name: KZETACTST
 - Warehouse table name: KZE_TAKE_ACTION_STATUS or KZETACTST
- Attribute group name: Thread Pool Status
 - Table name: KZETHPLST
 - Warehouse table name: KZE_THREAD_POOL_STATUS or KZETHPLST
- Attribute group name: Topology
 - Table name: KZETOPO
- Attribute group name: Uplink
 - Table name: KZEUPLINK
 - Warehouse table name: KZE_UPLINK
- Attribute group name: Virtual Network
 - Table name: KZEVNET
 - Warehouse table name: KZE_VIRTUAL_NETWORK or KZEVNET

- Attribute group name: Workload Resource Group
 - Table name: KZEWKLOAD
 - Warehouse table name: KZE_WORKLOAD_RESOURCE_GROUP or KZEWKLOAD
- Attribute group name: Workload Virtual Server
 - Table name: KZEWKLVSV
 - Warehouse table name: KZE_WORKLOAD_VIRTUAL_SERVER or KZEWKLVSV
- Attribute group name: x Hyp Virtual Server
 - Table name: KZEXVMVSV
 - Warehouse table name: KZE_X_HYP_VIRTUAL_SERVER or KZEXVMVSV
- Attribute group name: x Hyp Virtualization Host
 - Table name: KZEXVMVH
 - Warehouse table name: KZE_X_HYP_VIRTUALIZATION_HOST or KZEXVMVH
- Attribute group name: zVM Virtual Server
 - Table name: KZEZVMVSV
 - Warehouse table name: KZE_ZVM_VIRTUAL_SERVER or KZEZVMVSV
- Attribute group name: zVM Virtualization Host
 - Table name: KZEZVMVH
 - Warehouse table name: KZE_ZVM_VIRTUALIZATION_HOST or KZEZVMVH

Attributes in each attribute group

Attributes in each Tivoli zEnterprise Monitoring Agent attribute group collect data that the agent uses for monitoring.

The descriptions of the attribute groups contain the following information:

Historical group

Whether the attribute group is a historical type that you can roll off to a data warehouse.

Attribute descriptions

Information such as description, type, source, and warehouse name, as applicable, for each attribute in the attribute group.

Some attributes are designated as key attributes. A *key attribute* is an attribute that is used in warehouse aggregation to identify rows of data that represent the same object.

The Source information sometimes uses C programming code syntax for if-then-else clauses to describe how an attribute is derived, for example:

```
(CPU_Pct < 0 ) || (Memory_Pct < 0 )? 0 : 1
```

This example means that if the CPU_Pct attribute is less than 0 or if the Memory_Pct attribute is less than 0, then the attribute is set to 0. Otherwise, the attribute is set to 1.

Blade attribute group

The Blade attribute group represents the characteristics and aggregated metrics of a zBX blade.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Blade attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type	String
Warehouse name	NODE
<u>Timestamp attribute</u>	
Description	The local time at the agent when the data was collected.
Type	String
Warehouse name	TIMESTAMP
<u>Interval End Time attribute</u>	
Description	The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.
Type	Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • NOT COLLECTED (0691231190000000) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	INTERVAL_END_TIME or BLDINTTIME
<u>Interval Length attribute</u>	
Description	The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	INTERVAL_LENGTH or BLDINTLEN
<u>Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the blade. The identifier is permanently assigned by the zManager when the object is first created or discovered.
Type	String
Warehouse name	OBJECT_ID or BLDOBJID
<u>Name attribute</u>	
Description	The display name of the blade.
Type	String
Warehouse name	NAME or BLDNAME
<u>HMC Object ID attribute: This attribute is a key attribute.</u>	

Description

The unique object identifier of the System z Hardware Management Console (HMC) that manages the zEnterprise BladeCenter Extension (zBX) in which this blade is found.

Type

String

Warehouse name

HMC_OBJECT_ID or BLDHMCID

HMC Name attribute**Description**

The name of the System z Hardware Management Console (HMC) that provided the information for this zEnterprise BladeCenter Extension (zBX) blade.

Type

String

Warehouse name

HMC_NAME or BLDHMCNAME

Ensemble Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the ensemble to which the central processor complex (CPC) of this zEnterprise BladeCenter Extension (zBX) blade is a member. If this field is empty, the CPC is not a member of an ensemble.

Type

String

Warehouse name

ENSEMBLE_OBJECT_ID or BLDENSID

Ensemble Name attribute**Description**

The display name of the ensemble to which the central processor complex (CPC) of this zEnterprise BladeCenter Extension (zBX) blade is a member. If this field is empty, the CPC is not a member of an ensemble.

Type

String

Warehouse name

ENSEMBLE_NAME or BLDENSNAME

CPC Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the central processor complex (CPC) for this zEnterprise BladeCenter Extension (zBX) blade.

Type

String

Warehouse name

CPC_OBJECT_ID or BLDCPCID

CPC Name attribute**Description**

The display name of the central processor complex (CPC) for this zEnterprise BladeCenter Extension (zBX) blade.

Type

String

Warehouse name

CPC_NAME or BLDCPCNAME

zBX Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the zEnterprise BladeCenter Extension (zBX) of this blade.

Type

String

Warehouse name	
ZBX_OBJECT_ID or BLDZBXID	
<u>zBX Name attribute</u>	
Description	The display name of the zEnterprise BladeCenter Extension (zBX) of this blade.
Type	String
Warehouse name	
ZBX_NAME or BLDZBXNAME	
<u>Virtualization Host ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the virtualization host for this zEnterprise BladeCenter Extension (zBX) blade. This field is blank if this blade type does not support a virtualization host.
Type	String
Warehouse name	
VIRTUALIZATION_HOST_ID or BLDVHSID	
<u>Virtualization Host Name attribute</u>	
Description	The display name of the virtualization host for this zEnterprise BladeCenter Extension (zBX) blade. This field is blank if this blade type does not support a virtualization host.
Type	String
Warehouse name	
VIRTUALIZATION_HOST_NAME or BLDVHSNAME	
<u>Status attribute</u>	
Description	Indicates the current operational status of this blade.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Operating (1) • Not Operating (2) • Status Check (3) • Not Communicating (4) • Definition Error (5) • No Power (6) • Stopped (7) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
STATUS or BLDSTATUS	
<u>Platform Type attribute</u>	
Description	Indicates the platform type of the blade.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • POWER (1) • System x (2)

- ISAOPT (5)
- DPXI50Z (6)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PLATFORM_TYPE or BLDPLATFORM

CPU Count attribute

Description

The number of processors on this zEnterprise BladeCenter Extension (zBX) blade.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CPU_COUNT or BLDPCUCNT

Memory Size (MB) attribute

Description

The memory size of this zEnterprise BladeCenter Extension (zBX) blade, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MEMORY_SIZE_MB or BLDMEMSIZE

Machine Type attribute

Description

The machine type of this blade.

Type

String

Warehouse name

MACHINE_TYPE or BLDMTYPE

Machine Model attribute

Description

The machine model of this blade.

Type

String

Warehouse name

MACHINE_MODEL or BLDMMODEL

Machine Serial Number attribute

Description

The machine serial number of this blade.

Type

String

Warehouse name	
MACHINE_SERIAL_NUMBER or BLDMSERIAL	
<u>Location attribute</u>	
Description	The location of the blade within the zEnterprise BladeCenter Extension (zBX) rack, expressed as RxxBBSyy, where RxxB is the BladeCenter vertical position in the rack and BSyy is the physical slot of the blade.
Type	String
Warehouse name	
LOCATION or BLDLOC	
<u>ISAOPT Mode attribute</u>	
Description	The mode of the IBM Smart Analytics Optimizer (ISAOPT) blade. This field is Not Applicable if the blade is not an ISAOPT blade.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Not Applicable (1) • Worker (2) • Coordinator (3) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
ISAOPT_MODE or BLDISAOPTM	
<u>Blade HW Messages attribute</u>	
Description	Indicates whether this blade has any hardware messages.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
BLADE_HW_MESSAGES or BLDHWMSG	
<u>Blade Slot attribute</u>	
Description	The slot number of this blade.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
BLADE_SLOT or BLDSLOT	

Blade CPU Utilization attribute

Description

The percentage of processor utilization for this blade, as measured at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BLADE_CPU_UTILIZATION or BLDGPU

Blade Memory Utilization attribute

Description

The percentage of memory utilization for this blade, as measured at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BLADE_MEMORY_UTILIZATION or BLDMEM

BladeCenter Extension attribute group

The zEnterprise BladeCenter Extension (zBX) attribute group represents the characteristics and aggregated metrics of a zEnterprise BladeCenter Extension.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the BladeCenter Extension attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute

Description

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or ZBXINTTIME

Interval Length attribute**Description**

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or ZBXINTLEN

Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the zEnterprise BladeCenter Extension (zBX). The identifier is permanently assigned by the zManager when the object is first created or discovered.

Type

String

Warehouse name

OBJECT_ID or ZBXOBJID

Name attribute**Description**

The display name of the zEnterprise BladeCenter Extension (zBX). This 21-character name is made up of the machine type, model, and serial number.

Type

String

Warehouse name

NAME or ZBXNAME

HMC Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the System z Hardware Management Console that manages the central processor complex (CPC) of this zEnterprise BladeCenter Extension (zBX).

Type

String

Warehouse name

HMC_OBJECT_ID or ZBXHMCID

HMC Name attribute

Description

The name of the System z Hardware Management Console (HMC) that provided the information for this zEnterprise BladeCenter Extension (zBX).

Type

String

Warehouse name

HMC_NAME or ZBXHMCNAME

Ensemble Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the ensemble of which the central processor complex (CPC) for this zEnterprise BladeCenter Extension (zBX) is a member.

Type

String

Warehouse name

ENSEMBLE_OBJECT_ID or ZBXENSID

Ensemble Name attribute**Description**

The display name of the ensemble of which the central processor complex (CPC) for this zEnterprise BladeCenter Extension (zBX) is an ensemble node.

Type

String

Warehouse name

ENSEMBLE_NAME or ZBXENSNAME

CPC Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the central processor complex (CPC) for this zEnterprise BladeCenter Extension (zBX). If this field is empty, the CPC is not a member of an ensemble.

Type

String

Warehouse name

CPC_OBJECT_ID or ZBXCPCID

CPC Name attribute**Description**

The display name of the central processor complex (CPC) for this zEnterprise BladeCenter extension (zBX). If this field is empty, the CPC is not a member of an ensemble.

Type

String

Warehouse name

CPC_NAME or ZBXCPCNAME

Machine Type attribute**Description**

The machine type of this zEnterprise BladeCenter Extension (zBX).

Type

String

Warehouse name

MACHINE_TYPE or ZBXMTYPE

Machine Model attribute**Description**

The machine model of this zEnterprise BladeCenter Extension (zBX).

Type

String

Warehouse name

MACHINE_MODEL or ZBXMMODEL

Machine Serial Number attribute

Description

The machine serial number of this zEnterprise BladeCenter Extension (zBX).

Type

String

Warehouse name

MACHINE_SERIAL_NUMBER or ZBXMSERIAL

BladeCenter HW Messages attribute**Description**

Indicates whether any BladeCenter in this zEnterprise BladeCenter Extension (zBX) currently has a hardware message.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BLADECENTER_HW_MESSAGES or ZBXBCHWMSG

Percent BladeCenters Operating attribute**Description**

The percentage of BladeCenters in this zEnterprise BladeCenter Extension (zBX) that are showing a value of Operating for the Status attribute.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PERCENT_BLADECENTERS_OPER or ZBXBCOPER

Blade HW Messages attribute**Description**

Indicates whether any of the blades in this zEnterprise BladeCenter Extension (zBX) has a hardware message.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BLADE_HW_MESSAGES or ZBXBHWMSG

Percent Blades Operating attribute**Description**

The percentage of blades in this zEnterprise BladeCenter Extension (zBX) that are showing a value of Operating for the Status attribute.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PERCENT_BLADES_OPERATING or ZBXPOPER

PowerVM CPU Utilization attribute**Description**

The percentage of processor utilization averaged across all PowerVM virtualization hosts in the zEnterprise BladeCenter Extension (zBX), as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

POWERVM_CPU_UTILIZATION or ZBXPVMCPU

PowerVM Memory Utilization attribute**Description**

The percentage of memory utilization averaged across all PowerVM virtualization hosts in the zEnterprise BladeCenter Extension (zBX), as measured at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

POWERVM_MEMORY_UTILIZATION or ZBXPVMMEM

x Hyp CPU Utilization attribute**Description**

The percentage of CPU utilization averaged across all the x Hyp virtualization hosts in the zEnterprise BladeCenter Extension (zBX), as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
X_HYP_CPU_UTILIZATION or ZBXXVMCPU	
<u>x Hyp Memory Utilization attribute</u>	
Description	The percentage of memory utilization averaged across all x Hyp virtualization hosts in the zEnterprise BladeCenter Extension (zBX), as measured at the end of the last monitoring interval.
Type	Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
X_HYP_MEMORY_UTILIZATION or ZBXXVMMEM	
<u>POWER Current Entitlements attribute</u>	
Description	The current number of blades that are entitled as POWER IBM blades in the zEnterprise BladeCenter Extension (zBX).
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
POWER_CURRENT_ENTITLE or ZBXPABCENT	
<u>POWER Maximum Entitlements attribute</u>	
Description	The maximum number of blades that are licensed to be entitled as POWER IBM blades in the zEnterprise BladeCenter Extension (zBX).
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
POWER_MAXIMUM_ENTITLE or ZBXPABMENT	
<u>System x Current Entitlements attribute</u>	
Description	The current number of blades that are entitled as System x IBM blades in the zEnterprise BladeCenter Extension (zBX).
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647)

- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

SYSTEM_X_CURRENT_ENTITLE or ZBXXABCENT

System x Maximum Entitlements attribute

Description

The maximum number of blades that are licensed to be entitled as System x IBM blades in the zEnterprise BladeCenter Extension (zBX).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

SYSTEM_X_MAXIMUM_ENTITLE or ZBXXABMENT

ISAOPT Current Entitlements attribute

Description

The current number of blades that are entitled as IBM Smart Analytics Optimizer (ISAOPT) blades in the zEnterprise BladeCenter Extension (zBX).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ISAOPT_CURRENT_ENTITLE or ZBXISACENT

ISAOPT Maximum Entitlements attribute

Description

The maximum number of blades that are licensed to be entitled as IBM Smart Analytics Optimizer (ISAOPT) blades in the zEnterprise BladeCenter Extension (zBX).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ISAOPT_MAXIMUM_ENTITLE or ZBXISAMENT

DPXI50Z Current Entitlements attribute

Description

The current number of blades that are entitled as DataPower XI50 (DPXI50Z) blades in the zEnterprise BladeCenter Extension (zBX).

Type

Integer (32-bit numeric property) with enumerated values. The strings are

displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

DPXI50Z_CURRENT_ENTITLE or ZBXDPXCENT

DPXI50Z Maximum Entitlements attribute

Description

The maximum number of blades that are licensed to be entitled as DataPower XI50 (DPXI50Z) blades in the zEnterprise BladeCenter Extension (zBX).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

DPXI50Z_MAXIMUM_ENTITLE or ZBXDPXMMENT

Rack Count attribute

Description

The number of racks in this zEnterprise BladeCenter Extension (zBX) configuration.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

RACK_COUNT or ZBXRACKCNT

BladeCenter Count attribute

Description

The number of BladeCenters in this zEnterprise BladeCenter Extension (zBX) configuration.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BLADECENTER_COUNT or ZBXBCCNT

BladeCenters with Hardware Messages attribute

Description

The number of BladeCenters in this zEnterprise BladeCenter Extension (zBX) configuration that have hardware messages.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BLADECENTERS_WITH_HW_MSGS or ZBXBCMCNT

Blade Count attribute**Description**

The number of blades in this zEnterprise BladeCenter Extension (zBX) configuration.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BLADE_COUNT or ZBXBCNT

Blades with Hardware Messages attribute**Description**

The number of blades in this zEnterprise BladeCenter Extension (zBX) configuration that have hardware messages.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BLADES_WITH_HW_MSGS or ZBXBMCNT

Central Processor Complex attribute group

The Central Processor Complex (CPC) attribute group represents the characteristics and aggregated metrics of a central processor complex.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Central Processor Complex attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute**Description**

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute**Description**

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or CPCINTTIME

Interval Length attribute**Description**

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or CPCINTLEN

Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the central processor complex (CPC). The identifier is permanently assigned by the zManager when the object is first created or discovered.

Type

String

Warehouse name

OBJECT_ID or CPCOBJID

Name attribute**Description**

The display name of the central processor complex (CPC).

Type

String

Warehouse name

NAME or CPCNAME

Description attribute**Description**

Customer-defined text describing the central processor complex (CPC). Longer descriptions are truncated to 256 characters.

Type	String
Warehouse name	DESCRIPTION or CPCDESC
<u>HMC Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the System z Hardware Management Console (HMC) that manages this central processor complex (CPC).
Type	String
Warehouse name	HMC_OBJECT_ID or CPCHMCID
<u>HMC Name attribute</u>	
Description	The name of the System z Hardware Management Console (HMC) that provided the information for this central processor complex (CPC).
Type	String
Warehouse name	HMC_NAME or CPCHMCNAME
<u>Ensemble Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the ensemble of which this central processor complex (CPC) is a member. If this field is empty, the CPC is not a member of an ensemble.
Type	String
Warehouse name	ENSEMBLE_OBJECT_ID or CPCENSID
<u>Ensemble Name attribute</u>	
Description	The display name of the ensemble on which this central processor complex (CPC) is an ensemble node. If this field is empty, the CPC is not a member of an ensemble.
Type	String
Warehouse name	ENSEMBLE_NAME or CPCENSNAME
<u>Status attribute</u>	
Description	The current operational status of the central processor complex (CPC).
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Operating (1) • Not Communicating (2) • Exceptions (3) • Status Check (4) • Service (5) • Not Operating (6) • No Power (7) • Service Required (8) • Degraded (9) • Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

STATUS or CPCSTATUS

PR/SM CPU Utilization attribute

Description

The percentage of processor utilization averaged across all Processor Resource/System Manager (PR/SM) virtualization hosts in the central processor complex (CPC), as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PRSM_CPU_UTILIZATION or CPCPRSMCPU

PR/SM Memory Utilization attribute

Description

The percentage of memory utilization averaged across all Processor Resource/System Manager (PR/SM) virtualization hosts in the central processor complex (CPC), as measured at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PRSM_MEMORY_UTILIZATION or CPCPRSMMEM

z/VM CPU Utilization attribute

Description

The percentage of processor utilization averaged across all z/VM virtualization hosts in the central processor complex (CPC), as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ZVM_CPU_UTILIZATION or CPCZVMCPU

z/VM Memory Utilization attribute

Description

The percentage of memory utilization averaged across all z/VM virtualization hosts in the central processor complex (CPC), as measured at the end of the last monitoring interval.

Type	Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	ZVM_MEMORY_UTILIZATION or CPCZVMMEM
<u>General Purpose CPU Count attribute</u>	
Description	The number of active general purpose processors in the central processor complex (CPC).
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	GENERAL_PURPOSE_CPU_COUNT or CPCGPPCNT
<u>IFL CPU Count attribute</u>	
Description	The number of active Integrated Facility for Linux (IFL) processors in the central processor complex (CPC).
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	IFL_CPU_COUNT or CPCIFLCNT
<u>ICF CPU Count attribute</u>	
Description	The number of active Internal Coupling Facility (ICF) processors in the central processor complex (CPC).
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	ICF_CPU_COUNT or CPCICFCNT
<u>zIIP CPU Count attribute</u>	

Description

The number of active Integrated Information Processor (zIIP) processors in the central processor complex (cpc).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ZIIP_CPU_COUNT or CPCIIPCNT

zAAP CPU Count attribute**Description**

The number of active Application Assist Processor (zAAP) processors in the central processor complex (CPC).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ZAAP_CPU_COUNT or CPCAAPCNT

Service Assist CPU Count attribute**Description**

The number of active service assist processors in the central processor complex (CPC).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

SERVICE_ASSIST_CPU_COUNT or CPCSACNT

Defective CPU Count attribute**Description**

The number of defective processors of all processor types in the central processor complex (CPC).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
DEFECTIVE_CPU_COUNT or CPCDEFCNT	
<u>Spare CPU Count attribute</u>	
Description	The number of spare processors of all processor types in the central processor complex (CPC).
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
SPARE_CPU_COUNT or CPCSPRCNT	
<u>Support Element Version attribute</u>	
Description	The current release level of the primary support element (SE) internal code. The alternate SE is usually at the same level as the primary SE unless new internal code levels are being installed.
Type	String
Warehouse name	
SUPPORT_ELEMENT_VERSION or CPCSEVER	
<u>CPC HW Messages attribute</u>	
Description	Indicates whether this central processor complex (CPC) has hardware messages.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
CPC_HW_MESSAGES or CPCHWMSG	
<u>Machine Model attribute</u>	
Description	The model of the machine containing this central processor complex (for example, M15).
Type	String
Warehouse name	
MACHINE_MODEL or CPCMMODEL	
<u>Machine Type attribute</u>	
Description	The type of the machine containing this central processor complex (for example, 2817).
Type	String
Warehouse name	
MACHINE_TYPE or CPCMTYPE	

Machine Serial Number attribute

Description

The serial number of the machine containing this central processor complex (CPC).

Type

String

Warehouse name

MACHINE_SERIAL_NUMBER or CPCMSERIAL

CPU Utilization attribute

Description

The percentage of processor utilization for this central processor complex (CPC), at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CPU_UTILIZATION or CPCCPU

Channel Utilization attribute

Description

The percentage of channel utilization for this central processor complex (CPC), at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CHANNEL_UTILIZATION or CPCCHAN

CP Shared CPU Utilization attribute

Description

The percentage of processor utilization for all central processor (CP) shared processors, reported as 0 (zero) if no processors of this type are found.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CP_SHARED_CPU_UTIL or CPCCPSCPU

CP Dedicated CPU Utilization attribute

Description

The percentage of processor utilization for all central processor (CP) dedicated processors, reported as 0 (zero) if no processors of this type are found.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CP_DEDICATED_CPU_UTIL or CPCCPDPCPU

IFL Shared CPU Utilization attribute**Description**

The percentage of processor utilization for all Integrated Facility for Linux (IFL) shared processors, reported as 0 (zero) if no processors of this type are found.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

IFL_SHARED_CPU_UTIL or CPCIFLSCPU

IFL Dedicated CPU Utilization attribute**Description**

The percentage of processor utilization for all Integrated Facility for Linux (IFL) dedicated processors, reported as 0 (zero) if no processors of this type are found.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

IFL_DEDICATED_CPU_UTIL or CPCIFLDCPU

ICF Shared CPU Utilization attribute**Description**

The percentage of processor utilization for all Internal Coupling Facility (ICF) shared processors, reported as 0 (zero) if no processors of this type are found.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ICF_SHARED_CPU_UTIL or CPCICFSCPU

ICF Dedicated CPU Utilization attribute

Description

The percentage of processor utilization for all Internal Coupling Facility (ICF) dedicated processors, reported as 0 (zero) if no processors of this type are found.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ICF_DEDICATED_CPU_UTIL or CPCICFDCPU

zIIP Shared CPU Utilization attribute**Description**

The percentage of processor utilization for all Integrated Information Processor (zIIP) shared processors, reported as 0 (zero) if no processors of this type are found.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ZIIP_SHARED_CPU_UTIL or CPCIIPSCPU

zIIP Dedicated CPU Utilization attribute**Description**

The percentage of processor utilization for all Integrated Information Processor (zIIP) dedicated processors, reported as 0 (zero) if no processors of this type are found.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ZIIP_DEDICATED_CPU_UTIL or CPCIIPDCPU

zAAP Shared CPU Utilization attribute**Description**

The percentage of processor utilization for all Application Assist Processor (zAAP) shared processors, reported as 0 (zero) if no processors of this type are found.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ZAAP_SHARED_CPU_UTIL or CPCAAPSCPU

zAAP Dedicated CPU Utilization attribute

Description

The percentage of processor utilization for all Application Assist Processor (zAAP) dedicated processors, reported as 0 (zero) if no processors of this type are found.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ZAAP_DEDICATED_CPU_UTIL or CPCAAPDCPU

All Shared CPU Utilization attribute

Description

The percentage of processor utilization for all shared processors, reported as 0 (zero) if no shared processors are found.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ALL_SHARED_CPU_UTIL or CPCALLSCPU

All Dedicated CPU Utilization attribute

Description

The percentage of processor utilization for all dedicated processors, reported as 0 (zero) if no dedicated processors are found.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ALL_DEDICATED_CPU_UTIL or CPCALLDCPU

Data Source attribute group

Enterprise Common Collector Data Sources

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Data Source attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Name attribute: This attribute is a key attribute.

Description

The name of the data source, as defined to the Enterprise Common Collector.

Type

String

Warehouse name

NAME or CDSNAME

Description attribute

Description

Customer-defined text describing the data source. Longer descriptions are truncated to 256 characters.

Type

String

Warehouse name

DESCRIPTION or CDSDESC

Enabled attribute

Description

Indicates whether the data source is enabled for the Enterprise Common Collector (ECC), meaning that the ECC can collect metrics from this data source.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ENABLED or CDSEENABLED

Disabled Reason Code attribute

Description

Indicates the reason the data source is disabled.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Unknown (0)
- Not Applicable (1)
- Not Yet Enabled (2)
- User Disabled (3)

- Data Source Unreachable (4)
- Runtime Error (5)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

DISABLED_REASON_CODE or CDSDISBLRC

Status attribute

Description

The current operational status of the data source.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Applicable (1)
- Connected (2)
- Connecting (3)
- Data Source Unreachable (4)
- Disconnected (5)
- In Doubt (6)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

STATUS or CDSSTATUS

Status Reason Code attribute

Description

Indicates the reason for the current operational status of the data source. Check the log for additional information.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Unknown (0)
- Not Applicable (1)
- Bad Credentials (2)
- Invalid Response (3)
- Bad Request (4)
- SSL Problem (5)
- Unknown Host (6)
- Connection Problem (7)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

STATUS_REASON_CODE or CDSSTATRC

HMC Name attribute

Description

The name of the System z Hardware Management Console (HMC) to which this Enterprise Common Collector is connected. This field is empty if the collector is not connected to the HMC.

Type

String

Warehouse name

HMC_NAME or CDSHMCNAME

HMC Version attribute

Description

The version number of the System z Hardware Management Console (HMC) to which this Enterprise Common Collector is connected, in the format vv.rr.mm (for example 2.11.1). This field is empty if the collector is not connected to the HMC.

Type

String

Warehouse name

HMC_VERSION or CDSHMCVER

HMC API Major Version attribute**Description**

The major-version level of the System z Hardware Management Console (HMC) firmware to which this Enterprise Common Collector is connected. This field is empty if the collector is not connected to the HMC.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

HMC_API_MAJOR_VERSION or CDSAPIMAJ

HMC API Minor Version attribute**Description**

The minor-version level of the System z Hardware Management Console (HMC) firmware to which this Enterprise Common Collector is connected. This field is empty if the collector is not connected to the HMC.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

HMC_API_MINOR_VERSION or CDSAPIMIN

TCPIP Hostname attribute**Description**

The TCP/IP host name of the system to which the Enterprise Common Collector is connected.

Type

String

Warehouse name

TCPIP_HOSTNAME or CDSHOSTNAM

User Name attribute**Description**

The user name that the Enterprise Common Collector used to connect to the data source.

Type

String

Warehouse name

USER_NAME or CDSUSERID

Prior Status attribute

Description

Indicates the operational status of the data source immediately prior to the current status.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Applicable (1)
- Connected (2)
- Connecting (3)
- Data Source Unreachable (4)
- Disconnected (5)
- In Doubt (6)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PRIOR_STATUS or CDSPRISTAT

Status Changed Time attribute**Description**

The local time of the most recent status change for the data source.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

STATUS_CHANGED_TIME or CDSPRITIME

Session Duration attribute**Description**

The duration of the current session between the Enterprise Common Collector and this data sources, expressed as hours:minutes:second.milliseconds.

Type

String

Warehouse name

SESSION_DURATION or CDSSESSDUR

Collection Profile Name attribute**Description**

The name of the collection profile used to establish the collection characteristics for this data source.

Type

String

Warehouse name

COLLECTION_PROFILE_NAME or CDSPROFNAM

Collection Profile Description attribute**Description**

Customer-defined text describing the collection profile.

Type

String

Warehouse name

COLLECTION_PROFILE_DESCRIPTION or CDSPROFDES

Inventory Collection Interval attribute

Description

The user-configured amount of time in seconds that passes before the Enterprise Common Collector synchronizes inventory with the System z Hardware Management Console (HMC), expressed as hours:minutes:seconds.milliseconds. Possible values are between 300 and 86,400 seconds.

Type

String

Warehouse name

INVENTORY_COLLECTION_INTERVAL or CDSINVINT

Short Term Metrics Interval attribute**Description**

The user-configured amount of time in seconds between retrievals of the current set of metrics from the System z Hardware Management Console (HMC), expressed as hours:minutes:second.milliseconds. Possible values are from 60 and 600 seconds inclusive.

Type

String

Warehouse name

SHORT_TERM_METRICS_INTERVAL or CDSMETSINT

Long Term Metrics Interval attribute**Description**

The user-configured amount of time in seconds between retrievals of the historical set of metrics from the System z Hardware Management Console (HMC), expressed as hours:minutes:second.milliseconds. Possible values are from 300 and 1800 seconds inclusive.

Type

String

Warehouse name

LONG_TERM_METRICS_INTERVAL or CDSMETLINT

Long Term Metrics Enabled attribute**Description**

Indicates whether historical metric data is retrieved from the System z Hardware Management Console (HMC).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

LONG_TERM_METRICS_ENABLED or CDSMETLENB

Path Accessibility Enabled attribute**Description**

Indicates whether path accessibility status collection is enabled for this System z Hardware Management Console (HMC). This might be disabled because collecting this data is time consuming.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)

- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PATH_ACCESSIBILITY_ENABLED or CDSPATHENB

Inventory Start Time attribute

Description

The local time when the Enterprise Common Collector started collection of inventory data from this data source.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INVENTORY_START_TIME or CDSINVSTIM

Inventory End Time attribute

Description

The local time when the Enterprise Common Collector completed collection of inventory data from this data source.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INVENTORY_END_TIME or CDSINVETIM

Inventory Collection Status attribute

Description

Indicates the status of the most recent inventory collection operation for this data source.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Applicable (1)
- Successful (2)
- Cancelled (3)
- Failed (4)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INVENTORY_COLLECTION_STATUS or CDSINVSTAT

Inventory Collection Duration attribute

Description

The amount of time required to complete the current or most recent inventory collection operation from this data source, expressed as hours:minutes:second.milliseconds.

Type	String
Warehouse name	INVENTORY_COLLECTION_DURATION or CDSINVDUR
<u>Short Term End Time attribute</u>	
Description	The local time at the end of the Enterprise Common Collector short-term metrics collection operation from this data source.
Type	Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • NOT COLLECTED (0691231190000000) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	SHORT_TERM_END_TIME or CDSMETSEND
<u>Short Term Status attribute</u>	
Description	Indicates the status of the most recent short-term metrics collection operation for this data source.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Not Applicable (1) • Successful (2) • Cancelled (3) • Failed (4) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	SHORT_TERM_STATUS or CDSMETSSSTA
<u>Short Term Metrics Duration attribute</u>	
Description	The amount of time required to complete the current or most recent short-term metrics collection operation from this data source, expressed as hours:minutes:second.milliseconds.
Type	String
Warehouse name	SHORT_TERM_METRICS_DURATION or CDSMETSDUR
<u>Long Term End Time attribute</u>	
Description	The local time when the Enterprise Common Collector completed collection of long-term metrics data from this data source.
Type	Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • NOT COLLECTED (0691231190000000) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
LONG_TERM_END_TIME or CDSMETLEND	
Long Term Status attribute	
Description	Indicates the status of long-term metrics collection operation for this data source.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Not Applicable (1) • Successful (2) • Cancelled (3) • Failed (4) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
LONG_TERM_STATUS or CDSMETLSTA	
Long Term Metrics Duration attribute	
Description	The amount of time required to complete the current or most recent long-term metrics collection operation from this data source, expressed as hours:minutes:second.milliseconds.
Type	String
Warehouse name	
LONG_TERM_METRICS_DURATION or CDSMETLDUR	

Ensemble attribute group

The Ensemble attribute group represents the characteristics and aggregated metrics of an ensemble.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Ensemble attribute group:

Node attribute: This attribute is a key attribute.

Description	The managed system name of the agent.
Type	String
Warehouse name	
NODE	
Timestamp attribute	
Description	The local time at the agent when the data was collected.
Type	String
Warehouse name	
TIMESTAMP	
Interval End Time attribute	
Description	The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.
Type	Timestamp with enumerated values. The strings are displayed in the Tivoli

Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or ENSINTTIME

Interval Length attribute

Description

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or ENSINTLEN

Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the ensemble. This identifier is permanently assigned by the zManager when the object is first created or discovered.

Type

String

Warehouse name

OBJECT_ID or ENSOBJID

Name attribute

Description

The display name specified for the ensemble.

Type

String

Warehouse name

NAME or ENSNAME

Description attribute

Description

Customer-defined text describing the ensemble. Longer descriptions are truncated to 256 characters.

Type

String

Warehouse name

DESCRIPTION or ENSDESC

HMC Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the System z Hardware Management Console (HMC).

Type

String

Warehouse name

HMC_OBJECT_ID or ENSHMCID

HMC Name attribute

Description

The name of the System z Hardware Management Console (HMC) that provided the information for this ensemble.

Type

String

Warehouse name

HMC_NAME or ENSHMCNAME

Status attribute**Description**

The status of the ensemble representing the current communication between the primary and alternate System z Hardware Management Consoles (HMCs).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Alternate HMC communicating (1)
- Alternate HMC not communicating (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

STATUS or ENSSTATUS

Alternate HMC Name attribute**Description**

The name of the alternate System z Hardware Management Console (HMC) assigned to the primary HMC managing the ensemble.

Type

String

Warehouse name

ALTERNATE_HMC_NAME or ENSAHMCNAM

Management Enablement Level attribute**Description**

The zManager management enablement level for this ensemble, which determines what zManager advanced management functions are available for use.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Manage (1)
- Automate (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MANAGEMENT_ENABLEMENT_LEVEL or ENSMGENLVL

PowerVM CPU Management attribute**Description**

Indicates whether management of processor performance is enabled for PowerVM virtualization hosts. Management of processor performance is also available for virtual servers.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Enabled (1)

- Not Enabled (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

POWERVM_CPU_MANAGEMENT or ENSPVMCPUM

z/VM CPU Management attribute

Description

Indicates whether management of processor performance is enabled for z/VM virtualization hosts. Management of processor performance is also available for virtual servers.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Enabled (1)
- Not Enabled (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ZVM_CPU_MANAGEMENT or ENSZVMCPUM

Unique Local Unified Prefix attribute

Description

The unique local address (ULA) prefix applied to addresses used for management communication between virtual servers and their virtualization hosts.

Type

String

Warehouse name

UNIQUE_LOCAL_UNIFIED_PREFIX or ENSULAPFX

MAC Prefix attribute

Description

The ensemble MAC prefix. This value is made up of two hexadecimal characters in the range of 01-FF.

Type

String

Warehouse name

MAC_PREFIX or ENSMACPFX

Workload Service Level Index attribute

Description

The workload service level index of the ensemble. If any service classes in the ensemble's workload resource groups are not meeting their goals, this field displays the index of the most important service class; otherwise, it shows Satisfactory.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Satisfactory (1)
- Informational (2)
- Warning (3)
- Minor (4)
- Critical (5)
- Fatal (6)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

WORKLOAD_SERVICE_LEVEL_INDEX or ENSWSLI

PowerVM CPU Utilization attribute

Description

The percentage of processor utilization averaged across all the PowerVM virtualization hosts in the ensemble, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

POWERVM_CPU_UTILIZATION or ENSPVMCPU

PowerVM Memory Utilization attribute

Description

The percentage of memory utilization averaged across all the PowerVM virtualization hosts in the ensemble, as measured at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

POWERVM_MEMORY_UTILIZATION or ENSPVMMEM

x Hyp CPU Utilization attribute

Description

The percentage of processor utilization averaged across all x Hyp virtualization hosts in the ensemble, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

X_HYP_CPU_UTILIZATION or ENSXVMCPU

x Hyp Memory Utilization attribute

Description

The percentage of memory utilization averaged across all x Hyp virtualization hosts in the ensemble, as measured at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the

Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

X_HYP_MEMORY_UTILIZATION or ENSXVMMEM

z/VM CPU Utilization attribute

Description

The percentage of processor utilization averaged across all z/VM virtualization hosts in the ensemble, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ZVM_CPU_UTILIZATION or ENSZVMCPU

z/VM Memory Utilization attribute

Description

The percentage of memory utilization averaged across all z/VM virtualization hosts in the ensemble, as measured at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ZVM_MEMORY_UTILIZATION or ENSZVMMEM

PR/SM CPU Utilization attribute

Description

The percentage of processor utilization averaged across all Processor Resource/System Manager (PR/SM) virtualization hosts in the ensemble, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PRSM_CPU_UTILIZATION or ENSPRSMCPU

PR/SM Memory Utilization attribute

Description

The percentage of memory utilization averaged across all Processor

Resource/System Manager (PR/SM) virtualization hosts in the ensemble, as measured at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PRSM_MEMORY_UTILIZATION or ENSPRSMMEM

Virtual Servers Low CPU attribute

Description

The number of virtual servers in the ensemble for which the average processor utilization during the last monitoring interval was less than 40%.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_SERVERS_LOW_CPU or ENSVSCPULO

Virtual Servers Medium CPU attribute

Description

The number of virtual servers in the ensemble for which the average processor utilization during the last monitoring interval was greater than or equal to 40% and less than or equal to 90%.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_SERVERS_MEDIUM_CPU or ENSVSCPUMD

Virtual Servers High CPU attribute

Description

The number of virtual servers in the ensemble for which the average processor utilization during the last monitoring interval was greater than 90%.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
VIRTUAL_SERVERS_HIGH_CPU or ENSVSCPUHI	
Node Count attribute	
Description	The number of nodes in the ensemble.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
NODE_COUNT or ENSNODECNT	
Virtual Server Count attribute	
Description	The number of virtual servers in the ensemble. This value represents the sum of all virtual servers defined on all virtualization hosts in the ensemble.
Type	Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
VIRTUAL_SERVER_COUNT or ENSVSCNT	

Logical Partition attribute group

The Logical Partition attribute group represents the characteristics and aggregated metrics of logical partitions.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Logical Partition attribute group:

Node attribute: This attribute is a key attribute.

Description	The managed system name of the agent.
Type	String
Warehouse name	NODE
Timestamp attribute	
Description	The local time at the agent when the data was collected.
Type	String
Warehouse name	TIMESTAMP
Interval End Time attribute	

Description

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or LPRINTTIME

Interval Length attribute**Description**

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or LPRINTLEN

Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the logical partition. The identifier is permanently assigned by the zManager when the object is first created or discovered.

Type

String

Warehouse name

OBJECT_ID or LPROBJID

Name attribute**Description**

The current display name of the logical partition.

Type

String

Warehouse name

NAME or LPRNAME

Description attribute**Description**

Customer-specified text describing the logical partition. Longer descriptions are truncated to 256 characters.

Type

String

Warehouse name

DESCRIPTION or LPRDESC

HMC Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the System z Hardware Management Console (HMC) that manages the ensemble to which this logical partition.

Type

String

Warehouse name	
HMC_OBJECT_ID or LPRHMCID	
<u>HMC Name attribute</u>	
Description	The name of the System z Hardware Management Console (HMC) that provided the information for this logical partition.
Type	String
Warehouse name	
HMC_NAME or LPRHMCNAME	
<u>Ensemble Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the ensemble to which this logical partition belongs.
Type	String
Warehouse name	
ENSEMBLE_OBJECT_ID or LPRENSID	
<u>Ensemble Name attribute</u>	
Description	The display name of the ensemble to which this logical partition belongs.
Type	String
Warehouse name	
ENSEMBLE_NAME or LPRENSNAME	
<u>CPC Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the central processor complex (CPC) for this logical partition.
Type	String
Warehouse name	
CPC_OBJECT_ID or LPRCPCID	
<u>CPC Name attribute</u>	
Description	The current display name of the central processor complex (CPC) for this logical partition.
Type	String
Warehouse name	
CPC_NAME or LPRCPCNAME	
<u>Virtual Server Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of virtual server associated with this logical partition.
Type	String
Warehouse name	
VIRTUAL_SERVER_ID or LPRVSID	
<u>Virtual Server Name attribute</u>	
Description	The current display name of the virtual server associated with this logical partition.
Type	String
Warehouse name	
VIRTUAL_SERVER_NAME or LPRVSNAME	

Status attribute

Description

Indicates the current operational status of the logical partition.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Operating (1)
- Not Operating (2)
- Not Activated (3)
- Exceptions (4)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

STATUS or LPRSTATUS

Acceptable Status attribute

Description

Indicates whether the current status of the logical partition is one of the acceptable status values specified for the logical partition.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ACCEPTABLE_STATUS or LPRACCSTAT

OS Name attribute

Description

The name given to the virtual server by the operating system active in this logical partition.

Type

String

Warehouse name

OS_NAME or LPROSNAME

OS Type attribute

Description

The type of the operating system of the virtual server active in this logical partition.

Type

String

Warehouse name

OS_TYPE or LPROSTYPE

OS Level attribute

Description

The release level of the operating system of the virtual server active in this logical partition.

Type

String

Warehouse name

OS_LEVEL or LPROSLVL

Sysplex Name attribute

Description

The name of the sysplex to which this logical partition is a member (when the logical partition is running z/OS), or the name of the Single System Image to which this logical partition is a member (when the logical partition is running z/VM).

Type

String

Warehouse name

SYSPLEX_NAME or LPRPLXNAME

LPAR OS Messages attribute

Description

Indicates whether the operating system active in this logical partition has any messages.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

LPAR_OS_MESSAGES or LPROSMMSG

Activation Mode attribute

Description

The current activation mode of the logical partition.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- ESA390 (1)
- ESA390TPF (2)
- Coupling Facility (3)
- Linux (4)
- zVM (5)
- zAware (6)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ACTIVATION_MODE or LPRACTMOD

Next Activation Profile attribute

Description

The image activation profile name or load activation profile name to be used on the next activate.

Type

String

Warehouse name

NEXT_ACTIVATION_PROFILE or LPRNXTPROF

Last Activation Profile attribute

Description

The most recent image activation profile name or load activation profile name used.

Type	String
Warehouse name	LAST_ACTIVATION_PROFILE or LPRLSTPROF
<u>Initial Processing Weight attribute</u>	
Description	The initial relative amount of shared general purpose processor resources allocated to the logical partition, reported as 0 (zero) if the logical partition is not using at least one shared general-purpose processor.
Type	Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	INITIAL_PROCESSING_WEIGHT or LPRINTCPUW
<u>Initial Processing Weight Capped attribute</u>	
Description	Indicates whether the initial processing weight for general-purpose processors is capped and unable to exceed the limit.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	INIT_PROCESSING_WEIGHT_CAP or LPRINTCPUC
<u>Minimum Processing Weight attribute</u>	
Description	The minimum relative amount of shared general-purpose processor resources allocated to this logical partition, which is reported as a 0 (zero) if the logical partition is not using at least one shared general-purpose processor.
Type	Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	MINIMUM_PROCESSING_WEIGHT or LPRMINCPUW
<u>Maximum Processing Weight attribute</u>	
Description	The maximum relative amount of shared general purpose processor resources

allocated to this logical partition. This field is shown as 0 (zero) if the logical partition is not using at least one shared general purpose processor.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_PROCESSING_WEIGHT or LPRMAXCPUW

Current Processing Weight attribute

Description

The current relative amount of shared general purpose processor resources allocated to this logical partition. This field is shown as 0 (zero) if the logical partition is not using at least one shared general purpose processor.

Type

Real number (32-bit gauge) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CURRENT_PROCESSING_WEIGHT or LPRCURCPUW

Current Processing Weight Capped attribute

Description

Indicates whether the current relative amount of shared general-purpose processor resources allocated to this logical partition is at the maximum capped value and unable to exceed the limit.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CURRENT_PROCESSING_WEIGHT_CAP or LPRCURCPUC

Workload Manager Enabled attribute

Description

: Indicates whether z/OS Workload Manager is enabled and allowed to change processing weight-related properties. This value is applicable for logical partitions running the z/OS operating system only.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

WORKLOAD_MANAGER_ENABLED or LPRWLMEN

Defined Capacity attribute

Description

The capacity the logical partition managed by z/OS Workload Manager, expressed in millions of service units (MSUs) per hour. This value is reported as a 0 (zero) if no defined capacity has been specified for this logical partition.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

DEFINED_CAPACITY or LPRDEFCAP

Cluster Name attribute

Description

The logical partition (LPAR) cluster name that identifies membership in a group of logical partitions that are members of the same z/OS parallel sysplex. This value is applicable for logical partitions running the z/OS operating system only.

Type

String

Warehouse name

CLUSTER_NAME or LPRCSTNAME

Partition Identifier attribute

Description

The partition identifier for this logical partition, expressed in hexadecimal characters.

Type

String

Warehouse name

PARTITION_IDENTIFIER or LPRPARTID

Initial zAAP Processing Weight attribute

Description

The initial relative amount of shared Application Assist Processor (zAAP) resources allocated to the logical partition, expressed as a 0 (zero) if no shared zAAP processors are in use.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name INIT_ZAAP_PROCESSING_WEIGHT or LPRINTAAPW	
<u>Initial zAAP Processing Weight Capped attribute</u>	
Description	Indicates whether the initial processing weight for Application Assist Processor (zAAP) processors for this logical partition is at the maximum capped value and unable to exceed the limit.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name INIT_ZAAP_PROC_WEIGHT_CAP or LPRINTAAPC	
<u>Minimum zAAP Processing Weight attribute</u>	
Description	The minimum relative amount of Application Assist Processor (zAAP) processor resources allocated to this logical partition, which is reported as a 0 (zero) if the logical partition is not using at least one zAAP processor.
Type	Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name MIN_ZAAP_PROCESSING_WEIGHT or LPRMINAAPW	
<u>Maximum zAAP Processing Weight attribute</u>	
Description	The maximum relative amount of Application Assist Processor (zAAP) processor resources allocated to this logical partition, which is reported as a 0 (zero) if the logical partition is not using at least one zAAP processor.
Type	Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name MAX_ZAAP_PROCESSING_WEIGHT or LPRMAXAAPW	
<u>Current zAAP Processing Weight attribute</u>	
Description	The current relative amount of shared Application Assist Processor (zAAP)

resources allocated to this logical partition, which is reported as a 0 (zero) if the logical partition is not using at least one shared zAAP processor.

Type

Real number (32-bit gauge) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CUR_ZAAP_PROCESSING_WEIGHT or LPRCURAAPW

Current zAAP Processing Weight Capped attribute

Description

Indicates whether the current processing weight for Application Assist Processor (zAAP) processors is at the maximum capped value and unable to exceed the limit.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CUR_ZAAP_PROC_WEIGHT_CAP or LPRCURAAPC

Initial IFL Processing Weight attribute

Description

The initial relative amount of shared weight for Integrated Facility for Linux (IFL) processor resources allocated to this logical partition, reported as 0 (zero) if the logical partition is not using at least one IFL processor.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INIT_IFL_PROCESSING_WEIGHT or LPRINTIFLW

Initial IFL Processing Weight Capped attribute

Description

Indicates whether the initial processing weight for Integrated Facility for Linux (IFL) processors for this logical partition is at the maximum capped value and unable to exceed the limit.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INIT_IFL_PROC_WEIGHT_CAP or LPRINTIFLC

Minimum IFL Processing Weight attribute

Description

The minimum relative amount of shared Integrated Facility for Linux (IFL) processor resources allocated to this logical partition, which is reported as a 0 (zero) if the logical partition is not using at least one shared IFL processor.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MIN_IFL_PROCESSING_WEIGHT or LPRMINIFLW

Maximum IFL Processing Weight attribute

Description

The maximum relative amount of shared Integrated Facility for Linux (IFL) processor resources allocated to this logical partition, which is reported as a 0 (zero) if the logical partition is not using at least one shared IFL processor.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAX_IFL_PROCESSING_WEIGHT or LPRMAXIFLW

Current IFL Processing Weight attribute

Description

The current relative amount of shared Integrated Facility for Linux (IFL) processor resources allocated to this logical partition, which is reported as a 0 (zero) if the logical partition is not using at least one shared IFL processor.

Type

Real number (32-bit gauge) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
CUR_IFL_PROCESSING_WEIGHT or LPRCURIFLW	
<u>Current IFL Processing Weight Capped attribute</u>	
Description	Indicates whether the current processing weight for Integrated Facility for Linux (IFL) processors is at the maximum capped value and unable to exceed the limit.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
CUR_IFL_PROC_WEIGHT_CAP or LPRCURIFLC	
<u>Initial zIIP Processing Weight attribute</u>	
Description	The initial amount of shared Integrated Information Processor (zIIP) resources for this logical partition, which is reported as a 0 (zero) if the logical partition is not using at least one shared zIIP
Type	Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
INIT_ZIIP_PROCESSING_WEIGHT or LPRINTIIPW	
<u>Initial zIIP Processing Weight Capped attribute</u>	
Description	Indicates whether the initial processing weight for Integrated Information Processor (zIIP) processors is at the maximum capped value and unable to exceed the limit.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
INIT_ZIIP_PROC_WEIGHT_CAP or LPRINTIIPC	
<u>Minimum zIIP Processing Weight attribute</u>	
Description	The minimum relative amount of shared Integrated Information Processor (zIIP) resources allocated to this logical partition, which is reported as a 0 (zero) if the logical partition is not using at least one shared zIIP.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MIN_ZIIP_PROCESSING_WEIGHT or LPRMINIIPW

Maximum zIIP Processing Weight attribute**Description**

The maximum relative amount of shared Integrated Information Processor (zIIP) resources allocated to this logical partition. This field is shown as 0 (zero) if the logical partition is not using at least one shared zIIP.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAX_ZIIP_PROCESSING_WEIGHT or LPRMAXIIPW

Current zIIP Processing Weight attribute**Description**

The current relative amount of shared Integrated Information Processor (zIIP) resources allocated to this logical partition. This field is shown as 0 (zero) if the logical partition is not using at least one shared zIIP.

Type

Real number (32-bit gauge) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CUR_ZIIP_PROCESSING_WEIGHT or LPRCURIIPW

Current zIIP Processing Weight Capped attribute**Description**

Indicates whether the current processing weight for Integrated Information Processor (zIIP) processors is at the maximum capped value and unable to exceed the limit.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)

- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CUR_ZIIP_PROC_WEIGHT_CAP or LPRCURIIPC

Initial ICF Processing Weight attribute

Description

The initial amount of shared Internal Coupling Facility (ICF) processor resources for this logical partition, which is reported as a 0 (zero) if the logical partition is not using at least one shared ICF processor.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INIT_ICF_PROCESSING_WEIGHT or LPRINTICFW

Initial ICF Processing Weight Capped attribute

Description

Indicates whether the initial processing weight for Internal Coupling Facility (ICF) processors is at the maximum capped value and unable to exceed the limit.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INIT_ICF_PROC_WEIGHT_CAP or LPRINTICFC

Minimum ICF Processing Weight attribute

Description

The minimum relative amount of shared Internal Coupling Facility (ICF) resources allocated to this logical partition. This field is shown as 0 (zero) if the logical partition is not using at least one shared ICF processor.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MIN_ICF_PROCESSING_WEIGHT or LPRMINICFW

Maximum ICF Processing Weight attribute

Description

The maximum relative amount of shared Internal Coupling Facility (ICF) resources allocated to this logical partition. This field is shown as 0 (zero) if the logical partition is not using at least one shared ICF processor.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAX_ICF_PROCESSING_WEIGHT or LPRMAXICFW

Current ICF Processing Weight attribute**Description**

The current relative amount of shared Internal Coupling Facility (ICF) resources allocated to this logical partition. This field is shown as 0 (zero) if the logical partition is not using at least one shared ICF processor.

Type

Real number (32-bit gauge) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CUR_ICF_PROCESSING_WEIGHT or LPRCURICFW

Current ICF Processing Weight Capped attribute**Description**

Indicates whether the current processing weight for Internal Coupling Facility (ICF) processors is at the maximum capped value and unable to exceed the limit.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CUR_ICF_PROC_WEIGHT_CAP or LPRCURICFC

IPL Token attribute**Description**

The value provided when the z/OS operating system is initial program loaded (IPLed) that uniquely identifies this instance of the operating system in the sysplex.

Type

String

Warehouse name	
IPL_TOKEN or LPRIPTOK	
<u>Group Profile Capacity attribute</u>	
Description	The current group profile capacity for this logical partition.
Type	Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
GROUP_PROFILE_CAPACITY or LPRGRPPCAP	
<u>Group Profile URI attribute</u>	
Description	The uniform resource identifier (URI) of the group profile with which this logical partition is associated.
Type	String
Warehouse name	
GROUP_PROFILE_URI or LPRGRPPURI	
<u>zAware Host Name attribute</u>	
Description	The IBM System z Advanced Workload Analysis Reporter (IBM zAware) host name of this logical partition.
Type	String
Warehouse name	
ZAWARE_HOST_NAME or LPRZAWNAME	
<u>zAware User ID attribute</u>	
Description	The IBM System z Advanced Workload Analysis Reporter (IBM zAware) master user host ID.
Type	String
Warehouse name	
ZAWARE_USER_ID or LPRZAWMUID	
<u>CPU Utilization attribute</u>	
Description	The percentage of processor resource used compared to available processor resource allocated to the logical partition, based on the current processing weight reported at the end of the last monitoring interval.
Type	Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
CPU_UTILIZATION or LPRCPU	
<u>zVM Paging Rate attribute</u>	

Description

The z/VM paging rate, expressed as pages per second. This value is returned for logical partitions running z/VM 6.1 or higher only.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ZVM_PAGING_RATE or LPRZVMPAGE

Performance Object Status attribute group

The Performance Object Status attribute group contains information that reflects the status of other attribute groups so you can see the status of all of the performance objects that make up this application all at once. Each of these other performance attribute groups is represented by a row in this table (or other type of view). The status for an attribute group reflects the result of the last attempt to collect data for that attribute group, which allows you to see whether the agent is performing correctly. Unlike other attribute groups, the Performance Object Status attribute group does not reflect the state of the monitored application. This attribute group is most often used to determine why data is not available for one of the performance attribute groups.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Performance Object Status attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute**Description**

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Query Name attribute: This attribute is a key attribute.

Description

The name of the attribute group.

Type

String

Warehouse name

QUERY_NAME or ATTRGRP

Object Name attribute**Description**

The name of the performance object.

Type

String

Warehouse name	
OBJECT_NAME or OBJNAME	
Object Type attribute	
Description	The type of the performance object.
Type	Integer with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • WMI (0) • PERFMON (1) • WMI ASSOCIATION GROUP (2) • JMX (3) • SNMP (4) • SHELL COMMAND (5) • JOINED GROUPS (6) • CIMOM (7) • CUSTOM (8) • ROLLUP DATA (9) • WMI REMOTE DATA (10) • LOG FILE (11) • JDBC (12) • CONFIG DISCOVERY (13) • NT EVENT LOG (14) • FILTER (15) • SNMP EVENT (16) • PING (17) • DIRECTOR DATA (18) • DIRECTOR EVENT (19) • SSH REMOTE SHELL COMMAND (20) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
OBJECT_TYPE or OBJTYPE	
Object Status attribute	
Description	The status of the performance object.
Type	Integer with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • ACTIVE (0) • INACTIVE (1) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
OBJECT_STATUS or OBJSTTS	
Error Code attribute	
Description	The error code that is associated with the query.
Type	Integer with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • NO ERROR (0)

- GENERAL ERROR (1)
- OBJECT NOT FOUND (2)
- COUNTER NOT FOUND (3)
- NAMESPACE ERROR (4)
- OBJECT CURRENTLY UNAVAILABLE (5)
- COM LIBRARY INIT FAILURE (6)
- SECURITY INIT FAILURE (7)
- PROXY SECURITY FAILURE (9)
- NO INSTANCES RETURNED (10)
- ASSOCIATOR QUERY FAILED (11)
- REFERENCE QUERY FAILED (12)
- NO RESPONSE RECEIVED (13)
- CANNOT FIND JOINED QUERY (14)
- CANNOT FIND JOIN ATTRIBUTE IN QUERY 1 RESULTS (15)
- CANNOT FIND JOIN ATTRIBUTE IN QUERY 2 RESULTS (16)
- QUERY 1 NOT A SINGLETON (17)
- QUERY 2 NOT A SINGLETON (18)
- NO INSTANCES RETURNED IN QUERY 1 (19)
- NO INSTANCES RETURNED IN QUERY 2 (20)
- CANNOT FIND ROLLUP QUERY (21)
- CANNOT FIND ROLLUP ATTRIBUTE (22)
- FILE OFFLINE (23)
- NO HOSTNAME (24)
- MISSING LIBRARY (25)
- ATTRIBUTE COUNT MISMATCH (26)
- ATTRIBUTE NAME MISMATCH (27)
- COMMON DATA PROVIDER NOT STARTED (28)
- CALLBACK REGISTRATION ERROR (29)
- MDL LOAD ERROR (30)
- AUTHENTICATION FAILED (31)
- CANNOT RESOLVE HOST NAME (32)
- SUBNODE UNAVAILABLE (33)
- SUBNODE NOT FOUND IN CONFIG (34)
- ATTRIBUTE ERROR (35)
- CLASSPATH ERROR (36)
- CONNECTION FAILURE (37)
- FILTER SYNTAX ERROR (38)
- FILE NAME MISSING (39)
- SQL QUERY ERROR (40)
- SQL FILTER QUERY ERROR (41)
- SQL DB QUERY ERROR (42)
- SQL DB FILTER QUERY ERROR (43)
- PORT OPEN FAILED (44)
- ACCESS DENIED (45)
- TIMEOUT (46)
- NOT IMPLEMENTED (47)
- REQUESTED A BAD VALUE (48)
- RESPONSE TOO BIG (49)
- GENERAL RESPONSE ERROR (50)
- SCRIPT NONZERO RETURN (51)
- SCRIPT NOT FOUND (52)
- SCRIPT LAUNCH ERROR (53)
- CONF FILE DOES NOT EXIST (54)
- CONF FILE ACCESS DENIED (55)
- INVALID CONF FILE (56)
- EIF INITIALIZATION FAILED (57)

- CANNOT OPEN FORMAT FILE (58)
- FORMAT FILE SYNTAX ERROR (59)
- REMOTE HOST UNAVAILABLE (60)
- EVENT LOG DOES NOT EXIST (61)
- PING FILE DOES NOT EXIST (62)
- NO PING DEVICE FILES (63)
- PING DEVICE LIST FILE MISSING (64)
- SNMP MISSING PASSWORD (65)
- DISABLED (66)
- URLS FILE NOT FOUND (67)
- XML PARSE ERROR (68)
- NOT INITIALIZED (69)
- ICMP SOCKETS FAILED (70)
- DUPLICATE CONF FILE (71)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ERROR_CODE or ERRCODE

Last Collection Start attribute

Description

The most recent time a data collection of this group started.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)
- NOT COLLECTED (0000000000000001)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

LAST_COLLECTION_START or COLSTRT

Last Collection Finished attribute

Description

The most recent time a data collection of this group finished.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)
- NOT COLLECTED (0000000000000001)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

LAST_COLLECTION_FINISHED or COLFINI

Last Collection Duration attribute

Description

The duration of the most recently completed data collection of this group in seconds.

Type

Real number (32-bit counter) with two decimal places of precision

Warehouse name

LAST_COLLECTION_DURATION or COLDURA

Average Collection Duration attribute

Description

The average duration of all data collections of this group in seconds.

Type

Real number (32-bit counter) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

AVERAGE_COLLECTION_DURATION or COLAVGD

Refresh Interval attribute**Description**

The interval at which this group is refreshed in seconds.

Type

Integer (32-bit counter)

Warehouse name

REFRESH_INTERVAL or REFRINT

Number of Collections attribute**Description**

The number of times this group has been collected since agent start.

Type

Integer (32-bit counter)

Warehouse name

NUMBER_OF_COLLECTIONS or NUMCOLL

Cache Hits attribute**Description**

The number of times an external data request for this group was satisfied from the cache.

Type

Integer (32-bit counter)

Warehouse name

CACHE_HITS or CACHEHT

Cache Misses attribute**Description**

The number of times an external data request for this group was not available in the cache.

Type

Integer (32-bit counter)

Warehouse name

CACHE_MISSES or CACHEMS

Cache Hit Percent attribute**Description**

The percentage of external data requests for this group that were satisfied from the cache.

Type

Real number (32-bit counter) with two decimal places of precision

Warehouse name

CACHE_HIT_PERCENT or CACHPCT

Intervals Skipped attribute**Description**

The number of times a background data collection for this group was skipped because the previous collection was still running when the next one was due to start.

Type
Integer (32-bit counter)

Warehouse name
INTERVALS_SKIPPED or INTSKIP

Performance Policy attribute group

The Performance Policy attribute group represents the characteristics of a performance policy.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Performance Policy attribute group:

Node attribute: This attribute is a key attribute.

Description
The managed system name of the agent.

Type
String

Warehouse name
NODE

Timestamp attribute

Description
The local time at the agent when the data was collected.

Type
String

Warehouse name
TIMESTAMP

Element ID attribute: This attribute is a key attribute.

Description
The unique identifier of the performance policy.

Type
String

Warehouse name
ELEMENT_ID or PFPELMID

Name attribute

Description
The display name specified for the performance policy.

Type
String

Warehouse name
NAME or PFPNAME

Description attribute

Description
Customer-defined text describing the performance policy. Longer descriptions are truncated to 256 characters.

Type
String

Warehouse name
DESCRIPTION or PFPDESC

HMC Object ID attribute: This attribute is a key attribute.

Description
The unique object identifier of the System z Hardware Management Console (HMC) that manages the workload resource group associated with this performance policy.

Type
String

Warehouse name	
HMC_OBJECT_ID or PFPHMCID	
HMC Name attribute	
Description	The name of the System z Hardware Management Console (HMC) that provided information for this performance policy.
Type	String
Warehouse name	
HMC_NAME or PFPHMCNAME	
Ensemble Object ID attribute: This attribute is a key attribute.	
Description	The unique object identifier of the ensemble on which this performance policy is defined.
Type	String
Warehouse name	
ENSEMBLE_OBJECT_ID or PFPENSID	
Ensemble Name attribute	
Description	The display name of the ensemble on which this performance policy is defined.
Type	String
Warehouse name	
ENSEMBLE_NAME or PFPENSNAME	
Workload Object ID attribute: This attribute is a key attribute.	
Description	The unique object identifier of the workload resource group in which this performance policy is defined.
Type	String
Warehouse name	
WORKLOAD_OBJECT_ID or PFPWKLID	
Workload Name attribute	
Description	The display name of the workload resource group in which this performance policy is defined.
Type	String
Warehouse name	
WORKLOAD_NAME or PFPWKLNAME	
Default Policy attribute	
Description	Indicates whether this performance policy is the default performance policy for the workload resource group.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
DEFAULT_POLICY or PFPISDFLT	
Importance attribute	
Description	The importance value assigned to this performance policy.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Lowest (1) • Low (2) • Medium (3) • High (4) • Highest (5) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
IMPORTANCE or PFPIMPRTNC	
Default Service Class attribute	
Description	The name of the default service class for this performance policy.
Type	String
Warehouse name	
DEFAULT_SERVICE_CLASS or PFPDFLTSC	
Revision Count attribute	
Description	The revision count for this performance policy, defined as the number of times that this policy has been modified. The initial value for a new performance policy is 1.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
REVISION_COUNT or PFPREV	
Activation Status attribute	
Description	The activation status of this performance policy.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Active (1) • In Progress (2) • Not Active (3) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
ACTIVATION_STATUS or PFPACTSTAT	
<u>Last Activation Requested Date attribute</u>	
Description	The local time of the most recent request to activate this performance policy. Default Policy is shown for default performance policies. Never Activated is shown for performance policies that have not been activated.
Type	Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Default Policy (0000000000000000) • Never Activated (1000000000000000) • NOT COLLECTED (0691231190000000) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
LAST_ACT_REQUESTED_DATE or PFPLACTRD	
<u>Last Activation Completed Date attribute</u>	
Description	The local time that the most recent activation of this performance policy was completed. Default Policy is shown for default performance policies. Never Activated is shown for performance policies that have not been activated.
Type	Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Default Policy (0000000000000000) • Never Activated (1000000000000000) • NOT COLLECTED (0691231190000000) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
LAST_ACT_COMPLETED_DATE or PFPLACTCD	
<u>Last Activated By attribute</u>	
Description	The user name of the user who requested the most recent activation. This field is blank if the policy has never been activated or is the default performance policy of the workload resource group.
Type	String
Warehouse name	
LAST_ACTIVATED_BY or PFPLACTBY	
<u>Last Modified Date attribute</u>	
Description	The local time of the most recent modification to this performance policy. Default Policy is shown for default performance policies.
Type	Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Default Policy (0000000000000000) • NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

LAST_MODIFIED_DATE or PFPLMODD

Last Modified By attribute

Description

The user name of the user who made the last modification to this performance policy. If this policy has not been modified, this attribute displays the same as the value as the Created By attribute. An empty field means that this is a default policy.

Type

String

Warehouse name

LAST_MODIFIED_BY or PFPLMODBY

Created Date attribute

Description

The local time that this performance policy was created. Default Policy is shown for default performance policies.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Default Policy (0000000000000000)
- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CREATED_DATE or PFPCREATD

Created By attribute

Description

The user name of the user who created this performance policy. An empty field means that this is a default policy.

Type

String

Warehouse name

CREATED_BY or PFPCREATBY

PowerVM Virtual Server attribute group

The PowerVM Virtual Server attribute group represents the characteristics and aggregated metrics of PowerVM virtual servers.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the PowerVM Virtual Server attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type	String
Warehouse name	TIMESTAMP
<u>Interval End Time attribute</u>	
Description	The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.
Type	Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • NOT COLLECTED (0691231190000000) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	INTERVAL_END_TIME or PVSINTTIME
<u>Interval Length attribute</u>	
Description	The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	INTERVAL_LENGTH or PVSINTLEN
<u>Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the virtual server. The identifier is permanently assigned by the zManager when the object is first created or discovered.
Type	String
Warehouse name	OBJECT_ID or PVSOBJID
<u>Name attribute</u>	
Description	The current display name of the virtual server.
Type	String
Warehouse name	NAME or PVSNAME
<u>Description attribute</u>	
Description	Customer-specified text describing the virtual server. Longer descriptions are truncated to 256 characters.
Type	String
Warehouse name	DESCRIPTION or PVSDESC
<u>HMC Object ID attribute: This attribute is a key attribute.</u>	

Description

The unique object identifier of the System z Hardware Management Console (HMC) that manages the ensemble to which this virtual server belongs.

Type

String

Warehouse name

HMC_OBJECT_ID or PVSHMCID

HMC Name attribute**Description**

The name of the System z Hardware Management Console (HMC) that provided the information for this virtual server.

Type

String

Warehouse name

HMC_NAME or PVSHMCNAME

Ensemble Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the ensemble to which this virtual server belongs.

Type

String

Warehouse name

ENSEMBLE_OBJECT_ID or PVSENSID

Ensemble Name attribute**Description**

The display name of the ensemble to which this virtual server belongs.

Type

String

Warehouse name

ENSEMBLE_NAME or PVSENSNAME

CPC Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the central processor complex (CPC) for this virtual server.

Type

String

Warehouse name

CPC_OBJECT_ID or PVSCPCID

CPC Name attribute**Description**

The current display name of the central processor complex (CPC) for this virtual server.

Type

String

Warehouse name

CPC_NAME or PVSCPCNAME

Virtualization Host ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the virtualization host for this virtual server.

Type

String

Warehouse name

VIRTUALIZATION_HOST_ID or PVSVHSID

Virtualization Host Name attribute**Description**

The current display name of the virtualization host for this virtual server.

Type	String
Warehouse name	VIRTUALIZATION_HOST_NAME or PVSVHSNAME
<u>Status attribute</u>	
Description	Indicates the current operational status of the virtual server.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Operating (1) • Not Operating (2) • Not Communicating (3) • Exceptions (4) • Status Check (5) • Migrating (6) • Starting (7) • Stopping (8) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	STATUS or PVSSTATUS
<u>Acceptable Status attribute</u>	
Description	Indicates whether the current status of the virtual server is one of the acceptable status values specified for the virtual server.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	ACCEPTABLE_STATUS or PVSACCSTAT
<u>Platform Type attribute</u>	
Description	Indicates the platform on which the virtual server is running, which is always PowerVM for this attribute group.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • PowerVM (1) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	PLATFORM_TYPE or PVSPLATFRM
<u>GPMP Status attribute</u>	

Description

Indicates the status of the System z guest platform management provider (GPMP).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Operating (1)
- Operating (2)
- Status Check (3)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GPMP_STATUS or PVSGPMPST

CPU Management attribute**Description**

Indicates whether management of processor performance is enabled for this virtual server when management of processor performance is enabled at the ensemble level.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Enabled (1)
- Not Enabled (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CPU_MANAGEMENT or PVSCPUM

TCPIP Hostname attribute**Description**

The TCP/IP host name of the virtual server (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

TCPIP_HOSTNAME or PVSIPHOST

OS Name attribute**Description**

The name given to the virtual server by the operating system (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

OS_NAME or PVSOSNAME

OS Type attribute**Description**

The type of the operating system of the virtual server (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name	
OS_TYPE or PVSOSTYPE	
<u>OS Level attribute</u>	
Description	The release level of the operating system of the virtual server, as reported by the operating system (available only when the System z guest platform management provider (GPMP) is running on the virtual server).
Type	String
Warehouse name	
OS_LEVEL or PVSOSLVL	
<u>MAC Prefix attribute</u>	
Description	The MAC address prefix assigned to the virtual server, represented as six groups of two hexadecimal digits separated by colons. The MAC Prefix Length attribute indicates the number of bits that make up the prefix.
Type	String
Warehouse name	
MAC_PREFIX or PVSMACPFXA	
<u>MAC Prefix Length attribute</u>	
Description	The bit-length of the MAC address prefix, which is a number between 12 and 44 inclusive.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
MAC_PREFIX_LENGTH or PVSMACPFXL	
<u>Processing Mode attribute</u>	
Description	The manner in which virtual processors are associated with the physical processors on the virtualization host.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Shared (1) • Dedicated (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
PROCESSING_MODE or PVSCPUMODE	
<u>Minimum Dedicated CPUs attribute</u>	
Description	The minimum number of dedicated processors that the virtual server can use, which is reported as 0 (zero) if the virtual server is not in dedicated processing mode.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MINIMUM_DEDICATED_CPUS or PVSMINDCPU

Initial Dedicated CPUs attribute**Description**

The initial number of dedicated processors that the virtual server is provided at the next activation, reported as 0 (zero) if the virtual server is not in dedicated processing mode.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INITIAL_DEDICATED_CPUS or PVSINTDCPU

Maximum Dedicated CPUs attribute**Description**

The maximum number of dedicated processors that the virtual server can use, which is reported as 0 (zero) if the virtual server is not in dedicated processing mode.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_DEDICATED_CPUS or PVSMAXDCPU

Minimum Virtual CPUs attribute**Description**

The minimum number of virtual processors that the virtual server can use, which is reported as 0 (zero) if the virtual server is not in shared processing mode.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MINIMUM_VIRTUAL_CPUS or PVSMINVCPU

Initial Virtual CPUs attribute

Description

The initial number of virtual processors that the virtual server is provided at the next activation, reported as 0 (zero) if the virtual server is not in shared processing mode.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INITIAL_VIRTUAL_CPUS or PVSINTVCPU

Maximum Virtual CPUs attribute

Description

The maximum number of virtual processors that the virtual server can use, which is reported as 0 (zero) if the virtual server is not in shared processing mode.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_VIRTUAL_CPUS or PVSMAXVCPU

Minimum Processing Units attribute

Description

The minimum number of processing units required for this virtual server to start running, which is reported as 0 (zero) if the virtual server is not in shared processing mode.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MINIMUM_PROCESSING_UNITS or PVSMINCPUU

Initial Processing Units attribute

Description

The number of processing units of the initial processor scheduling target for this virtual server, reported as 0 (zero) if the virtual server is not in shared processing mode. If resources are available, the virtual server can receive more units.

Type

Real number (32-bit numeric property) with two decimal places of precision with

enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INITIAL_PROCESSING_UNITS or PVSINTCPUU

Maximum Processing Units attribute

Description

The maximum number of processing units allocated to the virtual server, which is reported as 0 (zero) if the virtual server is not in shared processing mode.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_PROCESSING_UNITS or PVSMAXCPUU

Minimum Memory (MB) attribute

Description

The minimum memory value defined for the virtual server, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MINIMUM_MEMORY_MB or PVSMINMEM

Initial Memory (MB) attribute

Description

The initial memory value defined for the virtual server, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INITIAL_MEMORY_MB or PVSINTMEM

Maximum Memory (MB) attribute

Description

The maximum memory value defined for the virtual server, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_MEMORY_MB or PVSMAXMEM

Auto Start attribute**Description**

Indicates whether the virtual server is automatically started when its virtualization host is started.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

AUTO_START or PVSAUTOST

DLPAR Enabled attribute**Description**

Indicates whether the virtual server is configured for dynamic logical partitioning (DLPAR).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

DLPAR_ENABLED or PVSDLPEN

DLPAR Active attribute**Description**

Indicates whether dynamic logical partitioning (DLPAR) support is active for the virtual server.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
DLPAR_ACTIVE or PVSDLPACT	
<u>GPMP Enabled attribute</u>	
Description	Indicates whether guest platform management provider (GPMP) support is enabled, allowing the GPMP to gather performance data for work running on the virtual server.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
GPMP_ENABLED or PVSGMPMPEN	
<u>GPMP Version attribute</u>	
Description	The guest platform management provider (GPMP) version, reported as Unavailable if the version is not known.
Type	String
Warehouse name	
GPMP_VERSION or PVSGMPMPVER	
<u>CPU Utilization attribute</u>	
Description	The percentage of processor utilization for the virtual server, as measured in the last monitoring interval.
Type	Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
CPU_UTILIZATION or PVSCPU	
<u>Memory Utilization attribute</u>	
Description	The percentage of memory utilization for the virtual server, as reported by the platform hypervisor at the end of the last monitoring interval.
Type	Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
MEMORY_UTILIZATION or PVSMMEM	

Startup Time attribute

Description

The approximate local time when the virtual server was last started.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

STARTUP_TIME or PVSSTTIME

Elapsed Time attribute

Description

The elapsed time (in microseconds) between the end of the previous monitoring interval and the end of the current one, as observed by the guest platform management provider (GPMP).

Type

Integer (64-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ELAPSED_TIME or PVSETIME

Virtual CPU Count attribute

Description

The number of virtual processors defined for this virtual server.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_CPU_COUNT or PVSVCPUENT

Current Processing Units attribute

Description

The amount of CPU resource (in processing units) allocated to the virtual machine. The zManager adjusts this value when virtual server management is enabled. This field is shown as 0 (zero) if the virtual-server is not in shared processing mode.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CURRENT_PROCESSING_UNITS or PVSCURCPUU

Current Memory (MB) attribute

Description

The amount of memory currently used by the virtual machine, expressed in MB.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CURRENT_MEMORY_MB or PVSCURMEM

Sampling Rate attribute

Description

The number of times per second that the guest platform management provider (GPMP) samples the operating system of the virtual server.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

SAMPLING_RATE or PVSSRATE

GPMP Active attribute

Description

Indicates whether guest platform management provider (GPMP) support was active on the virtual server at the end of the last monitoring interval.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GPMP_ACTIVE or PVSGPMPACT

Virtualization Host CPU Delay (%) attribute

Description

The percentage of time that the virtual processors of this virtual server were ready to run but were not dispatched on real processors because of competition with other virtual servers, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the

Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRT_HOST_CPU_DELAY or PVSVHCPUD

Bytes Sent attribute

Description

The number of bytes sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_SENT or PVSBSSENT

Bytes Received attribute

Description

The number of bytes received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_RECEIVED or PVSBRRCV

Packets Sent attribute

Description

The number of packets sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT or PVSPSENT

Packets Received attribute

Description

The number of packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED or PVSPRECV

Packets Sent Dropped attribute**Description**

The number of packets sent on any virtual network over any virtual adapter for this virtual server that were dropped due to conditions such as buffer shortages or other resource constraints, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_DROPPED or PVSPSDROP

Packets Received Dropped attribute**Description**

The number of packets received on any virtual network over any virtual adapter for this virtual server that were dropped due to conditions such as buffer shortages or other resource constraints, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED_DROPPED or PVSPRDROP

Packets Sent Discarded attribute**Description**

The number of packets sent on any virtual network over any virtual adapter for this virtual server that were discarded due to conditions such as malformed packets or other packet errors, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
PACKETS_SENT_DISCARDED or PVSPSDISC	
<u>Packets Received Discarded attribute</u>	
Description	The number of packets received on any virtual network over any virtual adapter for this virtual server that were discarded due to conditions such as malformed packets or other packet errors, as measured in the last monitoring interval.
Type	Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (9223372036854775807) • Value Exceeds Minimum (-9223372036854775808) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
PACKETS_RECEIVED_DISCARDED or PVSPRDISC	
<u>Multicast Packets Sent attribute</u>	
Description	The number of multicast packets sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.
Type	Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (9223372036854775807) • Value Exceeds Minimum (-9223372036854775808) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
MULTICAST_PACKETS_SENT or PVSMPSENT	
<u>Multicast Packets Received attribute</u>	
Description	The number of multicast packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.
Type	Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (9223372036854775807) • Value Exceeds Minimum (-9223372036854775808) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
MULTICAST_PACKETS_RECEIVED or PVSMPRECV	
<u>Broadcast Packets Sent attribute</u>	
Description	The number of broadcast packets sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.
Type	Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (9223372036854775807)

- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BROADCAST_PACKETS_SENT or PVSBPSENT

Broadcast Packets Received attribute

Description

The number of broadcast packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BROADCAST_PACKETS_RECEIVED or PVSBPRECV

Bytes Sent and Received attribute

Description

The number of bytes sent and bytes received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_SENT_AND_RECEIVED or PVSBSNTRCV

Packets Sent and Received attribute

Description

The number of packets sent and packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_AND_RECEIVED or PVSPSNTRCV

PowerVM Virtualization Host attribute group

The PowerVM Virtualization Host attribute group represents the characteristics and metrics of PowerVM virtualization hosts.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the PowerVM Virtualization Host attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute

Description

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or PVHINTTIME

Interval Length attribute

Description

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or PVHINTLEN

Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the virtualization host. The identifier is permanently assigned by the zManager when the object is first created or discovered.

Type

String

Warehouse name

OBJECT_ID or PVHOBjid

Name attribute

Description

The display name specified for the virtualization host.

Type

String

Warehouse name

NAME or PVHNAME

HMC Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the System z Hardware Management Console (HMC) that manages the ensemble to which this virtualization host belongs.

Type

String

Warehouse name

HMC_OBJECT_ID or PVHHMCID

HMC Name attribute

Description

The name of the System z Hardware Management Console (HMC) that provided the information for this virtualization host.

Type

String

Warehouse name

HMC_NAME or PVHHMCNAME

Ensemble Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the ensemble to which this virtualization host belongs.

Type

String

Warehouse name

ENSEMBLE_OBJECT_ID or PVHENSID

Ensemble Name attribute

Description

The display name of the ensemble to which this virtualization host belongs.

Type

String

Warehouse name

ENSEMBLE_NAME or PVHENSNAME

CPC Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the central processor complex (CPC) of this virtualization host.

Type

String

Warehouse name

CPC_OBJECT_ID or PVHCPCID

CPC Name attribute

Description

The display name of the central processor complex (CPC) of this virtualization host.

Type

String

Warehouse name

CPC_NAME or PVHCPCNAME

Status attribute

Description

Indicates the current operational status of the virtualization host.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Operating (1)
- Not Operating (2)
- Status Check (3)
- Not Communicating (4)
- Definition Error (5)
- No Power (6)
- Stopped (7)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

STATUS or PVHSTATUS

Platform Type attribute**Description**

Indicates the platform on which the virtualization host is running.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- PowerVM (1)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PLATFORM_TYPE or PVHPLATFRM

Virtual Server Shutdown Timeout attribute**Description**

The amount of time in seconds that virtual servers on this virtualization host have to shut down cleanly. After this amount of time passes, a virtual server shutdown will be forced. A value of -1 indicates that shutdown will never be forced.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_SERVER_SHUTDOWN_TO or PVHVSSDTO

Auto Start Virtual Servers attribute**Description**

Indicates whether the virtual servers are started automatically when their virtualization host is started. This applies only to virtual servers that are configured to start automatically.

Type

Integer (32-bit numeric property) with enumerated values. The strings are

displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

AUTO_START_VIRTUAL_SERVERS or PVHVS AUTOS

Total Memory (MB) attribute

Description

The total memory available on this virtualization host, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

TOTAL_MEMORY_MB or PVHTOTMEM

Memory Increment (MB) attribute

Description

The minimum increment of memory that can be used when defining the memory size for a virtual server on this virtualization host, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MEMORY_INCREMENT_MB or PVHMEMINCR

Minimum Memory (MB) attribute

Description

The minimum memory size that can be configured for a virtual server on this virtualization host, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MINIMUM_MEMORY_MB or PVHMINMEM

Maximum Memory (MB) attribute

Description

The maximum memory size that can be configured for a virtual server on this virtualization host, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_MEMORY_MB or PVHMAXMEM

Maximum Dedicated CPUs attribute**Description**

The maximum number of dedicated processors that can be configured for a virtual server on this virtualization host.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_DEDICATED_CPUS or PVHMAXDCPU

Maximum Virtual CPUs attribute**Description**

The maximum number of virtual processors that can be configured for a virtual server on this virtualization host.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_VIRTUAL_CPUS or PVHMAXVCPU

Maximum Processing Units attribute**Description**

The maximum number of processing units that can be configured for a virtual server on this virtualization host.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_PROCESSING_UNITS or PVHMAXCPUU

CPU Utilization attribute

Description

The percentage of processor utilization for the virtualization host, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CPU_UTILIZATION or PVHCPU

Management CPU Utilization attribute**Description**

The percentage of processor utilization for management of the virtualization host, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MANAGEMENT_CPU_UTILIZATION or PVHMGMTCPU

Memory Utilization attribute**Description**

The percentage of memory utilization for the virtualization host, as measured at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MEMORY_UTILIZATION or PVHMEM

Current Memory (MB) attribute**Description**

The amount of memory currently used by the virtualization host, expressed in MB.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
CURRENT_MEMORY_MB or PVHCURMEM	
<u>Network Utilization attribute</u>	
Description	The percentage of network utilization for the virtualization host, as measured in the last monitoring interval.
Type	Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
NETWORK_UTILIZATION or PVHNET	
<u>Storage Rate attribute</u>	
Description	The average rate of data transfer to disk, expressed in KB per second, as measured in the last monitoring interval.
Type	Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
STORAGE_RATE or PVHSTGRATE	
<u>Page In Rate attribute</u>	
Description	The average rate at which pages are read from paging space to support management of the virtualization host, expressed in pages per second, as measured in the last monitoring interval.
Type	Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (9223372036854775807) • Value Exceeds Minimum (-9223372036854775808) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
PAGE_IN_RATE or PVHPGIRATE	
<u>Page Out Rate attribute</u>	
Description	The average rate at which pages are written to paging space to support management of the virtualization host, expressed as pages per second, as measured in the last monitoring interval.
Type	Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PAGE_OUT_RATE or PVHPGORATE

Total Paging Rate attribute

Description

The total paging rate (page ins plus page outs) from paging space to support management of the virtualization host, expressed as pages per second, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

TOTAL_PAGING_RATE or PVHPGTRATE

PRSM Virtual Server attribute group

The PR/SM Virtual Server attribute group represents the characteristics and aggregated metrics of PR/SM virtual servers.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the PRSM Virtual Server attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute

Description

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or MVSINTTIME

Interval Length attribute

Description

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or MVSINTLEN

Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the virtual server. The identifier is permanently assigned by the zManager when the object is first created or discovered.

Type

String

Warehouse name

OBJECT_ID or MVSOBJID

Name attribute

Description

The current display name of the virtual server.

Type

String

Warehouse name

NAME or MVSNAME

Description attribute

Description

Customer-specified text describing the virtual server. Longer descriptions are truncated to 256 characters.

Type

String

Warehouse name

DESCRIPTION or MVSDDESC

HMC Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the System z Hardware Management Console (HMC) that manages the ensemble to which this virtual server belongs.

Type

String

Warehouse name

HMC_OBJECT_ID or MVSHMCID

HMC Name attribute

Description

The name of the System z Hardware Management Console (HMC) that provided the information for this virtual server.

Type

String

Warehouse name	
HMC_NAME or MVSHMCNAME	
<u>Ensemble Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the ensemble to which this virtual server belongs.
Type	String
Warehouse name	
ENSEMBLE_OBJECT_ID or MVSENSID	
<u>Ensemble Name attribute</u>	
Description	The display name of the ensemble to which this virtual server belongs.
Type	String
Warehouse name	
ENSEMBLE_NAME or MVSENSNAME	
<u>CPC Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the central processor complex (CPC) for this virtual server.
Type	String
Warehouse name	
CPC_OBJECT_ID or MVSCPCID	
<u>CPC Name attribute</u>	
Description	The current display name of the central processor complex (CPC) for this virtual server.
Type	String
Warehouse name	
CPC_NAME or MVSCPCNAME	
<u>LPAR Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the logical partition for this virtual server.
Type	String
Warehouse name	
LPAR_OBJECT_ID or MVSLPRID	
<u>LPAR Name attribute</u>	
Description	The current display name of the logical partition for this virtual server.
Type	String
Warehouse name	
LPAR_NAME or MVSLPRNAME	
<u>Virtualization Host ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the virtualization host for this virtual server.
Type	String
Warehouse name	
VIRTUALIZATION_HOST_ID or MVSVHSID	
<u>Virtualization Host Name attribute</u>	
Description	The current display name of the virtualization host for this virtual server.

Type	String
Warehouse name	VIRTUALIZATION_HOST_NAME or MVSVHSNAME
Status attribute	
Description	Indicates the current operational status of the virtual server.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Operating (1) • Not Operating (2) • Not Communicating (3) • Exceptions (4) • Status Check (5) • Not Activated (9) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	STATUS or MVSSTATUS
Acceptable Status attribute	
Description	Indicates whether the current status of the virtual server is one of the acceptable status values specified for the virtual server.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	ACCEPTABLE_STATUS or MVSACCSTAT
Platform Type attribute	
Description	Indicates the platform on which the virtual server is running.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • PRSM (4) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	PLATFORM_TYPE or MVSPLATFRM
GPMP Status attribute	
Description	Indicates the status of the System z guest platform management provider (GPMP).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Operating (1)
- Operating (2)
- Status Check (3)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GPMP_STATUS or MVSGPMPST

TCPIP Hostname attribute**Description**

The TCP/IP host name of the virtual server (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

TCPIP_HOSTNAME or MVSIPHOST

OS Name attribute**Description**

The name given to the virtual server by the operating system (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

OS_NAME or MVSOSNAME

OS Type attribute**Description**

The type of the operating system of the virtual server (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

OS_TYPE or MVSOSTYPE

OS Level attribute**Description**

The release level of the operating system of the virtual server, as reported by the operating system (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

OS_LEVEL or MVSOSLVL

GPMP Enabled attribute**Description**

Indicates whether guest platform management provider (GPMP) support is enabled, allowing the GPMP to gather performance data for work running on the virtual server.

Type

Integer (32-bit numeric property) with enumerated values. The strings are

displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GPMP_ENABLED or MVSGPMPEN

GPMP Version attribute

Description

The guest platform management provider (GPMP) version, reported as Unavailable if the version is not known.

Type

String

Warehouse name

GPMP_VERSION or MVSGPMPVER

CPU Utilization attribute

Description

The percentage of processor utilization for the virtual server, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CPU_UTILIZATION or MVSCPU

Memory Utilization attribute

Description

The percentage of memory utilization for the virtual server, as reported by the platform hypervisor at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MEMORY_UTILIZATION or MVSMEM

Elapsed Time attribute

Description

The elapsed time (in microseconds) between the end of the previous monitoring interval and the end of the current one, as observed by the guest platform management provider (GPMP).

Type

Integer (64-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ELAPSED_TIME or MVSETIME

Virtual CPU Count attribute

Description

The number of virtual processors defined for this virtual server.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_CPU_COUNT or MVSVCPUCNT

Current Processing Weight attribute

Description

The amount of CPU resource (in processing weight) allocated to the virtual machine. The zManager adjusts this value when virtual server management is enabled. This field is shown as 0 (zero) if the virtual-server is not in shared processing mode.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CURRENT_PROCESSING_WEIGHT or MVSCURCPUW

Current Memory (MB) attribute

Description

The amount of memory currently used by the virtual machine, expressed in MB.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CURRENT_MEMORY_MB or MVSCURMEM

Sampling Rate attribute

Description

The number of times per second that the guest platform management provider (GPMP) samples the operating system of the virtual server.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

SAMPLING_RATE or MVSSRATE

GPMP Active attribute**Description**

Indicates whether guest platform management provider (GPMP) support was active on the virtual server at the end of the last monitoring interval.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GPMP_ACTIVE or MVSGPMPACT

Bytes Sent attribute**Description**

The number of bytes sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_SENT or MVSBSENT

Bytes Received attribute**Description**

The number of bytes received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_RECEIVED or MVSBRECV

Packets Sent attribute

Description

The number of packets sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT or MVSPSENT

Packets Received attribute**Description**

The number of packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED or MVSPRECV

Packets Sent Dropped attribute**Description**

The number of packets sent on any virtual network over any virtual adapter for this virtual server that were dropped due to conditions such as buffer shortages or other resource constraints, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_DROPPED or MVSPSDROP

Packets Received Dropped attribute**Description**

The number of packets received on any virtual network over any virtual adapter for this virtual server that were dropped due to conditions such as buffer shortages or other resource constraints, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED_DROPPED or MVSPRDROP

Packets Sent Discarded attribute

Description

The number of packets sent on any virtual network over any virtual adapter for this virtual server that were discarded due to conditions such as malformed packets or other packet errors, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_DISCARDED or MVSPSDISC

Packets Received Discarded attribute

Description

The number of packets received on any virtual network over any virtual adapter for this virtual server that were discarded due to conditions such as malformed packets or other packet errors, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED_DISCARDED or MVSPRDISC

Multicast Packets Sent attribute

Description

The number of multicast packets sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MULTICAST_PACKETS_SENT or MVSMPSENT

Multicast Packets Received attribute

Description

The number of multicast packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the

Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MULTICAST_PACKETS_RECEIVED or MVSMPRECV

Broadcast Packets Sent attribute

Description

The number of broadcast packets sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BROADCAST_PACKETS_SENT or MVSBPSENT

Broadcast Packets Received attribute

Description

The number of broadcast packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BROADCAST_PACKETS_RECEIVED or MVSBPRECV

Bytes Sent and Received attribute

Description

The number of bytes sent and bytes received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_SENT_AND_RECEIVED or MVSBSNTRCV

Packets Sent and Received attribute

Description

The number of packets sent and packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_AND_RECEIVED or MVSPSNTRCV

PRSM Virtualization Host attribute group

The PR/SM Virtualization Host attribute group represents the characteristics and metrics of PR/SM virtualization hosts.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the PRSM Virtualization Host attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute**Description**

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute**Description**

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or MVHINTTIME

Interval Length attribute**Description**

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	INTERVAL_LENGTH or MVHINTLEN
<u>Object ID attribute:</u>	This attribute is a key attribute.
Description	The unique object identifier of the virtualization host. The identifier is permanently assigned by the zManager when the object is first created or discovered.
Type	String
Warehouse name	OBJECT_ID or MVHOBjid
<u>Name attribute</u>	
Description	The display name of this virtualization host.
Type	String
Warehouse name	NAME or MVHNAME
<u>HMC Object ID attribute:</u>	This attribute is a key attribute.
Description	The unique object identifier of the System z Hardware Management Console (HMC) that manages the ensemble to which this virtualization host belongs.
Type	String
Warehouse name	HMC_OBJECT_ID or MVHHMCID
<u>HMC Name attribute</u>	
Description	The name of the System z Hardware Management Console (HMC) that provided the information for this virtualization host.
Type	String
Warehouse name	HMC_NAME or MVHHMCNAME
<u>Ensemble Object ID attribute:</u>	This attribute is a key attribute.
Description	The unique object identifier of the ensemble to which this virtualization host belongs.
Type	String
Warehouse name	ENSEMBLE_OBJECT_ID or MVHENSID
<u>Ensemble Name attribute</u>	
Description	The display name of the ensemble to which this virtualization host belongs.
Type	String

Warehouse name	
ENSEMBLE_NAME or MVHENSNAME	
<u>CPC Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the central processor complex (CPC) of this virtualization host.
Type	String
Warehouse name	
CPC_OBJECT_ID or MVHCPCID	
<u>CPC Name attribute</u>	
Description	The display name of the central processor complex (CPC) of this virtualization host.
Type	String
Warehouse name	
CPC_NAME or MVHCPCNAME	
<u>Status attribute</u>	
Description	Indicates the current operational status of the virtualization host.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Operating (1) • Not Operating (2) • Status Check (3) • Not Communicating (4) • Degraded (5) • Exceptions (6) • No Power (7) • Service (8) • Service Required (9) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
STATUS or MVHSTATUS	
<u>Platform Type attribute</u>	
Description	Indicates the platform on which the virtualization host is running.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • PRSM (4) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
PLATFORM_TYPE or MVHPLATFRM	
<u>Virtual Server Shutdown Timeout attribute</u>	
Description	The amount of time in seconds that virtual servers on this virtualization host

have to shut down cleanly. After this amount of time passes, a virtual server shutdown will be forced. A value of -1 indicates that shutdown will never be forced.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_SERVER_SHUTDOWN_TO or MVHVSSDTO

Total Memory (MB) attribute

Description

The total memory available on this virtualization host, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

TOTAL_MEMORY_MB or MVHTOTMEM

CPU Utilization attribute

Description

The percentage of processor utilization for the virtualization host, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CPU_UTILIZATION or MVHCPU

Memory Utilization attribute

Description

The percentage of memory utilization for the virtualization host, as measured at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MEMORY_UTILIZATION or MVHMEM

Current Memory (MB) attribute

Description

The amount of memory currently used by the virtualization host, expressed in MB.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CURRENT_MEMORY_MB or MVHCURMEM

Service Class attribute group

The Service Class attribute group represents the characteristics and aggregated metrics of a service class.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Service Class attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute

Description

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or SVCINTTIME

Interval Length attribute

Description

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are

displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or SVCINTLEN

Name attribute: This attribute is a key attribute.

Description

The unique display name of this service class, specified when the service class was created.

Type

String

Warehouse name

NAME or SVCNAME

Description attribute

Description

Customer-specified text describing the service class. Longer descriptions are truncated to 256 characters.

Type

String

Warehouse name

DESCRIPTION or SVCDESC

HMC Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the System z Hardware Management Console (HMC) that manages the workload resource group for this service class.

Type

String

Warehouse name

HMC_OBJECT_ID or SVCHMCID

HMC Name attribute

Description

The name of the System z Hardware Management Console (HMC) that provided information for this service class.

Type

String

Warehouse name

HMC_NAME or SVCHMCNAME

Ensemble Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the ensemble in which this service class is defined.

Type

String

Warehouse name

ENSEMBLE_OBJECT_ID or SVCENSID

Ensemble Name attribute

Description

The unique display name of the ensemble in which this service class is defined.

Type

String

Warehouse name

ENSEMBLE_NAME or SVCENSNAME

Workload Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the workload resource group in which this service class is defined.

Type

String

Warehouse name

WORKLOAD_OBJECT_ID or SVCWKLID

Workload Name attribute**Description**

The display name of the workload resource group in which this service class is defined.

Type

String

Warehouse name

WORKLOAD_NAME or SVCWKLNAME

Performance Policy ID attribute: This attribute is a key attribute.**Description**

The unique identifier of the performance policy in which this service class is defined.

Type

String

Warehouse name

PERFORMANCE_POLICY_ID or SVCPPID

Performance Policy Name attribute**Description**

The unique display name of the performance policy.

Type

String

Warehouse name

PERFORMANCE_POLICY_NAME or SVCPPNAME

Type attribute**Description**

The type of the service class.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Server (1)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

TYPE or SVCTYPE

Business Importance attribute**Description**

The business importance level assigned to the service class. This field is Not Applicable for discretionary service classes.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Applicable (1)
- Lowest (2)
- Low (3)
- Medium (4)

- High (5)
- Highest (6)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BUSINESS_IMPORTANCE or SVCBUSIMP

Performance Index attribute

Description

Indicates whether the service class is meeting its performance goal, where 1.0 or less means it is met and greater than 1.0 means it is not met. For services classes with no performance index (discretionary or insufficient metric data), this field is 0.0.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PERFORMANCE_INDEX or SVCPI

Goal Type attribute

Description

The type of goal defined for the service class, which can be Velocity or Discretionary (at the discretion of the performance manager). Unknown means the type cannot be determined.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Velocity (1)
- Discretionary (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GOAL_TYPE or SVCGOALTYP

Goal Performance Level attribute

Description

The goal performance level for the service class. This field is Not Applicable for discretionary service classes.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Applicable (1)
- Slowest (2)
- Slow (3)
- Moderate (4)
- Fast (5)
- Fastest (6)

- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GOAL_PERFORMANCE_LEVEL or SVCGOALLVL

Actual Performance Level attribute

Description

The actual performance level for the service class. This field is Not Applicable for discretionary service classes and Unknown for velocity service classes whose performance index (PI) cannot be calculated due to insufficient metric data.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Applicable (1)
- Slowest (2)
- Slow (3)
- Moderate (4)
- Fast (5)
- Fastest (6)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ACTUAL_PERFORMANCE_LEVEL or SVCACTLVL

Storage Resource attribute group

The Storage Resource attribute group represents the characteristics of a virtualization host storage resource.

Historical group

This attribute group is not eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Storage Resource attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Interval End Time attribute

Description

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Interval Length attribute

Description

The length in seconds of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Element ID attribute: This attribute is a key attribute.

Description

The unique identifier of the virtualization host storage resource.

Type

String

Name attribute

Description

The display name specified for the virtualization host storage resource.

Type

String

Description attribute

Description

Customer-defined text describing the virtualization host storage resource. Longer descriptions are truncated to 256 characters.

Type

String

HMC Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the System z Hardware Management Console (HMC) that manages this virtualization host storage resource.

Type

String

HMC Name attribute

Description

The name of the System z Hardware Management Console (HMC) that provided the information for this virtualization host storage resource.

Type

String

Ensemble Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the ensemble to which this virtualization host storage resource belongs.

Type

String

Ensemble Name attribute

Description

The display name of the ensemble to which this virtualization host storage resource belongs.

Type

String

CPC Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the central processor complex (CPC) for this virtualization host storage resource.

Type

String

CPC Name attribute**Description**

The display name of the central processor complex (CPC) for this virtualization host storage resource.

Type

String

Virtualization Host ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the virtualization host for this virtualization host storage resource.

Type

String

Virtualization Host Name attribute**Description**

The current display name of the virtualization host of this virtualization host storage resource.

Type

String

Storage Resource ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the storage resource of this virtualization host storage resource.

Type

String

Type attribute**Description**

The type of the storage resource.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- ECKD (1)
- FCP (2)
- z/VM FCP (3)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Size attribute**Description**

The size of the storage resource, expressed in GB (if Allocation Units is designated in bytes) or cylinders (if Allocation Units is designated in cylinders).

Type

Integer (64-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Allocation Size attribute

Description

The size of the storage resource, expressed in the units designated in the Allocation Units attribute.

Type

Integer (64-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Allocation Units attribute**Description**

The units associated with the Allocation Size attribute.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Bytes (1)
- Cylinders (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Allocation Status attribute**Description**

Indicates whether the storage resource is currently allocated for use.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Free (1)
- Used (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Unique Device ID attribute**Description**

The worldwide unique device identifier for this virtualization host storage resource. This identifier is assigned by the hypervisor using its unique format when the object is first created and may be blanks if the device has not been accessed.

Type

String

Path Count attribute**Description**

The number of defined paths to the virtualization host storage resource. Up to four paths are shown in this attribute group, but this count reflects all defined paths.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Not Accessible Path Count attribute

Description

The number of inaccessible paths to the virtualization host storage resource. Up to four paths are shown in this attribute group, but this count reflects all defined paths that are inaccessible.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Path 1 attribute

Description

Information about the first path to the virtualization host storage resource, or blank if not defined. For FCP resources, this is a concatenation of host-port-wwpn, controller-port-wwpn and lun. For ECKD resources, this is the 4-digit device number.

Type

String

Path 2 attribute

Description

Information about the second path to the virtualization host storage resource, or blank if not defined. For FCP resources, this is a concatenation of host-port-wwpn, controller-port-wwpn and lun. For ECKD resources, this is the 4-digit device number.

Type

String

Path 3 attribute

Description

Information about the third path to the virtualization host storage resource, or blank if not defined. For FCP resources, this is a concatenation of host-port-wwpn, controller-port-wwpn and lun. For ECKD resources, this is the 4-digit device number.

Type

String

Path 4 attribute

Description

Information about the fourth path to the virtualization host storage resource, or blank if not defined. For FCP resources, this is a concatenation of host-port-wwpn, controller-port-wwpn and lun. For ECKD resources, this is the 4-digit device number.

Type

String

Path 1 Accessible attribute

Description

Indicates whether the first path to the virtualization host storage resource is accessible.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Undefined (3)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Path 2 Accessible attribute

Description

Indicates whether the second path to the virtualization host storage resource is accessible.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Undefined (3)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Path 3 Accessible attribute

Description

Indicates whether the third path to the virtualization host storage resource is accessible.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Undefined (3)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Path 4 Accessible attribute

Description

Indicates whether the fourth path to the virtualization host storage resource is accessible.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Undefined (3)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Take Action Status attribute group

The Take Action Status attribute group contains information about the results of actions this agent has executed.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Take Action Status attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Action Name attribute

Description

The name of the action that was run.

Type

String

Warehouse name

ACTION_NAME or TSKNAME

Action Status attribute

Description

The return code from the Action Status dialog which is the return code category defined for the application return code.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- OK (0)
- NOT APPLICABLE (1)
- GENERAL ERROR (2)
- WARNING (3)
- NOT RUNNING (4)
- DEPENDENT NOT RUNNING (5)
- ALREADY RUNNING (6)
- PREREQ NOT RUNNING (7)
- TIMED OUT (8)
- DOESNT EXIST (9)
- UNKNOWN (10)
- DEPENDENT STILL RUNNING (11)
- INSUFFICIENT USER AUTHORITY (12)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ACTION_STATUS or TSKSTAT

Action App Return Code attribute

Description

The application return code of the action is the actual return code of the command that is executed.

Type	Integer (32-bit numeric property)
Warehouse name	ACTION_APP_RETURN_CODE or TSKAPRC
<u>Action Message attribute</u>	
Description	The message associated with the return code of the action.
Type	String
Warehouse name	ACTION_MESSAGE or TSKMSGE
<u>Action Instance attribute</u>	
Description	The instance associated with the output produced by running the action.
Type	String
Warehouse name	ACTION_INSTANCE or TSKINST
<u>Action Results attribute</u>	
Description	The output produced by running the action.
Type	String
Warehouse name	ACTION_RESULTS or TSKOUTP
<u>Action Command attribute</u>	
Description	The command that was run by the action.
Type	String
Warehouse name	ACTION_COMMAND or TSKCMND
<u>Action Node attribute</u>	
Description	The node where the action ran.
Type	String
Warehouse name	ACTION_NODE or TSKORGN
<u>Action Subnode attribute</u>	
Description	The subnode where the action ran.
Type	String
Warehouse name	ACTION_SUBNODE or TSKSBND
<u>Action ID attribute</u>	
Description	The id of the action.
Type	Integer (32-bit numeric property)
Warehouse name	ACTION_ID or TSKID
<u>Action Type attribute</u>	
Description	The type of the action.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- UNKNOWN (0)
- AUTOMATION (1)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ACTION_TYPE or TSKTYPE

Action Owner attribute**Description**

The name of the situation or user that initiated the action.

Type

String

Warehouse name

ACTION_OWNER or TSKOWNER

Thread Pool Status attribute group

The Thread Pool Status attribute group contains information that reflects the status of the internal thread pool used to collect data asynchronously.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Thread Pool Status attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute**Description**

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Thread Pool Size attribute**Description**

The number of threads currently existing in the thread pool.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-1)
- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

THREAD_POOL_SIZE or THPSIZE

Thread Pool Max Size attribute

Description

The maximum number of threads allowed to exist in the thread pool.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-1)
- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

THREAD_POOL_MAX_SIZE or TPCMAXSZ

Thread Pool Active Threads attribute**Description**

The number of threads in the thread pool currently active doing work.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-1)
- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

THREAD_POOL_ACTIVE_THREADS or TPACTTH

Thread Pool Avg Active Threads attribute**Description**

The average number of threads in the thread pool simultaneously active doing work.

Type

Real number (32-bit gauge) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-1)
- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

THREAD_POOL_AVG_ACTIVE_THREADS or TPAVGAT

Thread Pool Min Active Threads attribute**Description**

The smallest number of threads in the thread pool that have simultaneously been active doing work.

Type

Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-1)
- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

THREAD_POOL_MIN_ACTIVE_THREADS or TPMINAT

Thread Pool Max Active Threads attribute

Description

The peak number of threads in the thread pool that have simultaneously been active doing work.

Type

Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-1)
- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

THREAD_POOL_MAX_ACTIVE_THREADS or TPMAXAT

Thread Pool Queue Length attribute

Description

The number of jobs currently waiting in the thread pool queue.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-1)
- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

THREAD_POOL_QUEUE_LENGTH or TPQLGTH

Thread Pool Avg Queue Length attribute

Description

The average length of the thread pool queue during this run.

Type

Real number (32-bit gauge) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-1)
- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

THREAD_POOL_AVG_QUEUE_LENGTH or TPAVGQL

Thread Pool Min Queue Length attribute

Description

The minimum length the thread pool queue has reached.

Type

Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-1)
- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

THREAD_POOL_MIN_QUEUE_LENGTH or TPMINQL

Thread Pool Max Queue Length attribute

Description

The peak length the thread pool queue has reached.

Type

Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-1)
- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

THREAD_POOL_MAX_QUEUE_LENGTH or TPMAXQL

Thread Pool Avg Job Wait attribute

Description

The average time a job spends waiting on the thread pool queue in seconds.

Type

Real number (32-bit gauge) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-1)
- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

THREAD_POOL_AVG_JOB_WAIT or TPAVJBW

Thread Pool Total Jobs attribute

Description

The number of jobs completed by all threads in the pool since agent start.

Type

Integer (32-bit counter) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NO DATA (-1)
- NO DATA (-100)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

THREAD_POOL_TOTAL_JOBS or TPTJOBS

Topology attribute group

The Topology attribute group represents the characteristics of a topology diagram in the Tivoli Enterprise Portal.

Historical group

This attribute group is not eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Topology attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Timestamp attribute

Description	The local time at the agent when the data was collected.
Type	String
<u>Topology Type attribute</u>	
Description	Used by Tivoli Enterprise Portal to specify the type of topology to be rendered. This attribute is used as a query filter and specifies the types of objects and relationships to be included in the query response.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Ensemble Topology (1) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
<u>Node Name attribute</u>	
Description	The name of the node in the topology diagram.
Type	String
<u>Node ID attribute: This attribute is a key attribute.</u>	
Description	The unique identifier of the node in the topology diagram.
Type	String
<u>Node Type attribute</u>	
Description	The type of the node in the topology diagram.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Hardware Management Console (100) • Ensemble (200) • Central Processor Complex (300) • zEnterprise BladeCenter Extension (400) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
<u>Node Description attribute</u>	
Description	The description of the node in the topology diagram.
Type	String
<u>Node Status attribute</u>	
Description	The status of the object in the topology diagram. This value is used to display a status indicator on the node, and the meaning of the status indicator is different for each node type.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Satisfactory (201)
- Informational (202)
- Warning (203)
- Minor (204)
- Critical (205)
- Fatal (206)
- Operating (301)
- Not Communicating (302)
- Exceptions (303)
- Status Check (304)
- Service (305)
- Not Operating (306)
- No Power (307)
- Service Required (308)
- Degraded (309)
- Hardware Messages (401)
- No Hardware Messages (402)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Link ID attribute: This attribute is a key attribute.

Description

The identifier of a node related to the current node, which causes a line to be drawn between the two nodes. If this field is blank, no relationship line is drawn.

Type

String

Link Type attribute

Description

The type of relationship between the current node and the node identified by the Link ID attribute.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Parent (1)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Uplink attribute group

The Uplink attribute group represents the characteristics and metrics of an uplink port for virtualization hosts.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Uplink attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute**Description**

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or UPLINTTIME

Interval Length attribute**Description**

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or UPLINTLEN

Uplink Name attribute: This attribute is a key attribute.**Description**

The name and identifier of the uplink interface.

Type

String

Warehouse name

UPLINK_NAME or UPLINKNAME

Virtual Switch Name attribute: This attribute is a key attribute.**Description**

The name of the virtual switch (vSwitch). If the vSwitch is not uniquely identified for a virtualization host, the field displays Not Applicable.

Type

String with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Applicable (N/A)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_SWITCH_NAME or UPLVSWNAME

HMC Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the System z Hardware Management Console (HMC) that manages the virtualization host of this uplink.

Type

String

Warehouse name

HMC_OBJECT_ID or UPLHMCID

HMC Name attribute**Description**

The name of the System z Hardware Management Console (HMC) that provided the information for this uplink.

Type

String

Warehouse name

HMC_NAME or UPLHMCNAME

Ensemble Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the ensemble of which the virtualization host of this uplink is a member.

Type

String

Warehouse name

ENSEMBLE_OBJECT_ID or UPLENSID

Ensemble Name attribute**Description**

The display name of the ensemble of the virtualization host of this uplink.

Type

String

Warehouse name

ENSEMBLE_NAME or UPLENSNAME

CPC Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the central processor complex (CPC) for the virtualization host of this uplink.

Type

String

Warehouse name

CPC_OBJECT_ID or UPLCPCID

CPC Name attribute**Description**

The display name of the central processor complex (CPC) for the virtualization host of this uplink.

Type

String

Warehouse name

CPC_NAME or UPLCPCNAME

Virtualization Host ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the virtualization host for this uplink.

Type

String

Warehouse name

VIRTUALIZATION_HOST_ID or UPLVHSID

Virtualization Host Name attribute**Description**

The display name of the virtualization host for this uplink.

Type	
String	
Warehouse name	
VIRTUALIZATION_HOST_NAME or UPLVHSNAME	
<u>Bytes Sent attribute</u>	
Description	
The number of bytes sent from the virtual switch (vSwitch) to the physical network interface, as measured in the last monitoring interval.	
Type	
Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:	
• Value Exceeds Maximum (9223372036854775807) • Value Exceeds Minimum (-9223372036854775808)	
Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.	
Warehouse name	
BYTES_SENT or UPLBSENT	
<u>Bytes Received attribute</u>	
Description	
The number of bytes received by the virtual switch (vSwitch) from the physical network interface, as measured in the last monitoring interval.	
Type	
Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:	
• Value Exceeds Maximum (9223372036854775807) • Value Exceeds Minimum (-9223372036854775808)	
Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.	
Warehouse name	
BYTES_RECEIVED or UPLBRECV	
<u>Packets Sent attribute</u>	
Description	
The number of packets sent from the virtual switch (vSwitch) to the physical network interface, as measured in the last monitoring interval.	
Type	
Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:	
• Value Exceeds Maximum (9223372036854775807) • Value Exceeds Minimum (-9223372036854775808)	
Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.	
Warehouse name	
PACKETS_SENT or UPLPSENT	
<u>Packets Received attribute</u>	
Description	
The number of packets received by the virtual switch (vSwitch) from the physical network interface, as measured in the last monitoring interval.	
Type	
Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:	

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED or UPLPRECV

Packets Sent Dropped attribute

Description

The number of packets that were dropped when being sent from the virtual switch (vSwitch) to the physical network interface due to conditions related to resource constraint, such as a buffer shortage, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_DROPPED or UPLPSDROP

Packets Received Dropped attribute

Description

The number of packets that were dropped when being received by the virtual switch (vSwitch) from the physical network interface due to conditions related to resource constraint, such as a buffer shortage, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED_DROPPED or UPLPRDROP

Packets Sent Discarded attribute

Description

The number of packets that were discarded when being sent from the virtual switch (vSwitch) to the physical network interface due to errors associated with the packet, such as malformed packets, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_DISCARDED or UPLPSDISC

Packets Received Discarded attribute

Description

The number of packets that were discarded when being received by the virtual switch (vSwitch) from the physical network interface due to errors associated with the packet, such as malformed packets, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED_DISCARDED or UPLPRDISC

Multicast Packets Sent attribute

Description

The number of multicast packets sent from the virtual switch (vSwitch) to the physical network interface, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MULTICAST_PACKETS_SENT or UPLMPSENT

Multicast Packets Received attribute

Description

The number of multicast packets received by the virtual switch (vSwitch) from the physical network interface, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MULTICAST_PACKETS_RECEIVED or UPLMPRECV

Broadcast Packets Sent attribute

Description

The number of broadcast packets sent from the virtual switch (vSwitch) to the physical network interface, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BROADCAST_PACKETS_SENT or UPLBPSENT

Broadcast Packets Received attribute

Description

The number of broadcast packets received by the virtual switch (vSwitch) from the physical network interface, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BROADCAST_PACKETS_RECEIVED or UPLBPRECV

Bytes Sent and Received attribute

Description

The sum of the number of bytes sent and bytes received between the virtual switch (vSwitch) and the physical network interface, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_SENT_AND_RECEIVED or UPLBSNTRCV

Packets Sent and Received attribute

Description

The sum of the number of packets sent and packets received between the virtual switch (vSwitch) and the physical network interface, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_AND_RECEIVED or UPLPSNTRCV

Total Packets Dropped attribute

Description

The sum of the number of dropped packets sent and dropped packets received between the virtual switch (vSwitch) and the physical network interface, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

TOTAL_PACKETS_DROPPED or UPLPSRDROP

Total Packets Discarded attribute**Description**

The sum of the number of discarded packets sent and discarded packets received between the virtual switch (vSwitch) and the physical network interface, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

TOTAL_PACKETS_DISCARDED or UPLPSRDISC

Bandwidth Utilization attribute**Description**

The percentage of bandwidth utilization of this uplink, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BANDWIDTH_UTILIZATION or UPLBANDW

LPAR Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the logical partition for the virtualization host of this uplink.

Type

String

Warehouse name

LPAR_OBJECT_ID or UPLLPRID

LPAR Name attribute**Description**

The display name of the logical partition for the virtualization host of this uplink.

Type

String

Warehouse name

LPAR_NAME or UPLLPRNAME

Virtual Network attribute group

The zEnterprise Virtual Network attribute group represents the characteristics and aggregated metrics of a zEnterprise Virtual Network.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Virtual Network attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute

Description

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or VNTINTTIME

Interval Length attribute

Description

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or VNTINTLEN

Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the virtual network. The identifier is permanently assigned by the zManager when the object is first created or discovered.

Type
 String
Warehouse name
 OBJECT_ID or VNTOBJID
Name attribute: This attribute is a key attribute.
Description
 The display name of the virtual network.
Type
 String
Warehouse name
 NAME or VNTNAME
Description attribute
Description
 Customer-defined text describing the virtual network. Longer descriptions are truncated to 256 characters.
Type
 String
Warehouse name
 DESCRIPTION or VNTDESC
HMC Object ID attribute: This attribute is a key attribute.
Description
 The unique object identifier of the System z Hardware Management Console (HMC) that manages this virtual network.
Type
 String
Warehouse name
 HMC_OBJECT_ID or VNTHMCID
HMC Name attribute
Description
 The name of the System z Hardware Management Console (HMC) that provided the information for this virtual network.
Type
 String
Warehouse name
 HMC_NAME or VNTHMCNAME
Ensemble Object ID attribute: This attribute is a key attribute.
Description
 The unique object identifier of the ensemble to which this virtual network belongs.
Type
 String
Warehouse name
 ENSEMBLE_OBJECT_ID or VNTENSID
Ensemble Name attribute
Description
 The display name of the ensemble to which this this virtual network belongs.
Type
 String
Warehouse name
 ENSEMBLE_NAME or VNTENSNAME
VLAN ID attribute: This attribute is a key attribute.
Description
 The VLAN ID assigned to this virtual network, a value between 10 and 1030 inclusive.
Type
 Integer (32-bit gauge) with enumerated values. The strings are displayed in the

Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VLAN_ID or VNTVLANID

Default Virtual Network attribute

Description

Indicates whether this virtual network is the default virtual network for the ensemble.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

DEFAULT_VIRTUAL_NETWORK or VNTISDFLT

Has Members attribute

Description

Indicates whether member host network interfaces are attached to this virtual network.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

HAS_MEMBERS or VNTHASMBR

Bytes Sent attribute

Description

The total number of bytes sent on this virtual network by all of its members in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_SENT or VNTBSENT

Bytes Received attribute

Description

The total number of bytes received from this virtual network by all of its members in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_RECEIVED or VNTBREC

Packets Sent attribute**Description**

The total number of packets sent on this virtual network by all of its members in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT or VNTPSENT

Packets Received attribute**Description**

The total number of packets received from this virtual network by all of its members in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED or VNTPRECV

Packets Sent Dropped attribute**Description**

The total number of packets sent on this virtual network by all of its members that were dropped due to conditions such as buffer shortages or other resource constraints. See the KZEVNET appendix in the user guide for additional support information.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_DROPPED or VNTPSDROP

Packets Received Dropped attribute

Description

The total number of packets received on this virtual network from all of its members that were dropped due to conditions such as buffer shortages or other resource constraints. See the KZEVNET appendix in the user guide for additional support information.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED_DROPPED or VNTPRDROP

Total Packets Dropped attribute

Description

The sum of the number of dropped packets sent and packets received on the virtual network in the last monitoring interval. See the KZEVNET appendix in the user guide for additional support information.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

TOTAL_PACKETS_DROPPED or VNTPSRDROP

Packets Sent Discarded attribute

Description

The total number of packets sent on any virtual network over any virtual adapter for this virtual network in the last monitoring interval discarded due to packet errors. See the KZEVNET appendix in the user guide for additional support information.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_DISCARDED or VNTPSDISC

Packets Received Discarded attribute

Description

The total number of packets received on any virtual network over any virtual

adapter for this virtual network in the last monitoring interval discarded due to packet errors. See the KZEVNET appendix in the user guide for additional support information.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED_DISCARDED or VNTPRDISC

Total Packets Discarded attribute

Description

The sum of the number of discarded packets sent and packets received on all members of all virtual networks in the last monitoring interval. See the KZEVNET appendix in the user guide for additional support information.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

TOTAL_PACKETS_DISCARDED or VNTPSRDISC

Packets Dropped and Discarded attribute

Description

The total number of packets dropped or discarded on all members of all virtual networks in the last monitoring interval. See the KZEVNET appendix in the user guide for additional support information.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_DROP_AND_DISC or VNTPDRPDSC

Multicast Packets Sent attribute

Description

The total number of multicast packets sent on all members of all virtual networks in the last monitoring interval. See the KZEVNET appendix in the user guide for additional support information.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MULTICAST_PACKETS_SENT or VNTMPSENT

Multicast Packets Received attribute

Description

The total number of multicast packets received from all members of all virtual networks in the last monitoring interval. See the KZEVNET appendix in the user guide for additional support information.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MULTICAST_PACKETS_RECEIVED or VNTMPRECV

Broadcast Packets Sent attribute

Description

The total number of broadcast packets sent on all members of all virtual networks in the last monitoring interval. See the KZEVNET appendix in the user guide for additional support information.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BROADCAST_PACKETS_SENT or VNTBPSENT

Broadcast Packets Received attribute

Description

The total number of broadcast packets received from all members of all virtual networks in the last monitoring interval. See the KZEVNET appendix in the user guide for additional support information.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BROADCAST_PACKETS_RECEIVED or VNTBPRECV

Workload Resource Group attribute group

The Workload Resource Group attribute group represents the characteristics and aggregated metrics of a workload resource group in an ensemble.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Workload Resource Group attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute

Description

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or WKLINTTIME

Interval Length attribute

Description

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or WKLINTLEN

Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the workload. The identifier is permanently assigned by the zManager when the object is first created or discovered.

Type

String

Warehouse name

OBJECT_ID or WKLOBJID

Name attribute

Description

The display name specified for the workload resource group.

Type

String

Warehouse name

NAME or WKLNAME

Description attribute**Description**

Customer-defined text describing the workload resource group. Longer descriptions are truncated to 256 characters.

Type

String

Warehouse name

DESCRIPTION or WKLDDESC

HMC Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the System z Hardware Management Console (HMC) that manages the ensemble for this workload resource group.

Type

String

Warehouse name

HMC_OBJECT_ID or WKLHMCID

HMC Name attribute**Description**

The name of the System z Hardware Management Console (HMC) that provided information for this workload resource group.

Type

String

Warehouse name

HMC_NAME or WKLHMCNAME

Ensemble Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the ensemble in which this workload resource group is defined.

Type

String

Warehouse name

ENSEMBLE_OBJECT_ID or WKLENSID

Ensemble Name attribute**Description**

The display name of the ensemble in which this workload resource group is defined.

Type

String

Warehouse name

ENSEMBLE_NAME or WKLENSNAME

Default Workload attribute**Description**

Indicates whether this workload resource group is the default workload resource group for the ensemble.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)

- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

DEFAULT_WORKLOAD or WKLISDFLT

Category attribute

Description

Up to 32 characters used to categorize the workload resource group, to group it with, or distinguish it from other workload resource groups within the ensemble.

Type

String

Warehouse name

CATEGORY or WKLCATEGORY

Active Performance Policy attribute

Description

The name of active performance policy for this workload resource group.

Type

String

Warehouse name

ACTIVE_PERFORMANCE_POLICY or WKLACTPP

Active Performance Policy ID attribute

Description

The unique identifier of the active performance policy for this workload resource group.

Type

String

Warehouse name

ACTIVE_PERFORMANCE_POLICY_ID or WKLACTPPID

Performance Policy Activation Node Count attribute

Description

The number of nodes that have successfully activated the active performance policy for the workload resource group. This value is a number from 0 (zero) to the total number of ensemble members.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PERF_POL_ACT_NODE_COUNT or WKLPPANCNT

Performance Policy Activation Status attribute

Description

The status of the last performance policy activation.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Active (1)
- In progress (2)
- Initializing (3)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PERF_POL_ACTIVATION_STATUS or WKLPPASTAT

Default Performance Policy attribute

Description

The name of the default performance policy for this workload resource group.

Type

String

Warehouse name

DEFAULT_PERFORMANCE_POLICY or WKLDFTLTP

Workload Service Level Index attribute

Description

The workload service level index of the workload resource group as a whole, based on the business importance of the service classes that make up the active performance policy for this workload. It identifies workloads not achieving their goals.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Satisfactory (1)
- Informational (2)
- Warning (3)
- Minor (4)
- Critical (5)
- Fatal (6)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

WORKLOAD_SERVICE_LEVEL_INDEX or WKLWSLI

Highest Impacting Service Class attribute

Description

The name of the service class in the workload resource group's active performance policy that is the source of its Workload Service Level Index. If this index is Satisfactory, this field shows the name of an arbitrary service class.

Type

String

Warehouse name

HIGHEST_IMPACT_SVC_CLASS or WKLWSLISC

Highest PI Service Class attribute

Description

The name of the service class in the workload resource group's active performance policy that has the highest performance index (Highest PI attribute). If the Highest PI is 0 (zero), this field shows the name of an arbitrary service class.

Type

String

Warehouse name

HIGHEST_PI_SERVICE_CLASS or WKLHSCNAME

Highest PI attribute

Description

The value of the highest performance index (PI) of all service classes in the

workload resource group's active performance policy. If no service class PI can be calculated (discretionary or insufficient metric data), this field shows 0 (zero).

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

HIGHEST_PI or WKLHSCPI

Highest PI Service Class Importance attribute

Description

The business importance of the service class in the workload resource group active performance policy with the highest performance index (PI). If the Highest PI is 0 (zero), this field shows the highest importance of any service class or Not Applicable.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Applicable (1)
- Lowest (2)
- Low (3)
- Medium (4)
- High (5)
- Highest (6)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

HIGHEST_PI_SVC_CLASS_IMP or WKLHSCIMP

Virtual Server Count attribute

Description

The number of virtual servers in the workload resource group during the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_SERVER_COUNT or WKLVSCount

Virtual Servers Low CPU attribute

Description

The number of virtual servers in the workload resource group whose average CPU utilization during the last monitoring interval was between 0% and 39%.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the

Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_SERVERS_LOW_CPU or WKLVSCPULO

Virtual Servers Medium CPU attribute

Description

The number of virtual servers in the workload resource group whose average CPU utilization during the last monitoring interval was between 40% and 90%.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_SERVERS_MEDIUM_CPU or WKLVSCPUMD

Virtual Servers High CPU attribute

Description

The number of virtual servers in the workload resource group whose average CPU utilization during the last monitoring interval was between 91% and 100%.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_SERVERS_HIGH_CPU or WKLVSCPUHI

Workload Virtual Server attribute group

The Workload Resource Group Virtual Server attribute group represents the characteristics and aggregated metrics of virtual servers in workload resource groups.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the Workload Virtual Server attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute**Description**

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or WVSINTTIME

Interval Length attribute**Description**

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or WVSINTLEN

Virtual Server Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of the virtual server. The identifier is permanently assigned by the zManager when the object is first created or discovered.

Type

String

Warehouse name

VIRTUAL_SERVER_OBJECT_ID or WVSVID

Virtual Server Name attribute**Description**

The display name of the virtual server.

Type

String

Warehouse name

VIRTUAL_SERVER_NAME or WVSNAME

Virtual Server Description attribute**Description**

Customer-specified text describing the virtual server. Longer descriptions are truncated to 256 characters.

Type

String

Warehouse name	VIRTUAL_SERVER_DESC or WVSVSVDDESC
<u>HMC Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the System z Hardware Management Console (HMC) that manages the ensemble of which this virtual server is a member.
Type	String
Warehouse name	HMC_OBJECT_ID or WVSHMCID
<u>HMC Name attribute</u>	
Description	The name of the System z Hardware Management Console (HMC) that provided the information for this virtual server.
Type	String
Warehouse name	HMC_NAME or WVSHMCNAME
<u>Ensemble Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the ensemble to which this virtual server belongs.
Type	String
Warehouse name	ENSEMBLE_OBJECT_ID or WVSENSID
<u>Ensemble Name attribute</u>	
Description	The display name of the ensemble to which this virtual server belongs.
Type	String
Warehouse name	ENSEMBLE_NAME or WVSENSNAME
<u>CPC Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the central processor complex (CPC) for this virtual server.
Type	String
Warehouse name	CPC_OBJECT_ID or WVSCPCID
<u>CPC Name attribute</u>	
Description	The display name of the central processor complex (CPC) for this virtual server.
Type	String
Warehouse name	CPC_NAME or WVSCPCNAME
<u>Virtualization Host ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the virtualization host for this virtual server.
Type	String
Warehouse name	VIRTUALIZATION_HOST_ID or WVSVHSID
<u>Virtualization Host Name attribute</u>	

Description

The current display name of the virtualization host of this virtual server.

Type

String

Warehouse name

VIRTUALIZATION_HOST_NAME or WVSVHSNAME

Workload Object ID attribute: This attribute is a key attribute.**Description**

The unique object identifier of a workload resource group of which this virtual server is a member.

Type

String

Warehouse name

WORKLOAD_OBJECT_ID or WWSWKLID

Workload Name attribute**Description**

The display name that corresponds to the Workload Object ID (WWSWKLID) of a workload resource group of which this virtual server is a member.

Type

String

Warehouse name

WORKLOAD_NAME or WWSWKLNAME

Workload Description attribute**Description**

Customer-defined text describing the workload resource group. Longer descriptions are truncated to 256 characters.

Type

String

Warehouse name

WORKLOAD_DESCRIPTION or WWSWKLDESC

Platform Type attribute**Description**

Indicates the platform on which the virtual server is running.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- PowerVM (1)
- x Hyp (2)
- z/VM (3)
- PR/SM (4)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PLATFORM_TYPE or WVSPLATFRM

Status attribute**Description**

Indicates the current operational status of the virtual server.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Operating (1)
- Not Operating (2)

- Not Communicating (3)
- Exceptions (4)
- Status Check (5)
- Migrating (6)
- Starting (7)
- Stopping (8)
- Not Activated (9)
- Logoff Timeout Started (10)
- Storage Limit Exceeded (11)
- Forced Sleep (12)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

STATUS or WVSSTATUS

Acceptable Status attribute

Description

Indicates whether the current status of the virtual server is one of the acceptable status values specified for the virtual server.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ACCEPTABLE_STATUS or WVSACCSTAT

GPMP Status attribute

Description

Indicates the status of the System z guest platform management provider (GPMP). If the Platform Type is PRSM, this status is available only when the virtual server is running a z/OS system.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Operating (1)
- Operating (2)
- Status Check (3)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GPMP_STATUS or WVSGPMPST

TCPIP Hostname attribute

Description

The TCP/IP host name of the virtual server (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name	
TCPIP_HOSTNAME or WVSIPHOST	
<u>OS Name attribute</u>	
Description	The name given to the virtual server by the operating system (available only when the System z guest platform management provider (GPMP) is running on the virtual server).
Type	String
Warehouse name	
OS_NAME or WVSOSNAME	
<u>OS Type attribute</u>	
Description	The type of the operating system of the virtual server (available only when the System z guest platform management provider (GPMP) is running on the virtual server).
Type	String
Warehouse name	
OS_TYPE or WVSOSTYPE	
<u>OS Level attribute</u>	
Description	The release level of the operating system of the virtual server, as reported by the operating system (available only when the System z guest platform management provider (GPMP) is running on the virtual server).
Type	String
Warehouse name	
OS_LEVEL or WVSOSLVL	
<u>Service Class of Virtual Server attribute</u>	
Description	The name of the service class in this workload resource group's active performance policy that is associated with the virtual server.
Type	String
Warehouse name	
SVC_CLASS_OF_VIRT_SERVER or WVSVSVC	
<u>CPU Utilization attribute</u>	
Description	The percentage of processor utilization for the virtual server, as measured in the last monitoring interval.
Type	Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
CPU_UTILIZATION or WVSCPU	
<u>Memory Utilization attribute</u>	
Description	The percentage of memory utilization for the virtual server, as reported by the platform hypervisor at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MEMORY_UTILIZATION or WWSMEM

Virtualization Host CPU Delay (%) attribute**Description**

The percentage of time that the virtual processors of this virtual server were ready to run but were not dispatched on real processors because of competition with other virtual servers, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRT_HOST_CPU_DELAY or WWSVHCPUD

Virtual CPU Count attribute**Description**

The number of virtual processors defined for this virtual server.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_CPU_COUNT or WWSVCPUCNT

Bytes Sent and Received attribute**Description**

The number of bytes sent and received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_SENT_AND_RECEIVED or WWSBSNTRCV

Packets Dropped and Discarded attribute

Description

The number of packets dropped or discarded on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_DROP_AND_DISC or WVSPDRPDSC

Workload Count attribute**Description**

The number of workload resource groups of which this virtual server is a member.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

WORKLOAD_COUNT or WWSWKLCNT

Default Workload attribute**Description**

Indicates whether this workload resource group is the default workload resource group for the ensemble.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

DEFAULT_WORKLOAD or WVSISDFLT

Workload Category attribute**Description**

Up to 32 characters used to categorize the workload resource group, to group it with, or distinguish it from other workload resource groups within the ensemble.

Type

String

Warehouse name

WORKLOAD_CATEGORY or WVSCATEGORY

Active Performance Policy attribute**Description**

The name of active performance policy for this workload resource group.

Type	String
Warehouse name	ACTIVE_PERFORMANCE_POLICY or WVSACTPP
<u>Active Performance Policy ID attribute</u>	
Description	The unique identifier of the active performance policy for this workload resource group.
Type	String
Warehouse name	ACTIVE_PERFORMANCE_POLICY_ID or WVSACTPPID
<u>Workload Service Level Index attribute</u>	
Description	The workload service level index of the workload resource group as a whole, based on the business importance of the service classes that make up the active performance policy for this workload. It identifies workloads not achieving their goals.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Satisfactory (1) • Informational (2) • Warning (3) • Minor (4) • Critical (5) • Fatal (6) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	WORKLOAD_SERVICE_LEVEL_INDEX or WVSWSLI
<u>Highest Impacting Service Class attribute</u>	
Description	The name of the service class in the workload resource group's active performance policy that is the source of its Workload Service Level Index. If this index is Satisfactory, this field shows the name of an arbitrary service class.
Type	String
Warehouse name	HIGHEST_IMPACT_SVC_CLASS or WVSWSLISC
<u>Highest PI Service Class attribute</u>	
Description	The name of the service class in the workload resource group's active performance policy that has the highest performance index (Highest PI attribute). If the Highest PI is 0 (zero), this field shows the name of an arbitrary service class.
Type	String
Warehouse name	HIGHEST_PI_SERVICE_CLASS or WVSHSCNAME
<u>Highest PI attribute</u>	
Description	The value of the highest performance index (PI) of all service classes in the

workload resource group's active performance policy. If no service class PI can be calculated (discretionary or insufficient metric data), this field shows 0 (zero).

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

HIGHEST_PI or WVSHSCPI

Highest PI Service Class Importance attribute

Description

The business importance of the service class in the workload resource group active performance policy with the highest performance index (PI). If the Highest PI is 0 (zero), this field shows the highest importance of any service class or Not Applicable.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Applicable (1)
- Lowest (2)
- Low (3)
- Medium (4)
- High (5)
- Highest (6)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

HIGHEST_PI_SVC_CLASS_IMP or WVSHSCIMP

Virtual Server Count attribute

Description

The number of virtual servers in the workload resource group during the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_SERVER_COUNT or WVSVCNT

x Hyp Virtual Server attribute group

The x Hyp Virtual Server attribute group represents the characteristics and aggregated metrics of x Hyp virtual servers.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the x Hyp Virtual Server attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute

Description

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or XVSINTTIME

Interval Length attribute

Description

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or XVSINTLEN

Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the virtual server. The identifier is permanently assigned by the zManager when the object is first created or discovered.

Type

String

Warehouse name

OBJECT_ID or XVSOBJID

Name attribute

Description

The display name of the virtual server.

Type	String
Warehouse name	NAME or XVSNAME
<u>Description attribute</u>	
Description	Customer-specified text describing the virtual server. Longer descriptions are truncated to 256 characters.
Type	String
Warehouse name	DESCRIPTION or XVSDESC
<u>HMC Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the System z Hardware Management Console (HMC) that manages the ensemble to which this virtual server belongs.
Type	String
Warehouse name	HMC_OBJECT_ID or XVSHMCID
<u>HMC Name attribute</u>	
Description	The name of the System z Hardware Management Console (HMC) that provided the information for this virtual server.
Type	String
Warehouse name	HMC_NAME or XVSHMCNAME
<u>Ensemble Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the ensemble to which this virtual server belongs.
Type	String
Warehouse name	ENSEMBLE_OBJECT_ID or XVSENSID
<u>Ensemble Name attribute</u>	
Description	The display name of the ensemble to which this virtual server belongs.
Type	String
Warehouse name	ENSEMBLE_NAME or XVSENSNAME
<u>CPC Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the central processor complex (CPC) for this virtual server.
Type	String
Warehouse name	CPC_OBJECT_ID or XVSCPCID
<u>CPC Name attribute</u>	
Description	The current display name of the central processor complex (CPC) for this virtual server.
Type	String

Warehouse name	
CPC_NAME or XVSCPCNAME	
<u>Virtualization Host ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the virtualization host for this virtual server.
Type	String
Warehouse name	
VIRTUALIZATION_HOST_ID or XVSVHSID	
<u>Virtualization Host Name attribute</u>	
Description	The display name of the virtualization host for this virtual server.
Type	String
Warehouse name	
VIRTUALIZATION_HOST_NAME or XSVHSNAME	
<u>Status attribute</u>	
Description	Indicates the current operational status of the virtual server.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Operating (1) • Not Operating (2) • Not Communicating (3) • Exceptions (4) • Status Check (5) • Migrating (6) • Starting (7) • Stopping (8) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
STATUS or XVSSTATUS	
<u>Acceptable Status attribute</u>	
Description	Indicates whether the current status of the virtual server is one of the acceptable status values specified for the virtual server.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
ACCEPTABLE_STATUS or XVSACCSTAT	
<u>Platform Type attribute</u>	
Description	Indicates the platform on which the virtual server is running.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- x Hyp (2)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PLATFORM_TYPE or XVSPLATFRM

GPMP Status attribute**Description**

Indicates the status of the System z guest platform management provider (GPMP).

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Not Operating (1)
- Operating (2)
- Status Check (3)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GPMP_STATUS or XVSGPMPST

TCPIP Hostname attribute**Description**

The TCP/IP host name of the virtual server (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

TCPIP_HOSTNAME or XVSIPHOST

OS Name attribute**Description**

The name given to the virtual server by the operating system (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

OS_NAME or XVSOSNAME

OS Type attribute**Description**

The type of the operating system of the virtual server (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

OS_TYPE or XVSOSTYPE

OS Level attribute**Description**

The release level of the operating system of the virtual server, as reported by the

operating system (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

OS_LEVEL or XVSOSLVL

Initial Virtual CPUs attribute

Description

The initial number of virtual processors that the virtual server is provided at the next activation.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INITIAL_VIRTUAL_CPUS or XVSINTVCPU

Initial Memory (MB) attribute

Description

The initial memory value defined for the virtual server, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INITIAL_MEMORY_MB or XVSINTMEM

Auto Start attribute

Description

Indicates whether the virtual server is automatically started when its virtualization host is started.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

AUTO_START or XVSAUTOST

GPMP Enabled attribute

Description

Indicates whether guest platform management provider (GPMP) support is enabled, allowing the GPMP to gather performance data for work running on the virtual server.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GPMP_ENABLED or XVSGPMPEN

GPMP Version attribute**Description**

The guest platform management provider (GPMP) version, reported as unavailable if the version is not known.

Type

String

Warehouse name

GPMP_VERSION or XVSGPMPVER

CPU Utilization attribute**Description**

The percentage of processor utilization for the virtual server, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CPU_UTILIZATION or XVSCPU

Memory Utilization attribute**Description**

The percentage of memory utilization for the virtual server, as reported by the platform hypervisor at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MEMORY_UTILIZATION or XVSMEM

Startup Time attribute**Description**

The approximate local time when the virtual server was last started.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

STARTUP_TIME or XVSSTTIME

Elapsed Time attribute

Description

The elapsed time (in microseconds) between the end of the previous monitoring interval and the end of the current one, as observed by the guest platform management provider (GPMP).

Type

Integer (64-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ELAPSED_TIME or XVSETIME

Virtual CPU Count attribute

Description

The number of virtual processors defined for this virtual server.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_CPU_COUNT or XSVCPUCNT

Current Memory (MB) attribute

Description

The amount of memory currently used by the virtual server, expressed in MB.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CURRENT_MEMORY_MB or XVSCURMEM

Sampling Rate attribute

Description

The number of times per second that the guest platform management provider (GPMP) samples the operating system of the virtual server.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

SAMPLING_RATE or XVSSRATE

GPMP Active attribute

Description

Indicates whether guest platform management provider (GPMP) support was active on the virtual server at the end of the last monitoring interval.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GPMP_ACTIVE or XVSGMPACT

Virtualization Host CPU Delay (%) attribute

Description

The percentage of time that the virtual processors of this virtual server were ready to run but were not dispatched on real processors because of competition with other virtual servers, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRT_HOST_CPU_DELAY or XVSVHCPUD

Bytes Sent attribute

Description

The number of bytes sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_SENT or XVSBSENT

Bytes Received attribute

Description

The number of bytes received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_RECEIVED or XVSBRCEV

Packets Sent attribute**Description**

The number of packets sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT or XVSPSENT

Packets Received attribute**Description**

The number of packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED or XVSPRECV

Packets Sent Dropped attribute**Description**

The number of packets sent on any virtual network over any virtual adapter for this virtual server that were dropped due to conditions such as buffer shortages or other resource constraints, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_DROPPED or XVSPSDROP

Packets Received Dropped attribute

Description

The number of packets received on any virtual network over any virtual adapter for this virtual server that were dropped due to conditions such as buffer shortages or other resource constraints, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED_DROPPED or XVSPRDROP

Packets Sent Discarded attribute**Description**

The number of packets sent on any virtual network over any virtual adapter for this virtual server that were discarded due to conditions such as malformed packets or other packet errors, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_DISCARDED or XVSPDISC

Packets Received Discarded attribute**Description**

The number of packets received on any virtual network over any virtual adapter for this virtual server that were discarded due to conditions such as malformed packets or other packet errors, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED_DISCARDED or XVSPRDISC

Multicast Packets Sent attribute**Description**

The number of multicast packets sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)

- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MULTICAST_PACKETS_SENT or XVSMPSENT

Multicast Packets Received attribute

Description

The number of multicast packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MULTICAST_PACKETS_RECEIVED or XVSMPRECV

Broadcast Packets Sent attribute

Description

The number of broadcast packets sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BROADCAST_PACKETS_SENT or XVSBPSENT

Broadcast Packets Received attribute

Description

The number of broadcast packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BROADCAST_PACKETS_RECEIVED or XVSBPRECV

Bytes Sent and Received attribute

Description

The number of bytes sent and received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the

Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_SENT_AND_RECEIVED or XVSBSNTRCV

Packets Sent and Received attribute

Description

The number of packets sent and received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_AND_RECEIVED or XVSPSNTRCV

x Hyp Virtualization Host attribute group

The x Hyp Virtualization Host attribute group represents the characteristics and metrics of x Hyp virtualization hosts.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the x Hyp Virtualization Host attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute

Description

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or XVHINTTIME

Interval Length attribute

Description

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or XVHINTLEN

Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the virtualization host. This identifier is permanently assigned by the zManager when the object is first created or discovered.

Type

String

Warehouse name

OBJECT_ID or XVHOBJID

Name attribute

Description

The display name specified for the virtualization host.

Type

String

Warehouse name

NAME or XVHNAME

HMC Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the System z Hardware Management Console (HMC) that manages the ensemble to which this virtualization host belongs.

Type

String

Warehouse name

HMC_OBJECT_ID or XVHHMCID

HMC Name attribute

Description

The name of the System z Hardware Management Console (HMC) that provided the information for this virtualization host.

Type

String

Warehouse name

HMC_NAME or XVHHMCNAME

Ensemble Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the ensemble to which this virtualization host belongs.

Type	String
Warehouse name	ENSEMBLE_OBJECT_ID or XVHENSID
<u>Ensemble Name attribute</u>	
Description	The display name of the ensemble to which this virtualization host belongs.
Type	String
Warehouse name	ENSEMBLE_NAME or XVHENSNAME
<u>CPC Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the central processor complex (CPC) of this virtualization host.
Type	String
Warehouse name	CPC_OBJECT_ID or XVHCPCID
<u>CPC Name attribute</u>	
Description	The display name of the central processor complex (CPC) of this virtualization host.
Type	String
Warehouse name	CPC_NAME or XVHCPCNAME
<u>Status attribute</u>	
Description	Indicates the current operational status of the virtualization host.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Operating (1) • Not Operating (2) • Status Check (3) • Not Communicating (4) • Definition Error (5) • No Power (6) • Stopped (7) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	STATUS or XVHSTATUS
<u>Platform Type attribute</u>	
Description	Indicates the platform on which the virtualization host is running.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • x Hyp (2)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PLATFORM_TYPE or XVHPLATFRM

Virtual Server Shutdown Timeout attribute

Description

The amount of time in seconds that virtual servers on this virtualization host have to shut down cleanly. After this amount of time passes, a virtual server shutdown will be forced. A value of -1 indicates that shutdown will never be forced.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_SERVER_SHUTDOWN_TO or XVHVSSDTO

Auto Start Virtual Servers attribute

Description

Indicates whether the virtual servers are started automatically when their virtualization host is started. This applies only to virtual servers that are configured to start automatically.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

AUTO_START_VIRTUAL_SERVERS or XVHVSAUTOS

Total Memory (MB) attribute

Description

The total memory available on this virtualization host, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

TOTAL_MEMORY_MB or XVHTOTMEM

Memory Increment (MB) attribute

Description

The minimum increment of memory that can be used when defining the memory size for a virtual server on this virtualization host, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MEMORY_INCREMENT_MB or XVHMEMINCR

Minimum Memory (MB) attribute**Description**

The minimum memory size that can be configured for a virtual server on this virtualization host, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MINIMUM_MEMORY_MB or XVHMINMEM

Maximum Memory (MB) attribute**Description**

The maximum memory size that can be configured for a virtual server on this virtualization host, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_MEMORY_MB or XVHMAXMEM

Maximum Virtual CPUs attribute**Description**

The maximum number of virtual processors that can be configured for a virtual server on this virtualization host.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_VIRTUAL_CPUS or XVHMAXVCPU

Maximum IDE Devices attribute

Description

The maximum number of Integrated Device Electronics (IDE) devices that can be configured for a virtual server on this virtualization host.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_IDE_DEVICES or XVHMAXIDE

Mixed Mode Boot Restriction attribute**Description**

Indicates if a virtual disk boot restriction exists for virtual servers on this virtualization host. If a boot restriction exists and both virtio and IDE virtual disks are defined, virtual servers will always boot from an IDE virtual disk.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MIXED_MODE_BOOT_RESTRICTION or XVHMMBOOTR

CPU Utilization attribute**Description**

The percentage of processor utilization for the virtualization host, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CPU_UTILIZATION or XVHCPU

Management CPU Utilization attribute**Description**

The percentage of processor utilization for management of the virtualization host, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MANAGEMENT_CPU_UTILIZATION or XVHMGMTCPU

Memory Utilization attribute

Description

The percentage of memory utilization for the virtualization host, as measured at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MEMORY_UTILIZATION or XVHMEM

Current Memory (MB) attribute

Description

The amount of memory currently used by the virtualization host, expressed in MB.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CURRENT_MEMORY_MB or XVHCURMEM

Network Utilization attribute

Description

The percentage of network utilization for the virtualization host, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

NETWORK_UTILIZATION or XVHNET

Storage Rate attribute

Description

The average rate of data transfer to disk, expressed in KB per second, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

STORAGE_RATE or XVHSTGRATE

Page In Rate attribute

Description

The average rate at which pages are read from paging space to support management of the virtualization host, expressed in pages per second, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PAGE_IN_RATE or XVHPGIRATE

Page Out Rate attribute

Description

The average rate at which pages are written to paging space to support management of the virtualization host, expressed as pages per second, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PAGE_OUT_RATE or XVHPGORATE

Total Paging Rate attribute

Description

The total paging rate (page ins plus page outs) from paging space to support management of the virtualization host, expressed as pages per second, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

TOTAL_PAGING_RATE or XVHPGTRATE

zVM Virtual Server attribute group

The z/VM Virtual Server attribute group represents the characteristics and aggregated metrics of z/VM virtual servers.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the zVM Virtual Server attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute

Description

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or ZVSINTTIME

Interval Length attribute

Description

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or ZVSINTLEN

Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the virtual server. The identifier is permanently assigned by the zManager when the object is first created or discovered.

Type	String
Warehouse name	OBJECT_ID or ZVSOBJID
<u>Name attribute</u>	
Description	The current display name of the virtual server.
Type	String
Warehouse name	NAME or ZVSNAME
<u>Description attribute</u>	
Description	Customer-specified text describing the virtual server. Longer descriptions are truncated to 256 characters.
Type	String
Warehouse name	DESCRIPTION or ZVSDESC
<u>HMC Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the System z Hardware Management Console (HMC) that manages the ensemble to which this virtual server belongs.
Type	String
Warehouse name	HMC_OBJECT_ID or ZVSHMCID
<u>HMC Name attribute</u>	
Description	The name of the System z Hardware Management Console (HMC) that provided the information for this virtual server.
Type	String
Warehouse name	HMC_NAME or ZVSHMCNAME
<u>Ensemble Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the ensemble to which this virtual server belongs.
Type	String
Warehouse name	ENSEMBLE_OBJECT_ID or ZVSENSID
<u>Ensemble Name attribute</u>	
Description	The display name of the ensemble to which this virtual server belongs.
Type	String
Warehouse name	ENSEMBLE_NAME or ZVSENSNAME
<u>CPC Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the central processor complex (CPC) for this virtual server.
Type	String

Warehouse name	
CPC_OBJECT_ID or ZVSCPCID	
<u>CPC Name attribute</u>	
Description	The current display name of the central processor complex (CPC) for this virtual server.
Type	String
Warehouse name	
CPC_NAME or ZVSCPCNAME	
<u>LPAR Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the logical partition for this virtual server.
Type	String
Warehouse name	
LPAR_OBJECT_ID or ZVSLPRID	
<u>LPAR Name attribute</u>	
Description	The current display name of the logical partition for this virtual server.
Type	String
Warehouse name	
LPAR_NAME or ZVSLPRNAME	
<u>Virtualization Host ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the virtualization host for this virtual server.
Type	String
Warehouse name	
VIRTUALIZATION_HOST_ID or ZVSVHSID	
<u>Virtualization Host Name attribute</u>	
Description	The current display name of the virtualization host for this virtual server.
Type	String
Warehouse name	
VIRTUALIZATION_HOST_NAME or ZVSVHSNAME	
<u>Status attribute</u>	
Description	Indicates the current operational status of the virtual server.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Operating (1) • Not Operating (2) • Not Communicating (3) • Not Activated (9) • Logoff Timeout Started (10) • Storage Limit Exceeded (11) • Force Sleep (12) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
STATUS or ZVSSTATUS	
<u>Acceptable Status attribute</u>	
Description	Indicates whether the current status of the virtual server is one of the acceptable status values specified for the virtual server.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
ACCEPTABLE_STATUS or ZVSACCSTAT	
<u>Additional Status attribute</u>	
Description	The current additional status of the virtual server for not-operating virtual servers.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Host Env Not Activated (1) • Host Env Not Capable (2) • Host Env Not Operating (3) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
ADDITIONAL_STATUS or ZVSADDSTAT	
<u>Platform Type attribute</u>	
Description	Indicates the platform on which the virtual server is running.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • zVM (3) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
PLATFORM_TYPE or ZVSPLATFRM	
<u>GPMP Status attribute</u>	
Description	Indicates the status of the System z guest platform management provider (GPMP).
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Not Operating (1)

- Operating (2)
- Status Check (3)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GPMP_STATUS or ZVSGPMPST

CPU Management attribute

Description

Indicates whether management of processor performance is enabled for this virtual server when management of processor performance is enabled at the ensemble level.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Enabled (1)
- Not Enabled (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CPU_MANAGEMENT or ZVSCPUM

TCPIP Hostname attribute

Description

The TCP/IP host name of the virtual server (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

TCPIP_HOSTNAME or ZVSIPHOST

OS Name attribute

Description

The name given to the virtual server by the operating system (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

OS_NAME or ZVSOSNAME

OS Type attribute

Description

The type of the operating system of the virtual server (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type

String

Warehouse name

OS_TYPE or ZVSOSTYPE

OS Level attribute

Description

The release level of the operating system of the virtual server, as reported by the operating system (available only when the System z guest platform management provider (GPMP) is running on the virtual server).

Type	String
Warehouse name	OS_LEVEL or ZVSOSLVL
<u>MAC Prefix attribute</u>	
Description	The MAC address prefix assigned to the virtual server, represented as six groups of two hexadecimal digits separated by colons. The MAC Prefix Length attribute indicates the number of bits that make up the prefix.
Type	String
Warehouse name	MAC_PREFIX or ZVSMACPFXA
<u>MAC Prefix Length attribute</u>	
Description	The bit-length of the MAC address prefix, which is a number between 12 and 44 inclusive.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	MAC_PREFIX_LENGTH or ZVSMACPFXL
<u>Initial Virtual CPUs attribute</u>	
Description	The initial number of virtual processors that the virtual server is provided at the next activation, reported as 0 (zero) if the virtual server is not in shared processing mode.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	INITIAL_VIRTUAL_CPUS or ZVSINTVCPU
<u>Maximum Virtual CPUs attribute</u>	
Description	The maximum number of virtual processors that the virtual server can use, which is reported as 0 (zero) if the virtual server is not in shared processing mode.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
MAXIMUM_VIRTUAL_CPUS or ZVSMAXVCPU	
<u>Initial Share Mode attribute</u>	
Description	The initial share of system resources for this virtual server, either relative to other virtual servers or absolute
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Relative (1) • Absolute (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
INITIAL_SHARE_MODE or ZVSINTSHRM	
<u>Initial Shares attribute</u>	
Description	The initial share value of system resources for this virtual server, displayed as relative to shares to other virtual servers on the virtualization host or as an absolute percentage of all available system resources, depending on share mode.
Type	Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
INITIAL_SHARES or ZVSINTSHR	
<u>Share Limit attribute</u>	
Description	Indicates whether the share of systems resources for this virtual server is limited and whether the limitation is soft (able to go over the limit) or hard (unable to exceed the limit).
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • None (1) • Soft (2) • Hard (3) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
SHARE_LIMIT or ZVSSHRLMT	
<u>Maximum Share Mode attribute</u>	
Description	The maximum share of system resources allotted to this virtual server, either relative to other virtual servers or absolute.

Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Relative (1) • Absolute (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	MAXIMUM_SHARE_MODE or ZVSMAXSHRM
<u>Maximum Shares attribute</u>	
Description	The maximum share value for the virtual server, displayed relative to other virtual servers on the virtualization host or as an absolute share, depending on share mode.
Type	Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	MAXIMUM_SHARES or ZVSMAXSHR
<u>Initial Memory (MB) attribute</u>	
Description	The initial memory value defined for the virtual server, expressed in MB.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	INITIAL_MEMORY_MB or ZVSINTMEM
<u>Maximum Memory (MB) attribute</u>	
Description	The maximum memory value defined for the virtual server, expressed in MB.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	MAXIMUM_MEMORY_MB or ZVSMAXMEM
<u>GPMP Enabled attribute</u>	

Description

Indicates whether guest platform management provider (GPMP) support is enabled, allowing the GPMP to gather performance data for work running on the virtual server.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Yes (1)
- No (2)
- Unknown (0)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

GPMP_ENABLED or ZVSGMPMPEN

GPMP Version attribute**Description**

The guest platform management provider (GPMP) version, reported as Unavailable if the version is not known.

Type

String

Warehouse name

GPMP_VERSION or ZVSGMPMPVER

Privilege Classes attribute**Description**

The string defining z/VM CP privilege classes for this virtual server, denoted by uppercase letters A through Z, numbers 1 through 6, and the word ANY

Type

String

Warehouse name

PRIVILEGE_CLASSES or ZVSPRIVCLS

IPL Device attribute**Description**

The virtual device number or sysname of the virtual device used to IPL this virtual server.

Type

String

Warehouse name

IPL_DEVICE or ZVSIPLDEV

IPL Load Parameters attribute**Description**

The value for the z/VM LOADPARM value used to IPL this virtual server.

Type

String

Warehouse name

IPL_LOAD_PARAMETERS or ZVSIPLLOAD

IPL Parameters attribute**Description**

The z/VM parameter list value used to IPL this virtual server.

Type

String

Warehouse name

IPL_PARAMETERS or ZVSIPLPARM

CPU Utilization attribute

Description

The percentage of processor utilization for the virtual server, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CPU_UTILIZATION or ZVSCPU

Memory Utilization attribute**Description**

The percentage of memory utilization for the virtual server, as reported by the platform hypervisor at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MEMORY_UTILIZATION or ZVSMEM

Startup Time attribute**Description**

The approximate local time when the virtual server was last started.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

STARTUP_TIME or ZVSSTIME

Elapsed Time attribute**Description**

The elapsed time (in microseconds) between the end of the previous monitoring interval and the end of the current one, as observed by the guest platform management provider (GPMP).

Type

Integer (64-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

ELAPSED_TIME or ZVSETIME

Virtual CPU Count attribute

Description

The number of virtual processors defined for this virtual server.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

VIRTUAL_CPU_COUNT or ZVSVCPUCNT

Current CPU Shares attribute

Description

The amount of CPU resource (in shares) allocated to the virtual machine. The zManager adjusts this value when virtual server management is enabled. This field is shown as 0 (zero) if the virtual-server is not in shared processing mode.

Type

Real number (32-bit numeric property) with two decimal places of precision with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CURRENT_SHARES or ZVSCURSHR

Current Memory (MB) attribute

Description

The amount of memory currently used by the virtual machine, expressed in MB.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CURRENT_MEMORY_MB or ZVSCURMEM

Sampling Rate attribute

Description

The number of times per second that the guest platform management provider (GPMP) samples the operating system of the virtual server.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name	
SAMPLING_RATE or ZVSSRATE	
<u>GPMP Active attribute</u>	
Description	Indicates whether guest platform management provider (GPMP) support was active on the virtual server at the end of the last monitoring interval.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Yes (1) • No (2) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
GPMP_ACTIVE or ZVSGMPACT	
<u>Virtualization Host CPU Delay (%) attribute</u>	
Description	The percentage of time that the virtual processors of this virtual server were ready to run but were not dispatched on real processors because of competition with other virtual servers, as measured in the last monitoring interval.
Type	Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
VIRT_HOST_CPU_DELAY or ZVSVHCPUD	
<u>Bytes Sent attribute</u>	
Description	The number of bytes sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.
Type	Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (9223372036854775807) • Value Exceeds Minimum (-9223372036854775808) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
BYTES_SENT or ZVSBSENT	
<u>Bytes Received attribute</u>	
Description	The number of bytes received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.
Type	Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_RECEIVED or ZVSBRECV

Packets Sent attribute

Description

The number of packets sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT or ZVSPSENT

Packets Received attribute

Description

The number of packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED or ZVSPRECV

Packets Sent Dropped attribute

Description

The number of packets sent on any virtual network over any virtual adapter for this virtual server that were dropped due to conditions such as buffer shortages or other resource constraints, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_DROPPED or ZVSPSDROP

Packets Received Dropped attribute

Description

The number of packets received on any virtual network over any virtual adapter

for this virtual server that were dropped due to conditions such as buffer shortages or other resource constraints, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED_DROPPED or ZVSPRDROP

Packets Sent Discarded attribute

Description

The number of packets sent on any virtual network over any virtual adapter for this virtual server that were discarded due to conditions such as malformed packets or other packet errors, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_DISCARDED or ZVSPDISC

Packets Received Discarded attribute

Description

The number of packets received on any virtual network over any virtual adapter for this virtual server that were discarded due to conditions such as malformed packets or other packet errors, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_RECEIVED_DISCARDED or ZVSPDISC

Multicast Packets Sent attribute

Description

The number of multicast packets sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MULTICAST_PACKETS_SENT or ZVSMPSENT

Multicast Packets Received attribute

Description

The number of multicast packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MULTICAST_PACKETS_RECEIVED or ZVSMPRECV

Broadcast Packets Sent attribute

Description

The number of broadcast packets sent on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BROADCAST_PACKETS_SENT or ZVSBPSENT

Broadcast Packets Received attribute

Description

The number of broadcast packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BROADCAST_PACKETS_RECEIVED or ZVSBPRECV

Bytes Sent and Received attribute

Description

The number of bytes sent and bytes received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

BYTES_SENT_AND_RECEIVED or ZVSBSNTRCV

Packets Sent and Received attribute

Description

The number of packets sent and packets received on any virtual network over any virtual adapter for this virtual server, as measured in the last monitoring interval.

Type

Integer (64-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (9223372036854775807)
- Value Exceeds Minimum (-9223372036854775808)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

PACKETS_SENT_AND_RECEIVED or ZVSPSNTRCV

zVM Virtualization Host attribute group

The z/VM Virtualization Host attribute group represents the characteristics and metrics of z/VM virtualization hosts.

Historical group

This attribute group is eligible for use with Tivoli Data Warehouse.

Attribute descriptions

The following list contains information about each attribute in the zVM Virtualization Host attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Warehouse name

NODE

Timestamp attribute

Description

The local time at the agent when the data was collected.

Type

String

Warehouse name

TIMESTAMP

Interval End Time attribute

Description

The local time of the end of the Enterprise Common Collector monitoring interval in which this data was collected.

Type

Timestamp with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- NOT COLLECTED (0691231190000000)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_END_TIME or ZVHINTTIME

Interval Length attribute

Description

The length in seconds of the Enterprise Common Collector monitoring interval when this data was collected.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

INTERVAL_LENGTH or ZVHINTLEN

Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the virtualization host. The identifier is permanently assigned by the zManager when the object is first created or discovered.

Type

String

Warehouse name

OBJECT_ID or ZVHOBJID

Name attribute

Description

The display name specified for the virtualization host.

Type

String

Warehouse name

NAME or ZVHNAME

HMC Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the System z Hardware Management Console (HMC) that manages the ensemble to which this virtualization host belongs.

Type

String

Warehouse name

HMC_OBJECT_ID or ZVHHMCID

HMC Name attribute

Description

The name of the System z Hardware Management Console (HMC) that provided the information for this virtualization host.

Type

String

Warehouse name

HMC_NAME or ZVHHMCNAME

Ensemble Object ID attribute: This attribute is a key attribute.

Description

The unique object identifier of the ensemble to which this virtualization host belongs.

Type	String
Warehouse name	ENSEMBLE_OBJECT_ID or ZVHENSID
<u>Ensemble Name attribute</u>	
Description	The display name of the ensemble to which this virtualization host belongs.
Type	String
Warehouse name	ENSEMBLE_NAME or ZVHENSNAME
<u>CPC Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the central processor complex (CPC) of this virtualization host.
Type	String
Warehouse name	CPC_OBJECT_ID or ZVHCPCID
<u>CPC Name attribute</u>	
Description	The display name of the central processor complex (CPC) of this virtualization host.
Type	String
Warehouse name	CPC_NAME or ZVHCPCNAME
<u>LPAR Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the logical partition of this virtualization host.
Type	String
Warehouse name	LPAR_OBJECT_ID or ZVHLPRID
<u>LPAR Name attribute</u>	
Description	The display name of the logical partition of this virtualization host.
Type	String
Warehouse name	LPAR_NAME or ZVHLPRNAME
<u>Virtual Server/Object ID attribute: This attribute is a key attribute.</u>	
Description	The unique object identifier of the PR/SM virtual server associated with this virtualization host.
Type	String
Warehouse name	VIRTUAL_SERVER_OBJECT_ID or ZVHVSOBJID
<u>Virtual Server/Name attribute</u>	
Description	The display name of the PR/SM virtual server associated with this virtualization host.
Type	String

Warehouse name	
VIRTUAL_SERVER_NAME or ZVHVSNAME	
Status attribute	
Description	Indicates the current operational status of the virtualization host.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Operating (1) • Not Operating (2) • Status Check (3) • Not Communicating (4) • Exceptions (5) • Not Activated (6) • Unknown (0) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
STATUS or ZVHSTATUS	
Platform Type attribute	
Description	Indicates the platform on which the virtualization host is running.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • zVM (3) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
PLATFORM_TYPE or ZVHPLATFRM	
Virtual Server Shutdown Timeout attribute	
Description	The amount of time in seconds that virtual servers on this virtualization host have to shut down cleanly. After this amount of time passes, a virtual server shutdown will be forced. A value of -1 indicates that shutdown will never be forced.
Type	Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined: • Value Exceeds Maximum (2147483647) • Value Exceeds Minimum (-2147483648) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.
Warehouse name	
VIRTUAL_SERVER_SHUTDOWN_TO or ZVHVSSDTO	
Total Memory (MB) attribute	
Description	The total memory available on this virtualization host, expressed in MB.
Type	Integer (32-bit numeric property) with enumerated values. The strings are

displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

TOTAL_MEMORY_MB or ZVHTOTMEM

Memory Increment (MB) attribute

Description

The minimum increment of memory that can be used when defining the memory size for a virtual server on this virtualization host, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MEMORY_INCREMENT_MB or ZVHMEMINCR

Minimum Memory (MB) attribute

Description

The minimum memory size that can be configured for a virtual server on this virtualization host, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MINIMUM_MEMORY_MB or ZVHMINMEM

Maximum Memory (MB) attribute

Description

The maximum memory size that can be configured for a virtual server on this virtualization host, expressed in MB.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_MEMORY_MB or ZVHMAXMEM

Maximum Dedicated CPUs attribute

Description

The maximum number of dedicated processors that can be configured for a virtual server on this virtualization host.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_DEDICATED_CPUS or ZVHMAXDCPU

Maximum Virtual CPUs attribute**Description**

The maximum number of virtual processors that can be configured for a virtual server on this virtualization host.

Type

Integer (32-bit numeric property) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MAXIMUM_VIRTUAL_CPUS or ZVHMAXVCPU

CPU Utilization attribute**Description**

The percentage of processor utilization for the virtualization host, as measured in the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CPU_UTILIZATION or ZVHCPU

Memory Utilization attribute**Description**

The percentage of memory utilization for the virtualization host, as measured at the end of the last monitoring interval.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

MEMORY_UTILIZATION or ZVHMEM

Current Memory (MB) attribute

Description

The amount of memory currently used by the virtualization host, expressed in MB.

Type

Integer (32-bit gauge) with enumerated values. The strings are displayed in the Tivoli Enterprise Portal. The warehouse and queries return the values that are shown in parentheses. The following values are defined:

- Value Exceeds Maximum (2147483647)
- Value Exceeds Minimum (-2147483648)

Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

Warehouse name

CURRENT_MEMORY_MB or ZVHCURMEM

Disk capacity planning for historical data

Disk capacity planning for a monitoring agent is a prediction of the amount of disk space to be consumed by the historical data in each attribute group that is collecting historical data. Required disk storage is an important factor when you are defining data collection rules and your strategy for historical data collection.

The Capacity planning for historical data table provides the following information, which is required to calculate disk space for this monitoring agent:

Table Table name as it is displayed in the warehouse database, if the attribute group is configured to be written to the warehouse. The table name listed here corresponds to the table name in “Attribute groups for the monitoring agent” on page 31.

Attribute group

Name of the attribute group that is used to create the table in the warehouse database if it is short enough to fit in the table naming constraints of the database that is being used for the warehouse. The attribute group name listed here corresponds to the Warehouse table name in “Attribute groups for the monitoring agent” on page 31.

Bytes per row (agent)

Estimate of the record length for each row or instance that is written to the agent disk for historical data collection. This estimate can be used for agent disk space planning purposes.

Database bytes per row (warehouse)

Estimate of the record length for detailed records that are written to the warehouse database, if the attribute group is configured to be written to the warehouse. Detailed records are records that have been uploaded from the agent for long-term historical data collection. This estimate can be used for warehouse disk-space planning purposes.

Aggregate bytes per row (warehouse)

Estimate of the record length for aggregate records that are written to the warehouse database, if the attribute group is configured to be written to the warehouse. Aggregate records are created by the Summarization agent for attribute groups that have been configured for summarization. This estimate can be used for warehouse disk-space planning purposes.

In addition to the information in the tables, you must know the number of rows of data that you plan to collect. An attribute group can have single or multiple rows of data, depending on the application environment that is being monitored. For example, if your attribute group monitors each processor in your computer and you have a dual processor computer, the number of rows is two.

Table 5. Capacity planning for historical data logged by the Tivoli zEnterprise Monitoring Agent

Table	Attribute group	Bytes per row (agent)	Database bytes per row (warehouse)	Aggregate bytes per row (warehouse)

For more information about historical data collection, see “Managing historical data” in the *IBM Tivoli Monitoring Administrator’s Guide*.

Chapter 5. Situations reference

A situation is a logical expression involving one or more system conditions. Situations are used to monitor the condition of systems in your network. You can manage situations from the Tivoli Enterprise Portal by using the Situation Editor or from the command-line interface using the `tacmd` commands for situations. You can manage private situations in the private configuration XML file.

About situations

The monitoring agents that you use to monitor your system environment include a set of predefined situations that you can use as-is. You can also create new situations to meet your requirements.

Predefined situations contain attributes that check for system conditions common to many enterprises. Using predefined situations can improve the speed with which you can begin using the Tivoli zEnterprise Monitoring Agent. You can change the conditions or values being monitored by a predefined situation to the conditions or values best suited to your enterprise.

You can display predefined situations and create your own situations using the Situation editor. The Situation editor initially lists the situations associated with the Navigator item that you selected. When you click a situation name or create a situation, a panel opens with the following tabs:

Formula

Formula describing the condition being tested.

Distribution

List of managed systems (operating systems, subsystems, or applications) to which the situation can be distributed. All the Tivoli zEnterprise Monitoring Agent managed systems are assigned by default.

Expert advice

Comments and instructions to be read in the event workspace.

Action

Command to be sent to the system.

EIF

Customize forwarding of the event to an Event Integration Facility receiver. (Available when the Tivoli Enterprise Monitoring Server is configured to forward events.)

Until

Options to close the event after a period of time, or when another situation becomes true.

Additional information about situations

The *Tivoli Enterprise Portal User's Guide* contains more information about predefined and custom situations and how to use them to respond to alerts.

For a list of the predefined situations and information about each individual situation for this monitoring agent, see "Predefined situations."

Predefined situations

The monitoring agent contains predefined situations, which are organized by Navigator item.

- Tivoli zEnterprise Monitoring Agent
 - Not applicable
- Agent Health
 - KZE_Data_Source_Disabled_Crit

- KZE_Data_Source_Status_Crit
- Ensembles Summary
 - KZE_CPC_Status_Info
 - KZE_CPC_Status_Warn
 - KZE_CPC_Status_Min
 - KZE_CPC_Status_Crit
 - KZE_CPC_Status_Fat
 - KZE_Blade_Status_Warn
 - KZE_Blade_Status_Min
 - KZE_Blade_Status_Crit
 - KZE_Blade_Status_Fat
 - KZE_LPR_AcceptableStatus_Crit
 - KZE_PVS_AcceptableStatus_Crit
 - KZE_MVS_AcceptableStatus_Crit
 - KZE_XVS_AcceptableStatus_Crit
 - KZE_ZVS_AcceptableStatus_Crit
- Workload Resource Groups Summary
 - KZE_WKL_ServiceLevelIndex_Info
 - KZE_WKL_ServiceLevelIndex_Warn
 - KZE_WKL_ServiceLevelIndex_Min
 - KZE_WKL_ServiceLevelIndex_Crit
 - KZE_WKL_ServiceLevelIndex_Fat

Situation descriptions

Each situation description provides information about the situation that you can use to monitor the condition of systems in your network.

The situation descriptions provide the following information:

Description

Information about the conditions that the situation tests.

Formula

Syntax that contains one or more logical expressions that describe the conditions for the situation to monitor.

Distribution

Whether the situation is automatically distributed to instances of the agent or is available for manual distribution.

Run at startup

Whether the situation starts monitoring when the agent starts.

Sampling interval

Number of seconds that elapse between one sample of data that the monitoring agent collects for the server and the next sample.

Situation persistence

Whether the conditions specified in the situation evaluate to "true" for the defined number of occurrences in a row before the situation is raised. The default of one means that no persistence-checking takes place.

Severity

Severity of the predefined events: Warning, Informational, or Critical.

Clearing conditions

Controls when a true situation closes: after a period, when another situation is true, or whichever occurs first if both are selected.

Tivoli zEnterprise Monitoring Agent Navigator item

No predefined situations are included for this Navigator item.

Agent Health Navigator item

The situation descriptions are organized by the Navigator item to which the situations are relevant.

KZE_Data_Source_Disabled_Crit situation**Description**

Data Source is not enabled due to an error

The situation is evaluated for each distinct value of Object_ID.

Formula

```
*IF *VALUE KZE_DATA_SOURCE.Enabled *EQ 2 *AND ( ( *VALUE
KZE_DATA_SOURCE.Disabled_Reason_Code *EQ 4 ) *OR (*VALUE
KZE_DATA_SOURCE.Disabled_Reason_Code *EQ 5) ) )
```

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Critical

Clearing conditions

The situation clears when the condition becomes false.

KZE_Data_Source_Status_Crit situation**Description**

Data Source status is critical

The situation is evaluated for each distinct value of Object_ID.

Formula

```
*IF *VALUE KZE_DATA_SOURCE.Status *EQ 3 *AND *VALUE
KZE_DATA_SOURCE.Status_Reason_Code *GE 1
```

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Critical

Clearing conditions

The situation clears when the condition becomes false.

Ensembles Summary Navigator item

The situation descriptions are organized by the Navigator item to which the situations are relevant.

KZE_CPC_Status_Info situation**Description**

CPC status is Service.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_CENTRAL_PROCESSOR_COMPLEX.Status *EQ 5

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Informational

Clearing conditions

The situation clears when the condition becomes false.

KZE_CPC_Status_Warn situation**Description**

CPC status is Not Communicating.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_CENTRAL_PROCESSOR_COMPLEX.Status *EQ 2

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Warning

Clearing conditions

The situation clears when the condition becomes false.

KZE_CPC_Status_Min situation**Description**

CPC status is Exceptions, Status Check or Degraded.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_CENTRAL_PROCESSOR_COMPLEX.Status *EQ 3 *OR *VALUE
 KZE_CENTRAL_PROCESSOR_COMPLEX.Status *EQ 4 *OR *VALUE
 KZE_CENTRAL_PROCESSOR_COMPLEX.Status *EQ 9

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Minor

Clearing conditions

The situation clears when the condition becomes false.

KZE_CPC_Status_Crit situation**Description**

CPC status is Not Operating or Service Required.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_CENTRAL_PROCESSOR_COMPLEX.Status *EQ 6 *OR *VALUE
 KZE_CENTRAL_PROCESSOR_COMPLEX.Status *EQ 8

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Critical

Clearing conditions

The situation clears when the condition becomes false.

KZE_CPC_Status_Fat situation**Description**

CPC status is No Power.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_CENTRAL_PROCESSOR_COMPLEX.Status *EQ 7

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Fatal

Clearing conditions

The situation clears when the condition becomes false.

KZE_Blade_Status_Warn situation**Description**

Blade status is Not Communicating.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_BLADE.Status *EQ 4

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Warning

Clearing conditions

The situation clears when the condition becomes false.

KZE_Blade_Status_Min situation**Description**

Blade status is Status Check or Definition Error.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_BLADE.Status *EQ 3 *OR *VALUE KZE_BLADE.Status *EQ 5

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Minor

Clearing conditions

The situation clears when the condition becomes false.

KZE_Blade_Status_Crit situation**Description**

Blade status is Not Operating or Stopped.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_BLADE.Status *EQ 2 *OR *VALUE KZE_BLADE.Status *EQ 7

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Critical

Clearing conditions

The situation clears when the condition becomes false.

KZE_Blade_Status_Fat situation

Description

Blade status is No Power.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_BLADE.Status *EQ 6

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Fatal

Clearing conditions

The situation clears when the condition becomes false.

KZE_LPR_AcceptableStatus_Crit situation

Description

The Status of the Logical Partition is not acceptable.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_LOGICAL_PARTITION.Acceptable_Status *EQ 2

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Critical

Clearing conditions

The situation clears when the condition becomes false.

KZE_PVS_AcceptableStatus_Crit situation**Description**

The Status of the PowerVM virtual server is not acceptable.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_POWERVM_VIRTUAL_SERVER.Acceptable_Status *EQ 2

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Critical

Clearing conditions

The situation clears when the condition becomes false.

KZE_MVS_AcceptableStatus_Crit situation**Description**

The Status of the PR/SM virtual server is not acceptable.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_PRSM_VIRTUAL_SERVER.Acceptable_Status *EQ 2

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Critical

Clearing conditions

The situation clears when the condition becomes false.

KZE_XVS_AcceptableStatus_Crit situation**Description**

The Status of the x Hyp virtual server is not acceptable.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_X_HYP_VIRTUAL_SERVER.Acceptable_Status *EQ 2

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Critical

Clearing conditions

The situation clears when the condition becomes false.

KZE_ZVS_AcceptableStatus_Crit situation**Description**

The Status of the z/VM virtual server is not acceptable.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_ZVM_VIRTUAL_SERVER.Acceptable_Status *EQ 2

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Critical

Clearing conditions

The situation clears when the condition becomes false.

Workload Resource Groups Summary Navigator item

The situation descriptions are organized by the Navigator item to which the situations are relevant.

KZE_WKL_ServiceLevelIndex_Info situation**Description**

The workload service level index is Informational.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_WORKLOAD_RESOURCE_GROUP.Workload_Service_Level_Index *EQ 2

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Informational

Clearing conditions

The situation clears when the condition becomes false.

KZE_WKL_ServiceLevelIndex_Warn situation**Description**

The workload service level index is Warning.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_WORKLOAD_RESOURCE_GROUP.Workload_Service_Level_Index *EQ 3

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Warning

Clearing conditions

The situation clears when the condition becomes false.

KZE_WKL_ServiceLevelIndex_Min situation**Description**

The workload service level index is Minor.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_WORKLOAD_RESOURCE_GROUP.Workload_Service_Level_Index *EQ 4

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Minor

Clearing conditions

The situation clears when the condition becomes false.

KZE_WKL_ServiceLevelIndex_Crit situation**Description**

The workload service level index is Critical.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_WORKLOAD_RESOURCE_GROUP.Workload_Service_Level_Index *EQ 5

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Critical

Clearing conditions

The situation clears when the condition becomes false.

KZE_WKL_ServiceLevelIndex_Fat situation

Description

The workload service level index is Fatal.

The situation is evaluated for each distinct value of Object_ID.

Formula

*IF *VALUE KZE_WORKLOAD_RESOURCE_GROUP.Workload_Service_Level_Index *EQ 6

See “Attributes in each attribute group” on page 33 for descriptions of the attributes in this formula.

Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

15 minutes

Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 1.

Error conditions

Fatal

Clearing conditions

The situation clears when the condition becomes false.

Chapter 6. Troubleshooting

Problems can be related to IBM Tivoli Monitoring or the specific agent that you are using.

For general troubleshooting information, see the *IBM Tivoli Monitoring Troubleshooting Guide*. For other problem-solving options, see “Support information” on page 259.

You can resolve some problems by ensuring that your system matches the system requirements listed in the Prerequisites topic for the agent in the information center, or in the “Monitoring agent requirements” topic of the *IBM Tivoli zEnterprise Monitoring Agent Installation and Configuration Guide*.

The following activities can help you find a solution to the problem you are having:

- “Gathering product information for IBM Software Support”
- “Using logging” on page 238
- “Consulting the lists of identified problems and workarounds” on page 238

Gathering product information for IBM Software Support

Before contacting IBM Software Support about a problem you are experiencing with this product, gather the information shown in Table 6.

Table 6. Information to gather before contacting IBM Software Support

Information type	Description
Log files	Collect trace log files from failing systems. Most logs are located in a logs subdirectory on the host computer. See “Principal trace log files” on page 239 for lists of all trace log files and their locations. For general information about the IBM Tivoli Monitoring environment, see the <i>Tivoli Enterprise Portal User's Guide</i> .
Operating system	Operating system version number and patch level
Messages	Messages and other information displayed on the screen
Version numbers for IBM Tivoli Monitoring	Version number of the following members of the monitoring environment: • IBM Tivoli Monitoring. Also provide the patch level, if available. • Tivoli zEnterprise Monitoring Agent
Screen captures	Screen captures of incorrect output, if any
(UNIX systems only) Core dump files	If the system stops on UNIX systems, collect the core dump file from the <i>install_dir/bin</i> directory, where <i>install_dir</i> is the directory where you installed the monitoring agent.

You can use the `pdcollect` tool to collect the most commonly used information from a system. This tool gathers log files, configuration information, version information, and other data. For more information about using this tool, see “`pdcollect` tool” in the *IBM Tivoli Monitoring Troubleshooting Guide*.

For information about working with IBM Software Support, see IBM Support Portal Service Requests and PMRs ([http://www.ibm.com/support/entry/portal/Open_service_request/Software/Software_support_\(general\)](http://www.ibm.com/support/entry/portal/Open_service_request/Software/Software_support_(general))).

Using logging

Logging is the primary troubleshooting feature in the Tivoli zEnterprise Monitoring Agent. *Logging* refers to the text messages and trace data that is generated by the Tivoli zEnterprise Monitoring Agent. Messages and trace data are sent to a file.

Trace data captures transient information about the current operating environment when a component or application fails to operate as designed. IBM Software Support personnel use the captured trace information to determine the source of an error or unexpected condition. See “Trace logging” for more information.

Consulting the lists of identified problems and workarounds

Known problems are organized into types such as those in the following list to make them easier to locate:

- Installation and configuration
- General usage and operation
- Display of monitoring data
- Take Action commands

Information about symptoms and detailed workarounds for these types of problems is located in “Problems and workarounds” on page 245.

For general troubleshooting information, see the *IBM Tivoli Monitoring Troubleshooting Guide*.

Trace logging

Trace logs are used to capture information about the operating environment when component software fails to operate as designed.

The principal log type is the RAS (Reliability, Availability, and Serviceability) trace log. These logs are in the English language only. The RAS trace log mechanism is available for all components of IBM Tivoli Monitoring. Most logs are located in a logs subdirectory on the host computer. See the following information to learn how to configure and use trace logging:

- “Principal trace log files” on page 239
- “Examples: Using trace logs” on page 242
- “Setting RAS trace parameters by using the GUI” on page 243

Note: The documentation refers to the RAS facility in IBM Tivoli Monitoring as “RAS1.”

IBM Software Support personnel use the information captured by trace logging to trace a problem to its source or to determine why an error occurred. All components in the IBM Tivoli Monitoring environment have a default tracing level. The tracing level can be changed on a per-component level to adjust the type of trace information collected, the degree of trace detail, the number of trace logs to be kept, and the amount of disk space used for tracing.

Overview of log file management

Knowing the naming conventions for log files helps you to find the files.

Agent log file naming conventions

Table 7 on page 239 provides the names, locations, and descriptions of IBM Tivoli Monitoring general RAS1 log files. The log file names for the Tivoli zEnterprise Monitoring Agent adhere to the following naming convention:

Windows systems

hostname_productcode_program_HEXtimestamp-nn.log

Linux and UNIX systems

hostname_productcode_program_HEXtimestamp-nn.log

Where:

hostname

Host name of the computer where the monitoring component is running.

HEXtimestamp

Hexadecimal time stamp representing the time at which the program started.

nn

Rolling log suffix.

Principal trace log files

Trace log files are located on various systems.

Table 7 contains locations, file names, and descriptions of trace logs that can help determine the source of problems with agents.

Table 7. Trace log files for troubleshooting agents

System where log is located	File name and path	Description
On the Tivoli Enterprise Monitoring Server	• Windows: The file in the <i>install_dir\InstallITM</i> path • UNIX: The <i>candle_installation.log</i> file in the <i>install_dir/logs</i> path • Linux: The <i>candle_installation.log</i> file in the <i>install_dir/logs</i> path	Provides details about products that are installed. Note: Trace logging is enabled by default. A configuration step is not required to enable this tracing.
On the Tivoli Enterprise Monitoring Server	The <i>Warehouse_Configuration.log</i> file is in the following location on Windows systems: <i>install_dir\InstallITM</i>	Provides details about the configuration of data warehousing for historical reporting.
On the Tivoli Enterprise Monitoring Server	The name of the RAS log file is as follows: • Windows: <i>install_dir\logs\hostname_ms_timestamp-nn.log</i> • UNIX: <i>install_dir/logs/hostname_ms_timestamp-nn.log</i> • Linux: <i>install_dir/logs/hostname_ms_timestamp-nn.log</i> Note: File names for RAS1 logs include a hexadecimal time stamp. Also on UNIX systems, a log with a decimal time stamp is provided: <i>hostname_productcode_timestamp.log</i> and <i>hostname_productcode_timestamp.pid nnnnn</i> in the <i>install_dir/logs</i> path, where <i>nnnnn</i> is the process ID number.	Traces activity on the monitoring server.

Table 7. Trace log files for troubleshooting agents (continued)

System where log is located	File name and path	Description
On the Tivoli Enterprise Portal Server	The name of the RAS log file is as follows: • Windows: <i>install_dir\logs\hostname_cq_HEXtimestamp-nn.log</i> • UNIX: <i>install_dir/logs/hostname_cq_HEXtimestamp-nn.log</i> • Linux: <i>install_dir/logs/hostname_cq_HEXtimestamp-nn.log</i> Note: File names for RAS1 logs include a hexadecimal time stamp. Also on UNIX systems, a log with a decimal time stamp is provided: <i>hostname_productcode_timestamp.log</i> and <i>hostname_productcode_timestamp.pidnnnnn</i> in the <i>install_dir/logs</i> path, where <i>nnnnn</i> is the process ID number.	Traces activity on the portal server.
On the Tivoli Enterprise Portal Server	The teps_odbc.log file is located in the following path: • Windows: <i>install_dir\Install\ITM</i> • UNIX: <i>install_dir/logs</i> • Linux: <i>install_dir/logs</i>	When you enable historical reporting, this log file traces the status of the warehouse proxy agent.

Table 7. Trace log files for troubleshooting agents (continued)

System where log is located	File name and path	Description
On the computer that hosts the monitoring agent	The RAS1 log files are as follows: • Windows: <i>hostname_ze_instance_name_kzeagent_HEXtimestamp-nn.log</i> in the <i>install_dir\tmaitm6\logs</i> directory • UNIX: <i>hostname_ze_instance_name_kzeagent_HEXtimestamp-nn.log</i> in the <i>install_dir/logs</i> directory • Linux: <i>hostname_ze_instance_name_kzeagent_HEXtimestamp-nn.log</i> in the <i>install_dir/logs</i> directory These logs are in the following directories: • Windows: <i>install_dir\tmaitm6\logs</i> • UNIX: <i>install_dir/logs</i> • Linux: <i>install_dir/logs</i> On Linux systems, the following additional logs are provided: – <i>hostname_ze_timestamp.log</i> – <i>hostname_ze_timestamp.pidnnnnn</i> in the <i>install_dir/logs</i> path, where <i>nnnnn</i> is the process ID number	Traces activity of the monitoring agent.
On the computer that hosts the monitoring agent	The agent operations log files are as follows: <i>instance_hostnameZE.LG0</i> is the current log created when the agent was started. <i>instance_hostname_ZE.LG1</i> is the backup of the previous log.	Shows whether the agent could connect to the monitoring server. Shows which situations are started and stopped, and shows other events while the agent is running. A new version of this file is generated every time the agent is restarted. IBM Tivoli Monitoring generates one backup copy of the *.LG0 file with the tag .LG1. View the .LG1 tag to learn the following details regarding the <i>previous</i> monitoring session: • Status of connectivity with the monitoring server • Situations that were running • The success or failure status of Take Action commands

Table 7. Trace log files for troubleshooting agents (continued)

System where log is located	File name and path	Description
Definitions of variables: • <i>timestamp</i> is a time stamp with a format that includes year (y), month (m), day (d), hour (h), and minute (m), as follows: yyyymmdd hhmm • <i>HEXtimestamp</i> is a hexadecimal representation of the time at which the process was started. • <i>install_dir</i> represents the directory path where you installed the IBM Tivoli Monitoring component. <i>install_dir</i> can represent a path on the computer that hosts the monitoring system, the monitoring agent, or the portal. • <i>instance</i> refers to the name of the database instance that you are monitoring. • <i>instance_name</i> refers to the name of the agent instance. • <i>hostname</i> refers to the name of the computer on which the IBM Tivoli Monitoring component runs. • <i>nn</i> represents the circular sequence in which logs are rotated. this value includes a range from 1 - 5, by default. The first is always retained because it includes configuration parameters. • <i>productcode</i> specifies the product code, for example, um for Universal Agent or nt for Windows systems.		

For more information about the complete set of trace logs that are maintained on the monitoring server, see the *IBM Tivoli Monitoring Installation and Setup Guide*.

Examples: Using trace logs

You can open trace logs in a text editor to learn some basic facts about your IBM Tivoli Monitoring environment.

IBM Software Support applies specialized knowledge to analyze trace logs to determine the source of problems. The following examples are from the Tivoli Enterprise Monitoring Server log.

Example one

This excerpt shows the typical log for a failed connection between a monitoring agent and a monitoring server with the host name **server1a**:

```
(Thursday, August 11, 2005, 08:21:30-{94C}kdc10cl.c,105,"KDCL0_ClientLookup") status=1c020006,
"location server unavailable", ncs/KDC1_STC_SERVER_UNAVAILABLE
(Thursday, August 11, 2005, 08:21:35-{94C}kraarreg.cpp,1157,"LookupProxy") Unable to connect to
broker at ip.pipe:: status=0, "success", ncs/KDC1_STC_OK
(Thursday, August 11, 2005, 08:21:35-{94C}kraarreg.cpp,1402,"FindProxyUsingLocalLookup") Unable
to find running CMS on CT_CMSLIST <IP.PIPE:#server1a>
```

Example two

The following excerpts from the trace log *for the monitoring server* show the status of an agent, identified here as "Remote node." The name of the computer where the agent is running is

SERVER5B:

```
(42C039F9.0000-6A4:kpxreqhb.cpp,649,"HeartbeatInserter") Remote node SERVER5B:ZE is ON-LINE.
. . .
(42C3079B.0000-6A4:kpxreqhb.cpp,644,"HeartbeatInserter") Remote node SERVER5B:ZE is OFF-LINE.
```

See the following key points about the preceding excerpts:

- The monitoring server appends the **ZE** product code to the server name to form a unique name (SERVER5B:ZE) for this instance of the Tivoli zEnterprise Monitoring Agent. By using this unique name, you can distinguish multiple monitoring products that might be running on **SERVER5B**.
- The log shows when the agent started (ON-LINE) and later stopped (OFF-LINE) in the environment.
- For the sake of brevity, an ellipsis (...) represents the series of trace log entries that were generated while the agent was running.
- Between the ON-LINE and OFF-LINE log entries, the agent was communicating with the monitoring server.

- The ON-LINE and OFF-LINE log entries are always available in the trace log. All trace levels that are described in “Setting RAS trace parameters by using the GUI” provide these entries.

On Windows systems, you can use the following alternate method to view trace logs:

1. In the Windows **Start** menu, click **Program Files > IBM Tivoli Monitoring > Manage Tivoli Enterprise Monitoring Services**. The Manage Tivoli Enterprise Monitoring Services window is displayed.
2. Right-click a component and click **Advanced > View Trace Log** in the menu. For example, if you want to view the trace log of the Tivoli zEnterprise Monitoring Agent, right-click the name of that agent in the window. You can also use the viewer to access remote logs.

Note: The viewer converts time stamps in the logs to a format that is easier to read.

RAS trace parameters

Pinpoint a problem by setting detailed tracing of individual components of the monitoring agent and modules

See “Overview of log file management” on page 238 to ensure that you understand log rolling and can reference the correct log files when you manage log file generation.

Setting RAS trace parameters by using the GUI

On Windows systems, you can use the graphical user interface to set trace options.

About this task

The Tivoli zEnterprise Monitoring Agent uses RAS1 tracing and generates the logs described in Table 7 on page 239. The default RAS1 trace level is ERROR.

Procedure

1. Open the Manage Tivoli Enterprise Monitoring Services window.
2. Select **Advanced > Edit Trace Parm.** The Tivoli Enterprise Monitoring Server Trace Parameters window is displayed.
3. Select a new trace setting in the pull-down menu in the **Enter RAS1 Filters** field or type a valid string.
 - General error tracing. KBB_RAS1=ERROR
 - Intensive error tracing. KBB_RAS1=ERROR
 - Maximum error tracing. KBB_RAS1=ERROR

Note: As this example shows, you can set multiple RAS tracing options in a single statement.

4. Modify the value for Maximum Log Size Per File (MB) to change the log file size (changes LIMIT value).
5. Modify the value for Maximum Number of Log Files Per Session to change the number of log files per startup of a program (changes COUNT value).
6. Modify the value for Maximum Number of Log Files Total to change the number of log files for all startups of a program (changes MAXFILES value).
7. Optional: Click Y (Yes) in the **KDC_DEBUG Setting** menu to log information that can help you diagnose communications and connectivity problems between the monitoring agent and the monitoring server. The **KDC_DEBUG** setting and the **Maximum error tracing** setting can generate a large amount of trace logging. Use these settings only temporarily, while you are troubleshooting problems. Otherwise, the logs can occupy excessive amounts of hard disk space.

8. Click **OK**. You see a message reporting a restart of the monitoring agent so that your changes take effect.

What to do next

Monitor the size of the logs directory. Default behavior can generate a total of 45 - 60 MB for each agent that is running on a computer. For example, each database instance that you monitor can generate 45 - 60 MB of log data. See the "Procedure" section to learn how to adjust file size and numbers of log files to prevent logging activity from occupying too much disk space.

Regularly prune log files other than the RAS1 log files in the logs directory. Unlike the RAS1 log files that are pruned automatically, other log types can grow indefinitely, for example, the logs in Table 7 on page 239 that include a process ID number (PID).

Use collector trace logs as an additional source of troubleshooting information.

Note: The **KDC_DEBUG** setting and the **Maximum error tracing** setting can generate a large amount of trace logging. Use these settings only temporarily while you are troubleshooting problems. Otherwise, the logs can occupy excessive amounts of hard disk space.

Manually setting RAS trace parameters

You can manually edit the RAS1 trace logging parameters.

About this task

The Tivoli zEnterprise Monitoring Agent uses RAS1 tracing and generates the logs described in Table 7 on page 239. The default RAS1 trace level is ERROR.

Procedure

1. Open the trace options file:
 - **Windows systems:**
`install_dir\tmaitm6\KZEENV`
 - **UNIX systems:**
`install_dir /config/ze.config`
2. Edit the line that begins with **KBB_RAS1=** to set trace logging preferences. For example, if you want detailed trace logging, set the **Maximum Tracing** option: **KBB_RAS1=ERROR (UNIT:kze ALL) (UNIT:kra ALL)**
3. Edit the line that begins with **KBB_RAS1_LOG=** to manage the generation of log files:
 - **MAXFILES:** The total number of files that are to be kept for all startups of a specific program. When this value is exceeded, the oldest log files are discarded. The default value is 9.
 - **LIMIT:** The maximum size, in megabytes (MB) of a RAS1 log file. The default value is 5.
 - IBM Software Support might guide you to modify the following parameters:
 - **COUNT:** The number of log files to keep in the rolling cycle of one program startup. The default is 3.
 - **PRESERVE:** The number of files that are not to be reused in the rolling cycle of one program startup. The default value is 1.

Note: The **KBB_RAS1_LOG** parameter also provides for the specification of the log file directory, log file name, and the inventory control file directory and name. Do not modify these values or log information can be lost.

4. Restart the monitoring agent so that your changes take effect.

What to do next

Monitor the size of the logs directory. Default behavior can generate a total of 45 - 60 MB for each agent that is running on a computer. For example, each database instance that you monitor can generate 45 - 60 MB of log data. See the "Procedure" section to learn how to adjust file size and numbers of log files to prevent logging activity from occupying too much disk space.

Regularly prune log files other than the RAS1 log files in the logs directory. Unlike the RAS1 log files that are pruned automatically, other log types can grow indefinitely, for example, the logs in Table 7 on page 239 that include a process ID number (PID).

Use collector trace logs as an additional source of troubleshooting information.

Note: The **KDC_DEBUG** setting and the **Maximum error tracing** setting can generate a large amount of trace logging. Use these settings only temporarily while you are troubleshooting problems. Otherwise, the logs can occupy excessive amounts of hard disk space.

Setting trace parameters for the Tivoli Enterprise Console server

In addition to the trace information captured by IBM Tivoli Monitoring, you can also collect additional trace information for the Tivoli Enterprise Console components that gather event server metrics.

About this task

To collect this information, modify the `.tec_diag_config` file on the Tivoli Enterprise Console event server. Use the steps in the following procedure to modify the event server trace parameters.

Procedure

1. Open the `$BINDIR/TME/TEC/.tec_diag_config` file in an ASCII editor.
2. Locate the entries that configure trace logging for the agent components on the event server. Two entries are included, one for `tec_reception` and one for `tec_rule`:

```
# to debug Agent Utils
tec_reception Agent_Utills  error   /tmp/tec_reception
SP
# to debug Agent Utils
tec_rule Agent_Utills      error   /tmp/tec_rule
```

3. To gather additional trace information, modify these entries to specify a trace level of `trace2`:

```
# to debug Agent Utils
tec_reception Agent_Utills  trace2  /tmp/tec_reception
SP
# to debug Agent Utils
tec_rule Agent_Utills      trace2  /tmp/tec_rule
```

4. In addition, modify the `Highest_level` entries for `tec_rule` and `tec_reception`:

```
tec_reception Highest_level trace2
SP
tec_rule Highest_level trace2
```

Problems and workarounds

The known problems and workarounds are organized into types of problems that might occur with the Tivoli zEnterprise Monitoring Agent, for example installation and configuration problems and workspace problems.

Note: You can resolve some problems by ensuring that your system matches the system requirements listed in the Prerequisites topic for the agent in the IBM Tivoli zEnterprise Monitoring Agent Information Center.

Note: You can resolve some problems by ensuring that your system matches the system requirements listed in the Prerequisites topic in the *IBM Tivoli zEnterprise Monitoring Agent Installation and Configuration Guide*.

For general troubleshooting information, see the *IBM Tivoli Monitoring Troubleshooting Guide*.

Installation and configuration troubleshooting

Problems can occur during installation, configuration, and uninstallation of the agent.

The problems and solutions in Table 8 can occur during installation, configuration, and uninstallation of the agent.

Table 8. Problems and solutions for installation and configuration

Problem	Solution
(UNIX only) During a command-line installation, you choose to install a component that is currently installed, and you see the following warning: WARNING - you are about to install the SAME version of "component_name" where component_name is the name of the component that you are attempting to install. Note: This problem affects UNIX command-line installations. If you monitor only Windows environments, you see this problem if you choose to install a product component (for example, a monitoring server) on a UNIX system.	You must exit and restart the installation process. You cannot return to the list where you selected components to install. When you run the installer again, do not attempt to install any component that is currently installed.
Diagnosing problems with product browse settings (Windows systems only).	When you have problems with browse settings, complete the following steps: 1. Click Start > Programs > IBM Tivoli Monitoring > Manage Tivoli Enterprise Monitoring Services. The Manage Tivoli Enterprise Monitoring Services window is displayed. 2. Right-click the Windows agent and select Browse Settings. A text window is displayed. 3. Click Save As and save the information in the text file. If requested, you can forward this file to IBM Software Support for analysis.
A message similar to "Unable to find running CMS on CT_CMSLIST" in the log file is displayed.	If a message similar to "Unable to find running CMS on CT_CMSLIST" is displayed in the log file, the agent cannot connect to the monitoring server. Confirm the following points: • Do multiple network interface cards (NICs) exist on the system? • If multiple NICs exist on the system, find out which one is configured for the monitoring server. Ensure that you specify the correct host name and port settings for communication in the IBM Tivoli Monitoring environment.

Table 8. Problems and solutions for installation and configuration (continued)

Problem	Solution
The system is experiencing high CPU usage.	Agent process: View the memory usage of the KZECMA process. If CPU usage seems to be excessive, restart the monitoring agent. Network cards: The network card configurations can decrease the performance of a system. Each stream of packets that a network card receives (assuming that it is a broadcast or destined for the under-performing system) must generate a CPU interrupt and transfer the data through the I/O bus. If the network card in question is a bus-mastering card, work can be offloaded and a data transfer between memory and the network card can continue without using CPU processing power. Bus-mastering cards are 32-bit and are based on PCI or EISA bus architectures.
The configuration panel is blank on 64-bit Windows systems where the Tivoli Enterprise Monitoring Agent Framework (component GL) is version 06.23.00.00 or 06.23.01.00.	Check the GL component version by running <code>kincinfo -t GL</code> from a Windows command line. Example: <code>%CANDLE_HOME%\Install\ITM\kincinfo -t GL</code> If the GL component version is 06.23.00.00 or 06.23.01.00, take one of the following actions: • Preferred action: Upgrade the Windows OS Agent to Version 6.2.3 Fix Pack 2. • Alternate action: Install the Agent Compatibility (AC) component from the IBM Tivoli Monitoring V6.2.3 Fix Pack 1 media. See Installing the Agent Compatibility (AC) component (http://pic.dhe.ibm.com/infocenter/tivihelp/v15r1/topic/com.ibm.itm.doc_6.2.3fp1/itm623FP1_install199.htm#acinstall).

Table 9. General problems and solutions for uninstallation

Problem	Solution
On Windows systems, uninstallation of IBM Tivoli Monitoring fails to uninstall the entire environment.	Be sure that you follow the general uninstallation process described in the <i>IBM Tivoli Monitoring Installation and Setup Guide</i>: 1. Remove Tivoli Enterprise Monitoring Server Application support by completing the following steps: a. Use Manage Tivoli Enterprise Monitoring Services. b. Select Tivoli Enterprise Monitoring Server. c. Right-click and select Advanced. d. Select Remove TEMS application support. e. Select the agent to remove its application support. 2. Uninstall the monitoring agents first, as in the following examples: • Uninstall a single monitoring agent for a specific database. -OR- • Uninstall all instances of a monitoring product, such as IBM Tivoli Monitoring for Databases. 3. Uninstall IBM Tivoli Monitoring.

Table 9. General problems and solutions for uninstallation (continued)

Problem	Solution
The way to remove inactive managed systems (systems whose status is OFFLINE) from the Navigator tree in the portal is not obvious.	Use the following steps to remove, but not uninstall, an offline managed system from the Navigator tree: 1. Click the Enterprise icon in the Navigator tree. 2. Right-click, and then click Workspace > Managed System Status. 3. Right-click the offline managed system, and select Clear offline entry. To uninstall the monitoring agent, use the procedure described in the <i>IBM Tivoli Monitoring Installation and Setup Guide</i>.
The software inventory tag for the agent on UNIX and Linux systems is not removed during uninstallation of the agent.	After uninstalling the agent, manually remove the file named <i>full name of agent.cmptag</i> from the <code>\$CANDLEHOME/properties/version/</code> directory.
When the agent is installed using group deployment, deploygroup was run multiple times. The group deployment starts and completes successfully, but there were multiple entries in the Deploy Status Summary workspace on the Tivoli Enterprise Portal. When the command tried to install multiple times, the additional installations were queued and then were in failed state though the agent was deployed successfully. Note: • When the bundle group contains a single bundle and the deployment group contains more than one member (managed system of the same type as AIX or Linux), the deployment is successful on both systems. • When the bundle group contains more than one bundle and the deploy group contains single or multiple members, the deployment will be executed on each group member (managed system) depending on the members present in the bundle group and deploy group. • The command creates a transaction for each XX bundle for each target system; the bundle matching the operating system for the deployment member is processed successfully; and remaining transactions were in a queued or failed state.	There is no solution at this time.

Remote deployment troubleshooting

Problems can occur with remote deployment and removal of agent software using the Agent Remote Deploy process.

Table 10 on page 249 contains problems and solutions related to remote deployment.

Table 10. Remote deployment problems and solutions

Problem	Solution
While you are using the remote deployment feature to install the Tivoli zEnterprise Monitoring Agent, an empty command window is displayed on the target computer. This problem occurs when the target of remote deployment is a Windows computer. (For more information about the remote deployment feature, see the <i>IBM Tivoli Monitoring Installation and Setup Guide</i> .)	Do not close or modify this window. It is part of the installation process and is dismissed automatically.
The removal of a monitoring agent fails when you use the remote removal process in the Tivoli Enterprise Portal desktop or browser.	This problem might occur when you attempt the remote removal process immediately after you restart the Tivoli Enterprise Monitoring Server. You must allow time for the monitoring agent to refresh its connection with the Tivoli Enterprise Monitoring Server before you begin the remote removal process.

Agent troubleshooting

A problem can occur with the agent after it has been installed.

Table 11 contains problems and solutions that can occur with the agent after it is installed.

Table 11. Agent problems and solutions

Problem	Solution
Log data accumulates too rapidly.	Check the RAS trace option settings, which are described in “Setting RAS trace parameters by using the GUI” on page 243. The trace option settings that you can set on the KBB_RAS1= and KDC_DEBUG= lines potentially generate large amounts of data.

Table 11. Agent problems and solutions (continued)

Problem	Solution
A configured and running instance of the monitoring agent is not displayed in the Tivoli Enterprise Portal, but other instances of the monitoring agent on the same system are displayed in the portal.	IBM Tivoli Monitoring products use Remote Procedure Call (RPC) to define and control product behavior. RPC is the mechanism that a client process uses to make a subroutine call (such as GetTimeOfDay or ShutdownServer) to a server process somewhere in the network. Tivoli processes can be configured to use TCP/UDP, TCP/IP, SNA, and SSL as the protocol (or delivery mechanism) for RPCs that you want. IP.PIPE is the name given to Tivoli TCP/IP protocol for RPCs. The RPCs are socket-based operations that use TCP/IP ports to form socket addresses. IP.PIPE implements virtual sockets and multiplexes all virtual socket traffic across a single physical TCP/IP port (visible from the netstat command). A Tivoli process derives the physical port for IP.PIPE communications based on the configured, well-known port for the hub Tivoli Enterprise Monitoring Server. (This well-known port or BASE_PORT is configured by using the 'PORT:' keyword on the KDC_FAMILIES / KDE_TRANSPORT environment variable and defaults to '1918'.) The physical port allocation method is defined as $(BASE_PORT + 4096 * N)$, where $N=0$ for a Tivoli Enterprise Monitoring Server process and $N=\{1, 2, ..., 15\}$ for another type of monitoring server process. Two architectural limits result as a consequence of the physical port allocation method: • No more than one Tivoli Enterprise Monitoring Server reporting to a specific Tivoli Enterprise Monitoring Server hub can be active on a system image. • No more than 15 IP.PIPE processes can be active on a single system image. A single system image can support any number of Tivoli Enterprise Monitoring Server processes (address spaces) if each Tivoli Enterprise Monitoring Server on that image reports to a different hub. By definition, one Tivoli Enterprise Monitoring Server hub is available per monitoring enterprise, so this architecture limit has been reduced to one Tivoli Enterprise Monitoring Server per system image. No more than 15 IP.PIPE processes or address spaces can be active on a single system image. With the first limit expressed earlier, this second limitation refers specifically to Tivoli Enterprise Monitoring Agent processes: no more than 15 agents per system image. Continued on next row.

Table 11. Agent problems and solutions (continued)

Problem	Solution
Continued from previous row.	This limitation can be circumvented (at current maintenance levels, IBM Tivoli Monitoring V6.1, Fix Pack 4 and later) if the Tivoli Enterprise Monitoring Agent process is configured to use the EPHEMERAL IP.PIPE process. (This process is IP.PIPE configured with the 'EPHEMERAL:Y' keyword in the KDC_FAMILIES / KDE_TRANSPORT environment variable). The number of ephemeral IP.PIPE connections per system image has no limitation. If ephemeral endpoints are used, the Warehouse Proxy agent is accessible from the Tivoli Enterprise Monitoring Server associated with the agents using ephemeral connections either by running the Warehouse Proxy agent on the same computer or by using the Firewall Gateway feature. (The Firewall Gateway feature relays the Warehouse Proxy agent connection from the Tivoli Enterprise Monitoring Server computer to the Warehouse Proxy agent computer if the Warehouse Proxy agent cannot coexist on the same computer.)

Tivoli zEnterprise monitoring agent troubleshooting

A problem can occur with the Tivoli zEnterprise monitoring agent after it has been installed. Some of these problems occur in globalized versions only.

The table that follows contains problems and solutions that can occur with the agent after it has been installed.

Table 12. Tivoli zEnterprise monitoring agent problems and solutions

Problem	Solution
Some of the Virtual Network metrics are reported as zero (0), or do not appear correct.	This is a known Unified Resource Manager limitation. Not all platform types support the collection of all of the metrics shown in the Virtual Networks attribute group. There are also specific requirements for some platform types for these metrics to be collected. Refer to Appendix E, "Additional platform support information for the Virtual Network attribute group," on page 321 for a detailed explanation of these requirements and limitations.
The silent install script for the monitoring agent does not run.	Review your edited silent response file and answer these questions: • Did you uncomment a line for a component that is not running on the system where you are installing? If you did, the silent install script fails. • Did you fail to edit the "I accept the license" line and change the response from no to yes? Edit the silent install script and select application support for only the components that are running on the system where you are installing the monitoring agent or accept the license agreement.

Table 12. Tivoli zEnterprise monitoring agent problems and solutions (continued)

Problem	Solution
You may encounter an error if you follow a conditional link to a Linux, UNIX or Windows OS agent workspace from one of these zEnterprise Monitoring Agent workspace views: • PowerVM Virtual Server CPU and Memory Details view in the PowerVM Virtual Server Details workspace • PowerVM Virtual Server Network Summary view in the PowerVM Virtual Server Details workspace • x Hyp Virtual Server CPU and Memory Details view in the x Hyp Virtual Server Details workspace • x Hyp Virtual Server Network Summary view in the x Hyp Virtual Server Details workspace • Virtual Servers view in the Workload Resource Group Details workspace	A number of situations can create problems with dynamic workspace links, and the symptom indicates the solution. 1. The link name is not displayed, meaning that it is inactive. These situations can make this link inactive. • The application support files for the OS agent have not been installed on Tivoli Enterprise Monitoring Server or Tivoli Enterprise Portal Server. • The target machine has no IBM Tivoli monitoring agents installed (the "managed system" node does not exist). • The target machine has no OS agent, or the OS agent has not registered with the monitoring server (for example, it has never been started). • The target machine has an OS agent, and the agent has been registered with the monitoring server, but the agent is currently not running (the agent is offline). 2. The link appears to be active, but when you click on it, a pop-up window is displayed with this message: KFSITM081E The link target cannot be found. The link definition might be incorrect or the target is unavailable. This message is displayed if the OS agent has never registered with your Tivoli Enterprise Monitoring Server (TEMS). 3. The correct OS agent workspace appears, but the following message appears in every view of the workspace" KFWITM454E Request failed to offline managed systems(s). This situation occurs when the OS agent is inoperative.
When you request the default value (All), the "Earliest date" for start date, or "Latest date" for end date when generating a Tivoli Common Report report, the date field value is missing in the generated report.	This is a known problem. There is currently no workaround.
There is a known problem with the values shown for the Memory attribute for a blade versus the Memory value shown for the virtualization host. You might expect that these values to be the same, but the two attributes show different values. This is because the blade memory value is taken from the hardware (that is, how much physical memory is installed on the blade) while the other virtualization host memory value reflects how much memory is available for virtual servers. You might expect these fields to show the same value but they do not.	This is a source of potential confusion, not an error. No change is required.

Table 12. Tivoli zEnterprise monitoring agent problems and solutions (continued)

Problem	Solution
The Memory Utilization attribute in the Workload Virtual Server, PowerVM Virtual Server, and x Hyp Virtual Server attribute groups sometimes show an unexpected value that is different depending on platform: • All PowerVM virtual servers whose status is Operating show 100% Memory Utilization. • PR/SM™ virtual servers show 98 to 100% Memory Utilization. • x Hyp virtual servers show whatever the highest Memory Utilization as a "high-water mark" (that is, the highest value reported by the hypervisor). The hypervisor never reclaims memory from the virtual servers. • z/VM® virtual servers show the correct Memory Utilization (that is, the value fluctuates with usage).	This is a known Unified Resource Manager limitation. The Unified Resource Manager displays Memory Utilization from the perspective of the hypervisor, not from the perspective of the operating system running on the Virtual Server. There is no workaround.

Workspace troubleshooting

Problems can occur with general workspaces and agent-specific workspaces.

Table 13 contains problems and solutions related to workspaces.

Table 13. Workspace problems and solutions

Problem	Solution
The process application components are available, but the Availability status shows PROCESS_DATA_NOT_AVAILABLE.	This problem occurs because the PerfProc performance object is disabled. When this condition exists, IBM Tivoli Monitoring cannot collect performance data for this process. Use the following steps to confirm that this problem exists and to resolve it: 1. In the Windows Start menu, click Run. 2. Type perfmon.exe in the Open field of the Run window. The Performance window is displayed. 3. Click the plus sign (+) in the toolbar. The Add Counters window is displayed. 4. Look for Process in the Performance object menu. 5. Complete one of the following actions: • If you see Process in the menu, the PerfProc performance object is enabled and the problem is coming from a different source. You might need to contact IBM Software Support. • If you do not see Process in the menu, use the Microsoft utility from the Microsoft.com Operations website to enable the PerfProc performance object. The Process performance object becomes visible in the Performance object menu of the Add Counters windows, and IBM Tivoli Monitoring is able to detect Availability data. 6. Restart the monitoring agent.

Table 13. Workspace problems and solutions (continued)

Problem	Solution
The name of the attribute does not display in a bar chart or graph view.	When a chart or graph view that includes the attribute is scaled to a small size, a blank space is displayed instead of a truncated name. To see the name of the attribute, expand the view of the chart until sufficient space is available to display all characters of the attribute name.
You start collection of historical data but the data cannot be seen.	Use the following managing options for historical data collection: • Basic historical data collection populates the Warehouse with raw data. This type of data collection is turned off by default. For information about managing this feature including how to set the interval at which data is collected, see “Managing historical data” in the <i>IBM Tivoli Monitoring Administrator’s Guide</i>. By setting a more frequent interval for data collection, you reduce the load on the system incurred every time data is uploaded. • Use the Summarization and Pruning agent to collect specific amounts and types of historical data. Historical data is not displayed until the Summarization and Pruning monitoring agent begins collecting the data. By default, this agent begins collection at 2 a.m. daily. At that point, data is visible in the workspace view. For information about how to modify the default collection settings, see “Managing historical data” in the <i>IBM Tivoli Monitoring Administrator’s Guide</i>.
Historical data collection is unavailable because of incorrect queries in the Tivoli Enterprise Portal.	The Sort By, Group By, and First/Last functions column are not compatible with the historical data collection feature. Use of these advanced functions makes a query ineligible for historical data collection. Even if data collection has started, you cannot use the time span feature if the query for the chart or table includes column functions or advanced query options (Sort By, Group By, First / Last). To ensure support of historical data collection, do not use the Sort By, Group By, or First/Last functions in your queries. For information about the historical data collection function, See “Managing historical data” in the <i>IBM Tivoli Monitoring Administrator’s Guide</i> or the Tivoli Enterprise Portal online help .
When you use a long process name in the situation, the process name is truncated.	Truncation of process or service names for situations in the Availability table in the portal display is the expected behavior. The maximum name length is 100 bytes.
Regular (non-historical) monitoring data fails to be displayed.	Check the formation of the queries you use to gather data. For example, look for invalid SQL statements.

Table 13. Workspace problems and solutions (continued)

Problem	Solution
Navigator items and workspace titles are labeled with internal names such as Kxx:KXX0000 instead of the correct names (such as Disk), where XX and xx represent the two-character agent code.	Ensure that application support has been added on the monitoring server, portal server, and portal client. For more information about installing application support, see “Installing and enabling application support” in the <i>IBM Tivoli Monitoring Installation and Setup Guide</i>.

Situation troubleshooting

Problems can occur with situations and situation configuration.

Table 14 contains problems and solutions for situations.

Table 14. Situation problems and solutions

Problem	Solution
Monitoring activity requires too much disk space.	Check the RAS trace logging settings that are described in “Setting RAS trace parameters by using the GUI” on page 243. For example, trace logs grow rapidly when you apply the ALL logging option.
Monitoring activity requires too many system resources.	“Disk capacity planning for historical data” on page 223 describes the performance impact of specific attribute groups. If possible, decrease your use of the attribute groups that require greater system resources.
A formula that uses mathematical operators appears to be incorrect. For example, if you were monitoring a Linux system, the formula that calculates when Free Memory falls under 10 percent of Total Memory does not work: LT #'Linux_VM_Stats.Total_Memory' / 10	This formula is incorrect because situation predicates support only logical operators. Your formulas cannot have mathematical operators. Note: The Situation Editor provides alternatives to math operators. In the example, you can select the % Memory Free attribute and avoid the need for math operators.
You want to change the appearance of situations when they are displayed in the navigation tree.	1. Right-click an item in the navigation tree. 2. Click Situations in the menu. The Situation Editor window is displayed. 3. Select the situation that you want to modify. 4. Use the State menu to set the status and appearance of the Situation when it triggers. Note: The State setting is not related to severity settings in the Tivoli Enterprise Console.
When a situation is triggered in the Event Log attribute group, it remains in the Situation Event Console as long as the event ID entry is present in the Event Log workspace. When this event ID entry is removed from the Event Log workspace on the Tivoli Enterprise Portal, the situation is also cleared even if the actual problem that caused the event is not resolved, and the event ID entry is also present in the Windows Event Viewer.	A timeout occurs on the cache of events for the NT Event Log group. Increase the cache time of Event Log collection to meet your requirements by adding the following variable and timeout value to the <i>KpcENV</i> file for the agent (where <i>pc</i> is the two-letter product code): CDP_NT_EVENT_LOG_CACHE_TIMEOUT=3600 This variable determines how long events from the NT Event Log are kept.
The situation for a specific agent is not visible in the Tivoli Enterprise Portal.	Open the Situation Editor. Access the All managed servers view. If the situation is not displayed, confirm that the monitoring server has been seeded for the agent. If not, seed the server, as described in the <i>IBM Tivoli Monitoring Installation and Setup Guide</i> .

Table 14. Situation problems and solutions (continued)

Problem	Solution
The monitoring interval is too long.	Access the Situation Editor view for the situation that you want to modify. Check the Sampling interval area in the Formula tab. Adjust the time interval as required.
The situation did not activate at startup.	Manually recycle the situation as follows: 1. Right-click the situation and select Stop Situation . 2. Right-click the situation and select Start Situation . Note: You can permanently avoid this problem by selecting the Run at Startup check box of the Situation Editor view for a specific situation.
The situation is not displayed.	Click the Action tab and check whether the situation has an automated corrective action. This action can occur directly or through a policy. The situation might be resolving so quickly that you do not see the event or the update in the graphical user interface.
An Alert event did not occur even though the predicate was correctly specified.	Check the logs, reports, and workspaces.
A situation fires on an unexpected managed object.	Confirm that you distributed and started the situation on the correct managed system.
The product did not distribute the situation to a managed system.	Click the Distribution tab and check the distribution settings for the situation.

Table 14. Situation problems and solutions (continued)

Problem	Solution
The situation does not fire.	This problem can be caused when incorrect predicates are present in the formula that defines the situation. For example, the managed object shows a state that normally triggers a monitoring event, but the situation is not true because the wrong attribute is specified in the formula. In the Formula tab, analyze predicates as follows: - Click the fx icon in the Formula area. The Show formula window is displayed. - Confirm the following details in the Formula area of the window: - The attributes that you intend to monitor are specified in the formula. - The situations that you intend to monitor are specified in the formula. - The logical operators in the formula match your monitoring goal. - The numeric values in the formula match your monitoring goal. (Optional) Select the Show detailed formula check box to see the original names of attributes in the application or operating system that you are monitoring. - Click OK to dismiss the Show formula window. (Optional) In the Formula area of the Formula tab, temporarily assign numeric values that immediately trigger a monitoring event. The triggering of the event confirms that other predicates in the formula are valid. Note: After you complete this test, you must restore the numeric values to valid levels so that you do not generate excessive monitoring data based on your temporary settings. For additional information about situations that do not fire, see “Situations are not firing” in the <i>IBM Tivoli Monitoring Troubleshooting Guide</i>.
Situation events are not displayed in the Events Console view of the workspace.	Associate the situation with a Navigator item. Note: The situation does not need to be displayed in the workspace. It is sufficient that the situation is associated with any Navigator item.
You do not have access to a situation.	Note: You must have administrator privileges to complete these steps. - Click Edit > Administer Users to access the Administer Users window. - In the Users area, select the user whose privileges you want to modify. - In the Permissions tab, Applications tab, and Navigator Views tab, select the permissions or privileges that correspond to the user role. - Click OK.

Table 14. Situation problems and solutions (continued)

Problem	Solution
A managed system seems to be offline.	1. Select Physical View and click the Enterprise Level of the navigator tree. 2. Click View > Workspace > Managed System Status to see a list of managed systems and their status. 3. If a system is offline, check network connectivity and the status of the specific system or application.

Take Action commands troubleshooting

Problems can occur with Take Action commands.

Table 15 contains problems and solutions that can occur with Take Action commands.

When each Take Action command runs, it generates a log file listed in Table 7 on page 239.

Table 15. Take Action commands problems and solutions

Problem	Solution
Take Action commands often require several minutes to complete.	Allow several minutes. If you do not see a message advising you of completion, try to run the command manually.
Situations fail to trigger Take Action commands.	Attempt to manually run the Take Action command in the Tivoli Enterprise Portal. If the Take Action command works, look for configuration problems in the situation. See "Situation troubleshooting" on page 255. If the Take Action command fails, for general information about troubleshooting Take Action commands, see the <i>IBM Tivoli Monitoring Troubleshooting Guide</i> .

Tivoli Common Reporting troubleshooting

Problems can occur with the Tivoli Common Reporting predefined reports for the Tivoli zEnterprise Monitoring Agent.

Table 16 on page 259 contains problems and solutions that can occur with the Tivoli Common Reporting predefined reports for Tivoli zEnterprise Monitoring Agent. See the Tivoli Common Reporting Information Center (http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/topic/com.ibm.tivoli.tcr.doc/tcr_welcome.html) for more information about troubleshooting for the Tivoli Common Reporting tool.

Table 16. Tivoli Common Reporting for Tivoli zEnterprise Monitoring Agent problems and solutions

Problem	Solution
You cannot successfully run the sample reports created for the Tivoli Monitoring for zEnterprise monitoring agent.	Ensure that you have done the following: • Performed all steps of installation process run successfully. • Started the Tivoli Common Reporting Server and waited a few minutes after start-up completes for data to accumulate before trying to run reports. • Logged onto to Tivoli Enterprise Portal and have not be logged off automatically dues to a timeout. • Set up a Cognos® connection to Tivoli Data Warehouse and named the connection TDW. • Enabled historical collection for all tables described in the report package documentation. • Enabled hourly and daily summarization for all tables described in the report package documentation. For more information about enabling historical collection, see the <i>IBM Tivoli Monitoring: Installation and Setup Guide</i>.

Support information

If you have a problem with your IBM software, you want to resolve it quickly.

IBM provides the following ways for you to obtain the support you need:

Online

The following websites contain troubleshooting information:

- Go to the IBM Software Support website (<http://www.ibm.com/support/entry/portal/software>) and follow the instructions.
- Go to the Application Performance Management Wiki (<http://www.ibm.com/developerworks/servicemanagement/apm/index.html>). Feel free to contribute to this wiki.

IBM Support Assistant

The IBM Support Assistant (ISA) is a free local software serviceability workbench that helps you resolve questions and problems with IBM software products. The ISA provides quick access to support-related information and serviceability tools for problem determination. To install the ISA software, go to the IBM Support Assistant website (<http://www.ibm.com/software/support/isa>).

Informational, warning, and error messages overview

Messages relay information about how the system or application is performing and can alert you to exceptional conditions when they occur.

Messages are sent to an output destination, such as a file, database, or console screen.

If you receive a warning or error message, you can do one of the following actions:

- Follow the instructions listed in the Detail window of the message if this information is included there.
- Consult the message details listed in this topic to see what action you can take to correct the problem.
- Consult the message log for message ID, text, time, and date of the message, as well as other data you can use to diagnose the problem.

Message format

The message format contains a message ID and text, an explanation, and an operator response.

Tivoli zEnterprise Monitoring Agent messages have the following format:

Message ID and text
Explanation
Operator Response

The message ID has the following format:

CCC###severity

where:

CCC Prefix that indicates the component to which the message applies. The following components are used:

KZE General Tivoli zEnterprise Monitoring Agent messages

Number of the message

severity

Severity of the message. Three levels of severity are used:

- I** Informational messages provide feedback about something that happened in the product or system that might be important. These messages can provide guidance when you are requesting a specific action from the product.
- W** Warning messages call your attention to an exception condition. The condition might not be an error but can cause problems if not resolved.
- E** Error messages indicate that an action cannot be completed because of a user or system error. These messages require user response.

The *Text* of the message provides a general statement regarding the problem or condition that occurred. The *Explanation* provides additional information about the message and the possible cause for the condition. The *Operator Response* provides actions to take in response to the condition, particularly for error messages (messages with the "E" suffix).

Note: Many message texts and explanations contain variables, such as the specific name of a server or application. Those variables are represented in this topic as symbols, such as "&1." Actual messages contain values for these variables.

KZE message set

These are the messages in the agent message set.

The KZE message set contains information about the monitoring agent in the IBM Tivoli Monitoring environment. The KZE messages are trace messages meant to provide additional information about agent execution errors and are intended for service personnel. Consumer messages are found in the usual IBM Tivoli Monitoring log locations documented in "Principal trace log files" on page 239. These KZE messages, along with other IBM Tivoli Monitoring and monitoring agent messages, are found in this location:

Table 17. Location of KZE messages

Platform	Location
Window	<i>install_dir</i> \tmaitm6\logs\kze_trace.log
Linux or UNIX	<i>install_dir</i> /logs/kze_trace.log

KZE0001I zEnterprise monitoring agent started successfully.

Explanation: All zEnterprise monitoring agent attribute groups were registered successfully.

User response: No action is required.

KZE0002E zEnterprise monitoring agent not started. No ECC host name available in the agent configuration.

Explanation: No Enterprise Common Collector (ECC) host name is available in the agent configuration.

User response: Reconfigure the agent, providing the ECC host name.

KZE0003E No data returned by the ECC. An authorization problem exists.

Explanation: The current user does not have the required authority to make this request.

System action: Nothing was returned from the ECC.

User response: Have a different user with the correct authority issue this command, or give this user ID the required authority (assign the user a different role) to perform this command.

KZE0004E zEnterprise monitoring agent not started. Missing or incorrect ECC user name or password in the configuration.

Explanation: The Enterprise Common Collector (ECC) configuration is missing the user name or password or both.

User response: Reconfigure the agent, providing the ECC user name or password, or correct the user name and password issues using the command line interface.

KZE0005W No {0} timeout available in the configuration.

Explanation: No timeout value is available in the configuration. The default value was used.

User response: If the default value is not the value you wanted, reconfigure the monitoring agent, providing the desired timeout value or correct the problem using the command line interface.

KZE0006E An invalid numeric value was specified for the {0} configuration parameter.

Explanation: The value entered for the specified configuration parameter is incorrect.

User response: Reconfigure the monitoring agent, providing a valid value for the specified configuration parameter, or correct the problem using the command line interface.

KZE0007E zEnterprise monitoring agent has been configured to accept all TLS/SSL certificates globally. A system failure occurred when the agent attempted to accept all certificates.

Explanation: Validating certificates requires use of a truststore containing Certificate Authority (CA) certificates that are trusted.

System action: The system was unable to verify the Enterprise Common Collector (ECC) host name and cannot communicate using transport layer security (TLS) and secure socket layer (SSL) communication.

User response: Check the log for messages about actions that occurred before the actual failure. Isolate the problem and try the operation again.

KZE0008E No truststore available in the configuration.

Explanation: No zEnterprise monitoring agent truststore is available in the configuration.

User response: Reconfigure the monitoring agent, providing access to a valid truststore.

KZE0009E No truststore password available in the configuration.

Explanation: No zEnterprise monitoring agent truststore password is available in the configuration.

User response: Reconfigure the monitoring agent, providing a correct truststore password.

KZE0010I zEnterprise monitoring agent truststore found and initialized successfully.

Explanation: Certificate validation requires the use of a truststore containing the Certificate Authority (CA) certificates that are trusted.

System action: The system found an existing truststore at the specified location.

User response: No action is required.

KZE0011E zEnterprise monitoring agent truststore not found or initialized.

Explanation: Certificate validation requires the use of a truststore containing Certificate Authority (CA) certificates that are trusted. The system tried to initialize a new truststore, but was not able to perform this task.

System action: The system is unable to verify the identities of the Enterprise Common Collector (ECC) clients and cannot communicate with the ECC server using Transport Layer Security (TLS) and Secure Socket Layer (SSL) communication.

User response: Determine why the system cannot initialize the truststore. The path to the truststore might be incorrect or the system might not be able to find the truststore using the path you specified during configuration. The truststore password might be invalid.

KZE0012I ITM Common Provider Client Interface (CPCI) connection opened successfully.

Explanation: The zEnterprise monitoring agent is processing requests using the CPCI.

User response: No action is required.

KZE0013I ITM Common Provider Client Interface (CPCI) connection closed successfully.

Explanation: The zEnterprise monitoring agent is no longer processing requests using the CPCI. The connection is closed.

User response: No action is required.

KZE0014E zEnterprise Agent not started.

Explanation: A zEnterprise Agent attribute group registration failed.

User response: See the previous log messages for details about the error that occurred.

KZE0015W The attribute group row contains an invalid value for cce-interval-time attribute.

Explanation: The attribute group row is not returned because cce-interval-time attribute is invalid. The System z Hardware Management Console did not return the requested data.

User response: Allow time for the HMC to self-correct. If the problem persists, contact your system administrator.

KZE0016E Numeric conversion of the {0} attribute value failed. The attribute value returned was not a valid number.

Explanation: The system conversion of the numeric attribute value failed.

User response: See the previous log messages for details about the error that occurred.

KZE0017E No data returned for request, {0}, issued to the ECC server. The failure status code is {1}.

Explanation: The zEnterprise monitoring agent issued a ReST request to the Enterprise Common Collector (ECC) server for data. A status code indicating failure was returned.

User response: See the previous log messages for details about the error that occurred.

KZE0018E Runtime or parser failure has occurred while processing data returned in the ECC server.

Explanation: zEnterprise Agent (TEMA) attempts to process data returned by the ECC server when a runtime or parsing failure occurred.

User response: See the previous log messages for details about the error that occurred.

KZE0019I Enterprise Common Collector session successfully created.

Explanation: The zEnterprise monitoring agent logon was successful. The ECC session was successfully created.

User response: No action required.

KZE0020I Enterprise Common Collector session successfully destroyed.

Explanation: The zEnterprise monitoring agent logoff was successful. The ECC session was successfully destroyed.

User response: No action required.

KZE0021E Enterprise Common Collector session could not be established. The failure status code is {0}.

Explanation: The zEnterprise monitoring agent failed to establish communication with the Enterprise Common Collector (ECC) server.

System action: The session was not established.

User response: Check the ECC server to ensure that it is running.

KZE0022E Enterprise Common Collector session could not be destroyed. The failure status code is {0}.

Explanation: The zEnterprise monitoring agent failed to establish communication with the Enterprise Common Collector (ECC) server.

System action: The session with the ECC was not destroyed.

User response: Determine why you could not end the ECC session. The ECC might not be running or network issues prevent the monitoring agent from connecting to the ECC server.

KZE0023W No port specified in the configuration.

Explanation: No port value was specified during configuration. The default value was used.

User response: If the default value is not the value you wanted, reconfigure the monitoring agent, providing the desired port value, or correct the problem using the command line interface.

KZE0024W No trace level specified in the configuration.

Explanation: No trace level value was specified during configuration. The default value was used.

User response: If the default value is not the value you wanted, reconfigure the monitoring agent, providing the desired trace level value.

KZE0025E Enterprise Common Collector server cannot be reached. The server is unavailable.

Explanation: The zEnterprise monitoring agent failed to establish communication with the Enterprise Common Collector (ECC) server.

System action: The session was not established.

User response: Check the ECC server to ensure that it is running.

KZE0026E No monitoring data returned from the Enterprise Common Collector server. An authorization problem exists.

Explanation: The current user may not have the correct authority.

System action: No monitoring data was returned from the ECC server.

User response: Configure a user on the ECC server with the correct authority to allow a access to the ECC monitoring data.

KZE0027E No session was returned from the Enterprise Common Collector server. The zEnterprise monitoring agent could not negotiate the desired level of security with the Enterprise Common Collector server.

Explanation: There was an issue with the desired level of security of the zEnterprise monitoring agent and the Enterprise Common Collector (ECC) server.

System action: The session was not established.

User response: Ensure that the user ID and password for the zEnterprise monitoring agent truststore are correct and that the truststore contains a valid

certificate from the ECC to allow a session to be established.

KZE0028E No session was returned from the Enterprise Common Collector server. Authentication failed during logon to the Enterprise Common Collector due to an invalid user ID or password.

Explanation: There was an issue with the user ID or password that is used to logon to the Enterprise Common Collector server.

System action: The session was not established.

User response: Ensure that the user ID and password are valid and configured to logon to the Enterprise Common Collector server.

KZE0029W zEnterprise monitoring agent started successfully, but no session was returned from the Enterprise Common Collector server. The zEnterprise monitoring agent could not negotiate the desired level of security with the Enterprise Common Collector server.

Explanation: The zEnterprise monitoring agent started successfully, but there was an issue with the desired level of security of the zEnterprise monitoring agent and the Enterprise Common Collector (ECC) server.

System action: The session was not established.

User response: Ensure that the user ID and password for the zEnterprise monitoring agent truststore are correct and that the truststore contains a valid certificate from the ECC to allow a session to be established.

KZE0030W zEnterprise monitoring agent started successfully, but no session was returned from the Enterprise Common Collector server. The Enterprise Common Collector server cannot be reached. The server is unavailable.

Explanation: The zEnterprise monitoring agent started successfully, but the Enterprise Common Collector server is unavailable.

System action: The session was not established.

User response: Check the ECC server to ensure that it is running.

KZE0031W zEnterprise monitoring agent started successfully, but no session was returned from the Enterprise Common Collector server. Authentication failed during logon to the Enterprise Common Collector due to an invalid user ID or password.

Explanation: The zEnterprise monitoring agent started successfully, but authentication failed during logon to the Enterprise Common Collector due to an invalid user ID or password.

System action: The session was not established.

User response: Ensure that the user ID and password are valid and configured to logon to the Enterprise Common Collector server.

KZE0032E Could not connect to Enterprise Common Collector because the expected Collector API version is not supported; actual api-major-version: {0}; actual api-minor-version: {1}

Explanation: The zEnterprise monitoring agent supports only Enterprise Common Collector instances with the specified API major version and at least the specified API minor version.

System action: The session was not established.

User response: Upgrade the zEnterprise Sensor or the Enterprise Common Collector or both so that they are at compatible levels.

KZE0033W Could not connect to Enterprise Common Collector because the Collector API version is not supported.

Explanation: The zEnterprise monitoring agent only supports Enterprise Common Collector instances with the specified API major version and at least the specified API minor version.

System action: The session was not established.

User response: Upgrade the zEnterprise Sensor or the Enterprise Common Collector or both so that they are at compatible levels.

Chapter 7. Discovery Library Adapter for the zEnterprise monitoring agent

This section contains information about the Discovery Library Adapter (DLA) for the IBM Tivoli Monitoring: zEnterprise monitoring agent.

About the DLA

The Tivoli Management Services DLA discovers resources and relationships and creates a Discovery Library Book file. The discovery book follows the Discovery Library IDML schema and can be used to populate the Tivoli Application Dependency Discovery Manager, the Change and Configuration Management Database (a part of the SmartCloud Control Desk), and IBM Tivoli Business Service Manager.

The DLA for the zEnterprise monitoring agent is intended to be used in conjunction with the TADDM zEnterprise sensor. The TADDM zEnterprise sensor discovers all the resources and relationships of the zEnterprise environment, including Hardware Management Consoles, central processor complexes, zEnterprise BladeCenter Extensions (and its racks, chassis, and blades), virtualization hosts, virtual servers, and workload resource groups. The purpose of the DLA for the zEnterprise monitoring agent is to augment some of the resources discovered by the sensor with sourceToken information that enables linking from those resources in Tivoli Business Service Manager to the associated monitoring workspaces in the Tivoli Enterprise Portal.

The DLA for the zEnterprise monitoring agent DLA augments the Ensemble, Central Processor Complex, zEnterprise BladeCenter Extension and Workload objects that are discovered by the TADDM zEnterprise sensor. If the DLA for the zEnterprise monitoring agent is used without the TADDM zEnterprise sensor, these same resources will be discovered anyway, but since this DLA supplies only a minimal set of resource attributes, the DLA-discovered resources are not likely to be reconciled with the resources discovered by other sensors or DLAs or both.

For this reason, using this DLA without also using the TADDM zEnterprise sensor is not recommended.

More information about DLAs

The following sources contain additional information about using the DLA program with all monitoring agents:

- The *IBM Tivoli Monitoring Administrator's Guide* contains information about using the Tivoli Management Services Discovery Library Adapter.
- For information about using a DLA with Tivoli Application Dependency Discovery Manager (TADDM), see the information center at <https://www.ibm.com/developerworks/community/wikis/home?lang=en#/wiki/Tivoli%20Documentation%20Central/page/Tivoli%20Application%20Dependency%20Discovery%20Manager>

DLA data model class types represented in CDM

This section contains information about how the various zEnterprise objects map to classes in the Common Data Model (CDM) for the zEnterprise monitoring agent.

The following information is provided for each class:

CDM class name

Class name for which the agent is providing information

Relationships

CDM relationships (hierarchical) between currently identified model objects

CDM attributes, agent attributes, descriptions, and examples

CDM attributes that are required to create an instance of a resource, descriptions of the attributes, and examples of the attributes

Ensemble class

An ensemble object represents a collection of one or more zEnterprise nodes (central processor complexes, including any optionally attached zEnterprise BladeCenter Extensions) that are managed as a single, logical, virtualized system by the Unified Resource Manager using a Hardware Management Console.

CDM class name

core.Ensemble

Relationships

No relationships are defined by this DLA.

CDM attributes, agent attributes, descriptions, and examples

- CDM attribute: ZEnterpriseUUID

Agent attribute

KZEENSEMBL.ENSOBJID

Description

The unique object identifier of the ensemble. This identifier is permanently assigned by the zManager when the object is first created or discovered.

Example

b58f0846-8ef7-11df-bb72-00215ef9b504

- CDM attribute: sourceToken

Description

Context information that enables linking from the ensemble object in Tivoli Business Service Manager to the Ensembles Summary workspace of the zEnterprise monitoring agent in the Tivoli Enterprise Portal.

Example

managed_system_name=HOSTNAME:ZE&object_id=HOSTNAME:ZE@zkze.ENSEMB0

CPC class

A CPC object represents a single zEnterprise central processor complex (CPC) that is being managed by a Hardware Management Console.

CDM class name

sys.ZOS.ZSeriesComputerSystem

Relationships

No relationships are defined by this DLA.

CDM attributes, agent attributes, descriptions, and examples

- CDM attribute: ZEnterpriseUUID

Agent attribute

KZECPC.CPCOBJID

Description

The unique object identifier of the central processor complex (CPC). The identifier is permanently assigned by the zManager when the object is first created or discovered.

Example

managed_system_name=HOSTNAME:ZE&object_id=HOSTNAME:ZE@zkze.ENSEMB0

- CDM attribute: sourceToken

Description

Context information that enables linking from the ensemble object in Tivoli Business Service Manager to the Ensembles Summary workspace of the zEnterprise monitoring agent in the Tivoli Enterprise Portal.

Example

managed_system_name=HOSTNAME:ZE&object_id=HOSTNAME:ZE@zkze.ENSEMB0

zBX class

A zBX object represents the single zEnterprise BladeCenter Extension of a central processor complex (CPC). There is at most one zBX object for each CPC that is a member of an ensemble.

CDM class name

sys.ZOS.ZBXFeature

Relationships

No relationships are defined by this DLA.

CDM attributes, agent attributes, descriptions, and examples

- CDM attribute: Name

Agent attribute

KZEZBX.ZBXNAME

Description

The display name of the zEnterprise BladeCenter Extension (zBX). This 21-character name is made up of the machine type, model, and serial number.

Example

2458-001-000000033333

- CDM attribute: sourceToken

Description

Context information that enables linking from the zBX object in Tivoli Business Service Manager to the Ensembles Summary workspace of the zEnterprise monitoring agent in the Tivoli Enterprise Portal.

Example

managed_system_name=HOSTNAME:ZE&object_id=HOSTNAME:ZE@zkze.ENSEMB0

Workload Resource Group class

A Workload Resource Group object represents a group of virtual servers in a zEnterprise ensemble.

CDM class name

sys.ZOS.WorkloadResourceGroup

Relationships

No relationships are defined by this DLA.

CDM attributes, agent attributes, descriptions, and examples

- CDM attribute: Name

Agent attribute

ZEnterpriseUUID

Description

The unique object identifier of the workload resource group. The identifier is permanently assigned by the zManager when the object is first created or discovered.

Example

d8445844-bacc-11e0-ba97-00215e69dc2f

- CDM attribute: sourceToken

Description

Context information that enables linking from the workload resource group object in Tivoli Business Service Manager to the Workload Resource Groups Summary workspace of the zEnterprise monitoring agent in the Tivoli Enterprise Portal.

Example

managed_system_name=HOSTNAME:ZE
&object_id=HOSTNAME:ZE@zkze.WORKLOA

Appendix A. Event mapping

The Tivoli Event Integration Facility (EIF) interface is used to forward situation events to Tivoli Netcool/OMNIBus or Tivoli Enterprise Console.

EIF events specify an event class, and the event data is specified as name-value pairs that identify the name of an event slot and the value for the slot. An event class can have subclasses. IBM Tivoli Monitoring provides the base event class definitions and a set of base slots that are included in all monitoring events. Agents extend the base event classes to define subclasses that include agent-specific slots. For Tivoli zEnterprise Monitoring Agent events, the event classes correspond to the agent attribute groups, and the agent-specific slots correspond to the attributes in the attribute group.

The situation editor in the Tivoli Enterprise Portal can be used to perform custom mapping of data to EIF slots instead of using the default mapping described in this topic. For more information about EIF slot customization, see the *Tivoli Enterprise Portal User's Guide*.

Tivoli Enterprise Console requires that event classes and their slots are defined in BAROC (Basic Recorder of Objects in C) files. Each agent provides a BAROC file that contains event class definitions for the agent and is installed on the Tivoli Enterprise Monitoring Server in the TECLIB directory (`install_dir/cms/TECLIB` for Windows systems and `install_dir/tables/TEMS_hostname/TECLIB` for UNIX systems) when application support for the agent is installed. The BAROC file for the agent and the base BAROC files provided with Tivoli Monitoring must also be installed onto the Tivoli Enterprise Console. For details, see "Setting up event forwarding to Tivoli Enterprise Console" in the *IBM Tivoli Monitoring Installation and Setup Guide*.

Each of the event classes is a child of KZE_Base and is defined in the `kze.baroc` (version 06.23.00) file. The KZE_Base event class can be used for generic rules processing for any event from the Tivoli zEnterprise Monitoring Agent.

For events that are generated by situations in the Blade attribute group, events are sent by using the ITM_KZE_BLADE event class. This event class contains the following slots:

- `node`: STRING
- `timestamp`: STRING
- `interval_end_time`: STRING
- `interval_end_time_enum`: STRING
- `interval_length`: INTEGER
- `interval_length_enum`: STRING
- `object_id`: STRING
- `name`: STRING
- `hmc_object_id`: STRING
- `hmc_name`: STRING
- `ensemble_object_id`: STRING
- `ensemble_name`: STRING
- `cpc_object_id`: STRING
- `cpc_name`: STRING
- `zbx_object_id`: STRING
- `zbx_name`: STRING
- `virtualization_host_id`: STRING

- virtualization_host_name: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- platform_type: INTEGER
- platform_type_enum: STRING
- cpu_count: INTEGER
- cpu_count_enum: STRING
- memory_size_mb: INTEGER
- memory_size_mb_enum: STRING
- machine_type: STRING
- machine_model: STRING
- machine_serial_number: STRING
- location: STRING
- isaopt_mode: INTEGER
- isaopt_mode_enum: STRING
- blade_hw_messages: INTEGER
- blade_hw_messages_enum: STRING
- blade_slot: INTEGER
- blade_slot_enum: STRING
- blade_cpu_utilization: INTEGER
- blade_cpu_utilization_enum: STRING
- blade_memory_utilization: INTEGER
- blade_memory_utilization_enum: STRING

For events that are generated by situations in the BladeCenter Extension attribute group, events are sent by using the ITM_KZE_BLADECENTER_EXTENSION event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING
- name: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- machine_type: STRING
- machine_model: STRING
- machine_serial_number: STRING
- bladecenter_hw_messages: INTEGER
- bladecenter_hw_messages_enum: STRING

- percent_bladecenters_oper: INTEGER
- percent_bladecenters_oper_enum: STRING
- blade_hw_messages: INTEGER
- blade_hw_messages_enum: STRING
- percent_blades_operating: INTEGER
- percent_blades_operating_enum: STRING
- powervm_cpu_utilization: INTEGER
- powervm_cpu_utilization_enum: STRING
- powervm_memory_utilization: INTEGER
- powervm_memory_utilization_enum: STRING
- x_hyp_cpu_utilization: INTEGER
- x_hyp_cpu_utilization_enum: STRING
- x_hyp_memory_utilization: INTEGER
- x_hyp_memory_utilization_enum: STRING
- power_current_entitle: INTEGER
- power_current_entitle_enum: STRING
- power_maximum_entitle: INTEGER
- power_maximum_entitle_enum: STRING
- system_x_current_entitle: INTEGER
- system_x_current_entitle_enum: STRING
- system_x_maximum_entitle: INTEGER
- system_x_maximum_entitle_enum: STRING
- isaopt_current_entitle: INTEGER
- isaopt_current_entitle_enum: STRING
- isaopt_maximum_entitle: INTEGER
- isaopt_maximum_entitle_enum: STRING
- dpxi50z_current_entitle: INTEGER
- dpxi50z_current_entitle_enum: STRING
- dpxi50z_maximum_entitle: INTEGER
- dpxi50z_maximum_entitle_enum: STRING
- rack_count: INTEGER
- rack_count_enum: STRING
- bladecenter_count: INTEGER
- bladecenter_count_enum: STRING
- bladecenters_with_hw_msgs: INTEGER
- bladecenters_with_hw_msgs_enum: STRING
- blade_count: INTEGER
- blade_count_enum: STRING
- blades_with_hw_msgs: INTEGER
- blades_with_hw_msgs_enum: STRING

For events that are generated by situations in the Central Processor Complex attribute group, events are sent by using the ITM_KZE_CENTRAL_PROCESSOR_COMPLEX event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING

- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING
- name: STRING
- description: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- prsm_cpu_utilization: INTEGER
- prsm_cpu_utilization_enum: STRING
- prsm_memory_utilization: INTEGER
- prsm_memory_utilization_enum: STRING
- zvm_cpu_utilization: INTEGER
- zvm_cpu_utilization_enum: STRING
- zvm_memory_utilization: INTEGER
- zvm_memory_utilization_enum: STRING
- general_purpose_cpu_count: INTEGER
- general_purpose_cpu_count_enum: STRING
- ifl_cpu_count: INTEGER
- ifl_cpu_count_enum: STRING
- icf_cpu_count: INTEGER
- icf_cpu_count_enum: STRING
- ziip_cpu_count: INTEGER
- ziip_cpu_count_enum: STRING
- zaap_cpu_count: INTEGER
- zaap_cpu_count_enum: STRING
- service_assist_cpu_count: INTEGER
- service_assist_cpu_count_enum: STRING
- defective_cpu_count: INTEGER
- defective_cpu_count_enum: STRING
- spare_cpu_count: INTEGER
- spare_cpu_count_enum: STRING
- support_element_version: STRING
- cpc_hw_messages: INTEGER
- cpc_hw_messages_enum: STRING
- machine_model: STRING
- machine_type: STRING
- machine_serial_number: STRING
- cpu_utilization: INTEGER
- cpu_utilization_enum: STRING

- channel_utilization: INTEGER
- channel_utilization_enum: STRING
- cp_shared_cpu_util: INTEGER
- cp_shared_cpu_util_enum: STRING
- cp_dedicated_cpu_util: INTEGER
- cp_dedicated_cpu_util_enum: STRING
- ifl_shared_cpu_util: INTEGER
- ifl_shared_cpu_util_enum: STRING
- ifl_dedicated_cpu_util: INTEGER
- ifl_dedicated_cpu_util_enum: STRING
- icf_shared_cpu_util: INTEGER
- icf_shared_cpu_util_enum: STRING
- icf_dedicated_cpu_util: INTEGER
- icf_dedicated_cpu_util_enum: STRING
- ziip_shared_cpu_util: INTEGER
- ziip_shared_cpu_util_enum: STRING
- ziip_dedicated_cpu_util: INTEGER
- ziip_dedicated_cpu_util_enum: STRING
- zaap_shared_cpu_util: INTEGER
- zaap_shared_cpu_util_enum: STRING
- zaap_dedicated_cpu_util: INTEGER
- zaap_dedicated_cpu_util_enum: STRING
- all_shared_cpu_util: INTEGER
- all_shared_cpu_util_enum: STRING
- all_dedicated_cpu_util: INTEGER
- all_dedicated_cpu_util_enum: STRING

For events that are generated by situations in the Data Source attribute group, events are sent by using the ITM_KZE_DATA_SOURCE event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- description: STRING
- enabled: INTEGER
- enabled_enum: STRING
- disabled_reason_code: INTEGER
- disabled_reason_code_enum: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- status_reason_code: INTEGER
- status_reason_code_enum: STRING
- hmc_name: STRING
- hmc_version: STRING
- hmc_api_major_version: INTEGER
- hmc_api_major_version_enum: STRING

- hmc_api_minor_version: INTEGER
- hmc_api_minor_version_enum: STRING
- tcpip_hostname: STRING
- user_name: STRING
- prior_status: INTEGER
- prior_status_enum: STRING
- status_changed_time: STRING
- status_changed_time_enum: STRING
- session_duration: STRING
- collection_profile_name: STRING
- collection_profile_description: STRING
- inventory_collection_interval: STRING
- short_term_metrics_interval: STRING
- long_term_metrics_interval: STRING
- long_term_metrics_enabled: INTEGER
- long_term_metrics_enabled_enum: STRING
- path_accessiblity_enabled: INTEGER
- path_accessiblity_enabled_enum: STRING
- inventory_start_time: STRING
- inventory_start_time_enum: STRING
- inventory_end_time: STRING
- inventory_end_time_enum: STRING
- inventory_collection_status: INTEGER
- inventory_collection_status_enum: STRING
- inventory_collection_duration: STRING
- short_term_end_time: STRING
- short_term_end_time_enum: STRING
- short_term_status: INTEGER
- short_term_status_enum: STRING
- short_term_metrics_duration: STRING
- long_term_end_time: STRING
- long_term_end_time_enum: STRING
- long_term_status: INTEGER
- long_term_status_enum: STRING
- long_term_metrics_duration: STRING

For events that are generated by situations in the Ensemble attribute group, events are sent by using the ITM_KZE_ENSEMBLE event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING

- name: STRING
- description: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- alternate_hmc_name: STRING
- management_enablement_level: INTEGER
- management_enablement_level_enum: STRING
- powervm_cpu_management: INTEGER
- powervm_cpu_management_enum: STRING
- zvm_cpu_management: INTEGER
- zvm_cpu_management_enum: STRING
- unique_local_unified_prefix: STRING
- mac_prefix: STRING
- workload_service_level_index: INTEGER
- workload_service_level_index_enum: STRING
- powervm_cpu_utilization: INTEGER
- powervm_cpu_utilization_enum: STRING
- powervm_memory_utilization: INTEGER
- powervm_memory_utilization_enum: STRING
- x_hyp_cpu_utilization: INTEGER
- x_hyp_cpu_utilization_enum: STRING
- x_hyp_memory_utilization: INTEGER
- x_hyp_memory_utilization_enum: STRING
- zvm_cpu_utilization: INTEGER
- zvm_cpu_utilization_enum: STRING
- zvm_memory_utilization: INTEGER
- zvm_memory_utilization_enum: STRING
- prsm_cpu_utilization: INTEGER
- prsm_cpu_utilization_enum: STRING
- prsm_memory_utilization: INTEGER
- prsm_memory_utilization_enum: STRING
- virtual_servers_low_cpu: INTEGER
- virtual_servers_low_cpu_enum: STRING
- virtual_servers_medium_cpu: INTEGER
- virtual_servers_medium_cpu_enum: STRING
- virtual_servers_high_cpu: INTEGER
- virtual_servers_high_cpu_enum: STRING
- node_count: INTEGER
- node_count_enum: STRING
- virtual_server_count: INTEGER
- virtual_server_count_enum: STRING

For events that are generated by situations in the Logical Partition attribute group, events are sent by using the ITM_KZE_LOGICAL_PARTITION event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING
- name: STRING
- description: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- virtual_server_id: STRING
- virtual_server_name: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- acceptable_status: INTEGER
- acceptable_status_enum: STRING
- os_name: STRING
- os_type: STRING
- os_level: STRING
- sysplex_name: STRING
- lpar_os_messages: INTEGER
- lpar_os_messages_enum: STRING
- activation_mode: INTEGER
- activation_mode_enum: STRING
- next_activation_profile: STRING
- last_activation_profile: STRING
- initial_processing_weight: REAL
- initial_processing_weight_enum: STRING
- init_processing_weight_cap: INTEGER
- init_processing_weight_cap_enum: STRING
- minimum_processing_weight: REAL
- minimum_processing_weight_enum: STRING
- maximum_processing_weight: REAL
- maximum_processing_weight_enum: STRING
- current_processing_weight: REAL
- current_processing_weight_enum: STRING
- current_processing_weight_cap: INTEGER
- current_processing_weight_cap_enum: STRING

- workload_manager_enabled: INTEGER
- workload_manager_enabled_enum: STRING
- defined_capacity: REAL
- defined_capacity_enum: STRING
- cluster_name: STRING
- partition_number: STRING
- init_zaaap_processing_weight: REAL
- init_zaaap_processing_weight_enum: STRING
- init_zaaap_proc_weight_cap: INTEGER
- init_zaaap_proc_weight_cap_enum: STRING
- min_zaaap_processing_weight: REAL
- min_zaaap_processing_weight_enum: STRING
- max_zaaap_processing_weight: REAL
- max_zaaap_processing_weight_enum: STRING
- cur_zaaap_processing_weight: REAL
- cur_zaaap_processing_weight_enum: STRING
- cur_zaaap_proc_weight_cap: INTEGER
- cur_zaaap_proc_weight_cap_enum: STRING
- init_ifl_processing_weight: REAL
- init_ifl_processing_weight_enum: STRING
- init_ifl_proc_weight_cap: INTEGER
- init_ifl_proc_weight_cap_enum: STRING
- min_ifl_processing_weight: REAL
- min_ifl_processing_weight_enum: STRING
- max_ifl_processing_weight: REAL
- max_ifl_processing_weight_enum: STRING
- cur_ifl_processing_weight: REAL
- cur_ifl_processing_weight_enum: STRING
- cur_ifl_proc_weight_cap: INTEGER
- cur_ifl_proc_weight_cap_enum: STRING
- init_ziip_processing_weight: REAL
- init_ziip_processing_weight_enum: STRING
- init_ziip_proc_weight_cap: INTEGER
- init_ziip_proc_weight_cap_enum: STRING
- min_ziip_processing_weight: REAL
- min_ziip_processing_weight_enum: STRING
- max_ziip_processing_weight: REAL
- max_ziip_processing_weight_enum: STRING
- cur_ziip_processing_weight: REAL
- cur_ziip_processing_weight_enum: STRING
- cur_ziip_proc_weight_cap: INTEGER
- cur_ziip_proc_weight_cap_enum: STRING
- init_icf_processing_weight: REAL
- init_icf_processing_weight_enum: STRING
- init_icf_proc_weight_cap: INTEGER

- init_icf_proc_weight_cap_enum: STRING
- min_icf_processing_weight: REAL
- min_icf_processing_weight_enum: STRING
- max_icf_processing_weight: REAL
- max_icf_processing_weight_enum: STRING
- cur_icf_processing_weight: REAL
- cur_icf_processing_weight_enum: STRING
- cur_icf_proc_weight_cap: INTEGER
- cur_icf_proc_weight_cap_enum: STRING
- ipl_token: STRING
- group_profile_capacity: INTEGER
- group_profile_capacity_enum: STRING
- group_profile_uri: STRING
- zaware_host_name: STRING
- zaware_user_id: STRING
- cpu_utilization: INTEGER
- cpu_utilization_enum: STRING
- zvm_paging_rate: INTEGER
- zvm_paging_rate_enum: STRING

For events that are generated by situations in the Performance Object Status attribute group, events are sent by using the ITM_KZE_PERFORMANCE_OBJECT_STATUS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- query_name: STRING
- object_name: STRING
- object_type: INTEGER
- object_type_enum: STRING
- object_status: INTEGER
- object_status_enum: STRING
- error_code: INTEGER
- error_code_enum: STRING
- last_collection_start: STRING
- last_collection_start_enum: STRING
- last_collection_finished: STRING
- last_collection_finished_enum: STRING
- last_collection_duration: REAL
- average_collection_duration: REAL
- average_collection_duration_enum: STRING
- refresh_interval: INTEGER
- number_of_collections: INTEGER
- cache_hits: INTEGER
- cache_misses: INTEGER
- cache_hit_percent: REAL
- intervals_skipped: INTEGER

For events that are generated by situations in the Performance Policy attribute group, events are sent by using the ITM_KZE_PERFORMANCE_POLICY event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- element_id: STRING
- name: STRING
- description: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- workload_object_id: STRING
- workload_name: STRING
- default_policy: INTEGER
- default_policy_enum: STRING
- importance: INTEGER
- importance_enum: STRING
- default_service_class: STRING
- revision_count: INTEGER
- revision_count_enum: STRING
- activation_status: INTEGER
- activation_status_enum: STRING
- last_act_requested_date: STRING
- last_act_requested_date_enum: STRING
- last_act_completed_date: STRING
- last_act_completed_date_enum: STRING
- last_activated_by: STRING
- last_modified_date: STRING
- last_modified_date_enum: STRING
- last_modified_by: STRING
- created_date: STRING
- created_date_enum: STRING
- created_by: STRING

For events that are generated by situations in the PowerVM Virtual Server attribute group, events are sent by using the ITM_KZE_POWERVM_VIRTUAL_SERVER event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING
- name: STRING
- description: STRING

- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- virtualization_host_id: STRING
- virtualization_host_name: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- acceptable_status: INTEGER
- acceptable_status_enum: STRING
- platform_type: INTEGER
- platform_type_enum: STRING
- gpmp_status: INTEGER
- gpmp_status_enum: STRING
- cpu_management: INTEGER
- cpu_management_enum: STRING
- tcpip_hostname: STRING
- os_name: STRING
- os_type: STRING
- os_level: STRING
- mac_prefix: STRING
- mac_prefix_length: INTEGER
- mac_prefix_length_enum: STRING
- processing_mode: INTEGER
- processing_mode_enum: STRING
- minimum_dedicated_cpus: INTEGER
- minimum_dedicated_cpus_enum: STRING
- initial_dedicated_cpus: INTEGER
- initial_dedicated_cpus_enum: STRING
- maximum_dedicated_cpus: INTEGER
- maximum_dedicated_cpus_enum: STRING
- minimum_virtual_cpus: INTEGER
- minimum_virtual_cpus_enum: STRING
- initial_virtual_cpus: INTEGER
- initial_virtual_cpus_enum: STRING
- maximum_virtual_cpus: INTEGER
- maximum_virtual_cpus_enum: STRING
- minimum_processing_units: REAL
- minimum_processing_units_enum: STRING
- initial_processing_units: REAL
- initial_processing_units_enum: STRING
- maximum_processing_units: REAL
- maximum_processing_units_enum: STRING

- minimum_memory_mb: INTEGER
- minimum_memory_mb_enum: STRING
- initial_memory_mb: INTEGER
- initial_memory_mb_enum: STRING
- maximum_memory_mb: INTEGER
- maximum_memory_mb_enum: STRING
- auto_start: INTEGER
- auto_start_enum: STRING
- dlpar_enabled: INTEGER
- dlpar_enabled_enum: STRING
- dlpar_active: INTEGER
- dlpar_active_enum: STRING
- gpmp_enabled: INTEGER
- gpmp_enabled_enum: STRING
- gpmp_version: STRING
- cpu_utilization: INTEGER
- cpu_utilization_enum: STRING
- memory_utilization: INTEGER
- memory_utilization_enum: STRING
- startup_time: STRING
- startup_time_enum: STRING
- elapsed_time: REAL
- elapsed_time_enum: STRING
- virtual_cpu_count: INTEGER
- virtual_cpu_count_enum: STRING
- current_processing_units: REAL
- current_processing_units_enum: STRING
- current_memory_mb: INTEGER
- current_memory_mb_enum: STRING
- sampling_rate: INTEGER
- sampling_rate_enum: STRING
- gpmp_active: INTEGER
- gpmp_active_enum: STRING
- virt_host_cpu_delay: INTEGER
- virt_host_cpu_delay_enum: STRING
- bytes_sent: REAL
- bytes_sent_enum: STRING
- bytes_received: REAL
- bytes_received_enum: STRING
- packets_sent: REAL
- packets_sent_enum: STRING
- packets_received: REAL
- packets_received_enum: STRING
- packets_sent_dropped: REAL
- packets_sent_dropped_enum: STRING

- packets_received_dropped: REAL
- packets_received_dropped_enum: STRING
- packets_sent_discarded: REAL
- packets_sent_discarded_enum: STRING
- packets_received_discarded: REAL
- packets_received_discarded_enum: STRING
- multicast_packets_sent: REAL
- multicast_packets_sent_enum: STRING
- multicast_packets_received: REAL
- multicast_packets_received_enum: STRING
- broadcast_packets_sent: REAL
- broadcast_packets_sent_enum: STRING
- broadcast_packets_received: REAL
- broadcast_packets_received_enum: STRING
- bytes_sent_and_received: REAL
- bytes_sent_and_received_enum: STRING
- packets_sent_and_received: REAL
- packets_sent_and_received_enum: STRING

For events that are generated by situations in the PowerVM Virtualization Host attribute group, events are sent by using the ITM_KZE_POWERVM_VIRTUALIZATION_HOST event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING
- name: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- platform_type: INTEGER
- platform_type_enum: STRING
- virtual_server_shutdown_to: INTEGER
- virtual_server_shutdown_to_enum: STRING
- auto_start_virtual_servers: INTEGER
- auto_start_virtual_servers_enum: STRING
- total_memory_mb: INTEGER
- total_memory_mb_enum: STRING

- memory_increment_mb: INTEGER
- memory_increment_mb_enum: STRING
- minimum_memory_mb: INTEGER
- minimum_memory_mb_enum: STRING
- maximum_memory_mb: INTEGER
- maximum_memory_mb_enum: STRING
- maximum_dedicated_cpus: INTEGER
- maximum_dedicated_cpus_enum: STRING
- maximum_virtual_cpus: INTEGER
- maximum_virtual_cpus_enum: STRING
- maximum_processing_units: REAL
- maximum_processing_units_enum: STRING
- cpu_utilization: INTEGER
- cpu_utilization_enum: STRING
- management_cpu_utilization: INTEGER
- management_cpu_utilization_enum: STRING
- memory_utilization: INTEGER
- memory_utilization_enum: STRING
- current_memory_mb: INTEGER
- current_memory_mb_enum: STRING
- network_utilization: INTEGER
- network_utilization_enum: STRING
- storage_rate: INTEGER
- storage_rate_enum: STRING
- page_in_rate: REAL
- page_in_rate_enum: STRING
- page_out_rate: REAL
- page_out_rate_enum: STRING
- total_paging_rate: REAL
- total_paging_rate_enum: STRING

For events that are generated by situations in the PRSM Virtual Server attribute group, events are sent by using the ITM_KZE_PRSM_VIRTUAL_SERVER event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING
- name: STRING
- description: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING

- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- lpar_object_id: STRING
- lpar_name: STRING
- virtualization_host_id: STRING
- virtualization_host_name: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- acceptable_status: INTEGER
- acceptable_status_enum: STRING
- platform_type: INTEGER
- platform_type_enum: STRING
- gpmp_status: INTEGER
- gpmp_status_enum: STRING
- tcpip_hostname: STRING
- os_name: STRING
- os_type: STRING
- os_level: STRING
- auto_start: INTEGER
- auto_start_enum: STRING
- gpmp_enabled: INTEGER
- gpmp_enabled_enum: STRING
- gpmp_version: STRING
- cpu_utilization: INTEGER
- cpu_utilization_enum: STRING
- memory_utilization: INTEGER
- memory_utilization_enum: STRING
- startup_time: STRING
- startup_time_enum: STRING
- elapsed_time: REAL
- elapsed_time_enum: STRING
- virtual_cpu_count: INTEGER
- virtual_cpu_count_enum: STRING
- current_processing_weight: REAL
- current_processing_weight_enum: STRING
- current_memory_mb: INTEGER
- current_memory_mb_enum: STRING
- sampling_rate: INTEGER
- sampling_rate_enum: STRING
- gpmp_active: INTEGER
- gpmp_active_enum: STRING
- bytes_sent: REAL
- bytes_sent_enum: STRING
- bytes_received: REAL

- bytes_received_enum: STRING
- packets_sent: REAL
- packets_sent_enum: STRING
- packets_received: REAL
- packets_received_enum: STRING
- packets_sent_dropped: REAL
- packets_sent_dropped_enum: STRING
- packets_received_dropped: REAL
- packets_received_dropped_enum: STRING
- packets_sent_discarded: REAL
- packets_sent_discarded_enum: STRING
- packets_received_discarded: REAL
- packets_received_discarded_enum: STRING
- multicast_packets_sent: REAL
- multicast_packets_sent_enum: STRING
- multicast_packets_received: REAL
- multicast_packets_received_enum: STRING
- broadcast_packets_sent: REAL
- broadcast_packets_sent_enum: STRING
- broadcast_packets_received: REAL
- broadcast_packets_received_enum: STRING
- bytes_sent_and_received: REAL
- bytes_sent_and_received_enum: STRING
- packets_sent_and_received: REAL
- packets_sent_and_received_enum: STRING

For events that are generated by situations in the PRSM Virtualization Host attribute group, events are sent by using the ITM_KZE_PRSM_VIRTUALIZATION_HOST event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING
- name: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- platform_type: INTEGER

- platform_type_enum: STRING
- virtual_server_shutdown_to: INTEGER
- virtual_server_shutdown_to_enum: STRING
- total_memory_mb: INTEGER
- total_memory_mb_enum: STRING
- cpu_utilization: INTEGER
- cpu_utilization_enum: STRING
- memory_utilization: INTEGER
- memory_utilization_enum: STRING
- current_memory_mb: INTEGER
- current_memory_mb_enum: STRING

For events that are generated by situations in the Service Class attribute group, events are sent by using the ITM_KZE_SERVICE_CLASS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- name: STRING
- description: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- workload_object_id: STRING
- workload_name: STRING
- performance_policy_id: STRING
- performance_policy_name: STRING
- type: INTEGER
- type_enum: STRING
- business_importance: INTEGER
- business_importance_enum: STRING
- performance_index: REAL
- performance_index_enum: STRING
- goal_type: INTEGER
- goal_type_enum: STRING
- goal_performance_level: INTEGER
- goal_performance_level_enum: STRING
- actual_performance_level: INTEGER
- actual_performance_level_enum: STRING

For events that are generated by situations in the Storage Resource attribute group, events are sent by using the ITM_KZE_STORAGE_RESOURCE event class. This event class contains the following slots:

- node: STRING

- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- element_id: STRING
- name: STRING
- description: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- virtualization_host_id: STRING
- virtualization_host_name: STRING
- storage_resource_id: STRING
- type: INTEGER
- type_enum: STRING
- display_size: REAL
- display_size_enum: STRING
- allocation_size: REAL
- allocation_size_enum: STRING
- allocation_units: INTEGER
- allocation_units_enum: STRING
- allocation_status: INTEGER
- allocation_status_enum: STRING
- unique_device_id: STRING
- path_count: INTEGER
- path_count_enum: STRING
- not_accessible_path_count: INTEGER
- not_accessible_path_count_enum: STRING
- path_1: STRING
- path_2: STRING
- path_3: STRING
- path_4: STRING
- path_1_accessible: INTEGER
- path_1_accessible_enum: STRING
- path_2_accessible: INTEGER
- path_2_accessible_enum: STRING
- path_3_accessible: INTEGER
- path_3_accessible_enum: STRING
- path_4_accessible: INTEGER
- path_4_accessible_enum: STRING

For events that are generated by situations in the Take Action Status attribute group, events are sent by using the ITM_KZE_TAKE_ACTION_STATUS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- action_name: STRING
- action_status: INTEGER
- action_status_enum: STRING
- action_app_return_code: INTEGER
- action_message: STRING
- action_instance: STRING
- action_results: STRING
- action_command: STRING
- action_node: STRING
- action_subnode: STRING
- action_id: INTEGER
- action_type: INTEGER
- action_type_enum: STRING
- action_owner: STRING

For events that are generated by situations in the Thread Pool Status attribute group, events are sent by using the ITM_KZE_THREAD_POOL_STATUS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- thread_pool_size: INTEGER
- thread_pool_size_enum: STRING
- thread_pool_max_size: INTEGER
- thread_pool_max_size_enum: STRING
- thread_pool_active_threads: INTEGER
- thread_pool_active_threads_enum: STRING
- thread_pool_avg_active_threads: REAL
- thread_pool_avg_active_threads_enum: STRING
- thread_pool_min_active_threads: INTEGER
- thread_pool_min_active_threads_enum: STRING
- thread_pool_max_active_threads: INTEGER
- thread_pool_max_active_threads_enum: STRING
- thread_pool_queue_length: INTEGER
- thread_pool_queue_length_enum: STRING
- thread_pool_avg_queue_length: REAL
- thread_pool_avg_queue_length_enum: STRING
- thread_pool_min_queue_length: INTEGER
- thread_pool_min_queue_length_enum: STRING
- thread_pool_max_queue_length: INTEGER
- thread_pool_max_queue_length_enum: STRING
- thread_pool_avg_job_wait: REAL
- thread_pool_avg_job_wait_enum: STRING
- thread_pool_total_jobs: INTEGER

- thread_pool_total_jobs_enum: STRING

For events that are generated by situations in the Topology attribute group, events are sent by using the ITM_KZE_TOPOLOGY event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- topology_type: INTEGER
- topology_type_enum: STRING
- node_name: STRING
- node_id: STRING
- node_type: INTEGER
- node_type_enum: STRING
- node_description: STRING
- node_status: INTEGER
- node_status_enum: STRING
- link_id: STRING
- link_type: INTEGER
- link_type_enum: STRING

For events that are generated by situations in the Uplink attribute group, events are sent by using the ITM_KZE_UPLINK event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- uplink_name: STRING
- virtual_switch_name: STRING
- virtual_switch_name_enum: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- virtualization_host_id: STRING
- virtualization_host_name: STRING
- bytes_sent: REAL
- bytes_sent_enum: STRING
- bytes_received: REAL
- bytes_received_enum: STRING
- packets_sent: REAL
- packets_sent_enum: STRING
- packets_received: REAL
- packets_received_enum: STRING

- packets_sent_dropped: REAL
- packets_sent_dropped_enum: STRING
- packets_received_dropped: REAL
- packets_received_dropped_enum: STRING
- packets_sent_discarded: REAL
- packets_sent_discarded_enum: STRING
- packets_received_discarded: REAL
- packets_received_discarded_enum: STRING
- multicast_packets_sent: REAL
- multicast_packets_sent_enum: STRING
- multicast_packets_received: REAL
- multicast_packets_received_enum: STRING
- broadcast_packets_sent: REAL
- broadcast_packets_sent_enum: STRING
- broadcast_packets_received: REAL
- broadcast_packets_received_enum: STRING
- bytes_sent_and_received: REAL
- bytes_sent_and_received_enum: STRING
- packets_sent_and_received: REAL
- packets_sent_and_received_enum: STRING
- total_packets_dropped: REAL
- total_packets_dropped_enum: STRING
- total_packets_discarded: REAL
- total_packets_discarded_enum: STRING
- bandwidth_utilization: INTEGER
- bandwidth_utilization_enum: STRING
- lpar_object_id: STRING
- lpar_name: STRING

For events that are generated by situations in the Virtual Network attribute group, events are sent by using the ITM_KZE_VIRTUAL_NETWORK event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING
- name: STRING
- description: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- vlan_id: INTEGER

- vlan_id_enum: STRING
- default_virtual_network: INTEGER
- default_virtual_network_enum: STRING
- has_members: INTEGER
- has_members_enum: STRING
- bytes_sent: REAL
- bytes_sent_enum: STRING
- bytes_received: REAL
- bytes_received_enum: STRING
- packets_sent: REAL
- packets_sent_enum: STRING
- packets_received: REAL
- packets_received_enum: STRING
- packets_sent_dropped: REAL
- packets_sent_dropped_enum: STRING
- packets_received_dropped: REAL
- packets_received_dropped_enum: STRING
- total_packets_dropped: REAL
- total_packets_dropped_enum: STRING
- packets_sent_discarded: REAL
- packets_sent_discarded_enum: STRING
- packets_received_discarded: REAL
- packets_received_discarded_enum: STRING
- total_packets_discarded: REAL
- total_packets_discarded_enum: STRING
- packets_drop_and_disc: REAL
- packets_drop_and_disc_enum: STRING
- multicast_packets_sent: REAL
- multicast_packets_sent_enum: STRING
- multicast_packets_received: REAL
- multicast_packets_received_enum: STRING
- broadcast_packets_sent: REAL
- broadcast_packets_sent_enum: STRING
- broadcast_packets_received: REAL
- broadcast_packets_received_enum: STRING

For events that are generated by situations in the Workload Resource Group attribute group, events are sent by using the ITM_KZE_WORKLOAD_RESOURCE_GROUP event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING

- name: STRING
- description: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- default_workload: INTEGER
- default_workload_enum: STRING
- category: STRING
- active_performance_policy: STRING
- active_performance_policy_id: STRING
- perf_pol_act_node_count: INTEGER
- perf_pol_act_node_count_enum: STRING
- perf_pol_activation_status: INTEGER
- perf_pol_activation_status_enum: STRING
- default_performance_policy: STRING
- workload_service_level_index: INTEGER
- workload_service_level_index_enum: STRING
- highest_impact_svc_class: STRING
- highest_pi_service_class: STRING
- highest_pi: REAL
- highest_pi_enum: STRING
- highest_pi_svc_class_imp: INTEGER
- highest_pi_svc_class_imp_enum: STRING
- virtual_server_count: INTEGER
- virtual_server_count_enum: STRING
- virtual_servers_low_cpu: INTEGER
- virtual_servers_low_cpu_enum: STRING
- virtual_servers_medium_cpu: INTEGER
- virtual_servers_medium_cpu_enum: STRING
- virtual_servers_high_cpu: INTEGER
- virtual_servers_high_cpu_enum: STRING

For events that are generated by situations in the Workload Virtual Server attribute group, events are sent by using the ITM_KZE_WORKLOAD_VIRTUAL_SERVER event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- virtual_server_object_id: STRING
- virtual_server_name: STRING
- virtual_server_desc: STRING
- hmc_object_id: STRING

- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- virtualization_host_id: STRING
- virtualization_host_name: STRING
- workload_object_id: STRING
- workload_name: STRING
- workload_description: STRING
- platform_type: INTEGER
- platform_type_enum: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- acceptable_status: INTEGER
- acceptable_status_enum: STRING
- gpmp_status: INTEGER
- gpmp_status_enum: STRING
- tcpip_hostname: STRING
- os_name: STRING
- os_type: STRING
- os_level: STRING
- svc_class_of_virt_server: STRING
- cpu_utilization: INTEGER
- cpu_utilization_enum: STRING
- memory_utilization: INTEGER
- memory_utilization_enum: STRING
- virt_host_cpu_delay: INTEGER
- virt_host_cpu_delay_enum: STRING
- virtual_cpu_count: INTEGER
- virtual_cpu_count_enum: STRING
- bytes_sent_and_received: REAL
- bytes_sent_and_received_enum: STRING
- packets_drop_and_disc: REAL
- packets_drop_and_disc_enum: STRING
- workload_count: INTEGER
- workload_count_enum: STRING
- default_workload: INTEGER
- default_workload_enum: STRING
- workload_category: STRING
- active_performance_policy: STRING
- active_performance_policy_id: STRING
- workload_service_level_index: INTEGER
- workload_service_level_index_enum: STRING
- highest_impact_svc_class: STRING

- highest_pi_service_class: STRING
- highest_pi: REAL
- highest_pi_enum: STRING
- highest_pi_svc_class_imp: INTEGER
- highest_pi_svc_class_imp_enum: STRING
- virtual_server_count: INTEGER
- virtual_server_count_enum: STRING

For events that are generated by situations in the x Hyp Virtual Server attribute group, events are sent by using the ITM_KZE_X_HYP_VIRTUAL_SERVER event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING
- name: STRING
- description: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- virtualization_host_id: STRING
- virtualization_host_name: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- acceptable_status: INTEGER
- acceptable_status_enum: STRING
- platform_type: INTEGER
- platform_type_enum: STRING
- gpmp_status: INTEGER
- gpmp_status_enum: STRING
- tcpip_hostname: STRING
- os_name: STRING
- os_type: STRING
- os_level: STRING
- initial_virtual_cpus: INTEGER
- initial_virtual_cpus_enum: STRING
- initial_memory_mb: INTEGER
- initial_memory_mb_enum: STRING
- auto_start: INTEGER
- auto_start_enum: STRING

- gpmp_enabled: INTEGER
- gpmp_enabled_enum: STRING
- gpmp_version: STRING
- cpu_utilization: INTEGER
- cpu_utilization_enum: STRING
- memory_utilization: INTEGER
- memory_utilization_enum: STRING
- startup_time: STRING
- startup_time_enum: STRING
- elapsed_time: REAL
- elapsed_time_enum: STRING
- virtual_cpu_count: INTEGER
- virtual_cpu_count_enum: STRING
- current_memory_mb: INTEGER
- current_memory_mb_enum: STRING
- sampling_rate: INTEGER
- sampling_rate_enum: STRING
- gpmp_active: INTEGER
- gpmp_active_enum: STRING
- virt_host_cpu_delay: INTEGER
- virt_host_cpu_delay_enum: STRING
- bytes_sent: REAL
- bytes_sent_enum: STRING
- bytes_received: REAL
- bytes_received_enum: STRING
- packets_sent: REAL
- packets_sent_enum: STRING
- packets_received: REAL
- packets_received_enum: STRING
- packets_sent_dropped: REAL
- packets_sent_dropped_enum: STRING
- packets_received_dropped: REAL
- packets_received_dropped_enum: STRING
- packets_sent_discarded: REAL
- packets_sent_discarded_enum: STRING
- packets_received_discarded: REAL
- packets_received_discarded_enum: STRING
- multicast_packets_sent: REAL
- multicast_packets_sent_enum: STRING
- multicast_packets_received: REAL
- multicast_packets_received_enum: STRING
- broadcast_packets_sent: REAL
- broadcast_packets_sent_enum: STRING
- broadcast_packets_received: REAL
- broadcast_packets_received_enum: STRING

- bytes_sent_and_received: REAL
- bytes_sent_and_received_enum: STRING
- packets_sent_and_received: REAL
- packets_sent_and_received_enum: STRING

For events that are generated by situations in the x Hyp Virtualization Host attribute group, events are sent by using the ITM_KZE_X_HYP_VIRTUALIZATION_HOST event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING
- name: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- platform_type: INTEGER
- platform_type_enum: STRING
- virtual_server_shutdown_to: INTEGER
- virtual_server_shutdown_to_enum: STRING
- auto_start_virtual_servers: INTEGER
- auto_start_virtual_servers_enum: STRING
- total_memory_mb: INTEGER
- total_memory_mb_enum: STRING
- memory_increment_mb: INTEGER
- memory_increment_mb_enum: STRING
- minimum_memory_mb: INTEGER
- minimum_memory_mb_enum: STRING
- maximum_memory_mb: INTEGER
- maximum_memory_mb_enum: STRING
- maximum_virtual_cpus: INTEGER
- maximum_virtual_cpus_enum: STRING
- maximum_ide_devices: INTEGER
- maximum_ide_devices_enum: STRING
- mixed_mode_boot_restriction: INTEGER
- mixed_mode_boot_restriction_enum: STRING
- cpu_utilization: INTEGER
- cpu_utilization_enum: STRING

- management_cpu_utilization: INTEGER
- management_cpu_utilization_enum: STRING
- memory_utilization: INTEGER
- memory_utilization_enum: STRING
- current_memory_mb: INTEGER
- current_memory_mb_enum: STRING
- network_utilization: INTEGER
- network_utilization_enum: STRING
- storage_rate: INTEGER
- storage_rate_enum: STRING
- page_in_rate: REAL
- page_in_rate_enum: STRING
- page_out_rate: REAL
- page_out_rate_enum: STRING
- total_paging_rate: REAL
- total_paging_rate_enum: STRING

For events that are generated by situations in the zVM Virtual Server attribute group, events are sent by using the ITM_KZE_ZVM_VIRTUAL_SERVER event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING
- name: STRING
- description: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- lpar_object_id: STRING
- lpar_name: STRING
- virtualization_host_id: STRING
- virtualization_host_name: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- acceptable_status: INTEGER
- acceptable_status_enum: STRING
- additional_status: INTEGER
- additional_status_enum: STRING
- platform_type: INTEGER

- platform_type_enum: STRING
- gpmp_status: INTEGER
- gpmp_status_enum: STRING
- cpu_management: INTEGER
- cpu_management_enum: STRING
- tcpip_hostname: STRING
- os_name: STRING
- os_type: STRING
- os_level: STRING
- mac_prefix: STRING
- mac_prefix_length: INTEGER
- mac_prefix_length_enum: STRING
- initial_virtual_cpus: INTEGER
- initial_virtual_cpus_enum: STRING
- maximum_virtual_cpus: INTEGER
- maximum_virtual_cpus_enum: STRING
- initial_share_mode: INTEGER
- initial_share_mode_enum: STRING
- initial_shares: REAL
- initial_shares_enum: STRING
- share_limit: INTEGER
- share_limit_enum: STRING
- maximum_share_mode: INTEGER
- maximum_share_mode_enum: STRING
- maximum_shares: REAL
- maximum_shares_enum: STRING
- initial_memory_mb: INTEGER
- initial_memory_mb_enum: STRING
- maximum_memory_mb: INTEGER
- maximum_memory_mb_enum: STRING
- auto_start: INTEGER
- auto_start_enum: STRING
- gpmp_enabled: INTEGER
- gpmp_enabled_enum: STRING
- gpmp_version: STRING
- privilege_classes: STRING
- ipl_device: STRING
- ipl_load_parameters: STRING
- ipl_parameters: STRING
- cpu_utilization: INTEGER
- cpu_utilization_enum: STRING
- memory_utilization: INTEGER
- memory_utilization_enum: STRING
- startup_time: STRING
- startup_time_enum: STRING

- elapsed_time: REAL
- elapsed_time_enum: STRING
- virtual_cpu_count: INTEGER
- virtual_cpu_count_enum: STRING
- current_shares: REAL
- current_shares_enum: STRING
- current_memory_mb: INTEGER
- current_memory_mb_enum: STRING
- sampling_rate: INTEGER
- sampling_rate_enum: STRING
- gpmp_active: INTEGER
- gpmp_active_enum: STRING
- virt_host_cpu_delay: INTEGER
- virt_host_cpu_delay_enum: STRING
- bytes_sent: REAL
- bytes_sent_enum: STRING
- bytes_received: REAL
- bytes_received_enum: STRING
- packets_sent: REAL
- packets_sent_enum: STRING
- packets_received: REAL
- packets_received_enum: STRING
- packets_sent_dropped: REAL
- packets_sent_dropped_enum: STRING
- packets_received_dropped: REAL
- packets_received_dropped_enum: STRING
- packets_sent_discarded: REAL
- packets_sent_discarded_enum: STRING
- packets_received_discarded: REAL
- packets_received_discarded_enum: STRING
- multicast_packets_sent: REAL
- multicast_packets_sent_enum: STRING
- multicast_packets_received: REAL
- multicast_packets_received_enum: STRING
- broadcast_packets_sent: REAL
- broadcast_packets_sent_enum: STRING
- broadcast_packets_received: REAL
- broadcast_packets_received_enum: STRING
- bytes_sent_and_received: REAL
- bytes_sent_and_received_enum: STRING
- packets_sent_and_received: REAL
- packets_sent_and_received_enum: STRING

For events that are generated by situations in the zVM Virtualization Host attribute group, events are sent by using the ITM_KZE_ZVM_VIRTUALIZATION_HOST event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interval_end_time: STRING
- interval_end_time_enum: STRING
- interval_length: INTEGER
- interval_length_enum: STRING
- object_id: STRING
- name: STRING
- hmc_object_id: STRING
- hmc_name: STRING
- ensemble_object_id: STRING
- ensemble_name: STRING
- cpc_object_id: STRING
- cpc_name: STRING
- lpar_object_id: STRING
- lpar_name: STRING
- virtual_server_object_id: STRING
- virtual_server_name: STRING
- kze_status: INTEGER
- kze_status_enum: STRING
- platform_type: INTEGER
- platform_type_enum: STRING
- virtual_server_shutdown_to: INTEGER
- virtual_server_shutdown_to_enum: STRING
- total_memory_mb: INTEGER
- total_memory_mb_enum: STRING
- memory_increment_mb: INTEGER
- memory_increment_mb_enum: STRING
- minimum_memory_mb: INTEGER
- minimum_memory_mb_enum: STRING
- maximum_memory_mb: INTEGER
- maximum_memory_mb_enum: STRING
- maximum_dedicated_cpus: INTEGER
- maximum_dedicated_cpus_enum: STRING
- maximum_virtual_cpus: INTEGER
- maximum_virtual_cpus_enum: STRING
- cpu_utilization: INTEGER
- cpu_utilization_enum: STRING
- memory_utilization: INTEGER
- memory_utilization_enum: STRING
- current_memory_mb: INTEGER
- current_memory_mb_enum: STRING

Appendix B. Integration with Tivoli Business Service Manager

The Tivoli zEnterprise Monitoring Agent provides data to create, update the status of, and view IBM Tivoli Business Service Manager services.

The Tivoli Management Services Discovery Library Adapter (DLA) and Discovery Library Toolkit provides data for the Tivoli Business Service Manager service models. The Tivoli Integration Facility (EIF) probe updates the status of these services, and you use the Tivoli Enterprise Portal to view the data for the services. To implement the integration of the agent with Tivoli Business Service Manager, perform the integration tasks.

Components for integrating with Tivoli Business Service Manager

The data for integrating with Tivoli Business Service Manager is supplied through the following components: Tivoli Management Services Discovery Library Adapter (DLA) and Discovery Library Toolkit, Tivoli Integration Facility (EIF) probe, and Tivoli Enterprise Portal.

Tivoli Management Services Discovery Library Adapter (DLA) and Discovery Library Toolkit

By using data from the Tivoli Management Services Discovery Library Adapter, you can build Tivoli Business Service Manager service models that include resources monitored by the Tivoli zEnterprise Monitoring Agent.

The DLA files can be imported directly into Tivoli Business Service Manager using the Discovery Library Toolkit or they can be loaded into IBM Tivoli Application Dependency Discovery Manager (TADDM) and then fed into Tivoli Business Service Manager using the Discovery Library Toolkit.

See the following sources for more information about the DLA and Discovery Library Toolkit:

- Resources and relationships that are discovered by the Tivoli zEnterprise Monitoring Agent and included in Tivoli Management Services DLA files
- Using the Tivoli Management Services DLA: *IBM Tivoli Monitoring Administrator's Guide*
- Using the Discovery Library Toolkit: *Tivoli Business Service Manager Customization Guide*

Tivoli Integration Facility (EIF) probe

Situation events detected by the Tivoli zEnterprise Monitoring Agent can update the status of services in Tivoli Business Service Manager.

The situation events are forwarded from IBM Tivoli Monitoring to the Netcool/OMNIbus Probe for the Tivoli Event Integration Facility. The Tivoli zEnterprise Monitoring Agent provides a probe rules file that updates its events with information to identify the affected service in Tivoli Business Service Manager. The EIF probe then forwards the events to the Netcool/OMNIbus ObjectServer. Tivoli Business Service Manager monitors the Netcool/OMNIbus ObjectServer for new events and updates the status of affected services.

See the following sources for more information about event integration:

- Installation (using an existing EIF probe and Netcool/OMNIbus ObjectServer installation or using Tivoli Business Service Manager to install these components): Netcool/OMNIbus Information Center or the *Tivoli Business Service Manager Installation Guide*.

- Setting up event integration between IBM Tivoli Monitoring, the EIF probe, and the Netcool/OMNIBus ObjectServer: *IBM Tivoli Monitoring Installation and Setup Guide*.
- Configuring the EIF probe to use the Tivoli zEnterprise Monitoring Agent rules file after the EIF probe has been installed and configured for event integration with IBM Tivoli Monitoring: “Configuring the Tivoli Event Integration Facility (EIF) probe to enrich events”

Tivoli Enterprise Portal

You can use the integration of the Tivoli Enterprise Portal with Tivoli Business Service Manager to view the services in the Tivoli Business Service Manager console.

For more detailed examination and analysis, you can easily link from the Tivoli Business Service Manager console to the Tivoli Enterprise Portal to view the data within the Tivoli zEnterprise Monitoring Agent.

Tasks to integrate the agent with Tivoli Business Service Manager

To integrate the Tivoli zEnterprise Monitoring Agent with Tivoli Business Service Manager, you must install and configure the required components. Then, you can view the data in the Tivoli Integrated Portal

To integrate the Tivoli zEnterprise Monitoring Agent with Tivoli Business Service Manager and view the data, complete the following tasks:

- Install the Discovery Library Toolkit on the Tivoli Business Service Manager server.
- Configure the Tivoli Event Integration Facility (EIF) probe to enrich Tivoli zEnterprise Monitoring Agent events.
- Create a service in the Tivoli Business Service Manager console that you want to monitor.
- Create a data source mapping for each data source that you want to access within the Tivoli Business Service Manager.
- Configure an additional IBM Tivoli Monitoring web service for each Tivoli Enterprise Portal Server.
- View data in the Tivoli Enterprise Portal for the services that you have created to monitor through Tivoli Business Service Manager.

Installing the Discovery Library Toolkit on the Tivoli Business Service Manager

You must install the Discovery Library Toolkit on the Tivoli Business Service Manager server.

The Discovery Library Toolkit imports data from the DLA files and TADDM, which includes information about the hardware and the applications that are discovered by the source.

See “Installing the Discovery Library Toolkit” in the *Tivoli Business Service Manager Installation Guide*.

Configuring the Tivoli Event Integration Facility (EIF) probe to enrich events

The Netcool/OMNIBus Probe for Tivoli Event Integration Facility (EIF) forwards the Tivoli zEnterprise Monitoring Agent events that are received from IBM Tivoli Monitoring to the Netcool/OMNIBus ObjectServer. Tivoli Business Service Manager monitors the Netcool/OMNIBus ObjectServer for new events, and updates the status of affected services. The Tivoli zEnterprise Monitoring Agent provides a probe rules include file that updates its events with information to identify the affected service in Tivoli Business Service Manager.

Before you begin

Install and configure the Netcool/OMNIBus ObjectServer and EIF probe and set up event integration between IBM Tivoli Monitoring and Netcool/OMNIBus.

About this task

To enable event enrichment, configure the EIF probe to use the rules file for the agent.

Procedure

1. Locate the Tivoli zEnterprise Monitoring Agent rules file (*kze_tbsm.rules*) on a computer system where the Tivoli zEnterprise Monitoring Agent, Tivoli Enterprise Monitoring Server, or Tivoli Enterprise Portal Server is installed. The file is in the following locations:
 - On Windows systems
The file is in the *installdir\cms\TECLIB* directory of the monitoring server, in the *installdir\cnps\TECLIB* directory of the portal server, the *installdir\TMAITM6\EIFLIB* directory of the agent, or the *installdir\TMAITM6_x64\EIFLIB* directory of the agent, where *installdir* is the IBM Tivoli Monitoring or Tivoli zEnterprise Monitoring Agent installation directory.
 - On Linux and UNIX systems
The file is in the *installdir/tables/cicatrsg/TECLIB* directory of the monitoring server or in the *installdir/platform/xx/TECLIB* directory of the agent, where *installdir* is the IBM Tivoli Monitoring or Tivoli zEnterprise Monitoring Agent directory, *platform* is the architecture directory for the agent, and *xx* is the product code for the agent.
2. Copy the *kze_tbsm.rules* file to the following directory on the computer system where the EIF probe is installed:
 - On Windows systems
`%OMNIHOME%\probes\arch`
 - On UNIX systems
`$OMNIHOME/probes/arch`

Where:

OMNIHOME System-defined variable defining the installation location of Netcool/OMNIBus

arch Operating system directory where the probe is installed; for example, *solaris2* when running on a Solaris system, and *win32* for a Windows system.
3. Edit the *tivoli_eif.rules* file and uncomment the include statement for *kze_tbsm.rules*. (The *tivoli_eif.rules* file is located in the same directory as the *kze_tbsm.rules* file.) If you are using a version of the *tivoli_eif.rules* file without an include statement for *kze_tbsm.rules*, add the following line after the include statement for *itm_event.rules*:
`include "kze_tbsm.rules"`
4. Restart the EIF probe.

Creating a service in Tivoli Business Service Manager

You must create a service in the Tivoli Business Service Manager console for each service that you want to monitor.

To create the services that you want to monitor in the Tivoli Business Service Manager console, see “Configuring services” in the *IBM Tivoli Business Service Manager Service Configuration Guide*.

Creating a data source mapping for each data source

You can create a data source mapping for each data source that you want to access within Tivoli Business Service Manager.

Also, you can create the data fetchers and use the data to create incoming status rules that are populated in your service templates.

For more information, see “Data sources” and “Data fetchers” in the *IBM Tivoli Business Service Manager Service Configuration Guide*.

Configuring additional IBM Tivoli Monitoring web services

You can configure additional IBM Tivoli Monitoring web services for each Tivoli Enterprise Portal Server.

To configure an additional IBM Tivoli Monitoring web service for each Tivoli Enterprise Portal server, see “Configure TBSM charts” in the *IBM Tivoli Business Service Manager Scenarios Guide*.

Viewing data in the Tivoli Enterprise Portal

From Tivoli Business Service Manager, you can open the Tivoli Enterprise Portal and view the Tivoli zEnterprise Monitoring Agent.

You can also launch Tivoli Business Service Manager from the Tivoli Enterprise Portal.

For more information about launching applications, see “Launching to and from applications” in the *Tivoli Business Service Manager Customization Guide*.

Appendix C. Tivoli Common Reporting for the Tivoli zEnterprise monitoring agent

This section contains agent-specific information about Tivoli Common Reporting for the Tivoli zEnterprise monitoring agent.

Use this chapter in conjunction with the Tivoli Common Reporting chapter in the *IBM Tivoli Monitoring Administrator's Guide, V6.2.3* for complete information about prerequisites, importing reports, and running reports

The Cognos reports package for the Tivoli zEnterprise monitoring agent contains reports that are ready for immediate use and a data model that allows self-service reporting by using a drag-and-drop technique.

This agent provides a data model that is needed for creating Cognos reports.

Complete documentation for the Tivoli Common Reporting tool is located at the http://publib.boulder.ibm.com/infocenter/tivihelp/v3r1/topic/com.ibm.tivoli.tcr.doc/tcr_welcome.htm.

Report packages

The Tivoli zEnterprise monitoring agent reports are historical reports that report against summarized data collected in Tivoli Data Warehouse V6.2.3 Fix Pack 1 or later. These reports are built to run only against the Tivoli zEnterprise monitoring agent.

The following databases are supported for all reports: DB2®, Oracle, and SQL Server.

The reports can be administered, run, and edited by Tivoli Common Reporting for Asset and Performance Management Version 2.1.1 or later software included with IBM Tivoli Monitoring 6.2.3 Fix Pack 1 or later. For more information about Tivoli Common Reporting, see the developerWorks® page on Tivoli Common Reporting.

This version of Tivoli Common Reporting includes Cognos Business Intelligence and Reporting V8.4.

Data collection and aggregation

Historical data collection and aggregation is a key component of the infrastructure of IBM Tivoli Monitoring.

See the *IBM Tivoli Monitoring: Administrator's Guide* for more information on how history can be collected and summarized over time.

The data collected by the zEnterprise agent can be aggregated at the following levels of hierarchy:

- Ensemble
- Workload Resource Group
- Virtualization Host
- Virtual Server

A huge amount of performance metrics is collected. These metrics are pulled into a data model to make it more usable. Most of the preconfigured capacity reports are focused on the following key metrics:

- CPU utilization

- Virtualization host CPU delay
- Memory utilization

For the reports to work, you must enable historical collection on the following attribute groups:

- KZE WORKLOAD VIRTUAL SERVER
- KZE POWERVM VIRTUAL SERVER
- KZE X-HYP VIRTUAL SERVER
- KZE POWERVM VIRTUALIZATION HOST
- KZE X-HYP VIRTUALIZATION HOST
- KZE WORKLOAD RESOURCE GROUP

To understand what each attribute means, see the “Attributes in each attribute group” on page 33.

Historical data is collected and aggregated at various levels. The reports make use of hourly and daily data. For best practices on how to set up the warehouse, see Historical Collections Best Practices in Tivoli Monitoring 6.2.2 in DeveloperWorks.

The following table contains some examples of the types of attributes that can be collected and the intervals that can be used for collection:

Table 18. Attribute groups and collection intervals

Attribute group type	Collection and warehouse interval
Processor and memory utilization	• 5 or 15 minute interval; retain for 2 weeks • Hourly summarization; retain for 3 months • Daily summarization; retain for 1 year

Report descriptions for the Tivoli zEnterprise monitoring agent

The following reports are described in this section:

- Performance trends

This set of reports shows resource usage over time for various levels of the virtualized workload resource group, virtualization host, and virtual server environment, that is, the reports show trends at the workload resource group, virtualization host, and virtual server levels. The reports can be run with different date ranges, different summarization types (daily or hourly) and with varied thresholds. These reports are particularly useful in determining trends, and patterns, and in doing comparisons across the environment. Some of the reports are interactive and allow navigation to other reports for more problem determination.

- Workload Resource Group Performance Trends

Shows a historical trend of all the key performance metrics in percentages for one or more Workload Resource Groups

- Virtualization Host Trend and Forecast

Displays trend charts with historical and forecasted values of the key metrics for one or more virtualization hosts

- Virtualization Host Heat Chart

Shows patterns of CPU, memory utilization, and CPU and memory utilization over a period of time for the selected virtualization host

- Virtual Server Heat Chart

Shows patterns of CPU, memory utilization, and CPU and memory utilization delay over a period of time for the selected virtual server

- Workload right sizing and balancing

This set of reports is useful for determining the overall performance of the environment.

- Top or Bottom N Virtual Servers by Ensemble
Shows the top or bottom N Virtual Servers by CPU or memory utilization delay on one or more selected ensembles
- Top or Bottom N Virtual Servers by Virtualization Host
Shows the top or bottom N Virtual Servers by CPU or memory utilization delay on one or more selected virtualization hosts
- Top or Bottom N Virtual Servers by Workload Resource Group
Shows the top or bottom N virtual servers by CPU and memory utilization delay on one or more workload resource groups
- Top or Bottom N Workload Resource Groups
Shows the top or bottom workload resource groups in the environment by CPU utilization, memory utilization or CPU delay
- Top or Bottom N Workload Resource Groups by Service Level Index
Shows the top or bottom workload resource groups in the environment by Service Level Index
- Top or Bottom Virtualization Host
Shows the top or bottom Virtualization Hosts in the Ensemble by CPU utilization, and memory utilization.

Performance trends

The performance trends reports show resource usage over time for various levels of the virtualized environment. Specifically, these reports show trends at the workload resource group, virtualization host, and virtual server levels.

You can run the reports with different date ranges and with varied thresholds. You can use these reports to determine trends, patterns, and forecasts, and to make comparisons across the environment. Some of the reports are interactive and allow navigation to other reports for more problem determination.

Use case: What are the historical performance trends for processor and memory utilization for one or more workload resource groups or virtualization hosts? Help me to compare the trends.

zEnterprise Workload Resource Group Performance Trends report

Table 19. zEnterprise Workload Resource Group Performance Trends report

Report structure	Description
Name	zEnterprise Workload Resource Group Performance Trends
Description	This report shows a dashboard view of historical trends of the key performance metrics for one or more workload resource groups. The values displayed are the processor utilization trend in percent, memory utilization trend in percent, and average virtual host CPU delay trend in percent.
Purpose	Show historical trends of key performance metrics for workload resource groups.

Table 19. zEnterprise Workload Resource Group Performance Trends report (continued)

Report structure	Description
Parameters	Ensemble You can choose one or more ensembles from a list of data ensembles. Workload Resource Group You can choose one or more workload resource group from a list of workload resource groups that belong to the selected ensembles. Date Range You can choose a date range for which you want to display the trend. The options for Date Range selection are as follows: : • All (beginning from January 1, 1970 to the current day) • The selected date range • Today • Yesterday • Last 7 days • Last 30 Days • Last 90 Days • Current week • Current month • Current year to date • Last week • Last month • Last year The default is All.
Tables or views used	KZE_WORKLOAD_VIRTUAL_SERVER
Output	The report shows trends for CPU, average virtualization host CPU delay, and memory metrics of selected workload resource groups.

zEnterprise Virtualization Host Performance Trends report

Table 20. zEnterprise Virtualization Host Performance Trends report

Report structure	Description
Name	zEnterprise Virtualization Host Performance Trends
Description	This report shows a dashboard view of historical trends of all the key performance metrics for one or more virtualization hosts. The values displayed are the processor utilization trend in percent and the memory utilization trend in percent.
Purpose	Show historical trends of all key performance metrics for virtualization hosts.

Table 20. zEnterprise Virtualization Host Performance Trends report (continued)

Report structure	Description
Parameters	Ensemble You can choose one or more ensembles from a list of data ensembles. Virtualization Host You can choose one or more virtualization hosts from a list of virtualization hosts that belong to the selected ensembles. Date Range You can choose a date range for which you want to display the trend. The options for Date Range selection are as follows: • All (beginning from January 1, 1970 to the current day) • The selected date range • Today • Yesterday • Last 7 days • Last 30 Days • Last 90 Days • Current week • Current month • Current year to date • Last week • Last month • Last year The default is All.
Tables or views used	KZE_POWERVM_VIRTUALIZATION_HOST KZE_X_HYP_VIRTUALIZATION_HOST
Output	The report shows trends for CPU utilization and memory utilization of selected virtualization hosts.

Use case: What are the historical performance trends for processor and memory utilization for one or more virtualization hosts, or virtual servers? Help me to compare the trends and identify patterns in utilization and performance.

zEnterprise Virtual Server Performance Trends report

Table 21. zEnterprise Virtual Server Performance Trends report

Report structure	Description
Name	zEnterprise Virtual Server Performance Trends report
Description	This report shows a dashboard view of historical trends of all the key performance metrics for one or more virtual servers. The values displayed are processor utilization trend in percent, memory utilization trend in percent, and virtualization host CPU delay trend in percent.
Purpose	Show historical trends of all key performance metrics for virtual servers.

Table 21. zEnterprise Virtual Server Performance Trends report (continued)

Report structure	Description
Parameters	Ensemble You can choose one or more ensembles from a list of ensembles. Virtualization Host You can choose one or more virtualization hosts from a list of virtualization hosts that belong to the selected ensemble. Virtualization Server You can choose one or more virtual servers from a list of virtual servers that belong to the selected virtualization host. Date Range You can choose a date range for which you want to display the trend. The options for Date Range selection are as follows: • All (beginning from January 1, 1970 to the current day) • The selected date range • Today • Yesterday • Last 7 days • Last 30 Days • Last 90 Days • Current week • Current month • Current year to date • Last week • Last month • Last year The default is All.
Tables or views used	KZE_POWERVM_VIRTUAL_SERVER KZE_X_HYP_VIRTUAL_SERVER
Output	The report shows trends for CPU utilization, memory utilization, and virtualization host CPU delay for selected virtual servers.

Use case: What are the historical performance trends for processor and memory utilization for one or more virtualization hosts, or virtual servers? Help me to compare the trends and identify patterns in utilization and performance.

See also the zEnterprise Workload Resource Group Performance Trends report and the zEnterprise Virtualization Host Performance Trends report in the previous use case.

zEnterprise Virtualization Host Heat Chart report

Table 22. zEnterprise Virtualization Host Heat Chart report

Report structure	Description
Name	zEnterprise Virtualization Host Heat Chart
Description	This report shows a historical trend of the average hourly processor utilization and memory utilization in percentage for one or more virtualization hosts
Purpose	Show historical trend of average hourly processor and memory utilization for one or more Virtualization Hosts.

Table 22. zEnterprise Virtualization Host Heat Chart report (continued)

Report structure	Description
Parameters	Ensemble You can choose one or more ensembles from a list of data ensembles. Virtualization Host You can choose one or more virtualization hosts belonging to the selected ensemble. Date Range You can choose a date range for which you want to display the trend. The options for Date Range selection are as follows: • All (beginning from January 1, 1970 to the current day) • The selected date range • Today • Yesterday • Last 7 days • Last 30 Days • Last 90 Days • Current week • Current month • Current year to date • Last week • Last month • Last year The default is All. Utilization You can choose of the following: • CPU utilization • Memory utilization Upper Limit and Status Threshold Percentages You can choose one of the following: • Good • Fair • Warning • Bad
Tables or views used	KZE_POWERVM_VIRTUALIZATION_HOST KZE_X_HYP_VIRTUALIZATION_HOST
Output	This report presents a different kind of visualization for observing patterns in hourly processor or memory utilization. This chart is called a heat chart. In a heat chart, the x-axis shows the hours during the day and the y-axis shows the dates. For each virtualization host, hourly averages for the metric are shown. This chart helps in identifying patterns, such as during which times of day the server gets busy. The chart is useful for determining maintenance schedules or observing whether the pattern of the virtual server matches the pattern of its target virtualization host during virtual server placement exercises. Different colors on the heat chart represent different percentage bands. You can modify the threshold values for these bands.

zEnterprise Virtual Server Heat Chart report

Table 23. zEnterprise Virtual Server Heat Chart report

Report structure	Description
Name	zEnterprise Virtual Server Heat Chart
Description	This report shows a historical trend of the average hourly processor utilization and memory utilization in percentage for one or more virtual server.

Table 23. zEnterprise Virtual Server Heat Chart report (continued)

Report structure	Description
Purpose	Show historical trend of average hourly processor, memory utilization, and virtualization host CPU delay for one or more virtual servers.
Parameters	Ensemble You can choose one or more ensembles from a list of data ensembles. Virtualization Host You can choose one or more virtualization hosts belonging to the selected ensemble. Virtualization Server You can choose one or more virtual servers belonging to the selected virtualization host. Date Range You can choose a date range for which you want to display the trend. The options for Date Range selection are as follows: • All (beginning from January 1, 1970 to the current day) • The selected date range • Today • Yesterday • Last 7 days • Last 30 Days • Last 90 Days • Current week • Current month • Current year to date • Last week • Last month • Last year The default is All. Utilization You can choose of the following: • CPU utilization • Memory utilization • Virtualization host CPU delay Upper Limit and Status Threshold Percentages You can choose one of the following: • Good • Fair • Warning • Bad
Tables or views used	KZE_POWERVM_VIRTUAL_SERVER KZE_X_HYP_VIRTUAL_SERVER
Output	This report presents a different kind of visualization for observing patterns in hourly processor or memory utilization. This chart is called a heat chart. In a heat chart, the x-axis shows the hours during the day and the y-axis shows the dates. For each virtual server, hourly averages for the metric are shown. This chart helps in identifying patterns, such as during which times of day the server gets busy. The chart is useful for determining maintenance schedules or observing whether the pattern of the virtual server matches the pattern of its target virtualization host during virtual server placement exercises. Different colors on the heat chart represent different percentage bands. You can modify the threshold values for these bands.

Workload right sizing and balancing: understand your environment

The reports in the workload right sizing and balancing report set are useful for determining the overall performance of the environment.

Use case: Which ensembles, virtualization hosts, or virtual servers consume the most or least resources (processor, memory)? For example, what are the top 10 servers by processor utilization, or bottom 10 virtual servers by memory utilization using less than 10% memory, or the top 10 workload resource groups by processor usage in GHz?

zEnterprise Top or Bottom Consumers Virtualization Host report

Table 24. zEnterprise Top or Bottom Consumers Virtualization Host report

Report structure	Description
Name	zEnterprise Top or Bottom Consumers Virtualization Host
Description	This report shows the virtualization hosts that consume the most, or least, resources in the environment by processor and memory.
Purpose	Show the virtualization host servers that consume the most, or least, resources (processor and memory).
Parameters	Ensemble You can choose one or more ensembles from a list of ensembles. Top or Bottom You can choose whether you want to see most utilized or least utilized resources. Display Number of Resources You can choose the number of host servers to be displayed, for example, the top ten or bottom five. Date Range You can choose a date range for which you want to display the trend. The options for Date Range selection are as follows: • All (beginning from January 1, 1970 to the current day) • The selected date range • Today • Yesterday • Last 7 days • Last 30 Days • Last 90 Days • Current week • Current month • Current year to date • Last week • Last month • Last year The default is All.
Tables or views used	KZE_POWERVM_VIRTUALIZATION_HOST KZE_X_HYP_VIRTUALIZATION_HOST
Output	The report shows bar charts that display the virtualization hosts that consume the most, or least, resources, as well as the amount they consume. One bar chart is shown for CPU utilization and another bar chart is shown for memory utilization by platform. You can click on a virtualization host and see the top or bottom virtual servers on the virtualization host. Alternatively you can also click to see the historical trend of that attribute of the selected virtualization host over time

zEnterprise Top or Bottom N Virtual Servers by Ensemble report

Table 25. zEnterprise Top or Bottom N Virtual Servers by Ensemble report

Report structure	Description
Name	zEnterprise Top or Bottom N Virtual Servers by Ensemble
Description	This report shows the top or bottom N virtual servers on the selected ensemble by processor or memory utilization or virtualization host CPU delay.
Purpose	Show the virtual servers that consume the most processor capacity or memory or virtualization host CPU delay.
Parameters	Ensemble You can choose either the highest or lowest ensemble from a list of ensembles. Highest or Lowest You can choose whether the charts display the top or bottom resources Number of Resources You can choose the number of virtual machines to be displayed, for example, the top ten. Date Range You can choose a date range for which you want to display the trend. The options for Date Range selection are as follows: • All (beginning from January 1, 1970 to the current day) • The selected date range • Today • Yesterday • Last 7 days • Last 30 Days • Last 90 Days • Current week • Current month • Current year to date • Last week • Last month • Last year The default is All.
Tables or views used	KZE_POWERVM_VIRTUAL_SERVER KZE_X_HYP_VIRTUAL_SERVER
Output	The report shows a bar chart that displays the virtual server that consume the most resources, as well as the amount they consume. By clicking a virtual server, you can see a historical trend of the virtual server over time.

zEnterprise Top or Bottom N Workload Resource Group by Workload Service Level Index report

Table 26. zEnterprise Top or Bottom N Workload Resource Group by Service Level Index report

Report structure	Description
Name	zEnterprise Top or Bottom N Workload Resource Group by Service Level Index
Description	This report shows the top or bottom N workload resource groups by Workload Service Level Index. The Workload Service Level Index reflects the highest business importance of the service class not meeting its goal.
Purpose	Show the workload resource groups not meeting its service class goals.

Table 26. zEnterprise Top or Bottom N Workload Resource Group by Service Level Index report (continued)

Report structure	Description
Parameters	Ensemble You can choose one or more ensembles from a list of ensembles. Worst or Best You can choose whether the worst performing or best performing set of workload resource groups to be displayed. Top/Bottom N You can choose the top or bottom set of workload resource groups to be displayed. Date Range You can choose a date range for which you want to display the trend. The options for Date Range selection are as follows: • All (beginning from January 1, 1970 to the current day) • The selected date range • Today • Yesterday • Last 7 days • Last 30 Days • Last 90 Days • Current week • Current month • Current year to date • Last week • Last month • Last year The default is All.
Tables or views used	KZE_WORKLOAD_RESOURCE_GROUP
Output	The report shows a table that displays the workload resource groups workload service level index. By clicking a workload resource group, you can see a historical trend of the workload resource group over time.

zEnterprise Top or Bottom N Workload Resource Group

Table 27. zEnterprise Top or Bottom N Workload Resource Group report

Report structure	Description
Name	zEnterprise Top or Bottom N Workload Resource Group
Description	This report shows the top or bottom N workload resource groups by processor or memory utilization or by virtualization host CPU delay.
Purpose	Shows the workload resource groups that consume the most processor capacity or memory or cause the most virtualization host CPU delay.

Table 27. zEnterprise Top or Bottom N Workload Resource Group report (continued)

Report structure	Description
Parameters	Ensemble You can choose one or more ensembles from a list of ensembles. Highest or Lowest You can choose whether the charts display the top or bottom resources Number of Resources You can choose the number of workload resource groups to be displayed, for example, the top ten. Date Range You can choose a date range for which you want to display the trend. The options for Date Range selection are as follows: • All (beginning from January 1, 1970 to the current day) • The selected date range • Today • Yesterday • Last 7 days • Last 30 Days • Last 90 Days • Current week • Current month • Current year to date • Last week • Last month • Last year The default is All.
Tables or views used	KZE_WORKLOAD_VIRTUAL_SERVER
Output	The report shows a bar chart that displays the workload resource groups whose virtual servers consume the most resources, as well as the amount they consume. By clicking a workload resource group, you can see a historical trend of the workload resource group over time.

zEnterprise Top or Bottom N Virtual Servers by Virtualization Host report

Table 28. zEnterprise Top or Bottom N Virtual Servers by Virtualization Host report

Report structure	Description
Name	zEnterprise Top or Bottom N Virtual Servers by Virtualization Host
Description	This report shows the top or bottom N virtual servers on one or more selected virtualization host by processor or memory utilization.
Purpose	Show the virtual servers that consume the most processor capacity or memory.

Table 28. zEnterprise Top or Bottom N Virtual Servers by Virtualization Host report (continued)

Report structure	Description
Parameters	Ensemble You can choose one or more ensembles from a list of ensembles. Virtualization Host You can choose one or more virtualization hosts from a list of virtualization hosts. Highest or Lowest You can choose whether the charts display the top or bottom resources Number of Resources You can choose the number of virtual machines to be displayed, for example, the top ten. Date Range You can choose a date range for which you want to display the trend. The options for Date Range selection are as follows: • All (beginning from January 1, 1970 to the current day) • The selected date range • Today • Yesterday • Last 7 days • Last 30 Days • Last 90 Days • Current week • Current month • Current year to date • Last week • Last month • Last year The default is All.
Tables or views used	KZE_POWERVM_VIRTUAL_SERVER KZE_X_HYP_VIRTUAL_SERVER
Output	The report shows a bar chart that displays the virtual servers that consume the most resources, as well as the amount they consume. By clicking a virtual server, you can see a historical trend of the virtual servers over time.

zEnterprise Top or Bottom N Virtual Servers by Workload Resource Group report

Table 29. zEnterprise Top or Bottom N Virtual Servers by Workload Resource Group report

Report structure	Description
Name	zEnterprise Top or Bottom N Virtual Servers by Workload Resource Group
Description	This report shows the top or bottom N virtual servers by processor, memory utilization, or virtualization host CPU delay in one or more workload resource groups.
Purpose	Show the virtual servers that consume the most processor capacity or memory or cause the most virtualization host CPU delay.

Table 29. zEnterprise Top or Bottom N Virtual Servers by Workload Resource Group report (continued)

Report structure	Description
Parameters	Ensemble You can choose one or more ensembles from a list of ensembles. Workload Resource Group You can choose one or more workload resource groups from a list of workload resource groups that belong to the selected ensemble. Highest or Lowest You can choose whether the charts display the top or bottom resources Number of Resources You can choose the number of virtual machines to be displayed, for example, the top ten. Date Range You can choose a date range for which you want to display the trend. The options for Date Range selection are as follows: • All (beginning from January 1, 1970 to the current day) • The selected date range • Today • Yesterday • Last 7 days • Last 30 Days • Last 90 Days • Current week • Current month • Current year to date • Last week • Last month • Last year The default is All.
Tables or views used	KZE_WORKLOAD_VIRTUAL_SERVER
Output	The report shows a bar chart that displays the virtual server that consume the most resources, as well as the amount they consume. By clicking a virtual server, you can see a historical trend of the virtual server over time.

Appendix D. Mapping workspaces to attribute tables

Use this mapping table to map between workspaces and attribute tables.

The Tivoli zEnterprise monitoring agent provides workspaces that are accessed from the Navigator and workspaces accessed from the link icon in workspace tables. Each of these workspaces displays tables that can be altered or replaced to meet your needs. Table 30 shows which attribute tables display in which workspaces as well as the table prefix. These tables are the source tables for the Tivoli Enterprise Portal.

Table 30. Mapping workspaces to attribute tables

Workspace	Attribute group	Table prefix
Agent Health	Agent Operations Log	OPLOG
	ECC Data Sources	KZEECCDS
	IBM Audit Log	KRAAUDIT
	Performance Object Status,	KZEPOBJST
CPC Details	Central Processor Complex	KZECPC
Ensemble Details	BladeCenter Extension	KZEZBX
	Central Processor Complex	KZECPC
	Ensemble	KZEENSEMBL
Ensemble Networks Summary	Ensembles	KZEENSEMBL
	Uplinks	KZEUPLINK
Ensembles Summary	BladeCenter Extension	KZEZBX
	Central Processor Complex	KZECPC
	Ensemble	KZEENSEMBL
	Topology	KZETOPO
Ensemble Workload Resource Groups Summary	Ensemble	KZEENSEMBL
	Workload Resource Group	KZEWKLOAD
PowerVM Virtual Server Details	PowerVM Virtual Server	KZEPVMVSV
PowerVM Virtualization Host Details	PowerVM Virtual Server	KZEPVMVSV
	PowerVM Virtualization Host	KZEPVMVH
PowerVM Virtualization Host Storage Resources	Storage Resources	KZEVHSTRSC
PR/SM Virtual Server Details	PRSM Virtual Server	KZEPSMVS
	Workload Virtual Server	KZEWKLVSV
Workload Resource Group Details	Performance Policy	KZEPERFPOL
	Service Class	KZESVCLASS
	Workload Resource Group	KZEWKLOAD
	Workload Virtual Server	KZEWKLVSV
Workload Resource Groups Summary	Ensemble	KZEENSEMBL
	Workload Resource Group	KZEWKLOAD
x Hyp Virtual Server Details	x Hyp Virtual Server	KZEXVMVSV

Table 30. Mapping workspaces to attribute tables (continued)

Workspace	Attribute group	Table prefix
x Hyp Virtualization Host Details	Uplink	KZAUPLINK
	x Hyp Virtual Server	KZEXVMVSV
	x Hyp Virtualization Host	KZEXVMVSH
x Hyp Virtualization Host Storage Resources	Storage Resources	KZEVHSTRSC
zBX Details workspace	Blade	KZEBLADE
	BladeCenter Extension	KZEZBX
z/VM Virtual Server Details	z/VM Virtual Server	KZEZVMVSV
	PR/SM Virtualization Host	KZEPSMVH
	Workload Virtual Server	KZEWKLVSV
z/VM Virtualization Host Details	z/VM Virtualization Host	KZEZVMVH
	z/VM Virtual Server	KZEZVMVSV
	Uplinks	KZEUPLINK
zEnterprise Agent Summary workspace	Performance Object Status	KZEPOBJST

Appendix E. Additional platform support information for the Virtual Network attribute group

The KZEVNET Virtual Network attribute group and attributes represents the characteristics and aggregated metrics of a virtual network in an ensemble.

Not all hardware platform such as application blades or optimizer blades, support the collection of all the metrics in the Virtual Network attribute group. The following matrix explains which data types are supported.

Table 31. Metrics supported per platform for the Virtual Network attribute group

Platform/IFC	Interval Bytes	Interval Rate	Total Bytes	Total Packets	Multicasts	Broadcasts	Discards	Drops
System X	Yes	Yes	Yes	Yes	No	No	Yes	Yes
System P ¹	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DP	Yes	Yes	Yes	Yes	No	No	Yes	Yes
z/OS® - Direct OSX	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
zVM - Direct OSX	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ZVM Guest using IEDN Vswitch ^{2 3}	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Linux on Z OSX ^{2 4}	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
iQDX (Hipersocket) ⁵	Yes	Yes	Yes	Yes	No	No	No	No

Notes®

1. Requires supplied GPMP software on the virtual guest.
2. Operating system allows trunk mode VLAN tagging on a single interface. Metrics from trunk mode interfaces may not be available per individual VLAN, but rather may be provided as a single set of metrics which cover all assigned VLANs. In the reported metrics, the VLAN associated with the metrics will be VLAN zero indicating the metrics are not for any one particular VLAN.
3. Requires zVM 6.2.
4. Metrics that are not VLAN-specific are reported in the unknown VLAN (VLAN 0).
5. iQDX microcode only reports total SENT bytes and packets. Other metrics and VLAN specific data are not available. A requirement to provide the missing data already exists against iQDX microcode.
6. IBM Smart Analytics Optimizer (ISAO) does not report metrics. The metrics for an ISAO blade center can be obtained from the associated TOR switch port (a field in the top-of-rack (TOR) metrics indicates whether the port leads to an ISAO blade center).
7. Metrics are from the viewpoint of the hypervisor. Therefore, the numbers show in this attribute table represent how many bytes, packets, etc were sent or received between the hypervisor and virtual server.

Documentation library

This appendix contains information about the publications related to IBM Tivoli Monitoring and to the commonly shared components of Tivoli Management Services.

These publications are listed in the following categories:

- IBM Tivoli Monitoring library
- Related publications

For information about accessing and using the publications, select **Using the publications** in the **Contents** pane of the IBM Tivoli Monitoring and OMEGAMON® XE Information Center at <http://pic.dhe.ibm.com/infocenter/tivihelp/v61r1/index.jsp>.

To find a list of new and changed publications, click **What's new** on the Welcome page of the IBM Tivoli Monitoring and OMEGAMON XE Information Center. To find publications from the previous version of a product, click **Previous versions** under the name of the product in the **Contents** pane.

IBM Tivoli Monitoring library

The following publications provide information about IBM Tivoli Monitoring and about the commonly shared components of Tivoli Management Services:

- *Quick Start Guide*
Introduces the components of IBM Tivoli Monitoring.
- *Installation and Setup Guide*, SC22-5445
Provides instructions for installing and configuring IBM Tivoli Monitoring components on Windows, Linux, and UNIX systems.
- *Program Directory for IBM Tivoli Management Services on z/OS*, GI11-4105
Gives instructions for the SMP/E installation of the Tivoli Management Services components on z/OS.
- *High Availability Guide for Distributed Systems*, SC22-5455
Gives instructions for several methods of ensuring the availability of the IBM Tivoli Monitoring components.
- *IBM Tivoli zEnterprise Monitoring Agent Installation and Configuration Guide*, SC14-7358
Provides instructions for installing and configuring Tivoli zEnterprise monitoring agent components on Windows, Linux, and UNIX systems. Also includes migration and backup information, Enterprise Common Collector troubleshooting, Hardware Management Console configuration, and use of the command line interface or APIs to customize the collector. This guide complements the *Tivoli zEnterprise Monitoring Agent User's Guide*.
- *Administrator's Guide*, SC22-5446
Describes the support tasks and functions required for the Tivoli Enterprise Portal Server and clients, including Tivoli Enterprise Portal user administration.
- *Command Reference*, SC22-5448
Provides detailed syntax and parameter information, as well as examples, for the commands you can use in IBM Tivoli Monitoring.
- *Messages*, SC22-5450
Lists and explains messages generated by all IBM Tivoli Monitoring components and by z/OS-based Tivoli Management Services components (such as Tivoli Enterprise Monitoring Server on z/OS and TMS:Engine).
- *Troubleshooting Guide*, GC22-5449

Provides information to help you troubleshoot problems with the software.

- Tivoli Enterprise Portal online help

Provides context-sensitive reference information about all features and customization options of the Tivoli Enterprise Portal. Also gives instructions for using and administering the Tivoli Enterprise Portal.

- *Tivoli Enterprise Portal User's Guide*, SC22-5447

Complements the Tivoli Enterprise Portal online help. The guide provides hands-on lessons and detailed instructions for all Tivoli Enterprise Portal features.

- *Agent Builder User's Guide*, SC32-1921

Explains how to use the Agent Builder for creating monitoring agents and their installation packages, and for adding functions to existing agents.

- *Performance Analyzer User's Guide*, SC27-4004

Explains how to use the Performance Analyzer to understand resource consumption trends, identify problems, resolve problems more quickly, and predict and avoid future problems.

- *IBM Tivoli zEnterprise Monitoring Agent User's Guide*, SC14-7359

Complements the Tivoli zEnterprise monitoring agent online help. The guide provides reference information about the interface, usage scenarios, agent troubleshooting information, and information about Tivoli Common Reporting reports. This guide complements the *Tivoli zEnterprise Monitoring Agent Installation and Configuration Guide*.

Documentation for the base agents

If you purchased IBM Tivoli Monitoring as a product, you received a set of base monitoring agents as part of the product. If you purchased a monitoring agent product (for example, an OMEGAMON XE product) that includes the commonly shared components of Tivoli Management Services, you did not receive the base agents.

The following publications provide information about using the base agents.

- Operating system agents:

- *Windows OS Agent User's Guide*, SC22-5451
- *UNIX OS Agent User's Guide*, SC22-5452
- *Linux OS Agent User's Guide*, SC22-5453
- *IBM i Agent User's Guide*, SC22-5454

- Agentless operating system monitors:

- *Agentless Monitoring for Windows Operating Systems User's Guide*, SC23-9765
- *Agentless Monitoring for AIX Operating Systems User's Guide*, SC23-9761
- *Agentless Monitoring for HP-UX Operating Systems User's Guide*, SC23-9763
- *Agentless Monitoring for Solaris Operating Systems User's Guide*, SC23-9764
- *Agentless Monitoring for Linux Operating Systems User's Guide*, SC23-9762

- Warehouse agents:

- *Warehouse Summarization and Pruning Agent User's Guide*, SC22-5457
- *Warehouse Proxy Agent User's Guide*, SC22-5456

- System P agents:

- *AIX Premium Agent User's Guide*, SA23-2237
- *CEC Base Agent User's Guide*, SC23-5239
- *HMC Base Agent User's Guide*, SA23-2239
- *VIOS Premium Agent User's Guide*, SA23-2238

- Other base agents:

- *Tivoli Log File Agent User's Guide*, SC14-7484

Related publications

For information about related products and publications select **OMEGAMON XE shared publications** or other entries in the **Contents** pane of the IBM Tivoli Monitoring and OMEGAMON XE Information Center at <http://pic.dhe.ibm.com/infocenter/tivihelp/v61r1/index.jsp>.

Other sources of documentation

You can also obtain technical documentation about IBM Tivoli Monitoring and related products from the following sources:

- Service Management Connect (SMC)

For introductory information about SMC, see IBM Service Management Connect (<http://www.ibm.com/developerworks/servicemanagement>).

For information about Tivoli products, see the Application Performance Management community on SMC at IBM Service Management Connect > Application Performance Management (<http://www.ibm.com/developerworks/servicemanagement/apm>).

Connect, learn, and share with Service Management professionals. Get access to developers and product support technical experts who provide their perspectives and expertise. Using SMC, you can:

- Become involved with transparent development, an ongoing, open engagement between external users and developers of Tivoli products where you can access early designs, sprint demos, product roadmaps, and pre-release code.
- Connect one-on-one with the experts to collaborate and network about Tivoli and Integrated Service Management.
- Benefit from the expertise and experience of others using blogs.
- Collaborate with the broader user community using wikis and forums.

- Tivoli wikis

IBM Service Management Connect > Application Performance Management (<http://www.ibm.com/developerworks/servicemanagement/apm>) includes a list of relevant Tivoli wikis that offer best practices and scenarios for using Tivoli products, white papers contributed by IBM employees, and content created by customers and business partners.

Two of these wikis are of particular relevance to IBM Tivoli Monitoring:

- The IBM Tivoli Monitoring Wiki (<https://www.ibm.com/developerworks/mydeveloperworks/wikis/home?lang=en#/wiki/Tivoli%20Monitoring/page/Home>) provides information about IBM Tivoli Monitoring and related distributed products, including IBM Tivoli Composite Application Management products.
- The Tivoli System z Monitoring and Application Management Wiki provides information about the OMEGAMON XE products, NetView[®] for z/OS, Tivoli Monitoring Agent for z/TPF, and other System z monitoring and application management products.

- IBM Integrated Service Management Library

<http://www.ibm.com/software/brandcatalog/ismlibrary/>

IBM Integrated Service Management Library is an online catalog that contains integration documentation and other downloadable product extensions.

- Redbooks[®]

<http://www.redbooks.ibm.com/>

IBM Redbooks and Redpapers include information about products from platform and solution perspectives.

- Technotes

Technotes provide the latest information about known product limitations and workarounds. You can find Technotes through the IBM Software Support Web site at <http://www.ibm.com/software/support/>.

Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides ways for you to obtain the support you need.

Online

The following sites contain troubleshooting information:

- Go to the IBM Support Portal (<http://www.ibm.com/support/entry/portal/software>) and follow the instructions.
- Go to IBM Service Management Connect > Application Performance Management (<http://www.ibm.com/developerworks/servicemanagement/apm>) and select the appropriate wiki.

IBM Support Assistant

The IBM Support Assistant (ISA) is a free local software serviceability workbench that helps you resolve questions and problems with IBM software products. The ISA provides quick access to support-related information and serviceability tools for problem determination. To install the ISA software, go to IBM Support Assistant (<http://www-01.ibm.com/software/support/isa>).

Troubleshooting Guide

For more information about resolving problems, see the product's Troubleshooting Guide.

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zEnterprise Monitoring Agent Glossary

A

accelerator. A special-purpose hardware component that can perform a limited set of specific functions; it optimizes performance of these functions when compared to a general-purpose processor. Because of its limited function set, an accelerator is an integrated part of a processing environment, rather than a stand-alone unit. For a zEnterprise system, this is referred to as an **optimizer**.

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

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

AMM. See **advanced management module**.

appliance. There are hardware appliances and software appliances. A hardware appliance is a relatively low-cost desktop computer that lacks the capabilities of a fully equipped workstation but is instead designed for either Internet access or specialized business use. A software appliance provides a narrow range of specialized functions and generally runs on a specific hardware platform.

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

application response measurement (ARM). An open standard published by the Open Group for monitoring and diagnosing performance bottlenecks within complex enterprise applications that follow loosely coupled designs or service-oriented architectures. It includes an API for C and Java that allows timing information associated with each step in a transaction to be logged for later analysis.

ARM-instrumented application. An application in which **application response measurement (ARM)** calls are added to the source code to enable the application's performance to be monitored by management systems. ARM is an Open Group standard.

Automate suite (Automate). The second of two functional suites associated with the **IBM zEnterprise Unified Resource Manager (URM)**; the first is the **Manage suite**. The Automate suite includes goal-oriented monitoring and management of resources and energy management. The Manage suite must be installed before installing the Automate suite.

B

blade. Hardware that provides application-specific services and components. The consistent size and shape (that is, **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

Capacity Back Up (CBU). A **System z** option that allows customers using a cross-site disaster recovery solution to order sufficient space on a backup site to install capacity required for disaster recovery but pay only for the minimum amount of capacity (CPs) required for normal processing. In case of disaster, they are allowed to temporarily increase the capacity on the backup site from normal capacity to maximum capacity without incurring additional cost.

capacity planning. The process of determining the hardware and software configuration required to accommodate the anticipated workload on a system.

CBU. See **Capacity Back Up**.

central processor complex (CPC). A physical collection of hardware that consists of main storage, one or more central processors, timers, and channels. In the **IBM zEnterprise System**, the CPC consists of a System z mainframe and any attached **IBM BladeCenter Extensions (zBX)**. See also **node** and **IBM System z**.

channel path identifier (CHPID). The channel subsystem communicates with I/O devices via a channel path between the channel subsystem and the devices it controls. A CHPID is a value assigned to each channel path within **System z** that uniquely identifies that path. Up to 256 CHPIDs are supported for each channel subsystem.

classification rule. A rule used by the System z **Workload Manager** to assign a **service class** to a **workload**.

D

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

E

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

ensemble member. A **zEnterprise node** that has been added to an **ensemble** using the **Hardware Management Console**. See also **node**.

ensemble membership. This **zEnterprise** feature ships the appropriate cabling for connectivity to the **intranode management network (INMN)**. This feature has a corequisite of two OSA-Express3 1000 base-T features for primary and backup connectivity. A port is defined as **CHPID** type OSM for connectivity to the INMN.

Enterprise Common Collector. A common data repository that extracts and stores data from the **Hardware Management Console** for use by a number of different components. The Enterprise Common Collector enables greater sharing of information currently available only to the limited set of users with access to the **Hardware Management Console** and also decreases the amount of traffic to and from the **Hardware Management Console**.

F

firmware. **Licensed Internal Code (LIC)** shipped with hardware. Typically marketing materials do not reference firmware or LIC. Note that the **Unified Resource Manager** is delivered as a part of the **firmware** of the **Hardware Management Console**.

G

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

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 CPC's Support Element (SE). Using the **Unified Resource Manager** on the HMCs/SEs, operations personnel can also create and manage an **ensemble**. See also **primary HMC** and **alternate HMC**.

HiperSockets™ network traffic analyzer (HSNTA). With the HSNTA, you can trace HiperSockets network traffic and help simplify problem isolation and resolution. Supported on **zEnterprise systems** and the IBM System z10®.

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 the Processor Resource/Systems Manager™ (PR/SM), z/VM, Kernel Virtual Machine (KVM), and PowerVM.

IBM blade. Any zEnterprise-supported **blade** that can be installed in a zBX Model 002 or subsequent.

IBM PowerVM. The family of technologies, capabilities, and offerings that deliver virtualization on IBM Power Systems™.

IBM Smart Analytics Optimizer. The IBM Smart Analytics Optimizer for DB2 for z/OS V1.1 is an **optimizer** that processes certain types of data warehouse queries. It is supported in the zBX, accelerates **System z** DB2 workloads, and is enabled and managed by the **Unified Resource Manager** as part of the **ensemble**. Also known as the *IBM DB2 Analytics Accelerator for z/OS*.

IBM System z. Umbrella family name used when referring to multiple product lines or the IBM mainframe class of products in general.

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 Facility for Linux (IFL). Allows **System z** users to run Linux in an LPAR or virtual machine without adding capacity that would increase license fees for other software such as z/OS or DB2. The Integrated Facility for Linux (IFL) is a central processor (CP) dedicated to Linux workloads that enables you to purchase additional processing capacity exclusively for Linux workloads, without affecting the MSU rating or the IBM zSeries® model designation. Thus, an IFL will not increase charges for zSeries software running on general-purpose (standard) System z processors.

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

IBM zEnterprise BladeCenter Extension (zBX). A heterogeneous hardware infrastructure that consists of a **BladeCenter** chassis attached to a zEnterprise server. Along with the System z central processors, blades, and **IBM Smart Analytics Optimizer** installed in the chassis, a zBX can be managed as a single, logical, virtualized system by the **Unified Resource Manager**.

IBM zEnterprise System (zEnterprise). A heterogeneous hardware infrastructure that can consist of a System z server and an attached zBX, managed as a single, logical, virtualized system by the **Unified Resource Manager**.

IBM zEnterprise Unified Resource Manager (Unified Resource Manager). The Unified Resource Manager is **Licensed Internal Code**, 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**. The Unified Resource Manager is an integrated **System z** management facility responsible for zEnterprise platform management.

Note: The Unified Resource Manager does not unify the management of System z with System p or System x nodes, nor does it unify the management of System z with IBM BladeCenter. It unifies the management of the components of zEnterprise, as well as multiple zEnterprise systems in a cluster (**ensemble**).

IEDN. See **intraensemble data network**.

IEDN TOR switch. See **intraensemble data network TOR switch**.

IFL. See **Integrated Facility for Linux**.

inbound workload queuing (IWQ). Creates multiple input queues and allows an OSA-Express3 feature to differentiate workloads “off the wire.” It then assigns each workload to a specific input queue (per device) to z/OS. For z/OS Sysplex Distributor and bulk data traffic. Applies to the zEnterprise server and the System z10.

INMN. See **intranode management network**.

Integrated Facility for Linux. See **IBM System z Integrated Facility for Linux**.

intraensemble data network (IEDN). A private 10-gigabit Ethernet network for application data communications within an **ensemble**. Data communications for workloads can flow over the IEDN within and between nodes of an ensemble. All of the physical and logical resources of the IEDN are configured, provisioned, and managed by the **Unified Resource Manager**.

intraensemble data network TOR switch (IEDN TOR switch). This 10-gigabit Ethernet (10 GbE) switch is available exclusively on the **zBX Model 002**. It provides connectivity to the **intraensemble data network (IEDN)** supporting application data within an **ensemble**. There are two 10 GbE switches available in the **zBX Model 002**.

intranode management network (INMN). A private 1000 base-T Ethernet network operating at 1 Gbps that is required for the **Unified Resource Manager** to manage the resources within a single **zEnterprise node**. The INMN connects the Support Element (SE) to the **zEnterprise** server and to any attached **zBX**.

inventory gatherer component. A component of the **Enterprise Common Collector** that retrieves and stores data from the **Hardware Management Console** in the Enterprise Common Collector. The inventory gather discovers both the physical and logical components of **zEnterprise** nodes and ensembles.

IT resource. May refer to a physical or virtual server, storage, or network hardware and components, for example a firewall, middleware software such as a database or individual components thereof, and application software that runs independently or that can be deployed within an execution container such as a Web application server. IT resources are typically represented as configuration items in a configuration management database such as CCMDB.

J

JavaScript Object Notation (JSON). JSON is a lightweight, text-based, open standard for human-readable data interchange. It is derived from the JavaScript programming language for representing simple data structures and objects. JSON is often used for serializing and transmitting structured data over a network connection. It is primarily used to transmit data between a server and a web application; as such, it is an alternative to **XML**.

JSON is a language-independent data format; code for parsing and generating JSON data is available for a large number of programming languages.

JSON. See **JavaScript Object Notation**.

L

Licensed Internal Code (LIC). LIC is microcode that performs low-level operating system functions such as basic input/output system code (called “BIOS”), utility programs, device drivers, diagnostics, and any other code delivered with an IBM machine for the purpose of enabling the machine's specified functions. LIC does not include programs and code provided under separate license agreements, such as code provided under open-source license agreements.

Linux on System x. Linux running on the Intel processors-based line of System X workstations and on the Intel x86-based line of **IBM blades** within an **IBM zEnterprise system**.

Linux on System z. Linux running on IBM's proprietary line of System z processors, either stand-alone or under a hypervisor like PR/SM or z/VM.

M

Manage suite (Manage). The first functional suite associated with the **Unified Resource Manager** (the second is the **Automate suite**). The Manage suite includes core operational controls, installation and configuration management, and energy monitoring.

management enablement level. **Unified Resource Manager** feature that determines the suite of hardware management functions and operational controls that are available for a **zEnterprise** server and any attached **zBX**. The features can be the **Manage suite** or the **Automate suite**.

management TOR switch (mgmt TOR switch). This top-of-rack 1000 base-T Ethernet switch operating at 1 Gbps is available in the **zBX** Model 001 and the Model 002. With the **zBX** Model 001, it provides a private network connection to the customer's z10™ Support Element (SE). Through this connection, all hardware management tasks for the **zBX** Model 001 are performed, such as physical inventory discovery, hardware operational controls, service updates, and repair and verify tasks. With the **zBX** Model 002, this switch again provides a private connection to the customer's **zEnterprise** SE for hardware management tasks, but it provides connectivity to the **ensemble's intranode management network** (INMN).

Hardware management functions available on the System z10 with a **zBX** Model 001 are also available on the **zEnterprise** server with the Model 002, but connectivity through the management TOR switch also provides additional management functions through the **Unified Resource Manager** across the INMN. The INMN does not exist on the **zBX** Model 001.

There are two 1000 base-T Ethernet switches (thus, two management TOR switches) per **zBX** Model 001 and **zBX** Model 002.

member. See **ensemble member**.

multi-platform processor. In **zEnterprise** systems, a multi-platform processor is a system made up of heterogeneous virtualized processors that work together as one infrastructure.

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.

node. A single **zEnterprise** server together with all its optional, attached **zBXes**. A node can be a member of only one **ensemble**.

O

optimizer. An optimizer is special-purpose hardware designed to accelerate or provide a specific function for all or part of a **workload**. One example of an optimizer is the **IBM Smart Analytics Optimizer** installed in the chassis of the **zBX**, an integrated part of the **IBM zEnterprise System**.

OSM. OSA-Express for **Unified Resource Manager**. Provides connectivity to the **intranode management network** (INMN) from **zEnterprise**-to-**Unified Resource Manager** functions. Uses OSA-Express3 1000 base-T Ethernet exclusively operating at 1 Gbps. OSM is a **CHPID** type.

OSX. OSA-Express for **zBX**. Provides connectivity and access control to the **intraensemble data network** (IEDN) from a **zEnterprise** server to one of its attached **zBXes**. Uses OSA-Express3 10 Gigabit Ethernet exclusively. OSX is a **CHPID** type.

P

performance goal. The desired level of service that Platform Performance Management will use to determine the amount of a particular resource to assign to a **workload**.

performance index. A number that indicates whether the **performance goal** for a **service class** was achieved, exceeded, or missed. This number represents the ratio of its actual achievement versus its goal for a given service class. Since this is a ratio, a performance index of 1.0 means the service class is exactly achieving its goal. Anything less than 1.0 indicates the service class is over-achieving, and anything over 1.0 indicates the service class is under-achieving.

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

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

Power® System Control Network (PSCN). The network within a **zEnterprise** server **node** that connects the Support Element to the hardware control elements. This network provides for communication to all field-replaceable units and hierarchic control through a mirrored system of control cards and IP addresses.

The power subsystems, as well as failure data collection and recovery subsystems, of the **System z server** are controlled through a fully redundant dual-Ethernet communications network. This network supports problem and error detection, and thus is essential for serviceability. The PSCN provides a means for subsystems to communicate and control the dynamic parameters of system operation. The PSCN also supports error reporting.

POWER7® blade. The general-purpose **blade** that can optionally be installed in a **zBX**.

PowerVM Enterprise Edition. Required for all POWER7 blades installed in the **zBX**. It is a set of comprehensive systems technologies and services designed to enable aggregation and management of resources through a consolidated, logical view. Not all functions of PowerVM are available when the **blade** is part of a **zEnterprise system**.

primary HMC. The **System z Hardware Management Console (HMC)** through which data-center 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 the ensemble. See also **Hardware Management Console** and **alternate HMC**.

PSCN. See **Power System Control Network**.

Q

query maximum potential power. Data-center personnel can monitor and create a limit or cap level to ensure the power usage is kept within that limit (instead of planning for the worst case). Part of the **Unified Resource Manager's Manage suite**.

R

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

Representational State Transfer (ReST). A software architectural style for distributed hypermedia systems such as the Worldwide Web. REST is a **client/server** architecture: **clients** initiate requests to **servers**; servers process requests and return appropriate responses. Requests and responses represent the transfer of resources. A resource is a source of information and as such can be essentially any coherent and meaningful concept that can be addressed. A representation of a resource is typically a document that captures the current or intended state of that resource in a particular format, for example **JSON** or **XML**.

Resources (sources of specific information) are referenced via a global identifier (such as a URI in **HTTP**). To manipulate these resources, clients and servers communicate using a standard interface like HTTP and exchange representations of these resources (the actual documents that pass the information).

An application that conforms to the REST architectural style is said to be **ReSTful**. A **ReST API** is a tool for building ReSTful applications.

response time. A **workload's** response time describes the duration for its constituent work requests after they enter the system until the application signals to the operating system and the relevant subsystems that the workload's execution has completed. Response times are typically measured on a request level. A workload is governed by a **service-level agreement** that defines the average or maximum response time that must be achieved to comply with the terms of that agreement.

ReST. See **Representational State Transfer**.

ReST API. An **Application Programming Interface** for building RESTful (**Representational State Transfer**) applications.

S

service. According to the Information Technology Infrastructure Library (ITIL) Version 3, a service is a means of delivering value to customers by facilitating outcomes customers want to achieve, but without the ownership of specific costs and risks.

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

service-level agreement (SLA). A contract between a customer and a service provider that specifies the expectations for the level of service with respect to availability, performance, and other measurable objectives.

SLA. See **service-level agreement**.

Smart Analytics Optimizer. See IBM Smart Analytics Optimizer.

static power save mode. An IBM zEnterprise system function used for periods of low utilization or potentially when a **Capacity Back Up** 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. Static power save mode is initiated by the customer using the **Hardware Management Console/SE**, the Active Energy Manager, or the z/OS Capacity Provisioning Manager.

System z. See IBM System Z.

T

top-of-rack (TOR) switch. A network switch located in the first rack of an IBM zEnterprise BladeCenter Extension (zBX). Also see **intraensemble data network (IEDN) TOR switch** and **management TOR switch**.

TOR switch. See **top-of-rack switch**. Also see **intraensemble data network 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 the 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**. Virtual appliances make it easier to deploy a solution with minimal configuration. Many tiers of operating systems 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 that conform 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 (not necessarily static) of **virtual servers** that support a **workload**. The constituents of the collection at any given point are determined by the virtual servers that are supporting the workload at that time. See also **virtual appliance** and **virtual server image**.

virtual server image. A package containing metadata that describes the system requirements, virtual disks, 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's 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 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 service policies that define performance, energy consumption, and availability goals. Also referred to as **workload**.

workload service level index. A high-level indication of how the workload resource group is performing with respect to its active performance policy. In general, the importance of a service class (lowest, low, medium, high, highest) is mapped to a workload service level index (informational, warning, minor, critical, fatal), and the workload service level index for the entire workload resource group is that of the most important service class that is not achieving its goal.

X

x Hyp blade. An Intel CPU-based **blade** installed in the **zEnterprise BladeCenter Extension (zBX)** Model 002 blade controller.

Z

z BladeCenter Extension. See **IBM zEnterprise BladeCenter Extension**.

zAAP. See **IBM System z Application Assist Processor**.

zBX. See **IBM zEnterprise BladeCenter Extension**. The name zBX applies to both the Model 001 and Model 002.

zCPC. An **IBM System z central processor complex**.

zEnterprise. See **IBM zEnterprise System**.

zEnterprise System. See **IBM zEnterprise System**.

zEnterprise Unified Resource Manager. See **IBM zEnterprise Unified Resource Manager**.

zEnterprise 196. See **IBM zEnterprise 196**.

zIIP. See **IBM System z Integrated Information Processor**.

zManager. See **IBM zEnterprise Unified Resource Manager**.

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