IBM Tivoli Monitoring: VIOS Premium Agent Version 6.2.2 Interim Feature 2

User's Guide (revised)



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IBM Tivoli Monitoring: VIOS Premium Agent Version 6.2.2 Interim Feature 2

# User's Guide (revised)



Note

Before using this information and the product it supports, read the information in "Notices" on page 355.

This edition applies to version 6.2.2 Interim Feature 2 of IBM Tivoli Monitoring: VIOS Premium Agent (product number 5724-C04) and to all subsequent releases and modifications until otherwise indicated in new editions.

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# Chapter 1. Overview of the agent

The IBM Tivoli Monitoring: VIOS Premium Agent (product code VA) provides you with the capability to monitor VIOS (Virtual I/O Server).

IBM<sup>®</sup> Tivoli<sup>®</sup> Monitoring is the base software for the VIOS Premium agent. The VIOS Premium agent monitors the availability and health of the VIOS resources.

# **IBM Tivoli Monitoring**

IBM Tivoli Monitoring provides a way to monitor the availability and performance of all the systems in your enterprise from one or several designated workstations. It also provides useful historical data that you can use to track trends and to troubleshoot system problems.

You can use IBM Tivoli Monitoring to achieve the following tasks:

- Monitor for alerts on the systems that you are managing by using predefined situations or custom situations.
- Establish your own performance thresholds.
- Trace the causes leading to an alert.
- Gather comprehensive data about system conditions.
- Use policies to take actions, schedule work, and automate manual tasks.

The Tivoli Enterprise Portal is the interface for IBM Tivoli Monitoring products. You can use the consolidated view of your environment as seen in the Tivoli Enterprise Portal to monitor and resolve performance issues throughout the enterprise.

See the IBM Tivoli Monitoring publications listed in "Prerequisite publications" on page 353 for complete information about IBM Tivoli Monitoring and the Tivoli Enterprise Portal.

# Functions of the monitoring agent

#### VIOS Availability and Health Resource Monitoring

The VIOS Premium agent monitors the availability and health of the VIOS resources: logical partition (LPAR) configurations, CPU, memory, storage, and networks. It also shows storage and network mappings between the VIOS Server and its clients.

# System p monitoring agents

The four System p<sup>®</sup> monitoring agents monitor the PowerVM<sup>®</sup> environment.

Figure 1 on page 2 shows the four System p monitoring agents in the PowerVM environment:

- AIX<sup>®</sup> Premium agent
- CEC Base agent
- HMC Base agent
- VIOS Premium agent

Each agent operates independently of each other and together, they provide a complete PowerVM monitoring offering.



Figure 1. System p agents

- The AIX Premium agent runs on an AIX LPAR and provides monitoring of the AIX system for that LPAR. Each AIX LPAR to be monitored must run a dedicated AIX Premium agent. This agent is available on the installation package for the System p agents.
- The CEC Base agent runs on a single AIX or VIOS LPAR and provides Central Electronics Complex (CEC) frame-level monitoring of CPU and memory resources by aggregating information retrieved from the XMTOPAS daemon for each AIX/VIOS LPAR. LPARs not running AIX /VIOS or XMTOPAS cannot be monitored and therefore, impact the ability of the agent to provide accurate information. This agent uses a secure shell (SSH) connection to the hardware management console (HMC) to issue HMC commands for discovering the LPARs on the CEC. The agent does not rely on the AIX Premium agent data; however, this agent provides summaries of some of the same LPAR-specific information. For environments that are not managed by using the HMC, this agent must be run on the VIOS for discovery to be accomplished by using the Integrated Virtualization Manger (IVM). This agent is pre-installed with the VIOS operating system and is in the installation package for the System p agents.
- The HMC Base agent runs on a single AIX LPAR and provides monitoring of the health and performance of the HMC. This multi-instance agent uses a unique agent instance for monitoring each HMC. This agent sends HMC commands over an SSH connection to retrieve information from the HMC. The agent collects Power<sup>®</sup> server, LPAR, and CPU Pool configuration data and monitors the CPU utilization of the Power servers, LPARs, and pools. The agent is available in the installation package for the System p agents.
- The VIOS Premium agent runs on the VIOS LPAR and provides monitoring the VIOS system, and the network and storage client mapping defined by the HMC. Each VIOS to be monitored must run a dedicated VIOS Premium agent. This agent uses an SSH connection to the HMC to issue HMC commands, and uses the VIOS command line for discovering network and storage mapping data. This agent is pre-installed with the VIOS system and is not included in the installation package for the System p agents.

# New in this release

The following enhancements to Tivoli Common Reporting for the System p monitoring agents were made.

- A new Prerequisite Scanner Report helps in troubleshooting reports.
- 14 new Cognos reports provide information about LPARs, CPU utilization, and trend and forecast for the Managed Server by using the HMC Base agent V 6.2.2.3. These reports include new what if analysis reports for the HMC Base agent.
- One new report for the CEC Base agent provides information about the balanced and unbalanced CECs in your System p environment, for example significant variation in CPU or memory utilization between the CECs. This information can be used to improve utilization in the environments.
- One new report for the VIOS Premium agent provides statistical information about the Physical Fibre Channel Adapters in your System p environment. The data model was updated to add the KVA\_FC\_STATS table.
- Fixes for the CEC Base agent and VIOS Premium agent reports and data model improve performance.
- Support is provided to run the reports against more summarization types: Weekly and Monthly.
- The version number for the reports package is in the report titles instead of the package name.
- The report names are prefixed with the agent name to help identify the reports easily.
- New attribute groups for the HMC Base agent were added to the data model.
- Raw data for VIOS Premium and AIX Premium agent attribute groups is exposed in the data model to allow custom reporting.
- Index scripts are provided to allow database administrators to update the indexes of tables or views that are used in reports. These scripts improve the performance of reports that are running.
- Tooltips provide descriptions of the data items in the data model when you hover over them in Query or Report Studio.

# **Components of the IBM Tivoli Monitoring environment**

After you install and set up the VIOS Premium 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<sup>™</sup> 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 Enterprise Monitoring Agent, VIOS Premium 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.

# Agent Management Services

You can use IBM Tivoli Monitoring Agent Management Services to manage the VIOS Premium 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 VIOS Premium 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*.

# 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 console

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.

# Chapter 2. Requirements and agent installation and configuration

Agent installation and configuration requires the use of the *IBM Tivoli Monitoring Installation and Setup Guide* and agent-specific installation and configuration information.

To install and configure IBM Tivoli Monitoring: VIOS Premium Agent, use the procedures for installing monitoring agents in the *IBM Tivoli Monitoring Installation and Setup Guide* along with the agent-specific installation and configuration information.

If you are installing silently by using a response file, see "Performing a silent installation of IBM Tivoli Monitoring" in the *IBM Tivoli Monitoring Installation and Setup Guide*.

# Requirements for the monitoring agent

In addition to the requirements described in the *IBM Tivoli Monitoring Installation and Setup Guide*, agents typically have agent-specific requirements.

The VIOS Premium agent has the following agent-specific requirements:

- The monitoring agent runs on any of these operating systems:
  - VIOS V2.2.1 releases or V2.2.2 releases
- The VIOS Premium Agent is preinstalled on a VIOS system and no installation is required.

The VIOS is a closed system and does not support the running of non-certified software. Currently, the only IBM Tivoli Monitoring agents that are certified to run on the VIOS are the VIOS Premium agent, IBM Tivoli Monitoring: CEC Base Agent, and the IBM Tivoli Monitoring: UNIX Logs Agent.

IBM Tivoli Monitoring remote operations are currently not supported for the VIOS Premium agent because IBM Tivoli Monitoring remote operations require the IBM Tivoli Monitoring: UNIX OS Agent to be running on that endpoint.

- A single computer that hosts the hub monitoring server, portal server, and a monitoring agent requires approximately 300 MB of space. A computer that hosts only the monitoring agent requires approximately 30 MB of space, including the specific enablement code for the monitoring agent. More space is required for each additional monitoring agent that you deploy on the monitoring computer.
- The monitoring agent must be connected to the following software:
  - IBM Tivoli Monitoring V6.2.2 or later

# Language pack installation

The steps for installing language packs depend on which operating system and mode of installation you are using.

To install a language pack for the agent support files on the Tivoli Enterprise Monitoring Server, the Tivoli Enterprise Monitoring Agent, and the Tivoli Enterprise Portal Server, make sure that you installed the product in the English language. Then use the steps for the operating system or mode of installation you are using:

- "Installing language packs on Windows systems" on page 8
- "Installing language packs on UNIX or Linux systems" on page 8
- "Silent installation of language packs on Windows, UNIX, or Linux systems" on page 9

# Installing language packs on Windows systems

You can install the language packs on a Windows system.

# Before you begin

First, make sure that you installed the product in the English language.

### Procedure

- 1. On the language pack CD, double-click the lpinstaller.bat file to start the installation program.
- 2. Select the language of the installer and click **OK**.
- 3. In the Introduction panel, click Next
- 4. Click Add/Update and click Next.
- 5. Select the folder where the National Language Support package (NLSPackage) files are located. Typically, the NLSPackage files are located in the nlspackage folder where the installer executable file is located.
- 6. Select the language support for the agent of your choice and click **Next**. To make multiple selections, press Ctrl and select the language that you want.
- 7. Select the languages that you want to install and click Next.
- 8. Examine the installation summary page and click Next to begin installation.
- 9. After installation completes, click Finish to exit the installer.
- **10**. Restart the Tivoli Enterprise Portal, Tivoli Enterprise Portal Server, and Eclipse Help Server if any of these components are installed.

# Installing language packs on UNIX or Linux systems

You can install the language packs on a UNIX or Linux system.

# Before you begin

First, make sure that you installed the product in the English language.

# Procedure

- 1. Enter the mkdir command to create a temporary directory on the computer, for example, mkdir *dir\_name*. Make sure that the full path of the directory does not contain any spaces.
- 2. Mount the language pack CD to the temporary directory that you created.
- 3. Enter the following command to start the installation program: cd *dir\_name* lpinstaller.sh -c *install\_dir* where *install\_dir* is where you installed IBM Tivoli Monitoring. Typically, the directory name is /opt/IBM/ITM for UNIX and Linux systems.
- 4. Select the language of the installer and click **OK**.
- 5. In the Introduction panel, click Next.
- 6. Click Add/Update and click Next.
- Select the folder where the National Language Support package (NLSPackage) files are located. Typically, the NLSPackage files are located in the nlspackage folder where the installer executable file is located.
- 8. Select the language support for the agent of your choice and click **Next**. To make multiple selections, press Ctrl and select the language that you want.
- 9. Select the languages that you want to install and click Next.
- 10. Examine the installation summary page and click **Next** to begin installation.
- 11. After installation completes, click **Finish** to exit the installer.

**12**. Restart the Tivoli Enterprise Portal, Tivoli Enterprise Portal Server, and Eclipse Help Server if any of these components are installed.

# Silent installation of language packs on Windows, UNIX, or Linux systems

You can use the silent-mode installation method to install the language packs. In silent mode, the installation process obtains the installation settings from a predefined response file. It does not prompt you for any information.

### Before you begin

First, make sure that you installed the product in the English language.

#### Procedure

- 1. Copy and paste the ITM\_Agent\_LP\_silent.rsp response file template as shown in "Response file example."
- 2. Change the following parameter settings:

#### NLS\_PACKAGE\_FOLDER

Folder where the National Language Support package (NLSPackage) files are located. Typically, the NLSPackage files are located in the nlspackage folder, for example: NLS\_PACKAGE\_FOLDER = //tmp//LP//nlspackage.

#### PROD\_SELECTION\_PKG

Name of the language pack to install. Several product components can be included in one language package. You might want to install only some of the available components in a language pack.

#### BASE\_AGENT\_FOUND\_PKG\_LIST

Agent for which you are installing language support. This value is usually the same as *PROD\_SELECTION\_PKG*.

#### LANG\_SELECTION\_LIST

Language you want to install.

- 3. Enter the command to install the language pack with a response file (silent installation):
  - For Windows systems:

lpinstaller.bat -f path\_to\_response\_file

For UNIX or Linux systems:
 lpinstaller.sh -c candle\_home -f path\_to\_response\_file

where *candle\_home* is the IBM Tivoli Monitoring base directory.

#### **Response file example**

```
# IBM Tivoli Monitoring Agent Language Pack Silent Installation Operation
#
#This is a sample response file for silent installation mode for the IBM Tivoli
#Monitoring Common Language Pack Installer.
#.
#This file uses the IBM Tivoli Monitoring Common Agent Language Pack with the
#install package as an example.
#Note:
#This response file is for the INSTALLATION of language packs only.
#This file does not support UNINSTALLATION of language packs in silent mode.
#-------
#To successfully complete a silent installation of the the example of Common Agent
#localization pack, complete the following steps:
```

#1.Copy ITM Agent LP silent.rsp to the directory where lpinstaller.bat or #lpinstaller.sh is located (IBM Tivoli Monitoring Agent Language Pack build #location). #2.Modify the response file so that it is customized correctly and completely for #your site. # Complete all of the following steps in the response file. #3.After customizing the response file, invoke the silent installation using the #following command: **#For Windows:** lpinstaller.bat -f <path to response file> #For UNIX and Linux: lpinstaller.sh -c <candle home> -f <path to response file> #Note:<candle home> is the IBM Tivoli Monitoring base directory. #\_\_\_\_\_ #\_\_\_\_\_ #Force silent install mode. #\_\_\_\_\_ INSTALLER UI=silent #\_\_\_\_\_ #Run add and update actions. #\_\_\_\_\_ CHOSEN INSTALL SET=ADDUPD SET #\_\_\_\_\_ #NLS Package Folder, where the NLS Packages exist. #For Windows: Use the backslash-backslash( $\backslash$ ) as a file separator (for example, #C:\\zosgmv\\LCD7-3583-01\\nlspackage). #For UNIX and Linux: # Use the slash-slash (//) as a file separator (for example, #//installtivoli//lpsilenttest//nlspackage). #\_\_\_\_\_ #NLS PACKAGE FOLDER=C:\\zosgmv\\LCD7-3583-01\\nlspackage NLS PACKAGE FOLDER=//tmp//LP//nlspackage #\_\_\_\_\_ #List the packages to process; both variables are required. #Each variable requires that full paths are specified. #Separate multiple entries with a semicolon (;). **#For Windows:** # Use the backslash-backslash(\\) as a file separator. **#For Unix and Linux:** # Use the slash-slash (//) as a file separator. #-----#PROD SELECTION PKG=C:\\zosgmv\\LCD7-3583-01\\nlspackage\\KIP NLS.nlspkg #BASE AGENT FOUND PKG LIST=C:\\zosgmv\\LCD7-3583-01\\nlspackage\\KIP NLS.nlspkg PROD SELECTION PKG=//tmp//LP//nlspackage//kex nls.nlspkg;//tmp//LP//nlspackage// koq nls.nlspkg BASE AGENT FOUND PKG LIST=//tmp//LP//nlspackage//kex nls.nlspkg;// tmp//LP//nlspackage//koq\_nls.nlspkg #-----#List the languages to process. #Separate multiple entries with semicolons. #\_\_\_\_\_ LANG SELECTION LIST=pt BR;fr;de;it;ja;ko;zh CN;es;zh TW

# Agent-specific installation and configuration

In addition to the installation and configuration information in the *IBM Tivoli Monitoring Installation and Setup Guide*, use this agent-specific installation and configuration information to install the VIOS Premium agent.

# Installation

The VIOS Premium agent is preinstalled during a VIOS system installation. If the latest VIOS is installed, no additional IBM Tivoli Monitoring installation is required. IBM Tivoli Monitoring agent updates are sometimes packaged with VIOS fix packs. If the latest VIOS fix pack is not installed, follow the instructions for updating the VIOS system with the latest Fix Pack(http://publib.boulder.ibm.com/infocenter/eserver/v1r3s/index.jsp?topic=/iphb1/iphb1\_vios\_managing\_updating.htm).

Download the latest VIOS system fix pack (http://www14.software.ibm.com/webapp/set2/sas/f/vios/ download/home.html).

# Setting up the HMC to allow remote command execution

The VIOS Premium agent must connect to the HMC using SSH to obtain VIOS mapping attributes.

# Procedure

From the HMC console, use the following steps to configure the HMC to allow SSH connections.

- 1. In the Navigation area, select HMC Management.
- 2. In the Navigation area, click **HMC Configuration**.
- 3. In the Contents area, click Enable/Disable Remote Command Execution.
- 4. When the window opens, select the box to enable SSH.

# What to do next

After the HMC is enabled to allow remote command execution, configure SSH between the logical partition running the IBM Tivoli Monitoring System p agent and the HMC. System p agents (HMC Base agent, VIOS Premium agent, and CEC Base agent) must communicate with the HMC to obtain certain attributes about LPARs, or the HMC itself, that are not directly available to the agents.

# Deleting SSH keys from the HMC

Although not generally required, you can delete SSH keys from the HMC from the agent computer or from the HMC computer.

# Procedure

Complete one of the following steps to delete SSH keys:

- From the agent computer (if SSH is configured), run the following command: \$ssh hmcuser@HMC "mkauthkeys --remove 'user@hostname'"
- From the HMC computer, log in to the HMC and run the following command:
   \$ mkauthkeys --remove 'user@hostname'

# Configuring the monitoring agent

To configure the monitoring agent, you must complete specific steps.

# About this task

Before you configure your monitoring agent, complete the following tasks:

- Ensure that one of the VIOS V2.2.1 releases or V2.2.2 releases is running.
- Verify that you know the correct user ID, password, and host name of the HMC and have established an SSH connection to the HMC.
- The VIOS agent must be configured and started under the padmin user ID.

• Verify that this LPAR has the Allow processor pool utilization authority or Allow performance information collection option checked in the Hardware Management Console (HMC), if you want to monitor the Available CPU Units in Pool attribute.

#### Procedure

To configure and start the monitoring agent, perform the following steps:

**Note:** This procedure can also be used to configure the IBM Tivoli Monitoring CEC Base agent that is installed on the VIOS. Replace the string ITM\_premiumwith ITM\_cec and repeat the configuration steps.

1. List all available monitoring agents by using the **lssvc** command. For example:

\$lssvc
ITM\_premium

- 2. Based on the output of the **lssvc** command, specify the monitoring agent that you want to configure (in this case, ITM\_premium).
- **3**. List all attributes that are associated with the monitoring agent using the **cfgsvc** command. For example:

\$cfgsvc -ls ITM\_premium
HOSTNAME
RESTART\_ON\_REBOOT
MANAGING SYSTEM

4. Configure the monitoring agent with its associated attributes by using the **cfgsvc** command: For example:

```
$cfgsvc ITM_agent_name -attr Restart_On_Reboot=value hostname=address1 mirror=address2
managing_system=address3
```

Where:

#### ITM\_agent\_name

Name of the monitoring agent. For example, ITM\_premium for the VIOS Premium agent.

- value Either TRUE or FALSE:
  - TRUE: ITM\_agent\_name restarts when the Virtual I/O Server restarts.
  - FALSE: ITM\_agent\_name does not restart whenever the Virtual I/O Server restarts.

#### address1

Either the host name or IP address of the Tivoli Enterprise Monitoring Server to which the agent sends data.

#### address2

Either the host name or IP address of the backup or secondary Tivoli Enterprise Monitoring Server to which the agent connects if the primary Tivoli Enterprise Monitoring Server is unavailable.

#### address3

Either the host name or IP address of the Hardware Management Console (HMC) attached to the managed system on which the Virtual I/O Server with the monitoring agent is located. In this field, **address** can be specified as HMCuser@HMChostname if the administrator wants to specify an HMC user ID other than hscroot on the HMC host. If the HMCuser ID is not specified, it is assumed to be hscroot.

**Note:** address3 can also be the host name or IP address of the IBM Flex System Manager (FSM), in which case **address3** can be specified as FSMuser@FSMhostname.

Examples:

 cfgsvc ITM\_premium -attr Restart\_On\_Reboot=TRUE hostname=tems\_server managing\_system=hmc\_console In this example, the ITM\_premium monitoring agent is configured to send data to tems\_server, and to restart whenever the Virtual I/O Server restarts.

cfgsvc ITM premium -attr Restart On Reboot=TRUE hostname=tems server managing system=hmcuser@hmc console

In this example the HMC user ID (hmcuser) is specified to be different from hscroot.

- 5. The **cfgsvc** command configures default values for IBM Tivoli Monitoring -specific values. Use the itmcmd command to configure nondefault Tivoli Monitoring configuration values (such as KDC\_FAMILIES):
  - a. Enter the AIX shell:

oem setup env

b. Run the itmcmd configcommand:

# /opt/IBM/ITM/bin/itmcmd config -A va.

- c. Respond to the prompts to set protocols for communicating to the Tivoli Enterprise Monitoring Server and the ports to use for communication methods as you do for any IBM Tivoli Monitoring agent not in a VIOS environment.
- 6. From the HMC, complete the following steps to enable the monitoring agent to gather information from the HMC. After you configure a secure shell connection for one monitoring agent, you do not need to configure it again for any additional agents.
  - a. Determine the name of the managed system on which the Virtual I/O Server with the monitoring agent is located. This server is the name of the CEC.
  - b. Obtain the public key for the Virtual I/O Server by running the following command:

```
viosvrcmd -m managed_system_name -p vios_name -c "cfgsvc
-key ITM agent name"
Where:
```

managed\_system\_name Name of the CEC to be monitored.

vios name

Name of the Virtual I/O Server logical partition (with the monitoring agent or client) as defined on the HMC.

#### ITM agent name

Name of the monitoring agent. For example, ITM\_premium.

c. Update the authorized key2 file on the HMC by running the **mkauthkeys** command:

mkauthkeys --add public key

Where: *public\_key* is the output from the **viosvrcmd** command.

For example:

```
$ viosvrcmd -m commo126041 -p VIOS7 -c "cfgsvc ITM premium -key"
ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAQEAvjDZsS0guWzfzfp9Bbwe\
G0QMXv1tbDrtyWsgPbA2ExHA+xduWA51K0oFGarK2FC7e7Nj\
KW+UmgQbrh/KSyKKwozjp4xWGNGhLmfan85ZpFR7wy9UQG1b\
LgXZxYrY7yyQQQODjvwosWAfzkjpG3iW/xmWD5PKLBmob2QkKJ\
bxjne+wqGwHTRYDGIiyhCBIdfFaLZgkXTZ2diZ98rL8LIv3qb+TsM1B\
28AL4t+10GGeW2421sB+8p4kamPJCYfKePHo67yP4NyKyPBFHY\
3TpTrca4/y1KEBT0Va3Pebr5JEIUvWYs6/RW+bUQk1Sb6eYbcRJFH\ hN513F+ofd0vj39zwQ==
root@vios7.vios.austin.ibm.com
$ mkauthkeys --add 'ssh-rsa AAAAB3NzaC1yc2EAAAABIwAAAQEAvjDZsS0guWzfzfp9Bbwe\
G00MXv1tbDrtyWsgPbA2ExHA+xduWA51K0oFGarK2FC\
7e7NjKW+UmgQbrh/KSyKKwozjp4xWGNGhLmfan85Zp\
FR7wy9UQG1bLgXZxYrY7yyQQQ0DjvwosWAfzkjpG\
3iW/xmWD5PKLBmob2QkKJbxjne+wqGwHTRYDGIiyh\
```

```
CBIdfFaLZgkXTZ2diZ98rL8LIv3gb+TsM1B28AL4t+10G\
```

```
GeW2421sB+8p4kamPJCYfKePHo67yP4NyKyPBFHY\
3TpTrca4/y1KEBT0Va3Pebr5JEIUvWYs6/RW+bUQk1\
Sb6eYbcRJFHhN513F+ofd0vj39zwQ==
root@vios7.vios.austin.ibm.com'
```

- 7. Start the monitoring agent by using the **startsvc** command. For example: \$startsvc ITM\_premium
- 8. See the following commands for more information:
  - cfgsvc (http://pic.dhe.ibm.com/infocenter/powersys/v3r1m5/topic/iphcg/cfgsvc.htm)
  - lssvc (http://pic.dhe.ibm.com/infocenter/powersys/v3r1m5/topic/iphcg/lssvc.htm)
  - startsvc (http://pic.dhe.ibm.com/infocenter/powersys/v3r1m5/topic/iphcg/startsvc.htm)
  - stopsvc (http://pic.dhe.ibm.com/infocenter/powersys/v3r1m5/topic/iphcg/stopsvc.htm)

# What to do next

When you are finished, you can view the data gathered by the monitoring agent from the Tivoli Enterprise Portal.

# Changing the encryption key values in a VIOS environment (optional)

You can set the encryption key values to a nondefault value for an agent on VIOS.

# Procedure

- 1. Enter the UNIX shell on the VIOS system:  $oem_setup_env$ .
- 2. Remove the current keyfiles directory from the installation location. For example:
  - # cd /opt/IBM/ITM
    # cd /opt/IBM/ITM
  - # rm -R keyfiles
- 3. Locate the installation script for System p agents that comes preinstalled on VIOS: find /usr/lpp -name install.sh.
- 4. Run the script. For example: # /usr/lpp/itm.premium/itm\_agent/install.sh. Running the script takes you through the installation process.
- 5. Accept the defaults until you see a prompt asking you for a 32-character encryption key: Enter a 32-character encryption key, or just press Enter to use the default Default = IBMTivoliMonitoringEncryptionKey ....+...1...+...2...+...3..
- 6. Enter the new value for the encryption key and press Enter.
- 7. Continue accepting the defaults until the installation script completes.

# **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 25.

# **Predefined workspaces**

The VIOS Premium agent provides predefined workspaces, which are organized by Navigator item.

- VIOS Premium Navigator item
  - Performance Object Status workspace
  - Resources Summary Graph workspace
  - System Inventory workspace
- Memory Navigator item
  - Memory Information workspace
- Networking Navigator item
  - Network Adapter Details workspace

- Network Adapter Utilization workspace
- Network Protocol Views workspace
- Networking Interfaces workspace
- Shared Ethernet workspace
- Shared Ethernet Adapter High Availability Details workspace
- Shared Ethernet Bridging Details workspace
- · Process Navigator item
  - Process Views workspace
- Security Navigator item
  - Security workspace
- Status Navigator item
  - Status workspace
- Storage Navigator item
  - Fibre Channel workspace
  - File Systems workspace
  - Logical Volume Details workspace
  - MPIO Storage Information workspace
  - Physical Storage Performance Details workspace
  - Physical Volume Details workspace
  - System Storage Information workspace
  - Virtual Storage Performance Details workspace
  - Volume Groups and Logical Volumes workspace
- System Navigator item
  - CPU Information workspace
  - CPU Utilization workspace
  - LPAR Information workspace
- Top Resources Navigator item
  - Top Resource Usage workspace
- User Navigator item
  - User Information workspace
- · Virtual IO Mappings Navigator item
  - Network Mappings workspace
  - NPIV Mappings workspace
  - Storage Mappings 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.

# **VIOS Premium Navigator item**

The workspace descriptions are organized by the Navigator item to which the workspaces are relevant. **Performance Object Status workspace** 

This table reflects the status of other attribute groups so you can see the status 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. The Performance Object Status attribute group is most often used to determine why data does not seem to be available for one of the other performance attribute groups.

This workspace contains the following view:

#### **Performance Object Status**

Shows a table of the attribute groups associated with the VIOS Premium Agent.

#### **Resources - Summary Graph workspace**

Shows graphs of CPU, memory, physical volume resources, and a table of network interfaces.

This workspace contains the following views: **CPU** Availability Shows a pie chart of overall CPU utilization. **Physical Volume Resources** Shows stacked bar charts of free and used space on physical volumes. **Real Memory Resources** Shows a stacked bar chart of free and used memory. Network Interface Resources Shows a table of network interfaces. System Inventory workspace This workspace contains a quick list of key system resources: CPU, real memory, physical volume, and network interfaces. This workspace contains the following views: **Logical Partition Attributes** Shows basic logical partition (LPAR) configuration settings. Logical Partition Units Shows CPU allocation and availability information. **Network Interface Resources** Shows a table of network interfaces. **Total Real Memory** Shows total memory along with the amount free and used memory. **Physical Volumes** Shows a table of physical volumes, their size, and associated volume group. Number of CPUs Shows the number of CPUs and the version of VIOS. Capabilities Shows whether IVM is enabled.

# **Memory Navigator item**

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

Real Memory, Paging Space Utilization, and Virtual Memory Manager (VMM) Paging rates.

This workspace contains the following views: **Real Memory Utilization** Shows a stacked bar chart of free and used memory. **Computational Memory** Shows a stacked bar chart of non-computational and computational memory. **VMM Paging Rates** Shows basic paging rates. **Page Fault Rates** Shows advanced paging rates. Paging Space Utilization

Shows a stacked bar chart of free and used paging space.

# **Networking Navigator item**

The workspace descriptions are organized by the Navigator item to which the workspaces are relevant. **Network Adapter Details workspace** 

This workspace displays throughput, errors, and totals for each network adapter.

This workspace contains the following views:

Network Adapter Throughput Rates

Shows detailed throughput information for each network adapter as a rate.

#### Network Adapter Error Rates

Shows detailed error information for each network adapter as a rate.

#### Network Adapters Throughput Totals

Shows detailed throughput information totals.

**Network Adapter Error Totals** 

Shows detailed error information totals.

#### Network Adapter Utilization workspace

This workspace displays utilization and errors per network adapter.

This workspace contains the following views:

#### Adapter Throughput

Shows summary per adapter throughput information.

#### **Bandwidth Utilization**

Shows the network bandwidth utilization of each network interface.

#### **Network Error Rate**

Shows summary per adapter error rate information.

#### Utilization per Adapter

Shows summary utilization totals per adapter.

#### Network Protocol Views workspace

This workspace displays views of IP, TCP, and per IP interface utilization metrics

This workspace contains the following views:

#### **IP Packet Statistics**

Shows rates of IP traffic.

#### IP Throughput per Adapter

Shows the rate at which the IP packets were transmitted and received per interface.

#### **TCP** Throughput

Shows the rate at which the TCP packets were transmitted and received per interface.

#### Networking Interfaces workspace

This workspace has views that show Network Interfaces Status (name, IP addr, and so on) and Network Quality of Service attributes.

This workspace contains the following views:

#### **Network Interfaces Status**

Shows a table of network interfaces.

#### Network Quality of Service

Shows a variety of metrics associated with network quality of service.

#### Common TCP/IP Problems with Network Interfaces

Shows an explanation of how to diagnose and correct common TCP/IP problems with network interfaces.

#### Shared Ethernet workspace

This workspace has views that show utilization per adapter, and VLAN and errors per Shared Ethernet Adapter (SEA).

This workspace contains the following views:

#### Adapter Throughput

Shows summary per shared ethernet adapter throughput information.

Adapter Error Rate

Shows summary per shared ethernet adapter error rate information.

#### Utilization per Shared Ethernet Adapter

Shows summary utilization totals per shared ethernet adapter.

Utilization per VLAN

Shows network utilization metrics per VLAN.

Shared Ethernet Adapter High Availability Details workspace

This workspace displays high availability rates and totals for each shared ethernet adapter.

This workspace contains the following views:

Shared Ethernet Adapter High Availability Rates

Shows high availability rates per shared ethernet adapter.

#### Shared Ethernet Adapters High Availability Totals

Shows high availability totals per shared ethernet adapter.

Shared Ethernet Bridging Details workspace

This workspace displays bridging throughput and error metrics for each shared ethernet adapter.

This workspace contains the following views:

Shared Ethernet Adapter Bridging Rates

Shows detailed bridging rates per shared ethernet adapter.

Shared Ethernet Adapter Bridging Error Rates Shows detailed bridging error rates per shared ethernet adapter. Shared Ethernet Adapters Bridging Totals

Shows detailed bridging totals per shared ethernet adapter.

Shared Ethernet Adapter Bridging Error Totals

Shows detailed bridging error totals per shared ethernet adapter.

# **Process Navigator item**

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

This workspace displays global and per process views

This workspace contains the following views:

#### **Queue Averages**

Shows run queue and swap queue average sizes.

#### Kernel Processes

Shows rate of kernel processes being created and exiting.

#### Utilization

Shows total system number of processes, load average utilization average, and context switches per second.

#### **Per Process Information**

Shows a list of all processes on the system, their attributes, and their resource consumption.

# Security Navigator item

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

This workspace displays security states and firewall metrics.

This workspace contains the following views:

#### **Security Settings**

Shows current security settings such as authentication method and whether firewalling is enabled.

#### **Firewall Rules**

Shows current firewalling rules.

# **Status Navigator item**

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

This workspace has views that show the availability of network and storage devices and as a list of devices and their type, class, parent name, and status.

This workspace contains the following views:

#### Available Devices

Shows the network and storage devices that are currently available along with their parent names, device type, class, and status.

#### **Device Status**

Shows the status of devices associated with an LPAR, including their parent names, device type, and class.

# Storage Navigator item

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

This workspace displays Fibre Channel adapter statistics.

This workspace contains the following views:

Fibre Channel Adapter Statistics

Shows Fibre Channel Adapter Statistics.

Fibre Channel Traffic Statistics

Shows Fibre Channel Traffic Statistics information.

#### Link Error Status Block Counters

Shows Fibre Channel Adapter Link Error Status Block Counters.

#### File Systems workspace

This workspace shows file system sizes in table and graph forms.

This workspace contains the following views:

#### **File System Metrics**

Shows file systems, their mount points, associated volume groups, and usage statistics. File System Utilization

Shows a stacked bar chart of free and used space for each file system.

#### Logical Volume Details workspace

This workspace displays detailed information about logical volumes including their size, type, mount point, and associated volume group.

This workspace contains the following views:

#### Logical Volume Sizes

Shows a bar chart of the sizes of each logical volume.

#### Logical Volume Details

Shows details for each logical volume including associated volume group and current state.

#### MPIO Storage Information workspace

This workspace has views that show the Multi-Path I/O (MPIO) Attributes, Connection Status, and Storage Devices Utilization on the current LPAR.

This workspace contains the following views:

#### **MPIO** Attributes

Shows the attributes, values, and descriptions of each storage device. It also indicates whether an attribute can be set by the user.

#### **MPIO Connection Status**

Shows a list of storage devices, the parent name of each device, the device path status, the device operational status, and the connection ID of the storage device listed.

#### **Storage Devices Utilization**

Shows key utilization metrics for each storage device associated with the LPAR.

#### Physical Storage Performance Details workspace

This workspace displays metrics for physical adapters and physical disks including errors, throughput, and totals.

This workspace contains the following views:

#### Physical Disk Throughput

Shows detailed metrics measuring the utilization of each physical disk.

#### Physical Adapter Throughput

Shows summary metrics for each physical adapter.

#### Physical Disk Queue Metrics

Shows detailed queuing metrics for each physical disk.

### Physical Disk Error Rates

Shows detailed error metrics for each physical disk.

#### Physical Volume Details workspace

This workspace shows physical volume size and metrics.

This workspace contains the following views:

#### Physical Volume Sizes

Shows the used and available space as a stacked bar graph for each physical volume.

#### Physical Volume Metrics

Shows the number of logical volumes and stale partitions.

#### **Physical Volume Details**

Shows details of each physical volume including associated volume groups, size, and allocation details.

#### System Storage Information workspace

This workspace shows performance metrics for each active disk and adapter.

This workspace contains the following views:

#### **Disk and Adapter Details**

Shows all disks and adapters, their types, and summary statistics.

#### Disk and Adapter Transfer Rates

Shows transferred KB per second for each disk and adapter.

#### Disk and Adapter I/O Rates

Shows read and write KB per second for each disk and adapter.

#### Disk and Adapter Timeout Rates

Shows read and write timeouts per second for each disk and adapter.

#### Virtual Storage Performance Details workspace

This workspace displays metrics for virtual adapters and virtual disks including errors, throughput, and totals.

This workspace contains the following views:

#### Virtual Adapter and Virtual Disk Throughput

Shows detailed metrics measuring the utilization of each virtual disk and virtual adapter.

#### Virtual Adapter and Virtual Disk Summary

Shows summary metrics for each virtual adapter and virtual disk.

#### Virtual Adapter and Virtual Disk Queue Metrics

Shows detailed queuing metrics for each virtual disk and virtual adapter.

#### Virtual Adapter and Virtual Disk Error Rates

Shows detailed error metrics for each physical disk.

#### Volume Groups and Logical Volumes workspace

This workspace displays sizes and other properties of Volume Groups and Logical Volumes.

#### This workspace contains the following views:

#### Volume Group Sizes

Shows the used and free space as a stacked bar graph for each volume group.

#### Volume Group Details

Shows detailed information about each volume group, including allocated physical and logical volumes.

#### Volume Group Allocations

Shows the number of active physical volumes and stale physical volumes as a stacked bar graph per volume group.

Logical Volume Sizes

Shows the size of each logical volume.

#### Logical Volume Mappings

Shows the association between logical volumes and volume groups.

# System Navigator item

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

This workspace shows summary and per processor CPU utilization.

This workspace contains the following views:

**CPU Utilization per Processor** 

Shows a pie chart of utilization per CPU.

CPU Availability

Shows a pie chart of overall CPU utilization.

CPU Details per Processor

Shows detailed information on the workload of each CPU.

#### CPU Utilization workspace

This workspace shows a real-time graph of CPU utilization and CPU utilization per processor.

This workspace contains the following views:

#### **Total CPU Utilization**

Shows a real-time graph of overall CPU utilization.

#### **Processor Frequency Information**

Shows the fractional number of physical processors that are used in each mode. Actual metrics use PURR counters, normalized metrics use SPURR counters.

#### CPU Utilization per Processor

Shows a pie chart of utilization per CPU.

#### LPAR Information workspace

This workspace shows LPAR CPU utilization, number of CPUs, entitlement, and LPAR attributes.

This workspace contains the following views:

#### CPU Entitlement

Shows the entitlement of the LPAR in the context of the number of CPUs for the host.

#### LPAR CPUs

Shows allocation of physical and logical CPUs in a shared pool.

#### LPAR Attributes

Shows LPAR metrics that are determined by configuration.

#### LPAR Utilization

Shows LPAR metrics that change frequently and dynamically.

#### Active Memory Sharing (AMS) Pool

Shows the Active Memory Sharing (AMS) attributes specific to the LPAR and the shared memory pool.

#### LPAR CPU Utilization

Shows a pie chart of overall CPU utilization.

# **Top Resources Navigator item**

The workspace descriptions are organized by the Navigator item to which the workspaces are relevant. **Top Resource Usage workspace** 

This workspace shows file system sizes and top CPU and memory utilization by process.

This workspace contains the following views:

#### **Top Memory Processes**

Shows the highest memory consuming processes listed in descending order by memory usage.

**File System Metrics** 

Shows file systems, their mount points, associated volume groups, and usage statistics. **File System Sizes** 

Shows pie charts of free and used space for file systems.

Top CPU Processes

Shows the highest CPU consuming processes listed in descending order by CPU usage.

### **User Navigator item**

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

This workspace displays information about both defined users and currently active users.

This workspace contains the following views:

**Defined Users** 

Shows a list of all users defined in /etc/passwd.

Active Users

Shows a list of all users that are currently logged in with details about each session.

# Virtual IO Mappings Navigator item

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

This workspace shows network interfaces and virtual LAN details.

This workspace contains the following views:

#### Network Mappings

Shows the association among VLAN IDs, client partitions, and other attributes.

#### Network Mappings Details

Shows the association among VLAN IDs, client partitions, and other detailed attributes. **Network Interfaces** 

Shows a table of network interfaces.

#### NPIV Mappings workspace

This workspace provides a fibre channel (FC) facility for sharing a single physical N\_Port FC adapter among multiple N\_Port IDs. This Workspace lists VIOS FC adapter information and gives mappings between VIOS Virtual Fibre Channel Adapter(s) and the dedicated Fibre Channel port IDs on client partitions.

This workspace contains the following views:

#### **NPIV Mappings view**

Provides mapping between VIOS Fibre Channel Adapter(s) and the dedicated Fibre Channel port IDs on client partitions.

#### NPIV Fibre Channel Port view

Lists the physical Fibre Channel adapter ports, their location codes and number of ports.

#### Storage Mappings workspace

This workspace gives the storage mappings and all relevant information about disk usage and utilization. NOTE: Client mapping data will be missing if the Virtual Adapter has been setup to serve 'Any Partition'. VIO backing devices must be setup (through HMC) to match remote client backing devices for the VIOS to gather the proper client data.

This workspace contains the following views:

#### Storage Mappings

Shows the utilization and association between physical disks and volumes, and the association between virtual disks and client partitions.

#### Disk Usage

Shows free and used disk space for each physical disk as pie charts.

#### **Storage Mappings Details**

Shows details about the association between physical disks and volumes, and the association between virtual disks and client partitions.

# **Chapter 4. Attributes reference**

Attributes are the application properties that are being measured and reported by the IBM Tivoli Monitoring: VIOS Premium 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 VIOS Premium 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 28.

# Attribute groups for the monitoring agent

The VIOS Premium 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: Active Users
  - Table name: KVA50ACTIV
  - Warehouse table name: KVA\_ACTIVE\_USERS or KVA50ACTIV
- Attribute group name: AMS Pool
  - Table name: KVA53MPOOL
  - Warehouse table name: KVA\_AMS\_POOL or KVA53MPOOL
- Attribute group name: Capabilities
  - Table name: KVA08CAPAB
  - Warehouse table name: KVA\_CAPABILITIES or KVA08CAPAB
- Attribute group name: CPU Detail

- Table name: KVA17CPUDE
- Warehouse table name: KVA\_CPU\_DETAIL or KVA17CPUDE
- Attribute group name: CPU Summary
  - Table name: KVA16CPUSU
  - Warehouse table name: KVA\_CPU\_SUMMARY or KVA16CPUSU
- Attribute group name: Defined Users
  - Table name: KVA49DEFIN
  - Warehouse table name: KVA\_DEFINED\_USERS or KVA49DEFIN
- Attribute group name: Devices
  - Table name: KVA51DEVIC
  - Warehouse table name: KVA\_DEVICES or KVA51DEVIC
- Attribute group name: Disks
  - Table name: KVA34DISKS
  - Warehouse table name: KVA\_DISKS or KVA34DISKS
- Attribute group name: FC Stats
  - Table name: KVAFC\_STAT
  - Warehouse table name: KVA\_FC\_STATS or KVAFC\_STAT
- Attribute group name: File Systems
  - Table name: KVA38FILES
  - Warehouse table name: KVA\_FILE\_SYSTEMS or KVA38FILES
- Attribute group name: Firewall
  - Table name: KVA06FIREW
  - Warehouse table name: KVA\_FIREWALL or KVA06FIREW
- Attribute group name: Internet Protocol Detail
  - Table name: KVA44INTER
  - Warehouse table name: KVA\_INTERNET\_PROTOCOL\_DETAIL or KVA44INTER
- Attribute group name: Internet Protocol Summary
  - Table name: KVA43INTER
  - Warehouse table name: KVA\_INTERNET\_PROTOCOL\_SUMMARY or KVA43INTER
- Attribute group name: Logical Partition
  - Table name: KVA22LOGIC
  - Warehouse table name: KVA\_LOGICAL\_PARTITION or KVA22LOGIC
- Attribute group name: Logical Volumes
  - Table name: KVA37LOGIC
  - Warehouse table name: KVA\_LOGICAL\_VOLUMES or KVA37LOGIC
- Attribute group name: MPIO Attributes
  - Table name: KVA52MPIOA
  - Warehouse table name: KVA\_MPIO\_ATTRIBUTES or KVA52MPIOA
- Attribute group name: MPIO Status
  - Table name: KVA51MPIOS
  - Warehouse table name: KVA\_MPIO\_STATUS or KVA51MPIOS
- Attribute group name: Network Adapters Rates
  - Table name: KVA42NETWO
  - Warehouse table name: KVA\_NETWORK\_ADAPTERS\_RATES or KVA42NETWO
- · Attribute group name: Network Adapters Totals

- Table name: KVA41NETWO
- Warehouse table name: KVA\_NETWORK\_ADAPTERS\_TOTALS or KVA41NETWO
- Attribute group name: Network Interfaces
  - Table name: KVA40NETWO
  - Warehouse table name: KVA\_NETWORK\_INTERFACES or KVA40NETWO
- Attribute group name: Network Mappings
  - Table name: KVA03NETWO
  - Warehouse table name: KVA\_NETWORK\_MAPPINGS or KVA03NETWO
- Attribute group name: NIM Resources
  - Table name: KVA24NIMRE
  - Warehouse table name: KVA\_NIM\_RESOURCES or KVA24NIMRE
- Attribute group name: NPIV FCP
  - Table name: KVA56NPIVF
  - Warehouse table name: KVA\_NPIV\_FCP or KVA56NPIVF
- Attribute group name: NPIV Mappings
  - Table name: KVA55NPIVM
  - Warehouse table name: KVA\_NPIV\_MAPPINGS or KVA55NPIVM
- Attribute group name: Paging Space
  - Table name: KVA21PAGIN
  - Warehouse table name: KVA\_PAGING\_SPACE or KVA21PAGIN
- Attribute group name: Performance Object Status
  - Table name: KVAPOBJST
  - Warehouse table name: KVA\_PERFORMANCE\_OBJECT\_STATUS or KVAPOBJST
- Attribute group name: Physical Memory
  - Table name: KVA27PHYSI
  - Warehouse table name: KVA\_PHYSICAL\_MEMORY or KVA27PHYSI
- Attribute group name: Physical Volumes
  - Table name: KVA35PHYSI
  - Warehouse table name: KVA\_PHYSICAL\_VOLUMES or KVA35PHYSI
- Attribute group name: Processes Detail
  - Table name: KVA32PROCE
  - Warehouse table name: KVA\_PROCESSES\_DETAIL or KVA32PROCE
- Attribute group name: Processes Summary
  - Table name: KVA31PROCE
  - Warehouse table name: KVA\_PROCESSES\_SUMMARY or KVA31PROCE
- Attribute group name: Quality Of Service
  - Table name: KVA54QOS
  - Warehouse table name: KVA\_QUALITY\_OF\_SERVICE or KVA54QOS
- Attribute group name: Security States
  - Table name: KVA05SECUR
  - Warehouse table name: KVA\_SECURITY\_STATES or KVA05SECUR
- Attribute group name: Shared Ethernet Adapter
  - Table name: KVA53SEA
  - Warehouse table name: KVA\_SHARED\_ETHERNET\_ADAPTER or KVA53SEA
- Attribute group name: Storage Mappings

- Table name: KVA02STORA
- Warehouse table name: KVA\_STORAGE\_MAPPINGS or KVA02STORA
- Attribute group name: System Call
  - Table name: KVA20SYSTE
  - Warehouse table name: KVA\_SYSTEM\_CALL or KVA20SYSTE
- Attribute group name: System IO
  - Table name: KVA19SYSTE
  - Warehouse table name: KVA\_SYSTEM\_IO or KVA19SYSTE
- Attribute group name: TADDM
  - Table name: KVA56TADDM
  - Warehouse table name: KVA\_TADDM or KVA56TADDM
- Attribute group name: TCP
  - Table name: KVA45TCP
  - Warehouse table name: KVA\_TCP or KVA45TCP
- Attribute group name: Top 50 CPU Processes
  - Table name: KVA10TOP50
  - Warehouse table name: KVA\_TOP\_50\_CPU\_PROCESSES or KVA10TOP50
- Attribute group name: Top 50 Memory Processes
  - Table name: KVA11TOP50
  - Warehouse table name: KVA\_TOP\_50\_MEMORY\_PROCESSES or KVA11TOP50
- Attribute group name: Virtual Memory Management
  - Table name: KVA28VIRTU
  - Warehouse table name: KVA\_VIRTUAL\_MEMORY\_MANAGEMENT or KVA28VIRTU
- Attribute group name: Volume Groups
  - Table name: KVA36VOLUM
  - Warehouse table name: KVA\_VOLUME\_GROUPS or KVA36VOLUM
- Attribute group name: Workload Manager
  - Table name: KVA23WORKL
  - Warehouse table name: KVA\_WORKLOAD\_MANAGER or KVA23WORKL

# Attributes in each attribute group

Attributes in each VIOS Premium 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.

# Active Users attribute group

This attribute group contains information about the users active on this system.

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 Active Users attribute group: **Node attribute: This attribute is a key attribute.** 

Description The

Туре

String

Source

The source for this attribute is the agent.

The managed system name of the agent.

Warehouse name

NODE

# Timestamp attribute

Description

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

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

# <u>User Name attribute</u>: This attribute is a key attribute.

# Description

The logon user name.

Type

String

Source

The source for this attribute is Script data.

Warehouse name

USER\_NAME

# tty attribute

Description

The name of the TTY the user is on.

# Туре

String

Source

The source for this attribute is Script data.

#### Warehouse name TTY

Login Date Time attribute

Description

The time of day when the user logged on.

# Туре

String

Source

The source for this attribute is Script data.

# Warehouse name

LOGIN\_DATE\_TIME or LDT

## Hostname attribute

# Description

The name of the computer that the user is logged in from.

Type String

Source

The source for this attribute is Script data.

#### Warehouse name

HOSTNAME

# Idle Time attribute

Description

The number of minutes since a program last attempted to read from the terminal.

Type String

Source

The source for this attribute is Script data.

Warehouse name

IDLE\_TIME

## JCPU attribute

#### Description

The system unit time used by all processes and their children on that terminal.

# Туре

String

Source

The source for this attribute is Script data.

Warehouse name

JCPU

# **PCPU** attribute

Description

The system unit time used by the currently active process.

Type

String

Source

The source for this attribute is Script data.

# Warehouse name

PCPU

# Current Process attribute

Description

The name and arguments of the current process.

## Туре

String

Source

The source for this attribute is Script data.

Warehouse name

CURRENT\_PROCESS or CP

# AMS Pool attribute group

This attribute group contains information about the Active Memory Sharing (AMS) pool. **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 AMS Pool attribute group: **Node attribute: This attribute is a key attribute.** 

Description

The managed system name of the agent.

Type

String

Source \_\_\_\_

The source for this attribute is the agent.

# Warehouse name

NODE

# Timestamp attribute

Description

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

# Туре

String

Source

The source for this attribute is the agent.

# Warehouse name

TIMESTAMP

## AMS Mode attribute

#### Description

Indicates whether the LPAR is in AMS shared or dedicated mode.

## 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)
- Dedicated (0)
- Shared (1)

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

# Warehouse name

AMS\_MODE

## AMS Pool ID attribute: This attribute is a key attribute.

#### Description

The pool ID associated with the LPAR. All LPARs in AMS mode will have a pool ID of 0 until multiple pools are supported.

## 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

AMS\_POOL\_ID or API

## AMS Pool Size attribute

## Description

AMS Memory pool size in GB.

#### 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:

• Not Collected (-100)

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

## Warehouse name

AMS\_POOL\_SIZE or APS

# AMS Physical Mem attribute

## Description

Physical memory supporting AMS logical memory for the partition.

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

AMS\_PHYSICAL\_MEM or APM

## AMS Mem Loaned attribute

Description

AMS logical memory loaned to the hypervisor.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

AMS\_MEM\_LOANED or AML

## AMS Memory Entitlement attribute

## Description

AMS memory entitlement of the partition (MB).

## Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

AMS\_MEMORY\_ENTITLEMENT or AME

## AMS Memory Ent Inuse attribute

# Description

AMS memory entitlement of the partition in use (MB).

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

AMS\_MEMORY\_ENT\_INUSE or AMEI

## Hypervisor Page Ins attribute

# Description

Number of hypervisor page-ins.

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

HYPERVISOR\_PAGE\_INS or HPI

# Hypervisor Page Ins Time attribute

#### Description

Time spent waiting for hypervisor page-ins.

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

HYPERVISOR\_PAGE\_INS\_TIME or HPIT

# Capabilities attribute group

This attribute group contains information about which system capabilities (IVM) are enabled. **Historical group** 

This attribute group

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

Attribute descriptions

The following list contains information about each attribute in the Capabilities attribute group: **Node attribute: This attribute is a key attribute.** 

#### Description

The managed system name of the agent.

Type

String Source

The source for this attribute is the agent.

# Warehouse name NODE Timestamp attribute Description The local time at the agent when the data was collected. Type String Source The source for this attribute is the agent. Warehouse name TIMESTAMP Type attribute: This attribute is a key attribute. Description The capability of the VIOS. Type String Source The source for this attribute is Script data. Warehouse name TYPE Status attribute Description The status of the capability: on or off. Type String Source The source for this attribute is Script data. Warehouse name STATUS

# CPU Detail attribute group

This attribute group contains information for each CPU. 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 CPU Detail attribute group: Node attribute: This attribute is a key attribute. Description The managed system name of the agent. Type String Source The source for this attribute is the agent. Warehouse name NODE **Timestamp attribute** Description The local time at the agent when the data was collected. Type String Source The source for this attribute is the agent.

TIMESTAMP CPU Number attribute: This attribute is a key attribute.

Warehouse name

## Description

The CPU identifier number.

Type String

Warehouse name

CPU\_NUMBER

## User CPU Pct attribute

## Description

The time this processor spent executing in CPU user mode percentage.

# Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

USER\_CPU\_PCT or UCP

# System CPU Pct attribute

Description

The time this processor spent executing in CPU kernel mode percentage.

# 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

SYSTEM\_CPU\_PCT or SCP

# IO Wait CPU Pct attribute

# Description

The time this processor spent waiting for IO percentage.

## 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

IO\_WAIT\_CPU\_PCT or IWCP

# Idle CPU Pct attribute

# Description

The time this processor spent executing in CPU idle mode percentage.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

IDLE\_CPU\_PCT or ICP

## Context Switches per Sec attribute

# Description

The process context switches on this processor per second.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

CONTEXT\_SWITCHES\_PER\_SEC or CSPS

# Syscalls per Sec attribute

# Description

The system calls on this processor per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

SYSCALLS\_PER\_SEC or SPS

#### Reads per Sec attribute

#### Description

The read system calls on this processor per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

READS\_PER\_SEC or RPS

# Writes per Sec attribute

#### Description

The write system calls on this processor per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

WRITES\_PER\_SEC or WPS

#### Forks per Sec attribute

### Description

The fork system calls on this processor per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

FORKS\_PER\_SEC or FPS

# Execs per Sec attribute

# Description

The exec system calls on this processor per second.

## 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

EXECS\_PER\_SEC or EPS

# Read Char per Sec attribute

# Description

The KBs read through the read sys call on this processor per second.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

READ\_CHAR\_PER\_SEC or RCPS

Write Char per Sec attribute

## Description

The KBs written through the write sys call on this processor per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

WRITE\_CHAR\_PER\_SEC or WCPS

#### Inode Lookup per Sec attribute

# Description

The calls to i-node lookup routines for this processor per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

INODE\_LOOKUP\_PER\_SEC or ILPS

# Path Name Lookup per Sec attribute

### Description

The calls to path name lookup routine for this processor per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PATH\_NAME\_LOOKUP\_PER\_SEC or PNLPS

#### Dir Blk Scans per Sec attribute

#### Description

The directory blocks scanned for this processor per second.

# 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

DIR\_BLK\_SCANS\_PER\_SEC or DBSPS

#### Minor Page Faults attribute

### Description

The minor page faults per second. (minf)

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

MINOR\_PAGE\_FAULTS or MPF

# Major Page Faults attribute

## Description

The major page faults per second. (majf)

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

MAJOR\_PAGE\_FAULTS or MPF0

## Interrupts attribute

#### Description

The hardware device interrupts per second. (intr)

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

INTERRUPTS

#### **Involuntary Context Switches attribute**

# Description

The involuntary context switches by process per second. (icsw)

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

#### Warehouse name

INVOLUNTARY\_CONTEXT\_SWITCHES or ICS

#### Run Queue attribute

#### Description

The average number of processes on the run queue per second. (runq)

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

RUN\_QUEUE

## Logical Processor Affinity attribute

#### Description

The percentage of logical processor re-dispatches within the scheduling affinity domain 3. (lpa)

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

#### LOGICAL\_PROCESSOR\_AFFINITY or LPA

# Message Ops attribute

## Description

The number of IPC message operations per second. (msg)

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

MESSAGE\_OPS or MO

# Semaphore Ops attribute

# Description

The number of IPC semaphore operations per second. (sema)

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

Warehouse name

SEMAPHORE\_OPS or SO

## **Blocks Read attribute**

#### Description

The number of system block reads per second. (sysread)

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

BLOCKS\_READ or BR

**Blocks Write attribute** 

# Description

The number of system block writes per second. (syswrite)

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

BLOCKS\_WRITE or BW

# Logical Read Requests attribute

# Description

The number of logical read requests per second. (lread)

## 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

LOGICAL\_READ\_REQUESTS or LRR

# Logical Write Requests attribute

# Description

The number of logical write requests per second. (lwrite)

# 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

LOGICAL\_WRITE\_REQUESTS or LWR

# Physical Reads attribute

Description

The number of physical read requests per second. (phread)

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

PHYSICAL\_READS or PR

# Physical Writes attribute

# Description

The number of physical write requests per second. (phwrite)

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PHYSICAL\_WRITES or PW

# Logical Context Switches attribute

#### Description

The number of logical context switches per second. (lcsw)

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

LOGICAL\_CONTEXT\_SWITCHES or LCS

# Physical Consumption attribute

#### Description

The number of physical CPU units consumed by this logical CPU. (pc)

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PHYSICAL\_CONSUMPTION or PC

# CPU Summary attribute group

This attribute group contains system-wide CPU usage information.

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 CPU Summary attribute group: **Node attribute:** This attribute is a key attribute.

Description

The managed system name of the agent.

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

NODE

#### Timestamp attribute

Description

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

Туре

String

Source

The source for this attribute is the agent.

# Warehouse name

TIMESTAMP

# System Software Version attribute

# Description

The system software version identification.

Туре

String

```
Warehouse name
```

SYSTEM\_SOFTWARE\_VERSION or SSV

# Number of CPUs attribute

## Description

The number of logical CPUs active.

## 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

### Warehouse name

NUMBER\_OF\_CPUS or NOC

# User CPU Pct attribute

#### Description

System-wide time executing in CPU user mode percentage.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

USER\_CPU\_PCT or UCP

## System CPU Pct attribute

## Description

System-wide time executing in CPU kernel mode percentage.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

SYSTEM\_CPU\_PCT or SCP

# IO Wait CPU Pct attribute

## Description

System-wide time waiting for CPU I/O percentage.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

IO\_WAIT\_CPU\_PCT or IWCP

# Idle CPU Pct attribute

# Description

System-wide time spent in CPU idle mode percentage.

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:

• Not Collected (-1)

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

# Warehouse name

IDLE\_CPU\_PCT or ICP

# Physical Consumption attribute

Description

The number of physical CPU units consumed by this LPAR. (pc) Consumed describes an amount of CPU an LPAR is keeping from another LPAR.

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PHYSICAL\_CONSUMPTION or PC

# **Donation Enablement attribute**

# Description

The status of the willingness of this LPAR to allow unused CPU cycles to be used by other LPARs [disabled,capable/disabled,enabled].

Туре

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:

- Not Collected (-1)
- disable (0)
- capable (1)
- enable (2)

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

#### Warehouse name

DONATION\_ENABLEMENT or DE

# Donated Idle Cycles Pct attribute

# Description

The percentage of physical processor that is used by explicitly donated idle cycles, for dedicated partitions only.

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

```
DONATED_IDLE_CYCLES_PCT or DICP
```

# Donated Busy Cycles Pct attribute

# Description

The percentage of physical processor that is used by donating busy cycles, for dedicated partitions only.

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

DONATED\_BUSY\_CYCLES\_PCT or DBCP

# Stolen Idle Cycles Pct attribute

## Description

The percentage of physical processor that is comprised of idle cycles stolen by the hypervisor, for dedicated partitions only.

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

STOLEN\_IDLE\_CYCLES\_PCT or SICP

# Stolen Busy Cycles Pct attribute

# Description

The percentage of physical processor that is comprised of busy cycles stolen by the hypervisor, for dedicated partitions only.

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

STOLEN\_BUSY\_CYCLES\_PCT or SBCP

#### Hypervisor Calls attribute

# Description

The number of hypervisor calls made in the monitoring period.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

HYPERVISOR\_CALLS or HC

# Time Spent in Hypervisor Pct attribute

# Description

The percentage of time spent in the hypervisor during the monitoring period.

# Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

TIME\_SPENT\_IN\_HYPERVISOR\_PCT or TSIHP

# **Donating LPARs attribute**

## Description

The number of LPARs donating CPU cycles.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

DONATING\_LPARS or DL

# Average Operating Frequency GHz attribute

# Description

The average operating frequency for the processor in GHz.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

AVERAGE\_OPERATING\_FREQUENCY\_GHZ or AOFG Average Operating Frequency Pct attribute

# Description

The operating frequency as a percentage of base processor frequency.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

AVERAGE\_OPERATING\_FREQUENCY\_PCT or AOFP

# Actual Average Physical CPU User Mode attribute

# Description

Average CPU units charged to User mode based on the POWER User mode PURR register.

Type

Real number (32-bit gauge) with three 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

ACTUAL\_AVERAGE\_PHYSICAL\_CPU\_USER or AAPCU Actual Average Physical CPU System Mode attribute

# Description

Average CPU units charged to System mode based on the POWER System mode PURR register.

Type

Real number (32-bit gauge) with three 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

ACTUAL\_AVERAGE\_PHYSICAL\_CPU\_SYSTEM or AAPCS

# Actual Average Physical CPU Idle Mode attribute

# Description

Average CPU units charged to Idle mode based on the POWER Idle mode PURR register.

Type

Real number (32-bit gauge) with three 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

# Warehouse name

ACTUAL\_AVERAGE\_PHYSICAL\_CPU\_IDLE or AAPCI

# Actual Average Physical CPU Wait Mode attribute

## Description

Average CPU units charged to Wait mode based on the POWER Wait mode PURR register.

Type

Real number (32-bit gauge) with three 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

ACTUAL\_AVERAGE\_PHYSICAL\_CPU\_WAIT or AAPCW

# Normalized Average Physical CPU User Mode attribute

# Description

Average normalized CPU units charged to User mode based on the POWER User mode SPURR register.

#### Type

Real number (32-bit gauge) with three 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

NORMALIZED\_AVERAGE\_PHYSICAL\_CPU\_USER or NAPCU

# Normalized Average Physical CPU System Mode attribute

# Description

Average normalized CPU units charged to System mode based on the POWER System mode SPURR register.

Type

Real number (32-bit gauge) with three 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

#### NORMALIZED\_AVERAGE\_PHYSICAL\_CPU\_SYSTEM or NAPCS Normalized Average Physical CPU Idle Mode attribute

#### Description

Average normalized CPU units charged to Idle mode based on the POWER Idle mode SPURR register.

Type

Real number (32-bit gauge) with three 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

NORMALIZED\_AVERAGE\_PHYSICAL\_CPU\_IDLE or NAPCI Normalized Average Physical CPU Wait Mode attribute

## Description

Average normalized CPU units charged to Wait mode based on the POWER Wait mode SPURR register.

Type

Real number (32-bit gauge) with three 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

NORMALIZED\_AVERAGE\_PHYSICAL\_CPU\_WAIT or NAPCW

# **Defined Users attribute group**

This attribute group contains information about the users defined on this system.

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 Defined Users attribute group: **Node attribute: This attribute is a key attribute.** 

Description

The managed system name of the agent.

Туре

String Source

The source for this attribute is the agent.

# Warehouse name

#### NODE

## Timestamp attribute

## Description

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

Type String Source The source for this attribute is the agent. Warehouse name TIMESTAMP User Name attribute: This attribute is a key attribute. Description The logon user name. Type String Source The source for this attribute is Script data. Warehouse name USER\_NAME **Roles attribute** Description The roles defined for this user ID. Type String Source The source for this attribute is Script data. Warehouse name ROLES Account Locked attribute Description Indicates whether or not the user account has been locked. Type String Source The source for this attribute is Script data. Warehouse name ACCOUNT\_LOCKED or AL **Expires** attribute Description The expiration date of this user ID. Type String Source The source for this attribute is Script data. Warehouse name **EXPIRES** Loginretries attribute Description The number of incorrect logon attempts before the user ID is locked. 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.

#### Source

The source for this attribute is Script data.

Warehouse name

LOGINRETRIES or L

# **Devices attribute group**

This attribute group contains network and storage device status information.

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 Devices attribute group: **Node attribute: This attribute is a key attribute.** 

Description

The managed system name of the agent.

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

NODE

# Timestamp attribute

Description

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

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

# Name attribute: This attribute is a key attribute.

## Description

The name of the device.

## Type

String Warehouse name

NAME

Parent attribute: This attribute is a key attribute.

Description

The parent device name.

# Туре

String Warehouse name PARENT

# Type attribute

Description

The device type.

# Туре

String Warehouse name

TYPE

د ۱۱ ماسط:سطر

# State attribute

Description The device status. Type String Warehouse name

STATE

Class attribute

Description

The class of the device.

Туре

String Warehouse name CLASS

# Disks attribute group

This attribute group contains system disk information. 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 Disks attribute group: Node attribute: This attribute is a key attribute. Description The managed system name of the agent. Type String Source The source for this attribute is the agent. Warehouse name NODE **Timestamp attribute** Description The local time at the agent when the data was collected. Type String Source The source for this attribute is the agent. Warehouse name TIMESTAMP Name attribute: This attribute is a key attribute. Description The device name. Type String Warehouse name NAME Parent attribute: This attribute is a key attribute. Description The parent device name. Type String Warehouse name PARENT Type attribute Description The type of device (Adapter, Disk, and so on). Type String Warehouse name TYPE Active Disk Pct attribute

## Description

The percentage of time the physical disk was active (bandwidth utilization for the drive). This number is valid for Type Disk only.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

ACTIVE\_DISK\_PCT or ADP

# Transfers Bytes per Sec attribute

## Description

The amount of data transferred (read or written) to the drive in bytes per second. This number is valid for the Adapter and Disk types.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

TRANSFERS\_BYTES\_PER\_SEC or TBPS

## Transfers KB per Sec attribute

## Description

The amount of data transferred (read or written) to the drive in KBs per second. This number is valid for the Adapter type.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

TRANSFERS\_KB\_PER\_SEC or TKPS

#### Transfers per Sec attribute

# Description

The number of transfers per second issued to the physical disk. A transfer is an I/O request to the physical disk that can be a combination of multiple logical requests. A transfer is of indeterminate size. This is valid for all storage device types.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

TRANSFERS\_PER\_SEC or TPS

## Read KB per Sec attribute

Description

The total number of KBs read. This number is valid for all storage device types.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

READ\_KB\_PER\_SEC or RKPS

# Written KB per Sec attribute

# Description

The total number of KBs written. This number is valid for all storage device types.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

WRITTEN\_KB\_PER\_SEC or WKPS

## Read Transfers per Sec attribute

# Description

The number of read transfers per second. This number is valid for all storage device types, except Adapter.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

READ\_TRANSFERS\_PER\_SEC or RTPS Avg Read Transfer MS attribute

## Description

The average service time in milliseconds per read transfer. This time is valid for all storage device types, except Adapter.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

AVG\_READ\_TRANSFER\_MS or ARTM

# Min Read Service MS attribute

#### Description

The minimum read service time in milliseconds. This time is valid for all storage device types, except Adapter.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

MIN\_READ\_SERVICE\_MS or MRSM

# Max Read Service MS attribute

#### Description

The maximum read service time in milliseconds. This time is valid for all storage device types, except Adapter.

#### Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

MAX\_READ\_SERVICE\_MS or MRSM0

# Read Timeouts per Sec attribute

# Description

Type

The number of read timeouts per second. This number is valid for the Disk 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

# Warehouse name

READ\_TIMEOUTS\_PER\_SEC or RTPS0

# Failed Read per Sec attribute

## Description

The number of failed read requests per second. This number is valid for the Disk type.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

FAILED\_READ\_PER\_SEC or FRPS

# Write Transfers per Sec attribute

### Description

The number of write transfers per second. This number is valid for all storage device types, except Adapter.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

WRITE\_TRANSFERS\_PER\_SEC or WTPS

#### Avg Write Transfer MS attribute

## Description

The average service time in milliseconds per write transfer. This time is valid for all storage device types, except Adapter.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

AVG\_WRITE\_TRANSFER\_MS or AWTM Min Write Service MS attribute

## Description

The minimum write service time in milliseconds. This time is valid for all storage device types, except Adapter.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

MIN\_WRITE\_SERVICE\_MS or MWSM

# Max Write Service MS attribute

#### Description

The maximum write service time in milliseconds. This time is valid for all storage device types, except Adapter.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

MAX\_WRITE\_SERVICE\_MS or MWSM0

# Write Timeout per Sec attribute

#### Description

The number of write timeouts per second. This number is valid for the Disk type. **Type** 

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

WRITE\_TIMEOUT\_PER\_SEC or WTPS0

## Failed Writes per Sec attribute

#### Description

The number of failed write requests per second. This number is valid for the Disk type.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

## Warehouse name

FAILED\_WRITES\_PER\_SEC or FWPS

# Avg Request In WaitQ MS attribute

## Description

The average time in milliseconds spent by a transfer request in the wait queue. This time is valid for all storage device types, except Adapter.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

AVG\_REQUEST\_IN\_WAITQ\_MS or ARIWM

# Min Request In WaitQ MS attribute

# Description

The minimum time in milliseconds spent by a transfer request in the wait queue. This time is valid for all storage device types, except Adapter.

### Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

MIN\_REQUEST\_IN\_WAITQ\_MS or MRIWM

## Max Request In WaitQ MS attribute

# Description

The maximum time in milliseonds spent by a transfer request in the wait queue. This time is valid for all storage device types, except Adapter.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

MAX\_REQUEST\_IN\_WAITQ\_MS or MRIWM0

# Avg WaitQ Size attribute

#### Description

The average wait queue size. This size is valid for all storage device types, except Adapter.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

AVG\_WAITQ\_SIZE or AWS

# Avg ServiceQ Size attribute

#### Description

The average service queue size. This size is valid for all storage device types, except Adapter.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

AVG\_SERVICEQ\_SIZE or ASS

#### ServiceQ Full per Sec attribute

#### Description

The number of times the service queue becomes full, or the disk is not accepting any more service requests, per second. This number is valid for all storage device types, except Adapter.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

SERVICEQ\_FULL\_PER\_SEC or SFPS

# FC Stats attribute group

This attribute group contains information about the active Fibre Channel adapters. **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 FC Stats attribute group: **Node attribute: This attribute is a key attribute.** 

# Description

The managed system name of the agent.

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

NODE

# Timestamp attribute

Description

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

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

#### Name attribute: This attribute is a key attribute.

Description

The name of the fibre channel adapter.

Туре

String Warehouse name

NAME

## Port Speed (supported) attribute

## Description

Indicates the maximum media speed setting (adapter Bandwidth in Gbps).

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PORT\_SPEED\_SUPPORTED or PSS

# Port Speed (running) attribute

### Description

Indicates the current media speed setting (in Gbps).

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PORT\_SPEED\_RUNNING or PSR

## Seconds Since Last Reset attribute

# Description

The number of seconds since the last reset of statistics on the adapter.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

## Warehouse name

## SECONDS\_SINCE\_LAST\_RESET or SSLR

## Transmitted Frames attribute

## Description

The number of frames transmitted.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

#### Warehouse name

TRANSMITTED\_FRAMES or TF

## Received Frames attribute

Description

The number of frames received.

# 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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

### Warehouse name

RECEIVED\_FRAMES or RF

## Error Frames attribute

# Description

The number of frames that were in error.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

### Warehouse name

ERROR\_FRAMES or EF

# **Dumped Frames attribute**

#### Description

The number of frames that were dumped.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

## Warehouse name

DUMPED\_FRAMES or DF

#### Link Failure attribute

#### Description

The link failure count.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

#### Warehouse name

LINK\_FAILURE\_COUNT or LFC

# Loss of Sync attribute

# Description

The number of times the synchronization was lost.

## 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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

#### Warehouse name

LOSS\_OF\_SYNC\_COUNT or LOSC

#### Loss of Signal attribute

# Description

The number of times the signal was lost.

## Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

#### Warehouse name

LOSS\_OF\_SIGNAL or LOS

## Primitive Seq Protocol Error attribute

Description

The number of times the primitive sequence was in error.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

## Warehouse name

PRIMITIVE\_SEQ\_PROTOCOL\_ERROR\_COUNT or PSPEC

#### Invalid Transmission Word attribute

## Description

The number of invalid transmission words received.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

#### Warehouse name

INVALID\_TX\_WORD\_COUNT or ITWC

Invalid CRC attribute

## Description

The number of received frames with an invalid CRC.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

#### Warehouse name

INVALID\_CRC\_COUNT or ICC

## Input Requests attribute

## Description

The number of input requests.

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:

• Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

## Warehouse name

INPUT\_REQUESTS or IR

# Output Requests attribute

## Description

The number of output requests.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

## Warehouse name

OUTPUT\_REQUESTS or OR0

## Control Requests attribute

# Description

The number of control requests.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

## Warehouse name

CONTROL\_REQUESTS or CR

## Input Bytes attribute

## Description

The number of input bytes.

## 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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

## Warehouse name

INPUT\_BYTES or IB

## **Output Bytes attribute**

## Description

The number of output bytes.

## 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:

- Not Collected (-1)
- Value Exceeds Minimum (-9223372036854775808)
- Value Exceeds Maximum (9223372036854775807)

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

### Warehouse name

OUTPUT\_BYTES or OB

### Input Requests per second attribute

## Description

The number of input requests per second.

Туре

Real number (32-bit gauge) with one 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

INPUT\_REQUESTS\_PER\_SECOND or IRPS

## Output Requests per second attribute

### Description

The number of output requests per second.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

OUTPUT\_REQUESTS\_PER\_SECOND or ORPS

### Control Requests per second attribute

### Description

The number of control requests per second.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

CONTROL\_REQUESTS\_PER\_SECOND or CRPS

### Input Bytes per second attribute

## Description

The number of input bytes per second.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

INPUT\_BYTES\_PER\_SECOND or IBPS

## Output Bytes per second attribute

# Description

The number of output bytes per second.

Туре

Real number (32-bit gauge) with one 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

OUTPUT\_BYTES\_PER\_SECOND or OBPS

## Bandwidth Used per second attribute

## Description

Input plus output bytes divided by port speed per second.

Туре

Real number (32-bit gauge) with one 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

BANDWIDTH\_USED\_PER\_SECOND or BUPS

## World Wide Node Name attribute

## Description

The worldwide name of the adapter.

Type

String

Warehouse name

WORLD\_WIDE\_NODE\_NAME or WWNN

World Wide Port Name attribute

## Description

The worldwide name of the port.

Type

String Warehouse name WORLD\_WIDE\_PORT\_NAME or WWPN

# File Systems attribute group

This attribute group contains file system information.

### 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 File Systems attribute group: **Node attribute: This attribute is a key attribute.** 

### Description

The managed system name of the agent.

Type

String

Source

The source for this attribute is the agent.

Warehouse name

NODE

# Timestamp attribute

Description

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

Type

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

### Name attribute: This attribute is a key attribute.

Description

The file system name.

## Type

String Warehouse name

NAME

### Mount Point attribute

### Description

The file system mount point.

Type

### String Warehouse name

MOUNT\_POINT or MP

# Volume Group Name attribute

Description

The name of the volume group.

- Туре
  - String
- Warehouse name

VOLUME\_GROUP\_NAME or VGN

### Size MB attribute Description

The file system size 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

SIZE\_MB

### Free MB attribute

Description

The file system free space in MB.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

FREE\_MB

### Used MB attribute

Description

The file system used space 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

USED\_MB

## Free Pct attribute

## Description

The file system free space percentage.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

FREE\_PCT

Used Pct attribute

## Description

The file system used space percentage.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

```
Warehouse name
```

USED PCT

# Firewall attribute group

This attribute group contains VIOS firewall configuration information.

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 Firewall attribute group: Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Source

The source for this attribute is the agent.

### Warehouse name

NODE

# Timestamp attribute

Description

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

## Туре

String Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

Interface attribute: This attribute is a key attribute.

## Description

The network interface name.

Туре

String

Source

The source for this attribute is Script data.

## Warehouse name

INTERFACE

### Local Port attribute: This attribute is a key attribute.

### Description

The local port.

### 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.

#### Source

The source for this attribute is Script data.

Warehouse name

LOCAL\_PORT

# Remote Port attribute: This attribute is a key attribute.

### Description

The remote or destination port.

### 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.

### Source

The source for this attribute is Script data.

Warehouse name

REMOTE\_PORT or RP

# Service attribute: This attribute is a key attribute.

### Description

The name of the service. For example, telnet and ftp.

Type

String

## Source

The source for this attribute is Script data.

Warehouse name

### SERVICE

### IP Address attribute: This attribute is a key attribute.

Description

The IP address of the destination.

## Туре

String

## Source

The source for this attribute is Script data.

### Warehouse name

IP\_ADDRESS

### Expiration Time attribute: This attribute is a key attribute.

## Description

The time when this rule is valid.

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.

### Source

The source for this attribute is Script data.

Warehouse name EXPIRATION TIME or ET

# Internet Protocol Detail attribute group

This attribute group contains IP interface details. 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 Internet Protocol Detail attribute group: Node attribute: This attribute is a key attribute. Description The managed system name of the agent. Type String Source The source for this attribute is the agent. Warehouse name NODE Timestamp attribute Description The local time at the agent when the data was collected. Type String Source The source for this attribute is the agent. Warehouse name TIMESTAMP Name attribute: This attribute is a key attribute. Description The network interface name. Type String Warehouse name NAME Packets Received per Sec attribute Description The IP packets received per second. 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: • Not Collected (-1) • Value Exceeds Minimum (-2147483648)

• Value Exceeds Maximum (2147483647)

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

Warehouse name

PACKETS RECEIVED PER SEC or PRPS

## Ioctet Received KB per Sec attribute

## Description

The KBs received per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

IOCTET\_RECEIVED\_KB\_PER\_SEC or IRKPS

## Input Errors per Sec attribute

**Description** The input errors per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

INPUT\_ERRORS\_PER\_SEC or IEPS

## Multicast Pkt Received per Sec attribute

## Description

The multicast packets received per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MULTICAST\_PKT\_RECEIVED\_PER\_SEC or MPRPS

# Input Packets Dropped per Sec attribute

### Description

The input packets dropped per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

INPUT\_PACKETS\_DROPPED\_PER\_SEC or IPDPS

# Packets Transmitted per Sec attribute

### Description

The packets transmitted per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PACKETS\_TRANSMITTED\_PER\_SEC or PTPS

# Ioctet Transmitted KB per Sec attribute

### Description

The KBs transmitted per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

IOCTET\_TRANSMITTED\_KB\_PER\_SEC or ITKPS

### Output Errors per Sec attribute

### Description

The output errors per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

OUTPUT\_ERRORS\_PER\_SEC or OEPS

## Multicast Pkt Transmitted per Sec attribute

### Description

The multicast packets transmitted per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MULTICAST\_PKT\_TRANSMITTED\_PER\_SEC or MPTPS

# Internet Protocol Summary attribute group

This attribute group contains system-wide IP networking information. **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 Internet Protocol Summary attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Туре

String Source

The course for this attribute is

The source for this attribute is the agent.

Warehouse name

NODE

# Timestamp attribute

# Description

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

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

# Packets Received per Sec attribute

# Description

The IP packets received per second.

## 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

PACKETS\_RECEIVED\_PER\_SEC or PRPS

## Frag Received per Sec attribute

# Description

The IP fragments received per second.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

FRAG\_RECEIVED\_PER\_SEC or FRPS **Packets Forwarded per Sec attribute** 

## Description

The IP packets forwarded per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PACKETS\_FORWARDED\_PER\_SEC or PFPS

### Received Datagrams per Sec attribute

### Description

The IP datagrams successfully received per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

RECEIVED\_DATAGRAMS\_PER\_SEC or RDPS

### Transmitted Datagrams per Sec attribute

### Description

The IP datagrams transmitted per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

TRANSMITTED\_DATAGRAMS\_PER\_SEC or TDPS

## Total Packets Reassembled per Sec attribute

### Description

The IP packets successfully reassembled per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name TOTAL PACKETS REASSEMBLED PER SEC or TPRPS

# Frag Output Packets per Sec attribute

## Description

The output packets successfully fragmented per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

FRAG\_OUTPUT\_PACKETS\_PER\_SEC or FOPPS

# Logical Partition attribute group

This attribute group contains information about the logical partition.

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

Source

The source for this attribute is the agent.

# Warehouse name

NODE

### Timestamp attribute

Description

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

Туре

String

### Source

The source for this attribute is the agent.

# Warehouse name

TIMESTAMP

# User CPU Pct attribute

# Description

The percentage of LPAR system time spent in CPU User mode.

# 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

USER\_CPU\_PCT or UCP

## System CPU Pct attribute

### Description

The percentage of LPAR system time spent in CPU System mode.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

SYSTEM\_CPU\_PCT or SCP

## IO Wait CPU Pct attribute

## Description

The percentage of LPAR system time spent in CPU I/O Wait mode.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

IO\_WAIT\_CPU\_PCT or IWCP

## Idle CPU Pct attribute

### Description

The percentage of LPAR system time spent in CPU idle mode.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

IDLE\_CPU\_PCT or ICP

### **Entitlement attribute**

# Description

The number of entitlement units assigned to this LPAR.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)

• Value Exceeds Maximum (2147483647)

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

### Warehouse name

ENTITLEMENT or E

## Total Used Pct attribute

## Description

The percentage of the total system CPU in use by this LPAR.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

TOTAL\_USED\_PCT or TUP

## Entitlement Used Pct attribute

### Description

The percentage of the given CPU entitlement in use by this LPAR.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

ENTITLEMENT\_USED\_PCT or EUP

### LPAR Number attribute

# Description

The LPAR identification number assigned to this LPAR.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

LPAR\_NUMBER or LN

#### Shared Mode attribute

#### Description

The shared logical partition mode (dedicated or shared).

Туре

String Warehouse name SHARED\_MODE or SM

### Capped Mode attribute

Description

The capped logical partition mode (uncapped or capped).

Type

String

Warehouse name CAPPED\_MODE or CM

### SMT Mode attribute

Description

The simultaneous multi-threading mode (off or on).

Type

String

Warehouse name

SMT\_MODE

# Number of Physical CPUs attribute

# Description

The number of active licensed physical CPUs.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

NUMBER\_OF\_PHYSICAL\_CPUS or NOPC

## Number of Virtual CPUs attribute

# Description

The number of current online virtual CPUs.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

NUMBER\_OF\_VIRTUAL\_CPUS or NOVC

## Number of Logical CPUs attribute

Description

The number of current online logical CPUs.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

NUMBER\_OF\_LOGICAL\_CPUS or NOLC

# Available CPUs in Pool attribute

### Description

The number of CPUs that are available for allocation.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

AVAILABLE\_CPUS\_IN\_POOL or ACIP

### Number of Physical CPUs in Shared Pool attribute

### Description

The number of physical CPUs in the shared 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

NUMBER\_OF\_PHYSICAL\_CPUS\_IN\_SHARED\_POOL or NOPCISP

### **Busy Pct attribute**

### Description

The logical busy time percentage.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

BUSY\_PCT

### Phys Busy Pct attribute

# Description

The physical busy time percentage.

# Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PHYS\_BUSY\_PCT or PBP

### Virt Context CPU Switches per Sec attribute

## Description

The virtual CPU context switches per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

VIRT\_CONTEXT\_CPU\_SWITCHES\_PER\_SEC or VCCSPS

# Max Memory attribute

# Description

The maximum amount of memory, in MB, this LPAR can support.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MAX\_MEMORY

### Min Memory attribute

Description

The minimum amount of memory, in MB, this LPAR can support.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

### MIN\_MEMORY

# Max Phys CPUs attribute

# Description

The maximum number of physical CPUs in the system.

### 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:

• Not Collected (-1)

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

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

### Warehouse name

MAX\_PHYS\_CPUS or MPC

# Min Virt CPUs attribute

## Description

The minimum number of virtual CPUs in this LPAR.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

MIN\_VIRT\_CPUS or MVC

# Max Virt CPUs attribute

# Description

The maximum number of virtual CPUs in this LPAR.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MAX\_VIRT\_CPUS or MVC0

## Min CPU Capacity attribute

### Description

The minimum processor capacity (CPU units: 100 per processor).

### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MIN\_CPU\_CAPACITY or MCC

## Max CPU Capacity attribute

## Description

The maximum processor capacity (CPU units: 100 per processor).

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MAX\_CPU\_CAPACITY or MCC0

### CPU Capacity Increment attribute

Description

The processor capacity change granule (CPU units: 100 per processor).

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

CPU\_CAPACITY\_INCREMENT or CCI

## Online Mem attribute

## Description

The amount of currently online memory 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

ONLINE\_MEM

### Max Dispatch Latency attribute

### Description

The maximum latency between dispatches in nanoseconds.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

MAX\_DISPATCH\_LATENCY or MDL

### Unallocated CPU In Pool attribute

### Description

The unallocated capacity available in the shared 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

UNALLOCATED\_CPU\_IN\_POOL or UCIP

### **CPU Entitlement attribute**

### Description

The entitled processor capacity for 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

CPU\_ENTITLEMENT or CE

## Capacity Weight attribute

### Description

The relative weight between 0 and 255 that is used to determine how much extra CPU capacity this LPAR is to receive.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

CAPACITY\_WEIGHT or CW

## Min Req Virt CPU attribute

### Description

The minimum required virtual processor capacity.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

MIN\_REQ\_VIRT\_CPU or MRVC

### Phantom Interrupts attribute

Description

The number of phantom interrupts.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

## PHANTOM\_INTERRUPTS or PI

## Entitlement Pct attribute

## Description

The entitlement as a percentage.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

ENTITLEMENT\_PCT or EP

## Num Hypervisor Calls per Sec attribute

# Description

The number of hypervisor calls per second.

# Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

NUM\_HYPERVISOR\_CALLS\_PER\_SEC or NHCPS

## Time In Hypervisor Pct attribute

## Description

The amount of time spent in the hypervisor percentage.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name TIME\_IN\_HYPERVISOR\_PCT or TIHP Machine ID attribute Description The frame hardware ID to which this LPAR belongs. Type String Warehouse name MACHINE ID

MACHINE\_ID

# Uptime attribute

Description

The period of time that this LPAR has been operational.

Туре

String Warehouse name

# UPTIME

## Hostname attribute

### Description

The host name of the LPAR.

Туре

String Warehouse name HOSTNAME

### Physical CPU Units Used attribute

# Description

The number of physical CPU units that are busy on this LPAR. (physB) Busy describes an amount of CPU that is used for executing System + User processes (actually doing work). CPU units used for Idle and Wait processes are not counted.

### 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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PHYSICAL\_CPU\_UNITS\_USED or PCUU

## Available CPU Units in Pool attribute

### Description

The number of physical CPU units that are available for allocation from the shared pool. (app)

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

AVAILABLE\_CPU\_UNITS\_IN\_POOL or ACUIP

# Physical CPU Size of Shared Pool attribute

### Description

The number of physical CPU units in the shared pool. (psize)

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PHYSICAL\_CPU\_SIZE\_OF\_SHARED\_POOL or PCSOSP

## Last Machine ID attribute

### Description

The frame hardware ID that this LPAR belongs to as of the previous sampling.

Type

### String

Warehouse name

LAST\_MACHINE\_ID or LMI

# Max CPU Cap Used Pct attribute

## Description

The percentage of maximum physical CPU available to this LPAR that is used. For capped LPARs, this is the same as CPU\_Phys\_Ent\_Pct.

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MAX\_CPU\_CAP\_USED\_PCT or MCCUP

## **CPU Pool ID attribute**

### Description

The ID of the Shared Processor 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name POOLID

### **Pool Entitlement attribute**

### Description

The number of physical CPU units reserved for usage by this pool.

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

POOL\_ENTITLEMENT or PE

## Maximum Pool Capacity attribute

# Description

The maximum number of physical CPU units this pool can use.

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MAXIMUM\_POOL\_CAPACITY or MPC0

## SMT Threads attribute

## Description

The number of threads per CPU.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

SMT\_THREADS or ST

### Entitlement attribute

## Description

The number of entitlement units assigned to this LPAR. (ent)

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:

- Not Collected (-100)
- Value Exceeds Minimum (-2147483648)

Value Exceeds Maximum (2147483647)

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

Warehouse name

ENTITLEMENT\_2 or E2

### Old Machine ID attribute

## Description

The nonunique frame hardware ID to which this LPAR belongs from xutsname.nid.

Type

String

Warehouse name

OLD\_MACHINE\_ID or OMI

# Logical Volumes attribute group

This attribute group contains logical volume information.

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 Volumes attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Туре

String

Source

The source for this attribute is the agent.

# Warehouse name

NODE

# Timestamp attribute

Description

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

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

## Name attribute: This attribute is a key attribute.

Description

The name of the logical volume.

Туре

String

Warehouse name NAME

### State attribute

Description

The state of the logical volume.

Type

String Warehouse name

STATE

Volume Group Name attribute

Description The name of the volume group. Type

String

Warehouse name

VOLUME\_GROUP\_NAME or VGN

## Type attribute

Description

The logical volume type.

Туре

String Warehouse name

TYPE

Mount Point attribute

Description

The file system mount point for the logical volume.

Туре

String Warehouse name

MOUNT\_POINT or MP

# Size MB attribute

Description

The size of the logical volume in MB.

Туре

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:

• Not Collected (-1)

• Value Exceeds Minimum (-2147483648)

• Value Exceeds Maximum (2147483647)

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

Warehouse name SIZE MB

# **MPIO Attributes attribute group**

This attribute group contains Multi Path I/O attribute information.

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 MPIO Attributes attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Туре

String

Source

The source for this attribute is the agent.

## Warehouse name

# NODE

# Timestamp attribute

Description

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

Type String Source The source for this attribute is the agent. Warehouse name TIMESTAMP Device Name attribute: This attribute is a key attribute. Description The name of the storage device. Type String Warehouse name DEVICE\_NAME or DN Attribute attribute: This attribute is a key attribute. Description The name of the attribute. Type String Warehouse name ATTRIBUTE Value attribute Description The value of the attribute. Type String Warehouse name VALUE **Description attribute** Description The description of the attribute. Type String Warehouse name DESCRIPTION or D User Settable attribute Description Indicates whether or not the attribute can be set by the user. Type String Warehouse name USER\_SETTABLE or US MPIO Status attribute group

This attribute group contains Multi-Path I/O status information. **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 MPIO Status attribute group: Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Туре

String

Source

The source for this attribute is the agent.

Warehouse name NODE Timestamp attribute Description The local time at the agent when the data was collected. Type String Source The source for this attribute is the agent. Warehouse name TIMESTAMP Device Name attribute: This attribute is a key attribute. Description The name of the storage device. Type String Warehouse name DEVICE NAME or DN Parent attribute: This attribute is a key attribute. Description The parent device of the current device. Type String Warehouse name PARENT Path Status attribute Description The current status of the path. Type String Warehouse name PATH\_STATUS or PS Status attribute Description The operational status of the device. Type String Warehouse name STATUS Connection attribute: This attribute is a key attribute. Description The connection ID of the SCSI device. Type String Warehouse name CONNECTION

# Network Adapters Rates attribute group

This attribute group contains network adapter rate information. 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 Network Adapters Rates attribute group: Node attribute: This attribute is a key attribute.

Description The managed system name of the agent. Type String Source The source for this attribute is the agent. Warehouse name NODE Timestamp attribute Description The local time at the agent when the data was collected. Type String Source The source for this attribute is the agent. Warehouse name TIMESTAMP Name attribute: This attribute is a key attribute. Description Name of the adapter. Type String Warehouse name NAME Parent attribute: This attribute is a key attribute. Description Parent adapter name. Type String Warehouse name PARENT Type attribute Description Type of adapter. Type String Warehouse name TYPE Bytes Sent per Sec attribute Description The number of bytes per second transmitted successfully by this device. 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: • Not Collected (-1)

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

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

#### Warehouse name

BYTES\_SENT\_PER\_SEC or BSPS

## Pkts Sent per Sec attribute

Description

The number of packets per second transmitted successfully by the device.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PKTS\_SENT\_PER\_SEC or PSPS

### Pkts Sent Errors per Sec attribute

### Description

The number of output errors per second encountered on this device.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PKTS\_SENT\_ERRORS\_PER\_SEC or PSEPS

### Sent Pkts Dropped per Sec attribute

### Description

The number of packets per second accepted by the device driver for transmissions that were not given to the device for any reason.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

SENT\_PKTS\_DROPPED\_PER\_SEC or SPDPS

### Broadcast Pkts Sent per Sec attribute

### Description

The number of broadcast packets per second transmitted without any error.

### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

BROADCAST\_PKTS\_SENT\_PER\_SEC or BPSPS

### Multicast Pkts Sent per Sec attribute

## Description

The number of multicast packets per second transmitted without any error.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MULTICAST\_PKTS\_SENT\_PER\_SEC or MPSPS

### Sent Interrupts per Sec attribute

### Description

The number of transmit interrupts per second received by the driver from the adapter.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

SENT\_INTERRUPTS\_PER\_SEC or SIPS

# Bytes Recvd per Sec attribute

### Description

The number of bytes per second received successfully by the device.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

BYTES\_RECVD\_PER\_SEC or BRPS

### Pkts Recvd per Sec attribute

### Description

The number of packets per second received successfully by the device.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PKTS\_RECVD\_PER\_SEC or PRPS

## Pkts Recv Errors per Sec attribute

### Description

The number of input errors per second encountered on this device.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PKTS\_RECV\_ERRORS\_PER\_SEC or PREPS

## Bad Pkts Recvd per Sec attribute

# Description

The number of bad packets per second received by the device driver.

### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

BAD\_PKTS\_RECVD\_PER\_SEC or BPRPS

### **Recv Pkts Dropped per Sec attribute**

## Description

The number of packets per second received by the device driver from this device that were not given to a network driver for any reason.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

RECV\_PKTS\_DROPPED\_PER\_SEC or RPDPS

### Broadcast Pkts Recvd per Sec attribute

# Description

The number of broadcast packets per second received without any error.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

BROADCAST\_PKTS\_RECVD\_PER\_SEC or BPRPS0

## Multicast Pkts Recvd per Sec attribute

### Description

The number of multicast packets per second received without any error.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

MULTICAST\_PKTS\_RECVD\_PER\_SEC or MPRPS

## Recv Interrupts per Sec attribute

Description

The number of interrupts per second received by the driver from the adapter.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

RECV\_INTERRUPTS\_PER\_SEC or RIPS

### TransmitsQ per Sec attribute

### Description

The number of pending outgoing packets per second in the software transmit queue or the hardware transmit 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

TRANSMITSQ\_PER\_SEC or TPS

## Max TransmitsQ per Sec attribute

## Description

The maximum number of outgoing packets per second ever queued to the software transmit 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MAX\_TRANSMITSQ\_PER\_SEC or MTPS

### **Qoverflow per Sec attribute**

### Description

The number of outgoing packets per second that have overflowed the software transmit 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

QOVERFLOW\_PER\_SEC or QPS

Real Pkts Recvd per Sec attribute

### Description

The number of packets per second received on the physical network.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

REAL\_PKTS\_RECVD\_PER\_SEC or RPRPS

## Real Pkts Bridged per Sec attribute

### Description

The number of packets per second received on the physical network that were bridged to the virtual network.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

REAL\_PKTS\_BRIDGED\_PER\_SEC or RPBPS

## Real Pkts Consumed per Sec attribute

### Description

The number of packets per second received on the physical network that were addressed to the interface configured over the SEA.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

REAL\_PKTS\_CONSUMED\_PER\_SEC or RPCPS

# Real Pkts Fragmented per Sec attribute

# Description

The number of packets per second received on the physical network that were fragmented before being bridged to the virtual network because they were bigger than the Maximum Transmission Unit (MTU) for the outgoing adapter.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

REAL\_PKTS\_FRAGMENTED\_PER\_SEC or RPFPS

### Real Pkts Sent per Sec attribute

### Description

The number of packets per second sent on the physical network. Includes packets sent from the interface configured over the SEA and each packet bridged from the virtual network to the physical network (including fragments).

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

REAL\_PKTS\_SENT\_PER\_SEC or RPSPS

### Real Pkts Dropped per Sec attribute

### Description

The number of packets per second received on the physical network that were dropped.
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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

REAL\_PKTS\_DROPPED\_PER\_SEC or RPDPS0

#### Virtual Pkts Recvd per Sec attribute

#### Description

The number of packets per second received on the virtual network on all of the virtual adapters.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

VIRTUAL\_PKTS\_RECVD\_PER\_SEC or VPRPS

#### Virtual Pkts Bridged per Sec attribute

### Description

The number of packets per second received on the virtual network that were bridged to the physical network.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

VIRTUAL\_PKTS\_BRIDGED\_PER\_SEC or VPBPS

## Virtual Pkts Consumed per Sec attribute

## Description

The number of packets per second received on the virtual network that were addressed to the interface configured over the SEA.

### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

VIRTUAL\_PKTS\_CONSUMED\_PER\_SEC or VPCPS

## Virtual Pkts Fragmented per Sec attribute

#### Description

The number of packets per second received on the virtual network that were fragmented before being bridged to the physical network because they were bigger than the Maximum Transmission Unit (MTU) for the outgoing adapter.

## 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

VIRTUAL\_PKTS\_FRAGMENTED\_PER\_SEC or VPFPS

### Virtual Pkts Sent per Sec attribute

## Description

The number of packets per second sent on the virtual network. Includes packets sent from the interface configured over the SEA and each packet bridged from the physical network to the virtual network (including fragments).

#### Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

VIRTUAL\_PKTS\_SENT\_PER\_SEC or VPSPS

### Virtual Pkts Dropped per Sec attribute

### Description

The number of packets per second received on the virtual network that were dropped.

### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

VIRTUAL\_PKTS\_DROPPED\_PER\_SEC or VPDPS

### Output Pkts Generated per Sec attribute

## Description

The number of packets per second with a valid VLAN tag or no VLAN tag sent out of the interface configured over the SEA.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

OUTPUT\_PKTS\_GENERATED\_PER\_SEC or OPGPS

#### Output Pkts Dropped per Sec attribute

#### Description

The number of packets per second sent out of the interface configured over the SEA that are dropped because of an incorrect VLAN tag.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

OUTPUT\_PKTS\_DROPPED\_PER\_SEC or OPDPS

#### Output Pkts Failures per Sec attribute

## Description

The number of packets per second that cannot be sent because of underlying device errors. Includes errors sending on the physical network and virtual network including fragments and ICMP error packets generated by the SEA.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

OUTPUT\_PKTS\_FAILURES\_PER\_SEC or OPFPS

#### Mem Alloc Failures per Sec attribute

#### Description

The number of packets per second that cannot be sent because of insufficient network memory to complete an operation.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

#### Warehouse name

MEM\_ALLOC\_FAILURES\_PER\_SEC or MAFPS

## ICMP Error Pkts Sent per Sec attribute

### Description

The number of ICMP error packets per second sent when a big packet cannot be fragmented because the Don't Fragment bit was set.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

ICMP\_ERROR\_PKTS\_SENT\_PER\_SEC or IEPSPS

## Non IP Pkts Larger Than MTU per Sec attribute

### Description

The number of packets per second that cannot be sent because they were bigger than the Maximum Transmission Unit (MTU) for the outgoing adapter and cannot be fragmented because they were not IP packets.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

NON\_IP\_PKTS\_LARGER\_THAN\_MTU\_PER\_SEC or NIPLTMPS ThreadQ Overflow Pkts per Sec attribute

#### Description

The number of packets per second that were dropped from the thread queues because there was no space to accomodate a newly-received packet.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

THREADQ\_OVERFLOW\_PKTS\_PER\_SEC or TOPPS HA Keep Alive Pkts per Sec attribute

#### Description

The number of high availability keepalive packets per second received on the control channel. Keepalive packets are received on the backup SEA while the primary SEA is active.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

HA\_KEEP\_ALIVE\_PKTS\_PER\_SEC or HKAPPS

### HA Recovery Pkts per Sec attribute

### Description

The number of high availability recovery packets per second received on the control channel. Recovery packets are sent by the primary SEA when it recovers from a failure and is ready to be active again.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

HA\_RECOVERY\_PKTS\_PER\_SEC or HRPPS

## HA Notify Pkts per Sec attribute

#### Description

The number of high availability notify packets per second received on the control channel. Notify packets are sent by the backup SEA when it detects that the primary SEA has recovered.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

HA\_NOTIFY\_PKTS\_PER\_SEC or HNPPS

## HA Limbo Pkts per Sec attribute

### Description

The number of high availability limbo packets per second received on the control channel.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

HA\_LIMBO\_PKTS\_PER\_SEC or HLPPS

### HA State attribute

Description

The current high availability state of the shared ethernet adapter.

Type

String Warehouse name

HA\_STATE

### HA Bridge Mode attribute

### Description

Describes to what level, if any, the shared ethernet adapter is currently bridging traffic.

Type

String

Warehouse name

HA\_BRIDGE\_MODE or HBM

## Times Primary per Sec attribute

### Description

The number of times per second that the shared ethernet adapter was idle and became active because the primary SEA had a failure.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

TIMES\_PRIMARY\_PER\_SEC or TPPS

#### Time Backup per Sec attribute

## Description

The number of times per second that the shared ethernet adapter was active and became idle because of a failure.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

TIME\_BACKUP\_PER\_SEC or TBPS

### HA Mode attribute

#### Description

The high availability mode of the shared ethernet adapter (Auto, Backup, or Disabled).

Туре

### String

Warehouse name HA MODE

## **Priority attribute**

## Description

The trunk priority of the virtual ethernets for the shared ethernet adapter. Used by the SEA protocol to determine which SEA acts as primary and which one acts as backup. Values range from 1-12, where a lower number is favored to act as a primary.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

#### PRIORITY

## Adapter Protocol attribute

#### Description

Indicates the selected network adapter transmission protocol: Auto Negotiation, Full or Half Duplex.

#### Type

String

Warehouse name

ADAPTER\_PROTOCOL or AP

### Media Speed Running attribute

#### Description

Indicates the maximum media speed setting (adapter Bandwidth in Mbps).

## Type

String

Warehouse name

MEDIA\_SPEED\_RUNNING or MSR

## Bandwidth Util Pct attribute

## Description

Percentage of physical network adapter bandwidth utilized.

#### Type

Real number (32-bit gauge) with three 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:

• Not Collected (-1000)

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

### Warehouse name

BANDWIDTH\_UTIL\_PCT or BUP

# Network Adapters Totals attribute group

This attribute group contains network adapter totals. **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 Network Adapters Totals attribute group: <u>Node attribute: This attribute is a key attribute.</u> <u>Description</u> The managed system name of the agent. **Type** String Source

The source for this attribute is the agent.

Warehouse name

NODE

#### **Timestamp attribute**

Description

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

### Type

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

#### Name attribute: This attribute is a key attribute.

Description

The name of the adapter.

Type

String Warehouse name

NAME

#### Parent attribute: This attribute is a key attribute.

Description

The parent adapter name.

Туре

# String

Warehouse name

PARENT

# Type attribute

Description

The type of adapter.

Туре

#### String Warehouse name

TYPE

. .. .

# Bytes Sent attribute

Description

The number of bytes transmitted successfully by the device.

Type

## String Warehouse name BYTES\_SENT Pkts Sent attribute

Description The number of packets transmitted successfully by the device. Type String Warehouse name PKTS SENT Pkts Sent Error attribute Description The number of output errors encountered on this device. Type String Warehouse name PKTS\_SENT\_ERROR or PSE Sent Pkts Dropped attribute Description The number of packets accepted by the device driver for transmission that were not given to the device for any reason. Type String Warehouse name SENT\_PKTS\_DROPPED or SPD **Broadcast Pkts Sent attribute** Description The number of broadcast packets transmitted without any error. Type String Warehouse name BROADCAST\_PKTS\_SENT or BPS Multicast Pkts Sent attribute Description The number of multicast packets transmitted without any error. Type String Warehouse name MULTICAST\_PKTS\_SENT or MPS Sent Interrupts attribute Description The number of transmit interrupts received by the driver from the adapter. Type String Warehouse name SENT\_INTERRUPTS or SI Bytes Recvd attribute Description The number of bytes received successfully by the device. Type String Warehouse name BYTES RECVD or BR Pkts Recvd attribute Description The number of packets received successfully by the device. Type String Warehouse name PKTS RECVD

#### Pkts Recv Error attribute

Description

The number of input errors encountered on this device.

Туре

String

Warehouse name

PKTS\_RECV\_ERROR or PRE

## Bad Pkts Recvd attribute

Description

The number of bad packets received by the device driver.

Туре

String

Warehouse name

BAD\_PKTS\_RECVD or BPR

## **Recv Pkts Dropped attribute**

## Description

The number of packets received by the device driver from this device that were not for any reason given to a network driver.

#### Type

String

Warehouse name

RECV\_PKTS\_DROPPED or RPD

## Broadcast Pkts Recvd attribute

## Description

The number of broadcast packets received without any error.

Type

String

Warehouse name

BROADCAST\_PKTS\_RECVD or BPR0

### Multicast Pkts Recvd attribute

Description

The number of multicast packets received without any error.

#### Туре

String

Warehouse name

MULTICAST\_PKTS\_RECVD or MPR

## **Recv Interrupts attribute**

## Description

The number of interrupts received by the driver from the adapter.

Type

## String

Warehouse name RECV\_INTERRUPTS or RI

TransmitsQ attribute

### Description

The number of pending outgoing packets on either the software transmit queue or the hardware transmit queue.

Type

# String

Warehouse name

TRANSMITSQ

## Max TransmitsQ attribute

## Description

The maximum number of outgoing packets ever queued to the software transmit queue.

Type

String Warehouse name

MAX\_TRANSMITSQ or MT

#### **Qoverflow attribute**

#### Description

The number of outgoing packets that have overflowed the software transmit queue.

Type

String Warehouse name

OOVERFLOW

## Real Pkts Recvd attribute

## Description

The number of packets received on the physical network.

Туре

String

## Warehouse name

REAL\_PKTS\_RECVD or RPR

## Real Pkts Bridged attribute

## Description

The number of packets received on the physical network that were bridged to the virtual network.

## Туре

String Warehouse name

REAL PKTS BRIDGED or RPB

Real Pkts Consumed attribute

#### Description

The number of packets received on the physical network that were addressed to the interface configured over the shared ethernet adapter.

Type

String

Warehouse name

REAL\_PKTS\_CONSUMED or RPC

### **Real Pkts Fragmented attribute**

## Description

The number of packets received on the physical network that were fragmented before being bridged to the virtual network because they were bigger than the Maximum Transmission Unit (MTU) for the outgoing adapter.

#### Type

String

Warehouse name

REAL\_PKTS\_FRAGMENTED or RPF

## **Real Pkts Sent attribute**

### Description

The number of packets sent on the physical network. Includes packets sent from the interface configured over the shared ethernet adapter and each packet bridged from the virtual network to the physical network including fragments.

## Type

String Warehouse name REAL\_PKTS\_SENT or RPS Real Pkts Dropped attribute

#### Description

The number of packets received on the physical network that were dropped.

Type

String Warehouse name

REAL\_PKTS\_DROPPED or RPD0

#### Virtual Pkts Recvd attribute

#### Description

The number of packets received on the virtual network on all of the virtual adapters.

Туре

String

Warehouse name

VIRTUAL\_PKTS\_RECVD or VPR

## Virtual Pkts Bridged attribute

## Description

The number of packets received on the virtual network that were bridged to the physical network.

Туре

String

Warehouse name

VIRTUAL\_PKTS\_BRIDGED or VPB

## Virtual Pkts Consumed attribute

### Description

The number of packets received on the virtual network that were addressed to the interface configured over the shared ethernet adapter.

Type

String

Warehouse name

VIRTUAL\_PKTS\_CONSUMED or VPC

### Virtual Pkts Fragmented attribute

### Description

The number of packets received on the virtual network that were fragmented before being bridged to the physical network because they were bigger than the Maximum Transmission Unit (MTU) for the outgoing adapter.

Type

String

Warehouse name

VIRTUAL\_PKTS\_FRAGMENTED or VPF

## Virtual Pkts Sent attribute

#### Description

The number of packets sent on the virtual network. This includes packets sent from the interface configured over the shared ethernet adapter and each packet bridged from the physical network to the virtual network including fragments.

Type

String

Warehouse name

VIRTUAL\_PKTS\_SENT or VPS

### Virtual Pkts Dropped attribute

## Description

The number of packets received on the virtual network that were dropped.

Туре

String Warehouse name VIRTUAL\_PKTS\_DROPPED or VPD Output Pkts Generated attribute

#### Description

The number of packets with a valid VLAN tag or no VLAN tag sent out of the interface configured over the shared ethernet adapter.

## Туре

String

Warehouse name

OUTPUT\_PKTS\_GENERATED or OPG

## Output Pkts Dropped attribute

## Description

The number of packets sent out of the interface configured over the shared ethernet adapter that are dropped because of an incorrect VLAN tag.

Туре

String

#### Warehouse name

OUTPUT\_PKTS\_DROPPED or OPD

### **Output Pkts Failures attribute**

#### Description

The number of packets that cannot be sent because of underlying device errors. Includes errors sending on the physical network and virtual network including fragments and ICMP error packets generated by the shared ethernet adapter.

### Type

String

Warehouse name

OUTPUT\_PKTS\_FAILURES or OPF

#### Mem Alloc Failures attribute

#### Description

The number of packets that cannot be sent because of insufficient network memory to complete an operation.

#### Type

String

Warehouse name

MEM\_ALLOC\_FAILURES or MAF

## ICMP Error Pkts Sent attribute

#### Description

The number of ICMP error packets successfully sent when a big packet cannot be fragmented because the Don't Fragment bit was set.

## Туре

String

## Warehouse name

ICMP\_ERROR\_PKTS\_SENT or IEPS

## Non IP Pkts Larger Than MTU attribute

## Description

The number of packets that cannot be sent because they were bigger than the Maximum Transmission Unit (MTU) for the outgoing adapter and cannot be fragmented because they were not IP packets.

## Туре

String

## Warehouse name

NON\_IP\_PKTS\_LARGER\_THAN\_MTU or NIPLTM

#### ThreadQ Overflow Pkts attribute

#### Description

The number of packets that were dropped from the thread queues because there was no space to accomodate a newly-received packet.

#### Type

String

#### Warehouse name

THREADQ\_OVERFLOW\_PKTS or TOP

## HA Keep Alive Pkts attribute

## Description

The number of high availability keepalive packets received on the control channel. Keepalive packets are received on the backup shared ethernet adapter while the primary SEA is active.

Type

String

Warehouse name

HA\_KEEP\_ALIVE\_PKTS or HKAP

## HA Recovery Pkts attribute

## Description

The number of high availabiliy recovery packets received on the control channel. Recovery packets are sent by the primary shared ethernet adapter when it recovers from a failure and is ready to be active again.

Type

String

Warehouse name

HA\_RECOVERY\_PKTS or HRP

## HA Notify Pkts attribute

## Description

The number of high availability notify packets received on the control channel. Notify packets are sent by the backup shared ethernet adapter when it detects that the primary SEA has recovered.

#### Type

String

Warehouse name

HA\_NOTIFY\_PKTS or HNP

## HA Limbo Pkts attribute

# Description

The number of high availability limbo packets received on the control channel.

#### Type

String

Warehouse name

HA\_LIMBO\_PKTS or HLP

#### HA State attribute

#### Description

The current high availability state of the shared ethernet adapter.

#### Type

String

Warehouse name

HA\_STATE HA Bridge Mode attribute

# Description

Describes to what level, if any, the shared ethernet adapter is currently bridging traffic.

Type

String Warehouse name

HA BRIDGE MODE or HBM

## **Times Primary attribute**

## Description

The number of times the shared ethernet adapter was idle and became active because the primary SEA had a failure.

Type

String

Warehouse name

TIMES\_PRIMARY or TP

## Times Backup attribute

## Description

The number of times the shared ethernet adapter was active and became idle because of a failure.

Туре

String Warehouse name

TIMES\_BACKUP or TB

# HA Mode attribute

Description

The high availability mode of the shared ethernet adapter (Auto, Backup, or Disabled).

## Туре

String Warehouse name HA\_MODE

## **Priority attribute**

### Description

Trunk priority of the virtual ethernets on the shared ethernet adapter. Used by the SEA protocol to determine which SEA acts as primary and which one acts as backup. Values are from 1 - 12, where a lower number is favored to act as a primary.

## Type

String Warehouse name PRIORITY

# Network Interfaces attribute group

This attribute group contains network interface information. **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 Network Interfaces attribute group:

#### Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Туре

String

**Source** The source for this attribute is the agent.

Warehouse name

## NODE

Timestamp attribute

Description

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

### Туре

String

Source

The source for this attribute is the agent.

Warehouse name TIMESTAMP Name attribute: This attribute is a key attribute. Description The name of the network interface. Type String Source The source for this attribute is Script data. Warehouse name NAME State attribute Description The status of the network interface adapter. Type String Source The source for this attribute is Script data. Warehouse name STATE **IP** Address attribute Description The IP or network address of the network interface. Type String Source The source for this attribute is Script data. Warehouse name **IP\_ADDRESS** MTU attribute Description The maximum transmission unit size in bytes. Type String Source The source for this attribute is Script data. Warehouse name MTU Mask attribute Description The internet network mask. Type String Source The source for this attribute is Script data. Warehouse name MASK Domain attribute Description The internet domain name. Type String Source The source for this attribute is Script data. Warehouse name DOMAIN

Gateway attribute Description The IP address of the gateway server. Type String Source The source for this attribute is Script data. Warehouse name GATEWAY Nameserver attribute Description The IP address of the domain name server. Type String Source The source for this attribute is Script data. Warehouse name NAMESERVER

# Network Mappings attribute group

This attribute group contains VIOS Network device to VIOS client mapping information.

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 Network Mappings attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

NODE

## Timestamp attribute

Description

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

Type

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

## VLAN ID attribute: This attribute is a key attribute.

#### Description

The VLAN ID of the virtual ethernet adapter.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

### Warehouse name

VLAN\_ID

## Partition Name attribute

### Description

The partition name of the partitions that are on the same VLAN ID from the HMC profile.

Туре

## String

Warehouse name

PARTITION\_NAME or PN

## Partition State attribute

Description

The activation state of the partition.

Type

## String

Warehouse name

PARTITION\_STATE or PS

## Hostname attribute

Description

The host name for the partition.

## Type

String Warehouse name

HOSTNAME

## **IP** Address attribute

Description

The IP address of the partition.

## Туре

String Warehouse name IP\_ADDRESS

#### IF\_ADDRES

Partition ID attribute

## Description

The partition ID of partitions that are on the same VLAN ID from the HMC profile.

### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PARTITION\_ID or PI

#### VEA Slot attribute

#### Description

The virtual ethernet adapter slot from the HMC profile.

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:

• Not Collected (-1)

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

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

Warehouse name

VEA\_SLOT

VEA MAC attribute: This attribute is a key attribute.

Description

The MAC address for the virtual ethernet adapter from the HMC profile.

Туре

String Warehouse name VEA\_MAC

VEA IP address attribute

Description

The virtual ethernet adapter IP address if configured.

## Туре

String Warehouse name

VEA\_IP\_ADDRESS or VIA

### Trunk attribute

Description

Indicates whether the virtual ethernet adapter is configured as a trunk adapter.

Туре

String

Warehouse name TRUNK

## Shared Ethernet Adapter attribute

#### Description

The shared ethernet adapter name. For example, ent5 if the virtual ethernet adapter was used to create one.

## Туре

String

Warehouse name

SHARED\_ETHERNET\_ADAPTER or SEA

## SEA IP Address attribute

#### Description

The IP address of the interface on the shared ethernet adapter if one was created.

## Туре

String

Warehouse name

SEA\_IP\_ADDRESS or SIA

## SEA MAC attribute

## Description

The MAC address for the shared ethernet adapter.

Туре

String Warehouse name

SEA MAC

## Physical Ethernet Adapters attribute

#### Description

The name of the physical ethernet or etherchannel adapter under a shared ethernet adapter.

Type

String

Warehouse name

## Virtual Ethernet Adapters attribute

Description

The name of the virtual ethernet adapter.

Type

String

Warehouse name

#### VIRTUAL\_ETHERNET\_ADAPTERS or VEA

### Failover attribute

Description

Indicates whether the shared ethernet adapter has been set up for failover.

Туре

String Warehouse name

FAILOVER

#### **Priority attribute**

#### Description

The priority of the trunk adapter used in failover. This value is for deciding which shared ethernet adapter is primary.

Type

String Warehouse name PRIORITY

#### **Bridging attribute**

Description

Indicates whether bridging is active or inactive.

#### Type

String Warehouse name

BRIDGING

#### Control Channel attribute

### Description

The VLAN ID of the control channel. This value is used for shared ethernet adapter failover.

## Туре

String

## Warehouse name

CONTROL\_CHANNEL or CC

## Server Bytes Sent Per Sec attribute

## Description

Bytes sent per second on the SEA.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

SERVER\_BYTES\_SENT\_PER\_SEC or SBSPS

## Server Bytes Received Per Sec attribute

## Description

Bytes received per second on the SEA.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

SERVER\_BYTES\_RECEIVED\_PER\_SEC or SBRPS

## Server Packets Sent Per Sec attribute

## Description

Packets sent per second on the SEA.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

SERVER\_PACKETS\_SENT\_PER\_SEC or SPSPS

## Server Packets Received Per Sec attribute

## Description

Packets received per second on the SEA.

## Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

SERVER\_PACKETS\_RECEIVED\_PER\_SEC or SPRPS

#### **Client Device Name attribute**

### Description

The client device name or names connected through this virtual device.

Туре

String Warehouse name CLIENT\_DEVICE\_NAME or CDN

## NIM Resources attribute group

This attribute group contains information on the NIM resources available.

#### 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 NIM Resources attribute group:

## Node attribute: This attribute is a key attribute.

## Description

The managed system name of the agent.

Type

String

Source

The source for this attribute is the agent.

## Warehouse name

NODE

## **Timestamp attribute**

Description

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

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

Name attribute: This attribute is a key attribute.

#### Description

The name of the NIM objects as defined in the NIM Environment.

## Type

String

Source

The source for this attribute is Script data.

### Warehouse name

NAME

## Type attribute

Description

The type of object for the specific NIM object.

#### Type

String Source

The source for this attribute is Script data.

### Warehouse name

TYPE

#### **Class attribute**

Description

The class type of the NIM object.

### Type

String

Source

The source for this attribute is Script data.

## Warehouse name

CLASS

### State attribute

Description

The state of the NIM object.

#### Type

String

#### Source

The source for this attribute is Script data.

```
Warehouse name
                      STATE
       Server attribute
               Description
                       The NIM object name of the server for the NIM resource.
               Type
                       String
               Source
                       The source for this attribute is Script data.
               Warehouse name
                      SERVER
       Location attribute
               Description
                       The path name of the NIM resource.
               Type
                      String
               Source
                       The source for this attribute is Script data.
               Warehouse name
                      LOCATION
       Information attribute
               Description
                      The additional miscellaneous information about a NIM object.
               Type
                       String
               Source
                       The source for this attribute is Script data.
               Warehouse name
                       INFORMATION or I
NPIV FCP attribute group
This attribute group contains information about NPIV Fibre Channel Ports.
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 NPIV FCP attribute group:
       Node attribute: This attribute is a key attribute.
               Description
                       The managed system name of the agent.
               Type
                       String
               Source
                      The source for this attribute is the agent.
               Warehouse name
                       NODE
       Timestamp attribute
               Description
                       The local time at the agent when the data was collected.
               Type
```

String Source

Irce

The source for this attribute is the agent.

```
Warehouse name
```

TIMESTAMP

Physical Fibre Channel Port attribute: This attribute is a key attribute.

## Description

The name of the physical Fibre Channel port on the VIOS.

Type String

Source

The source for this attribute is Script data.

#### Warehouse name

PHYSICAL\_FIBRE\_CHANNEL\_PORT or PFCP

## Physical FCP Location Code attribute

Description

The physical location code for the Fibre Channel.

Туре

String Source

The source for this attribute is Script data.

#### Warehouse name

PHYSICAL\_FCP\_LOCATION\_CODE or PFLC

### **Total Ports attribute**

### Description

The total number of ports for the Fibre Channel.

### 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.

### Source

The source for this attribute is Script data.

## Warehouse name

TOTAL\_PORTS or TP

#### Available Ports attribute

Description

The number of ports available to be mapped for the Fibre Channel.

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.

#### Source

The source for this attribute is Script data.

Warehouse name

AVAILABLE\_PORTS or AP

## NPIV Mappings attribute group

This attribute group contains information about NPIV Mappings. **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 NPIV Mappings attribute group:

## Node attribute: This attribute is a key attribute.

### Description

The managed system name of the agent.

Type

String

Source

The source for this attribute is the agent.

## Warehouse name

NODE

## Timestamp attribute

Description

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

Туре

String

Source

The source for this attribute is the agent.

## Warehouse name

TIMESTAMP

#### Partition Name attribute

Description

The name of the VIOS partition.

Туре

String

Source

The source for this attribute is Script data.

#### Warehouse name

PARTITION\_NAME or PN

## Partition ID attribute

## Description

The partition ID of the VIOS 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.

#### Source

The source for this attribute is Script data.

## Warehouse name

PARTITION\_ID or PI

NPIV Server Adapter Name attribute: This attribute is a key attribute.

## Description

The name of the adapter that serves the FC to the client.

Type

String

#### Source

The source for this attribute is Script data.

### Warehouse name

NPIV\_SERVER\_ADAPTER\_NAME or NSAN

Server Physical Location Code attribute

## Description

The physical location code for the Server virtual adapter.

Туре

String

Source

The source for this attribute is Script data.

Warehouse name

SERVER\_PHYSICAL\_LOCATION\_CODE or SPLC

#### Client Partition Name attribute

Description

The name of the client partition that connects to this FC port.

Туре

String Source

The source for this attribute is Script data.

#### Warehouse name

CLIENT\_PARTITION\_NAME or CPN

#### Client Partition ID attribute

#### Description

The Partition ID of the client.

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.

#### Source

The source for this attribute is Script data.

Warehouse name

CLIENT\_PARTITION\_ID or CPI

#### NPIV Client Adapter Name attribute

## Description

The name of the adapter on the client that is connected to this mapping.

Туре

String

Source

The source for this attribute is Script data.

## Warehouse name

NPIV\_CLIENT\_ADAPTER\_NAME or NCAN

## Client Slot Number attribute

## Description

The virtual I/O slot number of the client.

Туре

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.

#### Source

The source for this attribute is Script data.

#### Warehouse name

CLIENT\_SLOT\_NUMBER or CSN

## Server Slot Number attribute

### Description

The virtual I/O slot number of the 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.

#### Source

The source for this attribute is Script data.

## Warehouse name

SERVER\_SLOT\_NUMBER or SSN

## Client Partition OS attribute

## Description

The operating system running on the client.

Type

String

Source

The source for this attribute is Script data.

Warehouse name

CLIENT\_PARTITION\_OS or CPO

## **Client Physical Location Code attribute**

## Description

The physical location code for the Fibre Channel on the client.

## Туре

String

Source

The source for this attribute is Script data.

## Warehouse name

CLIENT\_PHYSICAL\_LOCATION\_CODE or CPLC

## Physical Fibre Channel Port attribute

#### Description

The name of the physical Fibre Channel port on the VIOS.

## Туре

String

Source

The source for this attribute is Script data.

## Warehouse name

PHYSICAL\_FIBRE\_CHANNEL\_PORT or PFCP

## Physical FCP Location Code attribute

## Description

The physical location code for the Fibre Channel.

## Туре

String

#### Source

The source for this attribute is Script data.

## Warehouse name

PHYSICAL\_FCP\_LOCATION\_CODE or PFLC

### Status attribute

### Description

The status of the client.

Туре

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:

- Not Collected (-1)
- Not Logged In (0)
- Logged In (1)

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

#### Source

The source for this attribute is Script data.

Warehouse name

STATUS

#### WWPN Primary attribute

## Description

The Primary Worldwide Port name used by the mapping.

#### Type

String

Source

The source for this attribute is Script data.

### Warehouse name

WWPN\_PRIMARY or WP

## WWPN Secondary attribute

Description

The Secondary Worldwide Port name used by the mapping.

#### Type

String

Source

The source for this attribute is Script data.

Warehouse name

WWPN\_SECONDARY or WS

## Paging Space attribute group

This attribute group contains paging space information.

### 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 Paging Space attribute group: **Node attribute: This attribute is a key attribute.** 

Description

The managed system name of the agent.

Type

String Source

The source for this attribute is the agent.

Warehouse name

NODE

## Timestamp attribute

Description

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

Type

String

Source

The source for this attribute is the agent.

## Warehouse name

TIMESTAMP

## Total Size MB attribute

Description

The total size of the active paging space in MB.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

TOTAL\_SIZE\_MB or TSM

## Free MB attribute

### Description

The system paging space that is free 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

FREE\_MB

## Used MB attribute

Description

The system paging space that is used 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

USED\_MB

### Free Pct attribute

#### Description

The percentage of system paging space that is free.

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:

• Not Collected (-1)

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

## Warehouse name

FREE\_PCT

# Used Pct attribute

## Description

The percentage of system paging space that is used.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

USED\_PCT

## Pages Read per Sec attribute

## Description

The number of 4K pages per second read from paging space by the VMM.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

PAGES\_READ\_PER\_SEC or PRPS

## Pages Written per Sec attribute

## Description

The number of 4K pages per second written to paging space by the VMM.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

PAGES\_WRITTEN\_PER\_SEC or PWPS

# 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

Source

The source for this attribute is the agent.

- Warehouse name
  - NODE

## Timestamp attribute

Description

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

## Туре

String Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

## Query Name attribute: This attribute is a key attribute.

### Description

The name of the attribute group.

Туре

String

Warehouse name

QUERY\_NAME or ATTRGRP

## Object Name attribute

## Description

The name of the performance object.

Туре

# 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)

## 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.

## Туре

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)

Warehouse name

ERROR\_CODE or ERRCODE

# Physical Memory attribute group

This attribute group contains information about the physical memory for the system.

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 Physical Memory attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String

Source

The source for this attribute is the agent.

Warehouse name

NODE

Timestamp attribute

Description

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

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

## Memory Size MB attribute

Description

The total amount of physical memory available to this system 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

MEMORY\_SIZE\_MB or MSM

## Free Memory MB attribute

#### Description

The amount of free (unallocated) system memory 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

#### Warehouse name

FREE\_MEMORY\_MB or FMM

#### Used Memory MB attribute

## Description

The amount of used (allocated) system memory 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

USED\_MEMORY\_MB or UMM

### Free Memory Pct attribute

#### Description

The percentage of system memory that is free (unallocated).

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

FREE\_MEMORY\_PCT or FMP

#### Used Memory Pct attribute

## Description

The percentage of system memory that is used (allocated).

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

USED\_MEMORY\_PCT or UMP

## Non Comp Memory attribute

#### Description

The number of non-computational 4K pages resident in memory.

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:

• Not Collected (-1)

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

## Warehouse name

NON\_COMP\_MEMORY or NCM

## Comp Memory attribute

## Description

The number of computational 4K pages resident in memory.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

COMP\_MEMORY or CM

## Decay Rate attribute

Description

The decay rate for repaging values per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

DECAY\_RATE

## **Repaging Rate attribute**

## Description

The global repaging rate per second.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

REPAGING\_RATE or RR

# Physical Volumes attribute group

This attribute group contains physical volume information.

## 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 Physical Volumes attribute group: Node attribute: This attribute is a key attribute. Description The managed system name of the agent. Type String Source The source for this attribute is the agent. Warehouse name NODE **Timestamp attribute** Description The local time at the agent when the data was collected. Type String Source The source for this attribute is the agent. Warehouse name TIMESTAMP Name attribute: This attribute is a key attribute. Description The name of the physical volume. Type String Warehouse name NAME State attribute Description The state of the physical volume. Type String Warehouse name STATE Volume Group Name attribute Description The name of the volume group. Type String Warehouse name VOLUME\_GROUP\_NAME or VGN Number of Logical Volumes attribute Description The number of logical volumes using the physical volume. 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

NUMBER\_OF\_LOGICAL\_VOLUMES or NOLV

### Number of Stale Partitions attribute

#### Description

The number of partitions not updated in a mirrored LVM environment.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

NUMBER\_OF\_STALE\_PARTITIONS or NOSP

### Size MB attribute

### Description

The size of the physical volume 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

SIZE\_MB

#### Free MB attribute

Description

The amount of available space in the physical volume 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

FREE\_MB

#### Used MB attribute

#### Description

The amount of used space in the physical volume in MB.

Type

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

### Warehouse name

USED\_MB

### Free Pct attribute

Description

The percentage of space free in the physical volume.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

FREE\_PCT

### Used Pct attribute

Description

The percentage of space used in the physical volume.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

USED\_PCT

### Unique ID attribute

Description

The unique identifier for the disk (UDID).

Туре

String Warehouse name UNIQUE\_ID

# Processes Detail attribute group

This attribute group contains detailed process information.

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 Processes Detail attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Туре

String

Source

The source for this attribute is the agent.

#### Warehouse name

#### NODE

# Timestamp attribute

Description

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

Туре

String

Source

The source for this attribute is the agent.

#### Warehouse name

TIMESTAMP

#### Process Name attribute

Description

Process Name.

Type

String

Warehouse name

PROCESS\_NAME or PN

#### Process ID attribute: This attribute is a key attribute.

# Description

The process ID.

### Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PROCESS\_ID

# Parent Process ID attribute

### Description

The parent process ID.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PARENT\_PROCESS\_ID or PPI

#### Nice attribute

Description

The process nice value.

Type

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)

• Value Exceeds Maximum (2147483647)

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

### Warehouse name

NICE

User Name attribute

### Description

The user name.

Туре

String

Warehouse name USER\_NAME

### Repage Count per Sec attribute

#### Description

The process repage count per second.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

REPAGE\_COUNT\_PER\_SEC or RCPS

#### IO Page Fault per Sec attribute

### Description

The process page faults involving IO per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

IO\_PAGE\_FAULT\_PER\_SEC or IPFPS

#### Non IO Page Fault per Sec attribute

### Description

The process page faults not involving IO per second.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

NON\_IO\_PAGE\_FAULT\_PER\_SEC or NIPFPS

#### Text Size attribute

Description

The code size in bytes.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

### TEXT\_SIZE

#### **Resident Text Size attribute**

#### Description

The amount of resident physical memory used by process code (4K pages).

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

RESIDENT\_TEXT\_SIZE or RTS

### Resident Data Size attribute

### Description

The amount of resident physical memory used by process private data (4K pages).

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

RESIDENT\_DATA\_SIZE or RDS

#### Page Space Used attribute

#### Description

The amount of page space used by process private data (4K pages).

Type

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

#### Warehouse name

PAGE\_SPACE\_USED or PSU

#### Signals In per Sec attribute

#### Description

The number of signals received by the process per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

SIGNALS\_IN\_PER\_SEC or SIPS

### Voluntary Context Switches per Sec attribute

### Description

The number of voluntary context switches performed by the process per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

VOLUNTARY\_CONTEXT\_SWITCHES\_PER\_SEC or VCSPS

#### Process Group ID attribute

#### Description

The process group ID.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PROCESS\_GROUP\_ID or PGI

#### **Priority attribute**

#### Description

The process priority.

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:

• Not Collected (-1)

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

#### Warehouse name

PRIORITY

# State attribute

Description

The process state: None, Created, Dying, Stopped, Active, Swapped.

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:

- None (0)
- Created (4)
- Dying (5)
- Stopped (6)
- Active (7)
- Swapped (8)

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

### Warehouse name

STATE

Process UID attribute

#### Description

The real user ID for the process.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PROCESS\_UID or PU

#### Thread Count attribute

#### Description

The number of threads associated with this process.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name THREAD\_COUNT or TC Process Core Size attribute

#### Description

The process core image size.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PROCESS\_CORE\_SIZE or PCS

### Involuntary Context Switches Per Sec attribute

### Description

The involuntary context switches by process per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

INVOLUNTARY\_CONTEXT\_SWITCHES\_PER\_SEC or ICSPS

#### Total CPU Time attribute

### Description

The total CPU used by this process.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

TOTAL\_CPU\_TIME or TCT

### CPU Pct attribute

#### Description

The percentage of CPU used by this process.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

CPU\_PCT

Description The name of the WPAR. Type String Warehouse name WPAR NAME WLM Name attribute Description The WLM class name to which the process belongs. Type String Warehouse name WLM NAME Full Path attribute Description The full path of a command with options. Type String Warehouse name FULL\_PATH

# Processes Summary attribute group

This attribute group contains system-wide process information.

#### 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 Processes Summary attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Туре

String

Source

The source for this attribute is the agent.

Warehouse name NODE

# Timestamp attribute

Description

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

Type

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

Process Context Switches per Sec attribute

#### Description

The process context switches per second.

Type

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)

• Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PROCESS\_CONTEXT\_SWITCHES\_PER\_SEC or PCSPS

### Run Queue Avg attribute

### Description

The average count of processes that are waiting for the CPU.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

RUN\_QUEUE\_AVG or RQA

### Swap Queue Avg attribute

# Description

The average count of processes waiting to be paged in.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

SWAP\_QUEUE\_AVG or SQA

### Kern Procs Created per Sec attribute

# Description

The number of kernel process creations per second.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

KERN\_PROCS\_CREATED\_PER\_SEC or KPCPS

#### Kern Procs Exit per Sec attribute

### Description

The number of kernel process exits per second.

Type

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

Warehouse name

KERN\_PROCS\_EXIT\_PER\_SEC or KPEPS

#### Load Avg attribute

#### Description

The partition load average.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

LOAD AVG

#### Utilization Avg attribute

Description

The partition utilization average.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

UTILIZATION\_AVG or UA

#### Total Num Processes attribute

### Description

The number of processes.

### Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

TOTAL\_NUM\_PROCESSES or TNP

# Quality Of Service attribute group

This attribute group contains networking quality of service information.

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 Quality Of Service attribute group:

Node attribute: This attribute is a key attribute.

### Description

The managed system name of the agent.

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

NODE

### Timestamp attribute

Description

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

#### Type

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

### Policy Rule Priority attribute

Description

The Policy Rule Priority number.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

POLICY\_RULE\_PRIORITY or PRP

Protocol attribute: This attribute is a key attribute.

### Description

The protocol to which this rule applies (TCP or UDP).

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)
- ICMP (1)
- IGMP (2)
- TCP (6)
- UDP (17)

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

#### Warehouse name

PROTOCOL

Source IP Addr start attribute: This attribute is a key attribute. Description The start of the Source IP Address range for this rule. Type String Warehouse name SOURCE\_IP\_ADDR\_START or SIAS Source IP Addr end attribute: This attribute is a key attribute. Description The end of the Source IP Address range for this rule. Type String Warehouse name SOURCE\_IP\_ADDR\_END or SIAE Dest IP Addr start attribute: This attribute is a key attribute. Description The start of the Destination IP Address range for this rule. Type String Warehouse name DEST IP ADDR START or DIAS Dest IP Addr end attribute: This attribute is a key attribute. Description The end of the Destination IP Address range for this rule. Type String Warehouse name DEST IP ADDR END or DIAE Source Port start attribute Description The start of the source port range for this rule. 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: • ANY PORT (-2) • Not Collected (-1) Value Exceeds Minimum (-2147483648) Value Exceeds Maximum (2147483647) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal. Warehouse name SOURCE\_PORT\_START or SPS Source Port end attribute Description The end of the source port range for this rule. 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:

- ANY PORT (-2)
- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

#### Warehouse name

SOURCE\_PORT\_END or SPE

#### Dest Port start attribute

# Description

The start of the destination port range for this rule

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:

- ANY PORT (-2)
- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

DEST\_PORT\_START or DPS

### Dest Port end attribute

#### Description

The end of the destination port range for this rule.

#### 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:

- ANY PORT (-2)
- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

DEST\_PORT\_END or DPE

### Service Class attribute

#### Description

The service class (Integrated Services Controlled Load, Integrated Services Guaranteed Rate, or Differentiated Services).

#### 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:

- Not Collected (-1)
- Integrated Services Controlled Load (5)
- Integrated Services Guaranteed Rate (2)
- Differentiated Services (1)

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

### Warehouse name

SERVICE\_CLASS or SC

### Peak Rate attribute

#### Description

The highest allowed rate (bytes/second).

Type

String Warehouse name

PEAK\_RATE

Average Rate attribute

Description

The average allowed rate (bytes/second).

Type

String Warehouse name

AVERAGE\_RATE or AR

**Bucket Depth attribute** 

Description

The bucket depth for the profile.

Туре

String

Warehouse name

BUCKET\_DEPTH or BD

### **Guaranteed Rate attribute**

#### Description

The guaranteed rate for the policy (only applicable if Service\_Class is 'Integrated Services Guaranteed Rate').

Type

String

Warehouse name

GUARANTEED\_RATE or GR

### Slack Term attribute

#### Description

The Slack\_Term for the policy (only applicable if Service\_Class is 'Integrated Services Guaranteed Rate').

Туре

String Warehouse name SLACK\_TERM

TOS In attribute

Description

The outgoing TOS (compliant) (Differentiated Services Only).

Туре

String Warehouse name TOS\_IN

#### TOS Out attribute

#### Description

The outgoing TOS (non-compliant) (Differentiated Services Only).

Type

String Warehouse name

TOS\_OUT

kat Siza attributa

Max Packet Size attribute

Description

Do not apply this rule to packets larger than this size.

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:

• Not Collected (-1)

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

### Warehouse name

MAX\_PACKET\_SIZE or MPS

### Min Packet Size attribute

### Description

Do not apply this rule to packets smaller than this size.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

MIN\_PACKET\_SIZE or MPS0

### Num Connections attribute

### Description

The total number of connections for this profile.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

NUM\_CONNECTIONS or NC

### Bytes Xmited attribute

Description

The total number of bytes transmitted.

Type

### String

Warehouse name

BYTES\_XMITED or BX

### Packets Xmited attribute

Description

The total number of packets transmitted.

Туре

# String

Warehouse name

PACKETS\_XMITED or PX

### In Profile Bytes Xmited attribute

### Description

The total number of in-profile bytes transmitted.

#### Type

String

Warehouse name IN\_PROFILE\_BYTES\_XMITED or IPBX In Profile Packets Xmited attribute Description

Description

The total number of in-profile packets transmitted.

Туре

String Warehouse name

IN\_PROFILE\_PACKETS\_XMITED or IPPX

# Security States attribute group

This attribute group contains general VIOS security information. 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 Security States attribute group: Node attribute: This attribute is a key attribute. Description The managed system name of the agent. Type String Source The source for this attribute is the agent. Warehouse name NODE Timestamp attribute Description The local time at the agent when the data was collected. Type String Source The source for this attribute is the agent. Warehouse name TIMESTAMP Security Level attribute Description The security level settings. Type String Source The source for this attribute is Script data. Warehouse name SECURITY\_LEVEL or SL User Authentication attribute Description The user authentication method. Type String Source The source for this attribute is Script data. Warehouse name USER AUTHENTICATION or UA Firewall attribute Description Indicates firewall status: on or off.

Type

String Source

The source for this attribute is Script data.

Warehouse name

FIREWALL

# Shared Ethernet Adapter attribute group

This attribute group provides shared ethernet adapter information. 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 Shared Ethernet Adapter attribute group: Node attribute: This attribute is a key attribute. Description The managed system name of the agent. Type String Source The source for this attribute is the agent. Warehouse name NODE **Timestamp attribute** Description The local time at the agent when the data was collected. Type String Source The source for this attribute is the agent. Warehouse name TIMESTAMP Device Name attribute: This attribute is a key attribute. Description The device name for the shared ethernet adapter Type String Warehouse name DEVICE NAME or DN MAC Address attribute: This attribute is a key attribute. Description The MAC address of the adapter. Type String Warehouse name MAC ADDRESS or MA VLAN attribute Description The Virtual LAN ID. Type String Warehouse name VLAN VLAN Priority attribute

Description the Virtual LAN priority if VLAN is configured. Type String Warehouse name VLAN PRIORITY or VP Hostname attribute Description The host name that uses the adapter. Type String Warehouse name HOSTNAME **IP** Address attribute Description The IP address of the adapter. Type String Warehouse name **IP\_ADDRESS** Packets Sent attribute Description The number of packets sent on the adapter. Type String Warehouse name PACKETS SENT or PS **Bytes Sent attribute** Description The number of bytes sent on the adapter. Type String Warehouse name BYTES SENT Packets Received attribute Description The number of packets received on the adapter. Type String Warehouse name PACKETS\_RECEIVED or PR Bytes Received attribute Description The number of bytes received on the adapter. Type String Warehouse name BYTES\_RECEIVED or BR Storage Mappings attribute group

This attribute group contains the VIOS storage device to VIOS client mapping information. **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 Storage Mappings attribute group: Node attribute: This attribute is a key attribute. Description The managed system name of the agent. Type String Source The source for this attribute is the agent. Warehouse name NODE **Timestamp attribute** Description The local time at the agent when the data was collected. Type String Source The source for this attribute is the agent. Warehouse name TIMESTAMP **VIOS** Name attribute Description The partition name of the VIOS from the HMC profile. Type String Warehouse name VIOS NAME Hostname attribute Description The VIOS host name. Type String Warehouse name HOSTNAME **IP** Address attribute Description The VIOS IP address. Type String Warehouse name **IP\_ADDRESS** Partition ID attribute Description The partition ID of the VIOS. 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: • Not Collected (-1) • Value Exceeds Minimum (-2147483648) • Value Exceeds Maximum (2147483647)

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

### Warehouse name PARTITION\_ID or PI

#### VSSA Slot attribute: This attribute is a key attribute.

#### Description

The Virtual SCSI Server Adapter slot number.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

VSSA SLOT

#### VSSA Name attribute

#### Description

The Virtual SCSI Server Adapter name on the VIOS (for example, vhost0).

#### Туре

String Warehouse name

VSSA\_NAME

#### **VTD** Name attribute

Description

The Virtual Target Device name.

#### Туре

String

Warehouse name VTD NAME

### **VIOS Physical Adapter attribute**

### Description

The VIOS physical adapter that is being used to access disks.

### Туре

String

Warehouse name

VIOS\_PHYSICAL\_ADAPTER or VPA

### Disk attribute

Description

The SCSI disk or SAN disk that is attached to the server physical adapter.

### Туре

String

Warehouse name DISK

# LV Name attribute

# Description

The name of the Logical Volume that has been created on disk for assigning as a virtual disk to the client partition.

### Туре

String Warehouse name LV\_NAME <u>LUN ID attribute</u>: This attribute is a key attribute. Description

The LUN ID of the virtual disk that is assigned to the client partition.

Type

String Warehouse name

LUN\_ID

#### **Client Partition Name attribute**

Description

The client partition name from the HMC profile.

Туре

String

Warehouse name

CLIENT\_PARTITION\_NAME or CPN

### Client Hostname attribute

Description

The client partition host name.

Туре

String Warehouse name

CLIENT\_HOSTNAME or CH

#### Client IP Address attribute

Description

The client partition IP address.

Type

String

Warehouse name

CLIENT\_IP\_ADDRESS or CIA

### Client Partition ID attribute

### Description

The client partition ID from the HMC profile.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

CLIENT\_PARTITION\_ID or CPI

### **Client Partition State attribute**

### Description

The activation state of the client partition.

Type

String

Warehouse name

CLIENT\_PARTITION\_STATE or CPS

#### VSCA Slot attribute: This attribute is a key attribute.

#### Description

The Virtual SCSI Client Adapter slot number from the HMC profile.

#### Type

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)

• Value Exceeds Maximum (2147483647)

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

### Warehouse name

VSCA\_SLOT

### VTD Transfers per Sec attribute

### Description

The number of transfers per second that are issued to the Virtual Target Device. A transfer is of indeterminate size.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

VTD\_TRANSFERS\_PER\_SEC or VTPS

### VTD Reads per Sec attribute

Description

The total number of reads per second from the Virtual Target Device.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

VTD\_READS\_PER\_SEC or VRPS

### VTD Writes per Sec attribute

### Description

The total number of writes per second to the Virtual Target Device.

Туре

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name VTD\_WRITES\_PER\_SEC or VWPS VTD Spans Multiple Disks attribute

#### Description

Value is true if the VTD is mapped to multiple Disks. Value is false if the logical volume associated with the VTD is mapped to one disk.

Туре

#### String Warehouse name

VTD\_SPANS\_MULTIPLE\_DISKS or VSMD

### Disk Transfers per Sec attribute

#### Description

The number of transfers per second that are issued to the disk. A transfer is of indeterminate size.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

DISK\_TRANSFERS\_PER\_SEC or DTPS

#### Disk Reads per Sec attribute

Description

The total number of reads per second from the disk.

Туре

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

DISK\_READS\_PER\_SEC or DRPS

# Disk Writes per Sec attribute

#### Description

The total number of writes per second to the disk.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name DISK\_WRITES\_PER\_SEC or DWPS Disk Transfers Sec Pct attribute

#### Description

The percentage of transfers per second contributed by the Virtual Target Device to the total amount of transfers per second issued to the disk.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

DISK\_TRANSFERS\_SEC\_PCT or DTSP

### Disk Reads per Sec Pct attribute

#### Description

The percentage of KBs read per second from the disk contributed by the Virtual Target Device.

Type

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

DISK\_READS\_PER\_SEC\_PCT or DRPSP

### Disk Writes per Sec Pct attribute

#### Description

The percentage of KBs written per second to the disk contributed by the Virtual Target Device.

#### Туре

Real number (32-bit gauge) with one 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:

- Not Collected (-10)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

DISK\_WRITES\_PER\_SEC\_PCT or DWPSP

### Client Device Name attribute

#### Description

the client device name or names connected through this virtual device. This metric is unavailable for IVM systems.

#### Type

String

Warehouse name CLIENT\_DEVICE\_NAME or CDN

# System Call attribute group

This attribute group contains system call rate information.

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 System Call attribute group: **Node attribute: This attribute is a key attribute.** 

Description

The managed system name of the agent.

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

NODE

### Timestamp attribute

Description

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

Type String

Source

The source for this attribute is the agent.

### Warehouse name

TIMESTAMP

### Num Syscalls per Sec attribute

### Description

The total system calls per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

NUM\_SYSCALLS\_PER\_SEC or NSPS

### Reads per Sec attribute

### Description

The read system calls per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

READS\_PER\_SEC or RPS

Writes per Sec attribute

#### Description

The write system calls per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

WRITES\_PER\_SEC or WPS

#### Forks per Sec attribute

#### Description

The fork system calls per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

FORKS\_PER\_SEC or FPS

### Execs per Sec attribute

#### Description

The exec system calls per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

EXECS\_PER\_SEC or EPS

# System IO attribute group

This attribute group contains information related to System IO.

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 System IO attribute group: **Node attribute: This attribute is a key attribute.** 

Description

The managed system name of the agent.

Type

String

Source

The source for this attribute is the agent.

### Warehouse name

NODE

# Timestamp attribute

Description

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

### Туре

String

Source

The source for this attribute is the agent.

### Warehouse name

TIMESTAMP

### Syscall Read Chars per Sec attribute

Description

KBs read through the read sys call per second.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

SYSCALL\_READ\_CHARS\_PER\_SEC or SRCPS

### Syscall Write Chars per Sec attribute

### Description

The KBs written through the write sys call per second.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

SYSCALL\_WRITE\_CHARS\_PER\_SEC or SWCPS

#### Logical Blk Buffer Cache Reads per Sec attribute

### Description

The logical reads from a block device through the buffer cache per second.

Type

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

#### Warehouse name

LOGICAL\_BLK\_BUFFER\_CACHE\_READS\_PER\_SEC or LBBCRPS Logical Blk Buffer Cache Writes per Sec attribute

# Description

The logical writes to a block device through the buffer cache per second.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

LOGICAL\_BLK\_BUFFER\_CACHE\_WRITES\_PER\_SEC or LBBCWPS Phys Blk Buffer Cache Reads per Sec attribute

#### Description

The physical 4K reads from a block device to the buffer cache per second.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PHYS\_BLK\_BUFFER\_CACHE\_READS\_PER\_SEC or PBBCRPS

#### Phys Blk Buffer Cache Writes per Sec attribute

#### Description

The physical 4K writes to a block device from the buffer cache per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

PHYS\_BLK\_BUFFER\_CACHE\_WRITES\_PER\_SEC or PBBCWPS

#### Phys Raw Reads per Sec attribute

#### Description

The physical reads directly from a raw device per second.

#### 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:

• Not Collected (-1)

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

### Warehouse name

PHYS\_RAW\_READS\_PER\_SEC or PRRPS

### Phys Raw Writes per Sec attribute

# Description

The physical writes directly to a raw device per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

PHYS\_RAW\_WRITES\_PER\_SEC or PRWPS

# TADDM attribute group

This attribute group contains the CEC Identification information needed by the TADDM application. **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 TADDM attribute group:

Node attribute: This attribute is a key attribute.

### Description

The managed system name of the agent.

Туре

String

Source

The source for this attribute is the agent.

Warehouse name

#### NODE Timestamp attribute

Description

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

### Туре

String

Source

The source for this attribute is the agent.

# Warehouse name

TIMESTAMP

# CEC Mfg attribute

Description

The name of the CEC manufacturer (IBM).

### Type

String

Source

The source for this attribute is Script data.

Warehouse name

CEC\_MFG

#### **CEC Model attribute**

Description

The CEC system model number.

Type

String

Source

The source for this attribute is Script data.

### Warehouse name

CEC\_MODEL

### **CEC SN attribute**

Description

The CEC system serial number.

Type

String

Source

The source for this attribute is Script data.

Warehouse name CEC SN

#### LPAR Num attribute

Description

The LPAR identification number.

### 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.

#### Source

The source for this attribute is Script data.

Warehouse name

LPAR\_NUM

# **TCP** attribute group

This attribute group contains system-wide TCP networking information. 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 TCP attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Type

String Source

The source for this attribute is the agent.

Warehouse name

NODE

#### Timestamp attribute

Description

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

Type

String

Source

The source for this attribute is the agent.

### Warehouse name

TIMESTAMP

### **Connections Initiated per Sec attribute**

Description

The TCP connections initiated per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

CONNECTIONS\_INITIATED\_PER\_SEC or CIPS

### Connections Established per Sec attribute

### Description

The TCP connections established per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

CONNECTIONS\_ESTABLISHED\_PER\_SEC or CEPS

#### **Connections Closed per Sec attribute**

Description

The TCP connections closed per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

CONNECTIONS\_CLOSED\_PER\_SEC or CCPS

### Total Packets Sent per Sec attribute

#### Description

The TCP packets sent per second.

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:

• Not Collected (-1)

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

### Warehouse name

TOTAL\_PACKETS\_SENT\_PER\_SEC or TPSPS

### Data Packets Sent per Sec attribute

### Description

The TCP data packets sent per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

DATA\_PACKETS\_SENT\_PER\_SEC or DPSPS

### Data Sent KB per Sec attribute

### Description

The TCP data KBs sent per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

DATA\_SENT\_KB\_PER\_SEC or DSKPS

### Data Pkt Retransmitted per Sec attribute

#### Description

The TCP data packets retransmitted per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

DATA\_PKT\_RETRANSMITTED\_PER\_SEC or DPRPS

### Ack Only Pkt Sent per Sec attribute

### Description

The TCP ack-only packets sent per second.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

ACK\_ONLY\_PKT\_SENT\_PER\_SEC or AOPSPS

### Total Packets Received per Sec attribute

Description The

The TCP total packets received per second. **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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

TOTAL\_PACKETS\_RECEIVED\_PER\_SEC or TPRPS

### Ack Pkt Received per Sec attribute

### Description

The TCP ack packets received per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

ACK\_PKT\_RECEIVED\_PER\_SEC or APRPS

# Top 50 CPU Processes attribute group

This attribute group contains the processes that are the top 50 CPU users. **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 Top 50 CPU Processes attribute group:

### Node attribute: This attribute is a key attribute.

#### Description

The managed system name of the agent.

Type

String Source

arce

The source for this attribute is the agent.

Warehouse name

NODE

#### Timestamp attribute

Description

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

Type

String

Source

The source for this attribute is the agent.

# Warehouse name

TIMESTAMP

### Name attribute

Description

The process name.

Туре

String Warehouse name NAME

# ID attribute: This attribute is a key attribute.

#### Description

The process identification number.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

ID

### CPU Pct attribute

Description

The percentage of CPU utilized by the process.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

CPU\_PCT

### Memory KB attribute

#### Description

The amount of memory utilized by the process in KB.

Type

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)
Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

```
Warehouse name
```

MEMORY\_KB

# Owner attribute

Description

The system user name that owns the process.

Туре

String Warehouse name OWNER

# Full Path attribute

Description

The full path of a command with options.

Туре

String Warehouse name

FULL\_PATH

# **Top 50 Memory Processes attribute group**

This attribute group contains the processes that are the top 50 memory users.

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 Top 50 Memory Processes attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Туре

String Source

The source for this attribute is the agent.

Warehouse name

NODE

# Timestamp attribute

Description

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

Type

String

Source

The source for this attribute is the agent.

Warehouse name

TIMESTAMP

# Name attribute

Description

The process name.

Type

String

Warehouse name

# NAME

**<u>ID attribute</u>**: This attribute is a key attribute.

# Description

The process identification number.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

#### ID CPU Pct attribute

# Description

The percentage of CPU utilized by the process.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

CPU\_PCT

### Memory KB attribute

Description

The amount of memory utilized by the process in KB.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

MEMORY\_KB

# Owner attribute

Description

The system user name that owns the process.

Туре

String Warehouse name OWNER

Full Path attribute

Description

The full path of a command with options.

Туре

String Warehouse name FULL PATH

# Virtual Memory Management attribute group

This attribute group contains information about virtual memory management for the system. **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 Memory Management attribute group:

Node attribute: This attribute is a key attribute.

Description

The managed system name of the agent.

Туре

String Source

The source for this attribute is the agent.

Warehouse name

NODE

# Timestamp attribute

# Description

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

Туре

String

Source

The source for this attribute is the agent.

# Warehouse name

# TIMESTAMP

# Pages Read per Sec attribute

# Description

The number of 4K pages read by VMM per second.

# 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

PAGES\_READ\_PER\_SEC or PRPS

# Pages Written per Sec attribute

# Description

The number of 4K pages written by VMM per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

PAGES\_WRITTEN\_PER\_SEC or PWPS Paging Space Read per Sec attribute

# Description

The number of 4K pages read from paging space by VMM per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PAGING\_SPACE\_READ\_PER\_SEC or PSRPS

# Paging Space Written per Sec attribute

# Description

The number of 4K pages written to paging space by VMM per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PAGING\_SPACE\_WRITTEN\_PER\_SEC or PSWPS

# Zero Fill per Sec attribute

# Description

The page faults satisfied by zero-filling memory frames per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

ZERO\_FILL\_PER\_SEC or ZFPS

### Pagein Wait per Sec attribute

### Description

The process waits because of page-ins per second.

# 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PAGEIN\_WAIT\_PER\_SEC or PWPS0

# Page Fault per Sec attribute

### Description

The total page faults per second.

### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

PAGE\_FAULT\_PER\_SEC or PFPS

# Page Reclaim per Sec attribute

# Description

The page faults satisfied by page reclaims per second.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PAGE\_RECLAIM\_PER\_SEC or PRPS0

# Steals per Sec attribute

# Description

The physical memory 4K frames stolen by VMM per second.

# 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

STEALS\_PER\_SEC or SPS

# Memory Not Pinned attribute

# Description

The number of 4K memory pages that are not pinned.

# Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MEMORY\_NOT\_PINNED or MNP

# Comp Repage Pct attribute

# Description

The percentage of repage requests coming from computational segments.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

COMP\_REPAGE\_PCT or CRP

# Noncomp Repage Pct attribute

# Description

The percentage of repage requests coming from non-computational segments.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

NONCOMP\_REPAGE\_PCT or NRP

# Pending Client Pageout attribute

# Description

Total number of client (remote file) page replacement page-outs pending.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

PENDING\_CLIENT\_PAGEOUT or PCP

# Volume Groups attribute group

This attribute group contains volume group information.

# 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 Volume Groups attribute group:

Node attribute: This attribute is a key attribute. Description The managed system name of the agent. Type String Source The source for this attribute is the agent. Warehouse name NODE **Timestamp attribute** Description The local time at the agent when the data was collected. Type String Source The source for this attribute is the agent. Warehouse name TIMESTAMP Name attribute: This attribute is a key attribute. Description The name of the volume group. Type String Warehouse name NAME State attribute Description The state of the volume group. Type String Warehouse name STATE Number of Logical Volumes attribute Description The number of logical volumes currently in the volume group. 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: • Not Collected (-1) • Value Exceeds Minimum (-2147483648) • Value Exceeds Maximum (2147483647) Any other value is the value that is returned by the agent in the Tivoli Enterprise Portal.

# Warehouse name

NUMBER\_OF\_LOGICAL\_VOLUMES or NOLV

# Number of Physical Volumes attribute

# Description

The total number of physical volumes within the volume group.

#### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)

• Value Exceeds Maximum (2147483647)

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

### Warehouse name

NUMBER\_OF\_PHYSICAL\_VOLUMES or NOPV

### Number of Active Physical Volumes attribute

# Description

The number of physical volumes that are currently active.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

NUMBER\_OF\_ACTIVE\_PHYSICAL\_VOLUMES or NOAPV

# Number of Stale Physical Volumes attribute

# Description

The number of physical volumes that are not current.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

NUMBER\_OF\_STALE\_PHYSICAL\_VOLUMES or NOSPV

### Size MB attribute

**Description** The size of the volume group in MB.

**n**o

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

SIZE\_MB

### Free MB attribute

#### Description

The amount of available space in the volume group 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

FREE\_MB

# Used MB attribute

Description

The amount of used space in the volume group in MB.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

USED\_MB

# Free Pct attribute

Description

The percentage of space free in the volume group.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

FREE\_PCT

### Used Pct attribute

# Description

The percentage of space used in the volume group.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

Warehouse name

USED\_PCT

# Workload Manager attribute group

This attribute group contains workload manager (WLM) class information.

#### 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 Manager attribute group:

Node attribute: This attribute is a key attribute.

### Description

The managed system name of the agent.

Type

String Source

The source for this attribute is the agent.

Warehouse name

NODE

### Timestamp attribute

Description

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

### Type

String

Source

The source for this attribute is the agent.

# Warehouse name

TIMESTAMP

# Class Name attribute: This attribute is a key attribute.

### Description

The name of the WLM class. A class is a collection of processes (jobs) with a single set of resource limits applied to it.

Type

### String Warehouse name

CLASS NAME

### Tier Num attribute

### Description

The tier number (0 - 9) to which the WLM class belongs. This number defines the relative priority of a class (0 is high, 9 is low).

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

TIER\_NUM

### **CPU Consumed Pct attribute**

### Description

The percentage of the total CPU consumed within an interval by all threads in the class (total CPU for class/total CPU available).

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:

• Not Collected (-1)

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

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

# Warehouse name

CPU\_CONSUMED\_PCT or CCP

# **CPU Desired Pct attribute**

# Description

The desired percentage of CPU resources to allocate to the class.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

CPU\_DESIRED\_PCT or CDP

# CPU total attribute

# Description

The sum of all CPU cycles consumed by all threads in the class.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

CPU\_TOTAL

# CPU shares attribute

# Description

The number of CPU shares to be allocated to the class (1 - 65535).

### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

CPU\_SHARES

### CPU min attribute

# Description

The minimum percentage of CPU that must be made available when requested.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

CPU\_MIN

# CPU Soft Max attribute

# Description

The maximum percentage of CPU that can be made available to the class when there is CPU contention.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

CPU\_SOFT\_MAX or CSM

# CPU Hard Max attribute

## Description

The maximum percentage of CPU that can be available to the class when there is no CPU contention.

### 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

CPU\_HARD\_MAX or CHM

# Mem Consumed Pct attribute

# Description

The percentage of total memory consumed within an interval by all threads in the class.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

MEM\_CONSUMED\_PCT or MCP

# Mem Desired Pct attribute

# Description

The desired percentage of memory resources to allocate to the class.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

MEM\_DESIRED\_PCT or MDP

# Mem total attribute

# Description

The sum of all memory consumed by all threads in the class.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MEM\_TOTAL

# Mem shares attribute

# Description

The number of memory shares to be allocated to the class (1 - 65535).

# 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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

MEM\_SHARES

### Mem min attribute

# Description

The minimum percentage of memory that must be made available when requested.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

MEM\_MIN

# Mem Soft Max attribute

### Description

The maximum percentage of memory that can be made available to the class when there is memory contention.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MEM\_SOFT\_MAX or MSM

# Mem Hard Max attribute

### Description

The maximum percentage of memory that can be available to the class when there is no memory contention.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

MEM\_HARD\_MAX or MHM

# Disk Consumed Pct attribute

### Description

The percentage of total disk resources consumed within an interval by all threads in the class.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

DISK\_CONSUMED\_PCT or DCP

### Disk Desired Pct attribute

### Description

The desired percentage of disk resources to allocate to the class.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

DISK\_DESIRED\_PCT or DDP

## Disk total attribute

### Description

The sum of all disk resources consumed by all threads in the class.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

DISK\_TOTAL

# Disk shares attribute

# Description

The number of disk shares to be allocated to the class (1 - 65535).

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

### Warehouse name

DISK\_SHARES or DS

# Disk min attribute

# Description

The minimum percentage of disk resource that must be made available when requested.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

# Warehouse name

DISK\_MIN

Disk Soft Max attribute

# Description

The maximum percentage of disk resource that can be made available to the class when there is disk contention.

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

## Warehouse name

DISK\_SOFT\_MAX or DSM

# Disk Hard Max attribute

### Description

The maximum percentage of disk resource that can be made available to the class when there is no disk contention.

Туре

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:

- Not Collected (-1)
- Value Exceeds Minimum (-2147483648)
- Value Exceeds Maximum (2147483647)

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

#### Warehouse name

DISK\_HARD\_MAX or DHM

# 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 25.

## 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 25.

### 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	Attribute group	Bytes per row (agent)	Database bytes per row (warehouse)	Aggregate bytes per row (warehouse)
KVA50ACTIV	KVA_ACTIVE_USERS	1708	1720	1757
KVA53MPOOL	KVA_AMS_POOL	112	177	547
KVA08CAPAB	KVA_CAPABILITIES	268	266	303
KVA17CPUDE	KVA_CPU_DETAIL	248	288	1546
KVA16CPUSU	KVA_CPU_SUMMARY	268	469	1622
KVA49DEFIN	KVA_DEFINED_USERS	1664	1673	1749
KVA51DEVIC	KVA_DEVICES	556	557	594
KVA34DISKS	KVA_DISKS	460	615	1720
KVAFC_STAT	KVA_FC_STATS	364	459	1568
KVA38FILES	KVA_FILE_SYSTEMS	1056	1064	1296
KVA06FIREW	KVA_FIREWALL	400	402	439
KVA44INTER	KVA_INTERNET_PROTOCOL_DETAIL	208	214	602
KVA43INTER	KVA_INTERNET_PROTOCOL_SUMMARY	104	107	417
KVA22LOGIC	KVA_LOGICAL_PARTITION	1104	1251	3061
KVA37LOGIC	KVA_LOGICAL_VOLUMES	1232	1238	1314
KVA52MPIOA	KVA_MPIO_ATTRIBUTES	556	557	594
KVA51MPIOS	KVA_MPIO_STATUS	556	557	594
KVA42NETWO	KVA_NETWORK_ADAPTERS_RATES	1024	1085	2889
KVA41NETWO	KVA_NETWORK_ADAPTERS_TOTALS	4036	4086	4123
KVA40NETWO	KVA_NETWORK_INTERFACES	1555	1563	1600
KVA03NETWO	KVA_NETWORK_MAPPINGS	2316	2340	2611
KVA24NIMRE	KVA_NIM_RESOURCES	2284	2295	2332
KVA56NPIVF	KVA_NPIV_FCP	180	180	295
KVA55NPIVM	KVA_NPIV_MAPPINGS	672	684	916
KVA21PAGIN	KVA_PAGING_SPACE	104	107	417
KVAPOBJST	KVA_PERFORMANCE_OBJECT_STATUS	288	289	326
KVA27PHYSI	KVA_PHYSICAL_MEMORY	112	117	505
KVA35PHYSI	KVA_PHYSICAL_VOLUMES	424	431	741

Table 1. Capacity planning for historical data logged by the VIOS Premium agent

		Bytes per	Database bytes per	Aggregate bytes per
Table	Attribute group	row (agent)	row (warehouse)	row (warehouse)
KVA32PROCE	KVA_PROCESSES_DETAIL	2760	2790	3568
KVA31PROCE	KVA_PROCESSES_SUMMARY	108	112	461
KVA54QOS	KVA_QUALITY_OF_SERVICE	836	857	1206
KVA05SECUR	KVA_SECURITY_STATES	316	315	352
KVA53SEA	KVA_SHARED_ETHERNET_ADAPTER	636	642	679
KVA02STORA	KVA_STORAGE_MAPPINGS	2964	3104	3678
KVA20SYSTE	KVA_SYSTEM_CALL	96	97	329
KVA19SYSTE	KVA_SYSTEM_IO	108	112	461
KVA56TADDM	KVA_TADDM	180	180	256
KVA45TCP	KVA_TCP	116	122	549
KVA10TOP50	KVA_TOP_50_CPU_PROCESSES	2488	2498	2613
KVA11TOP50	KVA_TOP_50_MEMORY_PROCESSES	2488	2498	2613
KVA28VIRTU	KVA_VIRTUAL_MEMORY_MANAGEMENT	128	137	681
KVA36VOLUM	KVA_VOLUME_GROUPS	304	311	699
KVA23WORKL	KVA_WORKLOAD_MANAGER	932	955	1850

Table 1. Capacity planning for historical data logged by the VIOS Premium agent (continued)

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 IBM Tivoli Monitoring: VIOS Premium 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 VIOS Premium 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.

- VIOS Premium
  - Not applicable
- Memory
  - KVA\_memrepage\_Info

- KVA\_vmm\_pginwait\_Info
- KVA\_vmm\_pgfault\_Info
- KVA\_vmm\_pgreclm\_Info
- KVA\_vmm\_unpin\_low\_Warn
- KVA\_vmm\_pgout\_pend\_Info
- Networking
  - KVA\_Pkts\_Sent\_Errors\_Info
  - KVA\_Sent\_Pkts\_Dropped\_Info
  - KVA\_Pkts\_Recv\_Errors\_Info
  - KVA\_Bad\_Pkts\_Recvd\_Info
  - KVA\_Recv\_pkts\_dropped\_Info
  - KVA\_Qoverflow\_Info
  - KVA\_Real\_Pkts\_Dropped\_Info
  - KVA\_Virtual\_Pkts\_Dropped\_Info
  - KVA\_Output\_Pkts\_Dropped\_Info
  - KVA\_Output\_Pkts\_Failures\_Info
  - KVA\_Mem\_Alloc\_Failures\_Warn
  - KVA\_ThreadQ\_Overflow\_Pkts\_Info
  - KVA\_HA\_State\_Info
  - KVA\_Times\_Primary\_Per\_Sec\_Info
  - KVA\_Qoverflow\_Info
  - KVA\_Netwk\_Bandwidth\_High\_Info
  - KVA\_Media\_Spd\_Half\_Duplex\_Warn
  - KVA\_perip\_InputErrs\_Info
  - KVA\_perip\_InputPkts\_Drop\_Info
  - KVA\_perip\_OutputErrs\_Info
  - KVA\_TCP\_ConnInit\_Info
  - KVA\_TCP\_ConnEst\_Info
- Process
  - KVA\_totproc\_cs\_Info
  - KVA\_totproc\_runq\_avg\_Info
  - KVA\_totproc\_load\_avg\_Info
  - KVA\_totnum\_procs\_Info
  - KVA\_perproc\_IO\_pgf\_Info
  - KVA\_perproc\_nonIO\_pgf\_Info
  - KVA\_perproc\_memres\_datasz\_Info
  - KVA\_perproc\_memres\_textsz\_Info
  - KVA\_perproc\_mem\_textsz\_Info
  - KVA\_perproc\_vol\_cs\_Info
- Security
  - KVA\_Firewall\_Info
- Status
  - KVA\_Device\_Stopped\_Warn
- Storage
  - KVA\_Active\_Disk\_Pct\_Info

- KVA\_Avg\_Read\_Transfer\_MS\_Info
- KVA\_Read\_Timeouts\_Per\_Sec\_Info
- KVA\_Failed\_Read\_Per\_Sec\_Info
- KVA\_Avg\_Write\_Transfer\_MS\_Info
- KVA\_Write\_Timeout\_Per\_Sec\_Info
- KVA\_Failed\_Writes\_Per\_Sec\_Info
- KVA\_Avg\_Req\_In\_WaitQ\_MS\_Info
- KVA\_ServiceQ\_Full\_Per\_Sec\_Info
- System
  - KVA\_PHYP\_Pct\_High\_Info
  - KVA\_Reduced\_Proc\_Freq\_Info
  - KVA\_perCPU\_syscalls\_Info
  - KVA\_perCPU\_forks\_Info
  - KVA\_perCPU\_execs\_Info
  - KVA\_perCPU\_cs\_Info
  - KVA\_Tot\_syscalls\_Info
  - KVA\_Tot\_forks\_Info
  - KVA\_Tot\_execs\_Info
  - KVA\_LPARBusy\_pct\_Warn
  - KVA\_LPARPhyBusy\_pct\_Warn
  - KVA\_LPARvcs\_Info
  - KVA\_LPARfreepool\_Warn
  - KVA\_LPARPhanIntrs\_Info
  - KVA\_LPARentused\_Info
  - KVA\_LPARphyp\_used\_Info
  - KVA\_LPAR\_MaxCPUCapUsed\_Info
- Top Resources
  - Not applicable
- User
  - KVA\_user\_acct\_locked\_Info
  - KVA\_user\_login\_retries\_Info
  - KVA\_user\_idletime\_Info
- Virtual IO Mappings
  - KVA\_VTD\_Maps\_Multi\_Disks\_Warn
  - KVA\_NPIV\_Status\_Warn
  - KVA\_NPIV\_Avail\_Ports\_Low\_Info

# 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.

Syntax that contains one or more logical expressions describing 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 of time, when another situation is true, or whichever occurs first if both are selected.

# VIOS Premium Navigator item

No predefined situations are included for this Navigator item.

# Memory Navigator item

The situation descriptions are organized by the Navigator item to which the situations are relevant.

### KVA\_memrepage\_Info situation

### Description

Physical Memory Repaging rate is high.

The situation will be evaluated for the table.

### Formula

\*IF \*VALUE KVA\_PHYSICAL\_MEMORY.Repaging\_Rate \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

### Run at startup

No

## Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_vmm\_pginwait\_Info situation

### Description

Virtual Memory Manager Page-In wait is higher than expected.

The situation will be evaluated for the table.

#### Formula

\*IF \*VALUE KVA VIRTUAL MEMORY MANAGEMENT.Pagein Wait per Sec \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

#### Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_vmm\_pgfault\_Info situation

### Description

Virtual Memory Manager Page fault rate is higher than expected.

The situation will be evaluated for the table.

### Formula

\*IF \*VALUE KVA\_VIRTUAL\_MEMORY\_MANAGEMENT.Page\_Fault\_per\_Sec \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

# Run at startup

No

### Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

### Error conditions

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_vmm\_pgreclm\_Info situation

### Description

Virtual Memory Manager Page Reclaim is higher than expected.

The situation will be evaluated for the table.

#### Formula

\*IF \*VALUE KVA\_VIRTUAL\_MEMORY\_MANAGEMENT.Page\_Reclaim\_per\_Sec \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

## Run at startup

No

### Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

## **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_vmm\_unpin\_low\_Warn situation

#### Description

Amount of pinned memory is higher than expected.

The situation will be evaluated for the table.

#### Formula

\*IF \*VALUE KVA\_VIRTUAL\_MEMORY\_MANAGEMENT.Memory\_Not\_Pinned \*LT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

Run at startup No

## Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

Error conditions Warning

### **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_vmm\_pgout\_pend\_Info situation

### Description

Virtual Memory Manager page-outs pending higher than expected.

The situation will be evaluated for the table.

### Formula

\*IF \*VALUE KVA\_VIRTUAL\_MEMORY\_MANAGEMENT.Pending\_Client\_Pageout \*GT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

# **Networking Navigator item**

The situation descriptions are organized by the Navigator item to which the situations are relevant.

# KVA\_Pkts\_Sent\_Errors\_Info situation

# Description

The packets sent error rate is higher than normal.

The situation is evaluated for each distinct value of the NAME attribute.

### Formula

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Pkts\_Sent\_Errors\_per\_Sec \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

Run at startup No

Sampling interval 1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_Sent\_Pkts\_Dropped\_Info situation

### Description

The rate of dropped packets is higher than normal.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Sent\_Pkts\_Dropped\_per\_Sec \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

#### Run at startup

No

## Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Pkts\_Recv\_Errors\_Info situation

### Description

The packets received error rate is higher than normal.

The situation is evaluated for each distinct value of the NAME attribute.

### Formula

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Pkts\_Recv\_Errors\_per\_Sec \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

### Run at startup

No

# Sampling interval

1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Bad\_Pkts\_Recvd\_Info situation

# Description

Rate at which bad packets are received is higher than normal.

The situation is evaluated for each distinct value of the NAME attribute.

### Formula

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Bad\_Pkts\_Recvd\_per\_Sec \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

Run at startup No

Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

**Error conditions** 

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_Recv\_pkts\_dropped\_Info situation

## Description

The rate received packets are dropped is higher than normal.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Recv\_Pkts\_Dropped\_per\_Sec \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

# Run at startup

No

### Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

## **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Qoverflow\_Info situation

### Description

The transmit queue overflow rate is higher than normal.

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Qoverflow\_per\_Sec \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

## Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

### **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Real\_Pkts\_Dropped\_Info situation

### Description

A shared ethernet adapter is dropping too many packets.

The situation is evaluated for each distinct value of the NAME attribute.

### Formula

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Real\_Pkts\_Dropped\_per\_Sec \*GT 100 \*AND \*SCAN KVA\_NETWORK\_ADAPTERS\_RATES.Type \*EQ 'Shared Ethernet Adapter'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

### Run at startup

No

### Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

## **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Virtual\_Pkts\_Dropped\_Info situation

### Description

The virtual ethernet adapter is dropping too many packets.

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Virtual\_Pkts\_Dropped\_per\_Sec \*GT 100 \*AND \*SCAN KVA\_NETWORK\_ADAPTERS\_RATES.Type \*EQ 'Shared Ethernet Adapter'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_Output\_Pkts\_Dropped\_Info situation

### Description

Shared ethernet adapter drops packets because of bad VLAN tags.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Output\_Pkts\_Dropped\_per\_Sec \*GT 100 \*AND \*SCAN KVA\_NETWORK\_ADAPTERS\_RATES.Type \*EQ 'Shared Ethernet Adapter'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

### Run at startup

No

### Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

#### **Error conditions**

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_Output\_Pkts\_Failures\_Info situation

### Description

Packets are being dropped because of underlying device errors.

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Output\_Pkts\_Failures\_per\_Sec \*GT 100 \*AND \*SCAN KVA\_NETWORK\_ADAPTERS\_RATES.Type \*EQ 'Shared Ethernet Adapter'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

### Run at startup

No

Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_Mem\_Alloc\_Failures\_Warn situation

### Description

Memory allocation failure caused by insufficient network memory.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Mem\_Alloc\_Failures\_per\_Sec \*GT 10 \*AND \*SCAN KVA\_NETWORK\_ADAPTERS\_RATES.Type \*EQ 'Shared Ethernet Adapter'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

### Run at startup

No

# Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Warning

## **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_ThreadQ\_Overflow\_Pkts\_Info situation

#### Description

The rate packets are dropped from the thread queues is too high.

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.ThreadQ\_Overflow\_Pkts\_per\_Sec \*GT 20 \*AND \*SCAN KVA\_NETWORK\_ADAPTERS\_RATES.Type \*EQ 'Shared Ethernet Adapter'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

Run at startup

No

Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_HA\_State\_Info situation

### Description

The shared ethernet adapter entered LIMBO state.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*SCAN KVA\_NETWORK\_ADAPTERS\_RATES.HA\_State \*EQ 'LIMBO' \*AND \*SCAN
KVA\_NETWORK\_ADAPTERS\_RATES.Type \*EQ 'Shared Ethernet Adapter'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

### Run at startup

No

### Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

#### **Error conditions**

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_Times\_Primary\_Per\_Sec\_Info situation

#### Description

The rate the SEA was active and became idle is too high.

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Times\_Primary\_per\_Sec \*GT 5 \*AND \*SCAN
KVA\_NETWORK\_ADAPTERS\_RATES.Type \*EQ 'Shared Ethernet Adapter'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

### Run at startup

No

Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Qoverflow\_Info situation

### Description

The transmit queue overflow rate is higher than normal.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Qoverflow\_per\_Sec \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

### Run at startup

No

### Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

Error conditions Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Netwk\_Bandwidth\_High\_Info situation

#### Description

Bandwidth utilization for the interface is higher than expected.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Bandwidth\_Util\_Pct \*GT 60

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is automatically distributed to instances of this agent.

# Run at startup

Yes

# Sampling interval

10 minutes

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 3.

# Error conditions

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_Media\_Spd\_Half\_Duplex\_Warn situation

### Description

Media speed selected is set to half duplex.

The situation will be evaluated for each distinct value of Parent.

### Formula

\*IF \*VALUE KVA\_NETWORK\_ADAPTERS\_RATES.Media\_Speed\_Running \*EQ 'Half Duplex'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is automatically distributed to instances of this agent.

# Run at startup

Yes

### Sampling interval 30 seconds

# 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.

### KVA\_perip\_InputErrs\_Info situation

### Description

Internet Protocol input error rate is higher than expected.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_INTERNET\_PROTOCOL\_DETAIL.Input\_Errors\_per\_Sec \*GT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

Error conditions

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

### KVA\_perip\_InputPkts\_Drop\_Info situation

### Description

IP input packets dropped rate is higher than expected.

The situation is evaluated for each distinct value of the NAME attribute.

### Formula

\*IF \*VALUE KVA\_INTERNET\_PROTOCOL\_DETAIL.Input\_Packets\_Dropped\_per\_Sec \*GT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

# Run at startup

No

### Sampling interval 1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

### **Error conditions**

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_perip\_OutputErrs\_Info situation

### Description

IP output error rate is higher than expected.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_INTERNET\_PROTOCOL\_DETAIL.Output\_Errors\_per\_Sec \*GT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

### Sampling interval 1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_TCP\_ConnInit\_Info situation

# Description

Number of TCP connections initiated is high.

The situation is evaluated for each distinct value of the NAME attribute.

### Formula

\*IF \*VALUE KVA\_TCP.Connections\_Initiated\_per\_Sec \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

# Run at startup

No

### Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

## KVA\_TCP\_ConnEst\_Info situation

### Description

Number of TCP connections established is high.

The situation is evaluated for each distinct value of the NAME attribute.

### Formula

\*IF \*VALUE KVA\_TCP.Connections\_Established\_per\_Sec \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

### Run at startup

No

# Sampling interval

1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

### **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# **Process Navigator item**

The situation descriptions are organized by the Navigator item to which the situations are relevant.

### KVA\_totproc\_cs\_Info situation

### Description

Number of Process Context Switches is higher than expected.

The situation will be evaluated for the table.

### Formula

\*IF \*VALUE KVA\_PROCESSES\_SUMMARY.Process\_Context\_Switches\_per\_Sec \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

### Sampling interval 1 minute

### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_totproc\_runq\_avg\_Info situation

# Description

Process Run Queue is higher than expected.

The situation will be evaluated for the table.

# Formula

\*IF \*VALUE KVA\_PROCESSES\_SUMMARY.Run\_Queue\_Avg \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

### Distribution

This situation is available for distribution.

#### Run at startup No
# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

#### **Error conditions**

Informational

## **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_totproc\_load\_avg\_Info situation

# Description

Process Load Average is higher than expected.

The situation will be evaluated for the table.

## Formula

\*IF \*VALUE KVA\_PROCESSES\_SUMMARY.Load\_Avg \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

## Sampling interval

1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_totnum\_procs\_Info situation

#### Description

Total number of processes is higher than expected.

The situation will be evaluated for the table.

#### Formula

\*IF \*VALUE KVA\_PROCESSES\_SUMMARY.Total\_Num\_Processes \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

Run at startup No

Sampling interval

1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_perproc\_IO\_pgf\_Info situation

#### Description

Process I/O page fault rate is higher than expected.

The situation is evaluated for each distinct value of the PN attribute.

#### Formula

\*IF \*VALUE KVA PROCESSES DETAIL.IO Page Fault per Sec \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

## KVA\_perproc\_nonIO\_pgf\_Info situation

#### Description

Process Non I/O page fault rate is higher than expected.

The situation is evaluated for each distinct value of the PN attribute.

#### Formula

\*IF \*VALUE KVA\_PROCESSES\_DETAIL.Non\_IO\_Page\_Fault\_per\_Sec \*GT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_perproc\_memres\_datasz\_Info situation

## Description

Process resident data size is larger than expected.

The situation is evaluated for each distinct value of the PN attribute.

#### Formula

\*IF \*VALUE KVA\_PROCESSES\_DETAIL.Resident\_Data\_Size \*GT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

Sampling interval 1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_perproc\_memres\_textsz\_Info situation

## Description

Process resident text size is larger than expected.

The situation is evaluated for each distinct value of the PN attribute.

#### Formula

\*IF \*VALUE KVA\_PROCESSES\_DETAIL.Resident\_Text\_Size \*GT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_perproc\_mem\_textsz\_Info situation

#### Description

Process text size is larger than expected.

The situation is evaluated for each distinct value of the PN attribute.

#### Formula

\*IF \*VALUE KVA\_PROCESSES\_DETAIL.Text\_Size \*GT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

## Run at startup

No

# Sampling interval

1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_perproc\_vol\_cs\_Info situation

# Description

Process voluntary context switches rate is higher than expected.

The situation is evaluated for each distinct value of the PN attribute.

#### Formula

\*IF \*VALUE KVA\_PROCESSES\_DETAIL.Voluntary\_Context\_Switches\_per\_Sec \*GT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# Security Navigator item

The situation descriptions are organized by the Navigator item to which the situations are relevant.

# KVA\_Firewall\_Info situation

# Description

The firewall on VIOS was turned off.

The situation will be evaluated for the table.

# Formula

\*IF \*SCAN KVA\_SECURITY\_STATES.Firewall \*NE 'ON'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

# Clearing conditions

The situation clears when the condition becomes false.

# Status Navigator item

The situation descriptions are organized by the Navigator item to which the situations are relevant.

# KVA\_Device\_Stopped\_Warn situation

# Description

Triggers when status of a device is not normal.

The situation is evaluated for each distinct value of the NAME attribute.

# Formula

\*IF \*VALUE KVA\_DEVICES.State \*EQ 'Stopped'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

## Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

Error conditions Warning

# **Clearing conditions**

The situation clears when the condition becomes false.

# Storage Navigator item

The situation descriptions are organized by the Navigator item to which the situations are relevant.

# KVA\_Active\_Disk\_Pct\_Info situation

# Description

The percentage of time the disks are busy is higher than normal.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA DISKS.Active Disk Pct \*GT 80

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Avg\_Read\_Transfer\_MS\_Info situation

#### Description

The average time it takes to complete a disk read is high.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_DISKS.Avg\_Read\_Transfer\_MS \*GT 5

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

## Distribution

This situation is available for distribution.

Run at startup

No

# Sampling interval

1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

## KVA\_Read\_Timeouts\_Per\_Sec\_Info situation

#### Description

The number of disk read timeouts per sec is higher than normal.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_DISKS.Read\_Timeouts\_per\_Sec \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

Sampling interval 1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Failed\_Read\_Per\_Sec\_Info situation

## Description

The number of failed disk read requests per sec is high.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_DISKS.Failed\_Read\_per\_Sec \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Avg\_Write\_Transfer\_MS\_Info situation

#### Description

The average time it takes to complete a disk write is high.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_DISKS.Avg\_Write\_Transfer\_MS \*GT 5

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

## KVA\_Write\_Timeout\_Per\_Sec\_Info situation

#### Description

The number of disk write timeouts per sec is higher than normal.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_DISKS.Write\_Timeout\_per\_Sec \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

#### KVA\_Failed\_Writes\_Per\_Sec\_Info situation

# Description

The number of failed disk write requests per sec is high.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_DISKS.Failed\_Writes\_per\_Sec \*GT 10

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

#### Run at startup

No

## Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Avg\_Req\_In\_WaitQ\_MS\_Info situation

#### Description

The time a disk transfer request is in the wait queue is high.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_DISKS.Avg\_Request\_In\_WaitQ\_MS \*GT 20

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

Run at startup

No

# Sampling interval

1 minute

## Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

#### KVA\_ServiceQ\_Full\_Per\_Sec\_Info situation

#### Description

The rate that the disk service queue becomes full is high.

The situation is evaluated for each distinct value of the NAME attribute.

#### Formula

\*IF \*VALUE KVA\_DISKS.ServiceQ\_Full\_per\_Sec \*GT 5

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

#### Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

## **Error conditions**

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

# System Navigator item

The situation descriptions are organized by the Navigator item to which the situations are relevant.

# KVA\_PHYP\_Pct\_High\_Info situation

# Description

The percentage of time spent in the hypervisor is high.

The situation will be evaluated for the table.

## Formula

\*IF \*VALUE KVA\_CPU\_SUMMARY.Time\_Spent\_in\_Hypervisor\_Pct \*GT 3

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

## Distribution

This situation is available for distribution.

Run at startup No

Sampling interval 30 seconds

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 2.

#### **Error conditions**

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

#### KVA\_Reduced\_Proc\_Freq\_Info situation

#### Description

The processor is operating at reduced frequency.

The situation will be evaluated for the table.

#### Formula

\*IF \*VALUE KPX\_CPU\_SUMMARY.Average\_Operating\_Frequency\_Pct \*LE 99 \*AND \*VALUE KPX\_CPU\_SUMMARY.Average\_Operating\_Frequency\_Pct \*GE 0

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

## Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

5 minutes

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 3.

# **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

## KVA\_perCPU\_syscalls\_Info situation

#### Description

Number of syscalls per CPU is high.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_CPU\_DETAIL.Syscalls\_per\_Sec \*GT 10000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_perCPU\_forks\_Info situation

# Description

Number of forks per CPU is high.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_CPU\_DETAIL.Forks\_per\_Sec \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

## Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

#### KVA\_perCPU\_execs\_Info situation

# Description

Number of execs per CPU is high.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_CPU\_DETAIL.Execs\_per\_Sec \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

## Distribution

This situation is available for distribution.

#### Run at startup

No

## Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_perCPU\_cs\_Info situation

#### Description

Number of context switches per CPU is high.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_CPU\_DETAIL.Context\_Switches\_per\_Sec \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

#### Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

#### **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Tot\_syscalls\_Info situation

#### Description

Total number of syscalls is high.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_SYSTEM\_CALL.Num\_Syscalls\_per\_Sec \*GT 10000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Tot\_forks\_Info situation

#### Description

Total number of forks is high.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_SYSTEM\_CALL.Forks\_per\_Sec \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

#### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_Tot\_execs\_Info situation

## Description

Total number of execs is high.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

## Formula

\*IF \*VALUE KVA\_SYSTEM\_CALL.Execs\_per\_Sec \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

# Run at startup

No

#### Sampling interval 1 minute

1 mmuu

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

## **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_LPARBusy\_pct\_Warn situation

# Description

LPAR Logical Busy percentage is high.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

## Formula

\*IF \*VALUE KVA\_LOGICAL\_PARTITION.Busy\_Pct \*GT 95

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

Sampling interval 1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

Error conditions Warning

Clearing conditions

The situation clears when the condition becomes false.

## KVA\_LPARPhyBusy\_pct\_Warn situation

#### Description

LPAR Physical Busy percentage is high.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_LOGICAL\_PARTITION.Phys\_Busy\_Pct \*GT 95

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

## Run at startup

No

Sampling interval 1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Warning

#### **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_LPARvcs\_Info situation

# Description

LPAR Virtual Context Switching rate is high.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_LOGICAL\_PARTITION.Virt\_Context\_CPU\_Switches\_per\_Sec \*GT 1000

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

## Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_LPARfreepool\_Warn situation

#### Description

LPAR CPU free pool space is getting low.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_LOGICAL\_PARTITION.Unallocated\_CPU\_In\_Pool \*LT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

#### Sampling interval 1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Warning

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_LPARPhanIntrs\_Info situation

#### Description

Number of LPAR Phantom interrupts (not for this LPAR) is high.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_LOGICAL\_PARTITION.Phantom\_Interrupts \*GT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

#### Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

#### **Error conditions**

Informational

## **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_LPARentused\_Info situation

# Description

LPAR CPU utilization is more that its entitlement.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_LOGICAL\_PARTITION.Entitlement\_Pct \*GT 100

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

#### Sampling interval

1 minute

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_LPARphyp\_used\_Info situation

#### Description

PHYP (hypervisor) is using more CPU than expected.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_LOGICAL\_PARTITION.Time\_In\_Hypervisor\_Pct \*GT 1

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

## Run at startup No

110

## Sampling interval 1 minute

## Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_LPAR\_MaxCPUCapUsed\_Info situation

#### Description

Triggers when Max\_CPU\_Cap\_Used Pct GT 80%.

The situation is evaluated for each distinct value of the CPU\_NUMBER attribute.

#### Formula

\*IF \*VALUE KVA\_LOGICAL\_PARTITION.Max\_CPU\_Cap\_Used\_Pct \*GT 80

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

Run at startup

No

# Sampling interval

1 minute

#### Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# Error conditions

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# **Top Resources Navigator item**

No predefined situations are included for this Navigator item.

# User Navigator item

The situation descriptions are organized by the Navigator item to which the situations are relevant.

# KVA\_user\_acct\_locked\_Info situation

## Description

User account is locked.

The situation is evaluated for each distinct value of the USER\_NAME attribute.

## Formula

\*IF \*SCAN KVA\_DEFINED\_USERS.Account\_Locked \*EQ 'true'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

## Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 hour

## Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_user\_login\_retries\_Info situation

# Description

User login retries is high.

The situation is evaluated for each distinct value of the USER\_NAME attribute.

# Formula

\*IF \*VALUE KVA\_DEFINED\_USERS.Loginretries \*GT 4

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

## Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 hour

## Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 5.

# **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_user\_idletime\_Info situation

## Description

User Idle time is longer than expected.

The situation is evaluated for each distinct value of the USER\_NAME attribute.

## Formula

\*IF \*VALUE KVA\_ACTIVE\_USERS.Idle\_Time \*GT 86400

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

1 hour

## Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 24.

# **Error conditions**

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# Virtual IO Mappings Navigator item

The situation descriptions are organized by the Navigator item to which the situations are relevant.

# KVA\_VTD\_Maps\_Multi\_Disks\_Warn situation

# Description

The Client Virtual Disk maps to multiple physical disks.

The situation is evaluated for each distinct value of the VSSA\_SLOT attribute.

# Formula

\*IF \*SCAN KVA\_STORAGE\_MAPPINGS.VTD\_Spans\_Multiple\_Disks \*EQ 'true'

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is automatically distributed to instances of this agent.

# Run at startup

Yes

# Sampling interval 12 hours

# 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.

# KVA\_NPIV\_Status\_Warn situation

# Description

The NPIV mapping status is Not\_Logged\_In.

The situation is evaluated for each distinct value of the PN attribute.

## Formula

\*IF \*VALUE KVA\_NPIV\_MAPPINGS.Status \*EQ 0

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

## Distribution

This situation is available for distribution.

#### Run at startup No

# Sampling interval

30 seconds

# Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 2.

# Error conditions

Warning

# **Clearing conditions**

The situation clears when the condition becomes false.

# KVA\_NPIV\_Avail\_Ports\_Low\_Info situation

## Description

Available ports to be mapped for the Fibre Channel is low.

The situation is evaluated for each distinct value of the PFCP attribute.

# Formula

\*IF \*VALUE KVA\_NPIV\_FCP.Available\_Ports \*LT 2

See "Attributes in each attribute group" on page 28 for descriptions of the attributes in this formula.

# Distribution

This situation is available for distribution.

# Run at startup

No

# Sampling interval

30 seconds

## Situation persistence

The number of times the conditions of the situation must occur for the situation to be true is 2.

# Error conditions

Informational

# **Clearing conditions**

The situation clears when the condition becomes false.

# **Chapter 6. Take Action commands reference**

Take Action commands can be run from the portal client or included in a situation or a policy.

# **About Take Action commands**

When included in a situation, the command runs when the situation becomes true. A Take Action command in a situation is also referred to as *reflex automation*. When you enable a Take Action command in a situation, you automate a response to system conditions. For example, you can use a Take Action command to send a command to restart a process on the managed system or to send a text message to a cell phone.

In advanced automation, policies are used to take actions, schedule work, and automate manual tasks. A policy comprises a series of automated steps called activities that are connected to create a workflow. After an activity is completed, the Tivoli Enterprise Portal receives return-code feedback, and advanced automation logic responds with subsequent activities that are prescribed by the feedback.

A basic Take Action command shows the return code of the operation in a message box that is displayed after the action is completed or in a log file. After you close this window, no further information is available for this action.

# Additional information about Take Action commands

For more information about working with Take Action commands, see "Take Action commands" in the *Tivoli Enterprise Portal User's Guide*.

# **Predefined Take Action commands**

Not all agents have predefined Take Action commands. But you can create Take Action commands for any agent.

The IBM Tivoli Monitoring: VIOS Premium Agent does not provide predefined Take Action commands.

# **Chapter 7. Policies reference**

Policies are used as an advanced automation technique for implementing more complex workflow strategies than you can create through simple automation. All agents do not provide predefined policies, but you can create policies for any agent.

A *policy* is a set of automated system processes that can take actions, schedule work for users, or automate manual tasks. You use the Workflow Editor to design policies. You control the order in which the policy executes a series of automated steps, which are also called *activities*. Policies are connected to create a workflow. After an activity is completed, the Tivoli Enterprise Portal receives return-code feedback, and advanced automation logic responds with subsequent activities prescribed by the feedback.

For more information about working with policies, see "Automation with policies" in the *Tivoli Enterprise Portal User's Guide*.

For information about using the Workflow Editor, see the *IBM Tivoli Monitoring Administrator's Guide* or the Tivoli Enterprise Portal online help.

# **Predefined policies**

Not all agents have predefined policies. But you can create policies for any agent.

The IBM Tivoli Monitoring: VIOS Premium Agent does not provide predefined policies.

# Chapter 8. Tivoli Common Reporting for the System p monitoring agents

Use the agent-specific information with the Tivoli Common Reporting information in the *IBM Tivoli Monitoring Administrator's Guide* for complete information about prerequisites, importing reports, and running reports.

IBM Tivoli Monitoring V6.2.2 Fix Pack 2 introduced the Cognos<sup>®</sup> data model and reports to be used in Tivoli Common Reporting.

The reports in this package are historical reports, reporting against summarized data collected in Tivoli Data Warehouse V6.2.2. These reports are built to run against only the IBM Tivoli Monitoring VIOS Premium, CEC Base, and HMC Base agents.

The DB2<sup>®</sup>, Oracle, and SQL Server databases are supported for running all reports.

The Cognos reports can be administered, run, and edited by Tivoli Common Reporting V2.1.1 or later. For more information about Tivoli Common Reporting, see the Tivoli Common Reporting Community (https://www.ibm.com/developerworks/mydeveloperworks/groups/service/html/communityview?communityUuid=9caf63c9-15a1-4a03-96b3-8fc700f3a364).

This version of Tivoli Common Reporting includes Cognos Business Intelligence and Reporting V8.4 or later.

# More information about Tivoli Common Reporting

You can find information about Tivoli Common Reporting at the Tivoli Common Reporting documentation Information Center and the Tivoli Common Reporting website.

For complete documentation for the Tivoli Common Reporting tool, see the Tivoli Common Reporting documentation Information Center (http://pic.dhe.ibm.com/infocenter/tivihelp/v3r1/topic/com.ibm.tivoli.tcr.doc\_211/ic-home.html).

The Tivoli Common Reporting website contains information and how-to videos about subjects such as how to create IBM Tivoli Monitoring reports by dragging, import Tivoli Common Reporting and Cognos reports, and set up Cognos and Tivoli Common Reporting data connections. You can find a report catalog and information about reporting across Tivoli products at the Tivoli Common Reporting Community (https://www.ibm.com/developerworks/mydeveloperworks/groups/service/html/communityView?communityUuid=9caf63c9-15a1-4a03-96b3-8fc700f3a364).

# **Prerequisites**

The Cognos reports require the completion of prerequisite steps for the reports to run.

All of the following prerequisite steps must be completed or the reports cannot run:

- Install Tivoli Common Reporting V2.1.1 or V3.1.
- Obtain the reports from the product media.
- Enable historical collection and configure summarization and pruning for CEC Base, VIOS Premium, and HMC Base agents
- Connect to Tivoli Data Warehouse by using the database client over ODBC.

# Install Tivoli Common Reporting V2.1.1 or V3.1

Tivoli Common Reporting V2.1.1 or V3.1 must be installed and running.

# Procedure

- 1. To install and configure Tivoli Common Reporting, see the documentation in the Information Center for the version that you are using:
  - Tivoli Common Reporting V2.1.1 Information Center (http://pic.dhe.ibm.com/infocenter/tivihelp/ v3r1/topic/com.ibm.tivoli.tcr.doc\_211/ic-home.html)
  - Tivoli Common Reporting V3.1 Information Center (http://pic.dhe.ibm.com/infocenter/tivihelp/ v35r1/topic/com.ibm.tivoli.tcr.doc\_31/ic-home.html)
- To ensure that Tivoli Common Reporting is running, go to https://machine\_name:16311/ibm/ console/.

# Obtain the reports from the product media

The reports must be on the same computer as the Tivoli Common Reporting server.

# About this task

# Procedure

1. Locate the Cognos reports in the following directory: Product Media root/REPORTS.

**Important:** See the IBM Tivoli Monitoring Download instructions (http://pic.dhe.ibm.com/ infocenter/tivihelp/v61r1/topic/com.ibm.itm.doc\_6.3/dld\_itm63.htm) for the part numbers for the IBM Tivoli Monitoring for System p V6.2.2 Interim Feature 3. The new package has the new reports.

2. Copy these files to any location on the same computer where the Tivoli Common Reporting server is installed.

# **Configure historical collection**

Historical collection must be enabled and summarization and pruning configured for the CEC Base, VIOS Premium, and HMC Base agents

# Before you begin

Install and configure IBM Tivoli Monitoring V6.2.2 Fix Pack 2 and install and configure the CEC, VIOS, and HMC Base agents, then configure historical collection.

Also, configure the Warehouse Summarization and Pruning agent with or without shifts enabled.

For more information about how to enable historical collection and configure warehouse summarization and pruning in IBM Tivoli Monitoring, see "Managing historical data"" in the *IBM Tivoli Monitoring Administrator's Guide*.

# Procedure

1. Enable daily and hourly summarization for the tables listed in Table 2 on page 237.

**Note:** Some reports support additional summarization types such as Weekly and Monthly. Best practice is not to turn on these summarizations unless you want to run the reports against these summarization types. Running the prerequisite scanner report on a per-report basis provides you with the list of attribute groups (and summarizations) that are used for each report.

Table 2. Tables for daily and hourly summarization

Agent	Tables						
CEC Base agent	• KPK_AMS_POOLS						
	• KPK_CPU_POOLS						
	KPK_DIRECTOR						
	• KPK_GLOBAL_CEC						
	• KPK_MON_LPARS						
	KPK_MON_UNMON_ALLOC						
	• KPK_PER_LPAR						
	KPK_PERFORMANCE_OBJECT_STATUS						
HMC Base agent	• KPH_CPU_SUMMARY						
	• KPH_EVENTS						
	• KPH_FILE_SYSTEMS						
	• KPH_MANAGED_CECS						
	• KPH_MANAGED_LPARS						
	• KPH_PAGING_SPACE						
	KPH_PERFORMANCE_OBJECT_STATUS						
	KPH_PHYSICAL_MEMORY						
	KPH_PROCESSES_DETAIL						
	KPH_VERSION_INFORMATION						
	• KPH_SERVER_DETAILS						
	• KPH_SERVER_DAG						
	KPH_SVR_PERFORMANCE_OBJECT_STATUS						
	• KPH_SERVER_LPARS						
	KPH_SERVER_CPU_POOLS						

Table 2. Tables for daily and hourly summarization (continued)

Agent	Tables			
VIOS Premium agent	• KVA_AMS_POOL			
	• KVA_CPU_DETAIL			
	• KVA_CPU_SUMMARY			
	KVA_DEVICES			
	• KVA_DISKS			
	• KVA_FILE_SYSTEMS			
	KVA_INTERNET_PROTOCOL_DETAIL			
	KVA_INTERNET_PROTOCOL_SUMMARY			
	KVA_LOGICAL_PARTITION			
	KVA_LOGICAL_VOLUMES			
	KVA_MPIO_ATTRIBUTES			
	• KVA_MPIO_STATUS			
	KVA_NETWORK_ADAPTERS_RATES			
	KVA_NETWORK_MAPPINGS			
	• KVA_PAGING_SPACE			
	KVA_PHYSICAL_MEMORY			
	KVA_PHYSICAL_VOLUMES			
	KVA_PROCESSES_DETAIL			
	KVA_PROCESSES_SUMMARY			
	• KVA_SYSTEM_CALL			
	• KVA_SYSTEM_IO			
	KVA_STORAGE_MAPPINGS			
	• KVA_TCP			
	KVA_VIRTUAL_MEMORY_MANAGEMENT			
	KVA_VOLUME_GROUPS			
	• KVA_FC_STATS			

2. To ensure that the required views are present, run the query in Table 3 for the applicable database against Tivoli Data Warehouse.

Table 3. Queries for databases

Database	Query
DB2	select distinct "VIEWNAME" from SYSCAT.VIEWS where "VIEWNAME" like ' $\ensuremath{\$V}$ '
Oracle	select distinct "VIEW_NAME" from USER_VIEWS where "VIEW_NAME" like '%V'
MS SQL Server	select distinct "NAME" from SYS.VIEWS where "NAME" like '%V'

The result set contains the following views:

- CEC Base agent
  - KPK\_AMS\_POOLS\_HV, KPK\_AMS\_POOLS\_DV
  - KPK\_CPU\_POOLS\_HV, KPK\_CPU\_POOLS\_DV
  - KPK\_DIRECTOR\_HV, KPK\_DIRECTOR\_DV
  - KPK\_GLOBAL\_CEC\_HV, KPK\_GLOBAL\_CEC\_DV
  - KPK\_MON\_LPARS\_HV, KPK\_MON\_LPARS\_DV
  - KPK\_MON\_UNMON\_ALLOC\_HV, KPK\_MON\_UNMON\_ALLOC\_DV
  - KPKPOBJST\_HV, KPKPOBJST\_DV
  - KPK\_PER\_LPAR\_HV, KPK\_PER\_LPAR\_DV

# • HMC Base agent

- KPH\_CPU\_SUMMARY\_HV, KPH\_CPU\_SUMMARY\_DV

- KPH\_EVENTS\_HV, KPH\_EVENTS\_DV
- KPH\_FILE\_SYSTEMS\_HV, KPH\_FILE\_SYSTEMS\_DV
- KPH\_MANAGED\_CECS\_HV, KPH\_MANAGED\_CECS\_DV
- KPH\_MANAGED\_LPARS\_HV, KPH\_MANAGED\_LPARS\_DV
- KPHPOBJST\_HV, KPHPOBJST\_DV
- KPH\_PAGING\_SPACE\_HV, KPH\_PAGING\_SPACE\_DV
- KPH\_PHYSICAL\_MEMORY\_HV, KPH\_PHYSICAL\_MEMORY\_DV
- KPH\_PROCESSES\_DETAIL\_HV, KPH\_PROCESSES\_DETAIL\_DV
- KPH\_VERSION\_INFORMATION\_HV, KPH\_VERSION\_INFORMATION\_DV
- KPH\_SERVER\_DETAILS\_HV, KPH\_SERVER\_DETAILS\_DV
- KPH\_SERVER\_DAG\_HV, KPH\_SERVER\_DAG\_DV
- KPHSVRPOS\_HV, KPHSVRPOS\_DV
- KPH\_SERVER\_LPARS\_HV, KPH\_SERVER\_LPARS\_DV
- KPH\_SERVER\_CPU\_POOLS\_HV, KPH\_SERVER\_CPU\_POOLS\_DV
- VIOS Premium agent
  - KVA28VIRTU\_HV, KVA28VIRTU\_DV
  - KVA43INTER\_HV, KVA43INTER\_DV
  - KVA44INTER\_HV, KVA44INTER\_DV
  - KVA\_AMS\_POOL\_HV, KVA\_AMS\_POOL\_DV
  - KVA\_CPU\_DETAIL\_HV, KVA\_CPU\_DETAIL\_DV
  - KVA\_CPU\_SUMMARY\_HV, KVA\_CPU\_SUMMARY\_DV
  - KVA\_DEVICES\_HV, KVA\_DEVICES\_DV
  - KVA\_DISKS\_HV, KVA\_DISKS\_DV
  - KVA\_FILE\_SYSTEMS\_HV, KVA\_FILE\_SYSTEMS\_DV
  - KVA\_LOGICAL\_PARTITION\_HV, KVA\_LOGICAL\_PARTITION\_DV
  - KVA\_LOGICAL\_VOLUMES\_HV, KVA\_LOGICAL\_VOLUMES\_DV
  - KVA\_MPIO\_ATTRIBUTES\_HV, KVA\_MPIO\_ATTRIBUTES\_DV
  - KVA\_MPIO\_STATUS\_HV, KVA\_MPIO\_STATUS\_DV
  - KVA\_NETWORK\_ADAPTERS\_RATES\_HV, KVA\_NETWORK\_ADAPTERS\_RATES\_DV
  - KVA\_NETWORK\_MAPPINGS\_HV, KVA\_NETWORK\_MAPPINGS\_DV
  - KVA\_PAGING\_SPACE\_HV, KVA\_PAGING\_SPACE\_DV
  - KVA\_PHYSICAL\_MEMORY\_HV, KVA\_PHYSICAL\_MEMORY\_DV
  - KVA\_PHYSICAL\_VOLUMES\_HV, KVA\_PHYSICAL\_VOLUMES\_DV
  - KVA\_SYSTEM\_CALL\_HV, KVA\_SYSTEM\_CALL\_DV
  - KVA\_SYSTEM\_IO\_HV, KVA\_SYSTEM\_IO\_DV
  - KVA\_STORAGE\_MAPPINGS\_HV, KVA\_STORAGE\_MAPPINGS\_DV
  - KVA\_PROCESSES\_DETAIL\_HV, KVA\_PROCESSES\_DETAIL\_DV
  - KVA\_PROCESSES\_SUMMARY\_HV, KVA\_PROCESSES\_SUMMARY\_DV
  - KVA\_TCP\_HV, KVA\_TCP\_DV
  - KVA\_VOLUME\_GROUPS\_HV, KVA\_VOLUME\_GROUPS\_DV
  - KVA\_FC\_STATS\_HV, KVA\_FC\_STATS\_DV

# **Create indexes**

Database scripts are provided in the scripts folder to create indexes for enhanced reporting performance in the Tivoli Data Warehouse. If your data warehouse is not prepared with history before installation, the scripts cause errors. Before you run the scripts to create indexes, ensure that historical collection is enabled for the tables that are required to run the reports. You can manually run one the following scripts, depending on your database type:

- scripts/db2/create\_index.db2
- scripts/mssql/create\_index.sql
- scripts/oracle/create\_index.sql

**Note:** If you are using a schema other than ITMUSER, update the create\_index scripts by replacing all instances of ITMUSER with your schema name before you run the scripts.

For example, change ITMUSER in the following script: CREATE INDEX ITMUSER. KPK\_RPT\_GLOBAL\_CEC\_H ON ITMUSER.KPK\_GLOBAL\_CEC\_H ("LAT\_Machine\_ID" ASC, WRITETIME ASC, SHIFTPERIOD ASC, VACATIONPERIOD ASC) PCTFREE 10 MINPCTUSED 10 ALLOW REVERSE SCANS PAGE SPLIT SYMMETRIC COLLECT SAMPLED DETAILED STATISTICS ;

The following script is the corrected version where ITMUSER is replaced with your schema name: CREATE INDEX Schema\_Name. KPK\_RPT\_GLOBAL\_CEC\_H ON Schema\_Name.KPK\_GLOBAL\_CEC\_H ("LAT\_Machine\_ID" ASC, WRITETIME ASC, SHIFTPERIOD ASC, VACATIONPERIOD ASC) PCTFREE 10 MINPCTUSED 10 ALLOW REVERSE SCANS PAGE SPLIT SYMMETRIC COLLECT SAMPLED DETAILED STATISTICS ;

For more information, see "Creating shared dimensions tables and populating the time dimensions table" in the *IBM Tivoli Monitoring Administrator's Guide* (http://pic.dhe.ibm.com/infocenter/tivihelp/v15r1/topic/com.ibm.itm.doc\_6.3/adminuse/tcr\_dimensions.htm).

Although indexes help in enhancing report performance, some limitations apply: Use indexes only when you have large tables with thousands of rows, because indexes degrade the performance of insert, update, and delete operations on a table. You can run a script to drop these indexes if you have performance issues:

- scripts/db2/drop\_index.db2
- scripts/mssql/drop\_index.sql
- scripts/oracle/drop\_index.sql

These index scripts were tested with Tivoli Common Reporting 2.1.1 and Tivoli Common Reporting 3.1. In general, the reports perform better in Tivoli Common Reporting 3.1 with or without the indexes. The following reports showed significant performance improvements on using indexes (50% or higher reduction in run time):

- CEC Base Agent LPAR Physical CPU Utilization Details
- CEC Base Agent LPAR Physical Memory Utilization Details
- HMC Base Agent CPU Pool Usage Details
- HMC Base Agent LPAR Physical CPU Usage Details
- VIOS Premium Agent Disk Capacity Details
- VIOS Premium Agent Physical Fibre Channel Adapter Utilization
- CEC Base Agent Top or Bottom CECs by Physical Memory Utilization
- CEC Base Agent Top or Bottom LPARs by Physical CPU Utilization
- CEC Base Agent Top or Bottom LPARs by Physical Memory Utilization
- HMC Base Agent Top or Bottom LPARs by Physical CPU Usage

The results were obtained by testing the index scripts against a DB2 warehouse by using Tivoli Common Reporting 3.1 on a Windows Server 2008 R2 operating system. The warehouse had historical data that was collected for 15 managed servers and 213 LPARs for seven days.

# Connect to the Tivoli Data Warehouse

Connect to Tivoli Data Warehouse by using the database client over ODBC.

# About this task

Cognos uses ODBC to connect to the database. Therefore, it is important to first install a database client on theTivoli Common Reporting server and connect the database client to Tivoli Data Warehouse.

# Procedure

- 1. Make sure that you deployed a DB2, Oracle, or MS SQL Server database client on the computer where the Cognos-based Tivoli Common Reporting engine is installed. For DB2, the client must be the same version as the database that Tivoli Data Warehouse is using.
- 2. Connect the DB2, Oracle, or MS SQL Server database client to the database server:

Database	How to connect
DB2	Connect by running the Configuration Assistant, configuring the local net service name configuration, and restarting your system.
Oracle	Connect by running the Oracle Net Configuration Assistant, configuring the local net service name configuration, and restarting your system.
MS SQL Server	Connect by running the MS SQL Management Studio Express <sup>®</sup> , configuring the local net service name configuration, and restarting your system.

**Important:** Note the name of the connection you created, because it is used in Tivoli Common Reporting by the report installer as described in "Importing and running Cognos reports."

See Connecting to the Tivoli Data Warehouse using the database client over ODBC in the IBM Tivoli Monitoring Administrator's Guide V6.2.2 Fix Pack 2.

# Importing and running Cognos reports

You must import the IBM Tivoli Monitoring for System p Cognos reports to run any report from the System p Reports package.

# Before you begin

All prerequisites must be met before importing and running the reports, or the reports cannot run. See "Prerequisites" on page 235 for the steps.

**Note:** With this release, the reports package name does not contain the release version such as 6.2.2, and so on. When the package name does not have a version number, the name is the same across releases, so different versions of the packages cannot co-exist in the Tivoli Integrated Portal. Before installing the reports, be sure you back up the existing reports package if the name is IBM Tivoli Monitoring for System P Reports.

# About this task

The IBM Tivoli Monitoring for System p Reports package contains an installer that performs the following tasks:

- Importing the reports and data model into Tivoli Common Reporting
- Configuring a data source to connect to Tivoli Data Warehouse
- Running scripts to create and populate the common dimensions in Tivoli Data Warehouse

After completing the steps for importing and running Cognos reports, you can run any report from the IBM Tivoli Monitoring for System p Reports package.

# Procedure

- You might need to point to Java 1.5+ through your system PATH. Make sure that your system PATH contains a valid path to a Java virtual machine, for example: # PATH=\$PATH:/ibmjre50/ibm-java-i386-50/jre/bin
- 2. From the directory where you extracted the reports package, run the file in Table 4 on page 242 depending on your operating system.

Table 4. Setup files

Operating system	File	
AIX	setup_aix.bin	
HP-UX	setup_hpux.bin	
Linux	setup_linux.bin	
Solaris	setup_solaris.bin	
Windows	setup_windows.exe	

- To run the installer in console mode, use the following syntax: setup\_platform.exe/.bin -i console
- To run the installer in silent mode, use the following syntax: setup\_platform.exe/.bin -i silent -f path\_to\_response\_file

Note: Use the *silent\_installer.properties* response file for the silent installation.

- To run the installer in GUI mode, run the following executable: setup\_platform.exe/.bin
- 3. Select the language that you want.
- 4. Accept the license agreement.
- 5. Select the location where the Tivoli Common Reporting server is installed (*not* the location where the reports are to be installed). Use the following paths:
  - For Tivoli Common Reporting V2.1.1, the default path is C:\IBM\tivoli\tipv2Components\ TCRComponent or /opt/IBM/tivoli/tipv2Components/TCRComponent. The path must end with the /TCRComponent folder.
  - For Tivoli Common Reporting V3.1, the default path is C:\Program Files\IBM\JazzSM\reporting or /opt/IBM/JazzSM/reporting. The path must end with the /reporting folder.

**Note:** If Tivoli Common Reporting installation is distributed, reports must be installed on the dispatcher site only.

- 6. Select the report sets for installation by selecting the **IBM Tivoli Monitoring for System P Cognos Reports** check box.
- 7. Provide Tivoli Common Reporting credentials: user name and password.
- 8. Configure Cognos data sources to connect to Tivoli Data Warehouse.

**Note:** If you have a Tivoli Data Warehouse connection already defined in Tivoli Common Reporting (from a previous installation of reports), skip this step. To test whether you have Tivoli Data Warehouse defined, go to **TCR** > **Launch Administration** > **Configuration** > **Data Source Connections** and see whether there is an entry called **TDW**. If yes, then skip this step in the installation. You must manually configure the data source in Tivoli Common Reporting through this administration panel as described in Configuring database connection (http:// publib.boulder.ibm.com/infocenter/tivihelp/v3r1/topic/com.ibm.tivoli.tcr.doc\_21/ttcr\_config\_db.html). If you did not define a data source in Tivoli Common Reporting, do not skip this option. You must enter the database alias name or the ODBC name for the database name input field.

9. In the next panel, enter the JDBC credentials. The JDBC connection is used to run the Common Dimensions scripts against Tivoli Data Warehouse. Provide the database admin (db2admin, system, and so on) user name and password in the Configure data script window for JDBC User Credentials. Admin privileges are required in this step to create the IBM\_TRAM schema and required tables. If you are using an Oracle database and you do not have the USERS and TEMP tablespaces in your database, you must create them in your Tivoli Data Warehouse before you can run these scripts.

**Note:** If you already have these common dimensions (Time Dimension, Weekday Lookup, Month Lookup, and Computer System under IBM\_TRAM schema) in your Tivoli Data Warehouse from a previous installation and you want to modify those dimensions to define time granularity that is different from what is in the Tivoli Data Warehouse, you can skip this step and run the scripts manually as described in "Creating shared dimension tables and populating the time dimensions table" in the *IBM Tivoli Monitoring Administrator's Guide* V6.2.2 Fix Pack 2.

**10**. Select the **JDBC Database Credentials** tab, and select **database type**. Edit the JDBC URL, JDBC driver file names, and JDBC driver class for the selected database type.

Database	Required driver file name		
DB2	db2jcc.jar and db2jcc_license_cu.jar Note: JDBC credentials must have db2admin privileges.		
Oracle	oraclethin.jar		
SQL Server	sqljdbc.jar		

- 11. On the pre-installation summary panel, all reports selected for installation are displayed.
- **12**. Click **Install**, and wait for the installer to finish. The Installation results panel shows the status of all installation actions for every item or report.

One log file and one trace file are included. Both files are in the user home directory, with the following names:

- Report\_Installer\_for\_Tivoli\_Common\_Reporting\_InstallLog.log (Log)
- Report\_Installer\_For\_TCR\_Output.txt (Trace)

On Windows systems in the Run window, type %USERPROFILE% to open the file explorer to the directory where the log and trace files are created. If you skipped running the database scripts or a script failed, you can run the script manually by using the instructions in "Creating shared dimension tables and populating the time dimensions table" in the *IBM Tivoli Monitoring Administrator's Guide* V6.2.2 Fix Pack 2.

# Results

At the end of the installation, you see 3 messages. One for the status of importing reports, one for the status of defining the data source, and one for the status of running database scripts. If any of these messages indicate a failure, look at the Report\_Installer\_For\_TCR\_Output.txt and Report\_Installer\_InstallLog.log file. On Windows systems, this file is located in C:\Documents and Settings\Administrator.

# What to do next

Use the following steps to make sure that your installation was successful:

- 1. Go to Tivoli Common Reporting and see whether **IBM Tivoli Monitoring for System P Reports** is displayed in the Public Folders.
- 2. Go to TCR > Launch Administration > Configuration > Data Source Connections and see whether Tivoli Data Warehouse was defined. Click Tivoli Data Warehouse.
- **3**. On the next page, Tivoli Data Warehouse has a **Test Connection** icon next to it. Click the **Test connection** icon to make sure that you are connected to the database.
- 4. Go to **TCR** > **Launch Query Studio**. Select **IBM Tivoli Monitoring for System P Reports**. In the left navigation, all the data is displayed.
- 5. Browse to IBM Tivoli Monitoring for System P Reports > ITM for System P Agents (Query) > TCR Shared Dimensions (Query) > Time.
- 6. Drag **Date** into the space on the left. If no data is displayed, Time Dimension was not defined correctly.

# **Uninstalling reports**

The reports installer does not support uninstalling reports. However, you can manually delete the reports packages by using the Tivoli Integrated Portal.

# About this task

To delete the reports manually, use the Tivoli Integrated Portal for Tivoli Common Reporting 2.1.1 or later or the Dashboard Application Services Hub for Tivoli Common Reporting 3.1.

# Procedure

Use the following procedure to uninstall reports manually:

- 1. Log in to the Tivoli Common Reporting interface, and go to Common Reporting.
- 2. In the Work with reports window, click the check box for the reports package that you want to delete.

Work with	reports					
Connection						
Public Folder	Folders	My Folders				
□   Image: Name     □   Image: Comp     Image: Comp   Image: Comp  I	ne ≑ mon Reporting Tivoli Monitorin Dackages list in t ete icon.	g for System P the Work with re	Reports ports window			
smadmin	\$ [		<b>२</b> ∙ ¦	8.	Launch 🛩	

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Figure 3. Delete icon

# **Predefined Cognos reports**

The System p agents provide five categories of Cognos reports: What if analysis for workload placement, Performance trends and resource forecasts, Workload right-sizing and balancing, Accounting, and Prerequisites checking.

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The following predefined reports are available:
- Prerequisites checking
  - System p Report Prerequisite Scanner
- Accounting
  - HMC Base Agent Number of Managed Servers and LPARs monitored
- Performance trends and resource forecasts
  - CEC Base Agent CPU Pools Utilization Details
  - CEC Base Agent Frame Workload Trend and Forecast
  - CEC Base Agent LPAR Physical CPU Utilization Details
  - CEC Base Agent LPAR Physical Memory Utilization Details
  - CEC Base Agent LPAR Workload Trend and Forecast
  - HMC Base Agent CPU Pools Utilization Details
  - HMC Base Agent LPAR CPU Trend and Forecast
  - HMC Base Agent LPAR Heat Chart
  - HMC Base Agent LPAR Physical CPU Usage Details
  - HMC Base Agent Managed Server CPU Trend and Forecast
  - HMC Base Agent Managed Server Forecast Alerts
  - HMC Base Agent Managed Server Heat Chart
  - HMC Base Agent Managed Server Performance Trends
  - HMC Base Agent Managed Server Weekly Comparison
  - VIOS Premium Agent Disk Capacity Details
  - VIOS Premium Agent Physical Fibre Channel Adapter Utilization
  - VIOS Premium Agent Shared Ethernet Adapter Utilization
- What if analysis for workload placement
  - CEC Base Agent Number of LPARs for CEC
  - CEC Base Agent Resources Needed for Additional LPARS on CEC
  - HMC Base Agent Number of LPARs for Managed Server
  - HMC Base Agent Resources Needed For Additional LPARs on Managed Server
- Workload right-sizing and balancing
  - CEC Base Agent Balanced and Unbalanced CECs
  - CEC Base Agent Top or Bottom CECs by Physical CPU Utilization
  - CEC Base Agent Top or Bottom CECs by Physical Memory Utilization
  - CEC Base Agent Top or Bottom LPARs by Physical CPU Utilization
  - CEC Base Agent Top or Bottom LPARs by Physical Memory Utilization
  - HMC Base Agent Top or Bottom LPARs by Physical CPU Usage
  - HMC Base Agent Top or Bottom Managed Servers by Physical CPU Utilization
  - VIOS Premium Agent Top or Bottom VIOSs by Disk Capacity

#### Attribute groups

The Cognos reports use the following attribute groups (agent codes: KPH for the HMC Base agent, KPK for the CEC Base agent, KVA for the VIOS Premium agent):

- KPH\_MANAGED\_CECS
- KPH\_SERVER\_DETAILS\_HV
- KPH\_SERVER\_DETAILS\_DV
- KPH\_SERVER\_DETAILS\_WV
- KPH\_SERVER\_DETAILS\_MV

- KPH\_SERVER\_LPARS\_HV
- KPH\_SERVER\_LPARS\_DV
- KPH\_SERVER\_LPARS\_WV
- KPH\_SERVER\_LPARS\_MV
- KPH\_SERVER\_CPU\_POOLS\_HV
- KPH\_SERVER\_CPU\_POOLS\_DV
- KPH\_SERVER\_CPU\_POOLS\_WV
- KPH\_SERVER\_CPU\_POOLS\_MV
- KPK\_GLOBAL\_CEC\_HV
- KPK\_GLOBAL\_CEC\_DV
- KPK\_GLOBAL\_CEC\_WV
- KPK\_GLOBAL\_CEC\_MV
- KPK\_MON\_LPARS\_HV
- KPK\_MON\_LPARS\_DV
- KPK\_MON\_LPARS\_WV
- KPK\_MON\_LPARS\_MV
- KPK\_MON\_UNMON\_ALLOC\_HV
- KPK\_MON\_UNMON\_ALLOC\_DV
- KPK\_CPU\_POOLS\_HV
- KPK\_CPU\_POOLS\_DV
- KPK\_CPU\_POOLS\_WV
- KPK\_CPU\_POOLS\_MV
- KVA\_FC\_STATS\_DV
- KVA\_NETWORK\_ADAPTERS\_RATES\_DV
- KVA\_PHYSICAL\_VOLUMES\_DV
- KVA\_STORAGE\_MAPPINGS\_DV
- KVA\_VOLUME\_GROUPS\_DV

## **Prerequisites Checking reports**

One predefined report is available for prerequisites checking for the System p agents.

The following report is available for prerequisites checking: System p Report Prerequisite Scanner

#### System p Report Prerequisite Scanner report

This report runs against DB2, Oracle, or MS SQL Server databases and determines whether all prerequisite tables and views are present to successfully run System p reports (all reports or on a per-report basis).

Report element	Details
Parameters	To run the Prerequisite Scanner, ensure that you defined and tested a database (DB2, MS SQL Server, or Oracle) connection to the Tivoli Data Warehouse and choose the appropriate connection to generate the Prerequisite Scanner Report.
	Database Type DB2, MS SQL Server, or Oracle
	<b>Display Options</b> Check all reports or a specific report by choosing from a category within the reports package.

Report element	Details
Tables or views used	DB2
	SYSCAT.VIEWS
	SYSCAT.TABLES
	Oracle
	SYS.ALL_VIEWS
	SYS.ALL_TABLES
	MS SQL Server
	INFORMATION_SCHEMA.VIEWS
	INFORMATION_SCHEMA.TABLES
Output	A legend is displayed at the beginning of the report that shows the meaning of the symbols that are displayed under the Status column. A red cross and a yellow exclamation point (!) indicate error conditions. When an error is indicated, a corrective action is suggested that includes links to the appropriate documentation. The table contains two columns:
	Missing Tables/Views from IBM Tivoli Monitoring for System p agent
	In the first column, missing tables and views are listed in order, showing status with a red cross or a yellow exclamation point (!). Available tables and views are shown with a green check mark.
	Missing Table/Views for Shared Dimensions
	In the second column, the IBM_TRAM schema followed by TIME_DIMENSION, WEEKDAY_LOOKUP, MONTH_LOOKUP and ComputerSystem under the IBM_TRAM schema are checked for availability.
	If all the tables and views are available in the warehouse, a report might not run because of inadequately generated timestamps. In this case, run the appropriate database scripts to populate the TIME_DIMENSION table. When you run the prerequisite scanner to check a specific report, the IBM Tivoli Monitoring tables that are used for implementation are checked for availability and a status is displayed for each of the tables that are used. Since the TIME_DIMENSION table is used by most predefined reports, you can check availability by clicking a hyperlink that is provided in the report.

**Note:** While configuring historical collection, see "Attributes in each attribute group" on page 28 for information about the attribute groups.

# Accounting reports

One predefined accounting report is available for the System p agents.

The following report is available for accounting: HMC Base Agent Number of Managed Servers and LPARs monitored.

#### HMC Base Agent Number of Managed Servers and LPARs monitored report

This report provides the number of managed servers, logical partitions, and processor cores that are monitored by the HMC Base agent for the Power Hypervisor.

Report element	Details
Parameters	None
Tables or views used	KPH_MANAGED_CECS

Report element	Details
Output	This report contains a table that provides the following information:
	• Number of managed servers, logical partitions, and processor cores that are running against each server in the environment
	<ul> <li>Total number of managed servers, logical partitions, and processor cores that are monitored for the Power hypervisor</li> </ul>

# Performance trends and resource forecasts reports

You can generate performance trends and forecasts for resources like CPU and memory for the System p environment using these predefined reports.

The following reports are available for performance trends and resource forecasts:

- CEC Base Agent CPU Pools Utilization Details
- CEC Base Agent Frame Workload Trend and Forecast
- CEC Base Agent LPAR Physical CPU Utilization Details
- CEC Base Agent LPAR Physical Memory Utilization Details
- CEC Base Agent LPAR Workload Trend and Forecast
- HMC Base Agent CPU Pools Utilization Details
- HMC Base Agent LPAR CPU Trend and Forecast
- HMC Base Agent LPAR Heat Chart
- HMC Base Agent LPAR Physical CPU Usage Details
- HMC Base Agent Managed Server CPU Trend and Forecast
- HMC Base Agent Managed Server Forecast Alerts
- HMC Base Agent Managed Server Heat Chart
- HMC Base Agent Managed Server Performance Trends
- HMC Base Agent Managed Server Weekly Comparison
- VIOS Premium Agent Disk Capacity Details
- VIOS Premium Agent Physical Fibre Channel Adapter Utilization
- VIOS Premium Agent Shared Ethernet Adapter Utilization

#### **CEC Base Agent CPU Pools Utilization Details report**

This report shows the CPU usage of all pools that are stacked up in a CEC or Frame over time.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Resource Selection
	<b>CEC</b> Select the CEC you want from the environment.
	Display Option
	Summarization Type Choose the summarization type from the drop-down list. The options are Hourly, Daily (the default value), Weekly, and Monthly.
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPK_CPU_POOLS_DV
	KPK_CPU_POOLS_HV
	KPK_CPU_POOLS_WV
	KPK_CPU_POOLS_MV
	KPK_GLOBAL_CEC_DV
	KPK_GLOBAL_CEC_HV
	KPK_GLOBAL_CEC_WV
	KPK_GLOBAL_CEC_MV
	KPK_MON_LPARS_DV
	<b>Note:</b> Although the report supports Weekly and Monthly summarization types, if you do not plan to run the report for these summarizations, do not configure these summarizations for the attribute groups on the Tivoli Enterprise Portal Server.

Report element	Details
Output	This report contains an area chart that shows the total CPU units that are used by CPU Pools over a selected period. The table shows various CPU attributes such as Average CPU Pool Units Consumed, Average Maximum CPU Pool Capacity, Allocated CEC CPU Units, and Total CEC CPU Units.

#### **CEC Base Agent Frame Workload Trend and Forecast report**

This report shows a linear forecast of CPU and memory utilization for the frame.

Report element	Details
Parameters	Resource
	CEC
	Select the CEC you want from the environment.
	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	Forecast Period (Days) The number of days to forecast.
	Display Options
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
	<b>Thresholds (%)</b> CPU and memory thresholds to compare against the forecasted values.
Tables or views used	KPK_MON_UNMON_ALLOC_DV
	KPK_GLOBAL_CEC_DV
Output	This report contains line charts for CEC CPU and memory usage and the forecasted usage values.

## CEC Base Agent LPAR Physical CPU Utilization Details report

This report shows the CPU usage for all LPARs in all the CPU pools in a CEC or Frame over time as compared to the maximum capacity of the pools.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	CEC
	Select the CEC you want from the environment.
	Select the LPAR you want (one or many) from the specified CEC.
	Summarization Type
	Choose the summarization type from the drop-down list. The options are Hourly, Daily (the default value), Weekly, and Monthly.
	Shift and Vacation Periods
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	Vacation Period
	If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPK_GLOBAL_CEC_DV
	KPK_MON_LPARS_HV
	KPK_MON_LPARS_DV
	KPK_MON_LPARS_WV
	KPK_MON_LPARS_MV
	<b>Note:</b> Although the report supports Weekly and Monthly summarization types, if you do not plan to run the report for these summarizations, do not configure these summarizations for the attribute groups on the Tivoli Enterprise Portal Server.
Output	This report shows an area chart that displays the total CPU units that are used over a selected period for the selected LPARs or for all the LPARs in a CEC. A table view below the chart shows various CPU attributes such as Total and Maximum Physical CPU Units Used, Average and Maximum CPU Entitlement Used (%), Average, Maximum and Total CPU Allocated, and Maximum CPU Cap Used (%).

### **CEC Base Agent LPAR Physical Memory Utilization Details report**

This report shows current, average, and maximum memory utilization for one or more LPARs.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	CEC
	Select the LPAR you want (one or many) from the specified CEC.
	<b>Summarization Type</b> Choose the summarization type from the drop-down list. The options are Hourly, Daily (the default value), Weekly, and Monthly.
	Shift and Vacation Periods
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPK_MON_LPARS_HV
	KPK_GLOBAL_CEC_DV
	KPK_MON_LPARS_DV
	KPK_MON_LPARS_WV
	KPK_MON_LPARS_MV
	<b>Note:</b> Although the report supports Weekly and Monthly summarization types, if you do not plan to run the report for these summarizations, do not configure these summarizations for the attribute groups on the Tivoli Enterprise Portal Server.
Output	This report is an overlaid line chart that shows the average and maximum memory utilization for one or more LPARs over a selected period. A table shows detailed values such as average and maximum physical memory in both percentage and megabytes.

### CEC Base Agent LPAR Workload Trend and Forecast report

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	Forecast Period (Days) The number of days to forecast.
	Display Options
	<b>Shift Period</b> If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1

This report shows a linear forecast of CPU and memory for one or more LPARs.

	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<ul> <li>Vacation Period</li> <li>If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.</li> <li>Thresholds (%)</li> <li>CPU and memory thresholds to compare against the forecasted values.</li> </ul>
Tables or views used	KPK_MON_LPARS_DV KPK_GLOBAL_CEC_DV
Output	This report contains line charts for CPU and memory usage and the forecasted usage values for the selected LPARs.

### HMC Base Agent CPU Pools Utilization Details report

This report shows the CPU Pool usage of a managed server over time.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current
	Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Resource Selection
	Managed Server Select the managed server that you want from the environment.
	<b>CPU Pool ID</b> Select the CPU Pool ID whose usage is shown over time.
	Display Option
	<b>Summarization Type</b> Choose the summarization type from the drop-down list. The options are Hourly, Daily (the default value), Weekly, and Monthly.
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPH_SERVER_DETAILS_HV
	KPH_SERVER_DETAILS_DV
	KPH_SERVER_DETAILS_WV
	KPH_SERVER_DETAILS_MV
	KPH_SERVER_CPU_POOLS_HV
	KPH_SERVER_CPU_POOLS_DV
	KPH_SERVER_CPU_POOLS_WV
	KPH_SERVER_CPU_POOLS_MV
	<b>Note:</b> Although the report supports Weekly and Monthly summarization types, if you do not plan to run the report for these summarizations, do not configure these summarizations for the attribute groups on the Tivoli Enterprise Portal Server.

Report element De	Details
Output Thi	his report contains an area chart that shows the total CPU Units that are used by the
cho	hosen CPU Pool over a selected period. The table shows various CPU attributes such as
Av	werage CPU Pool Units Consumed, Maximum CPU Pool Capacity, Allocated Managed
Ser	erver Capacity, and the Total Managed Server Capacity.

#### HMC Base Agent LPAR CPU Trend and Forecast report

This report shows a linear forecast of CPU for one or more LPARs.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	Resource Selection
	Managed Server Select the managed server that you want from the environment
	LPARs Select one or more LPARs from the environment.
	Display Options
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	Vacation Period If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
	<b>CPU Threshold (%)</b> The CPU threshold to compare against the forecasted values.
Tables or views used	KPH_SERVER_DETAILS_DV
	KPH_SERVER_LPARS_DV
Output	This report contains an area chart for CPU usage and the forecasted usage values for the selected LPARs.

#### HMC Base Agent LPAR Heat Chart report

This report shows the CPU utilization pattern over a period for selected LPARs within a set of managed servers in your environment.

Report element	Details
Parameters	Resources
	Managed Servers Select one or more of the managed servers that you want from the environment.
	LPARs Select one of more of the LPARs that you want from the chosen list of managed servers in your environment.
	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	User Inputs for Analysis
	<b>Upper Limit for Good Status</b> Specify the upper limit for the CPU percentage utilization value to determine the range of values that is considered good.
	<b>Upper Limit for Fair Status</b> Specify the upper limit for the CPU percentage utilization value to determine the range of values that is considered fair.
	<b>Upper Limit for Warning Status</b> Specify the upper limit for the CPU percentage utilization value to determine the range of values that indicates a warning status.
	Upper Limit for Bad Status and Lower Limit for Critical Status Specify the upper limit for the CPU percentage utilization value to determine the range of values that indicates a bad status. This limit is also the lower limit to consider a utilization value as critical
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPH_SERVER_LPARS_HV

Report element	Details
Output	This report presents a different visualization for observing patterns in hourly processor 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 LPAR within a managed server, hourly averages for the metric are shown. This chart helps in identifying patterns, such as times of day when the LPAR becomes busy. The chart is useful for determining maintenance schedules. Different colors on the heat chart represent different percentage bands. You can modify the threshold values for these bands.

## HMC Base Agent LPAR Physical CPU Usage Details report

This report shows the CPU usage of one or more selected LPARs from the CPU pools of a managed server over time.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Resource Selection
	Managed Server Select the managed server that you want from the environment.
	CPU Pool (s) Select one or more CPU Pools for which usage by LPARs is shown over time
	LPAR(s) Select one or more LPARs for which CPU usage is shown over time
	Display Options
	Summarization Type Choose the summarization type from the drop-down list. The options are Hourly, Daily (the default value), Weekly, and Monthly.
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.

Report element	Details
Tables or views used	KPH_SERVER_LPARS_HV
	KPH_SERVER_LPARS_DV
	KPH_SERVER_LPARS_WV
	KPH_SERVER_LPARS_MV
	KPH_SERVER_CPU_POOLS_HV
	KPH_SERVER_CPU_POOLS_DV
	KPH_SERVER_CPU_POOLS_WV
	KPH_SERVER_CPU_POOLS_MV
	<b>Note:</b> Although the report supports Weekly and Monthly summarization types, if you do not plan to run the report for these summarizations, do not configure these summarizations for the attribute groups on the Tivoli Enterprise Portal Server.
Output	This report contains a stacked area chart that shows the total CPU Units that are used by the selected LPARs from the chosen CPU Pools over a selected period. The table contains various CPU attributes such as Average CPU Units Consumed by LPARs, Maximum CPU Units Consumed by LPARs, Entitled Capacity, and the Average CPU Entitlement Used (%).

### HMC Base Agent Managed Server CPU Trend and Forecast report

This report shows a linear forecast for the CPU Utilization of the managed server.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	Resource Selection
	Managed Server Select the managed server that you want from the environment
	Display Options
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
	<b>CPU Threshold (%)</b> The CPU threshold to compare against the forecasted values.
Tables or views used	KPH_SERVER_DETAILS_DV
Output	This report contains a line chart for managed server CPU usage and the forecasted usage values.

#### HMC Base Agent Managed Server Forecast Alerts report

This report alerts you when a managed server or group of managed servers reaches its capacity limitations. The report calculates a linear trend for the next few days, depending on the forecast period and determines whether any of the managed servers exceed the user-defined threshold for the CPU for the server. The threshold (%) applies to the total capacity available in the managed server.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	Forecast Period (Days) The number of days to forecast.
	Resource Selection
	Managed Server Select the managed server that you want from the environment
	Display Options
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
	<b>CPU Threshold (%)</b> The CPU threshold to compare against the forecasted values.
Tables or views used	KPH_SERVER_DETAILS_DV
Output	This report contains a table with values of Average CPU Units Used (including the historical average and forecasted values for the selected time period) and the total capacity against the chosen list of managed servers. Alerts are indicated with a green color for the CPU usage values if they fall below the threshold and a red color for the alerts that exceed the CPU threshold (which is set to 80% by default).

#### HMC Base Agent Managed Server Heat Chart report

This report shows the CPU utilization pattern over a period for selected managed servers in your environment.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Resources
	Managed Servers Select one or more of the managed servers that you want from the environment.
	User Inputs for Analysis
	<b>Upper Limit for Good Status</b> Specify the upper limit for the CPU percentage utilization value to determine the range of values that is considered good.
	<b>Upper Limit for Fair Status</b> Specify the upper limit for the CPU percentage utilization value to determine the range of values that is considered fair.
	<b>Upper Limit for Warning Status</b> Specify the upper limit for the CPU percentage utilization value to determine the range of values that indicates a warning status.
	<b>Upper Limit for Bad Status and Lower Limit for Critical Status</b> Specify the upper limit for the CPU percentage utilization value to determine the range of values that indicates a bad status. This limit is also the lower limit to consider a utilization value as critical
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPH_ SERVER _DETAILS_HV
Output	This report presents a different type of visualization for observing patterns in hourly processor 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 managed server, hourly averages for the metric are shown. This chart helps in identifying patterns, such as the times of day when the server becomes busy. The chart is useful for determining maintenance schedules or observing whether the pattern of the LPAR matches the pattern of its target host during LPAR placement exercises.
	Different colors on the heat chart represent different percentage bands. You can modify the threshold values for these bands.

### HMC Base Agent Managed Server Performance Trends report

This report shows trends for multiple performance metrics such as CPU units used and number of LPARs for multiple managed servers in a matrix.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Resources
	Managed Server Select the managed server that you want from the environment.
	User Inputs for Analysis
	<b>Summarization Type</b> Choose the summarization type from the drop-down list. The options are Hourly, Daily (the default value), Weekly, and Monthly.
	<b>Display Option</b> You can choose to view the detailed values in a table by choosing the Summary Table option or view only the trend charts in a table by choosing the Trend Charts option. For both options, the entire table can be sorted by clicking a column.
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.

Report element	Details
Tables or views used	KPH_SERVER_LPARS_HV
	KPH_SERVER_LPARS_DV
	KPH_SERVER_LPARS_WV
	KPH_SERVER_LPARS_MV
	KPH_SERVER_DETAILS_HV
	KPH_SERVER_DETAILS_DV
	KPH_SERVER_DETAILS_WV
	KPH_SERVER_DETAILS_MV
	<b>Note:</b> Although the report supports Weekly and Monthly summarization types, if you do not plan to run the report for these summarizations, do not configure these summarizations for the attribute groups on the Tivoli Enterprise Portal Server.
Output	This report shows trends for multiple performance metrics for multiple managed servers in a matrix. Maximum CPU usage is plotted against the average CPU usage. Number of LPARs that are in running state is plotted against the total number of LPARs on the managed server. The report can be displayed in hourly, daily, weekly, and monthly format. Choose the Summary Table option while you are running the report if you want to see only the numbers and not the charts.

#### HMC Base Agent Managed Server Weekly Comparison report

This report alerts you if the values of the key metrics for managed servers change significantly based on a weekly comparison by highlighting the corresponding field.

Report element	Details
Parameters	Resources
	Managed Servers Select one or more of the managed servers that you want from the environment.
	Date Range         You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start date, end date, and time for the reporting period by choosing the one of the Date Range option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	<b>Start Year and End Year, Start Week and End Week</b> If you did not select a date range, you can choose a start and end year and a start and end week to run the report.
	User Inputs for Analysis
	<b>Percent Change</b> Specify a percentage to highlight the rows when there is a significant change in values between consecutive weeks. By default, a change of 20% is used for highlighting.
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	Vacation Period If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPH_SERVER_DETAILS_DV
	KPH_SERVER_LPARS_DV
Output	This report compares the key metrics for managed servers from week to week. If there is a significant change in value from one week to another, that field is highlighted.

#### **VIOS Premium Agent Disk Capacity Details report**

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	VIOS Select the VIOS you want from the environment.
	Summarization Type Choose the summarization type from the drop-down list. The options are Hourly, Daily (the default value), Weekly, and Monthly.
	Shift and Vacation Periods
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KVA_STORAGE_MAPPINGS_DV
	KVA_VOLUME_GROUPS_DV
	KVA_PHYSICAL_VOLUMES_HV
	KVA_PHYSICAL_VOLUMES_WV
	KVA_PHYSICAL_VOLUMES_MV
	KVA_PHYSICAL_VOLUMES_DV
	<b>Note:</b> Although the report supports Weekly and Monthly summarization types, if you do not plan to run the report for these summarizations, do not configure these summarizations for the attribute groups on the Tivoli Enterprise Portal Server.
Output	This report shows a stacked area chart for each disk in the VIOS. The lower area of the chart shows the average megabytes used on the disk over a selected period. The upper area shows average free megabytes on the disk over the selected period. A table shows detailed values for all disks.

This report shows average megabytes used and free on the disk over a selected period.

#### **VIOS Premium Agent Physical Fibre Channel Adapter Utilization report**

The report shows the average bandwidth utilization details for each fibre channel adapter port over the specified time period.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
	Aggregation Select the aggregation type that is used to aggregate the data over time. You can choose Maximum or Average.
Tables or views used	KVA_FC_STATS_DV
Output	The report displays the average bandwidth utilization details for each fibre channel adapter port over the specified time period. The table shows different metrics that are related to the bandwidth used by each fibre channel adapter port.

#### **VIOS Premium Agent Shared Ethernet Adapter Utilization report**

This report shows average used megabytes and average free megabytes over the selected period of time for the disk.

Report element	Details
Parameters	Date Range
	Report Period
	You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	Start Date
	You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	End Date
	You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Shift and Vacation Periods
	<b>Shift Period</b> If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	Vacation Period
	If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KVA_NETWORK_ADAPTERS_RATES_DV
Output	This report contains a stacked area chart that is generated for each disk in the VIOS. The lower area of the chart is the average used megabytes over a selected period for the disk. The upper area is the average free megabytes over the selected period for the disk. The table shows detailed values for all disks.

## What if analysis for workload placement reports

You can use what if analysis to create a workload placement report for the System p agents by using predefined reports.

The following reports are available for what if analysis for workload placement:

- CEC Base Agent Number of LPARs for CEC
- CEC Base Agent Resources Needed for Additional LPARS on CEC
- HMC Base Agent Number of LPARs for Managed Server
- HMC Base Agent Resources Needed For Additional LPARs on Managed Server

#### **CEC Base Agent Number of LPARs for CEC report**

This report provides an estimate of how many more LPARs can be placed on a CEC or Frame. The estimate is based on the historical usage and allocation of the LPARs on that CEC or Frame.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	CEC Select the CEC you want from the environment.
	<b>Profile</b> Select the profile that you want to run the report against. The options are Average (default), Peak, and User-defined.
	<b>Resource criteria</b> Reports can be seen based on two different criteria: Resource Usage (default) or Resource Allocation.
	<b>Buffer</b> The buffer is to indicate the resources that the user does not want to allocate.
	<b>User-defined Resource Usage</b> Enter user-defined values to be used alongside the User-defined profile.
	Shift and Vacation Periods
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPK_GLOBAL_CEC_DV
	KPK_GLOBAL_CEC_HV
	KPK MON_LPARS_DV
	KPK MON UNMON ALLOC HV
	KPK_MON UNMON_ALLOC_DV

Report element	Details
Output	This report contains a table that shows the number of LPARs that can be added to a CEC, based on the resource usage or allocation (defined by the user) of the monitored LPARs and the available resource capacity on the CEC after allowing for user-defined buffers. The table shows information that is related to different resources (CPU and memory) on the selected CEC and how these resources affect the total number of LPARs that can be added. The average resources that are allocated or used is the historical average of all the deployed LPARs on the CEC. The available resource capacity is the current resources not allocated. The number of LPARs that can be deployed is the Available Resource Capacity/Average Resource Usage per LPAR.

#### **CEC Base Agent Resources Needed for Additional LPARS on CEC report**

This report provides an estimate of how much more resources (CPU and memory) are needed to add more LPARs to the CEC or Frame.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	CEC Select the CEC you want from the environment.
	<b>Profile</b> Select the profile that you want to run the report against. The options are Average (default), Peak, and User-defined.
	Number of LPARs to add The numbers of LPARs you want to add to the selected CEC.
	<b>Buffer</b> The buffer is to indicate the resources that the user does not want to allocate.
	<b>User-defined Resource Usage</b> Enter user-defined values to be used alongside the User-defined profile.
	Shift and Vacation Periods
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.

Report element	Details
Tables or views used	KPK_GLOBAL_CEC_DV
	KPK_GLOBAL_CEC_HV
	KPK_MON_LPARS_DV
	KPK_MON_UNMON_ALLOC_HV
	KPK_MON UNMON_ALLOC_DV
Output	This report contains a table that shows the resources that are required to successfully add the additional LPARs to the selected CEC, based on the current resource usage of the monitored partitions. The table shows information that is related to different resources (CPU and memory) on the selected CEC and how much of these resources is required to add the number of LPARs that you want to add. A value of 0 for a particular resource means that no additional capacity is required for this resource to accommodate the new LPARs. The average resources usage per LPAR is the historical average of all the deployed LPARs on the CEC. Resources that are required by more LPARs to be added to the CEC is the Average Resource Usage per LPAR * Number of LPARs to be added. The available resource capacity is the current resources not allocated. Additional capacity that is required for new LPARs is the Available Resource Capacity – Resources Required by Additional LPARs. If more resources are required, the row is highlighted in red.

#### HMC Base Agent Number of LPARs for Managed Server report

This report provides an estimate of how many more LPARs can be placed on a Managed Server. The estimate is based on the historical usage and allocation of LPARs on that Managed Server.

Report element	Details
Parameters	Date Range
	Report Period You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the Date Range (below) option. Start Date
	You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Resource Selection
	Managed Server Select the managed server that you want from the environment.
	User Inputs for Analysis
	<b>Profile</b> Select the profile that you want to run the report against. The options are Average (default), Peak, and User-defined.
	<b>Resource Criteria</b> Reports can be run based on two different criteria: Resource Usage (default) or Resource Allocation. This criterion is not applicable to a user-defined profile.
	<b>Buffer</b> The buffer indicates the CPU that the user does not want to allocate.
	<b>User-defined CPU Usage per LPAR</b> Enter user-defined values in CPU units to be used with the User-defined profile. This input is used only for the user-defined profile.
	Display Options
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
	<b>Peak Hours - Start and End</b> Select the start and end values for the peak hour to calculate the usage only for those hours while the report is running. This filter is not applicable for the user-defined profile.
Tables or views used	KPH_SERVER_DETAILS_HV
	KPH_SERVER_DETAILS_DV

Report element	Details
Output	This report contains a table to indicate the number of additional LPARs that can be placed on a managed server. The number is based on the average, peak, user-defined historical usage of CPU on active partitions and other user inputs. Available CPU capacity is the current capacity the Managed Server is ready to use after considering any buffer that is defined by the user. A value of 999,999,999 for the number of LPARs indicates that no limit exists for the number of LPARs that can be added to the Managed Server. This value is displayed if Average CPU Units Used per LPAR is 0.

# HMC Base Agent Resources Needed For Additional LPARs on Managed Server report

This report provides an estimate of how much more CPU is required to add more LPARs to the managed server.

Report element	Details
Parameters	Date Range
	Report Period
	You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Resource Selection
	Managed Server Select the managed server that you want from the environment.
	User Inputs for Analysis
	Profile
	Select the profile that you want to run the report against. The options are Average (default), Peak, and User-defined.
	Number of LPARs to add to Managed Server The number of LPARs you want to add to the selected managed server.
	<b>Buffer</b> The buffer indicates the CPU that the user does not want to allocate.
	<b>User-defined CPU Usage per LPAR</b> Enter user-defined values in CPU units to be used with the User-defined profile. This input is used only for the user-defined profile.
	Display Options
	Shift Period
	If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
	<b>Peak Hours - Start and End</b> Select the start and end values for the peak hour to calculate the usage only for those hours while the report is running. This filter is not applicable for the user-defined profile.
Tables or views used	KPH_SERVER_DETAILS_HV
	KPH_SERVER_DETAILS_DV

Report element	Details
Output	This report contains a table that shows the CPU required to add more LPARs to a managed server.
	• CPU Units Used per LPAR is based on the average usage values of the active Partitions.
	• Resources Needed by Additional LPARs is the total resources that are required to add the numbers of LPARs defined by the user.
	• Available CPU Capacity is the current capacity the Managed Server has available after considering any buffer that is defined by the user.
	• The Additional Capacity Required for New LPARs is the extra capacity that is required to successfully deploy the LPARs defined by the user. An additional capacity of 0 means that the current capacity can handle the new LPARs.

# Workload right-sizing and balancing reports

You can use the predefined workload right-sizing and balancing reports to determine the overall performance of the environment for the System p agents.

The following reports are available for workload right-sizing and balancing:

- CEC Base Agent Balanced and Unbalanced CECs
- CEC Base Agent Top or Bottom CECs by Physical CPU Utilization
- CEC Base Agent Top or Bottom CECs by Physical Memory Utilization
- CEC Base Agent Top or Bottom LPARs by Physical CPU Utilization
- CEC Base Agent Top or Bottom LPARs by Physical Memory Utilization
- HMC Base Agent Top or Bottom LPARs by Physical CPU Usage
- HMC Base Agent Top or Bottom Managed Servers by Physical CPU Utilization
- VIOS Premium Agent Top or Bottom VIOSs by Disk Capacity

#### **CEC Base Agent Balanced and Unbalanced CECs report**

This report shows the CECs that are balanced or unbalanced in the virtualized environment.

If there is a significant variation in CPU or memory utilization between the CECs, there are opportunities to improve utilization in the environment. For example, one CEC can have high CPU utilization while another CEC has low utilization. It is important to analyze all key metrics to ensure that by balancing the CPU workload you do not introduce other problems into the environment, such as memory constraints.

Report element	Details
Parameters	Resources
	CECs
	Select one or more CECs from the environment.
	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	Metric Select the metric you want to see in the report. The options are CPU, Memory, or both.
Tables or views used	KPK_GLOBAL_CEC_DV
	KPK_MON_UNMON_ALLOC_DV
Output	There are three reference lines to determine how balanced the CEC is.
	• One line is the Mean, which is the average of all CECs in the environment.
	• The second line is the Statistical Maximum, which is determined by the following expression: 75th percentile value + 1.5 * (75th percentile value - 25th percentile value). For example, if 2.5 is the 25th percentile and 7.5 is the 75th percentile, the statistical maximum is 15 [7.5 +1.5(5) = 15]. Statistical Maximum uses percentiles to determine values and might not always be displayed in the chart if the values are off the axis.
	• The third line is the Statistical Minimum, which is determined by the following expression: 25th percentile value - 1.5 * (75th percentile value - 25th percentile value). For example, if 2.5 is the 25th percentile and 7.5 is the 75th percentile, the statistical minimum is -5 [2.5 -1.5(5) = -5]. Statistical Minimum uses percentiles to determine values and might not always be displayed in the chart if the values are off the axis.

## CEC Base Agent Top or Bottom CECs by Physical CPU Utilization report

This report shows average CPU Utilization for all CECs in the environment during the report period, with bar charts that show the top and bottom n CECs based on CPU utilization.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	<b>Top/Bottom</b> <i>N</i> <b>CECs</b> You can choose any integer to filter the number of top CECs visible in the bar charts.
	Units You can choose to view the report by using real values or percentages.
	Shift and Vacation Periods
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	Vacation Period If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPK_MON_UNMON_ALLOC_DV
	KPK_GLOBAL_CEC_DV
Output	This report shows two bar charts. One chart shows the top $n$ CECs based on average CPU Utilization. The other chart shows the bottom $n$ CECs. A table below these charts shows CPU attributes for all CECs in the environment during the report period. Use the CEC names in the table to drill down to the CPU Utilization across all LPARs in a CEC report. <b>Note:</b> This measurement of CPU utilization for the frame is accurate only if all of the LPARs are "Monitored."

#### CEC Base Agent Top or Bottom CECs by Physical Memory Utilization report

This report shows average and maximum memory usage over a specified period for the selected LPARs.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	<b>Top/Bottom</b> <i>N</i> <b>CECs</b> You can choose any integer to filter the number of top or bottom CECs visible in the bar charts.
	Units You can choose to view the report by using real values or percentages.
	Shift and Vacation Periods
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPK_GLOBAL_CEC_DV
	KPK_MON_UNMON_ALLOC_DV
Output	This report shows two bar charts. One chart shows the top n CECs based on average Memory Utilization; the other chart shows the bottom n CECs. A table below these charts shows memory attributes such as Average and Maximum Allocated Memory Used in MB and % for all CECs. For each CEC agent in the table, you can drill through to the Memory Utilization across all LPARs in a CEC report.

#### CEC Base Agent Top or Bottom LPARs by Physical CPU Utilization report

This report shows CPU Utilization for all LPARs in the environment.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	<b>CEC</b> Select the CEC you want from the environment or select % to view the top and bottom LPARs from all CECs in the environment.
	<b>Top/Bottom</b> <i>N</i> <b>LPARs</b> You can choose any integer to filter the number of top or bottom LPARs visible in the bar charts.
	<b>Units</b> You can choose to view the report by using real values or percentages.
	Shift and Vacation Periods
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPK_MON_LPARS_DV
	KPK_GLOBAL_CEC_DV
Output	This report shows two bar charts. One bar shows the top $n$ LPARs based on average CPU Utilization; the other bar shows the bottom $n$ LPARs for the selected CEC. A table below these charts shows various CPU attributes for all LPARs in the environment, such as Total and Maximum Physical CPU that is used, Average LPAR CPU Utilization (%), Total CPU Units Allocated, and Average Physical CPU Entitlement (%). Use the LPAR names in the table to drill down to the CPU Utilization over time for that LPAR.

#### CEC Base Agent Top or Bottom LPARs by Physical Memory Utilization report

This report shows average and maximum memory utilization and physical memory that is allocated in megabytes for all LPARs in the environment.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	<b>CEC</b> Select the CEC you want from the environment or select % to view the top and bottom LPARs from all CECs in the environment.
	<b>Top/Bottom</b> <i>N</i> <b>LPARs</b> You can choose any integer to filter the number of top or bottom LPARs visible in the bar charts.
	<b>Units</b> You can choose to view the report by using real values or percentages.
	Shift and Vacation Periods
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPK_MON_LPARS_DV
	KPK_GLOBAL_CEC_DV
Output	This report shows two bar charts. One chart shows the top $n$ LPARs based on average memory utilization, and the other chart shows the bottom $n$ LPARs. A table below these charts shows various memory attributes for all LPARs in the environment. Use the LPAR names in the table to drill down to the Memory Utilization over time report for that LPAR.

#### HMC Base Agent Top or Bottom LPARs by Physical CPU Usage report

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Resource Selection
	Managed Server Select the managed server that you want from the environment.
	Display Options
	<b>Top/Bottom</b> <i>N</i> <b>LPARs</b> You can choose any integer to filter the number of top or bottom LPARs visible in the bar charts.
	Shift and Vacation Periods
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPH_SERVER_LPARS_DV
Output	This report shows two bar charts. One bar shows the top n LPARs based on average CPU Utilization; the other shows the bottom n LPARs for the selected Managed Server. A table below these charts shows various CPU attributes for all LPARs in the environment, such as Average Physical CPU Units used and Average Physical CPU Entitlement.

This report shows the top or bottom LPARs in the environment by Physical CPU Utilization.

# HMC Base Agent Top or Bottom Managed Servers by Physical CPU Utilization report

This report shows the top or bottom managed servers in the environment by Physical CPU Utilization.

Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	<b>Top/Bottom</b> <i>N</i> <b>Managed Servers</b> You can choose any integer to filter the number of top or bottom managed servers visible in the bar charts.
	<b>Units</b> You can choose to view the report by using real values or percentages.
	Shift and Vacation Periods
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KPH_SERVER_DETAILS_DV
Output	This report shows two bar charts. One bar shows the top n Managed Servers that is based on average CPU Utilization; the other bar shows the bottom n managed servers. A table below these charts shows various CPU attributes for all Managed Servers in the environment, such as Total CPU Used, Total CPU Allocated, Unallocated CPU, and Average Physical CPU Utilization.

#### VIOS Premium Agent Top or Bottom VIOSs by Disk Capacity report

This report shows the top and bottom VIOSs based on average megabytes used and the disk capacity for all VIOSs in the environment.
Report element	Details
Parameters	Date Range
	<b>Report Period</b> You can choose from a predefined date range such as Last Week, Current Month, and Last 30 Days. Alternatively, you can enter a start and end date and time for the reporting period by choosing the <b>Date Range (below)</b> option.
	<b>Start Date</b> You can choose a start date from a calendar and start time from the time widget. Both date and time must be selected.
	<b>End Date</b> You can choose an end date from a calendar and an end time from the time widget. Both date and time must be selected.
	Display Options
	Top/Bottom N VIOSs You can choose any integer to filter the number of top or bottom VIOSs visible in the bar charts.
	Shift and Vacation Periods
	Shift Period If shifts are enabled, the hourly tables have a value for SHIFTPERIOD of 1 or 2, based on off-peak and peak hours that are configured in the data warehouse. The daily tables have values of 1 for off-peak hours, 2 for peak hours, and -1 for the summarized value for that day. If the shifts are not enabled, the default value is -1.
	<b>Vacation Period</b> If the Vacation Period option is not enabled, the default value is -1. Otherwise, enter 0 for work days or 1 for vacation days.
Tables or views used	KVA_PHYSICAL_VOLUMES_DV
	KVA_STORAGE_MAPPINGS_DV
	KVA_VOLUME_GROUPS_DV
Output	This report shows 2 stacked bar charts. One chart shows the top n VIOSs based on average megabytes used. The top part of each bar shows the average size in megabytes. The other report shows the bottom n VIOSs. A table below these charts shows disk capacity for all VIOSs in the environment. Each VIOS name in the table is a link that you can use to drill down to the disk capacity over time for that VIOS.

# **Chapter 9. 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 314.

You can resolve some problems by ensuring that your system matches the system requirements listed in the Chapter 2, "Requirements and agent installation and configuration," on page 7 topic of the agent user's 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 284
- "Consulting the lists of identified problems and workarounds" on page 284

### 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 5.

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 285 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> .
VIOS information	Version number and patch level
Operating system	Operating system version number and patch level
Messages	Messages and other information displayed on the screen
Version numbers for IBM Tivoli Monitoring	<ul><li>Version number of the following members of the monitoring environment:</li><li>IBM Tivoli Monitoring. Also provide the patch level, if available.</li></ul>
	IBM Tivoli Monitoring: VIOS Premium 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.

Table 5. Information to gather before contacting IBM Software Support

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)).

## **Using logging**

Logging is the primary troubleshooting feature in the VIOS Premium agent. *Logging* refers to the text messages and trace data that is generated by the VIOS Premium 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 294.

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 285
- "Examples: Using trace logs" on page 287
- "Setting RAS trace parameters by using the GUI" on page 288

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 6 provides the names, locations, and descriptions of IBM Tivoli Monitoring general RAS1 log files. The log file names for the VIOS Premium 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.

productcode

Two-character product code. For IBM Tivoli Monitoring: VIOS Premium Agent, the product code is va.

program

Name of the program being run.

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 6 contains locations, file names, and descriptions of trace logs that can help determine the source of problems with agents.

System where log is located	File name and path	Description
On the Tivoli Enterprise Monitoring Server	<ul> <li>Windows: The IBM Tivoli Monitoring timestamp.log file in the install_dir\InstallITM path</li> <li>UNIX: The candle_installation.log file in the install_dir/logs path</li> <li>Linux: The candle_installation.log file in the install_dir/logs path</li> </ul>	Provides details about products that are installed. <b>Note:</b> Trace logging is enabled by default. A configuration step is not required to enable this tracing.
On the Tivoli Enterprise Monitoring Server	The Warehouse_Configuration.log file is in the following location on Windows systems: <i>install_dir</i> \InstallITM	Provides details about the configuration of data warehousing for historical reporting.

Table 6. Trace log files for troubleshooting agents

Table 6.	Trace lo	g files	for i	troubleshooting	agents	(continued)
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System where log is located	File name and path	Description
On the Tivoli Enterprise Monitoring Server	<pre>The name of the RAS log file is as follows: • Windows: install_dir\logs\     hostname_ms_timestamp-nn.log • UNIX: install_dir/logs/     hostname_ms_timestamp-nn.log • Linux: install_dir/logs/     hostname_ms_timestamp-nn.log</pre>	Traces activity on the monitoring server.
	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</i> .log and <i>hostname_productcode_</i> <i>timestamp</i> .pid nnnnn in the <i>install_dir</i> /logs path, where <i>nnnnn</i> is the process ID number.	
On the Tivoli Enterprise Portal Server	<ul> <li>The name of the RAS log file is as follows:</li> <li>Windows: install_dir\logs\ hostname _cq_HEXtimestamp-nn.log</li> <li>UNIX: install_dir /logs/hostname_cq_HEXtimestamp- nn.log</li> <li>Linux: install_dir /logs/hostname_cq_HEXtimestamp- nn.log</li> <li>Note: File names for RAS1 logs include a hexadecimal time stamp.</li> <li>Also on UNIX systems, a log with a decimal time stamp is provided: hostname_productcode_timestamp .log and hostname_productcode_ timestamp.pidnnnn in the install_dir/logs path, where nnnnn is the process ID number.</li> </ul>	Traces activity on the portal server.
On the Tivoli Enterprise Portal Server	<pre>The teps_odbc.log file is located in the following path: • Windows: install_dir\InstallITM • UNIX: install_dir/logs • Linux: install_dir/logs</pre>	When you enable historical reporting, this log file traces the status of the warehouse proxy agent.
On the computer that hosts the monitoring agent	<ul> <li>The RAS1 log files are as follows:</li> <li>UNIX: hostname_va_instance_name_ kvaagent_ HEXtimestamp-nn.log in the install_dir/logs directory</li> <li>These logs are in the following directories:</li> <li>UNIX: install_dir/logs</li> </ul>	Traces activity of the monitoring agent.

Table 6. 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 agent operations log files are as follows: <i>instance_hostname</i> VA.LG0 is the current log created when the agent was started. <i>instance_hostname_</i> VA.LG1 is the backup of the previous log. These logs are in the following directory depending on the operating system that you are using: • UNIX: <i>install_dir/</i> logs	<ul> <li>Shows whether the agent could connect to the monitoring server.</li> <li>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.</li> <li>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:</li> <li>Status of connectivity with the monitoring server</li> <li>Situations that were running</li> <li>The success or failure status of Take Action commands</li> </ul>

Definitions of variables:

- *timestamp* is a time stamp with a format that includes year (y), month (m), day (d), hour (h), and minute (m), as follows: **yyyymmdd hhmm**
- *HEXtimestamp* is a hexadecimal representation of the time at which the process was started.
- *install\_dir* represents the directory path where you installed the IBM Tivoli Monitoring component. *install\_dir* can represent a path on the computer that hosts the monitoring system, the monitoring agent, or the portal.
- *instance* refers to the name of the database instance that you are monitoring.
- *instance\_name* refers to the name of the agent instance.
- *hostname* refers to the name of the computer on which the IBM Tivoli Monitoringcomponent runs.
- *nn* 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.
- productcode 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}kdcl0cl.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\_0K (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:VA is ON-LINE.

(42C3079B.0000-6A4:kpxreqhb.cpp,644, "HeartbeatInserter") Remote node SERVER5B:VA is OFF-LINE.

See the following key points about the preceding excerpts:

- The monitoring server appends the VA product code to the server name to form a unique name (SERVER5B:VA) for this instance of the IBM Tivoli Monitoring: VIOS Premium 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:

- 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 IBM Tivoli Monitoring: VIOS Premium 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 284 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 IBM Tivoli Monitoring: VIOS Premium Agent uses RAS1 tracing and generates the logs described in Table 6 on page 285. The default RAS1 trace level is ERROR.

#### Procedure

- 1. Open the Manage Tivoli Enterprise Monitoring Services window.
- 2. Select **Advanced** > **Edit Trace Parms**. 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 (UNIT:kva ALL)
- Maximum error tracing. KBB\_RAS1=ERROR (UNIT:kva ALL) (UNIT:kra ALL)

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 6 on page 285 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 VIOS Premium agent uses RAS1 tracing and generates the logs described in Table 6 on page 285. The default RAS1 trace level is ERROR.

#### Procedure

- 1. Open the trace options file:
  - UNIX systems:
    - install\_dir /config/va.config
- 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:kva 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 6 on page 285 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.

## Dynamic modification of trace settings

You can dynamically modify the trace settings for an IBM Tivoli Monitoring component, such as, Tivoli Enterprise Monitoring Server, Tivoli Enterprise Portal Server, most monitoring agents, and other components. You can access these components, except for a few monitoring agents, from the tracing utility.

Dynamic modification of the trace settings is the most efficient method, because you can do it without restarting the component. Settings take effect immediately. Modifications by this method are not persistent.

**Note:** When the component is restarted, the trace settings are read again from the .env file. Dynamically modifying these settings does not change the settings in the .env files. To modify these trace settings permanently, modify them in the .env files.

#### ras1

Run this command to modify the trace settings for a Tivoli Monitoring component.

The syntax is as follows:

```
ras1 set|list (UNIT|COMP: class_name ANY|ALL|Detai1|ERROR|Flow|INPUT|Metrics|OUTPUT|STATE)
{(UNIT|COMP: class_name ANY|ALL|Detai1|ERROR|Flow|INPUT|Metrics|OUTPUT|STATE)}
```

You can specify more than one component class to which to apply the trace settings.

### **Command options**

set

Turns on or off tracing depending upon the value of its parameters. If the parameter is **ANY**, it turns it off. All other parameters turn on tracing based on the specified type or level.

list

Displays the default level and type of tracing that is set by default.

#### **Parameters**

The parameters that determine the component classes to which to apply the trace settings are as follows:

#### **COMP:** class\_name

Modifies the trace setting for the name of the component class, as specified by *class\_name*, for example, COMP:KDH. The output contains trace for the specified class.

#### UNIT: class name

Modifies the trace setting for any unit that starts with the specified *class\_name* value, for example, UNIT: kra. The output contains trace for any unit that begins with the specified filter pattern.

The parameters that determine the trace level and type are as follows:

#### ALL

Displays all trace levels, including every trace point defined for the component. This setting might result in a large amount of trace, so specify other parameters to exclude unwanted trace. You might require the **ALL** parameter to isolate a problem, which is the equivalent to setting "Error Detail Flow State Input Output Metrics".

#### ANY

Turns off tracing.

#### Detail

Displays detailed information about each function.

When entered with the list option, the trace is tagged with Det.

#### ERROR

Logs internal error conditions.

When entered with the list option, the trace is tagged with ER. The output can also be tagged with EVERYE+EVERYU+ER.

#### F1ow

Displays control flow data for each function entry and exit.

When entered with the list option, the trace is tagged with F1.

#### INPUT

Displays input data for each function.

When entered with the list option, the trace is tagged with IN.

#### Metrics

Displays metrics on each function.

When entered with the list option, the trace is tagged with ME.

#### OUTPUT

Displays output data for each function.

When entered with the list option, the trace is tagged with OUT.

#### State

Displays the status for each function.

When entered with the list option, the trace is tagged with St.

### Example

If you enter ras1 set (COMP:KDH ALL) (COMP:ACF1 ALL) (COMP:KDE ALL), the trace utility turns on all levels of tracing for all the files and functions for which KDH, ACF1, and KDE are the classes.

```
kbbcrel.c, 400, May 29 2007, 12:54:43, 1.1, *
kbbcrn1.c, 400, May 29 2007, 12:54:42, 1.1, *
kdhblde.c, 400, May 29 2007, 12:59:34, 1.1, KDH
kdh0med.c, 400, May 29 2007, 12:59:24, 1.1, KDH
kdhsrej.c, 400, May 29 2007, 13:00:06, 1.5, KDH
kdhb1fh.c, 400, May 29 2007, 12:59:33, 1.1, KDH
kdhbloe.c, 400, May 29 2007, 12:59:38, 1.2, KDH
kdhs1ns.c, 400, May 29 2007, 13:00:08, 1.3, KDH
kbbacdl.c, 400, May 29 2007, 12:54:27, 1.2, ACF1
kbbaclc.c, 400, May 29 2007, 12:54:27, 1.4, ACF1
kbbacli.c, 400, May 29 2007, 12:54:28, 1.11, ACF1
vkdhsfcn.c, 400, May 29 2007, 13:00:11, 1.1, KDH
kdhserq.c, 400, May 29 2007, 12:59:53, 1.1, KDH
kdhblpr.c, 400, May 29 2007, 12:59:39, 1.1, KDH
kdhsgnh.c, 400, May 29 2007, 12:59:49, 1.1, KDH
kdhOuts.c, 400, May 29 2007, 12:59:23, 1.1, KDH
kdhsrsp.c, 400, May 29 2007, 13:00:13, 1.2, KDH
kdhs1rp.c, 400, May 29 2007, 13:00:12, 1.1, KDH
kdhscsv.c, 400, May 29 2007, 12:59:58, 1.9, KDH
kdebbac.c, 400, May 29 2007, 12:56:50, 1.10, KDE
. . .
```

#### **Turning on tracing**

To use the tracing utility, you must use a local logon credential for the computer. This tracing method uses the IBM Tivoli Monitoring Service Console. Access the Service Console by using a web browser.

#### About this task

When you start the Service Console, information is displayed about the components that are currently running on that computer. For example, these components are listed as follows:

- Tivoli Enterprise Portal Server: cnp
- Monitoring Agent for Windows OS: nt
- Tivoli Enterprise Monitoring Server: ms

After you log on, you can type a question mark (?) to display a list of the supported commands. Use the **ras1** command to modify trace settings. If you type this command in the field provided in the Service Console window and click **Submit**, the help for this command is displayed.

#### Procedure

 Open a web browser and enter the URL to access the Service Console. http://hostname:1920

where *hostname* is the IP address or host name of the computer on which the IBM Tivoli Monitoring component is running.

2. Click the hyperlink associated with the component for which you want to modify its trace settings.

**Note:** In the previous view, if you want to modify tracing for the Tivoli Enterprise Monitoring Server, select **IBM Tivoli Monitoring Service Console** under **Service Point: system**.*your host name\_*ms.

- **3**. Enter a user ID and password to access the system. This ID is any valid user that has access to the system.
- 4. Enter the command to turn on the required level of trace for the specified component classes or units.

ras1 set (UNIT|COMP: class\_name ALL|Flow|ERROR|Detail|INPUT|Metrics|OUTPUT|STATE)
{(UNIT|COMP: class\_name ALL|Flow|ERROR|Detail|INPUT|Metrics|OUTPUT|STATE)}

For example, to turn on the control flow trace for the KDE, the command is: ras1 (COMP:KDE Flow)

## **Turning off tracing**

You can use the IBM Tivoli Monitoring Service Console to run the **ras1** command and dynamically turn off tracing.

### Procedure

 Open a web browser and enter the URL to access the Service Console. http://hostname:1920

where *hostname* is the IP address or host name of the computer on which the IBM Tivoli Monitoring component is running.

- 2. Click the hyperlink associated with the component for which you want to modify its trace settings.
- **3**. Enter a user ID and password to access the system. This ID is any valid user that has access to the system.
- 4. Enter the command to turn off the required level of trace for the specified component classes or units. ras1 set (UNIT|COMP: class\_name ANY) {(UNIT|COMP: class\_name ANY)}

For example, to turn off tracing for the kbbcrcd class of the Windows OS agent, the command is: ras1 set (UNIT:kbbcrcd ANY)

## 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_Utils error /tmp/tec_reception
SP
# to debug Agent Utils
tec rule Agent Utils 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_Utils trace2 /tmp/tec_reception
SP
# to debug Agent Utils
tec_rule Agent_Utils 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 VIOS Premium 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 Chapter 2, "Requirements and agent installation and configuration," on page 7.

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 7 can occur during installation, configuration, and uninstallation of the agent.

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.
A message similar to "Unable to find running CMS on CT_CMSLIST" in the log file is displayed.	<ul> <li>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:</li> <li>Do multiple network interface cards (NICs) exist on the system?</li> </ul>
	• 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.
The system is experiencing high CPU usage.	<b>Agent process:</b> View the memory usage of the KPHCMA process. If CPU usage seems to be excessive, restart the monitoring agent.
	<b>Network cards:</b> 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.

Table 7. Problems and solutions for installation and configuration

Table 7. Problems and solutions	for installation and	configuration	(continued)
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Problem	Solution
The artwork in the installation panels in the Japanese environment are missing, and some panels have a truncation problem.	No solution is available for this problem at this time.
In the <b>Install Prerequisites</b> panel during agent installation, the following extra string displays in Russian: \r	No solution is available for this problem at this time.
In the <b>Select Features</b> panel during agent installation, the <b>Description</b> of each feature is in English only.	No solution is available for this problem at this time.
After starting the agent, the following error messages are displayed on the console: Password: <hmcuser>@<hmc>'s password: <hmcuser>@<hmc>'s password: <hmcuser>@<hmc>'s password:</hmc></hmcuser></hmc></hmcuser></hmc></hmcuser>	The SSH file transfer protocol is not set up correctly between the agent and the Hardware Management Console computer. Make sure that SSH is set up between the "rootû? user on the agent LPAR and the hmcuser on the HMC computer.
When the agent is configured using the Linux command-line interface, subnode names are of the form VM:DEFAULT-hostname:ESX, instead of VM:instancename-hostname:ESX.	When configuring with the Linux command-line interface, you have the option of skipping the Data Provider configuration section. Skipping this section causes the instance name to be set incorrectly. You must configure settings in the Data Provider configuration section (even with defaults) in order for the instance name to be set correctly.
The following warning message is displayed during application support installation KCIIN1421W WARNING - unable to copy eclipse agent plugin file \$CANDLEHOME/\$ITM_BINARCH/cw/iehs/kpc/eclipse/ plugins/com.ibm.kpc.doc where, pc is your two character product code.	Manually rename or delete the agent plug-in file and run the application support installation again.
Cannot find the agent support files for the Linux operating system.	Support files for all IBM Tivoli Monitoring supported operating systems are located on the support file image. Support files for the AIX operating system are located on the agent image.
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.	<ul> <li>Check the GL component version by running kincinfo -t GL from a Windows command line. Example: %CANDLE_HOME%\InstallITM\kincinfo -t GL</li> <li>If the GL component version is 06.23.00.00 or 06.23.01.00, take one of the following actions:</li> <li>Preferred action: Upgrade the Windows OS Agent to Version 6.2.3 Fix Pack 2.</li> <li>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#acpinstall).</li> </ul>

Table 8. General problems and solutions for uninstallation

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:
	<ol> <li>Click the Enterprise icon in the Navigator tree.</li> <li>Right-click, and then click Workspace &gt; Managed System Status.</li> </ol>
	3. Right-click the offline managed system, and select <b>Clear offline entry</b> .
	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</i> .cmptag from the \$CANDLEHOME/properties/version/ directory.

# Remote deployment troubleshooting

Problems can occur with remote deployment and removal of agent software using the Agent Remote Deploy process.

Table 9 contains problems and solutions related to remote deployment.

Table 9. Remote deployment problems and solutions

Problem	Solution
While you are using the remote deployment feature to install the IBM Tivoli Monitoring: VIOS Premium 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 10 contains problems and solutions that can occur with the agent after it is installed.

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 288. The trace option settings that you can set on the KBB_RAS1= and KDC_DEBUG= lines potentially generate large amounts of data.

Table 10. Agent problems and solutions

Table 10. Agent problems and solutions	(continued)
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Problem	Solution
Prompt for password is displayed when the agent is started.	Ensure that non-prompted SSH access to the HMC is configured correctly with the SSH keys.
No data is displayed in the Tivoli Enterprise Portal for all attribute groups.	Inspect the data in the Performance Object Status attribute group and restart the agent.
	OR
	Ensure that non-prompted SSH access to the HMC is configured correctly with the SSH keys. If SSH is correctly configured and attempts to SSH into the HMC result in a ssh_exchange_identification: Connection closed by remote host error message, reboot the HMC.
Empty workspace views are displayed in the Tivoli Enterprise Portal.	IBM Tivoli Monitoring uses timeout settings during agent metric gathering as a way to avoid prolonged waits for data at the Tivoli Enterprise Portal client. When an agent takes longer than the portal timeout period to provide data, the requesting portal workspaces show empty views.
	The IBM Tivoli Monitoring System p agents implement metric caching to alleviate running into these timeouts when metric data acquisition is taking a long time. When data is retrieved by the agent, it caches the attribute group returned to the portal. Metrics gathered within the portal timeout period are readily displayed on the console. Those attribute groups taking longer are displayed from the cache while the agent continues to collect data in the background for the original request.
	Because of the way some metrics are gathered, certain metrics take longer than the default timeout and fail to make it to the cache before the portal timeout expires.
	Typically, this problem is caused by network traffic, SSH communication overhead, HMC IPC communication layer, Logical Volume Manager communication layer and possible other circumstances. As a result, the portal displays empty workspace views for these attribute groups. The workspace shows data only when the data has been cached.
	The following attribute groups are affected by these behaviors:
	Storage Mappings
	Network Mappings
	Network Adapter Totals
	Network Adapter Rates

Table 10. Agent problems and solutions (continued)

Problem	Solution
CPU, network interface, and Workload Manager (WLM) metrics are not dynamically updated in the CPU Detail, Workload Manager, and Internet Protocol Detail attribute groups if these resources are added or removed after the VIOS Premium agent is started.	Metrics for these attribute groups are taken from the System Performance Measurement Interface (SPMI) shared library. After the SPMI is initialized, it creates a list of CPUs, network interfaces, and WLM classes configured. The SPMI library does not reinitialize these lists until one of the following occurs:
	1. The system is restarted.
	2. The number of consumers using the library goes to zero, and programs that were using the library end their SPMI connection gracefully.
	3. The SPMI shared library is manually restarted.
	Restarting the IBM Tivoli Monitoring agent might not solve the problem if other SPMI consumers are active. A consumer is any program that has established a connection with the SPMI to acquire data. It is also possible to have a program that is a DDS (Dynamic Data Supplier) that provides data to the SPMI. Some examples of both are: topas, xmtopas, xmservd, xmtrend, and the IBM Tivoli Monitoring: AIX Premium Agent.
	To recycle the SPMI without restarting:
	1. All data SPMI consumers and DDSs must end.
	2. Ensure that no remaining Shared Memory IDs start with a key of 0x78.
	3. If so, issue ipcrm -m id.
	4. Issue slibclean.

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 <b>netstat</b> 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 <b>KDC_FAMILIES</b> / <b>KDE_TRANSPORT</b> 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:
	<ul> <li>No more than one Tivoli Enterprise Monitoring Server reporting to a specific Tivoli Enterprise Monitoring Server hub can be active on a system image.</li> <li>No more than 15 IP.PIPE processes can be active on a</li> </ul>
	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 10. Agent problems and solutions (continued)

Table 10.	Agent	problems	and	solutions	(continued)
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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 <b>KDC_FAMILIES /</b> <b>KDE_TRANSPORT</b> 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.)

## Workspace troubleshooting

Problems can occur with general workspaces and agent-specific workspaces.

Table 11 contains problems and solutions related to workspaces.

Table 11. 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 <b>Start</b> menu, click <b>Run</b> .	
	2. Type perfmon.exe in the <b>Open</b> field of the Run window. The Performance window is displayed.	
	<b>3</b> . Click the plus sign (+) in the toolbar. The Add Counters window is displayed.	
	4. Look for <b>Process</b> in the <b>Performance object</b> menu.	
	5. Complete one of the following actions:	
	• If you see <b>Process</b> 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 <b>Process</b> in the menu, use the Microsoft utility from the Microsoft.com Operations website to enable the PerfProc performance object.	
	The <b>Process</b> performance object becomes visible in the <b>Performance object</b> menu of the Add Counters windows, and IBM Tivoli Monitoring is able to detect Availability data.	
	6. Restart the monitoring agent.	

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.	<ul> <li>Use the following managing options for historical data collection:</li> <li>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.</li> <li>Use the Summarization and Pruning agent to collect</li> </ul>
	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</i> <i>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</i> <i>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 11. Workspace problems and solutions (continued)

Table 11. 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 12 contains problems and solutions for situations.

Table 12. 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 288. 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 188 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 <b>Free</b> <b>Memory</b> falls under 10 percent of <b>Total Memory</b> 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. <b>Note:</b> The Situation Editor provides alternatives to math operators. In the example, you can select the % <b>Memory</b> <b>Free</b> attribute and avoid the need for math operators.
You want to change the appearance of situations when they are displayed in the navigation tree.	<ol> <li>Right-click an item in the navigation tree.</li> <li>Click Situations in the menu. The Situation Editor window is displayed.</li> <li>Select the situation that you want to modify.</li> <li>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.</li> </ol>
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 KpcENV file for the agent (where pc 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</i> <i>Monitoring Installation and Setup Guide</i> .

Table 12.	Situation	problems	and	solutions	(continued)
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Problem	Solution
The monitoring interval is too long.	Access the Situation Editor view for the situation that you want to modify. Check the <b>Sampling interval</b> area in the <b>Formula</b> 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 <b>Stop Situation</b> .
	2. Right-click the situation and select <b>Start Situation</b> .
	<b>Note:</b> You can permanently avoid this problem by selecting the <b>Run at Startup</b> check box of the Situation Editor view for a specific situation.
The situation is not displayed.	Click the <b>Action</b> 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 <b>Distribution</b> tab and check the distribution settings for the situation.

|--|

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 <b>Formula</b> tab, analyze predicates as follows:
	1. Click the <b>fx</b> icon in the <b>Formula</b> area. The Show formula window is displayed.
	a. Confirm the following details in the <b>Formula</b> area of the window:
	<ul> <li>The attributes that you intend to monitor are specified in the formula.</li> </ul>
	<ul> <li>The situations that you intend to monitor are specified in the formula.</li> </ul>
	<ul> <li>The logical operators in the formula match your monitoring goal.</li> </ul>
	<ul> <li>The numeric values in the formula match your monitoring goal.</li> </ul>
	b. (Optional) Select the <b>Show detailed formula</b> check box to see the original names of attributes in the application or operating system that you are monitoring.
	c. Click <b>OK</b> to dismiss the Show formula window.
	<ol> <li>(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.</li> <li>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.</li> </ol>
	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. <b>Note:</b> 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.	<b>Note:</b> You must have administrator privileges to complete these steps.
	1. Click <b>Edit</b> > <b>Administer Users</b> to access the Administer Users window.
	2. In the <b>Users</b> area, select the user whose privileges you want to modify.
	3. In the <b>Permissions</b> tab, <b>Applications</b> tab, and <b>Navigator Views</b> tab, select the permissions or privileges that correspond to the user role.
	4. Click OK.

Table 12. Situation problems and solutions (continued)

Problem	Solution
A managed system seems to be offline.	1. Select <b>Physical View</b> and click the Enterprise Level of the navigator tree.
	2. Click <b>View</b> > <b>Workspace</b> > <b>Managed System Status</b> to see a list of managed systems and their status.
	<b>3.</b> If a system is offline, check network connectivity and the status of the specific system or application.
Situations that monitor missing processes indicate falsely that a process is missing. The situations mistakenly fire when the agent starts because the agent has registered attributes with the Tivoli Enterprise Monitoring Agent, and has received a request from a situation before the agent completes registration with the data provider.	Add the following value to the va.ini file, and then restart the agent: CDP_COLLECTION_DELAY=5

## Take Action commands troubleshooting

Problems can occur with Take Action commands.

Table 13 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 6 on page 285.

Table 13. 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 302. If the Take Action command fails, for general information about troubleshooting Take Action commands, see the <i>IBM</i> <i>Tivoli Monitoring Troubleshooting Guide</i> .

## **Tivoli Common Reporting troubleshooting**

You can troubleshoot problems that occur with installation and with using the Tivoli Common Reporting predefined reports for the VIOS Premium agent.

For installation problems, use the report installer log to identify the step where installation failed. Use the problems and solutions information to troubleshoot other problems.

### Analyzing the report installer log

Review the Report\_Installer\_For\_TCR\_Output.txt file (on Windows under C:\Documents and Settings\Administrator; on Linux and UNIX under \$HOME.) to identify the step on which the installer failed.

Sample log output

INSTALLATION COMPLETED. The status of installation steps: TCRRunDBScripts(runDbScript): FAILED INFORMATION: /tmp/450480.tmp/reports/itmfvs/build.xml:31: The <fileset> type doesn't support the "erroronmissingdir" attribute. InstallReportsAction(IBM Tivoli Monitoring for Virtual Environments Reports v7.1): SUCCESS CognosDataSource(TDW): SUCCESS

#### Analysis

In the sample log, the success or failure of each step is evident:

- 1. InstallReportsAction (Step 1 Importing Reports) succeeded.
- 2. CognosDataSource(TDW) (Step 2 Defining the Tivoli Data Warehouse data source in Cognos) succeeded.
- **3**. RunDBScripts (Step 3 Updating schema by running scripts against the Tivoli Data Warehouse) failed.

#### Step 2: Define the Tivoli Data Warehouse data source in Cognos.

Possible causes of the failure:

- The database alias that is specified during installation did not match the cataloged DB2 database alias, the Oracle local TNS service name, or the MS SQL Server ODBC data source name.
- The credentials are incorrect for connecting to the Tivoli Data Warehouse.

Solution:

• Ensure that you installed the database client on the same server as Tivoli Common Reporting and cataloged the database. If you are using Oracle, the TNS service name must be defined in the tnsnames.ora file. If you are using MS SQL server, the ODBC data source must be defined . See Connecting to the Tivoli Data Warehouse using the database client over ODBC in the *IBM Tivoli Monitoring Administrator's Guide* (http://publib.boulder.ibm.com/infocenter/tivihelp/v15r1/topic/com.ibm.itm.doc\_6.2.3/tcr\_tdwconnect.htm). If you already have a Tivoli Data Warehouse data source that is defined, adding another one overwrites the existing data source.

#### Step 3: Make schema updates

Possible causes of failure:

- Database administrative privileges (such as db2admin or sys) are required for this step; if user is specified as ITMUSER, the schema cannot be updated.
- Database issues such as connectivity problems, full logs, space issues, or any other performance problems that prevent writing to the database.

Solution:

- An error at Step 3 is accompanied by an informational message that contains SQL errors with SQL codes. You can search on the SQL code to determine the problem.
- If Time Dimension tables are present in the database, you can choose to skip the schema update (JDBC) step while you are running the dashboard installer. If you want to create time dimension with a different granularity, you must edit the following sql file:
  - 1. Go to *reports package*\reports\cognos\_reports\itmfvs\db\_scripts.
  - 2. Open call\_proc\_DB2.sql , call\_proc\_MSSQL.sql, or call\_proc\_ORACLE.sql depending on the database that is used.
  - 3. Edit the last parameter in the call to IBM\_TRAM.CREATE\_TIME\_DIMENSION.

#### Notes

- The database scripts for creating indexes are provided for enhanced reporting performance in the Tivoli Data Warehouse. If your data warehouse is not prepared with history before installation, this step is skipped by the installer. You can manually run one the following scripts, depending on your database type:
  - create\_index\_DB2.sql
  - create\_index\_MSSQL.sql

– create\_index\_ORACLE.sql

For more information, see Creating shared dimensions tables and populating the time dimensions table in the *IBM Tivoli Monitoring Administrator's Guide* (http://pic.dhe.ibm.com/infocenter/tivihelp/v15r1/topic/com.ibm.itm.doc\_6.2.3fp1/adminuse/tcr\_reports\_dimensionsshared.htm).

• Although indexes help to enhance report performance, some limitations apply: Use indexes only on large tables with thousands of rows; because indexes degrade the performance of insert, update, and delete operations on a table.

You can run a script to drop these indexes if you run into either of these performance issues:

- drop\_index\_DB2.sql
- drop\_index\_MSSQL.sql
- drop\_index\_ORACLE.sql
- Connections under the Tivoli Data Warehouse are overwritten by the report installer. Overwriting these connections is a limitation of the current installer.
- The privileges that are required while you are running the installer are ITMUSER (database user) for the Tivoli Data Warehouse creation step and ADMIN (database administrator) for the schema update step. The Database Test connection for the schema update panel does not check for privileges of the database user. Installation fails at the schema update step if the database user does not have administrative privileges.

### **Problems and solutions**

Table 14 on page 308 contains problems and solutions that can occur with the Tivoli Common Reporting predefined reports for IBM Tivoli Monitoring: VIOS Premium Agent. See the Tivoli Common Reporting Information Center (http://pic.dhe.ibm.com/infocenter/tivihelp/v3r1/topic/com.ibm.tivoli.tcr.doc\_211/ ic-home.html) for more information about troubleshooting for the Tivoli Common Reporting tool.

For timeout problems, if the default timeout values for the Tivoli Common Reporting or the Cognos console login is too short, you can change the settings. If your Java virtual machine runs out of memory, you can increase the heap size.

Problem	Solution
You used database scripts that are provided in the scripts folder to create indexes for enhanced reporting performance in the Tivoli Data Warehouse, and you receive errors.	If your data warehouse is not prepared with history before installation, the scripts cause errors. Ensure that historical collection is enabled for the tables that are required to run the reports before you run the scripts to create indexes. You can manually run one the following scripts, depending on your database type:
	<ul> <li>scripts/db2/create_index.db2</li> </ul>
	<ul> <li>scripts/mssql/create_index.sql</li> </ul>
	<ul> <li>scripts/oracle/create_index.sql</li> </ul>
	For more information, see Creating shared dimensions tables and populating the time dimensions table in the <i>IBM Tivoli Monitoring Administrator's Guide</i> (http://pic.dhe.ibm.com/infocenter/tivihelp/v15r1/topic/com.ibm.itm.doc_6.2.3fp1/adminuse/tcr_reports_dimensionsshared.htm).
	Although indexes help in enhancing report performance, some limitations apply: Use indexes only when you have large tables with thousands of rows because indexes degrade the performance of insert, update, and delete operations on a table. You can run a script to drop these indexes if you have performance issues: • scripts/db2/drop_index.sgl
	• scripts/db2/drop_index.sql
You must log in to the Cognos server frequently because of automatic timeout (the default is 60 minutes).	<ol> <li>Edit the following file:         <ul> <li>Linux or operating systems such as UNIX: /opt/IBM/tivoli/tipv2Components/TCRComponent/ cognos/configuration/cogstartup.xml</li> <li>Windows: C:\IBM\tivoli\tipv2Components\ TCRComponent\cognos\configuration\ cogstartup.xml</li> </ul> </li> </ol>
	2. Locate the <b>mdmSessionTimeout</b> parameter.
	<ol> <li>Change the value from 60 minutes to a longer timeout interval. Do not set it to -1, which gives an unlimited timeout period, because connections to the Cognos server might be left open.</li> </ol>
	4. Save the file.
	5. Restart the Tivoli Integrated Portal Server and the Cognos Report Server by using the <b>startTCRserver</b> script (Linux and operating systems such as UNIX, use startTCRserver.sh; Windows, use startTCRserver.bat). If you are also editing the Tivoli Integrated Portal timeout value, you can restart the server after you make the changes that are described next.

Table 14. Tivoli Common Reporting for VIOS Premium agent problems and solutions

Problem	Solution
You are prompted to log in again to the Tivoli Integrated Portal after being logged in for a while, so you would like to increase the session timeout.	Use the WebSphere Administrative Console to set the session timeout and LTPA timeout values to larger values. To open the administrative console from within the Tivoli Integrated Portal, select <b>Settings</b> > <b>WebSphere</b> <b>Administrative Console</b> in the navigation tree and click <b>Launch WebSphere administrative console</b> .
	1. Set the session timeout for Tivoli Integrated Portal application (ISC):
	a. In the left panel, expand <b>Applications and</b> <b>Application Types</b> , click <b>Websphere Enterprise</b> <b>applications</b> .
	b. In the list of Enterprise Applications, select <b>isc</b> .
	<ul> <li>On the Configuration tab, click Session management.</li> </ul>
	d. For the Session timeout setting, specify the number of minutes you want for the timeout or specify No timeout.
	e. Click <b>OK</b> ; click <b>Save</b> to save the changes.
	2. Set the LTPA timeout:
	<ul> <li>a. In the left panel of the WebSphere Administrative Console, expand Security and click Global security.</li> </ul>
	b. In the Global security panel, Authentication section, click LTPA.
	c. Enter the LTPA timeout value that you want in minutes.
	d. Click <b>OK</b> ; click <b>Save</b> to save the changes.
	<b>Important:</b> Use high or unlimited values for timeouts with caution because such values can lead to poor server performance or out of memory conditions. These timeouts are used by the server to release storage that is associated with sessions that are no longer active. Such sessions can occur when you close your browser without logging off or are disconnected from the server because of network disruptions.

Table 14. Tivoli Common Reporting for VIOS Premium agent problems and solutions (continued)

Problem	Solution
You get Java core dumps when you are running out of Java virtual machine (JVM) memory.	If your JVM runs out of memory within the Tivoli Integrated Portal, you receive a Java core dump. The Java core files are in the /opt/IBM/tivoli/tipv2/ profiles/TIPProfile directory on Linux and operating systems such as UNIX, and in C:\ibm\tivoli\tipv2\ profiles\TIPProfile on Windows. This problem is common on AIX because the default maximum heap size for Java 1.6 on AIX is low. Set the maximum heap size to 512 MB or higher.
	Use the following steps to update the maximum heap size for the Tivoli Integrated Portal JVM:
	1. Edit the server.xml file in the following directory:
	<ul> <li>Linux and operating systems such as UNIX: /data/IBM/tivoli/tipv2/profiles/TIPProfile/ config/cells/TIPCell/nodes/TIPNode/servers/ server1</li> </ul>
	<ul> <li>Windows: C:\IBM\tivoli\tipv2\profiles\ TIPProfile\config\cells\TIPCell\nodes\TIPNode\ servers\server1</li> </ul>
	<ol> <li>Locate the genericJvmArguments=""&gt; parameter near the end of the file. Notice that there are no default JVM heap settings.</li> </ol>
	<ol> <li>Add -Xmx512m or -Xmx1024m to the genericJvmArguments, depending on how much system memory you have on your server. For example, genericJvmArguments="-Xmx1024m"&gt;</li> </ol>
	<ol> <li>Restart the Tivoli Integrated Portal Server and the Cognos Report Server by using the startTCRserver script (Linux and operating systems such as UNIX, use startTCRserver.sh; Windows, use startTCRserver.bat).</li> </ol>
	<b>Note:</b> . The values that are given here are appropriate for typical cases, but be aware that the heap size might already be set for other applications. The heap size adjustment must be finely tuned. If set too high, the Java process can use too much memory and slow the system. See IBM developerWorks Roadmap for WebSphere Application Server - Tuning (http://www.ibm.com/ developerworks/websphere/zones/was/roadmaps/ roadmap_was70.html#Tuning) for more information.

Table 14. Tivoli Common Reporting for VIOS Premium agent problems and solutions (continued)

Problem	Solution
When you run Tivoli Common Reporting reports or test the database connection in Cognos, you get errors (such as The logon failed) that reference libdb2.a.	Ensure that you set up the correct library path environment variables. Complete the following steps. The example uses LD_LIBRARY_PATH, which might be LIBPATH on some operating systems.
	1. Stop Tivoli Common Reporting:
	/opt/IBM/tivoli/tipv2Components/TCRComponent/ bin/stopTCRserver.sh tipadmin tippass
	<ol> <li>Open the /opt/IBM/tivoli/tipv2Components/ TCRComponent/bin/startTCRserver.sh file in a text editor and add the following two lines at line 26 of the script (before WebSphere being started):</li> </ol>
	export LD_LIBRARY_PATH=/opt/ibm/db2/V9.7/ lib32:\$LD_LIBRARY_PATH . updated troubleshooting/home/db2inst1/ sqllib/db2profile
	3. Start Tivoli Common Reporting:
	/opt/IBM/tivoli/tipv2Components/TCRComponent/ bin/startTCRserver.sh tipadmin tippass
	Another option is to add these environment variables to your .bashrc/.profile so that the variables are set up every time you log in to the system.
The reports schema update fails. An SQL error message is in the Report_Installer_For_TCR_Output.txt log file.	The error message indicates that the transaction log file ran out of space. Set the following database parameters to increase the size of the transaction log file:
	• LOGBUFSIZE: 1024
	• BUFFPAGE: 2000 or 3000
	• Number of primary log files: 20
	• Log file size: 8192
	• Number of secondary log files: 10

Table 14. Tivoli Common Reporting for VIOS Premium agent problems and solutions (continued)

Problem	Solution
You have trouble with the database connection.	The Tivoli Monitoring reports must connect to the Tivoli Data Warehouse to run. The data source that is called <b>TDW</b> is defined in Cognos.
	Test the Database Connection to the Tivoli Data Warehouse:
	1. Depending on the database type, make sure the Tivoli Data Warehouse is cataloged locally in the database client (DB2), the local TNS service name is defined in tnsnames.ora (Oracle), or the ODBC data source was created (Microsoft SQL Server). The alias/tns service name or odbc data source name is used in the data source connection.
	2. Test the connection to the data warehouse:
	a. Select TCR > Launch > Administration > Configuration > Data Sources > TDW.
	b. Click <b>TDW</b> to discover the data source connections (also called TDW).
	c. Click the <b>test</b> icon next to <b>TDW</b> to test the connection.
	<b>3</b> . If <b>TDW</b> is not defined, manually define the data source in Cognos:
	a. Use the database client to catalog the Tivoli Data Warehouse database.
	b. Log in to the Tivoli Integrated Portal.
	<ul> <li>c. In the navigation tree, select Reporting &gt; Common Reporting.</li> </ul>
	<ul> <li>d. Follow the instructions under Configuring database connection (http:// publib.boulder.ibm.com/infocenter/tivihelp/v3r1/topic/com.ibm.tivoli.tcr.doc_211/ttcr_config_db.html) in the Tivoli Common Reporting information center to create the data source in Cognos. Make sure that you call this data source TDW.</li> </ul>
You are able to connect to Tivoli Data Warehouse by using the database client but, when you run a report, you are asked to enter your database credentials again.	If you get this prompt while you are attempting to run a report, the database connection under <b>TDW</b> is not configured properly.
In the Work with reports page, you are prompted to <b>Type a user ID and password</b> and you get the following message: An attempt to connect to the data source failed.	Some common causes might be that the connection is to an invalid DSN, or an incorrect user ID was given, or the database server might be down. Confirm that you created the correct database connection and configure the Tivoli Data Warehouse correctly before you run the report again. For details, see Configuring database connection (http://pic.dhe.ibm.com/infocenter/tivihelp/ v3r1/topic/com.ibm.tivoli.tcr.doc_211/ ttcr_config_db.html).

Table 14. Tivoli Common Reporting for VIOS Premium agent problems and solutions (continued)

Problem	Solution
You open a report, but it does not populate with data; it is empty. While you are running a report, you encounter the following error or a similar error: RQP-DEF-0177 An error occurred while performing operation 'sqlPrepareWithOptions' status='-201'. UDA-SQL-0196 The table or view "TMUSER.KPH_SERVER_DETAILS_DV" was not found in the dictionary.	<ul> <li>Solution</li> <li>Check for one or more of these possible causes:</li> <li>The Tivoli Data Warehouse has the required historical tables for attributes but, does not have the dimension tables. Follow the instructions in Creating shared dimensions tables and populating the time dimensions table in the <i>IBM Tivoli Monitoring Administrator's Guide</i> (http://pic.dhe.ibm.com/infocenter/tivihelp/v15r1/topic/com.ibm.itm.doc_6.2.3fp1/adminuse/tcr_reports_dimensionsshared.htm).</li> <li>The historical data in the warehouse was not summarized and pruned. If you know that summarization and pruning was configured and enabled, wait until the process completes at least one time before you open a report. If you are not sure, see "Configure historical collection" on page 236.</li> <li>The Tivoli Data Warehouse does not have data. Set summarization and pruning for at least hourly summarization and pruning for the required attribute groups See "Prerequisites" on page 235 in the and look for the queries to run to validate the required attribute groups. Prerequisite Scanner Reports are provided for these checks. If historical collection and summarization and pruning were configured and started, and you see missing tables or data for a monitoring agent, contact customer support.</li> <li>This message means that some of the tables or views (or both) are missing in the database. Or, it can indicate that the shared dimensions were not created.</li> </ul>
	For missing tables or views Check whether historical collection and summarization and pruning are enabled for all the prerequisite attribute groups for the VMware agent. If any of them are missing, enable historical collection and Summarization and Pruning for that particular attribute group. After the historical data collection is configured and historical data is saved, run the report again. Follow the instructions in "Configure historical collection" on page 236.
	For missing dimensions The shared dimensions were not created and the appropriate database scripts must be run to create shared dimensions and populate them. For details, see Creating shared dimensions tables and populating the time dimensions table in the <i>IBM Tivoli Monitoring Administrator's</i> <i>Guide</i> (http://pic.dhe.ibm.com/infocenter/ tivihelp/v15r1/topic/com.ibm.itm.doc_6.2.3fp1/ adminuse/tcr_reports_dimensionsshared.htm).
You choose to view the reports in Portuguese (Brazilian), but the change in locale is not reflected in the report prompt page or the output. You still see English strings instead of Portuguese (Brazilian).	For this release, when you choose to view the reports in Portuguese (Brazilian) with Tivoli Common Reporting 3.1, the text is displayed in English. This is a known issue with Cognos 10.2. However, the reports can be viewed in Portuguese (Brazilian) using Tivoli Common Reporting 2.1.1.

 Table 14. Tivoli Common Reporting for VIOS Premium agent problems and solutions (continued)

Problem	Solution
In the Reports Installer, when you complete the following steps to install reports, you have some problems:	Restart the Reports Installer.
1. On the Choose the reports for the installation page, select all reports that you want to install, and then click Next. The Cognos Engine Configuration page is displayed.	
<ol> <li>On the Cognos Engine Configuration page, click Previous to return to the Choose the Installation Folder page.</li> </ol>	
3. On the Choose the Installation Folder page, click <b>Next</b> .	
Problem: The Choose the reports for the installation page that contains selected check boxes for all reports is displayed, and <b>Next</b> is disabled.	
4. Clear all check boxes for the reports, and select the reports to install again. The <b>Next</b> button becomes available.	
5. Click Next.	
Problem: The following message is displayed on the next page: THERE ARE NO ITEMS SELECTED FOR THE INSTALLATION.	
Labels are not displayed on the installation panels or in the dialog boxes on an AIX operating system with Turkish locales when the Report Installer was run on Java 6.	<ul> <li>This problem occurs because both the background color and the font color are white. Use one of the following workarounds:</li> <li>Change the style palette to defaultmono when the Report Installer is running (if it is not set to defaultmono by default). This solution works for Java 5 and Java 6 and is the solution that is preferred.</li> <li>Run the Report Installer by using Java 5. You can specify Java by using the following command: setup_aix.bin lax_vm /opt/ibm/java5/jre/bin/java</li> </ul>

Table 14. Tivoli Common Reporting for VIOS Premium agent problems and solutions (continued)

## **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).
## 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 VIOS Premium 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 KVA\_Base and is defined in the kva.baroc (version 06.22.02) file. The KVA\_Base event class can be used for generic rules processing for any event from the IBM Tivoli Monitoring: VIOS Premium Agent.

For events that are generated by situations in the Active Users attribute group, events are sent by using the ITM\_KVA\_ACTIVE\_USERS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- user\_name: STRING
- tty: STRING
- login\_date\_time: STRING
- kva\_hostname: STRING
- idle\_time: STRING
- jcpu: STRING
- pcpu: STRING
- current\_process: STRING

For events that are generated by situations in the AMS Pool attribute group, events are sent by using the ITM\_KVA\_AMS\_POOL event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- ams\_mode: INTEGER
- ams\_mode\_enum: STRING
- ams\_pool\_id: INTEGER

- ams\_pool\_id\_enum: STRING
- ams\_pool\_size: REAL
- ams\_pool\_size\_enum: STRING
- ams\_physical\_mem: REAL
- ams\_physical\_mem\_enum: STRING
- ams\_mem\_loaned: INTEGER
- ams\_mem\_loaned\_enum: STRING
- ams\_memory\_entitlement: INTEGER
- ams\_memory\_entitlement\_enum: STRING
- ams\_memory\_ent\_inuse: REAL
- ams\_memory\_ent\_inuse\_enum: STRING
- hypervisor\_page\_ins: REAL
- hypervisor\_page\_ins\_enum: STRING
- hypervisor\_page\_ins\_time: REAL
- hypervisor\_page\_ins\_time\_enum: STRING

For events that are generated by situations in the Capabilities attribute group, events are sent by using the ITM\_KVA\_CAPABILITIES event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- type: STRING
- kva\_status: STRING

For events that are generated by situations in the CPU Detail attribute group, events are sent by using the ITM\_KVA\_CPU\_DETAIL event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- cpu\_number: STRING
- user\_cpu\_pct: INTEGER
- user\_cpu\_pct\_enum: STRING
- system\_cpu\_pct: INTEGER
- system\_cpu\_pct\_enum: STRING
- io\_wait\_cpu\_pct: INTEGER
- io\_wait\_cpu\_pct\_enum: STRING
- idle\_cpu\_pct: INTEGER
- idle\_cpu\_pct\_enum: STRING
- context\_switches\_per\_sec: INTEGER
- context\_switches\_per\_sec\_enum: STRING
- syscalls\_per\_sec: INTEGER
- syscalls\_per\_sec\_enum: STRING
- reads\_per\_sec: INTEGER
- reads\_per\_sec\_enum: STRING
- writes\_per\_sec: INTEGER
- writes\_per\_sec\_enum: STRING
- forks\_per\_sec: INTEGER
- forks\_per\_sec\_enum: STRING

- execs\_per\_sec: INTEGER
- execs\_per\_sec\_enum: STRING
- read\_char\_per\_sec: INTEGER
- read\_char\_per\_sec\_enum: STRING
- write\_char\_per\_sec: INTEGER
- write\_char\_per\_sec\_enum: STRING
- inode\_lookup\_per\_sec: INTEGER
- inode\_lookup\_per\_sec\_enum: STRING
- path\_name\_lookup\_per\_sec: INTEGER
- path\_name\_lookup\_per\_sec\_enum: STRING
- dir\_blk\_scans\_per\_sec: INTEGER
- dir\_blk\_scans\_per\_sec\_enum: STRING
- minor\_page\_faults: INTEGER
- minor\_page\_faults\_enum: STRING
- major\_page\_faults: INTEGER
- major\_page\_faults\_enum: STRING
- interrupts: INTEGER
- interrupts\_enum: STRING
- involuntary\_context\_switches: INTEGER
- involuntary\_context\_switches\_enum: STRING
- run\_queue: INTEGER
- run\_queue\_enum: STRING
- logical\_processor\_affinity: INTEGER
- logical\_processor\_affinity\_enum: STRING
- message\_ops: INTEGER
- message\_ops\_enum: STRING
- semaphore\_ops: INTEGER
- semaphore\_ops\_enum: STRING
- blocks\_read: INTEGER
- blocks\_read\_enum: STRING
- blocks\_write: INTEGER
- blocks\_write\_enum: STRING
- logical\_read\_requests: INTEGER
- logical\_read\_requests\_enum: STRING
- logical\_write\_requests: INTEGER
- logical\_write\_requests\_enum: STRING
- physical\_reads: INTEGER
- physical\_reads\_enum: STRING
- physical\_writes: INTEGER
- physical\_writes\_enum: STRING
- logical\_context\_switches: INTEGER
- logical\_context\_switches\_enum: STRING
- physical\_consumption: REAL
- physical\_consumption\_enum: STRING

For events that are generated by situations in the CPU Summary attribute group, events are sent by using the ITM\_KVA\_CPU\_SUMMARY event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- system\_software\_version: STRING
- number\_of\_cpus: INTEGER
- number\_of\_cpus\_enum: STRING
- user\_cpu\_pct: INTEGER
- user\_cpu\_pct\_enum: STRING
- system\_cpu\_pct: INTEGER
- system\_cpu\_pct\_enum: STRING
- io\_wait\_cpu\_pct: INTEGER
- io\_wait\_cpu\_pct\_enum: STRING
- idle\_cpu\_pct: INTEGER
- idle\_cpu\_pct\_enum: STRING
- physical\_consumption: REAL
- physical\_consumption\_enum: STRING
- donation\_enablement: INTEGER
- donation\_enablement\_enum: STRING
- donated\_idle\_cycles\_pct: REAL
- donated\_idle\_cycles\_pct\_enum: STRING
- donated\_busy\_cycles\_pct: REAL
- donated\_busy\_cycles\_pct\_enum: STRING
- stolen\_idle\_cycles\_pct: REAL
- stolen\_idle\_cycles\_pct\_enum: STRING
- stolen\_busy\_cycles\_pct: REAL
- stolen\_busy\_cycles\_pct\_enum: STRING
- hypervisor\_calls: INTEGER
- hypervisor\_calls\_enum: STRING
- time\_spent\_in\_hypervisor\_pct: REAL
- time\_spent\_in\_hypervisor\_pct\_enum: STRING
- donating\_lpars: INTEGER
- donating\_lpars\_enum: STRING
- average\_operating\_frequency\_ghz: REAL
- average\_operating\_frequency\_ghz\_enum: STRING
- average\_operating\_frequency\_pct: INTEGER
- average\_operating\_frequency\_pct\_enum: STRING
- actual\_average\_physical\_cpu\_user: REAL
- actual\_average\_physical\_cpu\_user\_enum: STRING
- actual\_average\_physical\_cpu\_system: REAL
- actual\_average\_physical\_cpu\_system\_enum: STRING
- actual\_average\_physical\_cpu\_idle: REAL
- actual\_average\_physical\_cpu\_idle\_enum: STRING
- actual\_average\_physical\_cpu\_wait: REAL
- actual\_average\_physical\_cpu\_wait\_enum: STRING

- normalized\_average\_physical\_cpu\_user: REAL
- normalized\_average\_physical\_cpu\_user\_enum: STRING
- normalized\_average\_physical\_cpu\_system: REAL
- normalized\_average\_physical\_cpu\_system\_enum: STRING
- normalized\_average\_physical\_cpu\_idle: REAL
- normalized\_average\_physical\_cpu\_idle\_enum: STRING
- normalized\_average\_physical\_cpu\_wait: REAL
- normalized\_average\_physical\_cpu\_wait\_enum: STRING

For events that are generated by situations in the Defined Users attribute group, events are sent by using the ITM\_KVA\_DEFINED\_USERS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- user\_name: STRING
- roles: STRING
- account\_locked: STRING
- expires: STRING
- loginretries: INTEGER
- loginretries\_enum: STRING

For events that are generated by situations in the Devices attribute group, events are sent by using the ITM\_KVA\_DEVICES event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- parent: STRING
- type: STRING
- state: STRING
- kva\_class: STRING

For events that are generated by situations in the Disks attribute group, events are sent by using the ITM\_KVA\_DISKS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- parent: STRING
- type: STRING
- active\_disk\_pct: REAL
- active\_disk\_pct\_enum: STRING
- transfers\_bytes\_per\_sec: INTEGER
- transfers\_bytes\_per\_sec\_enum: STRING
- transfers\_kb\_per\_sec: INTEGER
- transfers\_kb\_per\_sec\_enum: STRING
- transfers\_per\_sec: INTEGER
- transfers\_per\_sec\_enum: STRING
- read\_kb\_per\_sec: INTEGER
- read\_kb\_per\_sec\_enum: STRING

- written\_kb\_per\_sec: INTEGER
- written\_kb\_per\_sec\_enum: STRING
- read\_transfers\_per\_sec: INTEGER
- read\_transfers\_per\_sec\_enum: STRING
- avg\_read\_transfer\_ms: REAL
- avg\_read\_transfer\_ms\_enum: STRING
- min\_read\_service\_ms: REAL
- min\_read\_service\_ms\_enum: STRING
- max\_read\_service\_ms: REAL
- max\_read\_service\_ms\_enum: STRING
- read\_timeouts\_per\_sec: INTEGER
- read\_timeouts\_per\_sec\_enum: STRING
- failed\_read\_per\_sec: INTEGER
- failed\_read\_per\_sec\_enum: STRING
- write\_transfers\_per\_sec: INTEGER
- write\_transfers\_per\_sec\_enum: STRING
- avg\_write\_transfer\_ms: REAL
- avg\_write\_transfer\_ms\_enum: STRING
- min\_write\_service\_ms: REAL
- min\_write\_service\_ms\_enum: STRING
- max\_write\_service\_ms: REAL
- max\_write\_service\_ms\_enum: STRING
- write\_timeout\_per\_sec: REAL
- write\_timeout\_per\_sec\_enum: STRING
- failed\_writes\_per\_sec: INTEGER
- failed\_writes\_per\_sec\_enum: STRING
- avg\_request\_in\_waitq\_ms: REAL
- avg\_request\_in\_waitq\_ms\_enum: STRING
- min\_request\_in\_waitq\_ms: REAL
- min\_request\_in\_waitq\_ms\_enum: STRING
- max\_request\_in\_waitq\_ms: REAL
- max\_request\_in\_waitq\_ms\_enum: STRING
- avg\_waitq\_size: INTEGER
- avg\_waitq\_size\_enum: STRING
- avg\_serviceq\_size: INTEGER
- avg\_serviceq\_size\_enum: STRING
- serviceq\_full\_per\_sec: INTEGER
- serviceq\_full\_per\_sec\_enum: STRING

For events that are generated by situations in the FC Stats attribute group, events are sent by using the ITM\_KVA\_FC\_STATS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- port\_speed\_supported: INTEGER

- port\_speed\_supported\_enum: STRING
- port\_speed\_running: INTEGER
- port\_speed\_running\_enum: STRING
- seconds\_since\_last\_reset: REAL
- seconds\_since\_last\_reset\_enum: STRING
- transmitted\_frames: REAL
- transmitted\_frames\_enum: STRING
- received\_frames: REAL
- received\_frames\_enum: STRING
- error\_frames: REAL
- error\_frames\_enum: STRING
- dumped\_frames: REAL
- dumped\_frames\_enum: STRING
- link\_failure\_count: REAL
- link\_failure\_count\_enum: STRING
- loss\_of\_sync\_count: REAL
- loss\_of\_sync\_count\_enum: STRING
- loss\_of\_signal: REAL
- loss\_of\_signal\_enum: STRING
- primitive\_seq\_protocol\_error\_count: REAL
- primitive\_seq\_protocol\_error\_count\_enum: STRING
- invalid\_tx\_word\_count: REAL
- invalid\_tx\_word\_count\_enum: STRING
- invalid\_crc\_count: REAL
- invalid\_crc\_count\_enum: STRING
- input\_requests: REAL
- input\_requests\_enum: STRING
- output\_requests: REAL
- output\_requests\_enum: STRING
- control\_requests: REAL
- control\_requests\_enum: STRING
- input\_bytes: REAL
- input\_bytes\_enum: STRING
- output\_bytes: REAL
- output\_bytes\_enum: STRING
- input\_requests\_per\_second: REAL
- input\_requests\_per\_second\_enum: STRING
- output\_requests\_per\_second: REAL
- output\_requests\_per\_second\_enum: STRING
- control\_requests\_per\_second: REAL
- control\_requests\_per\_second\_enum: STRING
- input\_bytes\_per\_second: REAL
- input\_bytes\_per\_second\_enum: STRING
- output\_bytes\_per\_second: REAL
- output\_bytes\_per\_second\_enum: STRING

- bandwidth\_used\_per\_second: REAL
- bandwidth\_used\_per\_second\_enum: STRING
- world\_wide\_node\_name: STRING
- world\_wide\_port\_name: STRING

For events that are generated by situations in the File Systems attribute group, events are sent by using the ITM\_KVA\_FILE\_SYSTEMS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- mount\_point: STRING
- volume\_group\_name: STRING
- size\_mb: INTEGER
- size\_mb\_enum: STRING
- free\_mb: INTEGER
- free\_mb\_enum: STRING
- used\_mb: INTEGER
- used\_mb\_enum: STRING
- free\_pct: INTEGER
- free\_pct\_enum: STRING
- used\_pct: INTEGER
- used\_pct\_enum: STRING

For events that are generated by situations in the Firewall attribute group, events are sent by using the ITM\_KVA\_FIREWALL event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- interface: STRING
- local\_port: INTEGER
- local\_port\_enum: STRING
- remote\_port: INTEGER
- remote\_port\_enum: STRING
- service: STRING
- ip\_address: STRING
- expiration\_time: INTEGER
- expiration\_time\_enum: STRING

For events that are generated by situations in the Internet Protocol Detail attribute group, events are sent by using the ITM\_KVA\_INTERNET\_PROTOCOL\_DETAIL event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- packets\_received\_per\_sec: INTEGER
- packets\_received\_per\_sec\_enum: STRING
- ioctet\_received\_kb\_per\_sec: INTEGER
- ioctet\_received\_kb\_per\_sec\_enum: STRING

- input\_errors\_per\_sec: INTEGER
- input\_errors\_per\_sec\_enum: STRING
- multicast\_pkt\_received\_per\_sec: INTEGER
- multicast\_pkt\_received\_per\_sec\_enum: STRING
- input\_packets\_dropped\_per\_sec: INTEGER
- input\_packets\_dropped\_per\_sec\_enum: STRING
- packets\_transmitted\_per\_sec: INTEGER
- packets\_transmitted\_per\_sec\_enum: STRING
- ioctet\_transmitted\_kb\_per\_sec: INTEGER
- ioctet\_transmitted\_kb\_per\_sec\_enum: STRING
- output\_errors\_per\_sec: INTEGER
- output\_errors\_per\_sec\_enum: STRING
- multicast\_pkt\_transmitted\_per\_sec: INTEGER
- multicast\_pkt\_transmitted\_per\_sec\_enum: STRING

For events that are generated by situations in the Internet Protocol Summary attribute group, events are sent by using the ITM\_KVA\_INTERNET\_PROTOCOL\_SUMMARY event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- packets\_received\_per\_sec: INTEGER
- packets\_received\_per\_sec\_enum: STRING
- frag\_received\_per\_sec: INTEGER
- frag\_received\_per\_sec\_enum: STRING
- packets\_forwarded\_per\_sec: INTEGER
- packets\_forwarded\_per\_sec\_enum: STRING
- received\_datagrams\_per\_sec: INTEGER
- received\_datagrams\_per\_sec\_enum: STRING
- transmitted\_datagrams\_per\_sec: INTEGER
- transmitted\_datagrams\_per\_sec\_enum: STRING
- total\_packets\_reassembled\_per\_sec: INTEGER
- total\_packets\_reassembled\_per\_sec\_enum: STRING
- frag\_output\_packets\_per\_sec: INTEGER
- frag\_output\_packets\_per\_sec\_enum: STRING

For events that are generated by situations in the Logical Partition attribute group, events are sent by using the ITM\_KVA\_LOGICAL\_PARTITION event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- user\_cpu\_pct: INTEGER
- user\_cpu\_pct\_enum: STRING
- system\_cpu\_pct: INTEGER
- system\_cpu\_pct\_enum: STRING
- io\_wait\_cpu\_pct: INTEGER
- io\_wait\_cpu\_pct\_enum: STRING
- idle\_cpu\_pct: INTEGER

- idle\_cpu\_pct\_enum: STRING
- entitlement: REAL
- entitlement\_enum: STRING
- total\_used\_pct: INTEGER
- total\_used\_pct\_enum: STRING
- entitlement\_used\_pct: INTEGER
- entitlement\_used\_pct\_enum: STRING
- lpar\_number: INTEGER
- lpar\_number\_enum: STRING
- shared\_mode: STRING
- capped\_mode: STRING
- smt\_mode: STRING
- number\_of\_physical\_cpus: INTEGER
- number\_of\_physical\_cpus\_enum: STRING
- number\_of\_virtual\_cpus: INTEGER
- number\_of\_virtual\_cpus\_enum: STRING
- number\_of\_logical\_cpus: INTEGER
- number\_of\_logical\_cpus\_enum: STRING
- available\_cpus\_in\_pool: INTEGER
- available\_cpus\_in\_pool\_enum: STRING
- number\_of\_physical\_cpus\_in\_shared\_pool: INTEGER
- number\_of\_physical\_cpus\_in\_shared\_pool\_enum: STRING
- busy\_pct: INTEGER
- busy\_pct\_enum: STRING
- phys\_busy\_pct: INTEGER
- phys\_busy\_pct\_enum: STRING
- virt\_context\_cpu\_switches\_per\_sec: INTEGER
- virt\_context\_cpu\_switches\_per\_sec\_enum: STRING
- max\_memory: INTEGER
- max\_memory\_enum: STRING
- min\_memory: INTEGER
- min\_memory\_enum: STRING
- max\_phys\_cpus: INTEGER
- max\_phys\_cpus\_enum: STRING
- min\_virt\_cpus: INTEGER
- min\_virt\_cpus\_enum: STRING
- max\_virt\_cpus: INTEGER
- max\_virt\_cpus\_enum: STRING
- min\_cpu\_capacity: INTEGER
- min\_cpu\_capacity\_enum: STRING
- max\_cpu\_capacity: INTEGER
- max\_cpu\_capacity\_enum: STRING
- cpu\_capacity\_increment: INTEGER
- cpu\_capacity\_increment\_enum: STRING
- online\_mem: INTEGER

- online\_mem\_enum: STRING
- max\_dispatch\_latency: INTEGER
- max\_dispatch\_latency\_enum: STRING
- unallocated\_cpu\_in\_pool: INTEGER
- unallocated\_cpu\_in\_pool\_enum: STRING
- cpu\_entitlement: INTEGER
- cpu\_entitlement\_enum: STRING
- capacity\_weight: INTEGER
- capacity\_weight\_enum: STRING
- min\_req\_virt\_cpu: INTEGER
- min\_req\_virt\_cpu\_enum: STRING
- phantom\_interrupts: INTEGER
- phantom\_interrupts\_enum: STRING
- entitlement\_pct: INTEGER
- entitlement\_pct\_enum: STRING
- num\_hypervisor\_calls\_per\_sec: INTEGER
- num\_hypervisor\_calls\_per\_sec\_enum: STRING
- time\_in\_hypervisor\_pct: INTEGER
- time\_in\_hypervisor\_pct\_enum: STRING
- machine\_id: STRING
- uptime: STRING
- kva\_hostname: STRING
- physical\_cpu\_units\_used: REAL
- physical\_cpu\_units\_used\_enum: STRING
- available\_cpu\_units\_in\_pool: REAL
- available\_cpu\_units\_in\_pool\_enum: STRING
- physical\_cpu\_size\_of\_shared\_pool: REAL
- physical\_cpu\_size\_of\_shared\_pool\_enum: STRING
- last\_machine\_id: STRING
- max\_cpu\_cap\_used\_pct: REAL
- max\_cpu\_cap\_used\_pct\_enum: STRING
- poolid: INTEGER
- poolid\_enum: STRING
- pool\_entitlement: REAL
- pool\_entitlement\_enum: STRING
- maximum\_pool\_capacity: REAL
- maximum\_pool\_capacity\_enum: STRING
- smt\_threads: INTEGER
- smt\_threads\_enum: STRING
- entitlement\_2: REAL
- entitlement\_2\_enum: STRING
- old\_machine\_id: STRING

For events that are generated by situations in the Logical Volumes attribute group, events are sent by using the ITM\_KVA\_LOGICAL\_VOLUMES event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- state: STRING
- volume\_group\_name: STRING
- type: STRING
- mount\_point: STRING
- size\_mb: INTEGER
- size\_mb\_enum: STRING

For events that are generated by situations in the MPIO Attributes attribute group, events are sent by using the ITM\_KVA\_MPIO\_ATTRIBUTES event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- device\_name: STRING
- attribute: STRING
- kva\_value: STRING
- description: STRING
- user\_settable: STRING

For events that are generated by situations in the MPIO Status attribute group, events are sent by using the ITM\_KVA\_MPIO\_STATUS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- device\_name: STRING
- parent: STRING
- path\_status: STRING
- kva\_status: STRING
- connection: STRING

For events that are generated by situations in the Network Adapters Rates attribute group, events are sent by using the ITM\_KVA\_NETWORK\_ADAPTERS\_RATES event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- parent: STRING
- type: STRING
- bytes\_sent\_per\_sec: INTEGER
- bytes\_sent\_per\_sec\_enum: STRING
- pkts\_sent\_per\_sec: INTEGER
- pkts\_sent\_per\_sec\_enum: STRING
- pkts\_sent\_errors\_per\_sec: INTEGER
- pkts\_sent\_errors\_per\_sec\_enum: STRING
- sent\_pkts\_dropped\_per\_sec: INTEGER
- sent\_pkts\_dropped\_per\_sec\_enum: STRING
- broadcast\_pkts\_sent\_per\_sec: INTEGER

- broadcast\_pkts\_sent\_per\_sec\_enum: STRING
- multicast\_pkts\_sent\_per\_sec: INTEGER
- multicast\_pkts\_sent\_per\_sec\_enum: STRING
- sent\_interrupts\_per\_sec: INTEGER
- sent\_interrupts\_per\_sec\_enum: STRING
- bytes\_recvd\_per\_sec: INTEGER
- bytes\_recvd\_per\_sec\_enum: STRING
- pkts\_recvd\_per\_sec: INTEGER
- pkts\_recvd\_per\_sec\_enum: STRING
- pkts\_recv\_errors\_per\_sec: INTEGER
- pkts\_recv\_errors\_per\_sec\_enum: STRING
- bad\_pkts\_recvd\_per\_sec: INTEGER
- bad\_pkts\_recvd\_per\_sec\_enum: STRING
- recv\_pkts\_dropped\_per\_sec: INTEGER
- recv\_pkts\_dropped\_per\_sec\_enum: STRING
- broadcast\_pkts\_recvd\_per\_sec: INTEGER
- broadcast\_pkts\_recvd\_per\_sec\_enum: STRING
- multicast\_pkts\_recvd\_per\_sec: INTEGER
- multicast\_pkts\_recvd\_per\_sec\_enum: STRING
- recv\_interrupts\_per\_sec: INTEGER
- recv\_interrupts\_per\_sec\_enum: STRING
- transmitsq\_per\_sec: INTEGER
- transmitsq\_per\_sec\_enum: STRING
- max\_transmitsq\_per\_sec: INTEGER
- max\_transmitsq\_per\_sec\_enum: STRING
- qoverflow\_per\_sec: INTEGER
- qoverflow\_per\_sec\_enum: STRING
- real\_pkts\_recvd\_per\_sec: INTEGER
- real\_pkts\_recvd\_per\_sec\_enum: STRING
- real\_pkts\_bridged\_per\_sec: INTEGER
- real\_pkts\_bridged\_per\_sec\_enum: STRING
- real\_pkts\_consumed\_per\_sec: INTEGER
- real\_pkts\_consumed\_per\_sec\_enum: STRING
- real\_pkts\_fragmented\_per\_sec: INTEGER
- real\_pkts\_fragmented\_per\_sec\_enum: STRING
- real\_pkts\_sent\_per\_sec: INTEGER
- real\_pkts\_sent\_per\_sec\_enum: STRING
- real\_pkts\_dropped\_per\_sec: INTEGER
- real\_pkts\_dropped\_per\_sec\_enum: STRING
- virtual\_pkts\_recvd\_per\_sec: INTEGER
- virtual\_pkts\_recvd\_per\_sec\_enum: STRING
- virtual\_pkts\_bridged\_per\_sec: INTEGER
- virtual\_pkts\_bridged\_per\_sec\_enum: STRING
- virtual\_pkts\_consumed\_per\_sec: INTEGER
- virtual\_pkts\_consumed\_per\_sec\_enum: STRING

- virtual\_pkts\_fragmented\_per\_sec: INTEGER
- virtual\_pkts\_fragmented\_per\_sec\_enum: STRING
- virtual\_pkts\_sent\_per\_sec: INTEGER
- virtual\_pkts\_sent\_per\_sec\_enum: STRING
- virtual\_pkts\_dropped\_per\_sec: INTEGER
- virtual\_pkts\_dropped\_per\_sec\_enum: STRING
- output\_pkts\_generated\_per\_sec: INTEGER
- output\_pkts\_generated\_per\_sec\_enum: STRING
- output\_pkts\_dropped\_per\_sec: INTEGER
- output\_pkts\_dropped\_per\_sec\_enum: STRING
- output\_pkts\_failures\_per\_sec: INTEGER
- output\_pkts\_failures\_per\_sec\_enum: STRING
- mem\_alloc\_failures\_per\_sec: INTEGER
- mem\_alloc\_failures\_per\_sec\_enum: STRING
- icmp\_error\_pkts\_sent\_per\_sec: INTEGER
- icmp\_error\_pkts\_sent\_per\_sec\_enum: STRING
- non\_ip\_pkts\_larger\_than\_mtu\_per\_sec: INTEGER
- non\_ip\_pkts\_larger\_than\_mtu\_per\_sec\_enum: STRING
- threadq\_overflow\_pkts\_per\_sec: INTEGER
- threadq\_overflow\_pkts\_per\_sec\_enum: STRING
- ha\_keep\_alive\_pkts\_per\_sec: INTEGER
- ha\_keep\_alive\_pkts\_per\_sec\_enum: STRING
- ha\_recovery\_pkts\_per\_sec: INTEGER
- ha\_recovery\_pkts\_per\_sec\_enum: STRING
- ha\_notify\_pkts\_per\_sec: INTEGER
- ha\_notify\_pkts\_per\_sec\_enum: STRING
- ha\_limbo\_pkts\_per\_sec: INTEGER
- ha\_limbo\_pkts\_per\_sec\_enum: STRING
- ha\_state: STRING
- ha\_bridge\_mode: STRING
- times\_primary\_per\_sec: INTEGER
- times\_primary\_per\_sec\_enum: STRING
- time\_backup\_per\_sec: INTEGER
- time\_backup\_per\_sec\_enum: STRING
- ha\_mode: STRING
- priority: INTEGER
- priority\_enum: STRING
- adapter\_protocol: STRING
- media\_speed\_running: STRING
- bandwidth\_util\_pct: REAL
- bandwidth\_util\_pct\_enum: STRING

For events that are generated by situations in the Network Adapters Totals attribute group, events are sent by using the ITM\_KVA\_NETWORK\_ADAPTERS\_TOTALS event class. This event class contains the following slots:

• node: STRING

- timestamp: STRING
- name: STRING
- parent: STRING
- type: STRING
- bytes\_sent: STRING
- pkts\_sent: STRING
- pkts\_sent\_error: STRING
- sent\_pkts\_dropped: STRING
- broadcast\_pkts\_sent: STRING
- multicast\_pkts\_sent: STRING
- sent\_interrupts: STRING
- bytes\_recvd: STRING
- pkts\_recvd: STRING
- pkts\_recv\_error: STRING
- bad\_pkts\_recvd: STRING
- recv\_pkts\_dropped: STRING
- broadcast\_pkts\_recvd: STRING
- multicast\_pkts\_recvd: STRING
- recv\_interrupts: STRING
- transmitsq: STRING
- max\_transmitsq: STRING
- qoverflow: STRING
- real\_pkts\_recvd: STRING
- real\_pkts\_bridged: STRING
- real\_pkts\_consumed: STRING
- real\_pkts\_fragmented: STRING
- real\_pkts\_sent: STRING
- real\_pkts\_dropped: STRING
- virtual\_pkts\_recvd: STRING
- virtual\_pkts\_bridged: STRING
- virtual\_pkts\_consumed: STRING
- virtual\_pkts\_fragmented: STRING
- virtual\_pkts\_sent: STRING
- virtual\_pkts\_dropped: STRING
- output\_pkts\_generated: STRING
- output\_pkts\_dropped: STRING
- output\_pkts\_failures: STRING
- mem\_alloc\_failures: STRING
- icmp\_error\_pkts\_sent: STRING
- non\_ip\_pkts\_larger\_than\_mtu: STRING
- threadq\_overflow\_pkts: STRING
- ha\_keep\_alive\_pkts: STRING
- ha\_recovery\_pkts: STRING
- ha\_notify\_pkts: STRING
- ha\_limbo\_pkts: STRING

- ha\_state: STRING
- ha\_bridge\_mode: STRING
- times\_primary: STRING
- times\_backup: STRING
- ha\_mode: STRING
- priority: STRING

For events that are generated by situations in the Network Interfaces attribute group, events are sent by using the ITM\_KVA\_NETWORK\_INTERFACES event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- state: STRING
- ip\_address: STRING
- mtu: STRING
- mask: STRING
- domain: STRING
- gateway: STRING
- nameserver: STRING

For events that are generated by situations in the Network Mappings attribute group, events are sent by using the ITM\_KVA\_NETWORK\_MAPPINGS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- vlan\_id: INTEGER
- vlan\_id\_enum: STRING
- partition\_name: STRING
- partition\_state: STRING
- kva\_hostname: STRING
- ip\_address: STRING
- partition\_id: INTEGER
- partition\_id\_enum: STRING
- vea\_slot: INTEGER
- vea\_slot\_enum: STRING
- vea\_mac: STRING
- vea\_ip\_address: STRING
- trunk: STRING
- shared\_ethernet\_adapter: STRING
- sea\_ip\_address: STRING
- sea\_mac: STRING
- physical\_ethernet\_adapters: STRING
- virtual\_ethernet\_adapters: STRING
- failover: STRING
- priority: STRING
- bridging: STRING
- control\_channel: STRING

- server\_bytes\_sent\_per\_sec: INTEGER
- server\_bytes\_sent\_per\_sec\_enum: STRING
- server\_bytes\_received\_per\_sec: INTEGER
- server\_bytes\_received\_per\_sec\_enum: STRING
- server\_packets\_sent\_per\_sec: INTEGER
- server\_packets\_sent\_per\_sec\_enum: STRING
- server\_packets\_received\_per\_sec: INTEGER
- server\_packets\_received\_per\_sec\_enum: STRING
- client\_device\_name: STRING

For events that are generated by situations in the NIM Resources attribute group, events are sent by using the ITM\_KVA\_NIM\_RESOURCES event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- type: STRING
- kva\_class: STRING
- state: STRING
- server: STRING
- location: STRING
- information: STRING

For events that are generated by situations in the NPIV FCP attribute group, events are sent by using the ITM\_KVA\_NPIV\_FCP event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- physical\_fibre\_channel\_port: STRING
- physical\_fcp\_location\_code: STRING
- total\_ports: INTEGER
- total\_ports\_enum: STRING
- available\_ports: INTEGER
- available\_ports\_enum: STRING

For events that are generated by situations in the NPIV Mappings attribute group, events are sent by using the ITM\_KVA\_NPIV\_MAPPINGS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- partition\_name: STRING
- partition\_id: INTEGER
- partition\_id\_enum: STRING
- npiv\_server\_adapter\_name: STRING
- server\_physical\_location\_code: STRING
- client\_partition\_name: STRING
- client\_partition\_id: INTEGER
- client\_partition\_id\_enum: STRING
- npiv\_client\_adapter\_name: STRING
- client\_slot\_number: INTEGER

- client\_slot\_number\_enum: STRING
- server\_slot\_number: INTEGER
- server\_slot\_number\_enum: STRING
- client\_partition\_os: STRING
- client\_physical\_location\_code: STRING
- physical\_fibre\_channel\_port: STRING
- physical\_fcp\_location\_code: STRING
- kva\_status: INTEGER
- kva\_status\_enum: STRING
- wwpn\_primary: STRING
- wwpn\_secondary: STRING

For events that are generated by situations in the Paging Space attribute group, events are sent by using the ITM\_KVA\_PAGING\_SPACE event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- total\_size\_mb: INTEGER
- total\_size\_mb\_enum: STRING
- free\_mb: INTEGER
- free\_mb\_enum: STRING
- used mb: INTEGER
- used\_mb\_enum: STRING
- free\_pct: INTEGER
- free\_pct\_enum: STRING
- used\_pct: INTEGER
- used\_pct\_enum: STRING
- pages\_read\_per\_sec: INTEGER
- pages\_read\_per\_sec\_enum: STRING
- pages\_written\_per\_sec: INTEGER
- pages\_written\_per\_sec\_enum: STRING

For events that are generated by situations in the Performance Object Status attribute group, events are sent by using the ITM\_KVA\_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

For events that are generated by situations in the Physical Memory attribute group, events are sent by using the ITM\_KVA\_PHYSICAL\_MEMORY event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- memory\_size\_mb: INTEGER
- memory\_size\_mb\_enum: STRING
- free\_memory\_mb: INTEGER
- free\_memory\_mb\_enum: STRING
- used\_memory\_mb: INTEGER
- used\_memory\_mb\_enum: STRING
- free\_memory\_pct: INTEGER
- free\_memory\_pct\_enum: STRING
- used\_memory\_pct: INTEGER
- used\_memory\_pct\_enum: STRING
- non\_comp\_memory: INTEGER
- non\_comp\_memory\_enum: STRING
- comp\_memory: INTEGER
- comp\_memory\_enum: STRING
- decay\_rate: INTEGER
- decay\_rate\_enum: STRING
- repaging\_rate: INTEGER
- repaging\_rate\_enum: STRING

For events that are generated by situations in the Physical Volumes attribute group, events are sent by using the ITM\_KVA\_PHYSICAL\_VOLUMES event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- state: STRING
- volume\_group\_name: STRING
- number\_of\_logical\_volumes: INTEGER
- number\_of\_logical\_volumes\_enum: STRING
- number\_of\_stale\_partitions: INTEGER
- number\_of\_stale\_partitions\_enum: STRING
- size\_mb: INTEGER
- size\_mb\_enum: STRING
- free\_mb: INTEGER
- free\_mb\_enum: STRING
- used\_mb: INTEGER
- used\_mb\_enum: STRING
- free\_pct: INTEGER
- free\_pct\_enum: STRING
- used\_pct: INTEGER
- used\_pct\_enum: STRING
- unique\_id: STRING

For events that are generated by situations in the Processes Detail attribute group, events are sent by using the ITM\_KVA\_PROCESSES\_DETAIL event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- process\_name: STRING
- process\_id: INTEGER
- process\_id\_enum: STRING
- parent\_process\_id: INTEGER
- parent\_process\_id\_enum: STRING
- nice: INTEGER
- nice\_enum: STRING
- user\_name: STRING
- repage\_count\_per\_sec: INTEGER
- repage\_count\_per\_sec\_enum: STRING
- io\_page\_fault\_per\_sec: INTEGER
- io\_page\_fault\_per\_sec\_enum: STRING
- non\_io\_page\_fault\_per\_sec: INTEGER
- non\_io\_page\_fault\_per\_sec\_enum: STRING
- text\_size: INTEGER
- text\_size\_enum: STRING
- resident\_text\_size: INTEGER
- resident\_text\_size\_enum: STRING
- resident\_data\_size: INTEGER
- resident\_data\_size\_enum: STRING
- page\_space\_used: INTEGER
- page\_space\_used\_enum: STRING
- signals\_in\_per\_sec: INTEGER
- signals\_in\_per\_sec\_enum: STRING
- voluntary\_context\_switches\_per\_sec: INTEGER
- voluntary\_context\_switches\_per\_sec\_enum: STRING
- process\_group\_id: INTEGER
- process\_group\_id\_enum: STRING
- priority: INTEGER
- priority\_enum: STRING
- state: INTEGER
- state\_enum: STRING
- process\_uid: INTEGER
- process\_uid\_enum: STRING
- thread\_count: INTEGER
- thread\_count\_enum: STRING
- process\_core\_size: INTEGER
- process\_core\_size\_enum: STRING
- involuntary\_context\_switches\_per\_sec: INTEGER
- involuntary\_context\_switches\_per\_sec\_enum: STRING
- total\_cpu\_time: INTEGER
- total\_cpu\_time\_enum: STRING
- cpu\_pct: INTEGER

- cpu\_pct\_enum: STRING
- wpar\_name: STRING
- wlm\_name: STRING
- full\_path: STRING

For events that are generated by situations in the Processes Summary attribute group, events are sent by using the ITM\_KVA\_PROCESSES\_SUMMARY event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- process\_context\_switches\_per\_sec: INTEGER
- process\_context\_switches\_per\_sec\_enum: STRING
- run\_queue\_avg: INTEGER
- run\_queue\_avg\_enum: STRING
- swap\_queue\_avg: INTEGER
- swap\_queue\_avg\_enum: STRING
- kern\_procs\_created\_per\_sec: INTEGER
- kern\_procs\_created\_per\_sec\_enum: STRING
- kern\_procs\_exit\_per\_sec: INTEGER
- kern\_procs\_exit\_per\_sec\_enum: STRING
- load\_avg: INTEGER
- load\_avg\_enum: STRING
- utilization\_avg: INTEGER
- utilization\_avg\_enum: STRING
- total\_num\_processes: INTEGER
- total\_num\_processes\_enum: STRING

For events that are generated by situations in the Quality Of Service attribute group, events are sent by using the ITM\_KVA\_QUALITY\_OF\_SERVICE event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- policy\_rule\_priority: INTEGER
- policy\_rule\_priority\_enum: STRING
- protocol: INTEGER
- protocol\_enum: STRING
- source\_ip\_addr\_start: STRING
- source\_ip\_addr\_end: STRING
- dest\_ip\_addr\_start: STRING
- dest\_ip\_addr\_end: STRING
- source\_port\_start: INTEGER
- source\_port\_start\_enum: STRING
- source\_port\_end: INTEGER
- source\_port\_end\_enum: STRING
- dest\_port\_start: INTEGER
- dest\_port\_start\_enum: STRING
- dest\_port\_end: INTEGER
- dest\_port\_end\_enum: STRING

- service\_class: INTEGER
- service\_class\_enum: STRING
- peak\_rate: STRING
- average\_rate: STRING
- bucket\_depth: STRING
- guaranteed\_rate: STRING
- slack\_term: STRING
- tos\_in: STRING
- tos\_out: STRING
- max\_packet\_size: INTEGER
- max\_packet\_size\_enum: STRING
- min\_packet\_size: INTEGER
- min\_packet\_size\_enum: STRING
- num\_connections: INTEGER
- num\_connections\_enum: STRING
- bytes\_xmited: STRING
- packets\_xmited: STRING
- in\_profile\_bytes\_xmited: STRING
- in\_profile\_packets\_xmited: STRING

For events that are generated by situations in the Security States attribute group, events are sent by using the ITM\_KVA\_SECURITY\_STATES event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- security\_level: STRING
- user\_authentication: STRING
- firewall: STRING

For events that are generated by situations in the Shared Ethernet Adapter attribute group, events are sent by using the ITM\_KVA\_SHARED\_ETHERNET\_ADAPTER event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- device\_name: STRING
- mac\_address: STRING
- vlan: STRING
- vlan\_priority: STRING
- kva\_hostname: STRING
- ip\_address: STRING
- packets\_sent: STRING
- bytes\_sent: STRING
- packets\_received: STRING
- bytes\_received: STRING

For events that are generated by situations in the Storage Mappings attribute group, events are sent by using the ITM\_KVA\_STORAGE\_MAPPINGS event class. This event class contains the following slots:

• node: STRING

- timestamp: STRING
- vios\_name: STRING
- kva\_hostname: STRING
- ip\_address: STRING
- partition\_id: INTEGER
- partition\_id\_enum: STRING
- vssa\_slot: INTEGER
- vssa\_slot\_enum: STRING
- vssa\_name: STRING
- vtd\_name: STRING
- vios\_physical\_adapter: STRING
- disk: STRING
- lv\_name: STRING
- lun\_id: STRING
- client\_partition\_name: STRING
- client\_hostname: STRING
- client\_ip\_address: STRING
- client\_partition\_id: INTEGER
- client\_partition\_id\_enum: STRING
- client\_partition\_state: STRING
- vsca\_slot: INTEGER
- vsca\_slot\_enum: STRING
- vtd\_transfers\_per\_sec: REAL
- vtd\_transfers\_per\_sec\_enum: STRING
- vtd\_reads\_per\_sec: REAL
- vtd\_reads\_per\_sec\_enum: STRING
- vtd\_writes\_per\_sec: REAL
- vtd\_writes\_per\_sec\_enum: STRING
- vtd\_spans\_multiple\_disks: STRING
- disk\_transfers\_per\_sec: REAL
- disk\_transfers\_per\_sec\_enum: STRING
- disk\_reads\_per\_sec: REAL
- disk\_reads\_per\_sec\_enum: STRING
- disk\_writes\_per\_sec: REAL
- disk\_writes\_per\_sec\_enum: STRING
- disk\_transfers\_sec\_pct: REAL
- disk\_transfers\_sec\_pct\_enum: STRING
- disk\_reads\_per\_sec\_pct: REAL
- disk\_reads\_per\_sec\_pct\_enum: STRING
- disk\_writes\_per\_sec\_pct: REAL
- disk\_writes\_per\_sec\_pct\_enum: STRING
- client\_device\_name: STRING

For events that are generated by situations in the System Call attribute group, events are sent by using the ITM\_KVA\_SYSTEM\_CALL event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- num\_syscalls\_per\_sec: INTEGER
- num\_syscalls\_per\_sec\_enum: STRING
- reads\_per\_sec: INTEGER
- reads\_per\_sec\_enum: STRING
- writes\_per\_sec: INTEGER
- writes\_per\_sec\_enum: STRING
- forks\_per\_sec: INTEGER
- forks\_per\_sec\_enum: STRING
- execs\_per\_sec: INTEGER
- execs\_per\_sec\_enum: STRING

For events that are generated by situations in the System IO attribute group, events are sent by using the ITM\_KVA\_SYSTEM\_IO event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- syscall\_read\_chars\_per\_sec: INTEGER
- syscall\_read\_chars\_per\_sec\_enum: STRING
- syscall\_write\_chars\_per\_sec: INTEGER
- syscall\_write\_chars\_per\_sec\_enum: STRING
- logical\_blk\_buffer\_cache\_reads\_per\_sec: INTEGER
- logical\_blk\_buffer\_cache\_reads\_per\_sec\_enum: STRING
- logical\_blk\_buffer\_cache\_writes\_per\_sec: INTEGER
- logical\_blk\_buffer\_cache\_writes\_per\_sec\_enum: STRING
- phys\_blk\_buffer\_cache\_reads\_per\_sec: INTEGER
- phys\_blk\_buffer\_cache\_reads\_per\_sec\_enum: STRING
- phys\_blk\_buffer\_cache\_writes\_per\_sec: INTEGER
- phys\_blk\_buffer\_cache\_writes\_per\_sec\_enum: STRING
- phys\_raw\_reads\_per\_sec: INTEGER
- phys\_raw\_reads\_per\_sec\_enum: STRING
- phys\_raw\_writes\_per\_sec: INTEGER
- phys\_raw\_writes\_per\_sec\_enum: STRING

For events that are generated by situations in the TADDM attribute group, events are sent by using the ITM\_KVA\_TADDM event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- cec\_mfg: STRING
- cec\_model: STRING
- cec\_sn: STRING
- lpar\_num: INTEGER
- lpar\_num\_enum: STRING

For events that are generated by situations in the TCP attribute group, events are sent by using the ITM\_KVA\_TCP event class. This event class contains the following slots:

• node: STRING

- timestamp: STRING
- connections\_initiated\_per\_sec: INTEGER
- connections\_initiated\_per\_sec\_enum: STRING
- connections\_established\_per\_sec: INTEGER
- connections\_established\_per\_sec\_enum: STRING
- connections\_closed\_per\_sec: INTEGER
- connections\_closed\_per\_sec\_enum: STRING
- total\_packets\_sent\_per\_sec: INTEGER
- total\_packets\_sent\_per\_sec\_enum: STRING
- data\_packets\_sent\_per\_sec: INTEGER
- data\_packets\_sent\_per\_sec\_enum: STRING
- data\_sent\_kb\_per\_sec: INTEGER
- data\_sent\_kb\_per\_sec\_enum: STRING
- data\_pkt\_retransmitted\_per\_sec: INTEGER
- data\_pkt\_retransmitted\_per\_sec\_enum: STRING
- ack\_only\_pkt\_sent\_per\_sec: INTEGER
- ack\_only\_pkt\_sent\_per\_sec\_enum: STRING
- total\_packets\_received\_per\_sec: INTEGER
- total\_packets\_received\_per\_sec\_enum: STRING
- ack\_pkt\_received\_per\_sec: INTEGER
- ack\_pkt\_received\_per\_sec\_enum: STRING

For events that are generated by situations in the Top 50 CPU Processes attribute group, events are sent by using the ITM\_KVA\_TOP\_50\_CPU\_PROCESSES event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- id: INTEGER
- id\_enum: STRING
- cpu\_pct: INTEGER
- cpu\_pct\_enum: STRING
- memory\_kb: INTEGER
- memory\_kb\_enum: STRING
- owner: STRING
- full\_path: STRING

For events that are generated by situations in the Top 50 Memory Processes attribute group, events are sent by using the ITM\_KVA\_TOP\_50\_MEMORY\_PROCESSES event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- id: INTEGER
- id\_enum: STRING
- cpu\_pct: INTEGER

- cpu\_pct\_enum: STRING
- memory\_kb: INTEGER
- memory\_kb\_enum: STRING
- owner: STRING
- full\_path: STRING

For events that are generated by situations in the Virtual Memory Management attribute group, events are sent by using the ITM\_KVA\_VIRTUAL\_MEMORY\_MANAGEMENT event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- pages\_read\_per\_sec: INTEGER
- pages\_read\_per\_sec\_enum: STRING
- pages\_written\_per\_sec: INTEGER
- pages\_written\_per\_sec\_enum: STRING
- paging\_space\_read\_per\_sec: INTEGER
- paging\_space\_read\_per\_sec\_enum: STRING
- paging\_space\_written\_per\_sec: INTEGER
- paging\_space\_written\_per\_sec\_enum: STRING
- zero\_fill\_per\_sec: INTEGER
- zero\_fill\_per\_sec\_enum: STRING
- pagein\_wait\_per\_sec: INTEGER
- pagein\_wait\_per\_sec\_enum: STRING
- page\_fault\_per\_sec: INTEGER
- page\_fault\_per\_sec\_enum: STRING
- page\_reclaim\_per\_sec: INTEGER
- page\_reclaim\_per\_sec\_enum: STRING
- steals\_per\_sec: INTEGER
- steals\_per\_sec\_enum: STRING
- memory\_not\_pinned: INTEGER
- memory\_not\_pinned\_enum: STRING
- comp\_repage\_pct: INTEGER
- comp\_repage\_pct\_enum: STRING
- noncomp\_repage\_pct: INTEGER
- noncomp\_repage\_pct\_enum: STRING
- pending\_client\_pageout: INTEGER
- pending\_client\_pageout\_enum: STRING

For events that are generated by situations in the Volume Groups attribute group, events are sent by using the ITM\_KVA\_VOLUME\_GROUPS event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- name: STRING
- state: STRING
- number\_of\_logical\_volumes: INTEGER
- number\_of\_logical\_volumes\_enum: STRING

- number\_of\_physical\_volumes: INTEGER
- number\_of\_physical\_volumes\_enum: STRING
- number\_of\_active\_physical\_volumes: INTEGER
- number\_of\_active\_physical\_volumes\_enum: STRING
- number\_of\_stale\_physical\_volumes: INTEGER
- number\_of\_stale\_physical\_volumes\_enum: STRING
- size\_mb: INTEGER
- size\_mb\_enum: STRING
- free\_mb: INTEGER
- free\_mb\_enum: STRING
- used\_mb: INTEGER
- used\_mb\_enum: STRING
- free\_pct: INTEGER
- free\_pct\_enum: STRING
- used\_pct: INTEGER
- used\_pct\_enum: STRING

For events that are generated by situations in the Workload Manager attribute group, events are sent by using the ITM\_KVA\_WORKLOAD\_MANAGER event class. This event class contains the following slots:

- node: STRING
- timestamp: STRING
- class\_name: STRING
- tier\_num: INTEGER
- tier\_num\_enum: STRING
- cpu\_consumed\_pct: INTEGER
- cpu\_consumed\_pct\_enum: STRING
- cpu\_desired\_pct: INTEGER
- cpu\_desired\_pct\_enum: STRING
- cpu\_total: INTEGER
- cpu\_total\_enum: STRING
- cpu\_shares: INTEGER
- cpu\_shares\_enum: STRING
- cpu\_min: INTEGER
- cpu\_min\_enum: STRING
- cpu\_soft\_max: INTEGER
- cpu\_soft\_max\_enum: STRING
- cpu\_hard\_max: INTEGER
- cpu\_hard\_max\_enum: STRING
- mem\_consumed\_pct: INTEGER
- mem\_consumed\_pct\_enum: STRING
- mem\_desired\_pct: INTEGER
- mem\_desired\_pct\_enum: STRING
- mem\_total: INTEGER
- mem\_total\_enum: STRING
- mem\_shares: INTEGER

- mem\_shares\_enum: STRING
- mem\_min: INTEGER
- mem\_min\_enum: STRING
- mem\_soft\_max: INTEGER
- mem\_soft\_max\_enum: STRING
- mem\_hard\_max: INTEGER
- mem\_hard\_max\_enum: STRING
- disk\_consumed\_pct: INTEGER
- disk\_consumed\_pct\_enum: STRING
- disk\_desired\_pct: INTEGER
- disk\_desired\_pct\_enum: STRING
- disk\_total: INTEGER
- disk\_total\_enum: STRING
- disk\_shares: INTEGER
- disk\_shares\_enum: STRING
- disk\_min: INTEGER
- disk\_min\_enum: STRING
- disk\_soft\_max: INTEGER
- disk\_soft\_max\_enum: STRING
- disk\_hard\_max: INTEGER
- disk\_hard\_max\_enum: STRING

# Appendix B. Discovery Library Adapter for the VIOS Premium agent

The Tivoli Management Services Discovery Library Adapter (DLA) discovers resources and relationships, and creates a Discovery Library Book file for the agent.

### About the DLA

The Book file follows the Discovery Library IdML schema and is used to populate the Configuration Management Database (CMDB) and Tivoli Business Service Manager products. The Tivoli Management Services DLA discovers the operating system, the IBM Tivoli Monitoring agent running on this LPAR, and the relationship of the agent with the CEC system that it virtualizes. For all systems that are using the VIOS Premium agent and that are active and online at the Tivoli Enterprise Portal Server, information is included in the discovery book for those resources. The Tivoli Management Services DLA discovers active resources. It is run on demand and can be run periodically to discover resources that were not active during previous discoveries.

The DLA discovers VIOS Premium agent components.

#### 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 TADDM Information Center (http://publib.boulder.ibm.com/infocenter/tivihelp/v10r1/topic/com.ibm.taddm.doc\_7.2/welcome\_page/welcome.html).

### DLA data model class types represented in CDM

The source application data objects map to classes in the Common Data Model (CDM) for the VIOS Premium 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 and agent attributes that are required to create an instance of a resource, descriptions of the attributes, and examples of the attributes

#### **DLA data model classes for the VIOS Premium agent**

Each agent that uses the Discovery Library Adapter has DLA data model classes defined for the agent.

The VIOS Premium agent has the following Discovery Library Adapter data model classes:

- LPAR
- VIOS

- VIOS OS
- TMSAgent

## LPAR class

An LPAR is a logical partition of the physical hardware where an operating system instance can run.

#### CDM class name

sys.ComputerSystem

#### Relationships

This class has no relationships.

#### CDM attributes, agent attributes, descriptions, and examples

- CDM attribute: Name
  - Agent attribute: KVA22LOGIC.HOSTNAME
  - Description: The name for the computer system as it is commonly known in the data center. This attribute is used by internal mechanisms of IBM Tivoli Application Dependency Discovery Manager.
  - Example: robot-vios2
- CDM attribute: ManagedSystemName Agent attribute: INODESTS.NODE Description: The name of the IBM Tivoli Monitoring component that provides data for the management of the VIOS Premium agent instance. Example: robot-vios2:VA
- CDM attribute: Label
  - Agent attribute: KVA22LOGIC.HOSTNAME Description: A system-generated, descriptive string used for displaying the instance. Example: robot-vios2
- CDM attribute: SerialNumber

Agent attribute: KVA56TADDM.CEC\_SN Description: The serial number of the physical computer system, as it is provided by the manufacturer of the device. Example: 1000E8P

- CDM attribute: Manufacturer
  - Agent attribute: KVA56TADDM.CEC\_MFG Description: The name of the manufacturer of the physical computer system. Example: IBM
- CDM attribute: Model

Agent attribute: KVA56TADDM.CEC\_MODEL Description: The model number of the physical computer system, as it is provided by the manufacturer of the device. Example: 8233-E8B

- CDM attribute: VMID
  - Agent attribute: KVA56TADDM.LPAR\_NUM
  - Description: The unique identifier for a virtual machine. This is the ID for the LPAR.
  - Example: 2
- CDM attribute: Virtual

Description: Set to true because this is a virtual computer system. Example: true

• CDM attribute: IsVMIDanLPAR

Description: Set to true because this computer system is a logical partition. Example: true

## **VIOS class**

The VIOS (Virtual I/O Server) runs a customized version of the AIX operating system. VIOS provides the virtual storage and shared Ethernet resources to the other logical partitions on the server. VIOS is installed on a logical partition in the place of a general purpose operating system, and is used solely to provide virtual I/O resources to the other logical partitions.

#### CDM class name

sys.VIOS

#### Relationships

• provides

Source: KVA22LOGIC.HOSTNAME-LPAR Target: KVA22LOGIC.HOSTNAME-VIOS Example: provides source="robot-vios2-LPAR" target="robot-vios2-VIOS"

#### CDM attributes, agent attributes, descriptions, and examples

- CDM attribute: Name Description: The name for the VIOS system as it is commonly known in the data center. Example: VIOS
- CDM attribute: Label

Agent attribute: KVA22LOGIC.HOSTNAME Description: A system-generated, descriptive string used for displaying the instance. Example: robot-vios2

## **VIOS OS class**

The VIOS OS class represents the operating system that is installed on each LPAR.

#### CDM class name

sys.ControlSoftware

#### Relationships

• runsOn

Source: KVA22LOGIC.HOSTNAME-VIOSOS Target: KVA22LOGIC.HOSTNAME-LPAR Example: runsOn source="robot-vios2-VIOSOS" target="robot-vios2-LPAR"

 installedOn Source: KVA22LOGIC.HOSTNAME-VIOSOS Target: KVA22LOGIC.HOSTNAME-LPAR Example: installedOn source="robot-vios2-VIOSOS" target="robot-vios2-LPAR"

#### CDM attributes, agent attributes, descriptions, and examples

- CDM attribute: Name Description: Formed by the host name of the IBM AIX operating system. Example: VIOS
- CDM attribute: OSName Description: The operating system name. Example: VIOS
- CDM attribute: OSVersion Agent attribute: KVA16CPUSU.SSV Description: The operating system version. Example: 2.1.2.0

## **TMSAgent class**

The TMSAgent class represents the Tivoli Monitoring Services Agent.

#### CDM class name

app.TMSAgent

#### Relationships

monitors
Source: INODESTS.NODE-TMSAgent
Target: KVA22LOGIC.HOSTNAME-LPAR
Example: monitors source="robot-vios2:VA-TMSAgent" target="robot-vios2-LPAR"

#### CDM attributes, agent attributes, descriptions, and examples

- CDM attribute: ManagedSystemName Agent attribute: INODESTS.NODE Description: The name of the IBM Tivoli Monitoring component that provides data for the management of the VIOS Premium agent instance. Example: robot-vios2:VA
- CDM attribute: ManagedObjectName
  - Agent attribute: INODESTS.NODE Description: The name of the IBM Tivoli Monitoring component that provides data for the management of the VIOS Premium agent instance. Example: p@robot-vios2:VA

#### CDM attribute: SoftwareVersion

- Agent attribute: INODESTS.VERSION Description: The version of the VIOS Premium agent. Example: 06.22.00
- CDM attribute: ProductCode Agent attribute: INODESTS.PRODUCT Description: The product code of the VIOS Premium agent. Example: VA
- CDM attribute: Label
  - Agent attribute: INODESTS.NODE-VIOS Description: The label of the VIOS Premium agent. Example: robot-vios2:VA - VIOS

## Appendix C. Integration with Tivoli Business Service Manager

The VIOS Premium 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 VIOS Premium 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 VIOS Premium agent and included in Tivoli Management Services DLA files: Appendix B, "Discovery Library Adapter for the VIOS Premium agent," on page 345
- 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 VIOS Premium 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 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*.

### 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 VIOS Premium agent.

## Tasks to integrate the agent with Tivoli Business Service Manager

To integrate the VIOS Premium 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 VIOS Premium 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 VIOS Premium 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 VIOS Premium 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.

Install and configure the Netcool/OMNIbus ObjectServer and EIF probe and set up event integration between IBM Tivoli Monitoring and Netcool/OMNIbus. The probe rules files provided with IBM Tivoli Monitoring enrich VIOS Premium agent events to identify the affected service.

## 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 VIOS Premium 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 D. Documentation library**

Various publications are relevant to the use of the IBM Tivoli Monitoring: VIOS Premium Agent.

For information about how to access and use the publications, see *Using the publications* (http://pic.dhe.ibm.com/infocenter/tivihelp/v61r1/topic/com.ibm.itm.doc\_6.3/common/using\_publications.htm).

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: VIOS Premium Agent library

The documentation for this agent and other product components is in the IBM Tivoli Monitoring Information Center (http://pic.dhe.ibm.com/infocenter/tivihelp/v61r1/topic/com.ibm.itm.doc\_6.3/ welcome.htm).

One document is specific to the VIOS Premium agent. The IBM Tivoli Monitoring: VIOS Premium Agent User's Guide provides agent-specific information for configuring, using, and troubleshooting the VIOS Premium agent.

Use the information in the user's guide for the agent with the *Tivoli Enterprise Portal User's Guide* to monitor VIOS resources.

### **Prerequisite publications**

To use the information in this publication effectively, you must have some prerequisite knowledge.

See the following publications to gain the required prerequisite knowledge:

- IBM Tivoli Monitoring Administrator's Guide
- IBM Tivoli Monitoring Agent Builder User's Guide
- IBM Tivoli Monitoring Command Reference
- IBM Tivoli Monitoring Installation and Setup Guide
- IBM Tivoli Monitoring High Availability Guide for Distributed Systems
- IBM Tivoli Monitoring: Messages
- IBM Tivoli Monitoring Troubleshooting Guide
- IBM Tivoli Monitoring Universal Agent User's Guide
- IBM Tivoli Universal Agent API and Command Programming Reference Guide
- IBM Tivoli Monitoring: i5/OS<sup>™</sup> Agent User's Guide
- IBM Tivoli Monitoring: Linux OS Agent User's Guide
- IBM Tivoli Monitoring: UNIX OS Agent User's Guide
- IBM Tivoli Monitoring: UNIX Logs OS Agent User's
- IBM Tivoli Monitoring: Windows OS Agent User's Guide
- Tivoli Enterprise Portal User's Guide
- IBM Tivoli Performance Analyzer User's Guide
- IBM Tivoli Warehouse Proxy Agent User's Guide
- IBM Tivoli Warehouse Summarization and Pruning Agent User's Guide

### **Related publications**

The publications in related information centers provide useful information.

See the following information centers, which you can find by accessing Tivoli Documentation Central (http://www.ibm.com/tivoli/documentation):

- Tivoli Monitoring
- Tivoli Application Dependency Discovery Manager
- Tivoli Business Service Manager
- Tivoli Common Reporting
- Tivoli Enterprise Console

#### Other sources of documentation

You can obtain additional technical documentation about monitoring products from other sources.

See the following sources of technical documentation about monitoring products:

• 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 (http://www.ibm.com/developerworks/servicemanagement/apm/index.html).

Connect, learn, and share with Service Management professionals. Get access to developers and product support technical experts who provide their perspectives and expertise. You can use SMC for these purposes:

- 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.
- IBM Integrated Service Management Library (http://www.ibm.com/software/brandcatalog/ ismlibrary/) is an online catalog that contains integration documentation as well as other downloadable product extensions.
- IBM Redbook publications (http://www.redbooks.ibm.com/) include Redbooks<sup>®</sup> publications, Redpapers, and Redbooks technotes that provide information about products from platform and solution perspectives.
- Technotes (http://www.ibm.com/support/entry/portal/software), which are found through the IBM Software Support website, provide the latest information about known product limitations and workarounds.

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