

# HP GlancePlus Software

for the HP-UX, Linux, Solaris, and AIX operating systems

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## Concepts Guide

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# 1 Overview of GlancePlus

HP GlancePlus is a powerful online real-time performance monitoring and diagnostic tool that displays data directly to a user terminal or a workstation. The GlancePlus tool provides metrics for system resources, process and application data. It also allows you to identify and troubleshoot system performance problems as they occur on a local or a remote UNIX system.

## Supported Platforms

GlancePlus is supported on HP-UX, Linux, Solaris, and AIX.

## GlancePlus Features

GlancePlus provides you with the following features:

### Real-time Performance Data

GlancePlus enables you to easily examine system activities, identify and resolve performance bottlenecks, and tune your system for more efficient operation. Real-time data on resources like CPU, Disk, Memory, and Network system are available at any point of time.

### Remote Data Monitoring

You can remotely access a system and run GlancePlus to access the real-time data on a remote system. You can also run GlancePlus with `perfd` on a real-time system metric server. You can use `perfd` to access real-time data on single or multiple remote nodes with the help of `perfd` CLI clients. For more information on `perfd`, see [perfd](#) on page 18 and HP GlancePlus installation guides.

### Drill-down of Data

GlancePlus provides an option to drill-down and enables you to analyze data in detail, identify bottlenecks and find problems in the system. For example, if the CPU utilization is found to be above the threshold value for a longer period of time, you can look at a list of all the applications running, and zero down on the process with the highest CPU utility from the process list. For HP-UX and Linux you can also see the threads running that particular process and drill down to the actual thread that is causing a CPU hog.

### Adviser Mode

The GlancePlus Adviser monitors your system; it looks for performance metrics that are exceeding their defined thresholds and notifies you when such a condition exists. You can specify Adviser symptoms and alarms in the syntax of the Adviser text file. The syntax

defines each of the specific thresholds and rules as well as the actions that are triggered if certain conditions are present. The Adviser syntax to be used is specified in a file that is identified at run time with the following option:

```
-syntax <filename>
```

You can modify the syntax of the Adviser text file to define performance metric thresholds. The Adviser notifies you when it detects a condition that exceeds the specified thresholds. You can configure it to:

- Display information to `stdout`
- Execute a UNIX mail command, such as `mailx`, to send a message
- Make the GlancePlus ALARM button turn yellow or red or, if you are running GlancePlus iconified, it can place a red or yellow border around the GlancePlus icon, or
- Display a specific GlancePlus window to help you analyze the problem

In the adviser mode, GlancePlus adviser runs in the background without a screen display and the output as directed.

If no syntax file is specified, the Adviser looks for a user default file named `adviser.syntax` in the home directory. The character interface of GlancePlus can be run in the adviser mode where the adviser runs in the background and generates bottleneck alarms based on the alarming rules defined in the `adviser.syntax` file. The collected data is checked against the rules present in the `adviser.syntax` file and alarms are generated accordingly.

You can also specify the Adviser to run alone without the GlancePlus user interface. In this mode, Adviser sends its messages to `stdout`. The following command starts `glance` in the adviser mode:

```
glance -adviser_only
```

GlancePlus evaluates the adviser SYMPTOMS and ALARMS at each interval. The default interval is 15 seconds. The following section provides you with details on alarming concepts.

## Alarming Concepts

This section describes alarms and symptoms.

### Alarms

Alarms highlight metric conditions in GlancePlus. An alarm can trigger whenever conditions that you specify are met. Alarms are based on any period of time you specify, which can be one interval or longer. Some examples of conditions or events that you might want to set as Adviser alarms are as follows:

- when global swap space is nearly full
- when the page in rate is too high
- when your process table is near capacity
- when your CPU has been running at 75% utilization for the last two minutes

GlancePlus provides you with several screens where you can view the alarm status and history. The status of alarm conditions determines the color of the main window's [Alarm] button. Several alarms are defined in the GlancePlus default Adviser syntax.

### Symptoms

A symptom is a combination of conditions that occurs during an interval and contributes to a bottleneck on your system. Complex alarms can be built based on symptoms. The GlancePlus default adviser syntax defines four bottleneck symptoms for you, then defines alarms based on those symptoms. (Open the Edit Adviser Syntax window in GlancePlus to see the default



syntax.) By observing different metrics with corresponding thresholds and adding values to the probability that these metrics contribute to a bottleneck, the Adviser calculates one value that represents the combined probability that a bottleneck is present.

Unlike the ALARM statement that monitors conditions over a period of time normally longer than one interval, the SYMPTOM statement is evaluated and updated every interval. This is why you might see the CPU Bottleneck Symptom indication prior to a CPU Bottleneck Alarm. Symptoms change rapidly and can become yellow, then red, then go back to green. An alarm remains yellow or red until it is reviewed or reset.

You can also use the variables you defined in the SYMPTOM statements in the Alarm section. And you can link the symptoms to the [CPU], [Disk], [Network], and [Memory] buttons on the main GlancePlus window to notify you of possible bottlenecks. For every symptom that you define in the Adviser Syntax window, a graph appears on the Symptom History window to show that particular symptom's probability over time.

## GlancePlus Components

The components are:

- `xglance`: A Motif® interface
- `glance`: A character mode interface
- `perfd`: A remote monitoring capability using remote CLIs `cpsh`, `padv` and `mpadv`

### xglance

GlancePlus can be viewed in the Motif mode. The `xglance` interface is a X-window (Motif) Graphical User Interface. Use `xglance` to:

- View performance through a graphical user interface with multiple window capability
- Use powerful help subsystems including graphics, hyperlinks, and On-Window and On-Item capabilities
- Alert you to potential problems with alarm capabilities
- Monitor your system while you are busy with other applications

When you start `xglance`, it displays the Main window along with any other window that you had open the last time you ran it. In the Main window, you can view information about the update intervals and summary graphs of some of the most important global performance data (CPU, memory, disk, and network activity). You can also use the menu selections to view detailed Reports on information about the various aspects of system performance.

Another button on the main window shows the status of any current performance alarms, which are configured using the Glance “adviser” functionality. The adviser is a useful way to access specific metrics and alarm on them using a script-like language.

You can view performance metric definitions in `xglance`. To view a metric definition in `xglance`, perform the following steps:

- 1 From the menu selection click **Help -> User's Guide**. The help window appears.
- 2 In the help window click on **Performance Metrics** to select it and click the **Open** button. The list of Performance Metrics appears.

- 3 Select a metric for which you want to see the definition and click the **Open** button to view the definition.

Alternatively, you can perform the following steps:

- 1 From a Report window click **Configure -> Choose Metrics** to see the list of all available metrics in that area.
- 2 Right-click on a metric to select the metric and view the definition.

If you have GlancePlus installed on your system, you can find the metric definitions at the following location:

For AIX,

```
usr/lpp/perf/paperdocs/gp/C/gpmetrics.txt.
```

For HP-UX, Linux and Solaris,

```
/opt/perf/paperdocs/gp/C/gpmetrics.txt.
```

A subset of the performance metrics are shown in character-mode glance and logged by Performance Agent.

## glance

Use glance, the character mode interface, to:

- Monitor performance over slow data communications links
- Monitor the system remotely
- Monitor the system when an X-display is not available
- Alert you to potential problems with alarm capabilities

## Glance in character mode

```
-----  
CPU Util  S | 1% 1% 2%  
Disk Util  F F | 5% 4% 13%  
Mem Util  S SU UF E | 58% 58% 58%  
Swap Util  U URR | 16% 16% 16%  
-----  
PROCESS LIST Users= 3  
Process Name PID User CPU % Thrd Disk Memory Block  
( 200% max) Cnt IOrate RSS/VSS On  
-----  
ia64_corehw 1541 root 0.2 1 2.7 84kb 408kb SLEEP  
glance 1532 root 0.2 1 0.0 8.6mb 16.7mb STRMS  
sendmail 1557 root 0.2 1 0.6 804kb 1.7mb died  
diagmond 1553 root 0.0 1 0.0 692kb 2.7mb SLEEP  
nfsd 1852 root 0.0 2 0.0 268kb 1.4mb SLEEP  
swapper 0 root 0.0 1 0.0 64kb 72kb SLEEP  
sfd 2072 root 0.0 1 0.0 64kb 868kb OTHER  
smhstartd 1704 root 0.0 1 0.0 328kb 720kb SYSTEM  
emsagent 1724 root 0.0 1 0.0 152kb 896kb SLEEP  
sh 1905 root 0.0 1 0.0 64kb 1.5mb OTHER  
rpc.mountd 1846 root 0.0 2 0.0 1.2mb 6.3mb SLEEP  
C - cum/interval toggle Page 1 of 15  
ProcList CPU Rpt Mem Rpt Disk Rpt NextKeys SlctProc Help Exit
```

## GlancePlus Adviser

GlancePlus can be used in adviser mode to monitor the system performance and generate bottleneck alarms system based on rules that are defined in the `adviser.syntax` file. The `adviser.syntax` file is used when GlancePlus is used in the adviser mode, or when using the `perfd` CLI clients `padv` and `mpadv` for remote monitoring.

The `adviser.syntax` file is present in the `/var/opt/perf` directory. You can edit the rules to suit your environment. The `/opt/perf/examples/adviser` directory has examples of adviser syntax.

To see the default syntax, open the Edit Adviser Syntax window in `xglance`.

### Examples

Following are some examples that explain the steps to edit the syntax to display data in GlancePlus:

- Print
- Alarm
- Symptom
- Exec

## Print

You can edit the default syntax in the Adviser Syntax file to displaying data for the following:

- Print CPU Total Utilization
- Printing CPU Utilization During High CPU Usage
- Sending e-mail Messages
- Printing Process Information Within a Loop
- Printing Logical System Information Within a Loop
- Print to a File

### Print CPU Total Utilization

To print metric values to the terminal window from which GlancePlus was started, perform the following steps:

- 1 From the GlancePlus Main window, select **Edit Adviser Syntax** from the Adviser menu to open the Edit Adviser Syntax window.
- 2 In the Edit Adviser Syntax window, press the Insert key and then press Return a few times to insert several blank lines at the top of the file.
- 3 Insert the following text in the space you created at the top of the syntax:

```
print gbl_cpu_total_util
```

- 4 From the Syntax menu, select **Install Syntax**. The Edit Adviser Syntax window closes and the print statement executes the next time GlancePlus updates its data.

When you select Install Syntax, GlancePlus checks the syntax for correctness. If an error is found, an error message is displayed at the top of the window. For an explanation of any syntax error messages, see GlancePlus Messages in the online help.

- 5 Look at the window from which you started GlancePlus. The numbers appearing in that window result from GlancePlus printing the value of a global GlancePlus metric (the global CPU utilization) every update interval.

### Printing CPU Utilization During High CPU Usage

To print CPU utilization to stdlist only, when your CPU is very busy (considering the scenario when usage exceeds 90% busy), perform the following steps:

- 1 From the GlancePlus Main window, select **Edit Adviser Syntax** from the Adviser menu to open the Edit Adviser Syntax window.
- 2 In the Edit Adviser Syntax window, press the Insert key and then press Return a few times to insert several blank lines at the top of the file.
- 3 Insert the following text in the space you created at the top of the syntax (incase you have an existing user-defined syntax, replace it with the following) :

```
if gbl_cpu_total_util > 90 then
print "total cpu utilization is high: ",\
gbl_cpu_total_util
```

- 4 From the Syntax menu, select **Install Syntax**. The Edit Adviser Syntax window closes, and the print statement executes the next time GlancePlus updates its data.

When you select Install Syntax, GlancePlus checks your syntax for correctness. If an error is found, an error message is displayed at the top of the window. For an explanation of any syntax error messages, see GlancePlus Messages in the online help.

- 5 Look at the window from which you started GlancePlus. You may not see any numbers because data only displays when your CPU is more than 90% busy.
- 6 To start a program that uses a lot of CPU and view what happens, type the following at a shell prompt (sh or ksh) to cause a loop:

```
while true
do
A=1
done
```

This makes the shell loop until you interrupt it with Ctrl-c. When the loop starts, the Adviser starts printing out information.

### **Sending e-mail Messages**

You can use metrics that are shown in different GlancePlus windows in your Adviser syntax, and instead of printing metrics to stdout, you can send the same information to yourself in an email message. To send the information in an email message, follow these steps:

- 1 From the GlancePlus Main window, select **Edit Adviser Syntax** from the Adviser menu to open the Edit Adviser Syntax window.
- 2 In the Edit Adviser Syntax window, press the Insert key and then press Return a few times to insert several blank lines at the top of the file.
- 3 Insert the following text in the space you created at the top of the syntax ((incase you have an existing user-defined syntax, replace it with the following) :

```
if gbl_cpu_total_util > 90 then
exec "echo 'cpu is too high ', gbl_cpu_total_util, \
"% ' | mail root"
```

- 4 From the Syntax menu, select **Install Syntax**. The Edit Adviser Syntax window closes, and the print statement executes the next time GlancePlus updates its data.

When you select Install Syntax, GlancePlus checks your syntax for correctness. If an error is found, an error message is displayed at the top of the window. For an explanation of any syntax error messages, see GlancePlus Messages in the online help.

### **Printing Process Information Within a Loop**

You can customize your syntax to combine metrics, define variables, and use looping constructs. Refer to the examples below to perform the following:

- Construct loops inside conditions which only execute when a potential problem situation arises.
- Use variables inside the adviser syntax to keep track of things inside loops. You could change the thresholds in this example to isolate problems unique to your environment.

The following example tests for an overall high global system mode CPU utilization. When GlancePlus encounters this situation, it loops through all the active processes, printing out information about the process with the highest percentage of time spent in system mode.

- 1 From the GlancePlus Main window, select **Edit Adviser Syntax** from the Adviser menu to open the Edit Adviser Syntax window.
- 2 In the Edit Adviser Syntax window, press the Insert key and then press Return a few times to insert several blank lines at the top of the file.
- 3 Insert the following text in the space you created at the top of the syntax (incase you have an existing user-defined syntax, replace it with the following) :

```
// check for high system-mode cpu utilization, and when it
is high,
// print the highest sys cpu consuming process:
if gbl_cpu_sys_mode_util > 50 then {
highestsys = 0
process loop {
if proc_cpu_sys_mode_util > highestsys then {
highestpid = proc_proc_id
highestname = proc_proc_name
highestsys = proc_cpu_sys_mode_util
}
}
print "--- High system cpu rate = ",
gbl_cpu_sys_mode_util, " at ",
gbl_stattime, " ---"
print " Process with highest system cpu was pid ",
highestpid,
", name: ", highestname
print " which had", highestsys, " percent system mode
cpu ",
"utilization"
}
```

- 4 From the Syntax menu, select **Install Syntax**. The Edit Adviser Syntax window closes, and the print statement executes the next time GlancePlus updates its data.

### Printing Logical System Information Within a Loop

The following example enables you to display the display name, state, mode and number of CPUs for all logical systems available on the machine.

- 1 From the GlancePlus Main window, select **Edit Adviser Syntax** from the Adviser menu to open the Edit Adviser Syntax window.

- 2 In the Edit Adviser Syntax window, press the Insert key and then press Return a few times to insert several blank lines at the top of the file.
- 3 Insert the following text in the space you created at the top of the syntax (incase you have an existing user-defined syntax, replace it with the following) :

```

LOGICALSYSTEM LOOP
{
    print BYLS_DISPLAY_NAME
    print BYLS_LS_STATE
    print BYLS_LS_MODE
    print BYLS_NUM_CPU
}

```

### Print to a File

You can print information to a file by using the **PRINT** statement in the Adviser Syntax and by rerouting stdout to a file.

By using the **PRINT** statement, which sends its output to the defined stdout of GlancePlus, you can format metrics with literal constants and user-defined variables. To reroute the stdout, start GlancePlus by appending *<filename>* to the command line. This causes all output destined for stdout to be placed in the file specified by *<filename>*.

### Alarm

You can modify the following syntax to configure the alarm details to display information for your requirement:

```

ALARM condition [FOR duration {SECONDS, MINUTES, INTERVALS}]
    [condition [FOR duration {SECONDS, MINUTES, INTERVALS}]] ...
    [START statement]
    [REPEAT [EVERY duration [SECONDS, MINUTES, INTERVALS]]
    statement]
    [END statement]
    [(RED or CRITICAL), (YELLOW or WARNING), RESET] ALERT
    statement

ALIAS variable = alias name
[VAR] variable = expression
{
    compound statements
}
EXEC printlist
GPM -rpt reportlist
IF condition

```

```

THEN statement

[ELSE statement]

{APPLICATION, APP, CPU, DISK, DISK_DETAIL, FILESYSTEM, FS, FS_DETAIL,
LAN, LOGICALVOLUME, LV, LV_DETAIL, NETIF, NFS, NFS_BYSYS_OPS, NFS_OP,
PRM, PRM_BYVG, PROCESS, PROC, PROC_FILE, PROC_REGION, PROC_SYSCALL,
SWAP, SYSTEMCALL, SC, THREAD, TRANSACTION, TT, TTBIN, TT_CLIENT,
TT_INSTANCE, TT_UDM, TT_RESOURCE, TT_INSTANCE_CLIENT,
TT_INSTANCE_UDM, TT_CLIENT_UDM}

LOOP statement

PRINT printlist

```

In the following example, the ALARM tests the SYMPTOM variable, which is defined in a SYMPTOM statement. If the SYMPTOM variable is greater than 50 for 2 minutes, the ALARM notifies you with a YELLOW ALERT on your screen. The CPU\_Bottleneck probability message is displayed.

```

ALARM CPU_Bottleneck > 50
      FOR 2 MINUTES

START
      YELLOW ALERT "CPU Bottleneck
      probability = ",CPU_Bottleneck,
      "% for the last 2 minutes"

REPEAT EVERY 2 MINUTES
      YELLOW ALERT "CPU Bottleneck
      probability = ",CPU_Bottleneck,
      "% for the last 2 minutes"

END

RESET ALERT "CPU Bottleneck alert
over, probability = ",
CPU_Bottleneck,"%

```

The ALARM will repeat every 2 minutes until the ALARM condition is false, at which time END will RESET the ALERT and post the corresponding message.

## Symptom

You can modify the following syntax to configure the symptom details to display information for your requirement:

```

SYMPTOM variable [ TYPE = {CPU, DISK, MEMORY, NETWORK}]
RULE measurement {>, <, <=, >=, ==, !=} value PROB probability
[RULE measurement {>, <, <=, >=, ==, !=} value PROB probability]

```

The keywords SYMPTOM and RULE are exclusive for the SYMPTOM statement and cannot be used in other syntax statements. The SYMPTOM statement must be a top-level statement and cannot be nested within any other statement.



RULE is an option of the SYMPTOM statement and cannot be used independently. You can use as many RULE options within the SYMPTOM statement as you need. The SYMPTOM variable is evaluated according to the RULEs at each interval.

- **measurement** is the name of a variable or metric that is evaluated as part of the RULE
- **value** is a constant, variable, or metric that is compared to the measurement
- **probability** is a numeric constant, variable, or metric

The probabilities for each true SYMPTOM RULE are added together to create a SYMPTOM value. The SYMPTOM value then appears in bar graph form in the Symptom History window. The SYMPTOM value also appears in the Symptom Status window and the Symptom Snapshot window alphanumerically, if the SYMPTOM evaluates to yellow or red.

An example of the SYMPTOM Syntax is as follows:

The CPU bottleneck symptom default is influenced mostly by the overall cpu utilization. Note that cpu utilization may be high even though there is no bottleneck. The run queue is an indicator which indicates that processes are waiting for cpu resources, and that the cpu may be bottlenecked.

```
symptom CPU_Bottleneck type=CPU
rule GBL_CPU_TOTAL_UTIL          > 75  prob 25
rule GBL_CPU_TOTAL_UTIL          > 85  prob 25
rule GBL_CPU_TOTAL_UTIL          > 90  prob 25
rule GBL_RUN_QUEUE               > 2   prob 25
```

## Exec

You can use the EXEC statement to execute a UNIX command from within the Adviser Syntax.

For example, the syntax of the EXEC command if you want to send a mail message to the MIS staff each time a certain condition is met, is as follows:

```
EXEC printlist
```

The resulting `printlist` is submitted to your operating system for execution.

Because the EXEC command you specify may execute once every update interval, be careful when using the EXEC statement with UNIX commands or scripts that have high overhead. For example, you would not want to rebuild the kernel inside a `gpm EXEC` statement.

## EXEC Examples

In the following example, EXEC executes the UNIX `mailx` command at every interval.

```
EXEC "echo 'gpm mailed you a message' | mailx root"
```

In the following example, EXEC executes the UNIX `mailx` command only when the `gbl_disk_util_peak` metric exceeds 20.

```
IF gbl_disk_util_peak > 20 THEN
```

```
EXEC "echo 'gpm detects high disk utilization' | mailx root"
```

## perfd

`perfd` is a real-time measurement server that runs by default when GlancePlus starts. It enables you to access system performance data remotely using CLIs, `cpsh`, `padv`, and `mpadv`, via TCP based data communication.

Connect to the `perfd` system metric server to:

- Monitor real time system performance data remotely for one or more systems with CLI clients
- Configure alerts on potential problems in a single remote node or multiple remote nodes, with alarm capabilities
- Share data collection between multiple clients.

## perfd CLIs

GlancePlus can remotely monitor data from systems running `perfd`, using the following `perfd` CLIs:

### `cpsh`

Allows GlancePlus to display metrics from any system where `perfd` is running. The options in `cpsh` allow you to specify the kind of metrics that you want to view. This can run either in the interactive or batch mode.

In the batch mode, metrics can be displayed according to class, subclasses, metric names, and filters specified in the CLI. In the interactive mode, `cpsh` goes into a shell script and uses an interactive session to display the required data.

### `padv`

This runs the Glance adviser scripts on a remote system where `perfd` is running. Enables remote monitoring by displaying the default bottlenecks or using the `adviser.syntax` file to generate alarms.

### `mpadv`

Similar to `padv`, it enables monitoring remote system performance data on multiple systems.

### The `pctl` script

The `pctl` script gives you information about status or version of `perfd`. It also starts, stops, or restarts `perfd` and is executed from `opt/perf/bin`.

# GlancePlus on Virtualized platforms

GlancePlus is supported on virtualized platforms depending on the technologies used.

- LPARs
- Host and Guests
- Virtual Machine

## GlancePlus on LPARs

GlancePlus on LPARs are supported only on AIX platform.

GlancePlus installed on the LPARs provides a CEC (Central Electronics Complex) wide view. GlancePlus uses the Remote Statistics Interface (RSI) to discover all the LPARs configured on a CEC and to collect performance (the BYLS class of metrics) data from the LPARs. The list of LPARs discovered using RSI is controlled through configuration file `Rsi.hosts`. By default it collects data for all LPARs on the CEC. The RSI searches for the configuration file in following directories (in the listed order): `$HOME`, `/etc/perf` and `/usr/lpp/perfmgr`.

If any of the LPARs is restricted from responding through the configuration file `Rsi.hosts` then information about those LPARs will not be available. For information on `Rsi.hosts`, refer to the latest IBM documentation on Remote Statistics Interface Programming.



GlancePlus might not always discover all the LPARs configured on the current CEC.

If the configuration file `Rsi.hosts` is not available, then the RSI sends invitational broadcast messages to all the systems within the network. From the list of systems which respond to the message, GlancePlus discovers LPARs configured on the current CEC.



Some LPARs may not be reported by GlancePlus if they are not responding to RSI calls within the time-out period. This time-out period cannot be configured from GlancePlus.

## GlancePlus on HPVM Environment

This version of GlancePlus supports monitoring of HP Integrity Virtual Machines. Depending on the virtualization technologies, GlancePlus can be installed both on the guest and host operating systems.



HPVM 1.0 is not supported by Performance Agent and HP GlancePlus (GlancePlus).

## GlancePlus on the Host Operating System

Host operating system is the system on which HPVM is installed. When installed on the host machine, GlancePlus captures the following:

- System wide performance, application, transaction and resource usage data.
- Individual virtual machine's performance and resource usage data.

A new class of metrics, BYLS, is introduced to record performance and resource data for individual guest operating systems.

## GlancePlus on the Guest Operating System

Guest operating systems are the systems that are hosted on a Host operating system. When installed on the guest operating system, GlancePlus captures system wide performance, resource, and transaction data. All the resource utilization values captured represent the logical utilizations.

## GlancePlus on a Virtual Machine hosted on VMware ESX Server

GlancePlus on a Virtual Machine (VM) is supported only on Linux. This version of GlancePlus supports monitoring of Virtual Machines (VMs) hosted on VMware ESX Server 3.0.1 and later.

▶ GlancePlus is not supported on service console of VMware ESX Server.

Install **VMware Tools** on the VM. GlancePlus installed on a VM, hosted on VMware ESX Server 3.0.1 and later, requires VMware tools to recognize the virtual machine as a Guest operating system.

On VMs hosted on VMware ESX Server 3.0.1, enable the **VMware Guest API** on the VMs. To capture the Virtual Machine's utilization of physical resources of a system, GlancePlus uses the **VMware Guest API**. For more information about **VMware Guest API**, refer to latest documentation available on **VMware Guest SDK** from VMware.

▶ For complete list of metrics and descriptions, refer to the Release Notes and Dictionary of Performance Metrics.

## GlancePlus on vMA4.0

vSphere Management Assistant 4.0 (vMA), installed with RHEL 5.2, X86\_64 is a virtual machine. vMA includes prepackaged software such as a Linux distribution, the vSphere command line interface (CLI), and the vSphere JRE1.5. Administrators can use vMA 4.0 to run scripts and agents to manage ESX/ESXi and vCenter Server systems.

This version of Glanceplus supports monitoring of multiple ESX servers and their VMs using vMA. The supported ESX servers are from ESX server version 3.5 update 2 to ESX Server 4.0i. For installation procedures, see the *HP GlancePlus for Linux Operating System Installation Guide*.

Install **VMware Tools** on vMA. **VMware Tools** improve the management of the virtual machines and enhances the performance.

Enable **VMware Guest API** to capture the vMA machine's utilization of physical resources on the system. For more information about **VMware Guest API**, refer to latest documentation available on **VMware Guest SDK** from VMWare.

▶ For complete list of metrics and descriptions, refer to the *Release Notes and Dictionary of Performance Metrics*.

## Features supported on Virtual Machines

<b>Features/ Functionalities</b>	<b>Linux</b>	<b>Virtual Machine</b>
Alarming	Available	Available
Application metric class	Available	Available
BYLS metric	Not available	Available
proc metric	Available	Available
Transaction metric class	Available	Available
Table class	Available	Available
ARM	Available	Available

