

IBM Tivoli Monitoring
Version 6.2.3 Fix Pack 1

Performance Analyzer User's Guide



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Note

Before using this information and the product it supports, read the information in “Notices” on page 243.

Edition notice

This edition applies to version 6.2.3 Fix Pack 1 of IBM Tivoli Monitoring (product number 5724-C04) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Chapter 1. Overview

Tivoli Performance Analyzer adds predictive capability to IBM Tivoli Monitoring. This capability helps operations and IT staff to understand resource consumption trends, identify problems, resolve problems more quickly, and predict and avoid future problems. For example, you can use Tivoli Performance Analyzer, which is fully automated, to predict application bottlenecks and create alerts for potential service threats.

Tivoli Performance Analyzer helps IT managers to answer the following questions so they can optimize IT capacity:

- When will my application fail to meet service levels?
- What will happen if application use grows 25% or more?
- How will application performance change if I modify the infrastructure?
- What is the best hardware solution to meet my performance and cost goals?
- Where are my under-utilized servers and networks?
- Which servers and network components really need an upgrade?
- Which application will experience the next performance issue? When?

Providing accurate IT forecasts and appropriate IT capacity to meet business needs are two major goals in the capacity management area. You can use the following key performance indicators (KPIs) to measure the critical success factors:

- Total value of unplanned or unused capacity expenditures
- Percent of capacity forecasts that were accurate
- Number of inaccurate business forecast inputs provided
- Number of incidents related to capacity or performance issues
- Takes advantage of the long-term historical and real time data in Tivoli Data Warehouse.

Capacity management

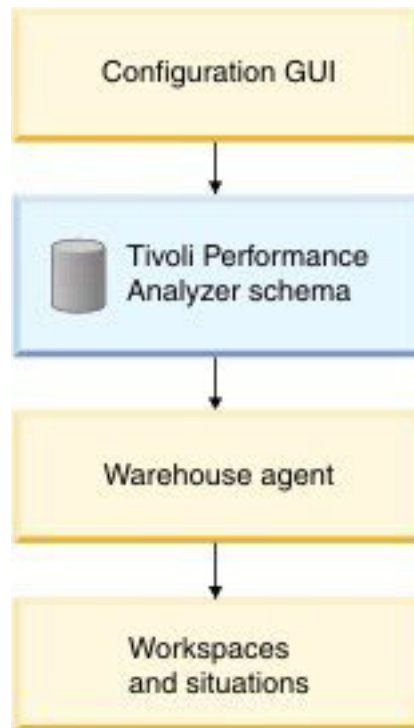
Capacity management is a forward looking process that aims to align system capacity to the current and future demand in a cost-efficient manner. Within capacity management, performance analysis is a key activity. This requires tools and methods that predict how IT resources will behave in the near and mid term so you can avoid incidents and problems rather than reacting to them.

Tivoli Performance Analyzer extends the capability of Tivoli Monitoring by analyzing and enriching the data that is collected by its monitoring agents and by providing reports about the performance and capacity of your systems. Tivoli Performance Analyzer performs the following functions for individual IT components:

- Gathers and stores IT components such as CPU, disk, and memory utilization in a central data repository
- Provides a predictive analysis component that indicates trends in IT component utilization
- Retains the analyzed data in a central repository for reporting purposes and for input to the component management process

Components and features

Tivoli® Performance Analyzer adds several components to the Tivoli Enterprise Portal and Tivoli Monitoring environment.



Tivoli Performance Analyzer Configuration graphical user interface

This is a single point for configuring what data is analyzed and what type of analytical calculations are performed on the data. Use this interface to define analytical tasks.

Performance Analyzer Warehouse Agent

This agent performs the analytical calculations on the data stored in the Tivoli Data Warehouse. The results of the calculations are stored in the output tables on the Tivoli Enterprise Monitoring Server. The warehouse agent has the following aims:

- Perform linear trending and basic transformation analysis on all collected data.
- Perform medium and long-term forecast analysis.

Tivoli Performance Analyzer agent reads the tasks from the configuration database. First, it removes any output data (computation results, for instance, trends) for deleted and disabled tasks. If there are any tasks to be executed in the nearest execution cycle, they are executed one by one. During task execution the agent retrieves the data for this task from Tivoli Data Warehouse, and makes them ready for IBM® Tivoli Monitoring to retrieve. If there are no more ready tasks the agent waits 60 seconds and repeats the cycle.

Predefined content

Predefined content includes workspaces, tasks, and situations. Workspaces contain charts and tables that show analyzed data. Tasks specify the data to be analyzed

and the analytical calculation method to be used. Situations are tests that check the analyzed data against a threshold and display an alert icon when that threshold is exceeded or a value is matched.

Exploring the interface

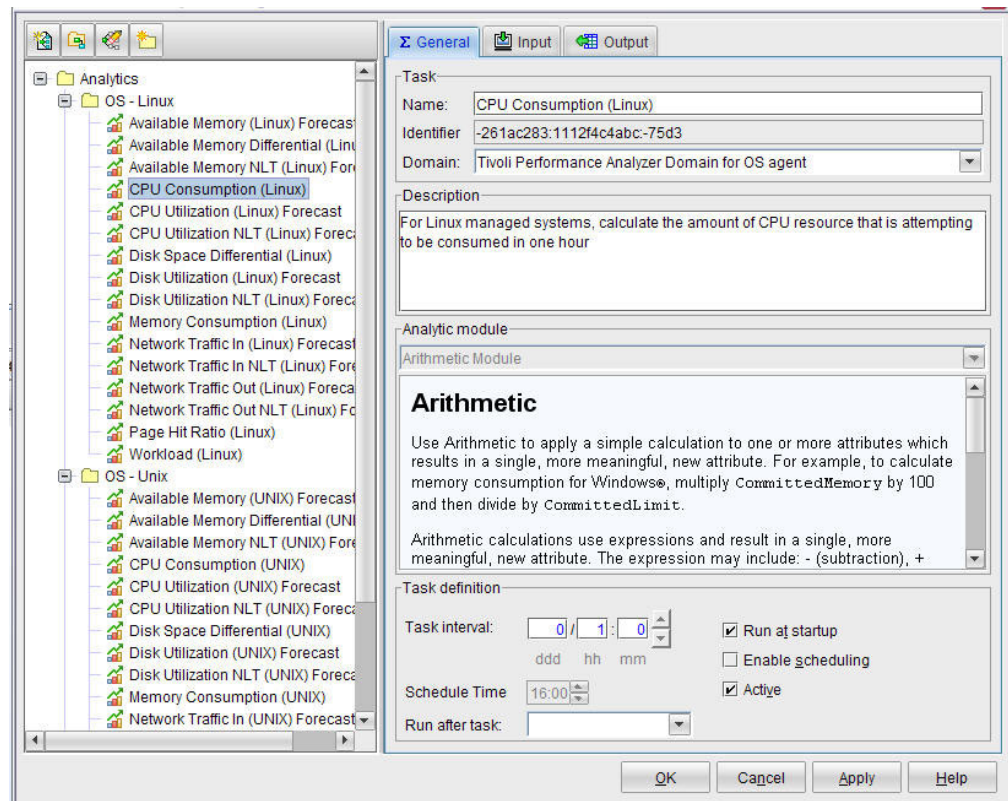
After you install the product, you can start it and become familiar with its interface and functions for doing capacity management.

There are three interfaces that Tivoli Performance Analyzer (TPA) offers to the user: TPA Configuration GUI tool, TPA workspaces, and reports.

Tivoli Performance Analyzer configuration GUI tool

Use this user interface to configure data collection for performance analysis, and to define task definitions for calculating performance status and trends.

This is a separate window that in many ways resembles the Situation Editor in Tivoli® Monitoring. You can specify tasks to be performed on the measurements for a given system, data formats for input and output, and the time when a given task is to be run. To access the GUI, click the **Performance Analyzer Configuration ...** (Ctrl+T) () icon on the portal toolbar.



The configuration GUI consists of three sections: the toolbar, the navigator, and the right pane in which you view, modify, or enter parameters for the selected entity

- Use the toolbar to manage the entities in the navigator. You can:

-  Create a new analytical task
-  Copy the selected analytical task

-  Delete the selected analytical task
- The navigator pane displays all existing analytical tasks.
- The right pane has three tabs:

General tab

Defines general information such as the name of the task, type of calculation that you want to perform, and the task interval.

Input tab

Defines the data to be analyzed. Available input data depends on how the monitor has been configured. See the appropriate application documentation for information about configuring a monitor.

Output tab

Defines where the results of the analysis are stored.

Tivoli Performance Analyzer workspaces

The working area of the user interface of the Tivoli Enterprise Portal is called the workspace. Tivoli Performance Analyzer adds its own workspaces to the portal.

At the left of the workspace is a Navigator that you use to select the workspace you want to see. As you select items in the Navigator, the workspace presents views pertinent to your selection. Each workspace has at least one view. General workspaces may have links to other workspaces, and in this way they allow you to drill down to get more detailed information. However, it is not possible to go back from the detailed view to the general one. Each workspace also has a set of properties associated with it.

Tivoli Performance Analyzer provides predefined workspaces with views in the form of graphs and tables, showing statistics that you can use to perform capacity management for the monitored servers. You can use them to monitor the performance in the course of the reporting period. You are prevented from overwriting or deleting the predefined workspaces. However, you can use a predefined workspace to create a new workspace by editing it. Tivoli Performance Analyzer contains 24 predefined workspace groups that are grouped under the Performance Analyzer Warehouse Agent node in the Navigator pane:

- Performance Agent Analyzer Statistics
- DB2® Daily Status
- DB2 Performance Statistics
- DB2 Server Utilization
- Oracle Daily Status
- Oracle Cache Statistics
- Oracle Performance Statistics
- Oracle Server Utilization
- ITCAM Client Response Time
- ITCAM Robotic Response Time
- ITCAM Web Response Time
- System pSeries® Logical Partition
- System pSeries Networking
- System pSeries Storage
- VMware CPU Utilization
- VMware Disk Utilization

- VMware Memory Utilization
- VMware Network Utilization
- CPU Utilization
- Disk Utilization
- Available Memory
- Inbound Network Traffic
- Outbound Network Traffic
- System Health

The individual workspaces can be accessed from the Tivoli Enterprise Portal Navigator. To see more general information about workspaces, refer to the *IBM Tivoli Monitoring: Tivoli Enterprise Portal User's Guide*.

Tivoli Performance Analyzer reports

Tivoli Performance Analyzer provides many predefined reports that you can use to document system performance for presentation to your customers in HTML, PDF, MS Excel and Adobe Postscript formats.

Like many other Tivoli tools, Tivoli Performance Analyzer uses Tivoli Common Reporting, which is an application based on the Business Intelligence and Reporting Tools (BIRT) standard. Tivoli Common Reporting is distributed with Tivoli Monitoring, but you must install it separately.

Tivoli Performance Analyzer provides predefined reports for the following domains: OS, DB2, Oracle, ITCAM, System pSeries and VMware.

For more information on how to use the reports, see the *Tivoli Common Reporting User's Guide*.

New in this release (V6.2.3 Fix Pack 1)

The following new features are included in this release.

Nonlinear trending forecasts

Version 6.2.3 Fix Pack 1 introduces the ability to use nonlinear trending. Use of nonlinear trending requires that SPSS® Statistics Server version 20 be installed.

Note: If SPSS is not installed, you will still see the nonlinear trending workspaces, situations, and help, but there will be no data and you will not be able to use any of the nonlinear trending features.

The nonlinear trending calculations are based on Time Series Modeling algorithms. These methods approximate pattern of use, over time, for selected attributes based on their values in the past.

The module uses the Expert Modeler algorithm provided by SPSS, which automatically selects the best model from the available models. Expert Modeler can internally use various Exponential Smoothing Models or ARIMA models. The calculated results consist of data output attribute for the attribute being trended plus statistical measures. The results are stored in two separate tables: the Forecast table and the Status table.

The following new nonlinear trending attribute groups have been added:

- CPU Utilization NLT Status
- CPU Utilization NLT Fcast
- Disk Utilization NLT Status
- Disk Utilization NLT Fcast
- Mem Utilization NLT Status
- Mem Utilization NLT Fcast
- Net Traffic In NLT Status
- Net Traffic In NLT Fcast
- Net Traffic Out NLT Status
- Net Traffic Out NLT Fcast
- Generic 32bit NLT Status
- Generic 32bit NLT Fcast
- Generic 32bit Decimal NLT Status
- Generic 32bit Decimal NLT Fcast
- Generic 64bit NLT Status
- Generic 64bit NLT Fcast
- Generic 64bit Decimal NLT Status
- Generic 64bit Decimal NLT Fcast

The following predefined nonlinear trending tasks have been added:

- CPU Utilization NLT (Windows) Forecast
- CPU Utilization NLT (Linux) Forecast
- CPU Utilization NLT (UNIX) Forecast
- Available Memory NLT (Windows) Forecast
- Available Memory NLT (Linux) Forecast
- Available Memory NLT (UNIX) Forecast
- Disk Utilization NLT (Windows) Forecast
- Disk Utilization NLT (Linux) Forecast
- Disk Utilization NLT (UNIX) Forecast
- Network Traffic In NLT (Windows) Forecast
- Network Traffic In NLT (Linux) Forecast
- Network Traffic In NLT (UNIX) Forecast
- Network Traffic Out NLT (Windows) Forecast
- Network Traffic Out NLT (Linux) Forecast
- Network Traffic Out NLT (UNIX) Forecast

The following new nonlinear trending predefined situations have been added:

- CPU_NLT_TimeToCritTh_1W
- CPU_NLT_TimeToWarnTh_1W
- Mem_NLT_TimeToCritTh_1W
- Mem_NLT_TimeToWarnTh_1W
- Dsk_NLT_TimeToCritTh_1W
- Dsk_NLT_TimeToWarnTh_1W
- Inbound_NLT_TimeToCritTh_1W
- Inbound_NLT_TimeToWarnTh_1W
- Outbound_NLT_TimeToCritTh_1W

- Outbound_NLT_TimeToWarnTh_1W

The following new nonlinear trending workspaces have been added:

- CPU Utilization Non Linear Trending Forecast
- CPU Utilization Non Linear Trending Forecast Details
- Available Memory Non Linear Trending Forecast
- Available Memory Non Linear Trending Forecast Details
- Disk Utilization Non Linear Trending Forecast
- Disk Utilization Non Linear Trending Forecast Details
- Inbound Network Traffic Non Linear Trending Forecast
- Inbound Network Traffic Non Linear Trending Forecast Details
- OutBound Network Traffic Non Linear Trending Forecast
- OutBound Network Traffic Non Linear Trending Forecast Details

Note: If you are upgrading from Performance Analyzer V6.2.2FP2 to V6.2.3FP1, and you have custom workspaces, the workspaces may have strange names and display no data. For instructions on upgrading these workspaces, see the *IBM Tivoli Monitoring: Troubleshooting Guide*.

New in V6.2.3

As of version 6.2.3, the Tivoli® Performance Analyzer has been incorporated into the IBM® Tivoli Monitoring product. A separate user's guide for the feature is still available, but the installation and configuration instructions have been moved into the *IBM Tivoli Monitoring: Installation and Setup Guide*. Troubleshooting information for the Performance Analyzer can now be found in the *IBM Tivoli Monitoring: Troubleshooting Guide*. The following features were added to the Tivoli Performance Analyzer product:

- **Task grouping using folders**

Folders can be created to organize tasks into groups. By default, predefined tasks are grouped into folders named for the corresponding domains.

- **Time frames configuration**

The Tivoli Performance Analyzer now provides the option of choosing a time frame for a task. The following options are available:

- All available data
- All data starting from a particular date
- Data for the last *x* days/hours

- **Task backup**

In case of failure while saving newly created tasks or any changes made to existing tasks, backup files are created in the temp folder. If the Performance Analyzer configuration interface is restarted, these task backup files are used to restore changes made to the tasks. The following options are provided when the **Task Restoration Configuration** dialog box is displayed:

Yes

Restores task backups and backup files are deleted from temp directory. When you restart the configuration interface, the **Task Restoration Configuration** dialog box is not displayed.

No

Task backup files are deleted from the temp directory and tasks are not

restored. When you restart the configuration interface, the **Task Restoration Configuration** dialog box is not displayed.

Cancel

Postpones the decision for task restoration for now. When you restart the configuration interface, the **Task Restoration Configuration** dialog box is displayed again.

- **Task activation and deactivation**

Tasks can now be activated or deactivated according to your requirements. You can select multiple tasks to activate or deactivate.

- **cinfo command output**

The cinfo command output now shows following information:

- Tivoli Performance Analyzer domains installed
- Domain version and build number
- Domain installation date

Chapter 2. Monitoring system performance

Tivoli Performance Analyzer provides the monitoring functionality to help you review system performance.

Defining analytical tasks

This section describes the analytical calculation methods used by Tivoli Performance Analyzer and how to create tasks using these methods.

Analytical tasks

An analytical task determines which monitored data stored in the IBM Tivoli Data Warehouse you want to analyze, how to analyze it, where to store the results, and how often the analysis should take place.

The monitored data is the input data for the analytical calculations. The input values are stored in a table in input attributes by input attribute group.

For each calculation you need to select an output group and output attributes. Output attributes are the attributes in which the analyzed values are stored. Output attribute groups and their associated output attributes are predefined and delivered with the system. The output attributes are stored in the monitoring server as new attributes belonging to the Tivoli Performance Analyzer in a table similar to the input attributes. The Tivoli Performance Analyzer does not insert the data directly into the Tivoli Data Warehouse. Instead the data is exposed to the Tivoli Enterprise Monitoring Server and then stored in the Tivoli Data Warehouse if configured to do so.

Analytical calculation methods

The Performance Analyzer Warehouse Agent can perform analytical calculations using general arithmetic, linear trending, or nonlinear trending.

Arithmetic tasks

Use Arithmetic to apply a simple calculation to one or more attributes which results in a single, more meaningful, new attribute. For example, to calculate memory consumption for Windows, multiply `CommittedMemory` by 100 and then divide by `CommittedLimit`.

Arithmetic calculations use expressions and result in a single, more meaningful, new attribute. The expression may include: - (subtraction), + (addition), x (multiplication), / (division), and a modifier ().

An example of an arithmetic expression is:

```
MaxMemory - MinMemory
```

which calculates the difference between minimum and maximum memory use.

The calculated arithmetic result is stored in a single attribute.

Linear trending

Use Linear Trending for forecasting purposes. The linear trending calculations use the Least Squares Regression method. This method approximates a linear pattern

of use, over time, for selected attributes based on their values in the past. For example, use linear trending to estimate when a machine will run out of disk space based on the current rate of growth.

Linear trending uses the Least Squares Regression method to calculate the trended value of a monitored attribute and status data such as the strength of the trend and whether the trend is moving upwards or downwards. This method is a mathematical optimization technique which, when given a series of measured data, attempts to find a linear function which closely approximates the data. The Least Squares Regression method attempts to minimize the sum of the squares of the ordinate differences between points generated by the function and corresponding data points.

Using the Least Squares Regression method the following function is generated which models the relationship between a specified attribute and time:

$$y = mx + k$$

where y is the predicted value of an attribute, m is the gradient of the line, x is a point in time, and k is the y -intercept. The closer the correlation coefficient R^2 is to 1, the greater the linear correlation between x and y .

The trended value calculates the approximate value of a monitored attribute for a given forecast period (7, 30, or 90 days). This output creates an x value based on the forecast period and the current time and uses the calculated function to generate the approximated value of the monitored attribute (y).

The calculated linear trending results consist of a data output attribute for the attribute being trended plus status calculation output attributes. The output attributes are stored in two separate tables: the Forecast table and the Status table.

The forecast output attributes are:

- Data
The predicted value of the attribute after the required duration.
- Duration
The duration of the forecast calculation in days (7, 30, or 90).
- Forecast Timestamp
The date and time for which the forecast is calculated.

The status output attributes are:

- Confidence
Calculates the correlation co-efficient and multiplies it by 100 ($R^2 * 100$) to give an indication of how accurate the approximated trended value is. This calculation is a product of the Least Squares Regression method and creates a number between 0 and 100 where 0 is no confidence and 100 is a perfectly approximated function. The number gives you a level of confidence in the trended value calculated, and can help reduce the number of false positives in situations.
- Direction
Calculates whether it is an upward or a downward trend. Values are 1, 0, or -1 based on the value of m . A value of 1 indicates an upward trend, -1 a downward trend, and 0 a flat line.
- Number of Samples

The number of data points used to create the trend. The more data points, the more accurate the estimated forecast will be.

- **Strength**

Calculates the strength of the trend using the Confidence and the Number of Samples analyzed. Possible output values are:

- 1 (Weak) - confidence less than 50% and number of samples less than 10
- 2 (Moderate) - confidence greater than or equal to 50% and number of samples at least 10
- 3 (Strong) - confidence greater than or equal to 65% and number of samples greater than or equal to 25

- **Time to Threshold**

Calculates when (if ever) a given threshold for the monitored attribute is reached. This output uses the threshold as the y value and uses the calculated function to generate the time when it will occur x. A prediction of when this will occur is generated from the difference between the current time and the calculated x time.

Nonlinear Trending

Use nonlinear trending for forecasting purposes, for example to forecast the pattern of CPU usage of a virtual machine and set thresholds to warn you well in advance.

Note: If SPSS is not enabled in the agent configuration panel, you will not be able to use any of the predefined nonlinear trending tasks in the Performance Analyzer Configuration dialog in the Tivoli Enterprise Portal, and you will not be able to create any nonlinear trending tasks. Nonlinear trending tasks cannot analyze systems with no data. Task failure is reported in such instances.

The nonlinear trending calculations are based on Time Series Modeling algorithms. These methods approximate pattern of use, over time, for selected attributes based on their values in the past.

The module uses Expert Modeler algorithm provided by SPSS, which automatically selects the best model from the available models. Expert Modeler can internally use various Exponential Smoothing Models or ARIMA models. The calculated results consist of data output attribute for the attribute being trended plus the statistical measures. The results are stored in two separate tables: the Forecast table and the Status table.

The forecast output attributes are:

- **Charting Duration**

Number of points, used for charting, to store in database.

- **Minimum**

Minimum value of forecasted data. The calculated values are replaced with minimum if those are less than minimum.

- **Maximum**

Maximum value of forecasted data. The calculated values are replaced with maximum if those are greater than the maximum.

- **Forecast Timestamp**

The date and time for which the forecast is calculated.

- **Data**

The predicted value of the attribute after the required duration.

- **Duration**

The duration of the forecast calculations.

The status output attributes are:

- Time to Critical Threshold
Calculates when (if ever) a given Critical threshold for the monitored attribute would be reached. The Performance Analyzer takes the threshold and uses the forecasted values to calculate the time when the threshold would be reached.
- Time to Warning Threshold
Calculates when (if ever) a given Warning threshold for the monitored attribute would be reached. The Performance Analyzer takes the threshold and uses the forecasted values to calculate the time when the threshold would be reached.
- Model Type
Name of the model used by the Expert Modeler.
- Confidence Factor
Gives an indication of how well the model fits the data. R-squared for the model is multiplied by 100 to give an estimate of the proportion of the total variation in the series that is explained by the model. Confidence can be negative, which implies that the current model is a bad fit, for reasons such as inadequate data.
- Direction
Not applicable in this release.
- Number of Samples
The number of data points used to create the trend. The more data points, the more accurate the estimated forecast will be.
- Strength
Not applicable in this release.
- Model Statistics
 - Stationary R-Squared
Stationary R-Squared Error.
 - R-Squared
R-Squared Error.
 - RMSE
Root Mean Squared Error.
 - MAPE
Mean Absolute Percentage Error.
 - MAE
Mean Absolute Error.
 - MaxAPE
Maximum Absolute Percentage Error.
 - MaxAE
Maximum Absolute Error.
 - Normalized BIC
Normalized Bayesian Information Criterion.
 - Outliers
Observations that are numerically distant from the rest of the data.

Note: Nonlinear trending forecasting is based on measurement of a sequence of data points over series of intervals. One managed system to be analyzed in a task could map to one or more time series depending on the output attribute you are

analyzing. For example, memory utilization of a managed system would map to one time series. However, CPU utilization could map to many with one time series for *each* processor. The limit for the number of time series that can be analyzed in a ITPA task is 1000. If you create a task containing more than 1000 time series you will see the message "Failed to initialize non linear task" and the following message will be logged:

Agent cannot process more than n timeseries in a task

where n is actual number of time series you have entered for the task.

Creating analytical tasks

Define an analytical task which will be used to express the calculation parameters. You can create a new task from scratch or use an existing task as a template and modify it to suit your requirements.

Before you begin

Before creating or editing a task, ensure that you have installed all the required supports.

About this task

Note: Do not modify a predefined task. Instead, make a template of the task and modify the template.

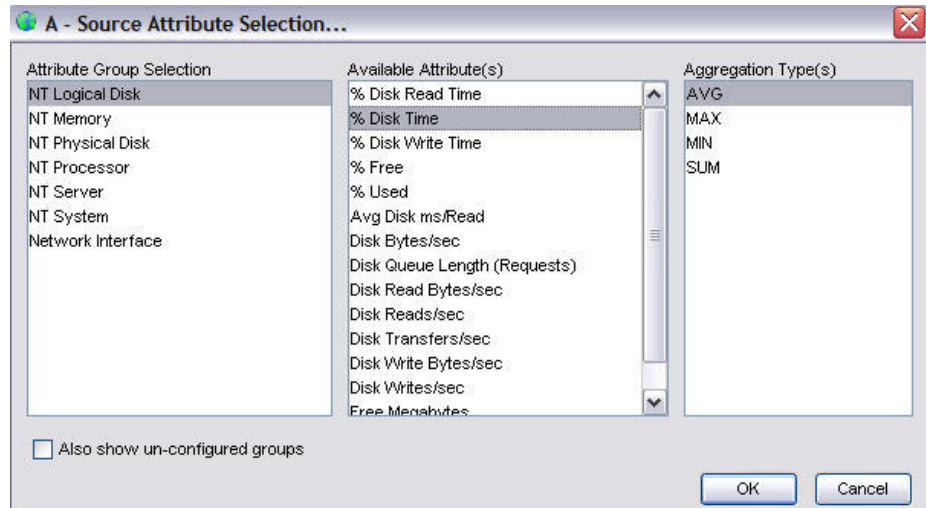
Procedure

1. Click **Performance Analyzer Configuration**  in the Tivoli Enterprise Portal toolbar or select **Edit > Performance Analyzer Configuration**. The Performance Analyzer Configuration window opens.
2. Click **Create an analytical task** . Alternatively, if you have a task that you would like to use as a template, select the task and click **Copy analytical task** . Make any changes as required.
3. Enter the following information on the **General** tab:
 - a. Specify the task **Name** and provide the **Description**.
 - b. From the **Analytic module** list, choose the calculation method that best suits the task you are creating.
 - c. Set the **Task Interval** to indicate the frequency of the task.
 - d. Indicate whether you want this task to **Run at startup** by selecting the check box.
 - e. Select **Enable scheduling** by selecting the checkbox and entering the exact hour at which you want this task to run.

Note: The **Enable scheduling** option works at a daily interval. It automatically excludes both the **Run after task** and **Run at startup** options.

- f. From the **Run after task** list, choose the task that is to precede the one you are creating.
4. Specify input parameters on the **Input** tab:
 - a. If you are creating a task that uses the arithmetic module, provide the analytical calculation **Expression** to be applied to the input data and click the **Apply Expression** push button to send the parameters to the parameter table.

- b. From the list, select the **Application** from which the input data is to be derived.
- c. In the **Attribute** table, click  and choose the input attributes for the parameters described in the expression from the Source Attribute Selection window.

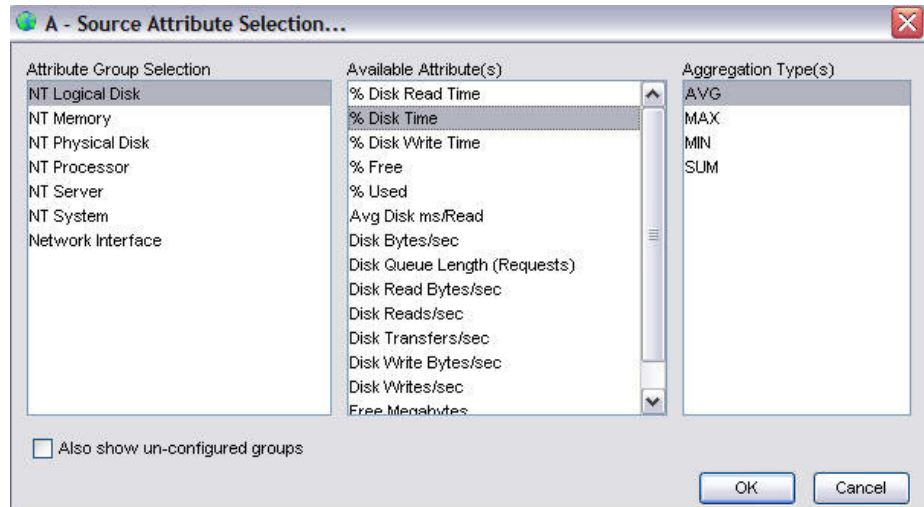


Note: You can also click the **Add Constraint** push button to add additional filters on attributes other than those already defined.

- d. Indicate the level of **Granularity** to indicate which summarized table to get the data from.
- e. Specify the systems to which the task applies by clicking .
- f. In the **Compute trend on data** section, select from **all available**, **from date** or **latest** and set the parameters as necessary.

Note: After reinstallation in the upgrade scenario all out-of-the-box linear trending tasks are set to **latest 30 days** and all out-of-the-box arithmetic tasks are set to **1 latest day**.

- g. Click the **Override** button to add additional date constraints and filters on attributes, other than those defined in **Time frame**.
- h. In the **Attribute** table, click  and choose the input attributes for the parameters described in the expression from the Source Attribute Selection window.



Note:

Previously defined time frames can be restricted, but not expanded. For a constraint specified in the future, the data extraction process begins on a specified date.

5. Specify output parameters on the **Output** tab:
 - a. Select the type of an agent from the **Application** list.
 - b. Specify the predefined output attribute group in which the results are stored. For the arithmetic task, use the **Destination Attributes** tab. For linear trending, provide the information about both the **Status** and **Forecast** tabs.
 - c. In the **Identifiers** table, specify the identifiers to be stored in the output attribute group.

Note: For filtering purposes, you may also add a constant identifier by clicking **Add Constant Identifier**, and entering the name for the identifier of your choice.

- d. Set the output attributes in which the output data is to be stored by filling in the **Output Set Definition** table.

Note: Click **Add Output Set** to specify multiple forecast periods.

6. Activate the task on the **General** tab.
7. Click **OK**. An error message is displayed if one or more of the required parameters are missing. Return to the appropriate tab to add the parameters. You have now defined the analytical task for calculating forecasts and capacity planning.

Note: If a problem occurs, the user is warned and unsaved tasks are backed up.

Example arithmetic task

This example creates an arithmetic task that measures memory differential on machines running the Linux operating system. It displays the results of the task in the Generic Arithmetic workspace.

About this task

It assumes that historical data collection is configured for the Linux agent, that the collection interval is hourly, and that data is summarized daily.

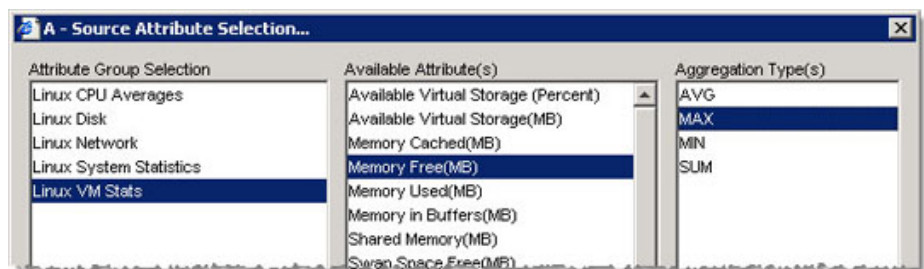
Note: When creating the task, ensure that the variables you enter contain no national characters.

Procedure

1. Open the **Performance Analyzer Configuration** window.
2. Click **Create a new analytics instance** .
3. On the **General** tab:
 - a. In the **Name** field, enter the name of the new task: New arithmetic task.
 - b. Select **Arithmetic Module** from the **Analytic Module** list.



- c. In the **Task Interval** section, click in the hourly field, **hh**, and using the up arrow, set the task to run hourly: 1.
 - d. Select the **Run at startup** box, so that the task is run when Tivoli Performance Analyzer starts.
4. On the **Input** tab.
 - a. In the **Expression** field, enter an expression for the new task: (A - B). If you are creating a task that uses arithmetic module, provide the analytical calculation **Expression** to be applied to the input data and click the **Apply Expression** push button to send the parameters to the parameter table.
 - b. Select a data source from the **Application** drop-down list: Linux OS.
 - c. In the **Attribute** table, click the ellipse button in column **A**  and in the **Source Attribute Selection** window, select the attribute group, attribute, and aggregation type for the most free memory and then click **OK**: Linux VM Stats; Memory Free(MB); MAX.



Note: You may also click **Add Constraint** push button to add additional filters on attributes other than those already defined.

- d. Repeat the previous step for the least free memory: Linux VM Stats; Memory Free(MB); MIN.
- e. In the **Granularity** field, select the summarized table to get the data from: Daily.
- f. In the **Compute trend on data** section select from **all available**, from **date** or **latest** and set the parameters if necessary.

Note: After reinstallation in the upgrade scenario all out-of-the-box linear trending tasks are set to **latest 30 days** and all out-of-the-box arithmetic tasks are set to **1 latest day**.

- g. Click **Override** button to add additional date constraints and filters on attributes, other than those defined in **Time frame**.
- h. Select the node or node group to analyze: select *LINUX_SYSTEM in the **Available Managed System Lists** list and click the left pointing arrow



to move it to the **Assigned** list.

5. On the **Output** tab:
 - a. In the **Attribute Group** field, select an attribute group in which the results will be stored: Generic Arithmetic.
 - b. In the **Identifiers** table, specify the identifiers to be stored in the output attribute group: **TimeStamp** - Timestamp; **Server Name** - System Name.
 - c. Also in the **Identifiers** table, add another identifier to help you identify which task analyzed the data:
 - Click **Add Constant Identifier**. The **Creating Constant Identifier** dialog box is displayed.
 - Enter a name for this task in the **Enter Constant Identifier** field and click **OK**: Task name.
 - Specify a value for the new identifier in the **Destination Attributes** column: Analytic Task Name.
 - d. In the **Output Set Definition** table, specify an output attribute in which the output data will be stored: Result 1.
6. When the task is complete, activate it on the **General** tab: set the **Active** check box. Unless the task is active it will not be run.

Example linear trend task

This example creates a linear trend task that forecasts the available memory on Microsoft Windows NT Servers at 7, 30, and 90 days. It generates warning information when the server has a predicted available memory of 50000 KB and critical information when the server has a predicted available memory of 10000 KB. It displays the results of the task in the Generic Linear Trend workspace.

About this task

It assumes that historical data collection is configured for the Windows OS agent, that the collection interval is daily, and that data is also summarized daily.

Procedure

1. Open the **Performance Analyzer Configuration** window.
2. Click **Create a new analytics instance** .
3. On the **General** tab:
 - a. In the **Name** field, enter the name of the new task: New linear trend.
 - b. Select **Linear Trending Module** from the **Analytic Module** dropdown list.



- c. In the **Task Interval** section, click in the daily field, **ddd**, and using the up arrow set the task to run daily: 1.

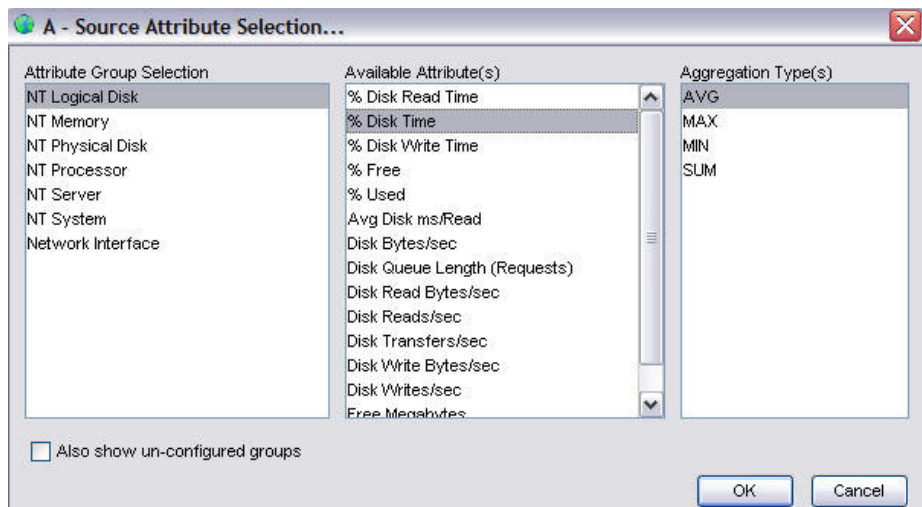
- d. Select the **Run at startup** box, so that the task is run when Tivoli Performance Analyzer starts.
4. On the **Input** tab:
 - a. Select a data source from the **Application** dropdown list: Windows OS.
 - b. In the **Attribute** table, click the ellipse button  in the **Input Data** column and in the **Source Attribute Selection** window, select the attribute group, attribute, and aggregation type for available memory and then click **OK**: NT Memory; Available kBytes; AVG.



- c. Select which summarized table to get data from in the **Granularity** field: Daily.
- d. Select the node or node group to analyze; select *NT_System in the **Available Managed System Lists** list and click the left pointing arrow  to move it to the **Assigned** list.
- e. In the **Compute trend on data** section, select **all available**, and set the parameters if necessary.

Note: After reinstallation in the upgrade scenario, all out-of-the-box nonlinear trending task are set to **all available**, all out-of-the-box linear trending tasks are set to **latest 30 days** and all out-of-the-box arithmetic tasks are set to **1 latest day**.

- f. Check **With Exceptions**, then click the **Override** button to add additional date constraints and filters on attributes, other than those defined in **Time frame**.
- g. In the **Attribute** table, click  and choose the input attributes for the parameters described in the expression from the Source Attribute Selection window.



Note:

Previously defined time frames can be restricted, but not expanded. For a constraint specified in the future, the data extraction process begins on a specified date.

5. In the **Status** section of the **Output** tab:
 - a. In the **Attribute Group** field, select an attribute group in which the results will be stored: Generic LT Status.
 - b. In the **Identifiers** table, keep the default destination attributes.
 - c. Also in the **Identifiers** table, add another identifier to help you identify which task analyzed the data:
 - Click **Add Constant Identifier**. The **Creating Constant Identifier** dialog box is displayed.
 - Enter a name for this task in the **Enter Constant Identifier** field and click **OK**: Task name.
 - Specify a value for the new identifier in the **Destination Attributes** column: Analytic Task Name.
 - d. In the **Output Set Definition** table, specify threshold values in kilobytes. Accept the other default output attributes in which the output data will be stored:
 - **Time to Critical** - 10000
 - **Time to Warning** - 50000

The number of days until these threshold values are reached are displayed in the workspaces. The units of thresholds are determined by the units of the input data attribute. For example, if you used % Processor Time, you would specify percentage values for the Threshold Output Set Definitions.

6. In the **Forecast** section of the **Output** tab:
 - a. In the **Attribute Group** field, select an attribute group in which the results will be stored: Generic LT Fcast.
 - b. In the **Identifiers** table, keep the default destination attributes.
 - c. Also in the **Identifiers** table, add another identifier to help you identify which task analyzed the data:
 - Click **Add Constant Identifier**. The **Creating Constant Identifier** dialog box is displayed.
 - Enter a name for the identifier in the **Enter Constant Identifier** field and click **OK**: Task name.
 - Specify a value for the new identifier in the **Destination Attributes** column: Analytic Task Name.
 - d. In the **Output Set Definition** table, specify the forecast data periods in days:
 - Enter 7 in the **Duration** column of the **Trended Value** row.
 - Click **Add Output Set** and enter 30 in the **Duration** column of the new **Trended Value** row.
 - Repeat to add the final duration of 90 days.
7. When the task is complete, activate it on the **General** tab; set the **Active** check box. Unless the task is active it will not be run.

Example nonlinear trend task

This example creates a nonlinear task that forecasts the available memory on Linux at 7, 30, and 90 days. It generates warning information when the server has a

predicted available memory of 50 MB and critical information when the server has a predicted available memory of 10 MB. It displays the results of the task in the Non Linear Trend workspace. All available past data is saved in the database.

About this task

It assumes that historical data collection is configured for the Linux agent, that the collection interval is hourly and that data is summarized daily.

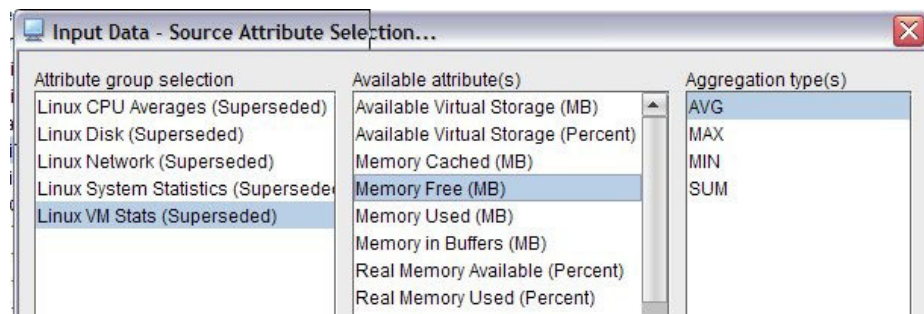
Note: When creating the task, ensure that the variables you enter contain no national characters.

Procedure

1. Open the **Performance Analyzer Configuration** window.
2. Click **Create a new analytics instance** .
3. On the **General** tab:
 - a. In the **Name** field, enter the name of the new task: New nonlinear trend.
 - b. Select **Non Linear Trending Module** from the **Analytic Module** list.



- c. In the **Task Interval** section, click in the hourly field, **hh**, and using the up arrow set the task to run hourly: 1.
 - d. Select the **Run at startup** box, so that the task is run when Tivoli Performance Analyzer starts.
4. On the **Input** tab:
 - a. Select a data source from the **Application** dropdown list: Linux OS.
 - b. In the **Attribute** table, click the ellipse button in the Input Data column  and in the **Source Attribute Selection** window, select the attribute group, attribute, and aggregation type for the most free memory and then click **OK**: Linux VM Stats; Memory Free(MB); AVG.



- c. In the **Granularity** field, select the summarized table to get the data from: Daily.
 - d. In the **Compute trend on data** section, choose **all available**.

Note: After installation in the upgrade scenario, all out-of-the-box nonlinear trending tasks are set to **all available**, all out-of-the-box linear trending tasks are set to **latest 30 days**, and all out-of-the-box arithmetic tasks are set to **1 latest day**.

- e. Select the node or node group to analyze: select *LINUX_SYSTEM in the **Available Managed System Lists** list and click the left-pointing arrow to move it to the **Assigned** list.
5. In the **Status** section of the **Output** tab:
 - a. In the **Attribute Group** field, select an attribute group in which the results will be stored: Generic 32bit NLT Status.
 - b. In the **Identifiers** table, keep the default destination attributes.
 - c. Also in the **Identifiers** table, add another identifier to help you identify which task analyzed the data:
 - Click **Add Constant Identifier**. The **Creating Constant Identifier** dialog box is displayed.
 - Enter a name for this task in the **Enter Constant Identifier** field and click **OK**: Task name.
 - Specify a value for the new identifier in the **Destination Attributes** column: Analytic Task Name.
 - d. In the **Output Set Definition** table, specify threshold values in megabytes. Accept the other default output attributes in which the output data will be stored:
 - **Time to Critical** - 10
 - **Time to Warning** - 50

The number of days until these threshold values are reached are displayed in the workspaces. The units of thresholds are determined by the units of the input data attribute. For example, if you used % Processor Time, you would specify percentage values for the Threshold Output Set Definitions.
6. In the **Forecast** section of the **Output** tab:
 - a. In the **Attribute Group** field, select an attribute group in which the results will be stored: Generic 32bit NLT Fcast.
 - b. In the **Identifiers** table, keep the default destination attributes.
 - c. Also in the **Identifiers** table, add another identifier to help you identify which task analyzed the data:
 - Click **Add Constant Identifier**. The **Creating Constant Identifier** dialog box is displayed.
 - Enter a name for the identifier in the **Enter Constant Identifier** field and click **OK**: Task name.
 - Specify a value for the new identifier in the **Destination Attributes** column: Analytic Task Name.
 - d. In the **Output Set Definition** table, specify the forecast data periods in days:
 - Enter 90 as the **Duration** for the Charting Duration row.
 - Enter 7 as the **Duration** for the Trended Value row.
 - Click **Add Output Set** and enter 30 in the **Duration** column of the new Trended Value row.
 - Repeat to add the final duration of 90 days.
7. When the task is complete, activate it on the **General** tab; set the **Active** check box. The task will not run unless it is active.

Deleting analytical tasks

You can delete analytical tasks that are no longer required. Deleted tasks are permanently removed from the system. If you only want to temporarily stop a task from running, consider clearing the **Active** field on the **General** tab of the analytical task definition.

About this task

Note: Be careful not to delete any of the predefined tasks.

To delete a task:

Procedure

1. Click **Performance Analyzer Configuration**  in the Tivoli Enterprise Portal toolbar or select **Edit > Performance Analyzer Configuration**. The **Performance Analyzer Configuration** dialog box is displayed.
2. Select the task to be deleted.
3. Click **Delete selected analytics instance** .

Results

You have now removed analytical task and it will no longer be run.

Modifying analytical tasks

About this task

You can also modify the existing analytical task by removing some of the already defined attributes. To delete the selected attributes:

Procedure

1. Right-click on the selected attribute.
2. Select:
 - **Clear Attribute** to remove the input or output attributes.
 - **Remove Condition (Cell)** to remove input conditions.
 - **Remove Constraint (Column)** to remove input constraints.

Activating, deactivating and deleting multiple tasks

You can activate, deactivate and delete multiple tasks, which enables you to activate, deactivate and delete entire domains or their subsets.

Before you begin

Before creating or editing a task, ensure that you have installed all the required supports.

Procedure

To activate, deactivate or delete multiple tasks:

1. Click **Performance Analyzer Configuration**  in the Tivoli Enterprise Portal toolbar or select **Edit > Performance Analyzer Configuration**.

2. To select several tasks hold **Ctrl** key and choose specific tasks or hold **Shift** key and choose a range of tasks.
3. Click **Activate**, **Deactivate** or **Delete** to activate, deactivate or delete selected analytic tasks.
4. Click **Apply** button to confirm the changes.

Grouping tasks by folders

You can delete or create folders and move tasks between them.

Procedure

In order to move tasks between folders:

1. Click **Performance Analyzer Configuration**  in the Tivoli Enterprise Portal toolbar or select **Edit > Performance Analyzer Configuration**.
2. To create a new folder, click **Create folder** or choose the appropriate option from the menu. To delete a folder, click **Delete selected** or choose the appropriate option from the menu.
3. In order to move tasks between folders use drag-and-drop.
4. Click **Apply** to confirm the changes.

Note: Out-of-the-box tasks are automatically inserted into the folder corresponding to the domain.

Using Tivoli Performance Analyzer configuration GUI

Use general, input, and output parameters to create and modify tasks using arithmetic, linear, and nonlinear trending methods.

Best practice

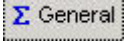
Never modify an out-of-the box task directly. If you want to customize tasks, clone the predefined task and then customize it. If you modify the out-of-the box task directly, the customization will be lost when the product is upgraded.

Arithmetic tasks

Use Arithmetic to apply a simple calculation to one or more attributes which results in a single, more meaningful, new attribute. For example, to calculate memory consumption for Windows, multiply CommittedMemory by 100 and then divide by CommittedLimit.

General tab:

Use this tab to define and edit the parameters for a new or existing analytical task; to specify its name, description and type; to indicate the calculation method; and to set the scheduling and the task series.

The  **General** tab is a blank definition form or displays the content that has already been provided for a given analytics task from a navigation pane on the left. You can create a new task or edit the existing one.

To set up and modify the general task parameters, use the following fields:

Name Specify a unique task name that indicates both the resource used for the

calculation and the resource type. For example, the name DB2 Remote Connections Forecast refers to the DB2 domain and calculates the number of remote connections.

Identifier

Specifies a unique task number that has been assigned to each task that was created during Performance Analyzer Creation. This number cannot be edited.

Domain

Select a domain for the task you are creating or editing. New tasks are automatically assigned to the **Default** domain.

Note: To create a new domain you must use external tools like Tivoli Performance Domain Generator

Description

Shows a detailed description for each task that explains what calculation method is applied to which resource. For example, for a DB2® Remote Connections Forecast, the description indicates that it is the linear trending forecast calculation of the current number of connections initiated from remote clients to the database manager instance that is being monitored.

Analytic module

Select a calculation method for the task you are creating.

Note: This field is not available when you are editing a task that already exists. The calculation method may only be assigned once during creation of a new task.

There are three standard methods of analytic calculation:

- **Arithmetic Module**
- **Linear Trending Module**
- **Non Linear Trending Module**

Task interval

Specifies how often the task runs. The interval is specified as ddd/hh:mm, where ddd is the number of days. The maximum number of days is 999, maximum number of hours is 23, and the maximum number of minutes is 59. The minimum interval is 1 minute. You can manually enter the interval or use the arrows to select a number.

Note: The interval of a task should be greater than or equal to the Warehouse collection interval set in the History Collection Configuration window. The default setting is one hour.

Run at startup

Specifies whether the task is to run immediately on startup of Tivoli Performance Analyzer. If the task does not run at startup, it runs at the specified task interval from startup time.

Note: This field is unavailable if the task is run after another task.

Enable scheduling

Specifies the exact hour at which the tasks runs. The time is specified as hh:mm, where the maximum number of hours is 23, and maximum number of minutes is 59. You can only enter the number of hours by selecting it with a cursor and using the arrows to set a specific hour. Do the same for the number of minutes.

Note: If you choose to enable scheduling, the hh:mm time fields in the **Task Interval** are not available, and the interval may only be set at the daily level. Setting the **Enable scheduling** function excludes both the **Run at Startup** and **Run after Task** functions.

Active Activates the task. All tasks must be activated before they are run. Set the task to Active when you have completed all compulsory fields in the task definition by the **General**, **Input**, and **Output** tabs. If you want to stop a task from running, without deleting the task from the system, clear this field.

Run after task

Specifies another task that must be completed before the current task is run. You can create multiple tasks that all depend on each other, thus creating a series of tasks.

Input tab (arithmetic):

Use this tab to define and edit the input parameters for a new or existing analytical task; to specify the expression to be used in the calculation; to select the attributes used in the calculation; and to choose the systems to which the task applies.

The  **Input** tab is a blank definition form or displays the content that has already been provided for a given analytics task from a navigation pane on the left. You can set up new task input information or edit the existing one.

The following fields let you set up and modify the input task parameters:

Expression

Specifies the analytical calculation that you want to apply to the input data. For linear trending, the expression is: `lsr (Input Data)`. This is read only. For general arithmetics, a default example is supplied: `(A + B)`. When you have specified the expression, click **Apply Expression** to send the parameters used in the expression to the parameter table. For the default arithmetic expression, two parameter columns are created: A and B.

Application

Specifies the application (type of agent) from which the input data is to be derived. For example, Windows OS or Linux OS.

Attribute

Specifies the input attributes for the parameters described in the expression. For arithmetic trending, multiple input attributes can be specified. These input attributes can be selected from different input groups.

To select an attribute, click the ellipse button (indicated by three dots). Attributes are listed by attribute group. For each selected input attribute, also select the required aggregation type.

Available input attributes depend on the configuration of the monitor application. Available aggregation types depend on the selected input group and the Behavior of the attribute as defined in the ODI file. See IBM Tivoli Monitoring documentation for further information. Typical aggregation types are AVG (Average), MAX (Maximum), MIN (Minimum), SUM (Summation), and LAT (Latest).

Note: The attribute group list only shows groups that are configured in IBM Tivoli Monitoring for historical data collection. To include unconfigured groups, select **Also show un-configured groups**.

To view how attributes from different groups are joined in the SQL statement, click **Advanced**. This is read only.

filter Specifies the arithmetic operators and values that the required input attributes must match in order to be incorporated in the analytical calculation.

Available operators are:

- == (equal to)
- != (not equal to)
- > (greater than)
- < (less than)
- >= (greater or equal than)
- <= (less or equal to)

To add additional filters based on attributes other than those already defined, click **Add Constraint**.

To see how the input attributes will be linked to one another, click **Advanced**. This will display the information in an **Advanced Settings...** pop-up window.

The screenshot shows a dialog box titled "Advanced Settings...". It has a sidebar on the left with labels: "Input Groups Count", "Joining Statement", "Primary Keys", and "Primary Keys Count". The "Input Groups Count" field shows the value "1". The "Joining Statement" field is a large empty text area. The "Primary Keys" field contains a table with two rows: "Primary Key: Server_Name" and "Source Table(s): NT Memory (0)". The "Primary Keys Count" field shows the value "1". At the bottom right, there is a "Close" button.

Granularity

Specifies which summarized table to get the data from. Available levels of granularity depend on the configuration of the History Collection in IBM Tivoli Monitoring. Typical levels are Hourly, Daily, Weekly, and Monthly. The default setting is Daily.

Compute trend on data

Determines the time frame on the basis of the data retrieved from Tivoli

Data Warehouse and allows the Tivoli Performance Analyzer agent to decrease forecasting evaluation time and database utilization. You can select from **all available**, **from date** or **latest**.

Override

Allows you to add additional date constraints and filters on attributes, other than those already defined in **Time frame**. You can choose parameters definitions from the **Time frame exceptions** table. Use this option when you have made a change that could affect data calculation, for example when you have changed server parameters.

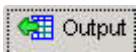
Note: Previously defined time frames can be restricted, but not expanded. For a constraint specified in the future, the data extraction process begins on a specified date.

Assigned

Specifies the systems to which the task applies. You can select from **Available Managed Systems** or from **Available Managed System Lists**. Predefined systems are typically preceded by an asterisk (*). Use the arrow buttons to move the systems to or from the **Assigned** list.

Output tab (arithmetic):

Use this tab to define and edit the output parameters for a new or existing analytical task and to specify the output application, and the destination attributes.

The  **Output** tab is a blank definition form or displays the content that has already been provided for a given analytics task from a navigation pane on the left. You can set up new task output information or edit the existing one.

The following fields let you set up and modify the output task parameters:

Application

Specifies the application (type of agent) in which the results are stored. This is the Performance Analyzer Warehouse Agent.

Attribute Group

Specifies a predefined output attribute group in which the results are stored. By default, a predefined output group may only be used once. Predefined output groups that are not already being used by the predefined tasks are generic output groups.

You can overwrite the default by selecting **Also show groups already in use** or by creating multiple entries in the same table, which is useful when creating multiple tasks for the generic output groups. However, use the overwrite facility with care because for the predefined output groups, using **Also show groups already in use** can cause problems in the output tables.

For arithmetic calculations, the output is specified on the **Destination Attributes** tab.

Identifiers

Specifies the identifiers to be stored in the output attribute group. There are four types of identifiers that you can match to predefined output attributes:

- Input identifier

Identifies the primary keys of the input table. The primary keys are

derived from the input group that you specify on the  **Input** tab, for example, System Name.

- Analytical time identifier

Identifies the time of the analytical calculation (**Timestamp**).

- Output definition identifier

Identifies task specific output identifiers.

- Constant identifier

Identifies a string of text that is passed directly to the selected output attribute of a generic output attribute group. For example, you can enter the task name of a constant identifier to quickly identify a task, which is especially useful when you perform a series of generic tasks that are interdependent or when specifying multiple, nonsequential, generic tasks.

The following example shows how identifiers are used in an output table:

Input	Timestamp	Output	Constant	Data
system01	01/19/07 19:10:45	3M	Task1	1000
system01	01/19/07 18:10:45	3M	Task1	1100
system01	01/19/07 17:10:45	3M	Task1	1200
system01	01/19/07 16:10:45	3M	Task1	1300
system01	01/19/07 16:10:45	3M	Task2	1000

The identifiers help you locate particular output data and can also be used to filter data for further processing. For example, using the Query Editor in Tivoli Enterprise Portal, you can enter an expression that extracts entries matching a particular identifier. To add constant identifiers, click **Add Constant Identifier**, and enter the name of the identifier of your choice in the window.



Output Set Definition(s)

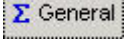
Specifies the data output attribute in which the output data is stored.

Linear trending

Use Linear Trending for forecasting purposes. The linear trending calculations use the Least Squares Regression method. This method approximates a linear pattern of use, over time, for selected attributes based on their values in the past. For example, use linear trending to estimate when a machine will run out of disk space based on the current rate of growth.

General tab:

Use this tab to define and edit the parameters for a new or existing analytical task; to specify its name, description and type; to indicate the calculation method; and to set the scheduling and the task series.

The  **General** tab is a blank definition form or displays the content that has already been provided for a given analytics task from a navigation pane on the left. You can create a new task or edit the existing one.

To set up and modify the general task parameters, use the following fields:

Name Specify a unique task name that indicates both the resource used for the calculation and the resource type. For example, the name DB2 Remote Connections Forecast refers to the DB2 domain and calculates the number of remote connections.

Identifier

Specifies a unique task number that has been assigned to each task that was created during Performance Analyzer Creation. This number cannot be edited.

Domain

Select a domain for the task you are creating or editing. New tasks are automatically assigned to the **Default** domain.

Note: To create a new domain you must use external tools like Tivoli Performance Domain Generator

Description

Shows a detailed description for each task that explains what calculation method is applied to which resource. For example, for a DB2 Remote Connections Forecast, the description indicates that it is the linear trending forecast calculation of the current number of connections initiated from remote clients to the database manager instance that is being monitored.

Analytic module

Select a calculation method for the task you are creating.

Note: This field is not available when you are editing a task that already exists. The calculation method may only be assigned once during creation of a new task.

There are three standard methods of analytic calculation:

- **Arithmetic Module**
- **Linear Trending Module**
- **Non Linear Trending Module**

Task interval

Specifies how often the task runs. The interval is specified as ddd/hh:mm, where ddd is the number of days. The maximum number of days is 999, maximum number of hours is 23, and the maximum number of minutes is 59. The minimum interval is 1 minute. You can manually enter the interval or use the arrows to select a number.

Note: The interval of a task should be greater than or equal to the Warehouse collection interval set in the History Collection Configuration window. The default setting is one hour.

Run at startup

Specifies whether the task is to run immediately on startup of Tivoli Performance Analyzer. If the task does not run at startup, it runs at the specified task interval from startup time.

Note: This field is unavailable if the task is run after another task.

Enable scheduling

Specifies the exact hour at which the tasks runs. The time is specified as hh:mm, where the maximum number of hours is 23, and maximum number of minutes is 59. You can only enter the number of hours by selecting it with a cursor and using the arrows to set a specific hour. Do the same for the number of minutes.

Note: If you choose to enable scheduling, the hh:mm time fields in the **Task Interval** are not available, and the interval may only be set at the daily level. Setting the **Enable scheduling** function excludes both the **Run at Startup** and **Run after Task** functions.

Active Activates the task. All tasks must be activated before they are run. Set the task to Active when you have completed all compulsory fields in the task definition by the **General**, **Input**, and **Output** tabs. If you want to stop a task from running, without deleting the task from the system, clear this field.

Run after task

Specifies another task that must be completed before the current task is run. You can create multiple tasks that all depend on each other, thus creating a series of tasks.

Input tab (linear trending):

Use this tab to define and edit the input parameters for a new or existing analytical task; to specify the expression to be used in the calculation; to select the attributes used in the calculation; and to choose the systems to which the task applies.

The  **Input** tab is a blank definition form or displays the content that has already been provided for a given analytics task from a navigation pane on the left. You can set up new task input information or edit the existing one.

The following fields let you set up and modify the input task parameters:

Expression

Specifies the analytical calculation that you want to apply to the input data. For linear trending, the expression is: `lsr (data, timestamp)`. This is read only. For general arithmetics, a default example is supplied: $(A + B)$. When you have specified the expression, click **Apply Expression** to send the parameters used in the expression to the parameter table. For the default arithmetic expression, two parameter columns are created: A and B.

Application

Specifies the application (type of agent) from which the input data is to be derived. For example, Windows OS or Linux OS.

Attribute

Specifies the input attributes for the parameters described in the expression. For linear trending, multiple input attributes can be specified. These input attributes can be selected from different input groups.

To select an attribute, click the ellipse button (indicated by three dots). Attributes are listed by attribute group. For each selected input attribute, also select the required aggregation type.

Available input attributes depend on the configuration of the monitor application. Available aggregation types depend on the selected input

group and the Behavior of the attribute as defined in the ODI file. See IBM Tivoli Monitoring documentation for further information. Typical aggregation types are AVG (Average), MAX (Maximum), MIN (Minimum), SUM (Summation), and LAT (Latest).

Note: The attribute group list only shows groups that are configured in IBM Tivoli Monitoring for historical data collection. To include unconfigured groups, select **Also show un-configured groups**.

To view how attributes from different groups are joined in the SQL statement, click **Advanced**. This is read only.

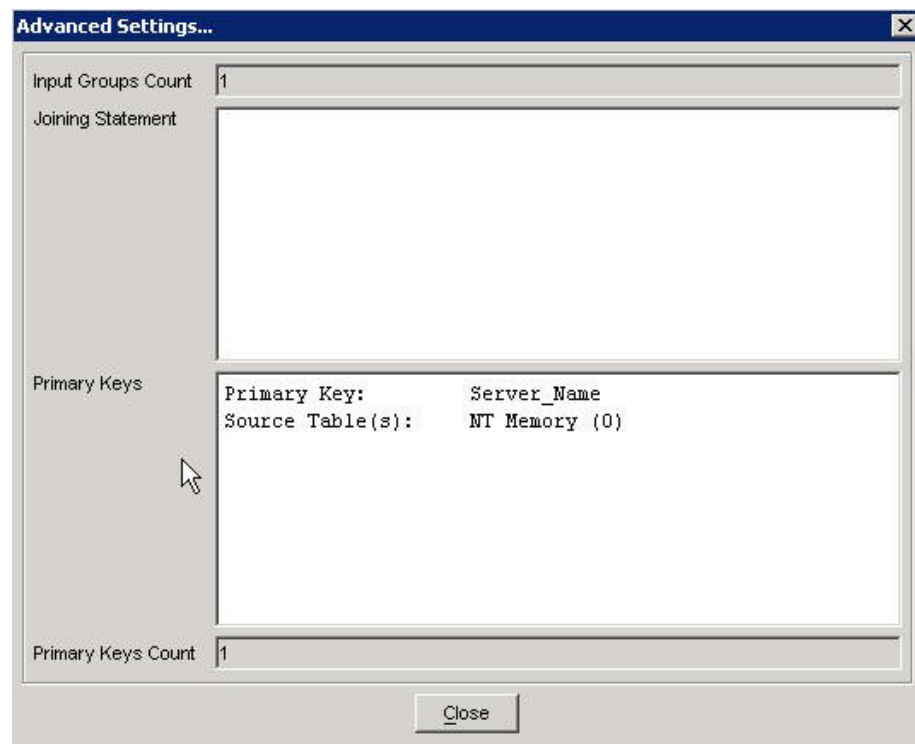
filter Specifies the arithmetic operators and values that the required input attributes must match in order to be incorporated in the analytical calculation.

Available operators are:

- == (equal to)
- != (not equal to)
- > (greater than)
- < (less than)
- >= (greater or equal than)
- <= (less or equal to)

To add additional filters based on attributes other than those already defined, click **Add Constraint**.

To see how the input attributes will be linked to one another, click **Advanced**. This will display the information in an **Advanced Settings...** pop-up window.



Granularity

Specifies which summarized table to get the data from. Available levels of

granularity depend on the configuration of the History Collection in IBM Tivoli Monitoring. Typical levels are Hourly, Daily, Weekly, and Monthly. The default setting is Daily.

Compute trend on data

Determines the time frame on the basis of the data retrieved from Tivoli Data Warehouse and allows the Tivoli Performance Analyzer agent to decrease forecasting evaluation time and database utilization. You can select from **all available**, **from date** or **latest**.

Override

Allows you to add additional date constraints and filters on attributes, other than those already defined in **Time frame**. You can choose parameters definitions from the **Time frame exceptions** table. Use this option when you have made a change that could affect data calculation, for example when you have changed server parameters.

Note: Previously defined time frames can be restricted, but not expanded. For a constraint specified in the future, the data extraction process begins on a specified date.

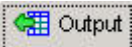
The following scenario illustrates the advantage of specifying additional date constraints and filters on attributes. Suppose that the disk utilization trend indicates that disk disk usage is approaching 100%. After receiving that indication, you change the disk to one with greater capacity. Disk utilization is now 10%. Tivoli Performance Analyzer computes data using the old (no longer valid) data. A revised trend is computed, but its relevance is limited. To improve your monitoring, use Override to specify that Tivoli Performance Analyzer compute trends based on your system changes. Similar specifications are appropriate after changing CPUs and RAM capacity.

Assigned

Specifies the systems to which the task applies. You can select from **Available Managed Systems** or from **Available Managed System Lists**. Predefined systems are typically preceded by an asterisk (*). Use the arrow buttons to move the systems to or from the **Assigned** list.

Output tab (linear trending):

Use this tab to define and edit the output parameters for a new or existing analytical task and to specify the output application, and the destination attributes.

The  **Output** tab is a blank definition form or displays the content that has already been provided for a given analytics task from a navigation pane on the left. You can set up new task output information or edit the existing one.

The following fields let you set up and modify the output task parameters:

Application

Specifies the application (type of agent) in which the results are stored. This is the Performance Analyzer Warehouse Agent.

Attribute Group

Specifies a predefined output attribute group in which the results are stored. By default, a predefined output group may only be used once. Predefined output groups that are not already being used by the predefined tasks are generic output groups.

You can overwrite the default by selecting **Also show groups already in use** or by creating multiple entries in the same table, which is useful when creating multiple tasks for the generic output groups. However, use the overwrite facility with care because for the predefined output groups, using **Also show groups already in use** can cause problems in the output tables.

For linear trending calculations, the output is specified on the **Status** and **Forecast** tabs.

Identifiers

Specifies the identifiers to be stored in the output attribute group. There are four types of identifiers that you can match to predefined output attributes:

- **Input identifier**
Identifies the primary keys of the input table. The primary keys are derived from the input group that you specify on the  **Input** tab, for example, System Name.
- **Analytical time identifier**
Identifies the time of the analytical calculation (**Timestamp**).
- **Output definition identifier**
Identifies task specific output identifiers, for example, duration of forecast period for linear trending.
- **Constant identifier**
Identifies a string of text that is passed directly to the selected output attribute of a generic output attribute group. For example, you can enter the task name of a constant identifier to quickly identify a task, which is especially useful when you perform a series of generic tasks that are interdependent or when specifying multiple, nonsequential, generic tasks.

The following example shows how identifiers are used in an output table:

Input	Timestamp	Output	Constant	Data
system01	01/19/07 19:10:45	3M	Task1	1000
system01	01/19/07 18:10:45	3M	Task1	1100
system01	01/19/07 17:10:45	3M	Task1	1200
system01	01/19/07 16:10:45	3M	Task1	1300
system01	01/19/07 16:10:45	3M	Task2	1000

The identifiers help you locate particular output data and can also be used to filter data for further processing. For example, using the Query Editor in Tivoli Enterprise Portal, you can enter an expression that extracts entries matching a particular identifier. To add constant identifiers, click **Add Constant Identifier**, and enter the name of the identifier of your choice in the window.



Output Set Definition

Specifies the output attributes in which the output data is stored. For linear

trending, there is a data output attribute for the attribute being trended over specified time periods plus status output attributes. The output is stored in the monitoring server as two tables: one for the forecast data and one for the status data.

The output is stored in the monitoring server as two tables:

- The status data table, which presents the following output attributes:

Confidence factor

Specifies the confidence factor of trending forecast.

Trend Direction

Specifies the slope of the trend (positive or negative).

Number of samples

Specifies the number of data samples used for forecasting.

Forecast strength

Specifies the resultant of confidence and number of if samples. Indicates the accuracy of calculation, which equals **1** (weak), **2** (medium) or **3** (strong).

Time to Critical

Specifies time to reach a certain critical threshold.

Time to Warning

Specifies time to reach a certain warning threshold.

- The forecast data table, which presents the following output attributes:

TimeStamp

Specifies the timestamp of the forecast result.

Trended value

Specifies the value of the forecasted data for the given forecast period.

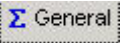
Click **Add Output Set** to specify multiple forecast periods.

Nonlinear trending

Use nonlinear trending for forecasting purposes, for example, to forecast the pattern of CPU usage of a virtual machine and set thresholds to warn you well in advance. Nonlinear trending uses the SPSS Expert Modeler algorithm, which selects the best model from the available models.

General tab:

Use this tab to define and edit the parameters for a new or existing analytical task; to specify its name, description and type; to indicate the calculation method; and to set the scheduling and the task series.

The  **General** tab is a blank definition form or displays the content that has already been provided for a given analytics task from a navigation pane on the left. You can create a new task or edit the existing one.

To set up and modify the general task parameters, use the following fields:

Name Specify a unique task name that indicates both the resource used for the calculation and the resource type.

Identifier

Specifies a unique task number that has been assigned to each task that was created during Performance Analyzer Creation. This number cannot be edited.

Domain

Select a domain for the task you are creating or editing. New tasks are automatically assigned to the **Default** domain.

Note: To create a new domain you must use external tools like Tivoli Performance Domain Generator

Description

Shows a detailed description for each task that explains what calculation method is applied to which resource. For example, for a Disk Utilization NLT (UNIX) forecast, the description indicates that a nonlinear trending forecast calculation of the current disk utilization from UNIX systems that are monitored.

Analytic module

Select a calculation method for the task you are creating.

Note: This field is not available when you are editing a task that already exists. The calculation method may only be assigned once during creation of a new task.

There are three standard methods of analytic calculation:

- **Arithmetic Module**
- **Linear Trending Module**
- **Non Linear Trending Module**

Task interval

Specifies how often the task runs. The interval is specified as ddd/hh:mm, where ddd is the number of days. The maximum number of days is 999, maximum number of hours is 23, and the maximum number of minutes is 59. The minimum interval is 1 minute. You can manually enter the interval or use the arrows to select a number.

Note: The interval of nonlinear trending should be greater than or equal to the Warehouse collection interval set in the History Collection Configuration window, but not less than an hour. The default setting is one hour.

Run at startup

Specifies whether the task is to run immediately on startup of Tivoli Performance Analyzer. If the task does not run at startup, it runs at the specified task interval from startup time.

Note: By default, this flag remains off for newly created nonlinear trending tasks. This field is unavailable if the task is run after another task.

Enable scheduling

Specifies the exact hour at which the tasks runs. The time is specified as hh:mm, where the maximum number of hours is 23, and maximum number of minutes is 59. You can only enter the number of hours by selecting it with a cursor and using the arrows to set a specific hour. Do the same for the number of minutes.

Note: If you choose to enable scheduling, the hh:mm time fields in the **Task Interval** are not available, and the interval may only be set at the daily level. Setting the **Enable scheduling** function excludes both the **Run at Startup** and **Run after Task** functions.

Active Activates the task. All tasks must be activated before they are run. Set the task to Active when you have completed all compulsory fields in the task definition by the **General**, **Input**, and **Output** tabs. If you want to stop a task from running, without deleting the task from the system, clear this field.

Run after task

Specifies another task that must be completed before the current task is run. You can create multiple tasks that all depend on each other, thus creating a series of tasks.

Input tab (nonlinear trending):

Use this tab to define and edit the input parameters for a new or existing analytical task; to specify the expression to be used in the calculation; to select the attributes used in the calculation; and to choose the systems to which the task applies.

The  **Input** tab is a blank definition form or displays the content that has already been provided for a given analytics task from a navigation pane on the left. You can set up new task input information or edit the existing one.

The following fields let you set up and modify the input task parameters:

Expression

Specifies the analytical calculation that applies to the input data. For nonlinear trending, the expression is: `nonlineartrend (Input Data)`. This field is read only.

Application

Specifies the application (type of agent) from which the input data is to be derived. For example, Windows OS or Linux OS.

Attribute

Specifies the input attributes for the analysis.

To select an attribute, click the ellipse button (indicated by three dots). Attributes are listed by attribute group. For each selected input attribute, also select the required aggregation type.

Available input attributes depend on the configuration of the monitoring application. Available aggregation types depend on the selected input group and the behavior of the attribute as defined in the ODI file. See IBM Tivoli Monitoring documentation for further information. Typical aggregation types are AVG (Average), MAX (Maximum), MIN (Minimum), SUM (Summation), and LAT (Latest).

Note: The attribute group list only shows groups that are configured in IBM Tivoli Monitoring for historical data collection. To include unconfigured groups, select **Also show un-configured groups**.

Granularity

Specifies which summarized table to get the data from. Available levels of granularity depend on the configuration of the History Collection in IBM

Tivoli Monitoring. Typical levels are Hourly, Daily, Weekly, Monthly, Quarterly, and Yearly. The default setting is Daily.

Compute trend on data

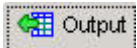
Determines the time frame on the basis of which the data is retrieved from Tivoli Data Warehouse and used in the analysis.

Assigned

Specifies the systems to which the task applies. You can select from **Available Managed Systems** or from **Available Managed System Lists**. Predefined systems are typically preceded by an asterisk (*). Use the arrow buttons to move the systems to or from the **Assigned** list.

Output tab (nonlinear trending):

Use this tab to define and edit the output parameters for a new or existing analytical task and to specify the output application, and the destination attributes.

The  **Output** tab is a blank definition form or displays the content that has already been provided for a given analytics task from a navigation pane on the left. You can set up new task output information or edit the existing one.

The following fields let you set up and modify the output task parameters:

Application

Specifies the application (type of agent) in which the results are stored. This is the Performance Analyzer Warehouse Agent.

Attribute Group

Specifies a predefined output attribute group in which the results are stored. By default, a predefined output group may be used only once. Predefined output groups that are not already being used by the predefined tasks are generic output groups.

You can overwrite the default by selecting **Also show groups already in use** or by creating multiple entries in the same table, which is useful when creating multiple tasks for the generic output groups. However, use the overwrite facility with care because for the predefined output groups, using **Also show groups already in use** can cause problems in the output tables.

For nonlinear trending calculations, the output is specified on the **Status** and **Forecast** tabs.

Identifiers

Specifies the identifiers to be stored in the output attribute group. There are four types of identifiers that you can match to predefined output attributes:

- Input identifier

Identifies the primary keys of the input table. The primary keys are

derived from the input group that you specify on the  **Input** tab, for example, System Name.

- Analytical time identifier

Identifies the time of the analytical calculation (**Timestamp**).

- Output definition identifier

Identifies task-specific output identifiers, for example, duration of forecast period for nonlinear trending.

- **Constant identifier**

Identifies a string of text that is passed directly to the selected output attribute of a generic output attribute group. For example, you can enter the task name of a constant identifier to quickly identify a task, which is especially useful when you perform a series of generic tasks that are interdependent or when specifying multiple, nonsequential, generic tasks.

The following example shows how identifiers are used in an output table:

Input	Timestamp	Output	Constant	Data
system01	01/19/07 19:10:45	3M	Task1	1000
system01	01/19/07 18:10:45	3M	Task1	1100
system01	01/19/07 17:10:45	3M	Task1	1200
system01	01/19/07 16:10:45	3M	Task1	1300
system01	01/19/07 16:10:45	3M	Task2	1000

The identifiers help you locate particular output data and can also be used to filter data for further processing. For example, using the Query Editor in Tivoli Enterprise Portal, you can enter an expression that extracts entries matching a particular identifier. To add constant identifiers, click **Add Constant Identifier**, and enter the name of the identifier of your choice in the window.



Output Set Definition

Specifies the output attributes in which the output data is stored. For nonlinear trending, there is a data output attribute for the attribute being trended over specified time periods plus status output attributes.

The output is stored in the monitoring server as two tables:

- The status data table, which presents the following output attributes:

- Time to Critical**

- Specifies time to reach a certain critical threshold.

- Time to Warning**

- Specifies time to reach a certain warning threshold.

- Model type**

- Specifies the forecasting model.

- Confidence Factor**

- Gives an indication of how well the model fits the data. R-squared for the model is multiplied by 100 to give an estimate of the proportion of the total variation in the series that is explained by the model. Confidence can be negative, which implies that the current model is bad fit, for reasons such as inadequate data.

- Direction**

- Not applicable in this release.

Number of samples

Specifies the number of data samples used for forecasting.

Forecast strength

Not applicable in this release.

R-Squared

Specifies the r-square error.

Stationary R-Squared

Specifies the stationary r-square error.

RMSE Specifies the root mean squared error.

MAPE Specifies the mean absolute percentage error.

MaxAPE

Specifies the maximum absolute percentage error.

MAE Specifies the mean absolute error.

MaxAE

Specifies the maximum absolute error.

Normalized BIC

Specifies the normalized Bayesian information criterion.

Outliers

Observations that are numerically distant from the rest of the data.

- The forecast data table, which presents the following output attributes:

Charting duration

Specifies the number of points used for charting to store in the database.

Maximum

Maximum value of forecasted data. The calculated values are replaced with the maximum if those values are greater than the maximum.

Minimum

Minimum value of forecasted data. The calculated values are replaced with the minimum if those values are less than minimum.

TimeStamp

Specifies the timestamp of the forecast result.

Trended value

Specifies the value of the forecasted data for the given forecast period.

Click **Add Output Set** to specify multiple forecast periods.

Viewing performance data and forecast

You can use the Tivoli Performance Analyzer workspaces and reports to monitor the performance of your system and to improve the capacity management.

Workspaces in Tivoli Performance Analyzer display statistics that describe capacity management reports for the monitored servers, and in this way allow you to enhance the performance of your systems, and improve the ability to meet the

customers' goals in the future. By means of the Tivoli Common Reporting application you can also present the achieved results in the form of the reports to the customers.

Predefined workspaces

IBM Tivoli Performance Analyzer provides more than 100 predefined workspaces that can be viewed in order to determine the state and the trending for the analyzed systems.

The working area of the user interface of the Tivoli Enterprise Portal is called the workspace. Tivoli Performance Analyzer uses the Tivoli Enterprise Portal to display its own workspaces.

At the left of the workspace is a Navigator that you use to select the workspace you want to see. As you select items in the Navigator, the workspace presents views pertinent to your selection. Each workspace has at least one view. General workspaces may have links to other workspaces, and in this way they allow you to drill down to get more detailed information. However, it is not possible to go back from the detailed view to the general one. Each workspace also has a set of properties associated with it.

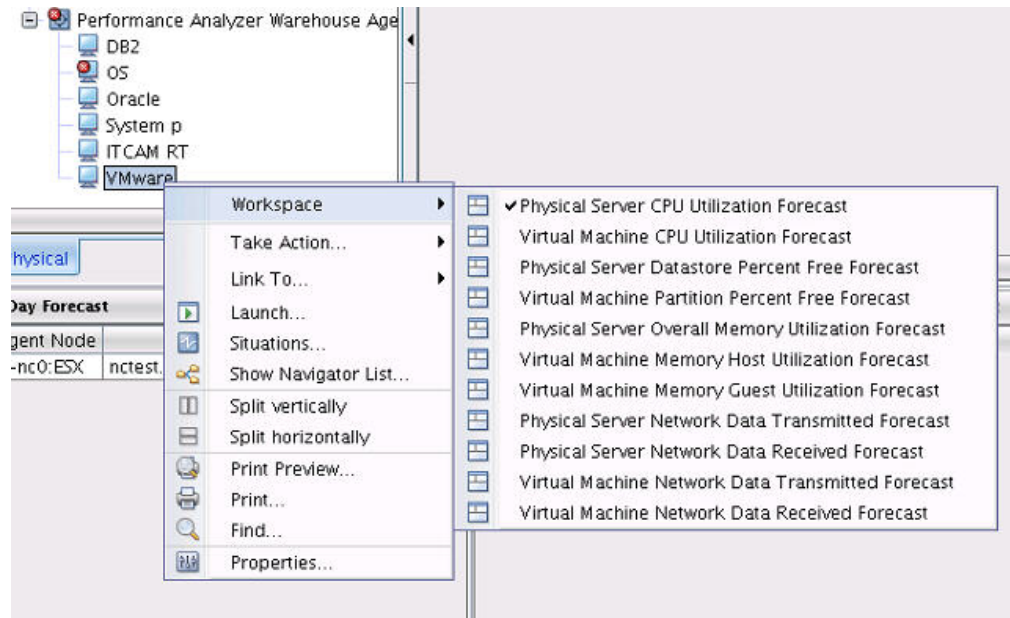
Tivoli Performance Analyzer provides predefined workspaces with views in the form of graphs and tables, showing statistics that you can use to perform capacity management for the monitored servers. You can use them to monitor the performance in the course of the reporting period. You are prevented from overwriting or deleting the predefined workspaces. However, you can use a predefined workspace to create a new workspace by editing it.

Tivoli Performance Analyzer contains predefined workspace groups that are listed under the Performance Analyzer Warehouse Agent node in the Navigator pane:

- DB2
- OS
- Oracle
- System p
- ITCAM RT
- VMware

Note: All these workspaces include the **Data** column. The value that appears in this column is the forecasted metric value presented in the same unit as the metric (for example, if the metric uses %, then the value in the **Data** column also represents percentage). For Linear trending workspaces, the calculated value is based on linear trending so if the trend is falling, negative values may appear in the table. For metrics that do not allow negative values, like CPU Utilization, Disk Utilization, or Memory Utilization, they may still appear in the column but should be treated as 0. For Non Linear Trending workspaces, the calculated value is based on nonlinear trending.

The individual workspaces can be accessed from the Tivoli Enterprise Portal Navigator.



To see more general information about workspaces, refer to the *IBM® Tivoli Monitoring User's Guide*.

Reports

Tivoli Performance Analyzer uses the Tivoli Common Reporting application to display its reports. These are used to document the performance of your systems, and to present them to the customers.

Tivoli Common Reporting

Tivoli Common Reporting is an application based on Business Intelligence and Reporting Tools (BIRT). It is employed across the Tivoli product range. It needs to be installed and configured independently of Tivoli Performance Analyzer.

Reports are used to provide your customers and other interested parties with the information about the system performance and to facilitate capacity management. Tivoli Common Reporting can generate them in HTML or PDF format.

TPA reporting function

The installer for the Tivoli Performance Analyzer reports for the Tivoli Common Reporting predefined reports is shipped with the Tivoli Performance Analyzer domain support.

Note: Reports might display 2147483674 in the "Time to warning threshold" and "Time to critical" threshold columns. Corresponding workspaces display NEVER. In both instances, these entries indicate that threshold values will never be reached.

For more information on how to use the reports, see the Tivoli Common Reporting User's Guide.

Displaying the reports

You can use Tivoli Common Reporting to generate reports describing the performance and capacity of your systems.

Procedure

1. Open a browser and enter the Tivoli Common Reporting address provided by your administrator. For example, `https://host:port/ibm/console/logon.jsp`.
2. From the navigation tree on the left, select **Reporting > Common Reporting**
3. On the **Common Reporting** tab on the right, click **Tivoli Products > Tivoli Performance Analyzer**.
4. Select the domain for which you want to view the reports.
5. Select the report you want to open and follow the instructions to run and view the report.

Note: For changing the settings for reports, you can follow the instructions in the Tivoli Common Reporting documentation.

Chapter 3. Predefined Tivoli Performance Analyzer content

Tivoli Performance Analyzer provides predefined content for the ease of accessing the information about your systems and capacity.

Performance Analyzer workspace

Tivoli Performance Analyzer provides content that shows information about the performance of the agent.

Attributes

This section provides a summary of the predefined output attributes listed by type and attribute group.

MOSWOS attribute groups

MOSWOS attributes are used for self-monitoring of the Performance Analyzer agent.

KPA T MOSWOS AGENT

- Node
- Timestamp
- Version
- Agent Start Time
- Last Evaluation Start Time
- Last Evaluation End Time
- Last Evaluation Time
- State
- Last Error
- Operating System

KPA T MOSWOS SUB AGENT

- Node
- Timestamp
- ID
- Name
- Version
- Build
- Build Date

KPA T MOSWOS DB

- Node
- Timestamp
- ID
- Connection Type
- DB Type

- JDBC Driver
- URL or DSN
- Username
- Schema
- Last Error
- State

KPA T MOSWOS TASK

- Node
- Timestamp
- ID
- Task Name
- Last Evaluation Start Time
- Last Evaluation End Time
- Next Evaluation Start Time
- Last Evaluation Time
- State
- Last Error
- Number Of Resources Evaluated
- Number Of Resources Failed
- Total Number Of Measurements
- Processing Speed Rows per Sec
- Is System Task

Generic attribute groups

Generic attributes allow you to store output from the tasks you define. There are separate groups to store 32-bit results, 32-bit decimal results, 64-bit results, and 64-bit decimal results for both linear and nonlinear trending.

Generic LT Status

- Node
- Timestamp
- Analytic Task Name
- System Name
- Identifier 1
- Confidence
- Direction
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Task Base OS

Generic 32bit NLT Status

- Node
- Timestamp

- Analytic Task Name
- System Name
- Identifier_1
- Identifier_2
- Identifier_3
- Model_Type
- Confidence
- R-Squared
- Stationary R-Squared
- RMSE
- MAPE
- MAE
- MAXAPE
- MAXAE
- NORMBIC
- Outliers
- Normalized BIC
- Direction
- Strength
- Number_Of_Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Task Base OS

Generic LT Fcast

- Node
- Timestamp
- Analytic Task Name
- System Name
- Identifier 1
- Forecast Timestamp
- Duration
- Data
- Task Base OS

Generic 32bit NLT Forecast

- Node
- Timestamp
- Analytic Task Name
- System Name
- Identifier 1
- Identifier 2
- Identifier 3
- Duration
- Forecast Timestamp
- Data

- Task Base OS

Generic Arithmetic

- Node
- Timestamp
- Analytic Task Name
- System Name
- Identifier 1
- Identifier 2
- Result 1
- Result 2
- Result 3

Generic Decimal 32 LT Status

- Analytic Task Name
- Confidence
- Direction
- Identifier 1
- Node
- Number of Samples
- Strength
- System Name
- Task Base OS
- Time To Critical Threshold
- Time To Warning Threshold
- Timestamp

Generic 32bit Decimal NLT Status

- Node
- Timestamp
- Analytic Task Name
- System Name
- Identifier_1
- Identifier_2
- Identifier_3
- Model_Type
- Confidence
- R-Squared
- Stationary R-Squared
- RMSE
- MAPE
- MAE
- MAXAPE
- MAXAE
- Normalized BIC
- Outliers

- Direction
- Strength
- Number of Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Task Base OS

Generic Decimal 32 LT Fcast

- Analytic Task Name
- Data
- Duration
- Forecast Timestamp
- Identifier 1
- Node
- System Name
- Task Base OS
- Timestamp

Generic 32bit Decimal NLT Forecast

- Node
- Timestamp
- Analytic Task Name
- System Name
- Identifier 1
- Identifier 2
- Identifier 3
- Duration
- Forecast_Timestamp
- Data
- Task Base OS

Generic Decimal 32 Arithmetic

- Analytic Task Name
- Identifier 1
- Identifier 2
- Node
- Result 1
- Result 2
- Result 3
- System Name
- Timestamp

Generic 64 LT Status

- Analytic Task Name
- Confidence
- Direction

- Identifier 1
- Node
- Number of Samples
- Strength
- System Name
- Task Base OS
- Time To Critical Threshold
- Time To Warning Threshold
- Timestamp

Generic 64bit NLT Status

- Node
- Timestamp
- Analytic Task Name
- System Name
- Identifier 1
- Identifier 2
- Identifier 3
- Model_Type
- Confidence
- R-Squared
- Stationary R-Squared
- RMSE
- MAPE
- MAE
- MAXAPE
- MAXAE
- NORMBIC
- Outliers
- Direction
- Strength
- Number of Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Task Base OS

Generic 64 LT Fcast

- Analytic Task Name
- Data
- Duration
- Forecast Timestamp
- Identifier 1
- Node
- System Name
- Task Base OS
- Timestamp

Generic 64bit NLT Forecast

- Node
- Timestamp
- Analytic Task Name
- System Name
- Identifier 1
- Identifier 2
- Identifier 3
- Duration
- Forecast_Timestamp
- Data
- Task Base OS

Generic 64 Arithmetic

- Analytic Task Name
- Identifier 1
- Identifier 2
- Node
- Result 1
- Result 2
- Result 3
- System Name
- Timestamp

Generic Decimal 64 LT Status

- Analytic Task Name
- Confidence
- Direction
- Identifier 1
- Node
- Number of Samples
- Strength
- System Name
- Task Base OS
- Time To Critical Threshold
- Time To Warning Threshold
- Timestamp

Generic Decimal 64 LT Fcast

- Analytic Task Name
- Data
- Duration
- Forecast Timestamp
- Identifier 1
- Node
- System Name

- Task Base OS
- Timestamp

Generic 64bit Decimal NLT Forecast

- Node
- Timestamp
- Analytic Task Name
- System Name
- Identifier 1
- Identifier 2
- Identifier 3
- Duration
- Forecast_Timestamp
- Data
- Task Base OS

Generic Decimal 64 Arithmetic

- Analytic Task Name
- Identifier 1
- Identifier 2
- Node
- Result 1
- Result 2
- Result 3
- System Name
- Timestamp

Performance Analyzer Agent Statistics

Displays information about the Performance Analyzer agent. Use it to monitor the performance of the agent and discover any errors that might occur.

To open this workspace, select the Performance Analyzer Warehouse Agent node in the Navigator pane. The Performance Analyzer Agent Statistics workspace contains the following views:

Agent Statistics

This table displays general statistics about the agent. It shows the following information:

- Operating system on which the agent is installed.
- Version of the agent.
- The time when the agent was started.
- The time when the last evaluation started.
- The time when the last evaluation ended.
- The amount of time that it took to perform the last evaluation (in seconds).
- The current state of the agent:

STARTING

The agent is starting.

WAITING

The agent is waiting for the next evaluation cycle.

COMPUTING

The agent is computing analytical tasks.

FAILED

The agent could not be started. The tasks will not be computed.
See the Last Error field for the error message.

- The last unrecoverable error that occurred on the agent level (if any). A typical error shown here is Configuration not Complete and it may occur if the Performance Analyzer agent was not configured after installation. Run the agent reconfiguration to fix it.

Analytical Modules

This table displays information about the analytical modules used by the agent. For each module, it lists the name, version, build number and build date.

DB Configuration

This table displays statistics about the database connections used by the agent. For each connection, it shows the following information:

- The identifier assigned to the connection.
- The type of the connection.
- The type of database to which the agent connects.
- The JDBC driver used by the database.
- The URL or DSN address used by the agent to connect to the database.
- The user name used to connect to the database.
- The schema where Tivoli Data Warehouse tables are created. This statistic is only valid for Tivoli Data Warehouse connections.
- The current state of the database connection.
- The last error that occurred when the agent was connecting to or querying the database (if any).

Task Statistics

This table displays detailed statistics about active user tasks. For each task, it shows the following information:

- The name of the task.
- The time when the last task evaluation started.
- The amount of time that it took to perform the last task evaluation (in seconds).
- The speed of computation measured in the number of rows (measurements) per second read from database and included in computation.
- The speed of computation measured in the number of resources per second included in computation.
- The state of the task. If the field is marked in green, the task has been performed correctly. If it is marked in red, the task could not be computed. Blue color indicates that the agent is querying the database.
- The current state of the task:

CREATED

The task has been found in the configuration database. This is a temporary state which changes when complete task configuration is read from the database.

COMPUTED

The task has been successfully computed. You can see the computation results in Tivoli Enterprise Portal.

COMPUTING

The agent is computing the task.

QUERYING

The agent is querying the database.

PUBLISHING

The results of the computation are being published.

FAILED

The task could not be computed. See the Last Error field for the error message.

INACTIVE

The task is inactive.

ACTIVE

The task is active.

READY

The task is ready for evaluation.

- The last error message for the task (if any). Typical errors shown here are:
 - No managed system found - there are no appropriate managed systems (agents) in this Tivoli Monitoring environment for this task to perform the analysis.
 - Not sufficient data points - there is not enough data in Tivoli Data Warehouse to compute the task. For linear trends, at least two data samples are needed.
 - SQL error message - usually happens when historical collection was not set for the source attribute group. If so, set up historical data collection as described in the *IBM Tivoli Monitoring Installation and Setup Guide*.
- The number of resources successfully evaluated in the last evaluation cycle.
- The number of resources that could not be evaluated in the last evaluation cycle.

Note: In almost all cases the reason for failure is an insufficient number of data points in Tivoli Data Warehouse for the given resource.

- The total number of measurements read from the Tivoli Data Warehouse in the last evaluation cycle.
- The time when the next task evaluation will start.

Tivoli Performance Analyzer Domains

Tivoli Performance Analyzer provides a number of predefined domains. A domain in Performance Analyzer is the set of objects that allow users to see trends and forecasts for selected set of metrics (measured by one or more IBM Tivoli Monitoring agents), focused on the same subjects.

The objects in a domain include the following:

- Performance Analyzer tasks for the Performance Analyzer Analytic Agent that determine what is to be computed
- Queries and workspaces that display forecasts in the Tivoli Enterprise Portal
- Attribute groups to store computation results
- Situations to detect critical and warning forecasts
- Reports to show forecasts in Tivoli Common Reporting

For example, the VMware Domain contains 11 tasks, 33 queries, 22 workspaces, 22 attribute groups, 22 situations, and 9 Tivoli Common Reporting reports. The workspaces and Tivoli Common Reporting reports for this domain show forecasts for metrics related to the VMware VI Agent, such as ESX Server CPU Utilization Forecast, Virtual Machine CPU Utilization Forecast, and Virtual Machine Network Data Transmitted Forecast.

By default, Tivoli Performance Analyzer is installed with no domain. Six domains are provided with Tivoli Performance Analyzer: OS, DB2, Oracle, System P, ITCAM RT and VMware. You can install any or all of these domains using the Domains Installer. The Tivoli Common Reporting reports contained in each domain need special treatment because they are not native IBM Tivoli Monitoring objects (like, for example, workspaces or situations). Despite the fact that the reports are part of a domain, they must be installed against a IBM Tivoli Monitoring server with using other tools like the IBM Tivoli Monitoring Web graphical user interface.

DB2 workspaces

Tivoli Performance Analyzer DB2® domain provides historical and forecasted performance information.

Attributes

This section provides a summary of the predefined output attributes, listed by attribute group.

Out-of-the-box domain attribute groups

Out-of-the-box attributes are used by predefined tasks delivered with Tivoli Performance Analyzer.

DB2 Committed Memory Delta

- Node
- Timestamp
- System Name
- Instance Name
- Daily Committed Memory Delta

DB2 Max Connected Apps

- Node
- Timestamp
- System Name
- Database Name
- Daily Max Applications Connected

DB2 Table Space Size Delta

- Node

- Timestamp
- System Name
- Database Name
- Daily Used Pages Delta
- Table Space Name

DB2 Database LT Status

- Node
- Timestamp
- System Name
- Trend Attribute
- Confidence
- Direction
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Database Name

DB2 Database LT Fcast

- Node
- Timestamp
- System Name
- Forecast Timestamp
- Duration
- Data
- Trend Attribute
- Database Name

DB2 Instance LT Status

- Node
- Timestamp
- System Name
- Trend Attribute
- Confidence
- Direction
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Instance Name

DB2 Instance LT Fcast

- Node
- Timestamp
- System Name

- Forecast Timestamp
- Duration
- Data
- Trend Attribute
- Instance Name

DB2 Pages LT Status

- Node
- Timestamp
- System Name
- Trend Attribute
- Confidence
- Direction
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Database Name
- Table Space Name

DB2 Pages LT Fcast

- Node
- Timestamp
- System Name
- Forecast Timestamp
- Duration
- Data
- Trend Attribute
- Database Name
- Table Space Name

Situations

Tivoli Performance Analyzer contains the following predefined situations which are activated at startup. They are automatically installed, distributed, assigned to managed objects, and started.

DB2_Avg_Sort_Time_Critical

DB2_Avg_Sort_Time_Critical predicts if the monitored average sort time will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

DB2_Avg_Sort_Time_Warning

DB2_Avg_Sort_Time_Warning predicts if the monitored average sort time will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

DB2_Avg_Sync_Read_Time_Critical

DB2_Avg_Sync_Read_Time_Critical predicts if the monitored average synchronous read time will reach a defined critical limit within the next

seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

DB2_Avg_Sync_Read_Time_Warning

DB2_Avg_Sync_Read_Time_Warning predicts if the monitored average synchronous read time will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

DB2_Avg_Sync_Write_Time_Critical

DB2_Avg_Sync_Write_Time_Critical predicts if the monitored average synchronous write time will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

DB2_Avg_Sync_Write_Time_Warning

DB2_Avg_Sync_Write_Time_Warning predicts if the monitored average synchronous write time will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

DB2_Connected_Apps_Critical

DB2_Connected_Apps_Critical predicts if the monitored connected applications will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

DB2_Connected_Apps_Warning

DB2_Connected_Apps_Warning predicts if the monitored connected applications will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

DB2_Memory_Usage_Critical

DB2_Memory_Usage_Critical predicts if the monitored memory usage will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

DB2_Memory_Usage_Warning

DB2_Memory_Usage_Warning predicts if the monitored memory usage will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

DB2_Pages_Used_Critical

DB2_Pages_Used_Critical predicts if the monitored pages used will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

DB2_Pages_Used_Warning

DB2_Pages_Used_Warning predicts if the monitored pages used will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

DB2_Pool_Read_Time_Critical

DB2_Pool_Read_Time_Critical predicts if the monitored pool read time will

reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

DB2_Pool_Read_Time_Warning

DB2_Pool_Read_Time_Warning predicts if the monitored pool read time will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

DB2_Pool_Write_Time_Critical

DB2_Pool_Write_Time_Critical predicts if the monitored pool write time will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

DB2_Pool_Write_Time_Warning

DB2_Pool_Write_Time_Warning predicts if the monitored pool write time will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Tasks

IBM Tivoli Performance Analyzer is distributed with a number of predefined tasks that specify the data to be analyzed and the analytic calculation method to be used.

- DB2 Committed Memory Delta
- DB2 Maximum Number of Connected Applications
- DB2 Table Space Size Delta
- DB2 Average Pool Read Time Forecast
- DB2 Average Pool Write Time Forecast
- DB2 Average Synchronous Read Time Forecast
- DB2 Average Synchronous Write Time Forecast
- DB2 Average Sort Time Forecast
- DB2 Memory Usage Forecast
- DB2 Remote Connections Forecast
- DB2 Local Connections Forecast
- DB2 Connected Applications Forecast
- DB2 Pages Used Forecast

Workspaces

Tivoli Performance Analyzer DB2 domain provides historical and forecasted performance information.

DB2 Average Pool Read Time Forecast workspace:

This workspace belongs to the DB2 Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of DB2 instances.

The workspace contains the following views:

Average Pool Read Time Forecast Overview

This table shows the average elapsed time for a read request. For each System, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the DB2 Average Pool Read Time Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Database Name, and Data. The information in the Data column is expressed in milliseconds, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

DB2 Average Pool Read Time Forecast Details workspace:

This detailed workspace belongs to the DB2 Performance Statistics workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace includes the following views:

Average Pool Read Time Forecast Details

This table shows the average elapsed time for a read request. For a given System, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.

- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, Duration, and Data.

DB2 Average Pool Write Time Forecast workspace:

This workspace belongs to the DB2 Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of DB2 instances.

The workspace contains the following views:

Average Pool Write Time Forecast Overview

This table shows the average elapsed time for a write request. For each System, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the DB2 Average Pool Write Time Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Database Name, and Data. The information in the Data column is expressed in milliseconds, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

DB2 Average Pool Write Time Forecast Details workspace:

This detailed workspace belongs to the DB2 Performance Statistics workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace includes the following views:

Average Pool Write Time Forecast Details

This table shows the average elapsed time for a write request. For a given System, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

DB2 Average Synchronous Read Time Forecast workspace:

This workspace belongs to the DB2 Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of DB2 instances.

The workspace contains the following views:

Average Synchronous Read Time Forecast Overview

This table shows the average elapsed time used to perform a synchronous read. For each System, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the DB2 Average Synchronous Read Time Forecast Details workspace for that resource.

7 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Database Name, and Data. The information in the Data column is expressed in milliseconds, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

DB2 Average Synchronous Read Time Forecast Details workspace:

This detailed workspace belongs to the DB2 Performance Statistics workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace includes the following views:

Average Synchronous Read Time Forecast Details

This table shows the average elapsed time used to perform a synchronous read. For a given System, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.

- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

DB2 Average Sort Time Forecast workspace:

This workspace belongs to the DB2 Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of DB2 instances.

The workspace contains the following views:

Average Sort Time Forecast Overview

This table shows the average elapsed time for a read request. For each System, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the DB2 Average Sort Time Forecast Details workspace for that resource.

7 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Database Name, and Data. The information in the Data column is expressed in milliseconds, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

DB2 Average Sort Time Forecast Details workspace:

This detailed workspace belongs to the DB2 Performance Statistics workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace includes the following views:

Average Sort Time Forecast Details

This table shows the average elapsed time for a read request. For a given System, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, Duration, and Data.

DB2 Average Synchronous Write Time Forecast workspace:

This workspace belongs to the DB2 Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of DB2 instances.

The workspace contains the following views:

Average Synchronous Write Time Forecast Overview

This table shows the average elapsed time used to perform a synchronous write. For each System, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the DB2 Average Synchronous Write Time Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Database Name, and Data. The information in the Data column is expressed in milliseconds, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

DB2 Average Synchronous Write Time Forecast Details workspace:

This detailed workspace belongs to the DB2 Performance Statistics workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace includes the following views:

Average Synchronous Write Time Forecast Details

This table shows the average elapsed time used to perform a synchronous write. For a given System, and Database, it shows the following:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

DB2 Connected Applications Forecast workspace:

This workspace belongs to the DB2 Server Utilization workspace group. Use it to identify the forecasts for metrics that describe server resources usage.

The workspace contains the following views:

Connected Applications Forecast Overview

This table shows the number of applications currently connected to the monitored database. For each System, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.

- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the DB2 Connected Applications Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Database Name, and Data. The information in the Data column is expressed in the number of connected applications, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

DB2 Connected Applications Forecast Details workspace:

This detailed workspace belongs to the DB2 Server Utilization workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace includes the following views:

Remote Connections Forecast Details

This table shows the number of applications currently connected to the monitored database. For a given System, and Database, it shows the following details:

- Timestamp, which provides information about the date of a given measurement.
- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is

determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, Duration, and Data.

DB2 Local Connections Forecast workspace:

This workspace belongs to the DB2 Server Utilization workspace group. Use it to identify the forecasts for metrics that describe server resources usage.

The workspace contains the following views:

Local Connections Forecast Overview

This table shows the number of local applications that are currently connected to a database within the database manager instance being monitored. For each System, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the DB2 Local Connections Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, and Data. The information in the Data column is expressed in the number of local applications, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

DB2 Local Connections Forecast Details workspace:

This detailed workspace belongs to the DB2 Server Utilization workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace includes the following views:

Local Connections Forecast Details

This table shows the number of local applications that are currently connected to a database within the database manager instance being monitored. For a given System, it shows the following details:

- Timestamp, which provides information about the date of a given measurement.
- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, Duration, and Data.

DB2 Memory Usage Forecast workspace:

This workspace belongs to the DB2 Server Utilization workspace group. Use it to identify the forecasts for metrics that describe server resources usage.

The workspace contains the following views:

Memory Usage Forecast Overview

This table shows the amount (in bytes) of private memory that the instance of the database manager has committed at the time of the snapshot. For each System, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. The thresholds with zero value are not highlighted. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the DB2 Memory Usage Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, and Data. The information in the Data column is expressed in megabytes (MB), and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

DB2 Memory Usage Forecast Details workspace:

This detailed workspace belongs to the DB2 Server Utilization workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace includes the following views:

Memory Usage Forecast Details

This table shows the amount (in bytes) of private memory that the instance

of the database manager has committed at the time of the snapshot. For a given System, it shows the following details:

- Timestamp, which provides information about the date of a given measurement.
- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Instance Name, which is the instance name of the database manager.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, Duration, and Data.

DB2 Remote Connections Forecast workspace:

This workspace belongs to the DB2 Server Utilization workspace group. Use it to identify the forecasts for metrics that describe server resources usage.

The workspace contains the following views:

Remote Connections Forecast Overview

This table shows the current number of connections initiated from remote clients to the instance of the database manager that is being monitored. For each System, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a

value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.

- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the DB2 Remote Connections Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Node, System Name, and Data. The information in the Data column is expressed in the number of connections, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

DB2 Remote Connections Forecast Details workspace:

This detailed workspace belongs to the DB2 Server Utilization workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace includes the following views:

Remote Connections Forecast Details

This table shows the current number of connections initiated from remote clients to the instance of the database manager that is being monitored. For a given System, it shows the following details:

- Timestamp, which provides information about the date of a given measurement.
- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is

determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, Duration, and Data.

DB2 Table Space Size Forecast workspace:

This workspace belongs to the DB2 Server Utilization workspace group. Use it to identify the forecasts for metrics that describe server resources usage.

The workspace contains the following views:

Table Space Size Forecast Overview

This table shows the total number of the pages used. For each System, Database, and Table Space, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the DB2 Table Space Size Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Database Name, Table Space Name, and Data. The information in the Data column is expressed in megabytes (MB), and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

DB2 Table Space Size Forecast Details workspace:

This detailed workspace belongs to the DB2 Server Utilization workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace includes the following views:

Table Space Size Forecast Details

This table shows the total number of the pages used. For a given System, Database, and Table Space, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, Duration, and Data.

Reports

This section provides a summary of the predefined reports.

- DB2 Databases Forecast
- DB2 Databases Daily Status
- DB2 Instances Forecast

- DB2 Table Spaces Forecast

For installation information, see "Importing reports using the report installer" in the *IBM Tivoli Monitoring Administrator's Guide*.

Operating system

Tivoli Performance Analyzer provides historical and forecasted performance information for all of the operating systems that it supports.

Attributes

This section provides a summary of the predefined output attributes listed by attribute group.

Out-of-the-box domain attribute groups

Out-of-the-box attributes are used by predefined tasks delivered with Tivoli Performance Analyzer.

CPU Utilization LT Status

- Confidence
- Direction
- Node
- Number Of Samples
- System Name
- Strength
- Task Base OS
- Time To Warning Threshold
- Time To Critical Threshold
- Timestamp

CPU Utilization NLT Status

- Confidence
- Direction
- MAE
- MAPE
- MaxAE
- MaxAPE
- Model Type
- Node
- Normalized BIC
- Number Of Samples
- Outliers
- Processor
- R-Squared
- RMSE
- Stationary R-Squared
- Strength
- System Name
- Task Base OS

- Time To Critical Threshold
- Time To Warning Threshold
- Timestamp

CPU Utilization LT Fcast

- Data
- Duration
- Forecast Timestamp
- Node
- System Name
- Task Base OS
- Timestamp

CPU Utilization NLT Fcast

- Data
- Duration
- Forecast Timestamp
- Node
- Processor
- System Name
- Task Base OS
- Timestamp

Disk Utilization LT Status

- Confidence
- Direction
- Disk Name
- Node
- Number Of Samples
- Strength
- System Name
- Task Base OS
- Time To Warning Threshold
- Time To Critical Threshold
- Timestamp

Disk Utilization NLT Status

- Confidence
- Direction
- Disk Name
- MAE
- MAPE
- MaxAE
- MAXAPE
- Model Type
- Node

- Normalized BIC
- Number of Samples
- Outliers
- R-Squared
- RSME
- Stationary R-Squared
- Strength
- System Name
- Task Base OS
- Time To Critical Threshold
- Time To Warning Threshold
- Timestamp

Disk Utilization LT Fcast

- Data
- Disk Name
- Duration
- Forecast Timestamp
- Node
- System Name
- Task Base OS
- Timestamp

Disk Utilization NLT Fcast

- Node
- Timestamp
- System Name
- Disk Name
- Forecast Timestamp
- Duration
- Data
- Task Base OS

Mem Utilization LT Status

- Analytic Task Name
- Confidence
- Direction
- Name
- Node
- Number Of Samples
- Strength
- System
- Task Base OS
- Time To Warning Threshold
- Time To Critical Threshold
- Timestamp

Mem Utilization NLT Status

- Analytic Task Name
- Confidence
- Direction
- MAE
- MAPE
- MaxAE
- MAXAPE
- Model Type
- Node
- Normalized BIC
- Number of Samples
- Outliers
- R-Squared
- RSME
- Stationary R-Squared
- Strength
- System Name
- Task Base OS
- Time To Critical Threshold
- Time To Warning Threshold
- Timestamp

Mem Utilization LT Fcast

- Data
- Duration
- Forecast Timestamp
- Node
- System Name
- Task Base OS
- Timestamp

Mem Utilization NLT Fcast

- Data
- Duration
- Forecast Timestamp
- Node
- System Name
- Task Base OS
- Timestamp

Net Traffic In LT Status

- Confidence
- Direction
- Network Interface
- Node

- Number Of Samples
- Strength
- System Name
- Task Base OS
- Time To Warning Threshold
- Time To Critical Threshold
- Timestamp

Net Traffic In NLT Status

- Confidence
- Direction
- MAE
- MAPE
- MaxAE
- MAXAPE
- Model Type
- Network Interface
- Node
- Normalized BIC
- Number of Samples
- Outliers
- R-Squared
- RSME
- Stationary R-Squared
- Strength
- System Name
- Task Base OS
- Time To Critical Threshold
- Time To Warning Threshold
- Timestamp

Net Traffic In LT Fcast

- Data
- Duration
- Forecast Timestamp
- Network Interface
- Node
- System Name
- Task Base OS
- Timestamp

Net Traffic In LT Fcast

- Data
- Duration
- Forecast Timestamp
- Network Interface

- Node
- Task Base OS
- System Name
- Timestamp

Net Traffic Out NLT Status

- Confidence
- Direction
- Network Interface
- Number Of Samples
- Node
- Strength
- System Name
- Task Base OS
- Time To Warning Threshold
- Time To Critical Threshold
- Timestamp

Net Traffic Out LT Fcast

- Data
- Duration
- Forecast Timestamp
- Network Interface
- Node
- System Name
- Task Base OS
- Timestamp

Net Traffic Out NLT Fcast

- Data
- Duration
- Forecast Timestamp
- Network Interface
- Node
- System Name
- Task Base OS
- Timestamp

System Health

- CPU Consumption
- Memory consumption
- Memory Differential
- Node
- Page Hit Ratio
- System Name
- Timestamp

- Workload

Disk Health

- Disk Name
- Disk Space Differential
- Node
- System Name
- Timestamp

Situations

Tivoli Performance Analyzer contains the following predefined situations which are activated at startup. They are automatically installed, distributed, assigned to managed objects, and started.

CPU_Consumption

CPU_Consumption generates an alert when the managed system is attempting to consume more CPU resources than there are available.

CPU_NLT_TimeToCritTh_1W

CPU_NLT_TimeToCritTh_1W predicts, using nonlinear trending, if the monitored CPU will reach a defined critical CPU use within the next seven days, and the prediction is strong (Strength = 3). The limit is set in the analytical task and the period is set in the situation.

CPU_NLT_TimeToWarnTh_1W

CPU_NLT_TimeToWarnTh_1W predicts, using nonlinear trending, if the monitored CPU will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength >= 2). The limit is set in the analytical task and the period is set in the situation.

CPU_TimeToCriticalThreshold_1W

CPU_TimeToCriticalThreshold_1W predicts if the monitored CPU will reach a defined critical CPU use within the next seven days, and the prediction is strong (Strength = 3). The limit is set in the analytical task and the period is set in the situation.

CPU_TimeToWarningThreshold_1W

CPU_TimeToWarningThreshold_1W predicts if the monitored CPU will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength >= 2). The limit is set in the analytical task and the period is set in the situation.

Dsk_NLT_TimeToCritTh_1W

Dsk_NLT_TimeToCritTh_1W predicts, using nonlinear trending, if the monitored disk will reach a defined critical limit within the next seven days, and the prediction is strong (Strength = 3). The limit is set in the analytical task and the period is set in the situation.

Dsk_NLT_TimeToWarnTh_1W

Dsk_NLT_TimeToWarnTh_1W predicts, using nonlinear trending, if the monitored disk will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength >= 2). The limit is set in the analytical task and the period is set in the situation.

Disk_TimeToCriticalThreshold_1W

Disk_TimeToCriticalThreshold_1W predicts if the monitored disk will reach a defined critical limit within the next seven days, and the prediction is strong (Strength = 3). The limit is set in the analytical task and the period is set in the situation.

Disk_TimeToWarningThreshold_1W

Disk_TimeToWarningThreshold_1W predicts if the monitored disk will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Inbound_NLT_TimeToCritTh_1W

Inbound_NLT_TimeToCritTh_1W predicts, using nonlinear trending, if the monitored inbound traffic will reach a defined critical limit within the next seven days, and the prediction is strong (Strength = 3). The limit is set in the analytical task and the period is set in the situation.

Inbound_NLT_TimeToWarnTh_1W

Inbound_NLT_TimeToWarnTh_1W predicts, using nonlinear trending, if the monitored inbound traffic will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Inbound_TimeToCritical_1W

Inbound_TimeToCriticalThreshold_1W predicts if the monitored inbound traffic will reach a defined critical limit within the next seven days, and the prediction is strong (Strength = 3). The limit is set in the analytical task and the period is set in the situation.

Inbound_TimeToWarning_1W

Inbound_TimeToWarningThreshold_1W predicts if the monitored inbound traffic will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Mem_NLT_TimeToCritTh_1W

Mem_NLT_TimeToCritTh_1W predicts, using nonlinear trending, if the available memory will reach the defined critical limit within the next seven days, and the prediction is strong (Strength = 3). The limit is set in the analytical task and the period is set in the situation.

Mem_NLT_TimeToWarnTh_1W

Mem_NLT_TimeToWarnTh_1W predicts, using nonlinear trending, if the monitored memory will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Memory_Consumption

Memory_Consumption generates an alert when more than 80% of all memory resources are being consumed.

Memory_TimeToCritical_1W

Memory_TimeToCriticalThreshold_1W predicts if the available memory will reach the defined critical limit within the next seven days, and the prediction is strong (Strength = 3). The limit is set in the analytical task and the period is set in the situation.

Memory_TimeToWarning_1W

Memory_TimeToWarningThreshold_1W predicts if the monitored memory will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Outbound_NLT_TimeToCritTh_1W

Outbound_NLT_TimeToCritTh_1W predicts, using nonlinear trending, if the monitored outbound traffic will reach a defined critical limit within the

next seven days, and the prediction is strong (Strength = 3). The limit is set in the analytical task and the period is set in the situation.

Outbound_NLT_TimeToWarnTh_1W

Outbound_NLT_TimeToWarnTh_1W predicts, using nonlinear trending, if the monitored outbound traffic will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength >= 2). The limit is set in the analytical task and the period is set in the situation.

Outbound_TimeToCritical_1W

Outbound_TimeToCriticalThreshold_1W predicts if the monitored outbound traffic will reach a defined critical limit within the next seven days, and the prediction is strong (Strength = 3). The limit is set in the analytical task and the period is set in the situation.

Outbound_TimeToWarning_1W

Outbound_TimeToWarningThreshold_1W predicts if the monitored outbound traffic will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength >= 2). The limit is set in the analytical task and the period is set in the situation.

Page_Hit_Ratio

Page_Hit_Ratio generates an alert when the memory paging ratio exceeds 80%.

Workload

Workload generates an alert when the combined CPU and Memory Utilization exceeds 90%.

Tasks

IBM Tivoli Performance Analyzer is distributed with a number of predefined tasks that specify the data to be analyzed and the analytic calculation method to be used.

- Available Memory (Linux) Forecast
- Available Memory (UNIX) Forecast
- Available Memory (Windows) Forecast
- Available Memory NLT (Windows) Forecast
- Available Memory NLT (Linux) Forecast
- Available Memory NLT (UNIX) Forecast
- CPU Utilization (Linux) Forecast
- CPU Utilization (UNIX) Forecast
- CPU Utilization (Windows) Forecast
- CPU Utilization NLT (Windows) Forecast
- CPU Utilization NLT (Linux) Forecast
- CPU Utilization NLT (UNIX) Forecast
- Disk Utilization (Linux) Forecast
- Disk Utilization (UNIX) Forecast
- Disk Utilization (Windows) Forecast
- Disk Utilization NLT (Windows) Forecast
- Disk Utilization NLT (Linux) Forecast
- Disk Utilization NLT (UNIX) Forecast
- Network Traffic In (Linux) Forecast
- Network Traffic In (UNIX) Forecast

- Network Traffic In (Windows) Forecast
- Network Traffic In NLT (Windows) Forecast
- Network Traffic In NLT (Linux) Forecast
- Network Traffic In NLT (UNIX) Forecast
- Network Traffic Out (Linux) Forecast
- Network Traffic Out (UNIX) Forecast
- Network Traffic Out (Windows) Forecast
- Network Traffic Out NLT (Windows) Forecast
- Network Traffic Out NLT (Linux) Forecast
- Network Traffic Out NLT (UNIX) Forecast
- Available Memory Differential (Linux)
- Available Memory Differential (UNIX)
- Available Memory Differential (Windows)
- Memory Consumption (Linux)
- Memory Consumption (UNIX)
- Memory Consumption (Windows)
- CPU Consumption (Linux)
- CPU Consumption (UNIX)
- CPU Consumption (Windows)
- Disk Space Differential (Linux)
- Disk Space Differential (UNIX)
- Disk Space Differential (Windows)
- Page Hit Ratio (Linux)
- Page Hit Ratio (UNIX)
- Page Hit Ratio (Windows)
- Workload (Linux)
- Workload (UNIX)
- Workload (Windows)

Operating System workspaces

Tivoli Performance Analyzer provides historical and forecasted performance information for all the supported operating systems.

Available Memory Forecast:

This workspace provides information about the available memory forecast of your managed system. Use this information to monitor individual nodes or the system as a whole.

Description

You can determine whether available memory is trending up or down, view forecasts, and predict when warning or critical thresholds will be reached. After sufficient information is gathered you can use the forecast table views to accurately create warning threshold levels to avoid overloading your system.

Use this workspace to monitor your system's performance on available memory. The data that the monitoring agent gathers from a system is used to create

forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Available Memory** workspace provides different table views that you can use to view warning and critical threshold levels and forecasts for every monitored system. Each column in each table displays output attribute information:

- **Available Memory Forecast Overview**

This table displays forecast summary information for the monitored systems. It contains the following columns:

System Name, indicating the managed system to which the forecast applies.

Confidence, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.

Strength, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red. Strength is not calculated for nonlinear trending workspaces.

Number of Samples, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.

Time To Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Time To Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.

- **7 Day Forecast (KB)**

The **7 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies; and **Data** which displays the predicted value after 7 days.

The data in the **Data** column is displayed in kilobytes (KB).

- **30 Day Forecast**

The **30 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies, and **Data** which displays the predicted value after 30 days.

The data in the **Data** column is displayed in kilobytes (KB).

- **90 Day Forecast**

The **90 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies; and **Data** which displays the predicted value after 90 days.

The data in the **Data** column is displayed in kilobytes (KB).

From this workspace, you can link to the **Available Memory Forecast Details** workspace. This workspace displays more detailed forecast information for a particular managed system.

Available Memory Forecast Details:

This workspace shows the historic memory use of managed systems and predicts the future memory use. Use this workspace to plan when you need to update your resources to avoid overloading your system.

Description

Forecasts help you to identify the systems that require attention and when. The predefined **Available Memory Forecast Details** workspace provides the following views that predict memory use:

- **Forecast Details**

A table providing summary information about the selected node; including **System Name, Timestamp, Confidence, Strength, Number of Samples, Time to Warning Threshold**, and **Time to Critical Threshold**. Where:

- **Strength** is 1 (weak) the information is highlighted in red.
- **Confidence** is weak (less than 20%) the information is highlighted in red.
- It is between one and seven days until the warning threshold is reached, the information is highlighted in yellow.
- It is between one and seven days until the critical threshold is reached the information is highlighted in red.
- A threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted.
- An upward arrow indicates an upward trend; a downward arrow indicates a downward trend; a horizontal arrow indicates that the trend is neither rising nor falling.

- **Forecast Overlay**

Historical data from the Tivoli Data Warehouse is used for the trend calculation and is overlaid with a linear trend of the predicted forecast. The graph plots the memory use in kilobytes (y axis) against samples.

- **Forecast Predictions**

The predicted memory use expressed as kilobytes (KB) at 7, 30, and 90 days in the future. The predicted values are listed using a **Forecast Timestamp**.

The strength of the forecast is determined by the number of samples and the confidence. Strength is a discrete representation of confidence.

Link to this workspace from the **Available Memory** workspace. Click the link icon in any of the **Available Memory** table views to display this workspace.

Available Memory Non Linear Trending Forecast:

This workspace provides a nonlinear trending forecast report for overall available memory on all managed system. Use this information to monitor individual nodes or the system as a whole.

Description

You can determine whether available memory is trending up or down, view forecasts, and predict when warning or critical thresholds will be reached. After sufficient information is gathered you can use the forecast table views to accurately create warning threshold levels to avoid overloading your system.

Use this workspace to monitor your system's performance on available memory. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Available Memory Non Linear Trending Forecast** workspace provides different table views that you can use to view warning and critical threshold levels and forecasts for every monitored system. Each column in each table displays output attribute information:

- **Available Memory Non Linear Trending Forecast Overview**

This table displays forecast summary information for the monitored systems. It contains the following columns:

System Name, indicating the managed system to which the forecast applies.

Confidence, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red. Confidence can be negative, which implies that the current model is a bad fit, for reasons such as inadequate data.

Model type, which displays the name of the model used by Expert Modeler.

Number of Samples, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.

Time To Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Time To Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

- **7 Day Non Linear Trending Forecast (KB)**

The **7 Day Non Linear Trending Forecast (KB)** table contains the following columns: **System Name**, indicating the system to which the forecast applies; **Duration**, which indicates the duration of the forecast calculations; and **Data**, which displays the predicted value after 7 days.

The data in the **Data** column is displayed in kilobytes (KB).

- **30 Day Non Linear Trending Forecast (KB)**

The **30 Day Non Linear Trending Forecast (KB)** table contains the following columns: **System Name**, indicating the system to which the forecast applies; **Duration**, which indicates the duration of the forecast calculations; and **Data**, which displays the predicted value after 30 days.

The data in the **Data** column is displayed in kilobytes (KB).

- **90 Day Non Linear Trending Forecast (KB)**

The **90 Day Non Linear Trending Forecast (KB)** table contains the following columns: **System Name**, indicating the system to which the forecast applies; **Duration**, which indicates the duration of the forecast calculations; and **Data**, which displays the predicted value after 90 days.

The data in the **Data** column is displayed in kilobytes (KB).

From this workspace, you can link to the **Available Memory Non Linear Trending Details** workspace. This workspace displays more detailed forecast information for a particular managed system.

Available Memory Non Linear Trending Forecast Details:

This workspace shows nonlinear trending details for available memory on a particular managed system.

Description

Forecasts help you to identify the systems that require attention and when. The predefined **Available Memory Non Linear Trending Forecast Details** workspace provides the following views that predict memory use:

- **NLT Forecast Details**

A table providing summary information about the selected node; including **System Name**, **Timestamp**, **Confidence**, **Model Type**, **Number of Samples**, **Time to Warning Threshold**, and **Time to Critical Threshold**. Where:

- **Confidence** is weak (less than 20%) the information is highlighted in red.
- It is between one and seven days until the warning threshold is reached, the information is highlighted in yellow.
- It is between one and seven days until the critical threshold is reached the information is highlighted in red.
- A threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted.
- The threshold is beyond the scope of the calculation, Never is displayed.

- **NLT Forecast**

Historical data from the Tivoli Data Warehouse is used for the trend calculation and is completed by a nonlinear trend of the predicted forecast. The graph plots the memory use in kilobytes (y axis) against samples.

- **NLT Forecast Predictions (KB)**

The predicted memory use expressed as kilobytes (KB) at 7, 30, and 90 days in the future. The predicted values are listed using a **Forecast Timestamp**. A **Duration** column is added.

Link to this workspace from the **Available Memory Non Linear Trending Forecast** workspace. Click the link icon next to a managed system to link to this workspace.

CPU Utilization Forecast:

This workspace provides information about the CPU use of your system. Use this information to monitor individual nodes or the system as a whole.

Description

You can determine whether CPU use is trending up or down, view forecasts, and predict when warning or critical thresholds will be reached.

When CPU use is at or above 80 percent, applications on the system can become slow or stop responding completely. Use this workspace to view warning and critical threshold levels and monitor your system's CPU use. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **CPU Utilization** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every monitored system. Each column in each table displays output attribute information:

- **CPU Utilization Forecast Overview**

This table displays forecast summary information for the monitored systems. It contains the following columns:

System Name, indicating the managed system to which the forecast applies.

Confidence, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.

Strength, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red. Strength is not calculated for nonlinear trending workspaces.

Number of Samples, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.

Time To Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Time To Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.

- **7 Day Forecast**

The **7 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies; and **Data** which displays the predicted value after 7 days.

The data in the **Data** column is displayed as a percentage.

- **30 Day Forecast**

The **30 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies, and **Data** which displays the predicted value after 30 days.

The data in the **Data** column is displayed as a percentage.

- **90 Day Forecast**

The **90 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies; and **Data** which displays the predicted value after 90 days.

The data in the **Data** column is displayed as a percentage.

The icons in the **Data** column indicate:

- Less than 15% use
- ▣ Between 15% and 40% use
- ▣ Between 41% and 70% use
- ▣ Between 71% and 90% use
- Greater than 90% use

From this workspace, you can link to the **CPU Utilization Forecast Details** workspace. This workspace displays more detailed forecast information for a particular system.

CPU Utilization Forecast Details:

This workspace shows the historic CPU use of individual nodes and predicts the future CPU use. Use this workspace to plan when you need to update your resources to avoid overloading your system.

Description

Forecasts help you identify the systems that require attention and when. The predefined **CPU Utilization Forecast Details** workspace provides the following views that predict CPU use:

- **Forecast Details**

A table providing summary information about the selected node; including **System Name**, **Timestamp**, **Confidence**, **Strength**, **Number of Samples**, **Time to Warning Threshold**, and **Time to Critical Threshold**. Where:

- **Strength** is 1 (weak) the information is highlighted in red.
- **Confidence** is weak (less than 20%) the information is highlighted in red.
- It is between one and seven days until the warning threshold is reached, the information is highlighted in yellow.
- It is between one and seven days until the critical threshold is reached the information is highlighted in red.
- A threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted.

- An upward arrow indicates an upward trend; a downward arrow indicates a downward trend; a horizontal arrow indicates that the trend is neither rising nor falling.

- **Forecast Overlay**

Historical data from the Tivoli Data Warehouse is used for the trend calculation and is overlaid with a linear trend of the predicted forecast. The graph plots the percentage CPU use (x axis) against samples.

- **Forecast Predictions**

The predicted CPU use expressed as a percentage at 7, 30, and 90 days in the future. The predicted values are listed using a **Forecast Timestamp**.

The icons in the **Data** column indicate:

- Less than 15% use
- ▣ Between 15% and 40% use
- ▣ Between 41% and 70% use
- ▣ Between 71% and 90% use
- Greater than 90% use

The strength of the forecast is determined by the number of samples and the confidence. Strength is a discrete representation of confidence.

Link to this workspace from the **CPU Utilization** workspace. Click the link icon in any of the **CPU Utilization** table views to display this workspace.

CPU Utilization Nonlinear Trending Forecast:

This workspace provides a nonlinear trending forecast for CPU utilization on all managed systems.

Description

You can determine whether CPU use is trending up or down, view forecasts, and predict when warning or critical thresholds will be reached.

When CPU use is at or above 80 percent, applications on the system can become slow or stop responding completely. Use this workspace to view warning and critical threshold levels and monitor your system's CPU use. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **CPU Utilization Nonlinear Trending** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every monitored system. Each column in each table displays output attribute information:

- **CPU Utilization Nonlinear Trending Forecast Overview**

This table displays forecast summary information for the monitored systems. It contains the following columns:

- System Name**, indicating the managed system to which the forecast applies.
- Confidence**, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red. Confidence can be negative, which implies that the current model is a bad fit, for reasons such as inadequate data.

Model type, which displays the name of the model used by Expert Modeler.

Number of Samples, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.

Time To Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Time To Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Processor, which displays the processor from which data is collected and for which trends and forecasts are made.

- **7 Day Nonlinear Trending Forecast (%)**

The **7 Day Nonlinear Trending Forecast (%)** table contains the following columns: **System name**, indicating the system to which the forecast applies; **Processor**, indicating the processor to which the data applies; **Duration**, indicating the duration of the forecast calculations; and **Data**, which displays the predicted value after 7 days.

The data in the **Data** column is displayed as a percentage.

A **Duration** column indicates the duration of the forecast calculations.

- **30 Day Nonlinear Trending Forecast (%)**

The **30 Day Nonlinear Trending Forecast (%)** table contains the following columns: **System name**, indicating the system to which the forecast applies; **Processor**, indicating the processor to which the data applies; **Duration**, indicating the duration of the forecast calculations; and **Data**, which displays the predicted value after 30 days.

The data in the **Data** column is displayed as a percentage.

- **90 Day Nonlinear Trending Forecast (%)**

The **90 Day Nonlinear Trending Forecast (%)** table contains the following columns: **System name**, indicating the system to which the forecast applies; **Processor**, indicating the processor to which the data applies; **Duration**, indicating the duration of the forecast calculations; and **Data**, which displays the predicted value after 90 days.

The data in the **Data** column is displayed as a percentage.

A **Duration** column indicates the duration of the forecast calculations.

The icons in the **Data** column indicate:

- Less than 15% use
- ▣ Between 15% and 40% use
- ▣ Between 41% and 70% use
- ▣ Between 71% and 90% use
- Greater than 90% use

From this workspace, you can link to the **CPU Utilization NLT Details** workspace for Windows, Linux, and UNIX. This workspace displays more detailed forecast information for a particular system.

CPU Utilization Non Linear Trending Forecast Details:

This workspace show nonlinear trending details for CPU utilization on a particular managed system.

Description

Forecasts help you identify the systems that require attention and when. The predefined **CPU Utilization Non Linear Trending Forecast Details** workspace provides the following views that predict CPU use:

- **NLT Forecast Details**

A table providing summary information about the selected node; including **System Name**, **Timestamp**, **Confidence**, **Model Type**, **Number of Samples**, **Time to Warning Threshold**, and **Time to Critical Threshold**. Where:

- **Confidence** is weak (less than 20%) the information is highlighted in red.
- It is between one and seven days until the warning threshold is reached, the information is highlighted in yellow.
- It is between one and seven days until the critical threshold is reached the information is highlighted in red.
- A threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted.
- The threshold is beyond the scope of the calculation, Never is displayed.

- **NLT Forecast**

Historical data from the Tivoli Data Warehouse is used for the trend calculation and is completed with a nonlinear trend of the predicted forecast. The graph plots the percentage CPU use (x axis) against samples.

- **NLT Forecast Predictions (%)**

The predicted CPU use expressed as a percentage at 7, 30, and 90 days in the future. The predicted values are listed using a **Forecast Timestamp**.

The icons in the **Data** column indicate:

- Less than 15% use
- ▣ Between 15% and 40% use
- ◼ Between 41% and 70% use
- ◼ Between 71% and 90% use
- Greater than 90% use

Link to this workspace from the **CPU Utilization Non Linear Trending Forecast** workspace. Click the link icon next to a managed system to link to this workspace.

Disk Utilization Forecast:

This workspace provides information about the disk usage of your system. Use this information to monitor individual nodes or the system as a whole.

Description

You can determine whether disk usage is trending up or down, view forecasts, and predict when warning or critical thresholds will be reached.

The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Disk Utilization** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every monitored system. Each column in each table displays output attribute information:

- **Disk Utilization Forecast Overview**

This table displays forecast summary information for the monitored systems. It contains the following columns:

System Name, indicating the managed system to which the forecast applies.

Confidence, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.

Strength, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red. Strength is not calculated for nonlinear trending workspaces.

Number of Samples, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.

Time To Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Time To Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.

- **7 Day Forecast**

The **7 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies; and **Data** which displays the predicted value after 7 days.

The data in the **Data** column is displayed as a percentage.

- **30 Day Forecast**

The **30 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies, and **Data** which displays the predicted value after 30 days.

The data in the **Data** column is displayed as a percentage.

- **90 Day Forecast**

The **90 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies; and **Data** which displays the predicted value after 90 days.

The data in the **Data** column is displayed as a percentage.

All tables in the **Disk Utilization** workspace also contain a column called **Disk Name**, which indicates the disk from which data is collected and for which trends and forecasts are made.

The icons in the **Data** column indicate:

- Less than 15% use
- ▣ Between 15% and 40% use
- ▣ Between 41% and 70% use
- ▣ Between 71% and 90% use
- Greater than 90% use

From this workspace, you can link to the **Disk Utilization Forecast Details** workspace. This workspace displays more detailed forecast information for a particular system.

Disk Utilization Forecast Details:

This workspace shows the historic disk usage of individual nodes and predicts the future disk usage. Use this workspace to plan when you need to update your resources to avoid overloading your system.

Description

Forecasts help you identify the systems that require attention and when. The predefined **Disk Utilization Forecast Details** workspace provides the following views that predict disk use:

- **Forecast Details**

A table providing summary information about the selected node; including **System Name**, **Timestamp**, **Confidence**, **Strength**, **Number of Samples**, **Time to Warning Threshold**, and **Time to Critical Threshold**. Where:

- **Strength** is 1 (weak) the information is highlighted in red.
- **Confidence** is weak (less than 20%) the information is highlighted in red.
- It is between one and seven days until the warning threshold is reached, the information is highlighted in yellow.
- It is between one and seven days until the critical threshold is reached the information is highlighted in red.
- A threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted.
- An upward arrow indicates an upward trend; a downward arrow indicates a downward trend; a horizontal arrow indicates that the trend is neither rising nor falling.

- **Forecast Overlay**

Historical data from the Tivoli Data Warehouse is used for the trend calculation and is overlaid with a linear trend of the predicted forecast. The graph plots the percentage disk use (x axis) against samples.

- **Forecast Predictions**

The predicted disk use expressed as a percentage at 7, 30, and 90 days in the future. The predicted values are listed using a **Forecast Timestamp**.

The icons in the **Data** column indicate:

- Less than 15% use
- ▣ Between 15% and 40% use
- ▣ Between 41% and 70% use
- ▣ Between 71% and 90% use
- Greater than 90% use

The strength of the forecast is determined by the number of samples and the confidence. Strength is a discrete representation of confidence.

Link to this workspace from the **Disk Utilization** workspace. Click the link icon in any of the **Disk Utilization** table views to display this workspace.

Disk Utilization Non Linear Trending Forecast:

This workspace forecasts disk usage on all managed systems using nonlinear trending. Use this information to monitor individual nodes or the system as a whole.

Description

You can determine whether disk usage is trending up or down, view forecasts, and predict when warning or critical thresholds will be reached.

The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Disk Utilization Non Linear Trending Forecast** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every monitored system. Each column in each table displays output attribute information:

- **Disk Utilization Non Linear Trending Forecast Overview**

This table displays forecast summary information for the monitored systems. It contains the following columns:

System Name, indicating the managed system to which the forecast applies.

Confidence, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red. Confidence can be negative, which implies that the current model is a bad fit, for reasons such as inadequate data.

Model type, which displays the name of the model used by Expert Modeler.

Number of Samples, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.

Time To Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the

workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Time To Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

- **7 Day Non Linear Trending Forecast (%)**

The **7 Day Non Linear Trending Forecast (%)** table contains the following columns: **System Name**, indicating the system to which the forecast applies; **Disk Name**, which indicates the disk to which the forecast applies; **Duration**, which indicates the duration of the forecast calculations; and **Data**, which displays the predicted value after 7 days.

The data in the **Data** column is displayed as a percentage.

- **30 Day Non Linear Trending Forecast (%)**

The **30 Day Non Linear Trending Forecast (%)** table contains the following columns: **System Name**, indicating the system to which the forecast applies; **Disk Name**, which indicates the disk to which the forecast applies; **Duration**, which indicates the duration of the forecast calculations; and **Data**, which displays the predicted value after 30 days.

The data in the **Data** column is displayed as a percentage.

- **90 Day Non Linear Trending Forecast (%)**

The **90 Day Non Linear Trending Forecast (%)** table contains the following columns: **System Name**, indicating the system to which the forecast applies; **Disk Name**, which indicates the disk to which the forecast applies; **Duration**, which indicates the duration of the forecast calculations; and **Data**, which displays the predicted value after 90 days.

The data in the **Data** column is displayed as a percentage.

The icons in the **Data** column indicate:

- Less than 15% use
- ▣ Between 15% and 40% use
- ▣ Between 41% and 70% use
- ▣ Between 71% and 90% use
- Greater than 90% use

From this workspace, you can link to the **Disk Utilization NLT Details** workspace. This workspace displays more detailed forecast information for a particular system.

Disk Utilization Non Linear Trending Forecast Details:

This workspace predicts disk usage for a particular managed system using nonlinear trending. Use this workspace to plan when you need to update your resources to avoid overloading your system.

Description

Forecasts help you identify the systems that require attention and when. The predefined **Disk Utilization Non Linear Trending Forecast Details** workspace provides the following views that predict disk use:

- **NLT Forecast Details**

A table providing summary information about the selected node; including **System Name**, **Timestamp**, **Confidence**, **Model Type**, **Number of Samples**, **Time to Warning Threshold**, and **Time to Critical Threshold**. Where:

- **Confidence** is weak (less than 20%) the information is highlighted in red.
- It is between one and seven days until the warning threshold is reached, the information is highlighted in yellow.
- It is between one and seven days until the critical threshold is reached the information is highlighted in red.
- A threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted.
- The threshold is beyond the scope of the calculation, Never is displayed.

- **NLT Forecast**

Historical data from the Tivoli Data Warehouse is used for the trend calculation and is completed with a nonlinear trend of the predicted forecast. The graph plots the percentage disk use (x axis) against samples.

- **NLT Forecast Predictions (%)**

The predicted disk use expressed as a percentage at 7, 30, and 90 days in the future. The predicted values are listed using a **Forecast Timestamp**.

The icons in the **Data** column indicate:

- Less than 15% use
- ▣ Between 15% and 40% use
- ◼ Between 41% and 70% use
- ◼ Between 71% and 90% use
- Greater than 90% use

Link to this workspace from the **Disk Utilization Non Linear Trending Forecast** workspace. Click the link icon next to a managed system to display this workspace.

Inbound Network Traffic Forecast:

This workspace provides information about the inbound network traffic of your system. Use this workspace to identify trends in the use of network applications, such as Web servers, databases, and e-mail servers over time.

Description

The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Inbound Network Traffic** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every monitored system. Each column in each table displays output attribute information:

- **Inbound Network Traffic Forecast Overview**

This table displays forecast summary information for the monitored systems. It contains the following columns:

System Name, indicating the managed system to which the forecast applies.

Confidence, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.

Strength, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red. Strength is not calculated for nonlinear trending workspaces.

Number of Samples, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.

Time To Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Time To Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.

- **7 Day Forecast**

The **7 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies; and **Data** which displays the predicted value after 7 days.

The data in the **Data** column is displayed in packets per second.

- **30 Day Forecast**

The **30 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies, and **Data** which displays the predicted value after 30 days.

The data in the **Data** column is displayed in packets per second.

- **90 Day Forecast**

The **90 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies; and **Data** which displays the predicted value after 90 days.

The data in the **Data** column is displayed in packets per second.

All tables in the Network Traffic workspaces also contain a column called **Network Interface**, which lists the name of the network interface from which data is collected and for which trends and forecasts are made.

From this workspace, you can link to the **Inbound Network Traffic Forecast Details** workspace. This workspace displays more detailed forecast information for a particular system.

Inbound Network Traffic Forecast Details:

This workspace predicts the volume of inbound network traffic on a monitored system. Use this workspace to plan when you need to update your resources to avoid overloading the system.

Description

Forecasts help you identify the systems that require attention and when. The predefined **Inbound Network Traffic Forecast Details** workspace provides the following views that predict the volume of inbound traffic:

- **Forecast Details**

A table providing summary information about the selected node; including **System Name**, **Network Interface**, **Timestamp**, **Confidence**, **Strength**, **Number of Samples**, **Time to Warning Threshold**, and **Time to Critical Threshold**.

Where:

- **Strength** is 1 (weak) the information is highlighted in red.
- **Confidence** is weak (less than 20%) the information is highlighted in red.
- It is between one and seven days until the warning threshold is reached, the information is highlighted in yellow.
- It is between one and seven days until the critical threshold is reached the information is highlighted in red.
- A threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted.
- An upward arrow indicates an upward trend; a downward arrow indicates a downward trend; a horizontal arrow indicates that the trend is neither rising nor falling.

- **Forecast Overlay**

Historical data from the Tivoli Data Warehouse is used for the trend calculation and is overlaid with a linear trend of the predicted forecast. The graph plots the number of packets per second (x axis) against samples.

- **Forecast Predictions**

The predicted volume of inbound traffic in packets per second at 7, 30, and 90 days in the future. The predicted values are listed using a **Forecast Timestamp**.

The strength of the forecast is determined by the number of samples and the confidence. Strength is a discrete representation of confidence.

Link to this workspace from the **Inbound Network Traffic** workspace. Click the link icon in any of the **Inbound Network Traffic** table views to display this workspace.

Inbound Network Traffic Non Linear Trending Forecast:

This workspace provides a nonlinear trending forecast for volume of inbound network traffic on all managed systems. Use this workspace to identify trends in the use of network applications, such as Web servers, databases, and e-mail servers over time.

Description

The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Inbound Network Traffic Non Linear Trending Forecast** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every monitored system. Each column in each table displays output attribute information:

- **Inbound Network Traffic Non Linear Forecast Overview**

This table displays forecast summary information for the monitored systems. It contains the following columns:

System Name, indicating the managed system to which the forecast applies.

Confidence, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red. Confidence can be negative, which implies that the current model is a bad fit, for reasons such as inadequate data.

Model type, which displays the name of the model used by Expert Modeler.

Number of Samples, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.

Time To Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Time To Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.

- **7 Day Non Linear Trending Forecast (Packets/sec)**

The **7 Day Non Linear Trending Forecast (Packets/sec)** table contains the following columns: **System Name**, indicating the system to which the forecast applies; **Network Interface**, which lists the name of the network interface from which data is collected and for which trends and forecasts are made; **Duration**, which indicates the duration of the forecast calculations; and **Data**, which displays the predicted value after 7 days.

The data in the **Data** column is displayed in packets per second.

- **30 Day Non Linear Trending Forecast (Packets/sec)**

The **30 Day Non Linear Trending Forecast (Packets/sec)** table contains the following columns: **System Name**, indicating the system to which the forecast applies; **Network Interface**, which lists the name of the network interface from which data is collected and for which trends and forecasts are made; **Duration**, which indicates the duration of the forecast calculations; and **Data**, which displays the predicted value after 30 days.

The data in the **Data** column is displayed in packets per second.

- **90 Day Non Linear Trending Forecast (Packets/sec)**

The **90 Day Non Linear Trending Forecast (Packets/sec)** table contains the following columns: **System Name**, indicating the system to which the forecast applies; **Network Interface**, which lists the name of the network interface from which data is collected and for which trends and forecasts are made; **Duration**, which indicates the duration of the forecast calculations; and **Data**, which displays the predicted value after 90 days.

The data in the **Data** column is displayed in packets per second.

From this workspace, you can link to the **Inbound Network Traffic NLT Details** workspace. This workspace displays more detailed forecast information for a particular system.

Inbound Network Traffic Non Linear Trending Forecast Details:

This workspace provides a nonlinear trending forecast for volume of inbound network traffic for a particular managed system monitored by a Windows OS agent. Use this workspace to plan when you need to update your resources to avoid overloading the system.

Description

Forecasts help you identify the systems that require attention and when. The predefined **Inbound Network Traffic Non Linear Trending Forecast Details** workspace provides the following views that predict the volume of inbound traffic:

- **NLT Forecast Details**

A table providing summary information about the selected node; including **System Name**, **Network Interface**, **Timestamp**, **Confidence**, **Number of Samples**, **Time to Warning Threshold**, and **Time to Critical Threshold**. Where:

- **Confidence** is weak (less than 20%) the information is highlighted in red.
- It is between one and seven days until the warning threshold is reached, the information is highlighted in yellow.
- It is between one and seven days until the critical threshold is reached the information is highlighted in red.
- A threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted.
- The threshold is beyond the scope of the calculation, Never is displayed.

- **NLT Forecast**

Historical data from the Tivoli Data Warehouse is used for the trend calculation and is completed with a nonlinear trend of the predicted forecast. The graph plots the number of packets per second (x axis) against samples.

- **NLT Forecast Predictions (%)**

The predicted volume of inbound traffic in packets per second at 7, 30, and 90 days in the future. The predicted values are listed using a **Forecast Timestamp**.

The strength of the forecast is determined by the number of samples and the confidence. Strength is a discrete representation of confidence.

Link to this workspace from the **Inbound Network Traffic Non Linear Trending Forecast** workspace. Click the link icon next to a Linux managed system to display this workspace.

Outbound Network Traffic Forecast:

This workspace provides information about the outbound network traffic of your system. Use this workspace to identify trends in the use of network applications, such as databases, and Internet and e-mail servers over time.

Description

The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Outbound Network Traffic** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every monitored system. Each column in each table displays output attribute information:

- **Outbound Network Traffic Forecast Overview**

This table displays forecast summary information for the monitored systems. It contains the following columns:

System Name, indicating the managed system to which the forecast applies.

Confidence, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.

Strength, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red. Strength is not calculated for nonlinear trending workspaces.

Number of Samples, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.

Time To Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Time To Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace.

The threshold value is determined by the associated task and the notification period is determined by the associated situation.

An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.

- **7 Day Forecast**

The **7 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies; and **Data** which displays the predicted value after 7 days.

The data in the **Data** column is displayed in packets per second.

- **30 Day Forecast**

The **30 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies, and **Data** which displays the predicted value after 30 days.

The data in the **Data** column is displayed in packets per second.

- **90 Day Forecast**

The **90 Day Forecast (KB)** table contains the following columns: **System name**, indicating the system to which the forecast applies; and **Data** which displays the predicted value after 90 days.

The data in the **Data** column is displayed in packets per second.

All tables in the Network Traffic workspaces also contain a column called **Network Interface**, which lists the name of the network interface from which data is collected and for which trends and forecasts are made.

From this workspace, you can link to the **Outbound Network Traffic Forecast Details** workspace. This workspace displays more detailed forecast information for a particular system.

Outbound Network Traffic Forecast Details:

This workspace predicts the volume of outbound network traffic on your system. Use this workspace to plan when you need to update your resources to avoid overloading your system.

Description

Forecasts help you identify the systems that require attention and when. The predefined **Outbound Network Traffic Forecast Details** workspace provides the following views that predict the volume of outbound traffic:

- **Forecast Details**

A table providing summary information about the selected node; including **System Name**, **Network Interface**, **Timestamp**, **Confidence**, **Strength**, **Number of Samples**, **Time to Warning Threshold**, and **Time to Critical Threshold**.

Where:

- **Strength** is 1 (weak) the information is highlighted in red.
- **Confidence** is weak (less than 20%) the information is highlighted in red.
- It is between one and seven days until the warning threshold is reached, the information is highlighted in yellow.
- It is between one and seven days until the critical threshold is reached the information is highlighted in red.

- A threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted.
- An upward arrow indicates an upward trend; a downward arrow indicates a downward trend; a horizontal arrow indicates that the trend is neither rising nor falling.

- **Forecast Overlay**

Historical data from the Tivoli Data Warehouse is used for the trend calculation and is overlaid with a linear trend of the predicted forecast. The graph plots the number of packets per second (x axis) against samples.

- **Forecast Predictions**

The predicted volume of outbound traffic in packets per second at 7, 30, and 90 days in the future. The predicted values are listed using a **Forecast Timestamp**.

The strength of the forecast is determined by the number of samples and the confidence. Strength is a discrete representation of confidence.

Link to this workspace from the **Outbound Network Traffic** workspace. Click the link icon in any of the **Outbound Network Traffic** table views to display this workspace.

OutBound Network Traffic Non Linear Trending Forecast:

This workspace provides a nonlinear trending forecast report for overall volume of outbound network traffic for all managed systems. Use this workspace to identify trends in the use of network applications, such as databases, and Internet and e-mail servers over time.

Description

The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **OutBound Network Traffic Non Linear Trending Forecast** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every monitored system. Each column in each table displays output attribute information:

- **Outbound Network Traffic Non Linear Trending Forecast Overview**

This table displays forecast summary information for the monitored systems. It contains the following columns:

System Name, indicating the managed system to which the forecast applies.

Confidence, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red. Confidence can be negative, which implies that the current model is a bad fit, for reasons such as inadequate data.

Model type, which displays the name of the model used by Expert Modeler.

Number of Samples, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.

Time To Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast

values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Time To Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted. When the threshold is not reached by the forecast values, then time to Critical Threshold is set to INFINITE = NEVER on the workspace. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.

- **7 Day Non Linear Trending Forecast (Packets/sec)**

The **7 Day Non Linear Trending Forecast (Packets/sec)** table contains the following columns: **System Name**, indicating the system to which the forecast applies; **Network Interface**, which lists the name of the network interface from which data is collected and for which trends and forecasts are made; **Duration**, which indicates the duration of the forecast calculations; and **Data**, which displays the predicted value after 7 days.

The data in the **Data** column is displayed in packets per second.

- **30 Day Non Linear Trending Forecast (Packets/sec)**

The **30 Day Non Linear Trending Forecast (Packets/sec)** table contains the following columns: **System Name**, indicating the system to which the forecast applies; **Network Interface**, which lists the name of the network interface from which data is collected and for which trends and forecasts are made; **Duration**, which indicates the duration of the forecast calculations; and **Data**, which displays the predicted value after 30 days.

The data in the **Data** column is displayed in packets per second.

- **90 Day Non Linear Trending Forecast (Packets/sec)**

The **90 Day Non Linear Trending Forecast (Packets/sec)** table contains the following columns: **System Name**, indicating the system to which the forecast applies; **Network Interface**, which lists the name of the network interface from which data is collected and for which trends and forecasts are made; **Duration**, which indicates the duration of the forecast calculations; and **Data**, which displays the predicted value after 90 days.

The data in the **Data** column is displayed in packets per second.

From this workspace, you can link to the **OutBound Network Traffic NLT Details** workspace. This workspace displays more detailed forecast information for a particular system.

OutBound Network Traffic Non Linear Trending Forecast Details:

This workspace provides a nonlinear trending forecast for the volume of outbound network traffic on a particular managed system monitored by a Linux OS agent. Use this workspace to plan when you need to update your resources to avoid overloading your system.

Description

Forecasts help you identify the systems that require attention and when. The predefined **OutBound Network Traffic Non Linear Trending Forecast Details** workspace provides the following views that predict the volume of outbound traffic:

- **Forecast Details**

A table providing summary information about the selected node; including **System Name, Network Interface, Timestamp, Confidence, Number of Samples, Time to Warning Threshold, and Time to Critical Threshold**. Where:

- **Confidence** is weak (less than 20%) the information is highlighted in red.
- It is between one and seven days until the warning threshold is reached, the information is highlighted in yellow.
- It is between one and seven days until the critical threshold is reached the information is highlighted in red.
- A threshold is zero, the threshold has been passed. Thresholds with a value of zero are not highlighted.
- The threshold is beyond the scope of the calculation, Never is displayed.

- **Forecast Overlay**

Historical data from the Tivoli Data Warehouse is used for the trend calculation and is completed with a nonlinear trend of the predicted forecast. The graph plots the number of packets per second (x axis) against samples.

- **Forecast Predictions**

The predicted volume of outbound traffic in packets per second at 7, 30, and 90 days in the future. The predicted values are listed using a **Forecast Timestamp**.

The strength of the forecast is determined by the number of samples and the confidence. Strength is a discrete representation of confidence.

Link to this workspace from the **OutBound Network Traffic Non Linear Trending Forecast** workspace. Click the link icon on a managed system to display this workspace.

System Health:

This workspace provides information about the health of your system. You can determine how much of a resource is being consumed, whether consumption fluctuates or is steady, and how hard the system is working. The situations applied to this workspace highlight whenever a critical or warning threshold is reached. Use the information in this workspace to manage the capacity of managed systems.

Description

Knowing when resource consumption is high and whether the consumption is steady or fluctuates enables you to know when to re-allocate resources or add new resources. For example, if the consumption is continuously high you may want to consider adding resources; if the consumption fluctuates you may decide to re-allocate resources to those times when consumption is high.

The predefined **System Health** workspace provides five different views that enable you to view the health of monitored systems. Each column in each table displays output attribute information:

- **System Health Overview**

The **System Health Overview** table summarizes the CPU, memory, paging, and workload information for all systems that you are monitoring. This table contains the following columns: **System Name**, which identifies the system being summarized; **CPU Consumption**, indicating CPU use and how it is being used; **Memory Consumption** a percentage indicating how much virtual memory is being used and allocated; **Memory Differential**, indicating how much the memory use has changed in megabytes (MB); **Page Hit Ratio**, indicating the ratio of pages read from memory to pages read from disk; and **Workload**, a percentage that shows how hard the system is working.

The icons in each column indicate the health of that attribute. You can view the predefined thresholds in the **Properties** editor. Table 1 summarizes the predefined System Health indicator thresholds.

Table 1. System Health indicator thresholds

Attribute	🟢 Good	🟡 Marginal	🔴 Bad
CPU Consumption	< 80%	80-105%	> 105%
Memory Consumption	< 70%	70-85%	> 85%
Memory Differential	< 300000 MB	300000-500000 MB	> 500000 MB
Page Hit Ratio	< 60%	60-80%	> 80%
Workload	< 60%	60-80%	> 80%

Click the link icon to view more detailed information for a specific system.

- **Disk Health Overview**

The **Disk Health Overview** table displays the disk space differential of the monitored systems over a 24 hour period. This table contains the following columns: **System Name**, which identifies the system being summarized; **Disk Name**, identifying the monitored disk; **Disk Space Differential**, indicating how much the disk use has fluctuated over 24 hours.

- **Top 10 CPU Consumers**

A bar chart showing the ten systems that are using the most CPU.

- **Top 10 Memory Consumers**

A bar chart showing the ten systems that are using the most memory.

- **Top 10 Daily Disk Space Deltas**

A bar chart showing the ten systems that are using the most disk space.

From this workspace, you can link to the **System Health Details** workspace. This workspace displays the information summarized in the **System Health Overview** graphically.

System Health Details:

This workspace provides information about the health of a specific system. You can determine how much CPU and memory is consumed, the page hit ratio, how hard the system is working, and the difference between minimum and maximum memory use.

Description

The predefined System Health Detail workspace provides detailed, graphical information for a specific system.

Use the following views to monitor your system:

- **CPU Consumption**

The **CPU Consumption** graph displays the total CPU consumption of the system against time. The data is determined by the **CPU Consumption** predefined task. This task combines CPU Utilization and Run Queue Length.

- **Workload**

The **Workload** graph displays the workload of the system against time. The data is determined by the **Workload** predefined task. This task calculates how much of its resources a managed system is using by combining CPU Utilization, and virtual memory used and allocated. The higher the value, the more resources the system is using.

- **Memory Consumption**

The **Memory Consumption** graph displays the total memory consumption of the system against time. The data is determined by the **Memory Consumption** predefined task. This task combines virtual memory used and allocated.

- **Page Ratio**

The **Page Ratio** graph displays the ratio of pages read from memory to pages read from disk. The data is determined by the **Page Hit Ratio** predefined task. This task applies a ratio calculation to Pages Read and Page Faults per second.

- **Daily Memory Differential**

The **Daily Memory Differential** graph displays the memory use differential against time. The data is determined by the **Available Memory Differential** predefined task. This task calculates the difference between maximum and minimum memory use during the day.

You can link to this workspace from the **System Health Overview** summary in the **System Health** workspace.

Reports

This section provides a summary of the predefined reports.

- Overall System Health Report
- Available Memory Utilization Forecast
- CPU Workload Forecast
- Outbound Network Traffic Forecast
- Inbound Network Traffic Forecast
- Hard Disk Utilization Forecast

For installation information, see "Importing reports using the report installer" in the *IBM Tivoli Monitoring Administrator's Guide*.

Oracle

Tivoli Performance Analyzer Oracle domain provides historical and forecasted performance information.

Attributes

This section provides a summary of the predefined output attributes listed by attribute group.

Out-of-the-box domain attribute groups

Out-of-the-box attributes are used by predefined tasks delivered with Tivoli Performance Analyzer.

Oracle DB LT Status

- Node
- Timestamp
- System Name
- Confidence
- Direction
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Task Base OS
- Database Name
- Server
- Trend Attribute

Oracle DB LT Fcast

- Node
- Timestamp
- System Name
- Forecast Timestamp
- Duration
- Data
- Task Base OS
- Database Name
- Server
- Trend Attribute

Oracle NS LT Status

- Node
- Timestamp
- System Name
- Confidence
- Direction
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Task Base OS
- Database Name
- Server
- Trend Attribute
- Namespace

Oracle NS LT Fcast

- Node
- Timestamp

- System Name
- Forecast Timestamp
- Duration
- Data
- Task Base OS
- Database Name
- Server
- Trend Attribute
- Namespace

Oracle TS LT Status

- Node
- Timestamp
- System Name
- Confidence
- Direction
- Strength
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Task Base OS
- Database Name
- Server
- Trend Attribute
- Table Space Name

Oracle TS LT Fcast

- Node
- Timestamp
- System Name
- Forecast Timestamp
- Duration
- Data
- Task Base OS
- Database Name
- Server
- Trend Attribute
- Table Space Name

Oracle DB Result

- Node
- Timestamp
- System Name
- Database Name
- Daily Oracle Max CPU Utilization

- Daily DB Size Deltas
- Daily Max Sessions Wait On Lock
- Daily Max Active Sessions
- Server

Situations

Tivoli Performance Analyzer contains the following predefined situations which are activated at startup. They are automatically installed, distributed, assigned to managed objects, and started.

Oracle_Active_Sessions_Crit_1W

Oracle_Active_Sessions_Crit_1W predicts if the monitored active session will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Oracle_Active_Sessions_Warn_1W

Oracle_Active_Sessions_Warn_1W predicts if the monitored active session will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Oracle_Arch_Free_Space_Crit_1W

Oracle_Arch_Free_Space_Crit_1W predicts if the monitored archive free space will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Oracle_Arch_Free_Space_Warn_1W

Oracle_Arch_Free_Space_Warn_1W predicts if the monitored archive free space will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Oracle_Lib_Tot_Exec_Hit_Crit_1W

Oracle_Lib_Tot_Exec_Hit_Crit_1W predicts if the monitored total execution hit will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Oracle_Lib_Tot_Exec_Hit_Warn_1W

Oracle_Lib_Tot_Exec_Hit_Warn_1W predicts if the monitored total execution hit will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Oracle_Lib_Tot_Get_Hit_Crit_1W

Oracle_Lib_Tot_Get_Hit_Crit_1W predicts if the monitored total get hit will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Oracle_Lib_Tot_Get_Hit_Warn_1W

Oracle_Lib_Tot_Get_Hit_Warn_1W predicts if the monitored total get hit will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Oracle_Server_CPU_Critical_1W

Oracle_Server_CPU_Critical_1W predicts if the monitored server CPU

utilization will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Oracle_Server_CPU_Warning_1W

Oracle_Server_CPU_Warning_1W predicts if the monitored server CPU utilization will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Oracle_Ses_Wait_on_Lock_Crit_1W

Oracle_Ses_Wait_on_Lock_Crit_1W predicts if the monitored locked sessions will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Oracle_Ses_Wait_on_Lock_Warn_1W

Oracle_Ses_Wait_on_Lock_Warn_1W predicts if the monitored locked sessions will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Oracle_Total_DB_Size_Crit_1W

Oracle_Total_DB_Size_Crit_1W predicts if the monitored total DB size will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Oracle_Total_DB_Size_Warn_1W

Oracle_Total_DB_Size_Warn_1W predicts if the monitored total DB size will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Oracle_Total_OS_CPU_Critical_1W

Oracle_Total_OS_CPU_Critical_1W predicts if the monitored total OS CPU will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Oracle_Total_OS_CPU_Warning_1W

Oracle_Total_OS_CPU_Warning_1W predicts if the monitored total OS CPU will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Tasks

IBM Tivoli Performance Analyzer is distributed with a number of predefined tasks that specify the data to be analyzed and the analytic calculation method to be used.

- Oracle Daily DB Size Deltas
- Oracle Daily Maximum CPU Utilization
- Oracle Daily Maximum Number of Active Sessions
- Oracle Daily Maximum Number of Sessions Waiting on Lock
- Oracle Total Execution Hit Percentage Forecast
- Oracle Total Get Hit Percentage Forecast
- Oracle Execution Hit Percentage (for namespaces) Forecast
- Oracle Get Hit Percentage (for namespaces) Forecast

- Oracle Data Cache Hit Percentage Forecast
- Oracle Sort Disk Percentage Forecast
- Oracle Logical Reads Forecast
- Oracle Physical Reads Forecast
- Oracle Physical Writes Forecast
- Oracle Number of Transactions Forecast
- Oracle Rows Sorted Forecast
- Oracle Active Sessions Forecast
- Oracle Total Sessions Forecast
- Oracle Sessions Waiting on Lock Forecast
- Oracle CPU Utilization Forecast
- Oracle Total CPU Utilization
- Oracle Archive Free Space Forecast
- Oracle DB Size Forecast
- Oracle Table Space Size Forecast

Oracle workspaces

Tivoli Performance Analyzer Oracle domain provides historical and forecasted performance information.

Oracle Execution Hit Percentage (for namespaces) Forecast workspace:

This workspace belongs to the Oracle Cache Statistics workspace group. Use it to identify the forecasts for cache statistics for Oracle instances and namespaces.

The workspace contains the following views:

Execution Hit Percentage Forecast Overview

This table shows the percentage of times the system found objects already allocated and initialized in the cache. For each System, Server, Database, and Namespace, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is

also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Execution Hit Percentage (for namespaces) Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, Namespace, and Data. The information in the Data column is expressed in percents, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Execution Hit Percentage (for namespaces) Forecast Details workspace:

This detailed workspace belongs to the Oracle Cache Statistics workspace group. Use it to identify the forecasts for cache statistics for Oracle instances and namespaces.

The workspace contains the following views:

Execution Hit Percentage Forecast Overview Details

This table shows the percentage of times the system found objects already allocated and initialized in the cache. For a given System, Server, Database, and Namespace, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are

presented for the next 7, 30, and 90 days. The table includes System Name, Server, Database Name, Namespace, Duration, and Data.

Oracle Get Hit Percentage (for namespaces) Forecast workspace:

This workspace belongs to the Oracle Cache Statistics workspace group. Use it to identify the forecasts for cache statistics for Oracle instances and namespaces.

The workspace contains the following views:

Get Hit Percentage Forecast Overview

This table shows the percentage of requests that accesses objects in the library cache. For each System, Server, Database, and Namespace, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Get Hit Percentage (for namespaces) Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, Namespace, and Data. The information in the Data column is expressed in percents, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Get Hit Percentage (for namespaces) Forecast Details workspace:

This detailed workspace belongs to the Oracle Cache Statistics workspace group. Use it to identify the forecasts for cache statistics for Oracle instances and namespaces.

The workspace contains the following views:

Get Hit Percentage Forecast Overview Details

This table shows the percentage of requests that accesses objects in the library cache. For a given System, Server, Database, and Namespace, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Server, Database Name, Namespace, Duration, and Data.

Oracle Total Execution Hit Percentage Forecast workspace:

This workspace belongs to the Oracle Cache Statistics workspace group. Use it to identify the forecasts for cache statistics for Oracle instances and namespaces.

The workspace contains the following views:

Total Execution Hit Percentage Forecast Overview

This table shows the percentage of get requests that accessed initialized objects in the library cache. For each System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.

- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Total Execution Hit Percentage Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, and Data. The information in the Data column is expressed in percents, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Total Execution Hit Percentage Forecast Details workspace:

This detailed workspace belongs to the Oracle Cache Statistics workspace group. Use it to identify the forecasts for cache statistics for Oracle instances and namespaces.

The workspace contains the following views:

Total Execution Hit Percentage Forecast Overview Details

This table shows the percentage of get requests that accessed initialized objects in the library cache. For a given System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Server, Database Name, Duration, and Data.

Oracle Total Get Hit Percentage Forecast workspace:

This workspace belongs to the Oracle Cache Statistics workspace group. Use it to identify the forecasts for cache statistics for Oracle instances and namespaces.

The workspace contains the following views:

Total Get Hit Percentage Forecast Overview

This table shows the percentage of get requests that accessed objects in the library cache in the interval. For each System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Total Get Hit Percentage Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, and Data. The information in the Data column is expressed in percents, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Total Get Hit Percentage Forecast Details workspace:

This detailed workspace belongs to the Oracle Cache Statistics workspace group. Use it to identify the forecasts for cache statistics for Oracle instances and namespaces.

The workspace contains the following views:

Total Get Hit Percentage Forecast Overview Details

This table shows the percentage of get requests that accessed objects in the library cache in the interval. For a given System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Server, Database Name, Duration, and Data.

Oracle Daily Status workspace:

This is a status-type workspace, which shows the metrics that can be used to analyze system behavior over time. It shows the most current derived attributes for all resources.

The workspace contains the following views:

Status Overview Daily

The scope of this table is Server, and each record contains all derived attributes for the Oracle. For each System, Server, and Database, it shows the following attributes:

- Daily Oracle Max CPU Utilization, shows the maximum percentage of CPU used by the system and application processes for the server instance.
- Daily DB Size Deltas, shows the difference between the maximum and minimum number of megabytes (MB) allocated for the database.
- Daily Max Active Sessions, shows the maximum number of sessions with the active status.
- Daily Max Sessions Wait on Lock, shows the maximum number of sessions that are waiting for locks to be released.

In addition to the table, the workspace contains four charts that present Top 10 values of a given derived attribute:

- Top 10 Oracle Max CPU Utilization Daily
- Top 10 DB Size Deltas Daily
- Top 10 Max Sessions Waiting on Lock Daily
- Top 10 Max Active Sessions Daily

Oracle Active Sessions Forecast workspace:

This workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Active Sessions Forecast Overview

This table shows the number of sessions with the active status. For each System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less

than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Active Sessions Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, and Data. The information in the Data column is expressed in the number of active sessions, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Active Sessions Forecast Details workspace:

This detailed workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Active Sessions Forecast Overview Details

This table shows the number of sessions with the active status. For a given System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Database Name, Server, Duration, and Data.

Oracle Data Cache Hit Percentage Forecast workspace:

This workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Data Cache Hit Percentage Forecast Overview

This table shows the percentage of all requests for data that were hits during the current interval. For each System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Data Cache Hit Percentage Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, and Data. The information in the Data column is expressed in percents, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Data Cache Hit Percentage Forecast Details workspace:

This detailed workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Data Cache Hit Percentage Forecast Overview Details

This table shows the percentage of all requests for data that were hits during the current interval. For a given System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Database Name, Server, Duration, and Data.

Oracle Logical Reads Forecast workspace:

This workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Logical Reads Forecast Overview

This table shows the average number of logical reads per second performed by the sessions during the current interval. For each System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.

- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Logical Reads Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, and Data. The information in the Data column is expressed in the number of logical reads per second, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Logical Reads Forecast Details workspace:

This detailed workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Logical Reads Forecast Overview Details

This table shows the average number of logical reads per second performed by the sessions during the current interval. For a given System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Database Name, Server, Duration, and Data.

Oracle Number of Transactions Forecast workspace:

This workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Number of Transactions Forecast Overview

This table shows the average number of transactions per second during the current interval. For each System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Number of Transactions Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, and Data. The information in the Data column is expressed in the number of transactions per second, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Number of Transactions Forecast Details workspace:

This detailed workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Number of Transactions Forecast Overview Details

This table shows the average number of transactions per second during the current interval. For a given System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Database Name, Server, Duration, and Data.

Oracle Physical Reads Forecast workspace:

This workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Physical Reads Forecast Overview

This table shows the average number of physical reads per second performed by the sessions during the current interval. For each System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Physical Reads Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, and Data. The information in the Data column is expressed in the number of physical reads per second, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Physical Reads Forecast Details workspace:

This detailed workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Physical Reads Forecast Overview Details

This table shows the average number of physical reads per second performed by the sessions during the current interval. For a given System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.

- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Database Name, Server, Duration, and Data.

Oracle Physical Writes Forecast workspace:

This workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Physical Writes Forecast Overview

This table shows the average number of physical writes per second performed by the sessions during the current interval. For each System, Server, and Database, it shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Physical Writes Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, and Data. The information in the Data column is expressed in the number of physical writes per second, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Physical Writes Forecast Details workspace:

This detailed workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Physical Writes Forecast Overview Details

This table shows the average number of physical writes per second performed by the sessions during the current interval. For a given System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis

depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Database Name, Server, Duration, and Data.

Oracle Rows Sorted Forecast workspace:

This workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Rows Sorted Forecast Overview

This table shows the average number of rows sorted per second during the current interval. For each System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Rows Sorted Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, and Data. The information in the Data column is expressed in the number of rows sorted per second, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Rows Sorted Forecast Details workspace:

This detailed workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Oracle Rows Sorted Forecast Overview Details

This table shows the average number of rows sorted per second during the current interval. For a given System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Database Name, Server, Duration, and Data.

Oracle Sort Disk Percentage Forecast workspace:

This workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Sort Disk Percentage Forecast Overview

This table shows the percentage of sorts that required a disk during the current interval. For each System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.

- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Sort Disk Percentage Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, and Data. The information in the Data column is expressed in percents, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Sort Disk Percentage Forecast Details workspace:

This detailed workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Sort Disk Percentage Forecast Overview Details

This table shows the percentage of sorts that required a disk during the current interval. For a given System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is

determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Database Name, Server, Duration, and Data.

Oracle Sessions Waiting on Lock Forecast workspace:

This workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Sessions Waiting on Lock Forecast Overview

This table shows the number of sessions that are waiting for locks to be released. For each System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Sessions Waiting on Lock Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, and Data. The information in the Data column is expressed in the number of locked sessions, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Sessions Waiting on Lock Forecast Details workspace:

This detailed workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Sessions Waiting on Lock Forecast Overview Details

This table shows the number of sessions that are waiting for locks to be released. For a given System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Database Name, Server, Duration, and Data.

Oracle Total Sessions Forecast workspace:

This workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Total Sessions Forecast Overview

This table shows the number of sessions that are connected from the server instance. For each System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Oracle Total Sessions Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Server, Database Name, and Data. The information in the Data column is expressed in the number of sessions, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Oracle Total Sessions Forecast Details workspace:

This detailed workspace belongs to the Oracle Performance Statistics workspace group. Use it to identify the forecasts for performance metrics of Oracle instances.

The workspace contains the following views:

Total Sessions Forecast Overview Details

This table shows the number of sessions that are connected from the server instance. For a given System, Server, and Database, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes System Name, Database Name, Server, Duration, and Data.

Reports

This section provides a summary of the predefined reports.

- Oracle Databases Forecast
- Oracle Table Spaces Forecast
- Oracle Databases Daily Status
- Oracle Namespaces Forecast

For installation information, see "Importing reports using the report installer" in the *IBM Tivoli Monitoring Administrator's Guide*.

System pSeries

Tivoli Performance Analyzer System p[®] Series domain provides historical and forecasted performance information.

Attributes

This section provides a summary of the predefined output attributes listed by attribute group.

Out-of-the-box domain attribute groups

Out-of-the-box attributes are used by predefined tasks delivered with Tivoli Performance Analyzer.

SystemP Logic Part LT Status

- Node
- Timestamp
- System Name
- Attribute Name
- Agent Type
- Confidence
- Direction
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold

SystemP Logic Part LT Fcast

- Node
- Timestamp
- System Name
- Attribute Name
- Agent Type
- Forecast Timestamp
- Duration
- Data

SystemP Networking LT Status

- Node
- Timestamp
- System Name
- Adapter Name
- Attribute Name
- Confidence
- Direction
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold

SystemP Networking LT Fcast

- Node
- Timestamp
- System Name
- Adapter Name
- Attribute Name
- Forecast Timestamp
- Duration
- Data

SystemP Storage LT Status

- Node
- Timestamp
- System Name
- Device Name
- Parent Device
- Attribute Name
- Confidence
- Direction
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold

SystemP Storage LT Fcast

- Node
- Timestamp
- System Name
- Device Name
- Parent Device
- Attribute Name
- Forecast Timestamp
- Duration
- Data

Situations

Tivoli Performance Analyzer contains the following predefined situations which are activated at startup. They are automatically installed, distributed, assigned to managed objects, and started.

System_pSeries_LogPart_TTCT_1W

System_pSeries_LogPart_TTCT_1W predicts if the monitored logical partition will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

System_pSeries_LogPart_TTWT_1W

System_pSeries_LogPart_TTWT_1W predicts if the monitored logical partition will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

System_pSeries_Network_TTCT_1W

System_pSeries_Network_TTCT_1W predicts if the monitored networking will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

System_pSeries_Network_TTWT_1W

System_pSeries_Network_TTWT_1W predicts if the monitored networking will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

System_pSeries_Storage_TTCT_1W

System_pSeries_Storage_TTCT_1W predicts if the monitored storage will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

System_pSeries_Storage_TTWT_1W

System_pSeries_Storage_TTWT_1W predicts if the monitored storage will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Tasks

IBM Tivoli Performance Analyzer is distributed with a number of predefined tasks that specify the data to be analyzed and the analytic calculation method to be used.

- Entitlement Used Percentage Forecast (AIX® Premium)
- Entitlement Used Percentage Forecast (VIOS Premium)
- Logical Busy Percentage Forecast (AIX Premium)
- Logical Busy Percentage Forecast (VIOS Premium)
- Physical Busy Percentage Forecast (AIX Premium)
- Physical Busy Percentage Forecast (VIOS Premium)
- Time in Hypervisor Percentage Forecast (AIX Premium)
- Time in Hypervisor Percentage Forecast (VIOS Premium)
- Unallocated CPU in Pool Forecast (AIX Premium)
- Unallocated CPU in Pool Forecast (VIOS Premium)
- NA Bad Packets Received per Second Forecast (VIOS Premium)
- NA Packets Received Errors per Second Forecast (VIOS Premium)
- NA Packets Sent Errors per Second Forecast (VIOS Premium)
- NA Queue Overflow per Second Forecast (VIOS Premium)
- NA Received Packets Dropped per Second Forecast (VIOS Premium)
- NA Sent Packets Dropped per Second Forecast (VIOS Premium)
- SEA Memory Allocation Failures per Second Forecast (VIOS Premium)
- SEA Output Packets Dropped per Second Forecast (VIOS Premium)
- SEA Output Packets Failures per Second Forecast (VIOS Premium)
- SEA Real Packets Dropped per Second Forecast (VIOS Premium)
- SEA Thread Queue Overflow Packets per Second Forecast (VIOS Premium)
- SEA Times Primary per Second Forecast (VIOS Premium)
- SEA Virtual Packets Dropped per Second Forecast (VIOS Premium)
- Active Disk Percentage Forecast (VIOS Premium)
- Average Read Transfer MS Forecast (VIOS Premium)
- Average Request in WaitQ MS Forecast (VIOS Premium)
- Average Write Transfer MS Forecast (VIOS Premium)
- ServiceQ Full per Second Forecast (VIOS Premium)

System p Series Workspaces

Tivoli Performance Analyzer System p® Series domain provides historical and forecasted performance information.

Entitlement Used Percentage Forecast:

This workspace belongs to the System pSeries® Logical Partition workspace group. Use it to identify the forecasts for metrics that describe logical partition usage.

The workspace contains the following views:

Entitlement Used Percentage Overview

This table shows the number of applications currently connected to the monitored database. For each System, and Agent Type, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Entitlement Used Percentage Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, and Data. The information in the Data column is expressed in the number of connected applications, and they show the predicted value of the forecast after 7, 30, or 90 days respectively.

The icons in the **Data** column indicate:

- Less than 15% use
- ▣ Between 15% and 40% use
- ▣ Between 41% and 70% use
- ▣ Between 71% and 90% use
- Greater than 90% use

Entitlement Used Percentage Forecast Details:

This detailed workspace belongs to the System pSeries Logical Partition workspace group. Use it to identify the forecasts for metrics that describe logical partition usage.

The workspace contains the following views:

Entitlement Used Percentage Forecast Details

This table shows the percentage of entitlement used. For a given System, and Agent Type, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Logical Busy Percentage Forecast:

This workspace belongs to the System pSeries Logical Partition workspace group. Use it to identify the forecasts for metrics that describe logical partition usage.

The workspace contains the following views:

Logical Busy Percentage Forecast Overview

This table shows the percentage for logical busy metric. For each System, and Agent Type, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.

- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Logical Busy Percentage Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, and Data. The information in the Data column are expressed in the number of connected applications, and they show the predicted value of the forecast after 7, 30, or 90 days respectively.

The icons in the **Data** column indicate:

-  Less than 15% use
-  Between 15% and 40% use
-  Between 41% and 70% use
-  Between 71% and 90% use
-  Greater than 90% use

Logical Busy Percentage Forecast Details:

This detailed belongs to the System pSeries Logical Partition workspace group. Use it to identify the forecasts for metrics that describe logical partition usage.

The workspace contains the following views:

Logical Busy Percentage Forecast Details

This table shows the percentage for the logical busy metric. For a given System, and Agent Type, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.

- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Physical Busy Percentage Forecast:

This workspace belongs to the System pSeries Logical Partition workspace group. Use it to identify the forecasts for metrics that describe logical partition usage.

The workspace contains the following views:

Physical Busy Percentage Forecast Overview

This table shows the percentage of physical busy metric. For each System, and Agent Type, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Physical Busy Percentage Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Server Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

The icons in the **Data** column indicate:

-  Less than 15% use
-  Between 15% and 40% use
-  Between 41% and 70% use
-  Between 71% and 90% use
-  Greater than 90% use

Physical Busy Percentage Forecast Details:

This detailed workspace belongs to the System pSeries Logical Partition workspace group. Use it to identify the forecasts for metrics that describe logical partition usage.

The workspace contains the following views:

Physical Busy Percentage Forecast Details

This table shows the percentage of physical busy metric. For a given System, and Agent Type, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis

depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Time in Hypervisor Percentage Forecast:

This workspace belongs to the System pSeries Logical Partition workspace group. Use it to identify the forecasts for metrics that describe logical partition usage.

The workspace contains the following views:

Time in Hypervisor Percentage Forecast Overview

This table shows the percentage of time in Hypervisor. For each System, and Agent Type, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Time in Hypervisor Percentage Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Database Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

The icons in the **Data** column indicate:

- Less than 15% use
- Between 15% and 40% use
- Between 41% and 70% use

- 🔵 Between 71% and 90% use
- 🟡 Greater than 90% use

Time in Hypervisor Percentage Forecast Details:

This detailed workspace belongs to the System pSeries Logical Partition workspace group. Use it to identify the forecasts for metrics that describe logical partition usage.

The workspace contains the following views:

Time in Hypervisor Percentage Forecast Details

This table shows the percentage of time in Hypervisor. For a given System, and Agent Type, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Unallocated CPU in Pool Forecast:

This workspace belongs to the System pSeries Logical Partition workspace group. Use it to identify the forecasts for metrics that describe logical partition usage.

The workspace contains the following views:

Unallocated CPU in Pool Forecast Overview

This table shows the number of unallocated CPU in pool. For each System, and Agent Type, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Unallocated CPU in Pool Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

The icons in the **Data** column indicate:

-  Less than 15% use
-  Between 15% and 40% use
-  Between 41% and 70% use
-  Between 71% and 90% use
-  Greater than 90% use

Unallocated CPU in Pool Forecast Details:

This detailed belongs to the System pSeries Logical Partition workspace group. Use it to identify the forecasts for metrics that describe logical partition usage.

The workspace contains the following views:

Unallocated CPU in Pool Forecast Details

This table shows the number of unallocated CPU in pool. For a given System, and Agent Type, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.

- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Network Adapters Bad Packets Received per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

Network Adapters Bad Packets Received per Second Forecast Overview

This table shows the number of bad packets received per second for network adapters. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is

also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Network Adapters Bad Packets Received per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Network Adapters Bad Packets Received per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

Network Adapters Bad Packets Received per Second Forecast Details

This table shows the number of bad packets received per second for network adapters. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Network Adapters Packets Received Errors per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

Network Adapters Packets Received Errors per Second Forecast Overview

This table shows the number of packets received errors per second for network adapters. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Network Adapters Packets Received Errors per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Network Adapters Packets Received Errors per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

Network Adapters Packets Received Errors per Second Forecast Details

This table shows the number of packets received errors per second for network adapters. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Network Adapters Packets Sent Errors per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

Network Adapters Packets Sent Errors per Second Forecast Overview

This table shows the number of packets sent errors per second for network adapters. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.

- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Network Adapters Packets Sent Errors per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Network Adapters Packets Sent Errors per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

Network Adapters Packets Sent Errors per Second Forecast Details

This table shows the number of packets sent errors per second for network adapters. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less

than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Network Adapters Queue Overflow per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

Network Adapters Queue Overflow per Second Forecast Overview

This table shows the number of queue overflow per second for network adapters. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Network Adapters Queue Overflow per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Network Adapters Queue Overflow per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

Network Adapters Queue Overflow per Second Forecast Details

This table shows the number of queue overflow per second for network adapters. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Network Adapters Received Packets Dropped per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

Network Adapters Received Packets Dropped per Second Forecast

This table shows the number of received packets dropped per second for network adapters. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Network Adapters Received Packets Dropped per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Network Adapters Received Packets Dropped per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

Network Adapters Received Packets Dropped per Second Forecast Details

This table shows the number of received packets dropped per second for network adapters. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Network Adapters Sent Packets Dropped per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

Network Adapters Sent Packets Dropped per Second Forecast Overview

This table shows the number of packets sent dropped per second for network adapters. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less

than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Network Adapters Sent Packets Dropped per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Network Adapters Sent Packets Dropped per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

Network Adapters Sent Packets Dropped per Second Forecast Details

This table shows that the number of packets sent dropped per second for network adapters. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

SEA Memory Allocation Failures per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Memory Allocation Failures per Second Forecast Overview

This table shows the number of memory allocation failures per second. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries SEA Memory Allocation Failures per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

SEA Memory Allocation Failures per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Memory Allocation Failures per Second Forecast Details

This table shows the number of memory allocation failures per second. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

SEA Output Packets Dropped per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Output Packets Dropped per Second Forecast Overview

This table shows that the number of output packets dropped per second. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a

value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.

- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries SEA Output Packets Dropped per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

SEA Output Packets Dropped per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Output Packets Dropped per Second Forecast Details

This table shows the number of output packets dropped per second. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is

also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

SEA Output Packets Failures per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Output Packets Failures per Second Forecast Overview

This table shows the number of output packets failures per second. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries SEA Output Packets Failures per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

SEA Output Packets Failures per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Output Packets Failures per Second Forecast Details

This table shows the number of output packets failures per second. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

SEA Real Packets Dropped per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Real Packets Dropped per Second Forecast Overview

This table shows the number of real packets dropped per second. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries SEA Real Packets Dropped per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

SEA Real Packets Dropped per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Real Packets Dropped per Second Forecast Details

This table shows the number of real packets dropped per second. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.

- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

SEA Thread Queue Overflow Packets per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Thread Queue Overflow Packets per Second Forecast Overview

This table shows the number of thread queue overflow packets per second. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is

determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries SEA Thread Queue Overflow Packets per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

SEA Thread Queue Overflow Packets per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Thread Queue Overflow Packets per Second Forecast Details

This table shows the number of thread queue overflow packets per second. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

SEA Times Primary per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Times Primary per Second Forecast Overview

This table shows the number of times primary per second. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries SEA Times Primary per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

SEA Times Primary per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Times Primary per Second Forecast Details

This table shows the number of times primary per second. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

SEA Virtual Packets Dropped per Second Forecast:

This workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Virtual Packets Dropped per Second Forecast

This table shows the number of virtual packets dropped per second. For each System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a

given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries SEA Virtual Packets Dropped per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Adapter Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

SEA Virtual Packets Dropped per Second Forecast Details:

This detailed workspace belongs to the System pSeries Networking workspace group. Use it to identify the forecasts for metrics that describe networking.

The workspace contains the following views:

SEA Virtual Packets Dropped per Second Forecast Details

This table shows the number of virtual packets dropped per second. For a given System, and Adapter Name, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Active Disk Percentage Forecast:

This workspace belongs to the System pSeries Storage workspace group. Use it to identify the forecasts for metrics that describe storage.

The workspace contains the following views:

Active Disk Percentage Forecast Overview

This table shows the active disk percentage. For each System, Device and Parent Device, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Active Disk Percentage Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Device Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Active Disk Percentage Forecast Details:

This detailed workspace belongs to the System pSeries Storage workspace group. Use it to identify the forecasts for metrics that describe storage.

The workspace contains the following views:

Active Disk Percentage Forecast Details

This table shows the active disk percentage. For each System, Device and Parent Device, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Average Read Transfer MS Forecast:

This workspace belongs to the System pSeries Storage workspace group. Use it to identify the forecasts for metrics that describe storage.

The workspace contains the following views:

Average Read Transfer MS Forecast Overview

This table shows the average time in milliseconds spent by a transfer request. For each System, Device and Parent Device, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.

- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Average Read Transfer MS Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Device Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Average Read Transfer MS Forecast Details:

This detailed workspace belongs to the System pSeries Storage workspace group. Use it to identify the forecasts for metrics that describe storage.

The workspace contains the following views:

Average Read Transfer MS Forecast Details

This table shows the number of average read transfers. For each System, Device and Parent Device, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is

also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Average Request in WaitQ MS Forecast:

This workspace belongs to the System pSeries Storage workspace group. Use it to identify the forecasts for metrics that describe storage.

The workspace contains the following views:

Average Request in WaitQ MS Forecast Overview

This table shows the average time in milliseconds spent by a transfer request in the wait queue. For each System, Device and Parent Device, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Average Request in WaitQ MS Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Device Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Average Request in WaitQ MS Forecast Details:

This detailed workspace belongs to the System pSeries Storage workspace group. Use it to identify the forecasts for metrics that describe storage.

The workspace contains the following views:

Average Request in WaitQ MS Forecast Details

This table shows the number of average requests in WaitQ. For each System, Device and Parent Device, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Average Write Transfer MS Forecast:

This workspace belongs to the System pSeries Storage workspace group. Use it to identify the forecasts for metrics that describe storage.

The workspace contains the following views:

Average Write Transfer MS Forecast Overview

This table shows the average time in milliseconds spent by a transfer request. For each System, Device and Parent Device, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries Average Write Transfer MS Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Device Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Average Write Transfer MS Forecast Details:

This detailed workspace belongs to the System pSeries Storage workspace group. Use it to identify the forecasts for metrics that describe storage.

The workspace contains the following views:

Average Write Transfer MS Forecast Details

This table shows the number of average write transfers. For each System, Device and Parent Device, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.

- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

ServiceQ Full per Second Forecast:

This workspace belongs to the System pSeries Storage workspace group. Use it to identify the forecasts for metrics that describe storage.

The workspace contains the following views:

ServiceQ Full per Second Forecast Overview

This table shows the number of full ServiceQ per second. For each System, and Device and Parent Device, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is

determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the System pSeries ServiceQ Full per Second Forecast Details workspace for that resource.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes System Name, Device Name, and Data. The information in the Data column shows the predicted value of the forecast after 7, 30, or 90 days respectively.

ServiceQ Full per Second Forecast Details:

This detailed workspace belongs to the System pSeries Storage workspace group. Use it to identify the forecasts for metrics that describe storage.

The workspace contains the following views:

ServiceQ Full per Second Forecast Details

This table shows the number of full ServiceQ per second. For each System, and Device and Parent Device, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes Forecast Timestamp, and Data.

Reports

This section provides a summary of the predefined reports.

- System p Logical Partitions Forecast
- System p Networking Forecast
- System p Storage Forecast

For installation information, see "Importing reports using the report installer" in the *IBM Tivoli Monitoring Administrator's Guide*.

Tivoli Composite Application Manager for Response Time

Tivoli Performance Analyzer ITCAM for Response Time domain provides historical and forecasted performance information. Note that the minimum supported version of IBM Tivoli Composite Application Manager is V7.2 (or greater).

Attributes

This section provides a summary of the predefined output attributes listed by attribute group.

MOSWOS attribute groups

MOSWOS attributes are used for self-monitoring of the Performance Analyzer agent.

KPA T MOSWOS AGENT

- Node
- Timestamp
- Version
- Agent Start Time
- Last Evaluation Start Time
- Last Evaluation End Time
- Last Evaluation Time
- State
- Last Error
- Operating System

KPA T MOSWOS SUB AGENT

- Node
- Timestamp
- ID
- Name
- Version
- Build
- Build Date

KPA T MOSWOS DB

- Node
- Timestamp
- ID
- Connection Type

- DB Type
- JDBC Driver
- URL or DSN
- Username
- Schema
- Last Error
- State

KPA T MOSWOS TASK

- Node
- Timestamp
- ID
- Task Name
- Last Evaluation Start Time
- Last Evaluation End Time
- Next Evaluation Start Time
- Last Evaluation Time
- State
- Last Error
- Number Of Resources Evaluated
- Number Of Resources Failed
- Total Number Of Measurements
- Processing Speed Rows per Sec
- Is System Task

Attributes

Out-of-the-box attributes are used by predefined tasks delivered with Tivoli Performance Analyzer.

CRT LT Status

- Node
- Timestamp
- Aggregated Uniquely By
- Application
- Client
- Data Collector Type
- Server
- Transaction Origin Node
- Transaction
- Confidence
- Direction
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Trend Attribute

CRT LT Fcast

- Node
- Timestamp
- Aggregated Uniquely By
- Application
- Client
- Data Collector Type
- Server
- Transaction Origin Node
- Transaction
- Forecast Timestamp
- Duration
- Data
- Trend Attribute

RRT LT Status

- Node
- Timestamp
- Aggregated Uniquely By
- Application
- Client
- Data Collector Type
- Server
- Transaction Origin Node
- Transaction
- Confidence
- Direction
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Trend Attribute

RRT LT Fcast

- Node
- Timestamp
- Aggregated Uniquely By
- Application
- Client
- Data Collector Type
- Server
- Transaction Origin Node
- Transaction
- Forecast Timestamp
- Duration
- Data

- Trend Attribute

WRT LT Status

- Node
- Timestamp
- Aggregated Uniquely By
- Application
- Client
- Data Collector Type
- Server
- Transaction Origin Node
- Transaction
- Confidence
- Direction
- Strength
- Number Of Samples
- Time To Warning Threshold
- Time To Critical Threshold
- Trend Attribute

WRT LT Fcast

- Node
- Timestamp
- Aggregated Uniquely By
- Application
- Client
- Data Collector Type
- Server
- Transaction Origin Node
- Transaction
- Forecast Timestamp
- Duration
- Data
- Trend Attribute

Situations

Tivoli Performance Analyzer contains the following predefined situations which are activated at startup. They are automatically installed, distributed, assigned to managed objects, and started.

ITCAM_CRT_TTCT_1W

ITCAM_CRT_TTCT_1W predicts if the monitored client response time will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

ITCAM_CRT_TTWT_1W

ITCAM_CRT_TTWT_1W predicts if the monitored client response time will reach a defined warning limit within the next seven days, and the

prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

ITCAM_RRT_TTCT_1W

ITCAM_RRT_TTCT_1W predicts if the monitored robotic response time will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

ITCAM_RRT_TTWT_1W

ITCAM_RRT_TTWT_1W predicts if the monitored robotic response time will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

ITCAM_WRT_TTCT_1W

ITCAM_WRT_TTCT_1W predicts if the monitored web response time will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

ITCAM_WRT_TTWT_1W

ITCAM_WRT_TTWT_1W predicts if the monitored web response time will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Tasks

IBM Tivoli Performance Analyzer is distributed with a number of predefined tasks that specify the data to be analyzed and the analytic calculation method to be used.

- CRT Response Time
- CRT Percentage Available
- CRT Percentage Slow
- CRT Percentage Failed
- RRT Response Time
- RRT Percentage Available
- RRT Percentage Slow
- RRT Percentage Failed
- WRT Response Time
- WRT Percentage Available
- WRT Percentage Slow
- WRT Percentage Failed

ITCAM for RT Workspaces

Tivoli Performance Analyzer ITCAM for Response Time domain provides historical and forecasted performance information.

Client Response Time Percent Available:

This workspace belongs to the ITCAM Client Response Time workspace group. Use it to identify the forecasts for the measured and collected application transaction Response Time on Windows clients from the end-user perspective.

The workspace reports the percentage of successful transactions, which have a Transaction Status of Good or Slow, and it contains the following views:

Percent Available Forecast Overview

For each Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Percent Available Forecast Overview Details workspace for that resource.

1 Day, 7 Day, 30 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Transaction Origin Node, Application, Client, Server, and Transaction. The information in the Data column is expressed in seconds, and it shows the predicted value of the forecast after 1, 7, or 30 days respectively.

Percent Available Details:

This detailed workspace belongs to the ITCAM Client Response Time workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace reports the percentage of successful transactions, which have a Transaction Status of Good or Slow, and it includes the following views:

Percent Available Forecast Overview Details

For a given Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.

- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 1, 7, and 30 days. The table includes Forecast Timestamp, and Data.

Client Response Time Percent Failed:

This workspace belongs to the ITCAM Client Response Time workspace group. Use it to identify the forecasts for the measured and collected application transaction Response Time on Windows clients from the end-user perspective.

The workspace reports the percentage of transactions with availability violations, and it contains the following views:

Percent Failed Forecast Overview

For each Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is

determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Percent Failed Forecast Overview Details workspace for that resource.

1 Day, 7 Day, 30 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Transaction Origin Node, Application, Client, Server, and Transaction. The information in the Data column is expressed in seconds, and it shows the predicted value of the forecast after 1, 7, or 30 days respectively.

Percent Failed Details:

This detailed workspace belongs to the ITCAM Client Response Time workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace reports the percentage of transactions with availability violations, and it includes the following views:

Percent Failed Forecast Overview Details

For a given Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 1, 7, and 30 days. The table includes Forecast Timestamp, and Data.

Client Response Time Percent Slow:

This workspace belongs to the ITCAM Client Response Time workspace group. Use it to identify the forecasts for the measured and collected application transaction Response Time on Windows clients from the end-user perspective.

The workspace reports the percentage of transactions that completed successfully, but violated the Minimum Response Time Threshold, and it contains the following views:

Percent Slow Forecast Overview

For each Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Percent Slow Forecast Overview Details workspace for that resource.

1 Day, 7 Day, 30 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Transaction Origin Node, Application, Client, Server, and

Transaction. The information in the Data column is expressed in seconds, and it shows the predicted value of the forecast after 1, 7, or 30 days respectively.

Percent Slow Details:

This detailed workspace belongs to the ITCAM Client Response Time workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace reports the percentage of transactions that completed successfully, but violated the Minimum Response Time Threshold, and it includes the following views:

Percent Slow Forecast Overview Details

For a given Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 1, 7, and 30 days. The table includes Forecast Timestamp, and Data.

Client Response Time:

This workspace belongs to the ITCAM Client Response Time workspace group. Use it to identify the forecasts for the measured and collected application transaction Response Time on Windows clients from the end-user perspective.

The workspace reports the time elapsed between the user's request and the completion of the transaction for a single transaction instance, and it contains the following views:

Response Time Forecast Overview

For each Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Response Time Forecast Overview Details workspace for that resource.

1 Day, 7 Day, 30 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Transaction Origin Node, Application, Client, Server, and Transaction. The information in the Data column is expressed in seconds, and it shows the predicted value of the forecast after 1, 7, or 30 days respectively.

Response Time Details:

This detailed workspace belongs to the ITCAM Client Response Time workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace reports the time elapsed between the user's request and the completion of the transaction for a single transaction instance, and it includes the following views:

Response Time Forecast Overview Details

For a given Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 1, 7, and 30 days. The table includes Forecast Timestamp, and Data.

Robotic Response Time Percent Available:

This workspace belongs to the ITCAM Robotic Response Time workspace group. Use it to identify the forecasts for the performance and availability of applications to detect issues before end-users experience them. Robotic technology serves to record and play back transactions that determine if the transaction is performing as expected.

The workspace reports the percentage of successful transactions, which have a Transaction Status of Good or Slow, and it contains the following views:

Percent Available Forecast Overview

For each Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.

- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Percent Available Forecast Overview Details workspace for that resource.

1 Day, 7 Day, 30 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Transaction Origin Node, Application, Client, Server, and Transaction. The information in the Data column is expressed in seconds, and it shows the predicted value of the forecast after 1, 7, or 30 days respectively.

Percent Available Details:

This detailed workspace belongs to the ITCAM Robotic Response Time workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace reports the percentage of successful transactions, which have a Transaction Status of Good or Slow, and it includes the following views:

Percent Available Forecast Overview Details

For a given Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 1, 7, and 30 days. The table includes Forecast Timestamp, and Data.

Robotic Response Time Percent Failed:

This workspace belongs to the ITCAM Robotic Response Time workspace group. Use it to identify the forecasts for the performance and availability of applications to detect issues before end-users experience them. Robotic technology serves to record and play back transactions that determine if the transaction is performing as expected.

The workspace reports the percentage of transactions with availability violations, and it contains the following views:

Percent Failed Forecast Overview

For each Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Percent Failed Forecast Overview Details workspace for that resource.

1 Day, 7 Day, 30 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Transaction Origin Node, Application, Client, Server, and Transaction. The information in the Data column is expressed in seconds, and it shows the predicted value of the forecast after 1, 7, or 30 days respectively.

Percent Failed Details:

This detailed workspace belongs to the ITCAM Robotic Response Time workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace reports the percentage of transactions with availability violations, and it includes the following views:

Percent Failed Forecast Overview Details

For a given Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 1, 7, and 30 days. The table includes Forecast Timestamp, and Data.

Robotic Response Time Percent Slow:

This workspace belongs to the ITCAM Robotic Response Time workspace group. Use it to identify the forecasts for the performance and availability of applications to detect issues before end-users experience them. Robotic technology serves to record and play back transactions that determine if the transaction is performing as expected.

The workspace reports the percentage of transactions that completed successfully, but violated the Minimum Response Time Threshold, and it contains the following views:

Percent Slow Forecast Overview

For each Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Percent Slow Forecast Overview Details workspace for that resource.

1 Day, 7 Day, 30 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Transaction Origin Node, Application, Client, Server, and Transaction. The information in the Data column is expressed in seconds, and it shows the predicted value of the forecast after 1, 7, or 30 days respectively.

Percent Slow Details:

This detailed workspace belongs to the ITCAM Robotic Response Time workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace reports the percentage of transactions that completed successfully, but violated the Minimum Response Time Threshold, and it includes the following views:

Percent Slow Forecast Overview Details

For a given Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 1, 7, and 30 days. The table includes Forecast Timestamp, and Data.

Robotic Response Time:

This workspace belongs to the ITCAM Robotic Response Time workspace group. Use it to identify the forecasts for the performance and availability of applications to detect issues before end-users experience them. Robotic technology serves to record and play back transactions that determine if the transaction is performing as expected.

The workspace reports the time elapsed between the user's request and the completion of the transaction for a single transaction instance, and it contains the following views:

Response Time Forecast Overview

For each Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a

value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.

- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Response Time Forecast Overview Details workspace for that resource.

1 Day, 7 Day, 30 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Transaction Origin Node, Application, Client, Server, and Transaction. The information in the Data column is expressed in seconds, and it shows the predicted value of the forecast after 1, 7, or 30 days respectively.

Response Time Details:

This detailed workspace belongs to the ITCAM Robotic Response Time workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace reports the time elapsed between the user's request and the completion of the transaction for a single transaction instance, and it includes the following views:

Response Time Forecast Overview Details

For a given Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is

determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 1, 7, and 30 days. The table includes Forecast Timestamp, and Data.

Web Response Time Percent Available:

This workspace belongs to the ITCAM Web Response Time workspace group. Use it to identify the forecasts for end-user performance and availability for Web-based applications.

The workspace reports the percentage of successful transactions, which have a Transaction Status of Good or Slow, and it contains the following views:

Percent Available Forecast Overview

For each Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Percent Available Forecast Overview Details workspace for that resource.

1 Day, 7 Day, 30 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Transaction Origin Node, Application, Client, Server, and Transaction. The information in the Data column is expressed in seconds, and it shows the predicted value of the forecast after 1, 7, or 30 days respectively.

Percent Available Details:

This detailed workspace belongs to the ITCAM Web Response Time workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace reports the percentage of successful transactions, which have a Transaction Status of Good or Slow, and it includes the following views:

Percent Available Forecast Overview Details

This table shows the average elapsed time for a read request. For a given Transaction Origin Node, Application, Client, Server, and Transaction, it shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 1, 7, and 30 days. The table includes Forecast Timestamp, and Data.

Web Response Time Percent Failed:

This workspace belongs to the ITCAM Web Response Time workspace group. Use it to identify the forecasts for end-user performance and availability for Web-based applications.

The workspace reports the percentage of transactions with availability violations, and it contains the following views:

Percent Failed Forecast Overview

For each Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Percent Failed Forecast Overview Details workspace for that resource.

1 Day, 7 Day, 30 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Transaction Origin Node, Application, Client, Server, and Transaction. The information in the Data column is expressed in seconds, and it shows the predicted value of the forecast after 1, 7, or 30 days respectively.

Percent Failed Details:

This detailed workspace belongs to the ITCAM Web Response Time workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace reports the percentage of transactions with availability violations, and it includes the following views:

Percent Failed Forecast Overview Details

For a given Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 1, 7, and 30 days. The table includes Forecast Timestamp, and Data.

Web Response Time Percent Slow:

This workspace belongs to the ITCAM Web Response Time workspace group. Use it to identify the forecasts for end-user performance and availability for Web-based applications.

The workspace reports the percentage of transactions that completed successfully, but violated the Minimum Response Time Threshold, and it contains the following views:

Percent Slow Forecast Overview

For each Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.

- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Percent Slow Forecast Overview Details workspace for that resource.

1 Day, 7 Day, 30 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Transaction Origin Node, Application, Client, Server, and Transaction. The information in the Data column is expressed in seconds, and it shows the predicted value of the forecast after 1, 7, or 30 days respectively.

Percent Slow Details:

This detailed workspace belongs to the ITCAM Web Response Time workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace reports the percentage of transactions that completed successfully, but violated the Minimum Response Time Threshold, and it includes the following views:

Percent Slow Forecast Overview Details

For a given Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 1, 7, and 30 days. The table includes Forecast Timestamp, and Data.

Web Response Time:

This workspace belongs to the ITCAM Web Response Time workspace group. Use it to identify the forecasts for end-user performance and availability for Web-based applications.

The workspace reports the time elapsed between the user's request and the completion of the transaction for a single transaction instance, and it contains the following views:

Response Time Forecast Overview

For each Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

To see trend details for a particular forecast calculation, click the  link icon in the first column of the table, which opens the Response Time Forecast Overview Details workspace for that resource.

1 Day, 7 Day, 30 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes Transaction Origin Node, Application, Client, Server, and Transaction. The information in the Data column is expressed in seconds, and it shows the predicted value of the forecast after 1, 7, or 30 days respectively.

Response Time Details:

This detailed workspace belongs to the ITCAM Web Response Time workspace group. Use it to identify trends and predict potential bottlenecks.

The workspace reports the time elapsed between the user's request and the completion of the transaction for a single transaction instance, and it includes the following views:

Response Time Forecast Overview Details

For a given Transaction Origin Node, Application, Client, Server, and Transaction, this table shows the following details:

- Confidence, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- Strength, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- Number of Samples, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- Time to Warning Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- Time to Critical Threshold, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecasts Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 1, 7, and 30 days. The table includes Forecast Timestamp, and Data.

Reports

This section provides a summary of the predefined reports.

- ITCAM Client Response Time Forecast
- ITCAM Web Response Time Forecast
- ITCAM Robotic Response Time Forecast

For installation information, see "Importing reports using the report installer" in the *IBM Tivoli Monitoring Administrator's Guide*.

VMware

Tivoli Performance Analyzer VMware domain provides historical and forecasted performance information.

Attributes

This section provides a summary of the predefined output attributes listed by attribute group.

Out-of-the-box domain attribute groups

Out-of-the-box attributes are used by predefined tasks delivered with Tivoli Performance Analyzer.

VMware VM Network LT Status

- VM Agent Node
- Server Name
- Virtual Machine Name
- Network Interface
- R T
- Node
- Timestamp
- Confidence
- Direction
- Strength
- Number of Samples
- Time To Warning Threshold
- Time To Critical Threshold

VMware VM Network LT Fcast

- VM Agent Node
- Server Name
- Virtual Machine Name
- Network Interface
- R T
- Node
- Timestamp
- Forecast Timestamp
- Duration
- Data

VMware VM Partition LT Status

- VM Agent Node
- Server Name
- Virtual Machine Name
- Partition
- Node
- Timestamp
- Confidence
- Direction
- Strength
- Number of Samples
- Time To Warning Threshold
- Time To Critical Threshold

VMware VM Partition LT Fcast

- VM Agent Node
- Server Name
- Virtual Machine Name
- Partition
- Node
- Timestamp
- Forecast Timestamp
- Duration
- Data

VMware Server CPU LT Status

- VM Agent Node
- Server Name
- Node
- Timestamp
- Confidence
- Direction
- Strength
- Number of Samples
- Time To Warning Threshold
- Time To Critical Threshold

VMware Server CPU LT Fcast

- VM Agent Node
- Server Name
- Node
- Timestamp
- Forecast Timestamp
- Duration
- Data

VMware VM CPU LT Fcast

- VM Agent Node
- Server Name
- Virtual Machine Name
- CPU Number
- Node
- Timestamp
- Forecast Timestamp
- Duration
- Data

VMware Server Memory LT Status

- VM Agent Node
- Server Name
- Node
- Timestamp
- Confidence
- Direction
- Strength
- Number of Samples
- Time To Warning Threshold
- Time To Critical Threshold

VMware Server Memory LT Fcast

- VM Agent Node
- Server Name
- Node
- Timestamp
- Forecast Timestamp
- Duration
- Data

VMware VM Memory LT Fcast

- VM Agent Node
- Server Name
- Virtual Machine Name
- H G
- Node
- Timestamp
- Forecast Timestamp
- Duration
- Data

VMware Network LT Status

- VM Agent Node
- Server Name

- Network Interface
- R T
- Node
- Timestamp
- Confidence
- Direction
- Strength
- Number of Samples
- Time To Warning Threshold
- Time To Critical Threshold

VMware Network LT Fcast

- VM Agent Node
- Server Name
- Network Interface
- R T
- Node
- Timestamp
- Forecast Timestamp
- Duration
- Data

VMware Datastore LT Status

- VM Agent Node
- Server Name
- Datastore Name
- Node
- Timestamp
- Confidence
- Direction
- Strength
- Number of Samples
- Time To Warning Threshold
- Time To Critical Threshold

VMware Datastore LT Fcast

- VM Agent Node
- Server Name
- Datastore Name
- Node
- Timestamp
- Forecast Timestamp
- Duration
- Data

Situations

Tivoli Performance Analyzer contains the following predefined situations which are activated at startup. They are automatically installed, distributed, assigned to managed objects, and started.

Physical_Server_CPU_Utilization_TTCT_1W

Physical_Server_CPU_Utilization_TTCT_1W predicts if the monitored server CPU utilization will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Physical_Server_CPU_Utilization_TTWT_1W

Physical_Server_CPU_Utilization_TTWT_1W predicts if the monitored server CPU utilization will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Physical_Server_Overall_Memory_Utilization_TTCT_1W

Physical_Server_Overall_Memory_Utilization_TTCT_1W predicts if the monitored server memory utilization will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Physical_Server_Overall_Memory_Utilization_TTWT_1W

Physical_Server_Overall_Memory_Utilization_TTWT_1W predicts if the monitored server memory utilization will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Physical_Server_Datastore_Percent_Free_TTCT_1W

Physical_Server_Datastore_Percent_Free_TTCT_1W predicts if the monitored unused space in the data store will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Physical_Server_Datastore_Percent_Free_TTWT_1W

Physical_Server_Datastore_Percent_Free_TTWT_1W predicts if the monitored unused space in the data store will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Physical_Server_Network_Packets_Transmitted_TTCT_1W

Physical_Server_Network_Packets_Transmitted_TTCT_1W predicts if the monitored number of packets transmitted in the performance interval will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Physical_Server_Network_Packets_Transmitted_TTWT_1W

Physical_Server_Network_Packets_Transmitted_TTWT_1W predicts if the monitored number of packets transmitted in the performance interval will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Physical_Server_Network_Packets_Received_TTCT_1W

Physical_Server_Network_Packets_Received_TTCT_1W predicts if the monitored number of packets received in the performance interval will

reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Physical_Server_Network_Packets_Received_TTWT_1W

Physical_Server_Network_Packets_Received_TTWT_1W predicts if the monitored number of packets received in the performance interval will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Virtual_Machine_CPU_Utilization_TTCT_1W

Virtual_Machine_CPU_Utilization_TTCT_1W predicts if the monitored percentage of CPU utilization will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Virtual_Machine_CPU_Utilization_TTWT_1W

Virtual_Machine_CPU_Utilization_TTWT_1W predicts if the monitored percentage of CPU utilization will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Virtual_Machine_Memory_Host_Utilization_TTCT_1W

Virtual_Machine_Memory_Host_Utilization_TTCT_1W predicts if the monitored amount of host memory will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Virtual_Machine_Memory_Host_Utilization_TTWT_1W

Virtual_Machine_Memory_Host_Utilization_TTWT_1W predicts if the monitored amount of host memory will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Virtual_Machine_Memory_Guest_TTCT_1W

Virtual_Machine_Memory_Guest_TTCT_1W predicts if the monitored amount of memory used by the guest operating system will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Virtual_Machine_Memory_Guest_TTWT_1W

Virtual_Machine_Memory_Guest_TTWT_1W predicts if the monitored amount of memory used by the guest operating system will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Virtual_Machine_Partition_Percent_Free_TTCT_1W

Virtual_Machine_Partition_Percent_Free_TTCT_1W predicts if the monitored percentage of unallocated space on the partition will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Virtual_Machine_Partition_Percent_Free_TTWT_1W

Virtual_Machine_Partition_Percent_Free_TTWT_1W predicts if the monitored percentage of unallocated space on the partition will reach a

defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Virtual_Machine_Network_Packets_Transmitted_TTCT_1W

Virtual_Machine_Network_Packets_Transmitted_TTCT_1W predicts if the monitored number of packets transmitted in the sample interval will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Virtual_Machine_Network_Packets_Transmitted_TTWT_1W

Virtual_Machine_Network_Packets_Transmitted_TTWT_1W predicts if the monitored number of packets transmitted in the sample interval will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Virtual_Machine_Network_Packets_Received_TTCT_1W

Virtual_Machine_Network_Packets_Received_TTCT_1W predicts if the monitored number of packets received in the sample interval will reach a defined critical limit within the next seven days, and the prediction is strong (Strength ≥ 3). The limit is set in the analytical task and the period is set in the situation.

Virtual_Machine_Network_Packets_Received_TTWT_1W

Virtual_Machine_Network_Packets_Received_TTWT_1W predicts if the monitored number of packets received in the sample interval will reach a defined warning limit within the next seven days, and the prediction is moderate (Strength ≥ 2). The limit is set in the analytical task and the period is set in the situation.

Tasks

IBM Tivoli Performance Analyzer is distributed with a number of predefined tasks that specify the data to be analyzed and the analytic calculation method to be used.

- Physical Server CPU Utilization Forecast
- Virtual Machine CPU Utilization Forecast
- Physical Server CPU Utilization Forecast
- Virtual Machine Partition Percent Free Forecast
- Physical Server Overall Memory Utilization Forecast
- Virtual Machine Memory Guest Utilization Forecast
- Virtual Machine Memory Host Utilization Forecast
- Physical Server Network Packets Received Forecast
- Physical Server Network Packets Transmitted Forecast
- Virtual Machine Network Packets Received Forecast
- Virtual Machine Network Packets Transmitted Forecast

VMware Workspaces

Tivoli Performance Analyzer VMware domain provides historical and forecasted performance information.

Physical Server CPU Utilization Forecast:

This workspace belongs to the VMware CPU Utilization workspace group. It provides information about the overall CPU utilization of your physical server where virtual machines are installed.

You can determine whether physical server CPU utilization is trending up or down, view forecasts, and predict when warning or critical thresholds are reached.

When CPU use for the physical server on which virtual machines are installed is at or above 80 percent, applications on the system can become slow or stop responding completely. Use this workspace to view warning and critical threshold levels and monitor your servers. CPU use. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Physical Server CPU Utilization Forecast Overview** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every server. Each column in each table displays output attribute information:

Physical Server CPU Utilization Forecast Overview

This table displays forecast summary information for the monitored systems. It contains the following columns:

- **VM Agent Node**, indicating the monitoring agent responsible for monitoring the Virtual Center or the ESX server to which the forecast applies. An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is not rising and not falling.
- **Server Name**, indicating the physical server on which the virtual machine is installed and to which the forecast applies.
- **Confidence**, indicating the confidence in the predicted trend, presented as a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.
- **Strength**, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red.
- **Number of Samples**, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.
- **Time To Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.
- **Time To Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is

determined by the associated task and the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Forecast Details** for a particular forecast calculation on the **Physical Server CPU Utilization Forecast Details** workspace.
- The **Virtual Machine CPU Utilization Forecast Overview** to see the list of all virtual machines working on the resource.
- The **Virtual CPU Monitoring** workspace representing the CPU usage, **ESX Server Monitoring & Events** showing the overall operating state of the server, and **VMware VI Agent Monitoring** displaying the high-level views of the ESX servers that are being monitored by the agent.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes **VM Agent Node**, **Server Name**, and **Data**. The information in the **Data** column is expressed in percentage value of overall CPU utilization, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Physical Server CPU Utilization Forecast Details:

This detailed workspace belongs to the VMware CPU Utilization workspace group. It shows the historic CPU use of individual nodes and predicts the future CPU use for the physical server. Use this workspace to plan when you need to reassign or move your virtual machines to avoid overloading your server.

Forecasts help you identify the servers that require attention and when. The predefined **Physical Server CPU Utilization Forecast Details** workspace provides the following views that predict CPU utilization for the physical server:

Physical Server CPU Utilization Forecast Details

This table shows the percentage of overall CPU utilization of the server. For a given **VM Agent Node**, and **Server Name** it shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which **Strength** equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is

also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Virtual Machine CPU Utilization Forecast Overview** to see the list of all virtual machines working on the resource.
- The **Virtual CPU Monitoring** workspace representing the CPU usage, **ESX Server Monitoring & Events** showing the overall operating state of the server, and **VMware VI Agent Monitoring** displaying the high-level views of the ESX servers that are being monitored by the agent.

Forecast Overlay

The overlay chart shows forecasted data and the trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes **Forecast Timestamp**, and **Data**.

Virtual Machine CPU Utilization Forecast Overview:

This workspace belongs to the VMware CPU Utilization workspace group. It provides information about the CPU utilization percentage of your virtual machines. Use it to determine which of your virtual machines will use too much or will not consume enough CPU that was assigned.

You can determine whether the virtual machine CPU utilization is trending up or down, view forecasts, and predict when warning or critical thresholds will be reached.

When CPU use for the virtual machines is at or above 80 percent, applications on the system can become slow or stop responding completely. Use this workspace to view warning and critical threshold levels and monitor your machine's CPU use. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Virtual Machine CPU Utilization Forecast Overview** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every server. Each column in each table displays output attribute information:

Virtual Machine CPU Utilization Forecast Overview

This table displays forecast summary information for the monitored systems. It contains the following columns:

- **VM Agent Node**, indicating the monitoring agent responsible for monitoring the Virtual Center or the ESX server to which the forecast applies. An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.
- **Server Name**, indicating the physical server on which the virtual machine is installed and to which the forecast applies.

- **Virtual Machine Name**, indicating the particular virtual machine to which the forecast applies.
- **CPU Number**, indicating the existing CPU number on the virtual machine.
- **Confidence**, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.
- **Strength**, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red.
- **Number of Samples**, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.
- **Time To Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.
- **Time To Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Forecast Details** for a particular forecast calculation on the **Virtual Machine CPU Utilization Forecast Details** workspace.
- The **Physical Server CPU Utilization Forecast Overview** to see the physical server on which the virtual machine is working.
- The **Virtual CPU Monitoring** workspace representing the CPU usage, **ESX Server Monitoring & Events** showing the overall operating state of the server, and **VMware VI Agent Monitoring** displaying the high-level views of the ESX servers that are being monitored by the agent.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes **VM Agent Node**, **Server Name**, **Virtual Machine Name**, **CPU Number**, and **Data**. The information in the **Data** column is expressed in percentage value of CPU utilization, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Virtual Machine CPU Utilization Forecast Overview Details:

This detailed workspace belongs to the VMware CPU Utilization workspace group. It shows the historic CPU use of individual nodes and predicts the future CPU utilization. Use this workspace to determine the future CPU utilization for a given virtual machine.

Forecasts help you identify the virtual machines that require attention and when. The predefined **Virtual Machine CPU Utilization Forecast Details** workspace provides the following views that predict CPU utilization for the virtual machine:

Virtual Machine CPU Utilization Forecast Details

This table shows the percentage of CPU utilization of the virtual machine. For a given **VM Agent Node**, **Server Name**, **Virtual Machine Name**, and **CPU Number** it shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which **Strength** equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Physical Server CPU Utilization Forecast Overview** to see the physical server on which the virtual machine is working.
- The **Virtual CPU Monitoring** workspace representing the CPU usage, **ESX Server Monitoring & Events** showing the overall operating state of the server, and **VMware VI Agent Monitoring** displaying the high level views of the ESX servers that are being monitored by the agent.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes **Forecast Timestamp**, and **Data**.

Physical Server Datastore Percent Free Forecast:

This workspace belongs to the VMware Disk Utilization workspace group. It provides information about the unused space in the data store of your physical server where virtual machines are installed.

You can determine whether physical server data store utilization is increasing or decreasing, view forecasts, and predict when warning or critical thresholds will be reached.

When datastore percent free for the physical server on which virtual machines are installed is at or under 20 percent, there may be too many applications or the existing applications use too much space and they may start running slowly. Use this workspace to view warning and critical threshold levels and monitor your server's datastore use. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Physical Server Datastore Percent Free Forecast Overview** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every server. Each column in each table displays output attribute information:

Physical Server Datastore Percent Free Forecast Overview

This table displays forecast summary information for the monitored systems. It contains the following columns:

- **VM Agent Node**, indicating the monitoring agent responsible for monitoring the Virtual Center or the ESX server to which the forecast applies. An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.
- **Server Name**, indicating the physical server on which the virtual machine is installed and to which the forecast applies.
- **Datastore Name**, indicating the data store.
- **Confidence**, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.
- **Strength**, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red.
- **Number of Samples**, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.
- **Time To Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.
- **Time To Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will

not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Forecast Details** for a particular forecast calculation on the **Physical Server Datastore Percent Free Forecast Details** workspace.
- The **Virtual Machine Partition Percent Free Forecast Overview** to see the list of all virtual machines working on the server.
- The workspaces for **Virtual Disk Monitoring**, and **Datastore Monitoring**.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes **VM Agent Node**, **Server Name**, **Datastore Name**, and **Data**. The information in the **Data** column is expressed as percentage value of unused space in the data store, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Physical Server Datastore Percent Free Forecast Details:

This detailed workspace belongs to the VMware Disk Utilization workspace group. It shows the historic disk utilization of individual nodes and predicts the future disk usage for the physical server. Use this workspace to plan when you need to reassign or move your virtual machines to avoid overloading your server.

Forecasts help you identify the servers that require attention and when. The predefined **Physical Server Datastore Percent Free Forecast Details** workspace provides the following views that predict disk utilization for the physical server:

Physical Server Datastore Percent Free Forecast Details

This table shows the percentage of unused space in the data store of the server. For a given **VM Agent Node**, **Server Name**, and **Datastore Name** it shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which **Strength** equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is

also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Forecast Details** for a particular forecast calculation on the **Physical Server Datastore Percent Free Forecast Details** workspace.
- The **Virtual Machine Partition Percent Free Forecast Overview** to see the list of all virtual machines working on the server.
- The workspaces for **Virtual Disk Monitoring**, and **Datastore Monitoring**.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes **Forecast Timestamp**, and **Data**.

Virtual Machine Partition Percent Free Forecast Overview:

This workspace belongs to the VMware Disk Utilization workspace group. It provides information about the disk utilization percentage of your virtual machines. Use it to determine which of your virtual machines will use too much or will not consume enough partition space assigned.

You can determine whether virtual machine partition utilization is trending up or down, view forecasts, and predict when warning or critical thresholds will be reached.

When partition usage for the virtual machine is at or under 20 percent, there may be too many applications or the existing applications use too much space and they may start running slowly. Use this workspace to view warning and critical threshold levels and monitor your machines' partition usage. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Virtual Machine Partition Percent Free Forecast Overview** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every virtual machine. Each column in each table displays output attribute information:

Virtual Machine Partition Percent Free Forecast Overview

This table displays forecast summary information for the monitored systems. It contains the following columns:

- **VM Agent Node**, indicating the monitoring agent responsible for monitoring the Virtual Center or the ESX server to which the forecast applies. An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.
- **Server Name**, indicating the physical server on which the virtual machine is installed and to which the forecast applies.

- **Virtual Machine Name**, indicating the particular virtual machine to which the forecast applies.
- **Partition**, indicating the partition name for a given virtual machine.
- **Confidence**, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.
- **Strength**, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red.
- **Number of Samples**, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.
- **Time To Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.
- **Time To Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Forecast Details** for a particular forecast calculation on the **Virtual Machine Partition Percent Free Forecast Details** workspace.
- The **Physical Server Datastore Percent Free Forecast Overview** to see the disk forecast for the physical server on which the virtual machines are running.
- The workspaces for **Virtual Disk Monitoring**, and **Datastore Monitoring**.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes **VM Agent Node**, **Server Name**, **Virtual Machine Name**, **Partition**, and **Data**. The information in the **Data** column is expressed in percentage of the unallocated space on the partition, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Virtual Machine Partition Percent Free Forecast Details:

This detailed workspace belongs to the VMware Disk Utilization workspace group. It shows the historic partition usage of individual nodes and predicts the future disk utilization. Use this workspace to determine the future partition utilization for a given virtual machine.

Forecasts help you identify the virtual machines that require attention and when. The predefined **Virtual Machine Partition Percent Free Forecast Details** workspace provides the following views that predict partition utilization for the virtual machine:

Virtual Machine Partition Percent Free Forecast Details

This table shows the percentage of partition usage of the virtual machine. For a given **VM Agent Node**, **Server Name**, **Virtual Machine Name**, and **Partition** it shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which **Strength** equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Virtual Machine Partition Percent Free Forecast Overview** to see the list of all virtual machines working on the server.
- The workspaces for **Virtual Disk Monitoring**, and **Datastore Monitoring**.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes **Forecast Timestamp**, and **Data**.

Physical Server Overall Memory Utilization Forecast Overview:

This workspace belongs to the VMware Memory Utilization workspace group. It provides information about the overall memory utilization of your physical server where virtual machines are installed.

You can determine whether physical server memory utilization is trending up or down, view forecasts, and predict when warning or critical thresholds are reached.

When memory use for the physical server on which virtual machines are installed is at or above 80 percent, applications on the system can become slow or stop responding completely. Use this workspace to view warning and critical threshold levels and monitor your server's memory use. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Physical Server Overall Memory Utilization Forecast Overview** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every server. Each column in each table displays output attribute information:

Physical Server Overall Memory Utilization Forecast Overview

This table displays forecast summary information for the monitored systems. It contains the following columns:

- **VM Agent Node**, indicating the monitoring agent responsible for monitoring the Virtual Center or the ESX server to which the forecast applies. An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.
- **Server Name**, indicating the physical server on which the virtual machine is installed and to which the forecast applies.
- **Confidence**, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.
- **Strength**, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red.
- **Number of Samples**, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.
- **Time To Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.
- **Time To Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Forecast Details** for a particular forecast calculation on the **Physical Server Overall Memory Utilization Forecast Details** workspace.

- The **Virtual Machine Memory Host Utilization Forecast Overview** to see the list of all virtual machines working on the server and their host memory utilization.
- The **Virtual Machine Memory Guest Utilization Forecast Overview** to see the list of all virtual machines working on the server and their guest memory utilization.
- The **Virtual Memory Monitoring** workspace representing the memory usage of the ESX server, **ESX Server Monitoring & Events** showing the overall operating state of the server, and **VMware VI Agent Monitoring** displaying the high-level views of the ESX servers that are being monitored by the agent.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes **VM Agent Node**, **Server Name**, and **Data**. The information in the **Data** column is expressed in percentage value of overall memory utilization, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Physical Server Overall Memory Utilization Forecast Details:

This detailed workspace belongs to the VMware Memory Utilization workspace group. It shows the historic memory utilization of individual nodes and predicts the future usage of memory for the physical server. Use this workspace to plan when you need to reassign or move your virtual machines to avoid overloading your server.

Forecasts help you identify the servers that require attention and when. The predefined **Physical Server Overall Memory Utilization Forecast Details** workspace provides the following views that predict the overall memory utilization for the physical server:

Physical Server Overall Memory Utilization Forecast Details

This table shows the percentage of overall memory utilization of the server. For a given **VM Agent Node**, and **Server Name** it shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which **Strength** equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a

given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Virtual Machine Memory Host Utilization Forecast Overview** to see the list of all virtual machines working on the server and their host memory utilization.
- The **Virtual Machine Memory Guest Utilization Forecast Overview** to see the list of all virtual machines working on the server and their guest memory utilization.
- The **Virtual Memory Monitoring** workspace representing the memory usage of the ESX server, **ESX Server Monitoring & Events** showing the overall operating state of the server, and **VMware VI Agent Monitoring** displaying the high level views of the ESX servers that are being monitored by the agent.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes **Forecast Timestamp**, and **Data**.

Virtual Machine Memory Host Utilization Forecast:

This workspace belongs to the VMware Memory Utilization workspace group. It provides information about the host memory usage of your virtual machines. Use it to determine which of your virtual machines will use too much or will not consume enough memory of the physical server.

You can determine whether virtual machine host memory utilization is trending up or down, view forecasts, and predict when warning or critical thresholds are reached.

When host memory usage for the virtual machines is at or over 80 percent, applications on the system can become slow or stop responding completely. Use this workspace to view warning and critical threshold levels and monitor your machine's memory usage. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Virtual Machine Memory Host Utilization Forecast Overview** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every virtual machine. Each column in each table displays output attribute information:

Virtual Machine Memory Host Utilization Forecast Overview

This table displays forecast summary information for the monitored systems. It contains the following columns:

- **VM Agent Node**, indicating the monitoring agent responsible for monitoring the Virtual Center or the ESX server to which the forecast

applies. An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.

- **Server Name**, indicating the physical server on which the virtual machine is installed and to which the forecast applies.
- **Virtual Machine Name**, indicating the particular virtual machine to which the forecast applies.
- **Confidence**, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.
- **Strength**, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red.
- **Number of Samples**, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.
- **Time To Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.
- **Time To Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Forecast Details** for a particular forecast calculation on the **Virtual Machine Memory Host Utilization Forecast Details** workspace.
- The **Physical Server Overall Memory Utilization Forecast Overview** to see the physical server on which the virtual machine is working.
- The **Virtual Memory Monitoring** workspace representing the memory usage of the ESX server, **ESX Server Monitoring & Events** showing the overall operating state of the server, and **VMware VI Agent Monitoring** displaying the high-level views of the ESX servers that are being monitored by the agent.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes **VM Agent Node**, **Server Name**, **Virtual Machine Name**, and **Data**. The information in the **Data** column is expressed in percentage of memory used by the guest running on the virtual machine, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Virtual Machine Memory Host Utilization Forecast Details:

This detailed workspace belongs to the VMware Memory Utilization workspace group. It shows the historic host memory utilization of individual nodes and predicts the future usage of memory for the virtual machines. Use this workspace to determine the future host memory utilization for a given virtual machine.

Forecasts help you identify the virtual machines that require attention and when. The predefined **Virtual Machine Memory Host Utilization Forecast Details** workspace provides the following views that predict the host memory utilization for virtual machines:

Virtual Machine Memory Host Utilization Forecast Details

This table shows the percentage of host memory utilization of the virtual machine. For a given **VM Agent Node**, **Server Name**, and **Virtual Machine Name** it shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which **Strength** equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Physical Server Overall Memory Utilization Forecast Overview** to see the physical server on which the virtual machine is working.
- The **Virtual Memory Monitoring** workspace representing the memory usage of the ESX server, **ESX Server Monitoring & Events** showing the overall operating state of the server, and **VMware VI Agent Monitoring** displaying the high-level views of the ESX servers that are being monitored by the agent.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes **Forecast Timestamp**, and **Data**.

Virtual Machine Memory Guest Utilization Forecast:

This workspace belongs to the VMware Memory Utilization workspace group. It provides information about the guest memory usage of your virtual machines. Use it to determine which of your virtual machines will use too much or will not consume enough memory assigned.

You can determine whether virtual machine guest memory utilization is trending up or down, view forecasts, and predict when warning or critical thresholds are reached.

When memory usage for the virtual machine is at or over 80 percent, applications on the system can become slow or stop responding completely. Use this workspace to view warning and critical threshold levels and monitor your machines' memory usage. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Virtual Machine Memory Guest Utilization Forecast Overview** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every virtual machine. Each column in each table displays output attribute information:

Virtual Machine Memory Guest Utilization Forecast Overview

This table displays forecast summary information for the monitored systems. It contains the following columns:

- **VM Agent Node**, indicating the monitoring agent responsible for monitoring the Virtual Center or the ESX server to which the forecast applies. An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.
- **Server Name**, indicating the physical server on which the virtual machine is installed and to which the forecast applies.
- **Virtual Machine Name**, indicating the particular virtual machine to which the forecast applies.
- **Confidence**, indicating the confidence in the predicted trend, as a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.
- **Strength**, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red.
- **Number of Samples**, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.
- **Time To Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

- **Time To Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Forecast Details** for a particular forecast calculation on the **Virtual Machine Memory Guest Utilization Forecast Details** workspace.
- The **Physical Server Overall Memory Utilization Forecast Overview** to see the physical server on which the virtual machine is working.
- The **Virtual Memory Monitoring** workspace representing the memory usage of the ESX server, **ESX Server Monitoring & Events** showing the overall operating state of the server, and **VMware VI Agent Monitoring** displaying the high-level views of the ESX servers that are being monitored by the agent.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes **VM Agent Node**, **Server Name**, **Virtual Machine Name**, and **Data**. The information in the **Data** column is expressed in percentage of memory used by the guest running on the virtual machine, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Virtual Machine Memory Guest Utilization Forecast Details:

This detailed workspace belongs to the VMware Memory Utilization workspace group. It shows the historic guest memory utilization of individual nodes and predicts the future usage of memory for the virtual machines. Use this workspace to determine the future guest memory utilization for a given virtual machine.

Forecasts help you identify the virtual machines that require attention and when. The predefined **Virtual Machine Memory Guest Utilization Forecast Details** workspace provides the following views that predict the guest memory utilization for virtual machines:

Virtual Machine Memory Guest Utilization Forecast Details

This table shows the percentage of guest memory utilization of the virtual machine. For a given **VM Agent Node**, **Server Name**, and **Virtual Machine Name** it shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which **Strength** equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.

- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

-
- The **Physical Server Overall Memory Utilization Forecast Overview** to see the physical server on which the virtual machine is working.
- The **Virtual Memory Monitoring** workspace representing the memory usage of the ESX server, **ESX Server Monitoring & Events** showing the overall operating state of the server, and **VMware VI Agent Monitoring** displaying the high-level views of the ESX servers that are being monitored by the agent.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes **Forecast Timestamp**, and **Data**.

Physical Server Network Data Transmitted Forecast:

This workspace belongs to the VMware Network Utilization workspace group. It provides information about the outgoing network activities of your physical server where virtual machines are installed.

You can determine whether network usage of physical server is trending up or down, view forecasts, and predict when warning or critical thresholds will be reached.

When the amount of data transmitted by the physical server on which virtual machines are installed is at or above 4000KB per second, the connection can time out or be limited. Use this workspace to view warning and critical threshold levels and monitor your server's network use. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Physical Server Network Data Transmitted Forecast Overview** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every server. Each column in each table displays output attribute information:

Physical Server Network Data Transmitted Forecast Overview

This table displays forecast summary information for the monitored systems. It contains the following columns:

- **VM Agent Node**, indicating the monitoring agent responsible for monitoring the Virtual Center or the ESX server to which the forecast applies. An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is not rising and not falling.
- **Server Name**, indicating the physical server on which the virtual machine is installed and to which the forecast applies.
- **Network Interface**, indication the physical server's network interface label.
- **Confidence**, indicating the confidence in the predicted trend as a percentage 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.
- **Strength**, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red.
- **Number of Samples**, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.
- **Time To Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.
- **Time To Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Forecast Details** for a particular forecast calculation on the **Physical Server Network Data Transmitted Forecast Details** workspace.
- The **Virtual Machine Network Data Transmitted Forecast Overview** to see the list of all virtual machines working on the server.
- The workspaces for **Network Monitoring** representing the network usage of the ESX server, and **ESX Server Monitoring** providing views of the overall operating state of an ESX server.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes **VM Agent Node**, **Server Name**, **Network Interface**, and **Data**. The information in the **Data** column is expressed in the amount of kilobytes of

data transmitted in the performance interval, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Physical Server Network Data Transmitted Forecast Details:

This detailed workspace belongs to the VMware Network Utilization workspace group. It shows the historic network usage of individual nodes and predicts the future amount of outgoing data for the physical server. Use this workspace to plan when you need to reassign or move your virtual machines to avoid overloading your server's connection.

Forecasts help you identify the servers that require attention and when. The predefined **Physical Server Network Data Transmitted Forecast Details** workspace provides the following views that predict network utilization for the physical server:

Physical Server Network Data Transmitted Forecast Details

This table shows the percentage of overall CPU utilization of the server. For a given **VM Agent Node**, **Server Name**, and **Network Interface** it shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Virtual Machine Network Data Transmitted Forecast Overview** to see the list of all virtual machines working on the server.
- The workspaces for **Network Monitoring** representing the network usage of the ESX server, and **ESX Server Monitoring** providing views of the overall operating state of an ESX server.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes **Forecast Timestamp**, and **Data**.

Physical Server Network Data Received Forecast:

This workspace belongs to the VMware Network Utilization workspace group. It provides information about the incoming network activities of your physical server where virtual machines are installed.

You can determine whether network usage of physical server is trending up or down, view forecasts, and predict when warning or critical thresholds will be reached.

When the amount of data received by the physical server on which virtual machines are installed is at or above 4000KB per second, the connection can time out or be limited. Use this workspace to view warning and critical threshold levels and monitor your server's network use. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Physical Server Network Data Received Forecast Overview** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every server. Each column in each table displays output attribute information:

Physical Server Network Data Received Forecast Overview

This table displays forecast summary information for the monitored systems. It contains the following columns:

- **VM Agent Node**, indicating the monitoring agent responsible for monitoring the Virtual Center or the ESX server to which the forecast applies. An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is not rising and not falling.
- **Server Name**, indicating the physical server on which the virtual machine is installed and to which the forecast applies.
- **Network Interface**, indication the physical server's network interface label.
- **Confidence**, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.
- **Strength**, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red.
- **Number of Samples**, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.
- **Time To Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a

value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

- **Time To Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Forecast Details** for a particular forecast calculation on the **Physical Server Network Data Received Forecast Details** workspace.
- The **Virtual Machine Network Data Received Forecast Overview** to see the list of all virtual machines working on the server.
- The workspaces for **Network Monitoring** representing the network usage of the ESX server, and **ESX Server Monitoring** providing views of the overall operating state of an ESX server.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes **VM Agent Node**, **Server Name**, **Network Interface**, and **Data**. The information in the **Data** column is expressed in the number of kilobytes of data received in the performance interval, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Physical Server Network Data Received Forecast Details:

This detailed workspace belongs to the VMware Network Utilization workspace group. It shows the historic network usage of individual nodes and predicts the future amount of incoming data for the physical server. Use this workspace to plan when you need to reassign or move your virtual machines to avoid overloading your server's connection.

Forecasts help you identify the servers that require attention and when. The predefined **Physical Server Network Data Received Forecast Details** workspace provides the following views that predict network utilization for the physical server:

Physical Server Network Data Received Forecast Details

This table shows the percentage of overall CPU utilization of the server. For a given **VM Agent Node**, **Server Name**, and **Network Interface** it shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.

- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Virtual Machine Network Data Received Forecast Overview** to see the list of all virtual machines working on the server.
- The workspaces for **Network Monitoring** representing the network usage of the ESX server, and **ESX Server Monitoring** providing views of the overall operating state of an ESX server.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes **Forecast Timestamp**, and **Data**.

Virtual Machine Network Data Transmitted Forecast:

This workspace belongs to the VMware Network Utilization workspace group. It provides information about the outgoing network activities of your virtual machines.

You can determine whether network usage of virtual machines is trending up or down, view forecasts, and predict when warning or critical thresholds will be reached.

When the amount of data transmitted by the virtual machines is at or above 4000KB per second, the connection can time out or be limited. Use this workspace to view warning and critical threshold levels and monitor your machine's network use. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Virtual Machine Network Data Transmitted Forecast Overview** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every server. Each column in each table displays output attribute information:

Virtual Machine Network Data Transmitted Forecast Overview

This table displays forecast summary information for the monitored systems. It contains the following columns:

- **VM Agent Node**, indicating the monitoring agent responsible for monitoring the Virtual Center or the ESX server to which the forecast applies. An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.
- **Server Name**, indicating the physical server on which the virtual machine is installed and to which the forecast applies.
- **Virtual Machine Name**, indicating the particular virtual machine to which the forecast applies.
- **Network Interface**, indicating the physical server's network interface label.
- **Confidence**, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.
- **Strength**, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red.
- **Number of Samples**, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.
- **Time To Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.
- **Time To Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Forecast Details** for a particular forecast calculation on the **Virtual Machine Network Data Transmitted Forecast Details** workspace.
- The **Physical Server Network Data Transmitted Forecast Overview** to see the forecast for the physical server on which the virtual machines are running.
- The workspaces for **Network Monitoring** representing the network usage of the ESX server, and **ESX Server Monitoring** providing views of the overall operating state of an ESX server.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and

includes **VM Agent Node**, **Server Name**, **Network Interface**, **Virtual Machine Name**, and **Data**. The information in the **Data** column is expressed in the amount of kilobytes of data transmitted in the performance interval, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Virtual Machine Network Data Transmitted Forecast Details:

This detailed workspace belongs to the VMware Network Utilization workspace group. It shows the historic network usage of individual nodes and predicts the future amount of outgoing data for the virtual machine. Use this workspace to determine the future network utilization for a given virtual machine.

Forecasts help you identify the virtual machines that require attention and when. The predefined **Virtual Machine Network Data Transmitted Forecast Details** workspace provides the following views that predict network utilization for the virtual machine:

Virtual Machine Network Data Transmitted Forecast Details

This table shows the percentage of overall CPU utilization of the server. For a given **VM Agent Node**, **Server Name**, **Virtual Machine Name**, and **Network Interface** it shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.
- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Physical Server Network Data Transmitted Forecast Overview** to see the forecast for the physical server on which the virtual machines are running.
- The workspaces for **Network Monitoring** representing the network usage of the ESX server, and **ESX Server Monitoring** providing views of the overall operating state of an ESX server.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis

depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes **Forecast Timestamp**, and **Data**.

Virtual Machine Network Data Received Forecast:

This workspace belongs to the VMware Network Utilization workspace group. It provides information about the incoming network activities of your virtual machines.

You can determine whether network usage of virtual machines is trending up or down, view forecasts, and predict when warning or critical thresholds will be reached.

When the amount of data received by the virtual machines is at or above 4000KB per second, the connection can time out or be limited. Use this workspace to view warning and critical threshold levels and monitor your machine's network use. The data that the monitoring agent gathers from a system is used to create forecasts for 7, 30, and 90 days to help you identify which systems require attention, and when systems are likely to reach a predetermined threshold.

The predefined **Virtual Machine Network Data Received Forecast Overview** workspace provides different table views that enable you to view warning and critical threshold levels and forecasts for every server. Each column in each table displays output attribute information:

Virtual Machine Network Data Received Forecast Overview

This table displays forecast summary information for the monitored systems. It contains the following columns:

- **VM Agent Node**, indicating the monitoring agent responsible for monitoring the Virtual Center or the ESX server to which the forecast applies. An upward arrow indicates an upward trend; a downward arrow indicates a downward trend. A horizontal arrow indicates that the trend is neither rising nor falling.
- **Server Name**, indicating the physical server on which the virtual machine is installed and to which the forecast applies.
- **Virtual Machine Name**, indicating the particular virtual machine to which the forecast applies.
- **Network Interface**, indication the physical server's network interface label.
- **Confidence**, indicating the confidence in the predicted trend. This is a percentage, 0-100%. Systems for which the **Confidence** is less than 20% are displayed in red.
- **Strength**, indicating the strength of the trend based on a combination of the **Confidence** and **Number of Samples**. **Strength** is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which the **Strength** equals 1 (weak) are displayed in red.
- **Number of Samples**, indicating the number of data points used as input for the Least Squares Regression calculation to predict the trend of the data.

- **Time To Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days until the warning threshold is reached are displayed in yellow. If a threshold is zero, either the threshold has been passed, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.
- **Time To Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days until the critical threshold is reached are displayed in red. If a threshold is zero, either the threshold has been passed, it will not be reached, or it is beyond the scope of the calculation. Thresholds with a value of zero are not highlighted. The threshold value is determined by the associated task and the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Forecast Details** for a particular forecast calculation on the **Virtual Machine Network Data Received Forecast Details** workspace.
- The **Physical Server Network Data Received Forecast Overview** to see the forecast for the physical server on which the virtual machines are running.
- The workspaces for **Network Monitoring** representing the network usage of the ESX server, and **ESX Server Monitoring** providing views of the overall operating state of an ESX server.

7 Day, 30 Day, 90 Day Forecast

These tables present forecast calculations for the time periods indicated. Each row in the table contains forecast results for a given resource, and includes **VM Agent Node**, **Server Name**, **Network Interface**, **Virtual Machine Name**, and **Data**. The information in the **Data** column is expressed in the amount of kilobytes of data received in the performance interval, and it shows the predicted value of the forecast after 7, 30, or 90 days respectively.

Virtual Machine Network Data Received Forecast Details:

This detailed workspace belongs to the VMware Network Utilization workspace group. It shows the historic network usage of individual nodes and predicts the future amount of incoming data for the virtual machine. Use this workspace to determine the future network utilization for a given virtual machine.

Forecasts help you identify the virtual machines that require attention and when. The predefined **Virtual Machine Network Data Received Forecast Details** workspace provides the following views that predict network utilization for the virtual machine:

Virtual Machine Network Data Received Forecast Details

This table shows the percentage of overall CPU utilization of the server. For a given **VM Agent Node**, **Server Name**, **Virtual Machine Name**, and **Network Interface** it shows the following details:

- **Confidence**, expressed in percents, which indicates the level of confidence in the predicted trend. Systems for which the Confidence value is less than 20% are displayed in red.

- **Strength**, which indicates the strength of the trend, basing on a combination of the Confidence and Number of Samples. Strength is a value of 1 (weak), 2 (moderate), or 3 (strong). Systems for which Strength equals 1 are displayed in red.
- **Number of Samples**, which indicates the number of data points used as an input for the Least Squares Regression calculation to predict the trend of the data.
- **Time to Warning Threshold**, which displays the number of days until the warning threshold for the monitored system is reached. Systems with less than seven days time are displayed in yellow. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.
- **Time to Critical Threshold**, which displays the number of days until the critical threshold for the monitored system is reached. Systems with less than seven days time are displayed in red. If the Confidence level of a given system is less than 20, or the Strength level equals 1, the system is also displayed in red. The threshold value is determined by the associated task, whereas the notification period is determined by the associated situation.

Click the  link icon to the left of the table, to see:

- The **Physical Server Network Data Received Forecast Overview** to see the forecast for the physical server on which the virtual machines are running.
- The workspaces for **Network Monitoring** representing the network usage of the ESX server, and **ESX Server Monitoring** providing views of the overall operating state of an ESX server.

Forecast Overlay

The overlay chart shows forecasted data and a trend line. The X axis depicts time. The bars reflect the source of the forecasted data, and an overlay line shows the result of the forecast calculation.

Forecast Predictions

This table contains forecasts for the selected resource. Forecasts are presented for the next 7, 30, and 90 days. The table includes **Forecast Timestamp**, and **Data**.

Reports

This section provides a summary of the predefined reports.

- VMware CPU Utilization
- VMware Disk Utilization Forecast
- VMware Memory
- VMware Network
- VMware Predicted Critical and Warning States

For installation information, see "Importing reports using the report installer" in the *IBM Tivoli Monitoring Administrator's Guide*.

Appendix A. Documentation library

This appendix contains information about the publications related to IBM Tivoli Monitoring and to the commonly shared components of Tivoli Management Services.

These publications are listed in the following categories:

- IBM Tivoli Monitoring library
- Related publications

See the *IBM Tivoli Monitoring Documentation Guide* for information about accessing and using the publications. You can find the *Documentation Guide* in the IBM Tivoli Monitoring and OMEGAMON XE Information Center at <http://publib.boulder.ibm.com/infocenter/tivihelp/v15r1/index.jsp>. To open the *Documentation Guide* in the information center, select **Using the publication** in the **Contents** pane.

To find a list of new and changed publications, click **What's new** on the Welcome page of the IBM Tivoli Monitoring and OMEGAMON XE Information Center. To find publications from the previous version of a product, click **Previous versions** under the name of the product in the **Contents** pane.

IBM Tivoli Monitoring library

The following publications provide information about IBM Tivoli Monitoring and about the commonly shared components of Tivoli Management Services:

- *Quick Start Guide*
Introduces the components of IBM Tivoli Monitoring.
- *Installation and Setup Guide*, GC32-9407
Provides instructions for installing and configuring IBM Tivoli Monitoring components on Windows, Linux, and UNIX systems.
- *Program Directory for IBM Tivoli Management Services on z/OS*, GI11-4105
Gives instructions for the SMP/E installation of the Tivoli Management Services components on z/OS.
- *Configuring the Tivoli Enterprise Monitoring Server on z/OS*, SC27-2313
Provides instructions for preparing, configuring, and customizing your monitoring servers on z/OS. This guide complements the *IBM Tivoli OMEGAMON XE and IBM Tivoli Management Services on z/OS Common Planning and Configuration Guide* and the *IBM Tivoli Monitoring Installation and Setup Guide*.
- *High Availability Guide for Distributed Systems*, SC23-9768
Gives instructions for several methods of ensuring the availability of the IBM Tivoli Monitoring components.
- *Administrator's Guide*, SC32-9408
Describes the support tasks and functions required for the Tivoli Enterprise Portal Server and clients, including Tivoli Enterprise Portal user administration.
- *Command Reference*, SC32-6045
Provides detailed syntax and parameter information, as well as examples, for the commands you can use in IBM Tivoli Monitoring.

- *Messages*, SC23-7969
Lists and explains messages generated by all IBM Tivoli Monitoring components and by z/OS-based Tivoli Management Services components (such as Tivoli Enterprise Monitoring Server on z/OS and TMS:Engine).
- *Troubleshooting Guide*, GC32-9458
Provides information to help you troubleshoot problems with the software.
- Tivoli Enterprise Portal online help
Provides context-sensitive reference information about all features and customization options of the Tivoli Enterprise Portal. Also gives instructions for using and administering the Tivoli Enterprise Portal.
- *Tivoli Enterprise Portal User's Guide*, SC32-9409
Complements the Tivoli Enterprise Portal online help. The guide provides hands-on lessons and detailed instructions for all Tivoli Enterprise Portal features.
- *Agent Builder User's Guide*, SC32-1921
Explains how to use the Agent Builder for creating monitoring agents and their installation packages, and for adding functions to existing agents.
- *Tivoli Universal Agent User's Guide*, SC32-9459
Introduces you to the IBM Tivoli Universal Agent, an agent of IBM Tivoli Monitoring. The IBM Tivoli Universal Agent enables you to use the monitoring and automation capabilities of IBM Tivoli Monitoring to monitor any type of data you collect.
- *Performance Analyzer User's Guide*, SC27-4004
Explains how to use the Performance Analyzer to understand resource consumption trends, identify problems, resolve problems more quickly, and predict and avoid future problems.
- *IBM Tivoli Universal Agent API and Command Programming Reference Guide*, SC32-9461
Explains the procedures for implementing the IBM Tivoli Universal Agent APIs and provides descriptions, syntax, and return status codes for the API calls and command-line interface commands.

Documentation for the base agents

If you purchased IBM Tivoli Monitoring as a product, you received a set of base monitoring agents as part of the product. If you purchased a monitoring agent product (for example, an OMEGAMON XE product) that includes the commonly shared components of Tivoli Management Services, you did not receive the base agents.

The following publications provide information about using the base agents.

- Operating system agents:
 - *Windows OS Agent User's Guide*, SC32-9445
 - *UNIX OS Agent User's Guide*, SC32-9446
 - *Linux OS Agent User's Guide*, SC32-9447
 - *i5/OS Agent User's Guide*, SC32-9448
 - *UNIX Log Agent User's Guide*, SC32-9471
- Agentless operating system monitors:
 - *Agentless Monitoring for Windows Operating Systems User's Guide*, SC23-9765
 - *Agentless Monitoring for AIX Operating Systems User's Guide*, SC23-9761

- *Agentless Monitoring for HP-UX Operating Systems User's Guide*, SC23-9763
- *Agentless Monitoring for Solaris Operating Systems User's Guide*, SC23-9764
- *Agentless Monitoring for Linux Operating Systems User's Guide*, SC23-9762
- Warehouse agents:
 - *Warehouse Summarization and Pruning Agent User's Guide*, SC23-9767
 - *Warehouse Proxy Agent User's Guide*, SC23-9766
- System P agents:
 - *AIX Premium Agent User's Guide*, SA23-2237
 - *CEC Base Agent User's Guide*, SC23-5239
 - *HMC Base Agent User's Guide*, SA23-2239
 - *VIOS Premium Agent User's Guide*, SA23-2238
- Other base agents:
 - *Tivoli Log File Agent User's Guide*, SC14-7484
 - *Systems Director base Agent User's Guide*, SC27-2872
 - *Monitoring Agent for IBM Tivoli Monitoring 5.x Endpoint User's Guide*, SC32-9490

Related publications

You can find useful information about related products in the IBM Tivoli Monitoring and OMEGAMON XE Information Center at <http://publib.boulder.ibm.com/infocenter/tivihelp/v15r1/index.jsp>.

Other sources of documentation

You can also obtain technical documentation about IBM Tivoli Monitoring and related products from the following sources:

- IBM Integrated Service Management Library
<http://www.ibm.com/software/brandcatalog/ismlibrary/>
 IBM Integrated Service Management Library is an online catalog that contains integration documentation and other downloadable product extensions.
- Redbooks
<http://www.redbooks.ibm.com/>
 IBM Redbooks and Redpapers include information about products from platform and solution perspectives.
- Technotes
 Technotes provide the latest information about known product limitations and workarounds. You can find Technotes through the IBM Software Support Web site at <http://www.ibm.com/software/support/>.
- Tivoli wikis on the IBM developerWorks Web site
 Tivoli Wiki Central at <http://www.ibm.com/developerworks/wikis/display/tivoli/Home> is the home for interactive wikis that offer best practices and scenarios for using Tivoli products. The wikis contain white papers contributed by IBM employees, and content created by customers and business partners. Two of these wikis are of particular relevance to IBM Tivoli Monitoring:
 - Tivoli Distributed Monitoring and Application Management Wiki at <http://www.ibm.com/developerworks/wikis/display/tivolimonitoring/>

Home provides information about IBM Tivoli Monitoring and related distributed products, including IBM Tivoli Composite Application Management products.

- Tivoli System z Monitoring and Application Management Wiki at <http://www.ibm.com/developerworks/wikis/display/tivoliomegamon/>
Home provides information about the OMEGAMON XE products, NetView for z/OS, Tivoli Monitoring Agent for z/TPF, and other System z monitoring and application management products.

Appendix B. Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides ways for you to obtain the support you need.

Online

The following sites contain troubleshooting information:

- Go to the IBM Software Support site at <http://www.ibm.com/software/support/probsub.html> and follow the instructions.
- Go to the IBM Tivoli Distributed Monitoring and Application Management Wiki at <http://www.ibm.com/developerworks/wikis/display/tivolimonitoring/Home>. 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 <http://www.ibm.com/software/support/isa>.

Troubleshooting Guide

For more information about resolving problems, see the product's Troubleshooting Guide.

Accessing terminology online

The IBM Terminology Web site consolidates the terminology from IBM product libraries in one convenient location. You can access the Terminology Web site at <http://www.ibm.com/software/globalization/terminology>

Ordering publications

You can order many Tivoli publications online at <http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss>.

You can also order by telephone by calling one of these numbers:

- In the United States: 800-879-2755
- In Canada: 800-426-4968

In other countries, contact your software account representative to order Tivoli publications. To locate the telephone number of your local representative, perform the following steps:

1. Go to <http://www.elink.ibm.link.ibm.com/publications/servlet/pbi.wss>.
2. Select your country from the list and click **Go**.
3. Click **About this site** in the main panel to see an information page that includes the telephone number of your local representative.

Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. With this product, you can use assistive technologies to hear and navigate the interface. You can also

use the keyboard instead of the mouse to operate all features of the graphical user interface.

Tivoli technical training

For Tivoli technical training information, refer to the following IBM Tivoli Education Web site at <http://www.ibm.com/software/tivoli/education>.

Tivoli user groups

Tivoli user groups are independent, user-run membership organizations that provide Tivoli users with information to assist them in the implementation of Tivoli Software solutions. Through these groups, members can share information and learn from the knowledge and experience of other Tivoli users. Tivoli user groups include the following members and groups:

- 23,000+ members
- 144+ groups

Access the link for the Tivoli Users Group at <https://community.ibm.com/community/user/imwuc/home>.

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