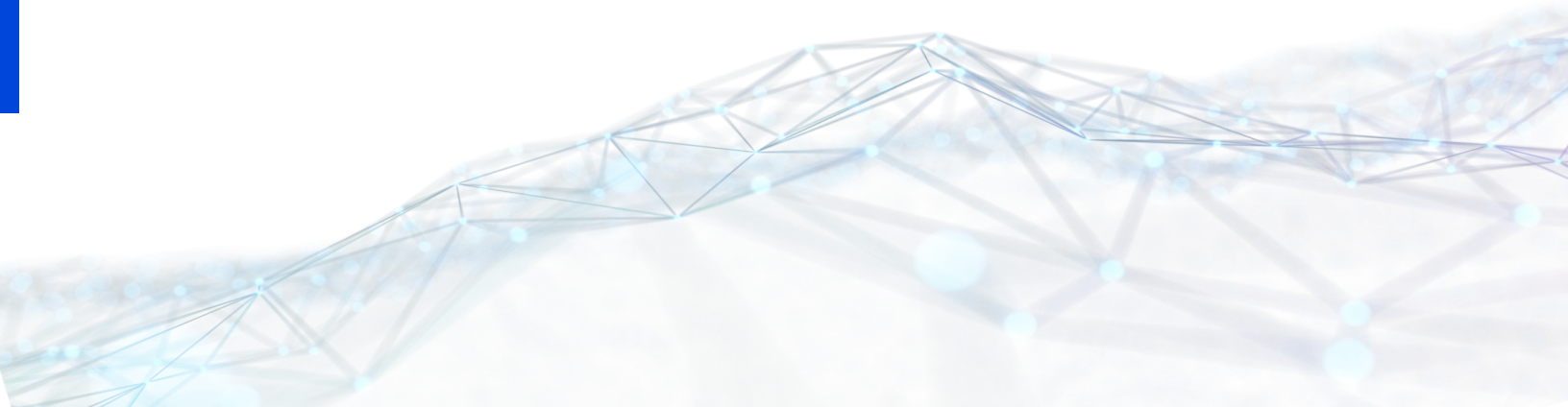




TIBCO Hawk[®]

Microagent Reference

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TIBCO Documentation and Support Services

For information about this product, you can read the documentation, contact TIBCO Support, and join TIBCO Community.

How to Access TIBCO Documentation

Documentation for TIBCO products is available on the [Product Documentation website](#), mainly in HTML and PDF formats.

The [Product Documentation website](#) is updated frequently and is more current than any other documentation included with the product.

Product-Specific Documentation

The documentation for this product is available on the [TIBCO Hawk® Documentation](#) page.

How to Contact Support for TIBCO Products

You can contact the Support team in the following ways:

- To access the Support Knowledge Base and getting personalized content about products you are interested in, visit our [product Support website](#).
- To create a Support case, you must have a valid maintenance or support contract with a Cloud Software Group entity. You also need a username and password to log in to the [product Support website](#). If you do not have a username, you can request one by clicking **Register** on the website.

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requests from within the [TIBCO Ideas Portal](#). For a free registration, go to [TIBCO Community](#).

Overview of TIBCO Hawk Microagents and Methods

This chapter describes microagents and gives information about their uses and functions.

- [About Microagents](#)
- [Microagent Types](#)
- [Method Returns](#)
- [Additional Information](#)

About Microagents

The TIBCO Hawk agent uses processes known as Hawk microagents to collect information and operate using that information. These microagents execute specific tasks known as methods. Methods collect information and perform tasks. Methods can be called directly or from within a TIBCO Hawk rulebase.

This manual describes how various Hawk microagents and respective methods can be used for system and application monitoring. It also provides a complete list of all the available methods for the respective microagents. You can use this guide as a reference to know all the available methods for any microagent.

Microagent Types

TIBCO Hawk microagents are classified by the functions they perform and can be one of three types:

- `IMPACT_INFO` returns information.
- `IMPACT_ACTION` performs an action on the TIBCO Hawk system.
- `IMPACT_ACTION_INFO` both returns information and takes an action based on it.

Method Returns

Methods can return information by invocation or subscription. Invocation returns information on a one-time basis. Subscription information is returned either synchronously, on a regular time schedule, or asynchronously, when data becomes available.

Method invocation returns a table of results, according to specified arguments (if any).

Additional Information

Help text for TIBCO Hawk microagent methods is also available in the microagent window in the TIBCO Hawk Display or Microagent Information in Hawk WebConsole. Selecting a microagent and method in this window will bring up help text in the window.

Common Methods

Some TIBCO Hawk microagent methods are common across all platform-dependent as well as platform-independent microagents on all platforms. These common methods performs release and trace-related functions.

- [getReleaseVersion](#)
- [getTraceLevel](#)
- [setTraceLevel](#)
- [getTraceParameters](#)
- [setTraceParameters](#)
- [_onUnsolicitedMsg](#)

getReleaseVersion

Method

Purpose

This method (on all platforms) returns version information about the current release of this microagent. The version is comprised of a major, minor, and update number separated by periods (for example, 3.1.1). Both a string representation of the version (Version) and an integer representation of the major, minor, and update components of the version (Major, Minor, and Update, respectively) is returned.

Type

Synchronous, INFO.

Arguments

None.

Returns

Name	Type	Description
Name	String	Name of the binary
Version	String	Version number
Date	String	Version date
Major	Integer	Release version major number
Minor	Integer	Release version minor number
Update	Integer	Release version update number

getTraceLevel

Method

Purpose

This method (on all platforms) returns the trace level settings.

Remarks

Invocation will return a table, with the setting for each trace level (Information, Warning, Error, Debug, or AMI) listed as being either on or off.

Type

Synchronous, INFO.

Arguments

None.

Returns

Name	Type	Description
Information	String	Information trace setting, on or off value
Warning	String	Warning trace setting, on or off value
Error	String	Error trace setting, on or off value
Debug	String	Debug trace setting, on or off value
AMI	String	AMI debug trace setting, on or off value

setTraceLevel

Method

Purpose

This method (on all platforms) sets the trace level bits.

Remarks

Each trace level can be set to On (enabled), Off (disabled) or Current (leave setting as is). Invocation will return a table, with the setting for each trace level (Information, Warning, Error, Debug, or AMI) listed as being either On or Off.

Type

Synchronous, ACTION_INFO.

Arguments

Name	Type	Description
Information	String	Information trace setting, on or off value
Warning	String	Warning trace setting, on or off value
Error	String	Error trace setting, on or off value
Debug	String	Debug trace setting, on or off value
AMI	String	AMI debug trace setting, on or off value

Returns

Name	Type	Description
Information	String	Current information trace setting, on or off value

Name	Type	Description
Warning	String	Current warning trace setting, on or off value
Error	String	Current error trace setting, on or off value
Debug	String	Current debug trace setting, on or off value
AMI	String	Current AMI debug trace setting, on or off value

getTraceParameters

Method

Purpose

This method (on all platforms) returns tracing parameter information.

Type

Synchronous, INFO.

Arguments

None.

Returns

Name	Type	Description
Directory	String	Current trace file directory
File Name	String	Current trace file name
Max File Size	Integer	Current trace file maximum size (in kilobytes) before rollover
Max Trace File	Integer	Current maximum number of trace files to keep in the trace directory

setTraceParameters

Method

Purpose

This method (on all platforms) sets tracing parameters.

Remarks:

Use string `current` for keeping the current setting for string parameters and use integer value 0 for keeping the current setting for integer parameters.

Type

Synchronous, ACTION_INFO.

Arguments

Name	Type	Description
Directory	String	Trace file directory where the trace log file should be kept.
File Name	String	Trace file name
Max File Size	Integer	Maximum size (in kilobytes) of trace file before rollover (kilobytes)
Max Trace File	Integer	Maximum number of trace files to keep in trace directory

Returns

Name	Type	Description
Directory	String	Current trace file directory
File Name	String	Current trace file name
Max File Size	Integer	Current trace file maximum size (in kilobytes) before rollover
Max Trace File	Integer	Current maximum number of trace files to keep in the trace directory

_onUnsolicitedMsg

Method

Purpose

Subscribing to this method (on all platforms) returns any unsolicited notifications that are sent from this microagent. Invoking this method returns the last such message that was received (if any).

Remarks

An unsolicited message is an information, warning, or error message that is sent directly to the manager.

Type

Asynchronous, INFO.

Arguments

None.

Returns

Name	Type	Description
TYPE	String	One of INFO, WARNING, or ERROR.
TEXT	String	The text of the message
ID	Integer	A number used by the application to identify the message
INBOX	String	An inbox address used to send the message

Platform-Independent Microagents and Methods

The TIBCO Hawk microagents described in this section are available on all platforms.

- [Summary of Platform-Independent Microagents](#)
- [COM.TIBCO.hawk.microagent.Self](#)
- [COM.TIBCO.hawk.microagent.SysInfo](#)
- [COM.TIBCO.hawk.microagent.HawkEventService](#)
- [COM.TIBCO.hawk.microagent.RuleBaseEngine](#)
- [COM.TIBCO.hawk.microagent.Messaging](#)
- [COM.TIBCO.hawk.microagent.Repository](#)
- [COM.TIBCO.hawk.microagent.Logfile](#)
- [COM.TIBCO.hawk.microagent.Custom](#)
- [COM.TIBCO.hawk.hma.FileStat](#)
- [COM.TIBCO.hawk.hma.TibRendezvous](#)
- [COM.TIBCO.hawk.microagent.tcpdaemon.TcpClusterStatus](#)
- [COM.TIBCO.hawk.microagent.TCPMessaging](#)

Summary of Platform-Independent Microagents

The platform-independent microagents are as follows.

Platform-Independent Microagents

Microagent	Description
Common Methods	These methods are common to all microagents and provide

Microagent	Description
	<p>release and trace-related functions. Methods are:</p> <ul style="list-style-type: none"> • getReleaseVersion • getTraceLevel • setTraceLevel • getTraceParameters • setTraceParameters • _onUnsolicitedMsg
Self	<p>Returns information from and takes actions that affect the TIBCO Hawk agent itself. Methods are:</p> <ul style="list-style-type: none"> • Self:getMicroAgentInfo • Self:getAgentTimeZone • Self:getComponentInfo • Self:turnDiagnosticsOn • Self:turnDiagnosticsOff
SysInfo	<p>Returns information on a network host: its name, address, type of computer and operating system. Methods are:</p> <ul style="list-style-type: none"> • SysInfo:getOperatingSystem • SysInfo:getArchitecture • SysInfo:getHostName • SysInfo:getNetworkAddress
HawkEventService	<p>This application reports on events generated by the TIBCO Hawk Agents across the network.</p> <ul style="list-style-type: none"> • HawkEventService:onAgentAlive • HawkEventService:onAgentExpired • HawkEventService:onAlert

Microagent	Description
	<ul style="list-style-type: none"> • HawkEventService:onClear • HawkEventService:onMicroAgentChange • HawkEventService:onRulebaseChange
RuleBaseEngine	<p>Returns information from rulebases and takes actions on rulebases that affect the TIBCO Hawk agent itself. The methods are:</p> <ul style="list-style-type: none"> • RuleBaseEngine:deleteRuleBase • RuleBaseEngine:getExternalVariables • RuleBaseEngine:getRuleBaseNames • RuleBaseEngine:getScheduleNames • RuleBaseEngine:loadRuleBase • RuleBaseEngine:loadRuleBaseFromFile • RuleBaseEngine:unloadRuleBase • RuleBaseEngine:getConfigInfo • RuleBaseEngine:sendMail • RuleBaseEngine:onAlertCount • RuleBaseEngine:onAlertCountForRulebase • RuleBaseEngine:suspendAlert • RuleBaseEngine:suspendAllAlerts • RuleBaseEngine:resumeSuspendedAlerts • RuleBaseEngine:updateExternalVariables
Messaging	<p>Responds to requests from TIBCO Hawk agents to send and receive messages using either TIBCO Rendezvous or TIBCO EMS. Methods are:</p> <ul style="list-style-type: none"> • Messaging:sendMessage • Messaging:onMessage • Messaging:onTimeout

Microagent	Description
	<ul style="list-style-type: none"> • Messaging:onNumber
Repository	<p>The Messaging microagent (on all platforms) responds to requests from TIBCO Hawk agents to send and receive messages using either TIBCO Rendezvous or TIBCO EMS.</p> <p>Responds to configuration requests from TIBCO Hawk agents. Methods are:</p> <ul style="list-style-type: none"> • Repository:getName • Repository:getScheduleNames • Repository:getRuleBaseName • Repository:onRepositoryEvent
Logfile	<p>Returns new lines added to a log file. Methods are:</p> <ul style="list-style-type: none"> • Logfile:onNewLine
Custom	<p>Runs executable programs and scripts from within the TIBCO Hawk system. Methods are:</p> <ul style="list-style-type: none"> • Custom:executeForString • Custom:executeForNumber • Custom:execute
FileStat	<p>Returns information on files. Methods are:</p> <ul style="list-style-type: none"> • FileStat:getFileStatus • FileStat:getFileCount
TibRendezvous	<p>Subscribes to TIBCO Rendezvous system messages. Methods are:</p> <ul style="list-style-type: none"> • TibRendezvous:onRvDaemonStatus • TibRendezvous:onRvDataLoss • TibRendezvous:onRvdDisconnectOrConnect • TibRendezvous:onRvLicenseExpire

Microagent	Description
TcpClusterStatus	<p>The TcpClusterStatus microagent provides methods to monitor the health of the TIBCO Hawk TCP Transport cluster and its daemons. Methods are:</p> <ul style="list-style-type: none">• TcpClusterStatus:getDaemonStatus• TcpClusterStatus:getClusterStatus• TcpClusterStatus:getMemberCount• TcpClusterStatus:onMemberEvent
TcpMessaging	<p>The TCPMessaging microagent provides methods to send and receive messages by using the TCP Transport for TIBCO Hawk. Methods are:</p> <ul style="list-style-type: none">• TcpMessaging:sendMessage• TcpMessaging:onMessage• TcpMessaging:onNumber• TcpMessaging:onTimeout

COM.TIBCO.hawk.microagent.Self

Microagent

Purpose

The `Self` microagent (on all platforms) returns information from and takes actions that affect the TIBCO Hawk agent itself. You use its methods to examine release version and auto-configuration information, to examine active microagents, and to start and stop diagnostic tools you might need when speaking to technical support personnel.

Remarks

Because the `Self:turnDiagnosticsOn` and `Self:turnDiagnosticsOff` methods can affect the agent's performance, you should only use these methods when asked to do so by TIBCO Hawk technical support.

Methods

Method	Description	Page
Self:getMicroAgentInfo	Returns information about the microagents currently active	Self:getMicroAgentInfo
Self:getAgentTimeZone	Returns information about the agent time zone	Self:getAgentTimeZone
Self:getSecurityInfo	Returns information about the current security policy	Self:getSecurityInfo
Self:getComponentInfo	Returns version information about components in the current release	Self:getComponentInfo
Self:turnDiagnosticsOn	Turns on agent	Self:turnDiagnosticsOn

Method	Description	Page
	diagnostics	
Self:turnDiagnosticsOff	Turns off agent diagnostics	Self:turnDiagnosticsOff
Self:getUptime	Returns how long the agent has been running	Self:getUptime
Self:doAMIDiscovery	Re-discovers all AMI instrumented applications	Self:doAMIDiscovery
Self:onMicroAgentEvent	Reports the change in the status of the microagent	Self:onMicroAgentEvent

Proprietary Methods

The following method of the `self` microagent is proprietary. The TIBCO Hawk system does not support direct user invocation of this method from the TIBCO Hawk Display or Console API.

However, this method is used indirectly by the TIBCO Hawk Display when interacting with agents and thus has security implications.

Method Name	Impact	Description
describe	Info	This method retrieves microagent descriptors

Self:getMicroAgentInfo

Method

Purpose

This method (on all platforms) returns information about the microagents currently active on a TIBCO Hawk agent.

Remarks

Since applications instrumented with the TIBCO Hawk Application Management Interface (AMI) appear as microagents, this method can also gather information on AMI applications.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Name	String	The microagent name. If no name is specified, the method returns information on all microagents.

Returns

Name	Type	Description
Name	String	The microagent name. Table is indexed on the Name field
Display Name	String	The microagent display name
Count	Integer	The number of microagent instances with that name on the host
Help	String	A brief description of the microagent. Retrieved from the microagent

Self:getAgentTimeZone

Method

Purpose

This method returns the Agent Time Zone information.

Type

Open, Synchronous, IMPACT_INFO

Arguments

None

Returns

Name	Type	Description
TimeZone ID	String	The time zone ID of the agent
TimeZone Name	String	The name of the agent's time zone suitable for presentation to the user in the default locale
TimeZone offset	Integer	The amount of time (considering daylight saving changes) in milliseconds to add to UTC to get standard time in the current time zone
TimeZone String	String	The textual representation of the current time zone

Self:getSecurityInfo

Method

Purpose

This method (on all platforms) returns information about the security policy currently in effect.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Parameter	Type	Description
Policy Class	string	Name of security policy class
Description	string	Text description of security policy class

Self:getComponentInfo

Method

Purpose

This method (on all platforms) returns version information about the components in the current release.

Remarks

This is the same information displayed when you choose **Help > About TIBCO Hawk Components** from the TIBCO Hawk Display.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Component	String	The component name. If no component is specified, returns information for all components.

Returns

Name	Type	Description
Name	String	The component name. Table is indexed on the Name field.
Version	String	The component version
Date	String	The component date

Self:turnDiagnosticsOn

Method

Purpose

This method (on all platforms) turns on agent diagnostics.

Remarks

The `diagnostics` microagent diagnoses problems that appear in the TIBCO Hawk system. Because the `Self:turnDiagnosticsOn` and `Self:turnDiagnosticsOff` methods can affect the agent's performance, you should only use these methods when asked to do so by TIBCO Hawk technical support.

Diagnostic microagent methods are not described in this documentation set, but could be created as an application. For more information on creating applications, refer to the TIBCO Hawk programming manuals.

Type

Synchronous, `IMPACT_ACTION`.

Arguments

None.

Returns

None.

Self:turnDiagnosticsOff

Method

Purpose

This method (on all platforms) turns off agent diagnostics.

Remarks

The diagnostics microagent is used in diagnosis of problems that appear in the TIBCO Hawk system. Diagnostics microagent methods are not described in this documentation set.

Type

Synchronous, IMPACT_ACTION.

Arguments

None.

Returns

None

Self:getUptime

Method

Purpose

This method (on all platforms) returns how long the agent has been running.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Parameter	Type	Description
Uptime	String	Total days, hours, and minutes the agent has been running.
Total days	String	Total number of days the agent has been running.
Total hours	String	Total number of hours the agent has been running.
Total millisec	Integer	Total number of milliseconds the agent has been running.

Self:doAMIDiscovery

Method

Purpose

This method (on all platforms) re-discovers all AMI instrumented applications.

Remarks

When TIBCO Hawk agent loses contact with an AMI instrumented application due to a network failure, the microagent corresponding to the application will be removed after 90 seconds and will not be re-discovered after network connection is restored. This method when invoked re-discovers all AMI instrumented applications. After network failure, AMI applications will not get rediscovered if using an earlier AMI implementation (prior to TIBCO Hawk 4.5) or if using a custom AMI implementation that does not provide rediscovery.

It is recommended that this method is not invoked frequently, as this will lead to the TIBCO Hawk agent receiving a number of AMI application discovery messages thereby increasing local traffic.

Type

Synchronous, IMPACT_ACTION.

Arguments

None.

Returns

None

Self:onMicroAgentEvent

Method

Purpose

This method (on all platforms) reports the change in the status of the microagent.

Remarks

If the TIBCO Hawk Agent is unable to communicate with the microagent, the status of the microagent is immediately changed to Unreachable. After 90 seconds of being inaccessible, the microagent status is changed to Removed, after which the TIBCO Hawk agent actually removes the microagent. The status of a newly discovered microagent is Added.

Type

Asynchronous, IMPACT_INFO.

Arguments

Parameter	Type	Description
Name	String	The name of the microagent

Returns

Parameter	Type	Description
Name	String	The name of the microagent
Display Name	String	The microagent display name
Status	String	Can be Unreachable, Removed, Added

COM.TIBCO.hawk.microagent.SysInfo

Microagent

Purpose

The `sysinfo` microagent (on all platforms) identifies a network host. Its methods return name, address, type of computer and operating system.

Methods

Method	Description	Page
SysInfo:getOperatingSystem	Returns operating system information	SysInfo:getOperatingSystem
SysInfo:getArchitecture	Returns hardware architecture	SysInfo:getArchitecture
SysInfo:getHostName	Returns the name of the host and the agent domain	SysInfo:getHostName
SysInfo:getNetworkAddresses	Returns the IP address of the host	SysInfo:getNetworkAddresses

SysInfo:getOperatingSystem

Method

Purpose

This method (on all platforms) returns operating system information.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
OS Name	String	The operating system name
OS Version	String	The operating system version

SysInfo:getArchitecture

Method

Purpose

This method (on all platforms) returns hardware architecture.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Architecture	String	The architecture name

SysInfo:getHostName

Method

Purpose

This method (on all platforms) returns the name of the host.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Host Name	String	The host name
Agent Domain	String	The name of the agent domain

SysInfo:getNetworkAddress

Method

Purpose

This method (on all platforms) returns the IP address of the host.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
IP Address	String	The IP address of the host. For example: 160.101.26.126.

COM.TIBCO.hawk.microagent.HawkEventService

Microagent

Description

This application reports on events generated by the TIBCO Hawk Agents across the network. Events reported include all instances of TIBCO Hawk Agent activation and expiration, add and remove operations for microagents and rulebases, all alerts generated and cleared.

Methods

Method	Description	Page
HawkEventService:onAgentAlive	Reports all instances of TIBCO Hawk Agent activation events across the network.	HawkEventService:onAgentAlive
HawkEventService:onAgentExpired	Reports all instances of TIBCO Hawk Agent expiration events across the network.	HawkEventService:onAgentExpired

Method	Description	Page
HawkEventService:onAlert	Reports all alerts generated by TIBCO Hawk Agents across the network.	HawkEventService:onAlert
HawkEventService:onClear	Reports all clears generated by TIBCO Hawk Agents across the network.	HawkEventService:onClear
HawkEventService:onMicroAgentChange	Reports all instances of microagent added and removed events across the network.	HawkEventService:onMicroAgentChange

Method	Description	Page
HawkEventService:onRulebaseChange	Reports all instances of rulebase added and removed events across the network.	HawkEventService:onRulebaseChange

HawkEventService:onAgentAlive

Method

Purpose

Reports all instances of TIBCO Hawk Agent activation events across the network.

Type

Open, Asynchronous, IMPACT_INFO

Arguments

Name	Type	Description
Agent Name	String	TIBCO Hawk Agent name. The symbol can be used to perform an OR operation. For example, abc xyz def will evaluate to true if Agent Name equals either abc or xyz or def.

Returns

Name	Type	Description
Hawk Domain	String	Value of the command line option "hawk_domain"
Agent Name	String	TIBCO Hawk Agent's name that generated this event
Agent Domain	String	TIBCO Hawk Agent's domain name (dns)
Agent IP Address	String	TIBCO Hawk Agent's IP address
Agent Start Time	String	TIBCO Hawk Agent's start time

HawkEventService:onAgentExpired

Method

Purpose

Reports all instances of TIBCO Hawk Agent expiration events across the network.

Type

Open, Asynchronous, IMPACT_INFO

Arguments

Name	Type	Description
Agent Name	String	TIBCO Hawk Agent name. The symbol can be used to perform an OR operation. For example, abc xyz def, will evaluate to true if Agent Name equals either abc or xyz or def.

Returns

Name	Type	Description
Hawk Domain	String	Value of the command line option "hawk_domain"
Agent Name	String	TIBCO Hawk Agent's name that generated this event
Agent Domain	String	TIBCO Hawk Agent's domain name (dns)
Agent IP	String	TIBCO Hawk Agent's IP address

Name	Type	Description
Address		
Agent Start Time	String	TIBCO Hawk Agent's start time
Agent Expired Time	String	TIBCO Hawk Agent's expiry time

HawkEventService:onAlert

Method

Purpose

Reports all alerts generated by TIBCO Hawk Agents across the network

Type

Open, Asynchronous, IMPACT_INFO

Arguments

Name	Type	Description
Agent Name	String	TIBCO Hawk Agent name. The symbol can be used to perform an OR operation. For example, abc xyz def will evaluate to true if Agent Name equals either abc or xyz or def.

Name	Type	Description
Rulebase	String	<p>The name of the rulebase. The symbol can be used to perform an OR operation.</p> <p>For example, abc xyz def will evaluate to true if Rulebase Name equals either abc or xyz or def.</p>

Returns

Name	Type	Description
Hawk Domain	String	Value of the command line option "hawk_domain"
Agent Name	String	TIBCO Hawk Agent's name that generated this event
Agent Domain	String	TIBCO Hawk Agent's domain name (dns)
Agent IP Address	String	TIBCO Hawk Agent's IP address
Rulebase	String	The rulebase that generated this alert
AlertID	Long	The numeric ID assigned to this alert by the TIBCO Hawk Agent
Time	String	Time at which this alert was generated
Text	String	User defined alert text value
State	String	Can be ALERT_LOW, ALERT_MEDIUM, ALERT_HIGH or NO_ALERT

Name	Type	Description
Rule	String	The rule that generated this alert
Test	String	The test that generated this alert
Alert Properties	String	Miscellaneous alert properties defined by the user

HawkEventService:onClear

Method

Purpose

Reports all clears generated by TIBCO Hawk Agents across the network

Type

Open, Asynchronous, IMPACT_INFO

Arguments

Name	Type	Description
Agent Name	String	TIBCO Hawk Agent name. The symbol can be used to perform an OR operation. For example, abc xyz def, will evaluate to true if Agent Name equals either abc or xyz or def.

Name	Type	Description
Rulebase	String	The name of the rulebase. The symbol can be used to perform an OR operation. For example, abc xyz def, will evaluate to true if Rulebase Name equals either abc or xyz or def.

Returns

Name	Type	Description
Hawk Domain	String	Value of the command line option "hawk_domain"
Agent Name	String	TIBCO Hawk Agent's name that generated this event
Agent Domain	String	TIBCO Hawk Agent's domain name (dns)
Agent IP Address	String	TIBCO Hawk Agent's IP address
Rulebase	String	The rulebase that generated this clear
AlertID	Long	The numeric ID assigned to this clear by the TIBCO Hawk Agent
Time	String	Time at which this alert was cleared
Clear Reason	String	Reason for the clear

HawkEventService:onMicroAgentChange

Method

Purpose

Reports all instances of microagent added and removed events across the network.

Type

Open, Asynchronous, IMPACT_INFO

Arguments

Name	Type	Description
Agent Name	String	TIBCO Hawk Agent name. The symbol can be used to perform an OR operation. For example, abc xyz def, will evaluate to true if Agent Name equals either abc or xyz or def.

Returns

Name	Type	Description
Hawk Domain	String	Value of the command line option "hawk_domain"
Agent Name	String	TIBCO Hawk Agent's name that generated

Name	Type	Description
		this event
Agent Domain	String	TIBCO Hawk Agent's domain name (dns)
Agent IP Address	String	TIBCO Hawk Agent's IP address
Action	String	Type of event, could either be onMicroAgentAdded or onMicroAgentRemoved
MicroAgentID	String	Name and the instance of the microagent

HawkEventService:onRulebaseChange

Method

Purpose

Reports all instances of rulebase added and removed events across the network.

Type

Open, Asynchronous, IMPACT_INFO

Arguments

Name	Type	Description
Agent	String	TIBCO Hawk Agent name. The symbol can be

Name	Type	Description
Name		used to perform an OR operation. For example, abc xyz def, will evaluate to true if Agent Name equals either abc or xyz or def.

Returns

Name	Type	Description
Hawk Domain	String	Value of the command line option "hawk_domain"
Agent Name	String	TIBCO Hawk Agent's name that generated this event
Agent Domain	String	TIBCO Hawk Agent's domain name (dns)
Agent IP Address	String	TIBCO Hawk Agent's IP address
Action	String	Type of event, could either be onRulebaseAdded or onRulebaseRemoved
Rulebase	String	Name of the rulebase

COM.TIBCO.hawk.microagent.RuleBaseEngine

Microagent

Purpose

The RuleBaseEngine microagent (on all platforms) returns information from rulebases and takes actions on rulebases that affect the TIBCO Hawk agent itself. RuleBaseEngine methods are used to examine auto-configuration information, to examine active microagents, and to load and unload rulebases (for example in a rulebase-management rulebase).

Remarks

In prior releases of the TIBCO Hawk software, many of the RuleBaseEngine functions were handled by the self microagent.

Some methods of the RuleBaseEngine microagent are proprietary. They are listed here for completeness, but cannot be invoked directly.

Methods

Method	Description	Page
RuleBaseEngine:deleteRuleBase	Deletes the specified rulebase.	RuleBaseEngine:deleteRuleBase
RuleBaseEngine:getExternalVariables	Returns the currently loaded external variables as tabular	RuleBaseEngine:getExternalVariables

Method	Description	Page
	data	
RuleBaseEngine:getRuleBaseNames	Returns the names of the currently loaded rulebases	RuleBaseEngine:getRuleBaseNames
RuleBaseEngine:getScheduleNames	Returns names of currently loaded schedules	RuleBaseEngine:getScheduleNames
RuleBaseEngine:loadRuleBase	Attempts to find and load the named rulebase	RuleBaseEngine:loadRuleBase
RuleBaseEngine:loadRuleBaseFromFile	Attempts to find and load a rulebase from a file path	RuleBaseEngine:loadRuleBaseFromFile
RuleBaseEngine:unloadRuleBase	Attempts to unload the named	RuleBaseEngine:unloadRuleBase

Method	Description	Page
	rulebase	
RuleBaseEngine:getConfigInfo	Returns configuration information for the rulebase	RuleBaseEngine:getConfigInfo
RuleBaseEngine:sendMail	Sends email notification upon a rulebase event	RuleBaseEngine:sendMail
RuleBaseEngine:onAlertCount	Provides current and average rulebase engine alert rate statistics	RuleBaseEngine:onAlertCount
RuleBaseEngine:onAlertCountForRulebase	Provides the rulebase engine alert rate statistics	RuleBaseEngine:onAlertCountForRulebase
RuleBaseEngine:suspendAlert	Suspends an alert	RuleBaseEngine:suspendAlert

Method	Description	Page
RuleBaseEngine:suspendAllAlerts	Suspends alerts for the specified number of milliseconds	RuleBaseEngine:suspendAllAlerts
RuleBaseEngine:resumeSuspendedAlerts	Restarts alerts after alert suspension	RuleBaseEngine:resumeSuspendedAlerts
RuleBaseEngine:updateExternalVariables	Updates the external variables and saves them to the variable file	RuleBaseEngine:updateExternalVariables

Proprietary Methods

The following methods of the `RuleBaseEngine` microagent are proprietary. The TIBCO Hawk system does not support direct user invocation of these methods from the TIBCO Hawk Display or Console API.

However, these methods are used indirectly by TIBCO Hawk Display when interacting with agents and thus have security implications. Access to proprietary methods with an impact of Action should only be granted to trusted users who are allowed access to all Action methods.

Proprietary Method Summary

Method Name	Impact	Description
getCommands	Info	Returns the rulebase commands
getRuleBases	Info	Retrieves rulebases from the agent
getSchedules	Info	Returns the Schedules List
getRBMap	Info	Returns the RuLeBaseMap file
addRuleBase	Action	Sends rulebases to the agent
updateRuleBase	Action	Updates rulebases on the agent
setSchedules	Action	Sets the schedules list for an agent
setRBMap	Action	This method sets the RuLeBaseMap file for an agent
runTest	Action	Runs tests for network queries
onAlertPosted	Info	Provides data for alerts posted by the Rulebase Engine
onAlertCleared	Info	Provides data for alerts cleared by the Rulebase Engine

RuleBaseEngine:deleteRuleBase

Method

Purpose

This method (on all platforms) deletes the specified rulebase.

Remarks

The agent will delete the rulebase from its cache. If the agent is configured to run under `auto config` mode it will delete this rulebase from the `auto config` directory as well.

Type

Synchronous, `IMPACT_ACTION`.

Arguments

Name	Type	Description
RuleBaseName	String	The name of the rulebase to delete

Returns

None.

RuleBaseEngine:getExternalVariables

Method

Purpose

This method (on all platforms) returns the currently loaded external variables as tabular data in two fields, variable name and value.

Type

Synchronous, `IMPACT_INFO`.

Arguments

None.

Returns

Name	Type	Description
Variable Name	String	The name of the external variable
Value	String	The value of the external variable

RuleBaseEngine:getRuleBaseNames

Method

Purpose

This method (on all platforms) returns the names of the currently loaded rulebases.

Remarks

Each record of the table identifies one rulebase. Therefore, tests that search for strings within a name (such as NT) will result in separate actions for each rulebase name that matches the criterion.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
RuleBaseName	String	The name of each rulebase. Table is indexed on the RuleBaseName field

RuleBaseEngine:getScheduleNames

Method

Purpose

This method (on all platforms) returns the names of the currently loaded schedules.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
ScheduleName	String	The name of each schedule. Table is indexed on the ScheduleName field.

RuleBaseEngine:loadRuleBase

Method

Purpose

This method (on all platforms) attempts to find and load the named rulebase.

Remarks

The agent will search all directories in its manual configuration path for the rulebase file, whether manual or automatic configuration is being used.

Type

Synchronous, IMPACT_ACTION.

Arguments

Name	Type	Description
RuleBaseName	String	The name of the rulebase to load

Returns

None.

RuleBaseEngine:loadRuleBaseFromFile

Method

Purpose

This method (on all platforms) attempts to find and load the rulebase in the named file. An absolute file path is required.

Type

Synchronous, IMPACT_ACTION.

Arguments

Name	Type	Description
File	String	The absolute path name of the file from which to load rulebases

Returns

None.

RuleBaseEngine:unloadRuleBase

Method

Purpose

This method (on all platforms) attempts to unload the named rulebase.

Remarks

If the rulebase is not currently loaded then no error is returned.

Type

Synchronous, IMPACT_ACTION.

Arguments

Name	Type	Description
RuleBaseName	String	The name of the rulebase to unload

Returns

None.

RuleBaseEngine:getConfigInfo

Method

Purpose

This method (on all platforms) returns information on how the rulebase is currently configured.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Name	String	Name of rulebase
Reason Loaded	String	Reason for loading rulebase, such as auto-config startup
Loaded From	String	Source of rulebase
Load Time	String	Time rulebase was loaded, in format of day of week, month, day, time, year

RuleBaseEngine:sendMail

Method

Purpose

This method (on all platforms) sends an email notification.

Remarks

The `To` and `Subject` fields are only mandatory fields and all other fields are optional. If `From` is not specified, the current host ID is used. If the `Content` field is blank, the text of the `Subject` line is used. If the `Mail Server` is not specified, then SMTP server configured in the agent sends email.

Rulebases can send mail upon detecting a specified condition.

Type

Synchronous, `IMPACT_ACTION`.

Arguments

Name	Type	Description
<code>To</code>	String	Address of the receiver
<code>CC</code>	String	CC (carbon copy) recipients of email
<code>BCC</code>	String	BCC (blind carbon copy) recipients of email
<code>Subject</code>	String	Subject of email
<code>Content</code>	String	Content of email
<code>Mail Server</code>	String	SMTP mail server used to send message
<code>From</code>	String	Address of the sender

Returns

None.

RuleBaseEngine:onAlertCount

Method

Purpose

Provides the rulebase engine alert rate statistics every 5 seconds. It provides alert rate averages over the previous 5, 10, 15, 30 and 60 seconds.

Remarks

When using this method as a datasource in a rulebase, the test's clear condition will default to "Clear Timer" with a value of 900 seconds. However, because this async method provides statistics every 5 sec, choosing clear condition "First False" may be more useful.

RuleBaseEngine:onAlertCount and RuleBaseEngine:suspendAllAlerts can be used together to create an alert-rate circuit breaker that insulates the network from agents that produce alerts at message high rates that are too high. For example, using onAlertCount as a data source, if (5sec > 10) then suspendAllAlerts for 60,000 msec. This would suspend all alerts for 1min if the average rate of alerts over the last 5sec was greater than 2 alerts per sec.

Type

Asynchronous, IMPACT_INFO

Arguments

None

Returns

Name	Type	Description
5sec	Integer	The alert rate averaged over the previous 5 seconds
10sec	Integer	The alert rate averaged over the previous 10 seconds
15sec	Integer	The alert rate averaged over the previous 15 seconds
30sec	Integer	The alert rate averaged over the previous 30 seconds
60sec	Integer	The alert rate averaged over the previous 60 seconds

RuleBaseEngine:onAlertCountForRulebase

Method

Purpose

Provides the rulebase engine alert rate statistics for a given rulebase every five seconds. It provides alert rate averages over the previous 5, 10, 15, 30 and 60 seconds.

Remarks

When using this method as a datasource in a rulebase, the clear condition of the test defaults to "Clear Timer" with a value of 900 seconds. However, because this async method provides statistics every five seconds, choosing clear condition "First False" may be more useful.

Type

Open, Asynchronous, IMPACT_INFO

Arguments

Name	Type	Description
RuleBaseName	String	The name of the rulebase.

Returns

Name	Type	Description
5sec	Integer	The alert rate averaged over the previous 5 seconds
10sec	Integer	The alert rate averaged over the previous 10 seconds
15sec	Integer	The alert rate averaged over the previous 15 seconds
30sec	Integer	The alert rate averaged over the previous 30 seconds
60sec	Integer	The alert rate averaged over the previous 60 seconds

RuleBaseEngine:suspendAlert

Method

Purpose

This method suspends an alert for the specified number of milliseconds. The default is 10000 milliseconds.

Type

Open, Synchronous, IMPACT_ACTION

Arguments

Name	Type	Description
AlertID	Long	Alert ID
Time	Long	Time in milliseconds
Reason	String	Reason to suspend alert

Returns

None.

RuleBaseEngine:suspendAllAlerts

Method

Purpose

Suspends all current and future alerts in the rulebase engine for the specified number of milliseconds.

Remarks

If a specific rulebase is provided as an argument, this method applies only the alerts generated by that rulebase.

This method is generally used as an Action to a Rule using `RBE:onAlertRate` as a data source to create an alert-rate circuit breaker.

`RuleBaseEngine:suspendAllAlerts` takes a rulebase argument. If empty, it suspends all alerts on all rulebases. After suspending all alerts, a high level alert (one per rulebase) is issued to indicate that the rulebase has been suspended. That alert will be cleared when the suspension period expires.

When a rulebase is suspended, all its current and future alerts are suspended for the specified interval. Note that all other monitoring activity continues. For example, actions that send email or invoke scripts or other methods continue to operate normally.

Type

Open, Synchronous, `IMPACT_ACTION`

Arguments

Name	Type	Description
RuleBaseName	String	The name of the rulebase whose alerts will be suspended. If omitted, this method applies to all rulebases.
Time	Long	The suspension period in milliseconds. Cannot be zero or negative.
Reason	String	The reason for this suspension. It is useful to also provide the time and source of suspension in this string. Cannot be empty string.

Returns

None

RuleBaseEngine:resumeSuspendedAlerts

Method

Purpose

This method (on all platforms) restarts all alerts after alert suspension.

Type

Asynchronous, IMPACT_ACTION.

Arguments

None.

Returns

None.

RuleBaseEngine:updateExternalVariables

Method

Purpose

This method (on all platforms) reads the variables file and re-loads all rulebases that use the variables listed in the variable file.

Type

Synchronous, IMPACT_ACTION.

Arguments

None.

Returns

None.

COM.TIBCO.hawk.microagent.Messaging

Microagent



Note

This microagent is available only when Hawk Message Transport is TIBCO Rendezvous.

Purpose

The Messaging microagent (on all platforms) responds to requests from TIBCO Hawk agents to send and receive messages using either TIBCO Rendezvous or TIBCO EMS.

Methods

Method	Description	Page
Messaging:sendMessage	Sends a simple message as a string using the configured transport	Messaging:sendMessage
Messaging:onMessage	Receives a message	Messaging:onMessage
Messaging:onTimeout	Returns the number of timeout intervals that have elapsed since the arrival of the previous message or since the start of the subscription to this method.	Messaging:onTimeout
Messaging:onNumber	Receives a message with a <code>_data_</code> field having a numeric value	Messaging:onNumber

Messaging:sendMessage

Method

Purpose

Sends a simple message as a string (in the field `_data_`) using the configured transport.

Type

Synchronous, `IMPACT_ACTION`.

Arguments

Name	Type	Description
Subject	String	Message subject. Any leading and trailing spaces in the subject are ignored.
Message	String	Content of the message

Returns

None.

Messaging:onMessage

Method

Purpose

Receives a message using the configured transport.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Subject	String	Message subject. Any leading and trailing spaces in the subject are ignored.

Returns

Name	Type	Description
Subscription Subject	String	Subscription subject
Message Subject	String	Message subject specified by the sender
MSG_CONTENT	String	Content of the message

Messaging:onTimeout

Method

Purpose

Returns the number of timeout intervals that have elapsed since the arrival of the previous message or since the start of the subscription to this method.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Subject	String	Subscription subject. Any leading and trailing spaces in the subject are ignored.
Timeout Interval	Integer	Timeout interval in seconds

Returns

Name	Type	Description
Timeout Interval Count	Integer	The count of consecutive timeout intervals that have passed. The return value is reset to 0 (zero) when a message is received with the specified subject or topic.

Name	Type	Description
		The return value of 0 can be used as a clear test condition within rulebases.

Messaging:onNumber

Method

Purpose

Receives a message with a `_data_` field having a numeric value. The actual value could be either a `string`, `integer`, `long`, `float`, or `double` data type which is converted to a `double` data type.

Type

Asynchronous, `IMPACT_INFO`.

Arguments

Name	Type	Description
Subject	String	Subscription subject Any leading and trailing spaces in the subject are ignored.

Returns

Name	Type	Description
Subscription Subject	String	The subscription subject
Message Subject	String	The message subject
data	Double	The numeric data

Returns

Name	Type	Description
Virtual Machine Process Id	String	Process Id of Java Virtual Machine process
Virtual Machine Process Name	String	The name of representing the running Java Virtual Machine
Thread Id	String	The ID of the thread
Thread Name	String	The name of the thread
Thread State	String	The state of the thread
Suspended	String	Denotes whether the thread is suspended
isInNative	String	Denotes whether it is executing native code via the Java Native Interface (JNI)
Blocked Count	String	The total number of attempts that the thread is blocked to enter or re-enter a monitor.
Blocked Time	String	The approximate accumulated elapsed time

Name	Type	Description
		(in milliseconds) that the thread has blocked to enter or re-enter a monitor since the enabling of thread contention monitoring.
Waited Count	String	The total count of the number of times the thread waited for notification.
Waited Time	String	The approximate accumulated elapsed time (in milliseconds) that the thread has waited for notification since the enabling of thread contention monitoring.
Thread User Time	String	CPU time executed by the thread in user mode in nanoseconds
Lock Name	String	The string representation of the monitor lock that the thread is blocked to enter or waiting to be notified through the <code>Object.wait</code> method.
Lock Owner Id	String	The thread ID which holds the monitor lock of an object on which the thread is blocked.
Lock Owner Name	String	The thread name which holds the monitor lock of an object on which the thread is blocked.

COM.TIBCO.hawk.microagent.Repository

Microagent

Purpose

The repository microagent (on all platforms) responds to configuration requests from TIBCO Hawk agents.

Remarks

Some methods of the Repository microagent are proprietary. They are listed here for completeness, but cannot be invoked directly.

Methods

Method	Description	Page
Repository:getName	Returns the name of the TIBCO Hawk repository	Repository:getName
Repository:getScheduleNames	Returns the list of schedule names currently in the repository	Repository:getScheduleNames
Repository:getRuleBaseName	Returns the list of rulebase names currently in the	Repository:getRuleBaseName

Method	Description	Page
	repository	
Repository:onRepositoryEvent	Returns repository operation	Repository:onRepositoryEvent

Proprietary Methods

The following methods of the `RuleBaseEngine` microagent are proprietary. The TIBCO Hawk system does not support direct user invocation of these methods from the TIBCO Hawk Display or Console API.

However, these methods are used indirectly by the TIBCO Hawk Display when interacting with agents and thus have security implications. Access to proprietary methods with an impact of Action should only be granted to trusted users who are allowed access to all Action methods

Proprietary Methods Summary.

Method Name	Impact	Description
<code>getRuleBases</code>	Info	This method retrieves rulebases from the repository
<code>getSchedules</code>	Info	This method returns the schedules list
<code>getRBMap</code>	Info	This method returns the RuleBaseMap file
<code>addRuleBase</code>	IMPACT_ACTION	This method send rulebases to the repository.

Method Name	Impact	Description
updateRuleBase	Action	This method updates repository rulebases.
setSchedules	Action	This method sets the schedules list for an repository
deleteRuleBase	IMPACT_ACTION	This method deletes a rulebase from the repository.
setRBMap	Action	This method sets the RuleBaseMap for a repository.

Repository:getName

Method

Purpose

Returns name of the repository.

Type

Asynchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Name	String	Name of the repository

Repository:getScheduleNames

Method

Purpose

Returns a table of names of the schedules currently in this repository.

Type

Asynchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Schedule name	String	Name of the schedule in repository

Repository:getRuleBaseName

Method

Purpose

Returns a table of names of the rulebases in this repository.

Type

Asynchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Rulebase name	String	Name of the rulebase

Repository:onRepositoryEvent

Method

Purpose

Returns information on repository events.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Object Type	String	Type of object associated with event

Returns

Name	Type	Description
Event Type	String	Type of event that occurred
Object Name	String	Name of object associated with event
Object Type	String	Type of object associated with event

COM.TIBCO.hawk.microagent.Logfile

Microagent

Purpose

The `Logfile` microagent (on all platforms) monitors the contents of log files. It has only one method: `onNewLine`. When used as a data source in a rule, the `onNewLine` method

monitors growing log files and provides each new line as a new data element for testing. The `Logfile` microagent can process rolling log files, and so it continues to monitor the correct data stream even when log files roll over.

The `Logfile` microagent assumes that the file being monitored is a constantly growing log file with all new data appended at the end. If it detects that a file has decreased in size, it assumes that the file has been overwritten (or rolled) and begins monitoring the new file from the beginning.

When the `Logfile` microagent is first directed to monitor a particular log file (such as when you first load a rulebase that uses it), monitoring begins from the end of the file. In other words, only new lines are reported and any lines that existed in the file before monitoring was initiated are ignored.

Methods

Method	Description	Page
Logfile:onNewLine	Returns the text of a new line as it is added to the named log file	Logfile:onNewLine
Logfile:onNewLinewithPatternFile	Returns the text of a new line as it is added to the named log file using the specified pattern file	Logfile:onNewLinewithPatternFile

Method	Description	Page
	as a filter.	
Logfile:reEvaluateLogFileNames	Forces re-evaluation of all logfiles that are currently being monitored.	Logfile:reEvaluateLogFileNames

Logfile:onNewLine

Method

Purpose

This method (on all platforms) returns the new line in a log file whenever a new line is appended to the log file.

The first time this method is invoked, the `previousLine` field will be blank. On subsequent invocations, the `previousLine` field will contain the value of the `nextLine` field of the previous method invocation.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Logfile	String	<p>The log file to be monitored.</p> <p>Back quoted strings, external and internal variables can be used. The TIBCO Hawk agent will execute the command within the back quotes and return the string for substitution.</p> <p>For example, 'echo /tmp/foo.log' will be evaluated to /tmp/foo.log</p>

Returns

Name	Type	Description
nextLine	String	The next available line in the log file
previousLine	String	The previous line in the log file

Logfile:onXMLElement

Method

Purpose

This method (on all platforms) monitors XML log files.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Logfile	String	The log file to be monitored. Back quoted strings, external and internal variables can be used. The TIBCO Hawk agent will execute the command within the back quotes and return the string for substitution. For example, 'echo /tmp/foo.log' will be evaluated to /tmp/foo.log
element	String	The tag name of element to monitor
xpath	String	The XPATH expression to apply to the element

Returns

Name	Type	Description
nextResult	String	The result of the XPATH evaluation

Logfile:onNewLinewithPatternFile

Method

Purpose

This method (on all platforms) applies the patterns from the pattern file to a new line from the log file. It returns the matching severity and pattern from the pattern file and the new line from the log file. The pattern file contains patterns that are used to match relevant log file entries. The pattern file is used as a filter to determine which lines are returned to the subscriber.

The first time this method is invoked, the `previousLine` field will be blank. On subsequent invocations, the `previousLine` field will contain the value of the `nextLine` field of the previous method invocation.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Logfile	String	<p>The log file to be monitored.</p> <p>Back quoted strings, external and internal variables can be used. The TIBCO Hawk agent will execute the command within the back quotes and return the string for substitution.</p> <p>For example, 'echo /tmp/foo.log' will be evaluated to /tmp/foo.log</p>

Name	Type	Description
patternfile	String	<p>The pattern file containing the severity values and the Perl5 patterns. The pattern file cannot be empty, it should contain at least one valid entry. Each line in the pattern file should contain an integer severity level followed by a white space and a valid Perl5 pattern.</p> <p>A negative severity level (for example, -1) means that all lines that match this pattern are to be ignored. All other severity levels (positive or 0) indicate that lines matching the corresponding patterns are of interest</p>

Returns

Name	Type	Description
severity	Integer	The severity value of the matching pattern
pattern	String	The Perl5 pattern string of the matching pattern
nextLine	String	The next available line in the log file
previousLine	String	The previous line in the log file

Logfile:reEvaluateLogFileNames

Method

Purpose

This method (on all platforms) forces a re-evaluation of all log file names that are currently being monitored.

Type

Synchronous, IMPACT_ACTION.

Arguments

None.

Returns

None

COM.TIBCO.hawk.microagent.Custom

Microagent

Purpose

The `Custom` microagent (on all platforms) runs executable programs and scripts from within the TIBCO Hawk system. You can retrieve information from a script or program. Custom methods also allow you to write rules that act on that information as though it came from a microagent method call.

Methods

Method	Description	Page
Custom:executeForString	Executes a command and returns the output as a String	Custom:executeForString
Custom:executeForNumber	Executes a command and parses the string output to return both an Integer and a Double	Custom:executeForNumber
Custom:execute	Executes a command and ignores the result	Custom:execute

**Note**

For instructions on how to disable execution of this method, refer to *TIBCO Hawk Installation and Configuration*.

Custom:executeForString

Method

Purpose

This method (on all platforms) executes a command and returns the output as a string.

Remarks

The command that is executed can return information by sending strings to `stdout`. If the executed command returns more than one line, the lines are concatenated to produce one string.

When using this method on the OS/400 platform, only commands that start with `system` (when using a CL command) and `qsh` (when using Q shell utilities) are supported. Use the `-c` option when using the `qsh` command.

Examples,

```
qsh -c ls
```

```
system DSPDTAARA DTAARA (<LibName>/<Data Area Name>)
```

Type

Synchronous, `IMPACT_ACTION_INFO`.

Arguments

Name	Type	Description
command	String	The command to execute. Should be exactly as would be read on the command line. External and internal variables can be used in the command string.

Returns

Name	Type	Description
returnString	String	The String representation of the command's output

Custom:executeForNumber

Method

Purpose

This method (on all platforms) executes a command and parses the output as a number which is then returned as both an integer and a double value. The integer value of a true double truncates the remainder.

Remarks

The command that is executed can return information by sending a number to `stdout`. If the executed command returns more than one number, an error will result.

The executable can return information by sending strings to `stdout`. If the executable returns more than one line, the lines are concatenated to produce one string.

Type

Synchronous, `IMPACT_ACTION_INFO`.

Arguments

Name	Type	Description
command	String	The command to execute. External and internal variables can be used in the command string.

Returns

Name	Type	Description
returnInteger	Integer	The integer value of the return string
returnDouble	Double	The double value of the return string

Custom:execute

Method

Purpose

This method (on all platforms) executes a command and ignores the result.

Remarks

If this method call is performed within an action, you can provide parameters for a script or program by using variable substitution. Variable substitution will insert information into the command from the rule's data source.

When using this method on the OS/400 platform, only commands that start with system (when using a CL command) and qsh (when using Q shell utilities) are supported. Use the -c option when using the qsh command.

Examples,

```
qsh -c ls
```

```
system DSPDTAARA DTAARA (<LibName>/<Data Area Name>)
```

Type

Synchronous, IMPACT_ACTION.

Arguments

Name	Type	Description
command	String	The command to execute

Returns

None.



Tip

All shell scripts called from your TIBCO Hawk environment must define the shell, for example #!/bin/csh.

COM.TIBCO.hawk.hma.FileStat

Microagent

Purpose

The `FileStat` microagent (on all platforms) monitors the status and operating statistics of files.

Methods

Method	Description	Page
FileStat:getFileStatus	Returns file status information	FileStat:getFileStatus
FileStat:getFileCount	Returns the number of files matching a regular expression	FileStat:getFileCount

FileStat:getFileStatus

Method

Description:

This method returns status information for the directory(s) or file(s) contained in the specified directory whose names match the specified regular expression. Use a regular

expression to query the status of a set of files. The regular expression can only be used on the file name portion of the input parameter. For example

```
c:/temp/*.*
```

This expression queries all the files in `c:/temp` directory.

```
c:/temp/*.tmp
```

This queries all the files in `c:/temp` directory that have the `.tmp` suffix.

Remarks

The arguments and return values for this method are different for Microsoft Windows and Unix platforms.

Type

Synchronous, `IMPACT_INFO`.

Microsoft Windows Only Arguments

Name	Type	Description
Directory	String	Name of the directory to be searched. No entry indicates the current directory. Regular expressions are <i>not</i> allowed for this argument.
File Name	String	Name of the file to query

Unix Only Arguments

Name	Type	Description
File Name	String	Absolute path and name of the file to query

Common to Both Microsoft Windows and Unix Returns

Name	Type	Description
File Name	String	Name of the file to query. Table is indexed on the File Name
File Size	Long	Total size of the file in bytes
Is Directory	Boolean	The handle identifies a directory
Seconds Since Accessed	Integer	Number of seconds elapsed since last access
Seconds Since Modified	Integer	Number of seconds elapsed since last modified
Seconds Since Creation	Integer	(Microsoft Windows only) Number of seconds elapsed since creation. (UNIX only) Number of seconds since last status change.

Microsoft Windows Only Returns

Name	Type	Description
Alt File Name	String	(Microsoft Windows only) The alternate file name of this file or directory. This name is in the classic 8.3 (filename.ext) file name format.
Is Read Only	Boolean	(Microsoft Windows only) The file or directory is read-only. Applications can read the file but cannot write to it or delete it. In the case of a directory, applications cannot delete it.
Is Hidden	Boolean	(Microsoft Windows only) The file or directory is hidden. It is not included in an ordinary directory listing.
Is System	Boolean	(Microsoft Windows only) The file or directory is part of the operating system or is used exclusively by the operating system.
Is Archive	Boolean	(Microsoft Windows only) The file or directory is an archive file or directory. Applications use this attribute to mark files for backup or removal.
Is Encrypted	Boolean	(Microsoft Windows only) The file or directory is encrypted. For a file, this means that all data in the file is encrypted. For a directory, this means that encryption is the default for newly created files and subdirectories.
Is Normal	Boolean	(Microsoft Windows only) The file or directory has no other attributes set. This attribute is valid only if used alone.
Is Offline	Boolean	(Microsoft Windows only) The file data is

Name	Type	Description
		not immediately available. This attribute indicates that the file data has been physically moved to offline storage. This attribute is used by Remote Storage, the hierarchical storage management software. Applications should not arbitrarily change this attribute.
Has Reparse Point	Boolean	(Microsoft Windows only) The file has an associated reparse point.
Is Sparse	Boolean	(Microsoft Windows only) The file is a sparse file.
Is Temporary	Boolean	(Microsoft Windows only) The file is being used for temporary storage. File systems attempt to keep all of the data in memory for quicker access, rather than flushing it back to mass storage. A temporary file should be deleted by the application as soon as it is no longer needed.

Unix Only Returns

Name	Type	Description
Major	Integer	Major number of the device on which the file resides
Minor	Integer	Minor number of the device on which the file resides

Name	Type	Description
Inode	Integer	File inode number
Mode	String	File mode as octal mask
Is Character Special	Boolean	This file is a character special file
Is Pipe	Boolean	This file is a pipe (FIFO)
Is Regular	Boolean	This file is a regular file
Is Readable	Boolean	This file has readable permission set
Is Writable	Boolean	This file has writable permission set
Is Executable	Boolean	This file has executable permission set
Links	Integer	Count of hard links to the file
User	String	User name of the owner
Group	String	Group name of the owner

FileStat:getFileCount

Method

Description

This method returns the count of directory(s) or file(s) contained in the specified directory whose names match the specified regular expression. The regular expression syntax follows the same syntax as specified for the `getFileStatus` method.

Remarks

The arguments for this method are different for Windows and Unix platforms.

Type

Synchronous, IMPACT_INFO.

Windows Only Arguments

Name	Type	Description
Directory	String	Name of the directory to be searched. No entry indicates the current directory. Regular expressions are <i>not</i> allowed for this argument.
File Name	String	Name of the file to query

Unix Only Arguments

Name	Type	Description
File Name	String	Absolute path and name of the file to query

Returns

Name	Type	Description
File Count	Integer	Number of files that match the specified query. Table is indexed on the File Count

COM.TIBCO.hawk.hma.TibRendezvous

Microagent



Note

This microagent is available only when Hawk Message Transport is TIBCO Rendezvous.

Purpose

The `TibRendezvous` microagent (on all platforms) monitors the status and operating statistics of a TIBCO Rendezvous daemon.

Remarks

Because the behavior and configuration of the `TibRendezvous` microagent is identical across platforms, it is included in the platform-independent section of this reference. However, this microagent runs within the HMA process, which is specific to each platform.

All TIBCO Rendezvous advisory messages of class `ERROR` and `WARN` will be monitored by the `TibRendezvous` microagent. If an `ERROR` or `WARN` advisory message is not monitored by any of the `TibRendezvous` microagent methods, the message is presented as an unsolicited message. The message text will include the TIBCO Rendezvous daemon parameters, which indicate the message origin.

Methods

Method	Description	Page
TibRendezvous:onRvDaemonStatus	Subscribes to TIBCO Rendezvous internal status messages.	TibRendezvous:onRvDaemonStatus
TibRendezvous:onRvDataLoss	Subscribes to TIBCO Rendezvous data loss messages.	TibRendezvous:onRvDataLoss
TibRendezvous:onRvdDisconnectOrConnect	Subscribes to TIBCO Rendezvous disconnected /connected advisory messages.	TibRendezvous:onRvdDisconnectOrConnect
TibRendezvous:onRvLicenseExpire	Subscribes to TIBCO Rendezvous license expired advisory messages.	TibRendezvous:onRvLicenseExpire
TibRendezvous:onRvdRetransmissionSuppressed	Subscribes to TIBCO Rendezvous daemon outbound retransmission suppressed advisory messages.	TibRendezvous:onRvdRetransmissionSuppressed

TibRendezvous:onRvDaemonStatus

Method

Purpose

This method (on all platforms) subscribes to TIBCO Rendezvous internal status messages and reports TIBCO Rendezvous daemon status.

Remarks

The method argument `Interval` specifies the interval in seconds at which daemon status is to be reported (that is, the rate at which asynchronous method `onRvDaemonStatus` is called.)

The TIBCO Rendezvous status messages being monitored are reported at fixed 90 second intervals. The TibRendezvous Microagent must collect numerous status messages in order to construct an accurate view of the daemon status being reported. It is recommended that an `Interval` be specified that is a multiple of 90 seconds and no less than 90 seconds. If you enter a value less than 90 seconds, the default value (90 seconds) will be used.

If you have more than one network interface on the machine where the TIBCO Rendezvous daemon is running, the method may not report the daemon status if the `network` parameter is not specified. To determine the network interface that the TIBCO Rendezvous daemon uses to publish the status, use the TIBCO Rendezvous HTTP interface and browse to the specific service.

Type

Asynchronous, INFO.

Arguments

Name	Type	Description
Service	String	TIBCO Rendezvous service
Network	String	TIBCO Rendezvous network
Daemon	String	TIBCO Rendezvous daemon
Interval	Integer	Report interval in seconds. (See Remarks above.)

Returns

Name	Type	Description
IP Address	String	Daemon IP address in standard form, for example 255.100.10.30
IP Address (bin)	String	Daemon IP address. 1. The return value is a string representation of the binary digits that make up the IP address. For example, the IP address 255.100.10.30 would be presented as "11111111.1100100.00001010.00011110". The IP address in this form allows for more flexible rulebase tests to be constructed using the Perl5PatternMatch operator of the TIBCO Hawk rulebase editor
Uptime	Integer	The number of seconds since the start time on this service as reported by the TIBCO Rendezvous daemon.
Version	String	The version of the daemon executable formatted as a string. For example,

Name	Type	Description
		6.3.5.
HTTP IP	String	IP address of the TIBCO Rendezvous daemon HTTP interface
HTTP Port	Integer	The IP port used in TIBCO Rendezvous daemon HTTP interface
HTTP URL	String	URL to access the TIBCO Rendezvous daemon HTTP interface
Messages Sent	Long	Number of messages sent to the network since the last interval
Messages Received	Long	Number of messages received from the network since the last interval
Bytes Sent	Long	Number of bytes in messages sent to the network since the last interval
Bytes Received	Long	Number of bytes in messages received from the network since the last interval
Packets Sent	Long	The total number of data packets transmitted since the last interval. This total counts initial transmission and all retransmissions; that is, each packet counts separately each time it is transmitted or retransmitted.
Retransmitted Packets	Long	Number of data packets retransmitted to other daemons since the last interval
% Retransmitted Packets	Double	Number of data packets retransmitted to other daemons since the last interval expressed as a percent. Note that it is

Name	Type	Description
		normal to have a value of several percentage points. A value that is consistently greater than 10 percent for more than 10 to 20 minutes is abnormal.
Packets Received	Long	The number of data packets received by this daemon process since the last interval.
Missed Packets	Long	The number of data packets missed since the previous data sample. This count includes only the initial transmission of a packet from another daemon; missed retransmissions are not counted.
% Missed Packets	Double	The number of data packets missed since the last interval expressed as a percent. Note that it is normal to have a value of several percentage points. A value that is consistently greater than 10 percent for more than 10 to 20 minutes is abnormal.
Time	Double	The time at which the host status message was generated.
Messages Sent/Per Second	Double	Messages sent per second in the last interval
Messages Received/Per Second	Double	Messages received per second in the last interval
Bytes Sent/Per	Double	Bytes sent per second in the last

Name	Type	Description
Second		interval
Bytes Received/Per Second	Double	Bytes received per second in the last interval
Packets Sent/Per Second	Double	Packets sent per second in the last interval
Packets Received/Per Second	Double	Packets received per second in the last interval
Inbound Data Loss	Long	
Outbound Data Loss	Long	
OS Type	Integer	A code number denoting the operating system of the daemon's host computer

TibRendezvous:onRvDataLoss

Method

Purpose

This method (on all platforms) subscribes to TIBCO Rendezvous data loss messages and reports their occurrence.

Type

Asynchronous, INFO.

Arguments

Name	Type	Description
Service	String	TIBCO Rendezvous service
Network	String	TIBCO Rendezvous network
Daemon	String	TIBCO Rendezvous daemon

Returns

Name	Type	Description
Subject	String	Advisory message subject name
IP Address	String	IP address of the <i>other</i> daemon where this daemon is experiencing data loss. The address is returned in standard form, for example 255.100.10.30
IP Address (bin)	String	IP address of the <i>other</i> daemon where this daemon is experiencing data loss. The address is returned as a string representation of the binary digits that make up the IP address. For example, the IP address 255.100.10.30 would be presented as "11111111.1100100.00001010.000 11110". The IP address in this form allows for more flexible rulebase tests to be constructed using the Perl5PatternMatch operator of the TIBCO Hawk rulebase editor

Name	Type	Description
Advisory Description	String	The description of the advisory message

TibRendezvous:onRvdDisconnectOrConnect

Method

Purpose

This method (on all platforms) subscribes to TIBCO Rendezvous disconnected/connected advisory messages and reports their occurrence.

Type

Asynchronous, INFO.

Arguments

Name	Type	Description
Service	String	TIBCO Rendezvous service
Network	String	TIBCO Rendezvous network
Daemon	String	TIBCO Rendezvous daemon

Returns

Name	Type	Description
Subject	String	Advisory message subject name that indicates whether the TIBCO Rendezvous daemon is disconnected or connected.

TibRendezvous:onRvLicenseExpire

Method

Purpose

This method (on all platforms) subscribes to TIBCO Rendezvous license expired advisory messages and reports their occurrence.

Type

Asynchronous, INFO.

Arguments

Name	Type	Description
Service	String	TIBCO Rendezvous service
Network	String	TIBCO Rendezvous network
Daemon	String	TIBCO Rendezvous daemon

Returns

Name	Type	Description
Subject	String	Subject name
Expire Time	String	License expiration time

TibRendezvous:onRvdRetransmissionSuppressed

Method

Purpose

This method (on all platforms) subscribes to TIBCO Rendezvous daemon outbound retransmission suppressed advisory messages.

Type

Asynchronous, INFO.

Arguments

Name	Type	Description
Service	String	TIBCO Rendezvous service
Network	String	TIBCO Rendezvous network
Daemon	String	TIBCO Rendezvous daemon

Returns

Name	Type	Description
Subject	String	Subject name
IP Address	String	IP Address of the host computer where the chronically-lossy receiver (rvd) is running
Lost	Long	The number of packets requested by the host, but not retransmitted by the sending daemon (during the interval since the last advisory of this type for the receiving host and service).

COM.TIBCO.hawk.microagent.tcpdaemon.TcpClusterStatus

Microagent



Note

This microagent is available only when TCP Transport for TIBCO Hawk is used as the Hawk messaging transport.

Purpose

The `TcpClusterStatus` microagent provides methods to monitor the health of the TCP transport cluster and Cluster Managers.

Methods

Method	Description	Page
TcpClusterStatus:getDaemonStatus	Returns list of Cluster Managers that are connected to the cluster.	TcpClusterStatus:getDaemonStatus
TcpClusterStatus:getClusterStatus	Returns the following statistics for the cluster: <ul style="list-style-type: none">• Cluster Manager connect URL• Total number of configured Cluster Managers• Member removal strategy• Minimum number	TcpClusterStatus:getClusterStatus

Method	Description	Page
	<p>er of Cluster Managers to keep the cluster alive</p> <ul style="list-style-type: none"> • Number of reachable Cluster Managers. 	
TcpClusterStatus:getMemberCount	Returns total number of members in the cluster (including Cluster Managers, Hawk agents, and console applications).	TcpClusterStatus:getMemberCount
TcpClusterStatus:onMemberEvent	Subscribes for members (Cluster Managers, Hawk agents, and console applications) joining and leaving cluster.	TcpClusterStatus:onMemberEvent

TcpClusterStatus:getDaemonStatus

Method

Purpose

This method (on all platforms) returns list of Cluster Managers that are connected to the cluster.

Type

Open, Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
Address	String	(Optional) Socket address of the Cluster Manager

Returns

Name	Type	Description
Daemon Address	String	Socket address of the Cluster Manager. The socket address is the combination of IP and port number.
Daemon Status	String	Status of the Cluster Manager

TcpClusterStatus:getClusterStatus

Method

Purpose

This method (on all platforms) returns statistics for the cluster.

Type

Open, Synchronous, `IMPACT_INFO`.

Arguments

None

Returns

Name	Type	Description
Daemon URL	String	Comma-separated socket address of the Cluster Manager. The socket address is the combination of IP and port number.
Total Daemon Count	Integer	Total number of Cluster Managers configured for the cluster.
Strategy	String	The member removal strategy applied for the cluster. The values are <code>Quorum</code> and <code>Majority</code> .

Name	Type	Description
Required Daemon Count	Integer	Minimum number of Cluster Managers that are required to keep the cluster alive.
Reachable Daemon Count	Integer	Number of reachable Cluster Managers in the cluster.

TcpClusterStatus:getMemberCount

Method

Purpose

This method (on all platforms) returns total number of members in the cluster (including Cluster Managers, Hawk agents, and console applications).

Type

Open, Synchronous, IMPACT_INFO.

Arguments

None

Returns

Name	Type	Description
Daemon Count	Integer	Number of Cluster Managers in the cluster.
Agent Count	Integer	Number of Hawk agents present in the cluster.
Console Count	Integer	Number of Console applications in the cluster.
Total Count	Integer	Total number of members in the cluster.

TcpClusterStatus:onMemberEvent

Method

Purpose

Subscribes for members (Cluster Managers, Hawk agents, and console applications) joining and leaving the cluster.

Type

Open, Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Event Type	String	Types of event, such as, members joining and leaving cluster.

Returns

Name	Type	Description
Member Address	String	Socket address of the cluster member. The socket address is the combination of IP and port number.
Member Status	Status	Status of the cluster member
Member Type	String	Type of the cluster member

COM.TIBCO.hawk.microagent.TCPMessaging

Microagent



Note

This microagent is available only when TCP Transport for TIBCO Hawk is used as the Hawk messaging transport.

Purpose

The TCPMessaging microagent provides methods to send and receive messages by using the TCP Transport for TIBCO Hawk.

Methods

Method	Description	Page
TcpMessaging:sendMessage	Sends a message by using the TCP Transport for TIBCO Hawk.	TcpMessaging:sendMessage
TcpMessaging:onMessage	Receives the message by using TCP Transport for TIBCO Hawk.	TcpMessaging:onMessage
TcpMessaging:onNumber	Receives a TCP message with numeric value.	TcpMessaging:onNumber
TcpMessaging:onTimeout	Returns the number of timeout intervals that have elapsed because of the arrival of the previous message or because of the start of the subscription to this method.	TcpMessaging:onTimeout

TcpMessaging:sendMessage

Method

Purpose

Sends a simple message as a string by using the TCP Transport for TIBCO Hawk.

Type

Synchronous, IMPACT_ACTION.

Arguments

Name	Type	Description
Topic	String	Message topic
Message	String	Content of the message

Returns

None.

TcpMessaging:onMessage

Method

Purpose

Receives a message by using the TCP Transport for TIBCO Hawk.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Topic	String	Message topic.

Returns

Name	Type	Description
Topic	String	Message topic
Message	String	Content of the message

TcpMessaging:onNumber

Method

Purpose

Receives a message having a numeric value.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Topic	String	Message topic.

Returns

Name	Type	Description
Topic	String	The message topic
Message	Long	The numeric data

TcpMessaging:onTimeout

Method

Purpose

Returns the number of timeout intervals that have elapsed because of the arrival of the previous message or because of the start of the subscription to this method.

Type

Asynchronous, `IMPACT_INFO`.

Arguments

Name	Type	Description
Topic	String	Message topic.
Timeout Interval	Long	Timeout interval in seconds

Returns

Name	Type	Description
Timeout Interval Count	Integer	<p>The count of consecutive timeout intervals that have passed.</p> <p>The return value is reset to 0 (zero) when a message is received with the specified subject or topic.</p>

Microsoft Windows Microagents and Methods

The TIBCO Hawk microagents described in this chapter run on the Microsoft Windows platform in the TIBCO Hawk microagent (HMA) process. They use the diagnostic and information-management tools of the Microsoft Windows platform (the Performance Monitor, Event Log, and Registry) to link to the Microsoft Windows system. For more specific information on monitoring under Microsoft Windows, see the TIBCO Hawk Installation, Configuration, and Administration guide.

- [Summary of Microsoft Windows Microagents](#)
- [COM.TIBCO.hawk.hma.Performance](#)
- [COM.TIBCO.hawk.hma.Eventlog](#)
- [COM.TIBCO.hawk.hma.Registry](#)
- [COM.TIBCO.hawk.hma.Services](#)
- [COM.TIBCO.hawk.hma.Process](#)
- [COM.TIBCO.hawk.hma.Network](#)
- [COM.TIBCO.hawk.hma.System](#)

Summary of Microsoft Windows Microagents

The Microsoft Windows microagents are described as follows.

Microsoft Windows Microagents (Sheet of)

Method	Description
Common Methods	These methods are common to all microagents and provide release and trace-related functions. Methods are:

Method	Description
	getReleaseVersion getTraceLevel setTraceLevel getTraceParameters setTraceParameters _onUnsolicitedMsg
<p>Performance</p> <p>(Methods listed here represent a typical installation. Depending on the implementation, more or fewer Performance methods may be available. Abbreviated guidelines for use are given in this manual; more complete help is available via the TIBCO Hawk Display.)</p>	<p>Returns information from the Microsoft Windows Performance monitor. Methods are:</p> <p>Performance:System</p> <p>Performance:Processor</p> <p>Performance:Memory</p> <p>Performance:Cache</p> <p>Performance:PhysicalDisk</p> <p>Performance:LogicalDisk</p> <p>Performance:Process</p> <p>Performance:ProcessCount</p> <p>Performance:Thread</p> <p>Performance:Objects</p> <p>Performance:Redirector</p> <p>Performance:Server</p> <p>Performance:Server Work Queues</p> <p>Performance:Paging File</p> <p>Performance:Browser</p>

Method	Description
	Performance:Telephony Performance:NBT Connection Performance:Network Interface Performance:IP Performance:ICMP Performance:TCP Performance:UDP
Eventlog	Interfaces with the Microsoft Windows event log service to detect system events, security events and application events. Methods are: Eventlog:getRecentApplicationEvents Eventlog:getRecentSystemEvents Eventlog:getRecentSecurityEvents Eventlog:onApplicationEvent Eventlog:onSecurityEvent Eventlog:onSecurityEvent Eventlog:logEvent
Registry	Allows you to retrieve and edit Microsoft Windows Registry entries. Methods are: Registry:setDWORD Registry:setString Registry:getDWORD Registry:getString

Method	Description
	Registry:getMultiString Registry:setExpandString Registry:enumerateKey Registry:CreateKey
Service	<p>Allows the monitoring and management of Microsoft Windows services and device drivers. Methods are:</p> Services:getServiceConfiguration Services:getServiceStatus Services:setServiceStartType Services:startService Services:stopService Services:pauseService Services:continueService Services:controlService
Process	Process:getInstanceCount Process:getProcess
Network	<p>Used to obtain information about network identification, communications and errors. Methods are:</p> Network:getConfig
System	<p>Used to collect information on system-wide usage of the CPU and memory. Methods are:</p>

Method	Description
	System:getSystemInfo
	System:getCpuInfo

COM.TIBCO.hawk.hma.Performance

Microagent

The Performance microagent (on Microsoft Windows) retrieves information from the Microsoft Windows using Performance Data Helper (PDH) library. Each Performance microagent method corresponds to a Performance Monitor Object, and each method result field corresponds to a Performance Monitor Counter in a one-to-one mapping.

Methods listed here represent a typical installation. Abbreviated guidelines for use are given in this manual; more complete help is available via TIBCO Hawk Display.



Note

The actual number of methods in the Performance microagent varies depending on how your machine is configured. Depending on the implementation, more or fewer Performance methods may be available. For example, if you are using SQL server, Microsoft Exchange, or Microsoft Windows Server software, additional methods may be available.

Information on the result fields of a Performance microagent method is available in the test builder screen while building a rulebase. The result fields of the methods given here are representative of the objects discovered by the microagent, and do not necessarily represent a full set of discovered objects. Information on the result fields of a Performance microagent method is also available from the Microsoft Windows Performance Monitor.



Note

The default value for `TimeInterval` is 30 seconds. The minimum value for `TimeInterval` is 5 seconds. If the specified value is less than 5 seconds, `TimeInterval` defaults to 5 seconds.

Methods

Method	Returns	Page
Performance:System	Information on all the activities on a computer, combining all of its processors	Performance:System
Performance:Processor	Information on each processor separately	Performance:Processor
Performance:Memory	Information on the use of physical and virtual memory and paging	Performance:Memory
Performance:Cache	Information on the Microsoft Windows file cache	Performance:Cache
Performance:PhysicalDisk	Information on hard drive partitions	Performance:PhysicalDisk
Performance:LogicalDisk	Information on each logical disk instance	Performance:LogicalDisk
Performance:Process	Information on one process	Performance:Process
Performance:ProcessCount	The process count	Performance:ProcessCount

Method	Returns	Page
Performance:Thread	Information on one thread	Performance:Thread
Performance:Objects	Summary information on all objects	Performance:Objects
Performance:Redirector	Information on network communications	Performance:Redirector
Performance:Server	Information on use of computer as server	Performance:Server
Performance:Server Work Queues	Information on client queues	Performance:Server Work Queues
Performance:Paging File	Information on page file use	Performance:Paging File
Performance:Browser	Information on browser requests	Performance:Browser
Performance:Telephony	Information on telephony services	Performance:Telephony
Performance:NBT Connection	Information on NBT connection	Performance:NBT Connection
Performance:Network Interface	Information on the network interface	Performance:Network Interface

Method	Returns	Page
Performance:IP	Information on the IP connection	Performance:IP
Performance:ICMP	Information on ICMP messages	Performance:ICMP
Performance:TCP	Information on TCP connection	Performance:TCP
Performance:UDP	Information on UDP datagrams	Performance:UDP

Performance:System

Method

Purpose

This method (on Microsoft Windows) returns general system information.

Type

Asynchronous, `IMPACT_INFO`.

Arguments

Name	Type	Description
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type
System	String
File Read Operations/sec	Double
File Write Operations/sec	Double
File Control Operations/sec	Double
File Read Bytes/sec	Double
File Write Bytes/sec	Double
File Control Bytes/sec	Double
Context Switches/sec	Double
System Calls/sec	Double
File Data Operations	Double
System Up Time	Double
Processor Queue Length	Double
Processes	Double
Threads	Double
Alignment Fixups/sec	Double
Exception Dispatches/sec	Double
Floating Emulations/sec	Double
% Registry Quota In Use	Double

Performance:Processor

Method

Purpose

This method (on Microsoft Windows) returns information on the operation of each processor in the computer.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Processor	String	Processor instances are usually numbers, such as 0, 1, 2, etc. Empty argument returns all processors.
TimeInterval	Integer	Time interval in seconds after which data will be returned

Returns

Name	Type
Instance	String. Table is indexed on the Instance field.
% Processor Time	Double
% User Time	Double
% Privileged Time	Double
Interrupts/sec	Double
% DPC Time	Double
% Interrupt Time	Double
DPCs Queued/sec	Double
DPC Rate	Double
DPC Bypasses/sec	Double
APC Bypasses/sec	Double

Performance:Memory

Method

Purpose

This method (on Microsoft Windows), returns info on the use of physical (real) and virtual memory.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
TimeInterval	Integer	Time interval in seconds after which data is returned.

Returns

Name	Type
Instance	String. Table is indexed on the Instance
Available Bytes	Double
Committed Bytes	Double
Commit Limit	Double
Page Faults/sec	Double
Write Copies/sec	Double
Transition Faults/sec	Double
Cache Faults	Double
Demand Zero Faults	Double
Pages/sec	Double
Pages Input/sec	Double

Name	Type
Page Reads/sec	Double
System Code Resident Bytes	Double
System Driver Total Bytes	Double
System Driver Resident Bytes	Double
System Cache Resident Bytes	Double
% Committed Bytes In Use	Double

Performance:Cache

Method

Purpose

This method (on Microsoft Windows) returns information on the Microsoft Windows file cache.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type
Instance	String. Table is indexed the on Instance.
Data Maps/sec	Double
Sync Data Maps/sec	Double
Async Data Maps/sec	Double
Data Map Hits %	Double
Data Map Pins/sec	Double
Pin Reads/sec	Double
Sync Pin Reads/sec	Double
Async Pin Reads/sec	Double
Pin Read Hits %	Double
Copy Reads/sec	Double
Sync Copy Reads/sec	Double
Async Copy Reads/sec	Double
Copy Read Hits %	Double
MDL Reads/sec	Double
Sync MDL Reads/sec	Double

Name	Type
Async MDL Reads/sec	Double
MDL Read Hits %	Double
Read Aheads/sec	Double
Fast Reads/sec	Double
Sync Fast Reads/sec	Double
Async Fast Reads/sec	Double
Fast Read Resource Misses/sec	Double
Fast Read Not Possibles/sec	Double
Lazy Write Flushes/sec	Double
Lazy Write Pages/sec	Double
Data Flushes/sec	Double
Data Flush Pages/sec	Double

Performance:PhysicalDisk

Method

Purpose

This method (on Microsoft Windows) returns information on each hard drive instance connected to the computer.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Physical Disk	String	Physical disks are usually denoted using numbers: 0, 1, 2, and so on. Empty argument returns all physical disks.
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type
Instance	String. Table is indexed on the Instance field.
Current Disk Queue Length	Double
% Disk Time	Double
Avg Disk Queue Length	Double
% Disk Read Time	Double
Avg. Disk Read Queue Length	Double

Name	Type
% Disk Write Time	Double
Avg. Disk Write Queue Length	Double
Avg. Disk sec/Transfer	Double
Avg. Disk sec/Read	Double
Avg. Disk sec/Write	Double
Disk Transfers/sec	Double
Disk Reads/sec	Double
Disk Writes/sec	Double
Disk Bytes/sec	Double
Avg. Disk Bytes/Transfer	Double
Avg. Disk Bytes/Read	Double
Avg. Disk Bytes/Write	Double

Performance:LogicalDisk

Method

Purpose

This method (on Microsoft Windows) returns information on each logical disk instance connected to the computer.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Logical Disk	String	Logical Disk. A list of available disk selections is provided. Empty argument returns all logical disks.
TimeInterval	Integer	Time interval in seconds after which data will be returned

Returns

Name	Type
Instance	String. Table is indexed on the Instance.
% Free Space	Double
Free Megabytes	Double
Current Disk Queue Length	Double
% Disk Time	Double
Avg. Disk Queue Length	Double
% Disk Read Time	Double

Name	Type
Avg. Disk Read Queue Length	Double
% Disk Write Time	Double
Avg. Disk Write Queue Length	Double
Avg. Disk sec/Transfer	Double
Avg. Disk sec/Read	Double
Avg. Disk sec/Write	Double
Disk Transfers/sec	Double
Disk Reads/sec	Double
Disk Writes/sec	Double
Disk Bytes/sec	Double
Avg. Disk Bytes/Transfer	Double
Avg Disk Bytes/Read	Double
Avg. Disk Bytes/Write	Double

Performance:Process

Method

Purpose

This method (on Microsoft Windows) returns information on a process (a program or group of threads).

Remarks

The methods `Performance:Process` and `Process:getProcess` can seem similar, but return different data. `Performance:Process` returns all Instances of Process Object from the Performance Data Helper (PDH) library.

Invoking `Performance:process` without any arguments retrieves all `Process` instances in effect at that point in time. In contrast, invoking `Process:getProcess` without any arguments returns all currently running processes from the `PSAPI.lib`. This method only lists processes that have the right to access this library. Do not confuse these methods.

For a full description of this method and accompanying help text, refer to the help text provided by method invocation.

Type

Asynchronous, `IMPACT_INFO`.

Arguments

Name	Type	Description
Process	String	The exact process name or a regular expression using the <code>Perl5PatternMatch</code> syntax. Empty argument string returns all processes.
TimeInterval	Integer	Time interval in seconds after which data will be returned

Returns

Name	Type
Instance	String. Table is indexed on the Instance field.
% Processor Time	Double
% User Time	Double
% Privileged Time	Double
Virtual Bytes Peak	Double
Virtual Bytes	Double
Page Faults/sec	Double
Working Set Peak	Double
Page File Bytes Peak	Double
Page File Bytes	Double
Private Bytes	Double
Thread Count	Double
Priority Base	Double
Elapsed Time	Double
ID Process	Double
Pool Paged Bytes	Double
Pool Nonpaged Bytes	Double
Handle Count	Double

Performance:ProcessCount

Method

Purpose

This method (on Microsoft Windows) returns the process count.

Remarks

This method does not derive from the Microsoft Windows performance monitor.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Process Name	String	The exact process name or a regular expression using the Perl5PatternMatch syntax. Empty argument returns all processes currently running.

Returns

Name	Type
Process Name	String
Instance Count	Integer

Performance:Thread

Method

Purpose

This method (on Microsoft Windows) returns information for a specified thread. If a thread is not specified, information on all threads is returned.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Thread	String	The exact name of the thread or a regular expression using the

Name	Type	Description
		Perl5PatternMatch syntax. Empty argument string returns all threads.
TimeInterval	Integer	Time interval in seconds after which data will be returned

Returns

Name	Type
Instance	String. Table is indexed on the Instance field.
% Processor Time	Double
% User Time	Double
% Privileged Time	Double
Context Switches/sec	Double
Elapsed Time	Double
Priority Base	Double
Start Address	Double
Thread State	Double
Thread Wait Reason	Double
ID Process	Double
ID Thread	Double

Performance:Objects

Method

Purpose

This method (on Microsoft Windows) returns summary information on all objects currently in existence on the computer, including processes and threads.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type
Instance	String. Table is indexed on the Instance field.

Name	Type
Process	Double
Threads	Double
Events	Double
Semaphores	Double
Mutexes	Double
Sections	Double

Performance:Redirector

Method

Purpose

The Redirector manages network connections that originate from a computer. This method (on Microsoft Windows) returns information on operations of the redirector.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type
Instance	String. Table is indexed on the Instance field.
Bytes Total/sec	Double
File Data Operations/sec	Double
Packets/sec	Double
Bytes Received/sec	Double
Packets Received/sec	Double
Read Bytes Paging/sec	Double
Read Bytes Non-Paging/sec	Double
Read Bytes Cache/sec	Double
Read Bytes Network/sec	Double
Bytes Transmitted/sec	Double
Packets Transmitted/sec	Double
Write Bytes Paging/sec	Double

Name	Type
Write Bytes Non-Paging/sec	Double
Write Bytes Cache/sec	Double
Write Bytes Network/sec	Double
File Read Operations/sec	Double
Read Packets/sec	Double
Reads Large/sec	Double
Read Packets Small/sec	Double
File Write Operations/sec	Double
Write Operations Random/sec	Double
Write Packets/sec	Double
Writes Large/sec	Double
Write Packets Small/sec	Double
Writes Denied/sec	Double
Network Errors/sec	Double
Server Sessions	Double
Server Reconnects	Double
Connects Core	Double
Connects Lan Manager 2.0	Double

Name	Type
Connects Lan Manager 2.1	Double
Connects Windows NT	Double
Server Disconnects	Double
Server Sessions Hung	Double
Current Commands	Double

Performance:Server

Method

Purpose

This method (on Microsoft Windows) returns information on the process that interfaces services from a computer to network servers.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type
Instance	String. Table is indexed on the Instance field.
Bytes Total/sec	Double
Bytes Received/sec	Double
Bytes Transmitted/sec	Double
Sessions Timed Out	Double
Sessions Errored Out	Double
Sessions Logged Off	Double
Sessions Forced Off	Double
Errors Logon	Double
Errors Access Permissions	Double
Errors Granted Access	Double
Errors System	Double
Blocking Requests Rejected	Double
Work Item Shortages	Double
Files Opened Total	Double
Files Open	Double

Name	Type
Server Sessions	Double
File Directory Searches	Double
Pool Nonpaged Bytes	Double
Pool Nonpaged Failures	Double
Pool Nonpaged Peak	Double
Pool Paged Bytes	Double
Pool Paged Failures	Double
Pool Paged Peak	Double
Content Blocks Queued/sec	Double
Logon/sec	Double
Logon Total	Double

Performance:Server Work Queues

Method

Purpose

This method (on Microsoft Windows) returns information on queues that form when client computers are interacting with this computer as a server.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Server Work Queues	String	Server Work Queues. Empty argument returns all queues.
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type
Instance	String. Table is indexed on the Instance field.
Queue Length	Double
Available Threads	Double
Available Work Items	Double
Borrowed Work Items	Double
Work Item Shortages	Double
Current Clients	Double

Name	Type
Bytes Received/sec	Double
Bytes Sent/sec	Double
Bytes Transferred/sec	Double
Read Operations/sec	Double
Read Bytes/sec	Double
Write Operations/sec	Double
Write Bytes/sec	Double
Total Bytes/sec	Double
Total Operations/sec	Double
Context Blocks Queued/sec	Double

Performance:Paging File

Method

Purpose

This method (on Microsoft Windows) returns information on the use of Microsoft Windows paging files to provide virtual memory.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Paging File	String	Page file name. Exact match. Empty argument string returns information on all paging files.
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

el

Name	Type
Instance	String. Table is indexed on the Instance field.
% Usage	Double
% Usage Peak	Double

Performance:Browser

Method

Purpose

This method (on Microsoft Windows) returns information on the use of a computer as a server for browser requests.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type
Instance	String. Table is indexed on the Instance field.
Announcements Server/sec	Double
Announcements Domain/sec	Double
Announcements Total/sec	Double
Election Packets/sec	Double
Mailslot Writes/sec	Double
Server List Requests/sec	Double

Name	Type
Enumerations Server/sec	Double
Enumerations Domain/sec	Double
Enumerations Other/sec	Double
Enumerations Total/sec	Double
Missed Server Announcements	Double
Missed Mailslot Datagrams	Double
Missed Server List Requests	Double
Server Announce Allocations Failed/sec	Double
Mailslot Allocations Failed	Double
Mailslot Receives Failed	Double
Mailslot Writes Failed	Double
Mailslot Opens Failed/sec	Double
Duplicate Master Announcements	Double
Illegal Datagrams/sec	Double

Performance:Telephony

Method

Purpose

This method (on Microsoft Windows) returns information on the use of this computer for interacting with telephone devices and maintaining telephone services such as answering services and automated calling services.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type	Description
Instance	String	Instance. Table is indexed on the Instance field.
Lines	Double	Lines
Telephone Devices	Double	Telephone Devices
Active Lines	Double	Active Lines

Name	Type	Description
Active Telephones	Double	Active Telephones
Outgoing Calls/sec	Double	Outgoing calls per second
Incoming Calls/sec	Double	Incoming calls per second
Client Apps	Double	Client Applications
Current Outgoing Calls	Double	Current outgoing calls

Performance:NBT Connection

Method

Purpose

This method (on Microsoft Windows) returns information for data sent over an NBT (NetBIOS over TCP/IP) connection.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
NBT Connection	String	NBT Connection. The name of the remote computer that is connected to the NBT connection connects.
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type
Instance	String. Table is indexed on the Instance field.
Bytes Received/sec	Double
Bytes Sent/sec	Double
Total Bytes/sec	Double

Performance:Network Interface

Method

Purpose

This method (on Microsoft Windows) returns statistics regarding the specified network interface. If a network interface is not specified, statistics for all network interfaces are

returned.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Network Interface	String	Network Interface.
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type
Instance	String. Table is indexed on Instance.
Bytes Total/sec	Double
Packets/sec	Double
Packets Received/sec	Double
Packets Sent/sec	Double

Name	Type
Current Bandwidth	Double
Bytes Received/sec	Double
Packets Received Unicast/sec	Double
Packets Received Non-Unicast/sec	Double
Packets Received Discarded	Double
Packets Received Errors	Double
Packets Received Unknown	Double
Bytes Sent/sec	Double
Packets Sent Unicast/sec	Double
Packets Sent Non-Unicast/sec	Double
Packets Outbound Discarded	Double
Packets Outbound Errors	Double
Output Queue Length	Double

Performance:IP

Method

Purpose

This method (on Microsoft Windows) returns statistics for all IP processes.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
TimeInterval	Integer	Time interval in seconds after which data is returned.

Returns

Name	Type
Instance	String. Table is indexed on Instance.
Datagrams/sec	Double
Datagrams Received/sec	Double
Datagrams Received Header Errors	Double
Datagrams Received Address Errors	Double
Datagrams Received Unknown	Double
Datagrams Received Discarded	Double

Name	Type
Datagrams Received Delivered/sec	Double
Datagrams Sent/sec	Double
Datagrams Outbound Discarded	Double
Datagrams Outbound No Route	Double
Fragments Received/sec	Double
Fragments Re-assembled/sec	Double
Fragment Re-assembly Failures	Double
Fragmented Datagrams/sec	Double
Fragmentation Failures	Double
Fragments Created/sec	Double

Performance:ICMP

Method

Purpose

This method (on Microsoft Windows) returns statistics for the ICMP processes.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type
Instance	String. Table is indexed on Instance.
Messages/sec	Double
Messages Received/sec	Double
Messages Received Errors	Double
Received Destination Unreachable	Double
Received Time Exceeded	Double
Received Parameter Problem	Double
Received Source Quench	Double
Received Redirect/sec	Double
Received Echo/sec	Double

Name	Type
Received Timestamp/sec	Double
Received Timestamp Reply/sec	Double
Received Address Mask	Double
Received Address Mask Reply	Double
Messages Sent/sec	Double
Messages Outbound Errors	Double
Sent Destination Unreachable	Double
Sent Time Exceeded	Double
Sent Parameter Problem	Double
Sent Source Quench	Double
Sent Redirect/sec	Double
Sent Echo/sec	Double
Sent Echo Reply/sec	Double
Sent Timestamp/sec	Double
Sent Timestamp Reply/sec	Double
Sent Address Mask	Double
Sent Address Mask Reply	Double

Performance:TCP

Method

Purpose

This method (on Microsoft Windows) returns statistics for the TCP processes.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

*

Name	Type
Instance	String. Table is indexed on Instance.
Segments/sec	Double
Connections Established	Double
Connections Active	Double
Connections Passive	Double

Name	Type
Connection Failures	Double
Connections Reset	Double
Segments Received/sec	Double
Segments Sent/sec	Double
Segments Retransmitted/sec	Double

Performance:UDP

Method

Purpose

This method (on Microsoft Windows) returns statistics for the UDP processes.

Type

Asynchronous, IMPACT_INFO.

Arguments

Name	Type	Description
TimeInterval	Integer	Time interval in seconds after which data will be returned.

Returns

Name	Type
Instance	String. Table is indexed on Instance.
Datagrams/sec	Double
Datagrams Received/sec	Double
Datagrams No Port/sec	Double
Datagrams Received Errors	Double
Datagrams Sent/sec	Double

Performance:restart

Method

Purpose

This method causes the Performance microagent to restart in order to pick up Windows performance objects that were added after the Performance microagent was originally started. The Performance microagent snapshots the Windows performance objects at startup and announces methods for each object to the Hawk agent. Performance objects dynamically added to the system after the Performance microagent has announced are not included. Certain applications, such as Microsoft SQL Server, dynamically add performance objects when they are running and remove them when they are not running. Hawk rulebases can now be created that start applications, such as Microsoft SQL Server, restart the Performance microagent to pick up the new performance objects, and then load rulebases designed to monitor these new performance objects.

Type

Synchronous, IMPACT_ACTION.

Arguments

None.

Returns

None.

Remarks

The restart method only restarts the Performance microagent. All other HMA microagents and the HMA itself are unaffected.

COM.TIBCO.hawk.hma.Eventlog

Microagent

Purpose

The Eventlog microagent (on Microsoft Windows) interfaces with the Microsoft Windows event log service, which records three types of events: system events, security events and application events. You can use this microagent's methods to respond to events as they happen or to retrieve events in any of the three event logs.

Methods

Method	Description
Eventlog:getRecentApplicationEvents	Returns most recent events in the application event log
Eventlog:getRecentSystemEvents	Returns most recent events in the system event log
Eventlog:getRecentSecurityEvents	Returns most recent events in the security event log
Eventlog:onApplicationEvent	Returns event just added to the application event log
Eventlog:onSecurityEvent	Returns event just added to the security event log
Eventlog:onSystemEvent	Reports events posted to the Microsoft Windows event log
Eventlog:logEvent	Adds the event to the event log

Eventlog:getRecentApplicationEvents

Method

Purpose

This method (on Microsoft Windows) provides the 30 most recent events in the Microsoft Windows application event log.

Remarks

This method should not be used as a data source for a rule, because subsequent invocation returns the same data. Use `onApplicationEvent` instead.

Composite event identifiers are represented in the result descriptions by the use of double colons between event parameters (`source::event`).

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Date	String	Date the event was generated
Time	String	Time the event was generated
Record	Integer	Record number of the event. Table is indexed on Record
Event	Integer	Source-specific ID of the event
Event Category	Integer	Source-specific category of the event. The category may be any value between zero and 65535 where zero represents "no category."
Type	String	Event type. Can be one of the following: <ul style="list-style-type: none">• Information• Warning• Error

Name	Type	Description
		<ul style="list-style-type: none"> • Audit-Success • Audit-Failure
Source	String	Event source
Strings	String	Message template merge strings. These strings are merged into the associated message template to form the complete textual description of the event. These strings are always returned even when the associated message template cannot be found.
Text	String	Complete textual description of the event

Eventlog:getRecentSystemEvents

Method

Purpose

This method (on Microsoft Windows) provides the 30 most recent in the Microsoft Windows system event log.

Remarks

This method should not be used as a data source for a rule, because subsequent invocation returns the same data. For data sources for rules, use [Eventlog:onSecurityEvent](#)

.

Composite event identifiers are represented in the result descriptions by the use of double colons between event parameters (source::event).

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Date	String	Date the event was generated
Time	String	Time the event was generated
Record	Integer	Record number of the event. Table is indexed on Record
Event	Integer	Source-specific ID of the event
Event Category	Integer	Source-specific category of the event. The category may be any value between zero and 65535 where zero represents "no category."
Type	String	Event type. Can be one of the following: <ul style="list-style-type: none">• Information• Warning• Error• Audit-Success• Audit-Failure

Name	Type	Description
Source	String	Event source
Strings	String	Message template merge strings. These strings are merged into the associated message template to form the complete textual description of the event. These strings are always returned even when the associated message template cannot be found.
Text	String	Complete textual description of the event

Eventlog:getRecentSecurityEvents

Method

Purpose

This method (on Microsoft Windows) provides the 30 most recent events in the Microsoft Windows security event log.

Remarks

This method should not be used as a data source for a rule, because subsequent invocation returns the same data. For data sources for rules, use [Eventlog:onSecurityEvent](#) instead.

Composite event identifiers are represented in the result descriptions by the use of double colons between event parameters (source::event).

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Date	String	Date the event was generated
Time	String	Time the event was generated
Record	Integer	Record number of the event. Table is indexed on Record
Event	Integer	Source-specific ID of the event
Event Category	Integer	Source-specific category of the event. The category may be any value between zero and 65535 where zero represents "no category."
Type	String	Event type. Can be one of the following: <ul style="list-style-type: none">• Information• Warning• Error• Audit-Success• Audit-Failure

Name	Type	Description
Source	String	Event source
Strings	String	Message template merge strings. These strings are merged into the associated message template to form the complete textual description of the event. These strings are always returned even when the associated message template cannot be found.
Text	String	Complete textual description of the event

Eventlog:onApplicationEvent

Method

Purpose

This method (on Microsoft Windows) reports events as they are asynchronously posted to the Microsoft Windows application event log.

Remarks

Composite event identifiers are represented in the result descriptions by the use of double colons between event parameters (source::event).

Type

Asynchronous IMPACT_INFO.

Arguments

Name	Type	Description
source	String	Event source

Returns

Name	Type	Description
Date	String	Date the event was generated
Time	String	Time the event was generated
Record	Integer	Record number of the event. Table is indexed on Record
Event	Integer	Source-specific ID of the event
Event Category	Integer	Source-specific category of the event. The category may be any value between zero and 65535 where zero represents "no category."
Type	String	Event type. Can be one of the following: <ul style="list-style-type: none">• Information• Warning• Error• Audit-Success• Audit-Failure

Name	Type	Description
Source	String	Event source.
Strings	String	Message template merge strings. These strings are merged into the associated message template to form the complete textual description of the event. These strings are always returned even when the associated message template cannot be found.
Text	String	Complete textual description of the event

Eventlog:onSecurityEvent

Method

Purpose

This method (on Microsoft Windows) reports events as they are asynchronously posted to the Microsoft Windows security event log.

Remarks

Use this method as a data source for rules. Composite event identifiers are represented in the result descriptions by the use of double colons between event parameters (source::event).

Type

Asynchronous IMPACT_INFO.

Arguments

Name	Type	Description
source	String	Event source.

Returns

Name	Type	Description
Date	String	Date the event was generated
Time	String	Time the event was generated
Record	Integer	Record number of the event. Table is indexed on Record
Event	Integer	Source-specific ID of the event
Event Category	Integer	Source-specific category of the event. The category may be any value between zero and 65535 where zero represents "no category."
Type	String	Event type. Can be one of the following: <ul style="list-style-type: none">• Information• Warning• Error• Audit-Success• Audit-Failure

Name	Type	Description
Source	String	Event source
Strings	String	Message template merge strings. These strings are merged into the associated message template to form the complete textual description of the event. These strings are always returned even when the associated message template cannot be found.
Text	String	Complete textual description of the event

Eventlog:onSystemEvent

Method

Purpose

This method (on Microsoft Windows) reports events as they are being asynchronously posted to the Microsoft Windows system event log.

Remarks

Composite event identifiers are represented in the result descriptions by the use of double colons between event parameters (source::event).

Type

Asynchronous IMPACT_INFO.

Arguments

Name	Type	Description
source	String	Event source

Returns

Name	Type	Description
Date	String	Date the event was generated
Time	String	Time the event was generated
Record	Integer	Record number of the event. Table is indexed on Record
Event	Integer	Source-specific ID of the event
Event Category	Integer	Source-specific category of the event. The category may be any value between zero and 65535 where zero represents "no category."
Type	String	Event type. Can be one of the following: <ul style="list-style-type: none">• Information• Warning• Error• Audit-Success• Audit-Failure

Name	Type	Description
Source	String	Event source
Strings	String	Message template merge strings. These strings are merged into the associated message template to form the complete textual description of the event. These strings are always returned even when the associated message template cannot be found.
Text	String	Complete textual description of the event

Eventlog:logEvent

Method

Purpose

This method adds Event to the Microsoft Windows Application Event Log, using source name TIBHawk.

Remarks

The event type is indicated by its event ID in the Microsoft Windows Event Log.

Type

Synchronous, IMPACT_ACTION

Arguments

Name	Type	Description
Event Type	String	The type of event, indicated by the event ID in the Microsoft Windows Event Log: <ul style="list-style-type: none">• Information (event ID is 16)• Error (event ID is 17)• Warning (event ID is 18)
Event Category	Integer	Specifies the source-specific category of this event. The category may be any value between zero and 65535 where zero represents "no category."
Description	String	Complete textual description of this event

Returns

None.

COM.TIBCO.hawk.hma.Registry

Microagent

The Registry microagent (on Microsoft Windows) allows you to interact with the Microsoft Windows Registry.

Methods

Method	Description	Page
Registry:setDWORD	Creates or overwrites a DWORD entry in the Registry	Registry:setDWORD
Registry:setString	Creates or overwrites a string entry in the Registry	Registry:setString
Registry:getDWORD	Returns a DWORD value for a key and entry name in the Registry	Registry:getDWORD
Registry:getString	Returns a string value for a key and entry name in the Registry	Registry:getString
Registry:getMultiString	Returns a multi-line string value for a key and entry name in the Registry	Registry:getMultiString
Registry:setExpandString	Creates or overwrites an expandable string entry in the Registry	Registry:setExpandString
Registry:enumerateKey	Enumerates	Registry:enumerateKey

Method	Description	Page
	specified key	
Registry:CreateKey	Adds key to Registry	Registry:CreateKey
Registry:setQWORD	Creates or overwrites a QWORD entry in the Registry	Registry:setQWORD
Registry:getQWORD	Returns a QWORD value for a key and entry name in the Registry	Registry:getQWORD

Registry:setDWORD

Method

Purpose

This method (on Microsoft Windows) writes a DWORD entry to the Registry, given a key and value.

Remarks

This method works exactly as if you were using the Microsoft Windows Registry editor and chose `Add Value`, selecting the data type `REG_DWORD`. The `Entry` argument of the method corresponds to the `Value Name` you enter, and the `Value` argument corresponds to what you type in the `DWORD` editor.

The `Key` must exist in the Registry. If the `Entry` argument is not already in the Registry, a new entry is created and its value set to `Value`. If the `Entry` argument exists in the Registry for the specified key, the value of the entry is set to the new value.

Type

Synchronous, `IMPACT_ACTION`.

Arguments

Name	Type	Description
Key	String	Specifies key to change
Entry	String	Specifies entry to add or change
Value	Integer	Value to set for a specified entry

Returns

None.

Registry:setString

Method

Purpose

This method (on Microsoft Windows) writes a string entry to the Registry.

Remarks

This method works exactly as if you were using the Microsoft Windows Registry editor and chose `Add Value`, selecting the data type `REG_SZ`. The `Entry` argument of the method corresponds to the `Value Name` you enter, and the `Value` argument corresponds to what you type in the String editor.

The `Key` must exist in the Registry. If the `Entry` argument is not already in the Registry, a new entry is created and its value set to `Value`. If the `Entry` argument exist in the Registry for the specified key, the value of the entry is set to the new value.

Type

Synchronous, `IMPACT_ACTION`.

Arguments

Name	Type	Description
Key	String	Specifies key to change
Entry	String	Specifies entry to add or change
Value	Integer	Value to set for a specified entry

Returns

None.

Registry:getDWORD

Method

Purpose

This method (on Microsoft Windows) returns a DWORD from the Microsoft Windows Registry (of the type REG_DWORD), given a key and entry.

Remarks

If no entry is found for the key and entry name, an error is returned.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Key	String	Specifies key name to look up
Entry	String	Specifies name of entry to look up

Returns

Name	Type	Description
Value	Integer	Specifies value of entry

Registry:getString

Method

Purpose

This method (on Microsoft Windows) returns a string (of the type REG_SZ) from the Microsoft Windows Registry by looking up the key and entry names you supply.

Remarks

The method processes REG_EXPAND_SZ strings by expanding any environment variable substitutions.

If no entry is found for the key and entry name, an error is returned.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Key	String	Key to look up
Entry	String	Entry to look up

Returns

Name	Type	Description
Value	String	Value found

Registry:getMultiString

Method

Purpose

This method (on Microsoft Windows) returns a multi string entry from the Registry (of the type REG_MULTI_SZ) by looking up key and entry names you supply.

Remarks

The result is a column table of values, each row being a line of the multi string entry. If no entry is found for the key and entry name, an error is returned.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Key	String	Key to look up
Entry	String	Entry to look up

Returns

Name	Type	Description
Value	String	Value found. (Returns values as a table.) Table is indexed on Value
Index	String	The ordinal position of the individual strings in the multistring(1-n). Guarantees unique indexes in cases where the string values of the multistring are not unique.

Registry:setExpandString

Method

Purpose

This method (on Microsoft Windows) writes a string with embedded environment variables (of the type REG_EXPAND_SZ) to the Microsoft Windows Registry. Embedded variables are in the form %VARIABLE% and are expanded by Microsoft Windows to fill out the string when it is needed.

Remarks

The Key entry must exist in the Registry. If the Entry argument is not already in the Registry, a new entry is created and its value set. If the Entry argument exists in the Registry for the Key specified, the value of the entry is set to the new value.

Type

Synchronous, IMPACT_ACTION.

Arguments

Name	Type	Description
Key	String	Key to change
Entry	String	Entry to change
Value	String	Value to set

Returns

None.

Registry:enumerateKey

Method

Purpose

Enumerate specified key. This method returns a table of the top-level key entries, with one row per entry.

Remarks

The method processes REG_EXPAND_SZ strings by expanding any environment variable substitutions.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Key	String	Specifies key name

Returns

Name	Type	Description
Entry	String	Specifies name of returned entries
Type	String	Specifies type of entry. Entry can be of type key, REG_DWORD, REG_SZ, REG_MULTI_SZ, or REG_EXPAND_SZ.
Value	String	Specifies value of entry

Registry:CreateKey

Method

Purpose

Adds a key to the Registry. This function adds a subkey to the Registry under a specified key.

Type

Synchronous, `IMPACT_ACTION`.

Arguments

Name	Type	Description
RootKey	String	Parent key. Should be chosen from the following options: <code>HKEY_CLASSES_ROOT</code> <code>HKEY_CURRENT_CONFIG</code> <code>HKEY_CURRENT_USER</code> <code>HKEY_LOCAL_MACHINE</code> <code>HKEY_USERS</code>
Subkey	String	Subkey to be created

Returns

None.

Registry:setQWORD

Method

Purpose

This method (on Microsoft Windows) writes a QWORD entry to the Registry, given a key and value.

Remarks

This method works exactly as if you were using the Microsoft Windows Registry editor and chose `Add Value`, selecting the data type `REG_QWORD`. The `Entry` argument of the method corresponds to the `Value Name` you enter, and the `Value` argument corresponds to what you type in the `QWORD` editor.

The `Key` must exist in the Registry. If the `Entry` argument is not already in the Registry, a new entry is created and its value set to `Value`. If the `Entry` argument exists in the Registry for the specified key, the value of the entry is set to the new value.

Type

Synchronous, `IMPACT_ACTION`.

Arguments

Name	Type	Description
Key	String	Specifies key to change
Entry	String	Specifies entry to add or change
Value	Integer	Value to set for a specified entry

Returns

None.

Registry:getQWORD

Method

Purpose

This method (on Microsoft Windows) returns a QWORD from the Microsoft Windows Registry (of the type REG_QWORD), given a key and entry.

Remarks

If no entry is found for the key and entry name, an error is returned.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Key	String	Specifies key name to look up
Entry	String	Specifies name of entry to look up

Returns

Name	Type	Description
Value	Integer	Specifies value of entry

COM.TIBCO.hawk.hma.Services

Microagent

Purpose

This microagent provides for the monitoring and management of Microsoft Windows services and device drivers.

Methods

Method	Description	Page
Services:getServiceConfiguration	This method gets the current configuration of the specified Microsoft Windows service(s).	Services:getServiceConfiguration

Method	Description	Page
Services:getServiceStatus	This method gets the current status of the specified Microsoft Windows service(s).	Services:getServiceStatus
Services:setServiceStartType	This method sets the current start type of the specified Microsoft Windows service.	Services:setServiceStartType
Services:startService	This method starts the specified Microsoft Windows service.	Services:startService
Services:stopService	This method stops the specified Microsoft Windows service.	Services:stopService

Method	Description	Page
Services:pauseService	This method pauses the specified Microsoft Windows service.	Services:pauseService
Services:continueService	This method continues the specified Microsoft Windows service.	Services:continueService
Services:controlService	This method invokes the specified user-defined service control command for the specified Microsoft Windows service.	Services:controlService

Services:getServiceConfiguration

Method

Purpose

This method gets the current configuration of the specified Microsoft Windows service(s).

Remarks

If the Service parameter is blank or set to ALL then all installed Microsoft Windows services are returned. If a specific service is specified, only that Microsoft Windows service is returned

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Service	String	Initial name of Microsoft Windows service

Returns

Name	Type	Description
Service	String	Microsoft Windows service internal name. *Table is indexed on Service.
Display Name	String	Microsoft Windows external display name

Name	Type	Description
Service Type	String	<p>The type of the Microsoft Windows service. The service types are:</p> <p>OWN_PROCESS: Indicates a Win32 service that runs in its own process.</p> <p>INTERACTIVE_OWN_PROCESS: Indicates a Win32 service that runs in its own process and that can interact with the desktop.</p> <p>SHARE_PROCESS: Indicates a Win32 service that shares a process with other services.</p> <p>INTERACTIVE_SHARE_PROCESS: Indicates a Win32 service that shares a process with other services and that can interact with the desktop.</p> <p>KERNEL_DRIVER: Indicates a device driver.</p> <p>FILE_SYSTEM_DRIVER: Indicates a file system driver.</p>
Service Start Type	String	<p>The start type of the Microsoft Windows service. The service types are:</p> <p>DEMAND_START: Specifies a device driver or Win32 service started by the service control manager when a process calls the <code>StartService</code> function (e.g. Services Control Panel Applet).</p> <p>AUTO_START: Specifies a device driver or Win32 service started by the service control manager automatically during system startup.</p> <p>DISABLED: Specifies a device driver or Win32 service that can no longer be started.</p> <p>BOOT_START: Specifies a device driver started by the system loader.</p>

Name	Type	Description
		SYSTEM_START: Specifies a device driver started by the <code>IoInitSystem</code> function.
Service Error Control	String	<p>Specifies the severity of the error if this Microsoft Windows service fails to start during startup, and determines the action taken by the startup program if failure occurs. The error controls are:</p> <p>IGNORE: The startup (boot) program logs the error but continues the startup operation.</p> <p>NORMAL: The startup program logs the error and displays a message box pop-up but continues the startup operation.</p> <p>SEVERE: The startup program logs the error. If the last-known good configuration is being started, the startup operation continues. Otherwise, the system is restarted with the last known good configuration.</p> <p>CRITICAL: The startup program logs the error, if possible. If the last-known good configuration is being started, the startup operation fails. Otherwise, the system is restarted with the last-known good configuration.</p>
Binary Path	String	The fully qualified path to the Microsoft Windows service binary file
Load Order Group	String	The names of the load ordering group of which this Microsoft Windows service is a member. If the field is blank the service does not belong to a group.
Tag ID	Integer	Specifies a unique tag value for this Microsoft Windows service in the group specified by the

Name	Type	Description
		Load Order Group value. A value of zero indicates that the service has not been assigned a tag.
Account	String	The account name, in the form of DomainName\Username, which the log-on name of the service process when it is run.

Services:getServiceStatus

Method

Purpose

This method gets the current status of the specified Microsoft Windows service(s). If the Service parameter is blank or set to ALL then all installed Microsoft Windows services are returned. If a specific service is specified then only that Microsoft Windows service is returned.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Service	String	Internal name of Microsoft Windows service

Returns

Name	Type	Description
Service	String	Microsoft Windows service internal name. *Table is indexed on Service.
Display Name	String	Microsoft Windows external display name
Service Type	String	<p>The type of the Microsoft Windows service. The service types are:</p> <p>OWN_PROCESS: Indicates a Win32 service that runs in its own process.</p> <p>INTERACTIVE_OWN_PROCESS: Indicates a Win32 service that runs in its own process and that can interact with the desktop.</p> <p>SHARE_PROCESS: Indicates a Win32 service that shares a process with other services.</p> <p>INTERACTIVE_SHARE_PROCESS: Indicates a Win32 service that shares a process with other services and that can interact with the desktop.</p> <p>KERNEL_DRIVER: Indicates a device driver.</p> <p>FILE_SYSTEM_DRIVER: Indicates a file system driver.</p>
Current State	String	<p>The current state of the Microsoft Windows service. The service states are:</p> <p>STOPPED: The service is not running.</p>

Name	Type	Description
		<p>START_PENDING: The service is starting.</p> <p>STOP_PENDING: The service is stopping.</p> <p>RUNNING: The service is running.</p> <p>CONTINUE_PENDING: The service continue is pending.</p> <p>PAUSE_PENDING: The service pause is pending.</p> <p>PAUSED: The service is paused.</p>
Win32 Exit Code	Integer	The error code of the last error returned by the Microsoft Windows service.
Exit Code Description	String	The description of the last error returned by the Microsoft Windows service.
Service Exit Code	Integer	The service specific return code from the Microsoft Windows service.
Controls Accepted	String	<p>The control commands accepted by the Microsoft Windows service. If more than one control is specified they are listed in blank-delimited format. The controls accepted may be any combination of the following:</p> <p>STOP: The service can be stopped.</p> <p>PAUSE_CONTINUE: The service can be paused and continued.</p> <p>SHUTDOWN: The service is notified when system shutdown occurs allowing the system to shut down this service.</p>

Name	Type	Description
Check Point	Integer	The last check point of the Microsoft Windows service
Wait Hint	Integer	The last wait hint suggested by the Microsoft Windows service

Services:setServiceStartType

Method

Purpose

This method sets the current start type of the specified Microsoft Windows service.

Type

Synchronous, IMPACT_ACTION.

Arguments

Name	Type	Description
Service	String	Microsoft Windows service internal name
Service Start Type	String	The start type of the Microsoft Windows service. Specifies when to start the service. System furnishes a popup window with the following options:

Name	Type	Description
		DEMAND_START
		AUTO_START
		DISABLED
		BOOT_START
		SYSTEM_START

Returns

None.

Services:startService

Method

Purpose

This method starts the specified type of Microsoft Windows service.

Type

Synchronous, IMPACT_ACTION.

Arguments

Name	Type	Description
Service	String	Microsoft Windows service internal name

Returns

None.

Services:stopService

Method

Purpose

This method stops the specified type of Microsoft Windows service.

Type

Synchronous, IMPACT_ACTION.

Arguments

Name	Type	Description
Service	String	Microsoft Windows service internal name

Returns

None.

Services:pauseService

Method

Purpose

This method pauses the specified type of Microsoft Windows service.

Type

Synchronous, IMPACT_ACTION.

Arguments

Name	Type	Description
Service	String	Microsoft Windows service internal name

Returns

None.

Services:continueService

Method

Purpose

This method continues the specified type of Microsoft Windows service.

Type

Synchronous, IMPACT_ACTION.

Arguments

Name	Type	Description
Service	String	Microsoft Windows service internal name

Returns

None.

Services:controlService

Method

Purpose

This method invokes the specified user-defined service control command for the specified Microsoft Windows service.

Remarks

User-defined control command codes must be in the range 128-255.

Type

Synchronous, IMPACT_ACTION.

Arguments

Name	Type	Description
Service	String	Microsoft Windows service internal name
User Control	Integer	The Microsoft Windows service user-defined control command code

Returns

None.

COM.TIBCO.hawk.hma.Process

Microagent

Purpose

The process microagent (on Microsoft Windows) returns information about processes running on the system.

Methods

Method	Description	Page
Process:getInstanceCount	Returns process count for a specified	Process:getInstanceCount

Method	Description	Page
	process	
Process:getInstanceCountByCommand	Returns process count filtered by command argument	Process:getInstanceCountByCommand
Process:getProcess	Returns information on a process	Process:getProcess

Process:getInstanceCount

Method

Purpose

This method (on Microsoft Windows) returns an instance count for a specified process. If the Instance field is empty, the total process count of the system is returned.

Remarks

Test any regular expressions you plan to use in rulebases by first using them interactively to insure they return the desired results.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Process Name	String	Name of process instance

Returns

Name	Type	Description
Process Name	String	Name of process instance. Table is indexed on Process Name
Process Count	Integer	Process count for specified process

Process:getInstanceCountByCommand

Method

Purpose

This method (on Microsoft Windows) returns a count of processes, filtered by command argument.

Remarks

Regular expressions can be used to query status of a group of processes.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Command	String	Command-line argument

Returns

Name	Type	Description
Command	String	Command-line argument
Process Count	Integer	Process count for specified command

Process:getProcess

Method

Purpose

This method (on Microsoft Windows) returns information about a specified process.

Remarks

If the argument field is empty, data is returned for all processes running on the system.

Test any regular expressions you plan to use in rulebases. Use them interactively first, to ensure they return the desired results.

The methods `Performance:Process` and `Process:getProcess` can seem similar, but return different data. `Performance:Process` returns all Instances of Process Object from the Performance Data Helper (PDH) library. Invoking `Performance:process` without any arguments retrieves all Process instances in effect at that point in time. Invoking `Process:getProcess` without any arguments returns all currently running processes from the `PSAPI.lib`. This method only lists processes that have the right to access this library. Do not confuse these methods.

Type

Synchronous, `IMPACT_INFO`.

Arguments

Name	Type	Description
Process Name	String	Name of process instance. Empty argument returns information for all processes.

Returns

Name	Type	Description
Process Name	String	Name of process instance
ID Process	Integer	Process ID for current process. Table is indexed on ID Process
Parent Process ID	Integer	Parent process ID of the current process
Command	String	Command line arguments
CPU Time	Integer	Total amount of time the process has spent in User Mode plus Kernel Mode (in milliseconds).
Class	String	Process priority class
User Name	String	Account name for the process
Mem Usage	Integer	Memory usage in kilobytes (working set size)
Peak Working SetSize	Integer	Peak working set size in kilobytes
Page File Usage	Integer	Page File usage in kilobytes
Page Fault Count	Integer	Page Fault count
Start Time	Integer	The number of seconds since the process started

COM.TIBCO.hawk.hma.Network

Microagent

Purpose

The network microagent (on Microsoft Windows) returns information about networks configuration as well as performance statistics in the system.

Methods

Method	Description	Page
Network:getConfig	Returns network configuration information on a per-interface basis	Network:getConfig

Network:getConfig

Method

Purpose

This method (on Microsoft Windows) returns network configuration information on a per-interface basis in a manner similar to that returned by the `ifconfig` command.

Type

Open, Synchronous, `IMPACT_INFO`.

Arguments

Name	Type	Description
	String	Name of Network Adapter

Returns

Name	Type	Description
	String	Name of Network Adapter
Network Address	String	Network Address in dotted format, 32 bit Value
Hardware Address	String	Hardware Address in colon format
Description	String	Description of Network Interface
Network Mask	String	Network Mask in dotted format, 32 bit Value
MTU	String	
RX Bytes	Integer	Number of octets of data received through the interface
RX Packets	Integer	The number of packets received through the interface
RX Errors	Integer	The number of incoming packets that were discarded because of errors.

Name	Type	Description
RX Dropped	Integer	The number of incoming packets that were discarded even though they did not have errors.
TX Bytes	Integer	The number of octets of data sent through this interface.
TX Packets	Integer	The number of unicast packets sent through this interface.
TX Errors	Integer	The number of outgoing packets that were discarded because of errors
TX Dropped	Integer	The number of outgoing packets that were discarded even though they did not have errors

COM.TIBCO.hawk.hma.System

Microagent

Purpose

The system microagent (on Microsoft Windows) returns process management and CPU utilization information about the system.

Methods

Method	Description	Page
System:getSystemInfo	Returns process count for a specified process	System:getSystemInfo
System:getCpuInfo	Returns process count filtered by command argument	System:getCpuInfo

System:getSystemInfo

Method

Purpose

This method (on Microsoft Windows) returns the system process management information.

Type

Open, Synchronous, IMPACT_INFO.

Arguments

None

Returns

Name	Type	Description
	Integer	System up time in seconds
Free Real Memory	Long	Free Real Memory in KBytes
% Free Real Memory	Integer	
Total Real Memory	Long	Total Real Memory in KBytes
Used Real Memory	Long	Used Real Memory in KBytes
% Used Real Memory	Integer	% Used Real Memory in KBytes

System:getCpuInfo

Method

Purpose

This method (on Microsoft Windows) returns operating system CPU utilization information.

Type

Open, Synchronous, `IMPACT_INFO`.

Arguments

None

Returns

Name	Type	Description
Total CPUs	Integer	Total number of CPUs.
% User Time	Integer	Percent of the time spent in "user" mode for this processor.
% System Time	Integer	Percent of the time spent in "system" mode for this processor.
% Time Idle	Integer	Percent of the time spent in "idle" mode for this processor.
% Time Usage	Integer	Percent of the time spent in "usage" mode for this processor.

Linux Microagents and Methods

The TIBCO Hawk microagents described in this chapter run on the Linux platform in the HMA process. For more specific information on monitoring, see the TIBCO Hawk Installation, Configuration, and Administration guide.

- [Summary of Linux Microagents](#)
- [COM.TIBCO.hawk.hma.System](#)
- [COM.TIBCO.hawk.hma.Process](#)
- [COM.TIBCO.hawk.hma.FileSystem](#)
- [COM.TIBCO.hawk.hma.Network](#)

Summary of Linux Microagents

The Linux microagents are described as follows..

Linux Microagents (Sheet of)

Microagent	Description
Common Methods	<p>These methods are common to all microagents and provide release and trace-related functions. Methods are:</p> <ul style="list-style-type: none">getReleaseVersiongetTraceLevelsetTraceLevelgetTraceParameterssetTraceParameters_onUnsolicitedMsg

Microagent	Description
System	<p>Collects information on system-wide usage of the CPU and memory. Methods are:</p> <p>System:getSwapInfo</p> <p>System:getSystemInfo</p> <p>System:getCpuInfo</p> <p>System:getTunableInfo</p>
Process	<p>Used to obtain information about processes running on the system. Methods are:</p> <p>Process:getProcess</p> <p>Process:getInstanceCount</p> <p>Process:getInstanceCountByCommand</p>
FileSystem	<p>Collects information about file systems associated with the computer. Methods are:</p> <p>FileSystem:getByPartition</p> <p>FileSystem:getByMountPoint</p> <p>FileSystem:getByFileSystem</p>
Network	<p>Collects information about network identification communications and errors. Methods are:</p> <p>Network:getStatistics</p> <p>Network:getConfig</p>

COM.TIBCO.hawk.hma.System

Microagent

Purpose

The System microagent (on Linux) is used to collect information on system-wide usage of the CPU and memory, summarizing all processes on the computer.

Methods

Method	Description	Page
System:getSwapInfo	Returns information on system swap space	System:getSwapInfo
System:getSystemInfo	Returns information on various operating system parameters	System:getSystemInfo
System:getCpuInfo	Returns system CPU utilization information	System:getCpuInfo
System:getTunableInfo	Returns information on system tunable parameters	System:getTunableInfo

System:getSwapInfo

Method

Purpose

This method (on Linux) returns operating system swap space utilization information.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Avg KBytes Free	Integer	The average free memory, in KB
Avg KBytes Unallocated	Integer	Average unallocated swap space, in KB
KBytes Used	Integer	The number of kilobytes of swap space used
KBytes Total	Integer	The number of kilobytes total swap space
% Free	Double	The amount free swap space, expressed as a percentage
% Used	Double	The amount of swap space used, expressed as a percentage

System:getSystemInfo

Method

Purpose

This method (on Linux) returns operating system information.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Up Time	Integer	The system up time in seconds. (Time since last reboot.)
Run Queue Length	Integer	The length of the run queue (number of processes)
Real Memory	Integer	The total real memory (in kilobytes)
Free Memory	Integer	The total free memory (in kilobytes)
% Free Real Memory	Integer	The total percentage of free real

Name	Type	Description
		memory
% Buffers Memory	Integer	The total percentage of memory used to cache file or disk blocks
% Cached Memory	Integer	The total percentage of memory used to cache page files
Avg Running	Double	Average number of processes running over 1 minute
Avg Running (5 min)	Double	Average number of processes running over 5 minutes
Avg Running (15 min)	Double	Average number of processes running over 15 minutes
% Time Usage	Double	% Time Usage
Total Processes	Integer	The total processes currently on the system
Context Switches	Long	The total number of context switches of the CPU from one process to another
Device Interrupts	Long	The total number of device interrupts currently on the computer system
Buffers	Long	The amount of physical RAM, in kilobytes, used for file buffer
Cache Memory	Long	The amount of physical RAM, in kilobytes, used as cache memory
SwapCached	Long	The amount of swap, in kilobytes,

Name	Type	Description
		used as cache memory
Page Cache Memory Active	Long	<p>The total amount of buffer or page cache memory, in kilobytes, that is in active use.</p> <p>This is memory that has been recently used and is usually not reclaimed for other purposes.</p>
Page Cache Memory Free	Long	<p>The total amount of buffer or page cache memory, in kilobytes, that are free and available.</p> <p>This is memory that has not been recently used and can be reclaimed for other purposes.</p>
High Total Memory	Long	The total amount of memory, in kilobytes, that is not directly mapped into kernel space
High Free Memory	Long	The free amount of memory, in kilobytes, that is not directly mapped into kernel space
Low Total Memory	Long	The total amount of memory, in kilobytes, that is directly mapped into kernel space
Low Free Memory	Long	The free amount of memory, in kilobytes, that is directly mapped into kernel space
Dirty Memory	Long	The total amount of memory, in kilobytes, waiting to be written back to the disk

Name	Type	Description
WriteBack Memory	Long	The total amount of memory, in kilobytes, actively being written back to the disk
Mapped Memory	Long	The total amount of memory, in kilobytes, which have been used to map devices, files, or libraries using the mmap command
Slab Memory	Long	The total amount of memory, in kilobytes, used by the kernel to cache data structures for its own use
Committed_AS	Long	The total amount of memory, in kilobytes, estimated to complete the workload. This value represents the worst case scenario value, and also includes swap memory
PageTable Memory	Long	The total amount of memory, in kilobytes, dedicated to the lowest page table level
VmallocTotal	Long	The total amount of memory, in kilobytes, of total allocated virtual address space
VMallocUsed Memory	Long	The total amount of memory, in kilobytes, of used virtual address space
VmallocChunk Memory	Long	The largest contiguous block of memory, in kilobytes, of available virtual address space

Name	Type	Description
HugePages_Total	Long	The total number of hugepages for the system
HugePages_Free	Long	The total number of hugepages available for the system
Hugepagesize	Long	The size for each hugepages unit in kilobytes
Active(anon)	Long	Active anonymous pages
Inactive(anon)	Long	Inactive anonymous pages
Active(file)	Long	Active page cache
Inactive(file)	Long	Inactive page ache
Unevictable	Long	These pages aren't going anywhere, they are pinned, cannot be swapped or reclaimed. Includes kernel pages and Mlocked pages
Mlocked	Long	Just mlocked() pages from userspace, amount of allocated memory that's strictly prohibited from being paged out
AnonPages	Long	(Anonymous Pages) field denotes allocated pages which have no backing storage, will include anonymous hugepages
Shmem	Long	In-kernel data structures cache, depicts the amount of shared memory used by group(s) processes. Size of shared

Name	Type	Description
		memory, anybody who did mmap () with MAP_SHARED MAP_ANONYMOUS
Sreclaimable	Long	Part of Slab, that might be reclaimed, such as caches
Sunreclaim	Long	Part of Slab, that cannot be reclaimed on memory pressure
KernelStack	Long	Pages used for kernel stack space
NFS_Unstable	Long	NFS pages sent to the server, but not yet committed to stable storage
Bounce	Long	Memory used for block device 'bounce buffers'
WritebackTmp	Long	Memory used by FUSE for temporary writeback buffers
CommitLimit	Long	This is the total amount of memory currently available to be allocated on the system, expressed in kilobytes. This limit is adhered to only if strict overcommit accounting is enabled
HardwareCorrupted	Long	The amount of memory in "poisoned pages", for example, memory which has failed (as flagged by Error Correcting Code (ECC) typically). ECC memory is capable of correcting small errors and detecting larger ones. If an

Name	Type	Description
		error that cannot be corrected is detected using ECC (in memory or cache, depending on the system's hardware support), then the Linux kernel marks the corresponding page as poisoned.
AnonHugePages	Long	Non-file backed huge pages mapped into user-space page tables
HugePages_Rsvd	Long	This is the number of huge pages for which a commitment to allocate from the pool has been made, but no allocation has yet been made. These reserved huge pages guarantee that an application will be able to allocate a huge page from the pool of huge pages at fault time
HugePages_Surp	Long	This is the number of huge pages in the pool
DirectMap4k	Long	Counts the number of pages mapped as 4kB pages. It gives an indication of the load for Translation Lookaside Buffer (TLB), cache used to store mappings between virtual addresses and physical pages in memory.
DirectMap2M	Long	Counts the number of pages mapped as 2MB pages. It gives an indication of the load for Translation Lookaside Buffer

Name	Type	Description
		(TLB), cache used to store mappings between virtual addresses and physical pages in memory.

System:getCpuInfo

Method

Purpose

This method (on Linux) returns operating system CPU utilization information.

On multi-processor machines, CPU utilization for individual processors are returned.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Processor	Integer	Processor (slot) number

Name	Type	Description
% User Time	Integer	The percent of time spent in user mode for the processor
% System Time	Integer	The percent of time spent in system mode for the processor
% Time Idle	Integer	The percent of time spent in idle state for the processor
IO Waits	Long	IO Waits
Hardware IRQ	Long	Hardware interrupts (IRQ)
Software IRQ	Long	Software interrupts (IRQ)

System:getTunableInfo

Method

Purpose

This method (on Linux) returns operating system tunable parameter information.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Page Size	Integer	Page size (in bytes)
Inodes Allocated	Long	Denotes the number of inodes the system has allocated. This number will grow and shrink dynamically.
Inodes Free	Long	Represents the number of free inodes
Maximum Files	Integer	The maximum number of files a process can have open simultaneously

COM.TIBCO.hawk.hma.Process

Microagent

Purpose

The `Process` microagent (on Linux) furnishes information about processes running on the system.

Methods

Method	Description	Page
Process:getProcess	Returns information on a process	Process:getProcess
Process:getInstanceCount	Returns the number of instances of a process	Process:getInstanceCount
Process:getInstanceCountByCommand	This method returns a count of processes, filtered by argument	Process:getInstanceCountByCommand

Process:getProcess

Method

Purpose

On Linux, returns a process table filtered by the `Process Name` argument.

Remarks

The argument is treated as a pattern to match. If no argument string is given, all processes are returned.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Process Name	String	Process name. Empty argument returns information for all processes.

Returns

Name	Type	Description
Process Name	String	Name of the process being executed
ID Process	Integer	Process ID of the process. Table is indexed on ID process.
Parent Process ID	Integer	Parent process ID of the current process
User Name	String	Effective user name of the process

Name	Type	Description
Status	String	Status of process
Virtual KBytes	Integer	The size of virtual address space, in kilobytes
Stack KBytes	Integer	The size of stack space, in kilobytes
Heap KBytes	Integer	The size of heap space, in kilobytes
CPU Time	Integer	CPU usage: the user time plus system time, in milliseconds.
% CPU	Integer	Percent of CPU used
% Memory	Integer	Percent of memory used
Major Page Faults	Integer	Major page faults since process start
Minor Page Faults	Integer	Minor page faults since process start
Command	String	Full command line with all arguments
Start Time	Integer	The number of seconds since the process started
Number of threads	Integer	Number of threads in this process
Characters Written	Long	The number of bytes which this task has caused, or shall cause to be written to disk
Characters Read	Long	The number of bytes which this process has caused to be read from storage
Read Syscalls	Long	Attempt to count the number of read I/O

Name	Type	Description
		operations
Write Syscalls	Long	Attempt to count the number of write I/O operations
Bytes read	Long	Attempt to count the number of bytes which this process really did cause to be fetched from the storage layer.
Bytes written	Long	Attempt to count the number of bytes which this process caused to be sent to the storage layer
Cancelled_write_bytes	Long	This field represents the number of bytes which this process caused to not happen, by truncating pagecache
RSS	Double	Resident Set Size: number of pages the process has in real memory
VmPeak	Long	Peak virtual memory size in Kbytes
VmPin	Long	Pinned memory size. It is size of pinned pages that cannot be swapped. (available since Linux 3.2)
VmLCK	Long	Locked memory size in KBytes
VmHWM	Long	Peak resident set size in KBytes
VmPTE	Long	Page table entries size in KBytes
VmRSS	Long	Resident set size in KBytes
VmData	Long	Size of data in KBytes
VmStk	Long	Size of stack in KBytes

Name	Type	Description
VmExe	Long	Size of text segments in KBytes
VmLib	Long	Shared library code size in KBytes
VmSwap	Long	Swap Space Used in Kbytes
PGID	Long	The process group ID of the process
SID	Integer	The session ID of the process
TTY_NR	Integer	The controlling terminal of the process
TTY_PGRP	Integer	The ID of the foreground process group of the controlling terminal of the process
FLAGS	Integer	The kernel flags word of the process
CMAJ_FLT	Long	The number of major faults that the process's waited-for children have made
CMIN_FLT	Long	The number of minor faults that the process's waited-for children have made
STIME	Double	Amount of time that this process has been scheduled in kernel mode
CSTIME	Double	Amount of time that this process's waited-for children have been scheduled in kernel mode
UTIME	Double	Amount of time that this process has been scheduled in user mode
CUTIME	Double	Amount of time that this process's waited-for children have been scheduled in user mode

Name	Type	Description
Priority	Long	Process scheduling Priority
NICE	Long	The nice value, a value in the range 19 (low priority) to -20 (high priority)
IT_REAL_VALUE	Long	The time in jiffies before the next SIGALRM is sent to the process due to an interval timer
Start_Code	Long	The address above which program text can run
End_Code	Long	The address below which program text can run
Start_Stack	Long	The address of the start (bottom) of the stack
ESP	Long	The current value of ESP (stack pointer), as found in the kernel stack page for the process
EIP	Long	The current EIP (instruction pointer)
Pending	Long	The bitmap of pending signals, displayed as a decimal number
Blocked	Long	The bitmap of blocked signals, displayed as a decimal number
SIGIN	Long	The bitmap of ignored signals
SIGCATCH	Long	The bitmap of caught signals
WCHAN	Double	This is the channel in which the process is waiting. It is the address of a location in the kernel where the process is sleeping

Name	Type	Description
NSWAP	Long	Number of pages swapped
CNSWAP	Long	Cumulative nswap for child processes
EXIT_SIGNAL	Long	Signal to send to parent thread on exit. (available in Linux 2.1.22 and later)
Processor	Long	CPU number last executed on. (available in Linux 2.2.8 and later)
RT_PRIORITY	Long	Real-time scheduling priority, a number in the range 1 to 99 for processes scheduled under a real-time policy, or 0, for non-real-time processes. (available in Linux 2.5.19 and later)
Policy	Long	Scheduling policy. Decode using the SCHED_* constants in linux/sched.h. (available in Linux 2.5.19 and later)

Process:getInstanceCount

Method

Purpose

This method (on Linux) returns an instance count for the process denoted by the `Process Name` argument.

Remarks

The argument is treated as a pattern to match. If no argument string is given, the count of all processes is returned.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Process Name	String	Process name. Empty string returns combined instance count for all processes.

Returns

Name	Type	Description
Process Name	String	Process name. Table is indexed on Process Name.
Process Count	Integer	Number of instances

Process:getInstanceCountByCommand

Method

Purpose

This method (on Linux) returns a count of processes, filtered by argument.

Remarks

Regular expressions can be used to query status of a group of processes.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Command	String	Command-line argument

Returns

Name	Type	Description
Command	String	Command-line argument
Process Count	Integer	Process count for specified command

COM.TIBCO.hawk.hma.FileSystem

Microagent

Purpose

The FileSystem microagent (on Linux) is used to collect information on file systems connected to this computer.

Methods

Method	Description	Page
FileSystem:getByPartition	Returns utilization statistics for currently mounted file systems filtered by device name	FileSystem:getByPartition
FileSystem:getByMountPoint	Returns utilization statistics for currently mounted file systems filtered by mount directory	FileSystem:getByMountPoint
FileSystem:getByFilesystem	Returns utilization statistics for the currently mounted filesystems	FileSystem:getByFilesystem

FileSystem:getByPartition

Method

Purpose

This method (on Linux) returns utilization statistics for currently mounted file systems, filtered by device name. Information will be listed for only local partitions with non-zero data blocks.

Remarks

The argument is being treated as a pattern to match. If no argument string is given the whole mount table is reported.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Partition	String	Device name (hard disk partition)

Returns

Name	Type	Description
Partition	String	Device name of a hard disk partition. Table is indexed by Partition.
Mount Point	String	Mount point
% Free	Integer	The amount of disk space on the mounted file system that is currently free, expressed as a percentage of total size
% Used	Integer	The amount of disk space on the mounted file system that is currently in use, expressed as a percentage of total size
KBytes Free	Long	The amount of disk space on the mounted file system that is currently free, expressed as an absolute value in kilobytes
KBytes Used	Long	The amount of disk space on the mounted file system that is currently in use, expressed as an absolute value in kilobytes
KBytes Total	Long	The amount of disk space on the mounted file system, expressed in kilobytes
% Minimum	Integer	The minimum % free (for super user only)

FileSystem:getByMountPoint

Method

Purpose

This method (on Linux) returns utilization statistics for currently mounted file systems filtered by the mount directory. Information will be listed for only local partitions with non-zero data blocks.

Remarks

The argument is being treated as a pattern to match. If no argument is given, the entire mount table is reported.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Mount Point	String	Name of the directory where the file system is mounted

Returns

Name	Type	Description
Mount Point	String	Mount point. Table is indexed by Mount Point.
Partition	String	Device name of a hard disk partition

Name	Type	Description
% Free	Integer	The amount of disk space on the mounted file system that is currently free, expressed as a percentage of total size
% Used	Integer	The amount of disk space on the mounted file system that is currently in use, expressed as a percentage of total size
KBytes Free	Long	The amount of disk space on the mounted file system that is currently free, expressed as an absolute value in kilobytes
KBytes Used	Long	The amount of disk space on the mounted file system that is currently in use, expressed as an absolute value in kilobytes
KBytes Total	Long	The amount of disk space on the mounted file system, expressed in kilobytes
% Minimum	Integer	The minimum % free (for super user only)

FileSystem:getByFileSystem

Method

Purpose

This method (on Linux) provides utilization statistics for the currently mounted filesystems filtered by device name and file system type. The argument is treated as a pattern to match. If no argument is specified, the entire mount table is reported.

For any filesystem that does not respond within five seconds, the data values for % Free and % Used are considered stale and their values are set to -1.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
File System Type	String	Name of the file system type

Returns

Name	Type	Description
Partition	String	Device name of a hard disk partition
Mount Point	String	Mount point of device. Table is indexed on Mount Point.
File System Type	String	Name of the file system type
% Free	Integer	Amount of disk space on the mounted file system that is currently free, expressed as percentage of total size
% Used	Integer	Amount of disk space on the mounted file system currently in use, expressed as percentage of total size
KBytes Free	Long	Amount of disk space on the mounted file system that is currently free, expressed as

Name	Type	Description
		absolute value (kilobytes)
KBytes Used	Long	Amount of disk space on the mounted file system currently in use, expressed as absolute value (kilobytes)
KBytes Total	Long	Total amount of disk space on mounted file system (kilobytes)
% Minimum	Integer	Minimum Percentage free

COM.TIBCO.hawk.hma.Network

Microagent

Purpose

The Network microagent (on Linux) furnishes information about network utilization statistics, identification, communications, and errors.

Methods

Method	Description	Page
Network:getStatistics	Returns network performance information	Network:getStatistics

Method	Description	Page
Network:getConfig	Returns information on network addresses and masks	Network:getConfig

Network:getStatistics

Method

Purpose

This method (on Linux) returns network performance information in a manner similar to using the netstat command.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Interface Name	String	Name of the network interface

Returns

Name	Type	Description
Interface Name	String	Name of the network interface. Table is indexed on Interface Name.
Input Bytes	Long	The number of octets of data received through the interface
Input Packets	Integer	Packets received on the interface, lifetime total
Input Packet Errors	Integer	Packet errors received on the interface, lifetime total
Output Bytes	Long	The number of octets of data sent through this interface
Output Packets	Integer	Packets sent on the interface, lifetime total
Output Packet Errors	Integer	Packet errors sent on the interface, lifetime total
Network Collisions	Integer	Collisions, lifetime total
Framing Errors	Integer	Framing errors, lifetime total
No Carrier Errors	Integer	No carrier errors, lifetime total
% Network Collisions	Double	Rate (percentage) of collisions against total number of output packets, lifetime total

Network:getConfig

Method

Purpose

This method (on Linux) returns network configuration information in a manner similar to using the `ifconfig` command.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Interface Name	String	Name of the network interface

Returns

Name	Type	Description
Interface Name	String	Name of the network interface. Table is indexed on Interface Name

Name	Type	Description
Network Address	String	Network Address in dotted format, 32 bit Value
Hardware Address	String	Hardware Address in colon format
Broadcast Address	String	Broadcast address for the interface
Network Mask	String	Network mask for the interface
MTU	String	
Speed (Mb/s)	String	Speed of Network Interface

Mac OS X Methods

The TIBCO Hawk microagents described in this chapter run on the Mac OS X platform in the HMA process. For more specific information on monitoring, see the TIBCO Hawk Installation, Configuration, and Administration guide.

- [Summary of Mac OS X Microagents](#)
- [COM.TIBCO.hawk.hma.System](#)
- [COM.TIBCO.hawk.hma.Process](#)
- [COM.TIBCO.hawk.hma.FileSystem](#)
- [COM.TIBCO.hawk.hma.Network](#)

Summary of Mac OS X Microagents

The Mac OS X microagents are described as follows.

Mac OS X Microagents (Sheet of)

Microagent	Description
Common Methods	<p>These methods are common to all microagents and provide release and trace-related functions. Methods are:</p> <ul style="list-style-type: none">getReleaseVersiongetTraceLevelsetTraceLevelgetTraceParameterssetTraceParameters_onUnsolicitedMsg

Microagent	Description
System	<p>Used to collect information on system-wide usage of the CPU and memory. Methods are:</p> <p>System:getSystemInfo</p> <p>System:getCpuInfo</p> <p>System:getProcessorSetInfo</p> <p>System:getSwapInfo</p> <p>System:getTunableInfo</p>
Process	<p>Used to obtain information about processes running on the system. Methods are:</p> <p>Process:getProcess</p> <p>Process:getInstanceCount</p> <p>Process:getInstanceCountByCommand</p>
FileStat	<p>Used to obtain information about file systems connected to the computer. Methods are:</p> <p>FileSystem:getByPartition</p> <p>FileSystem:getByMountPoint</p> <p>FileSystem:getByFileSystem</p>
Network	<p>Used to obtain information about network identification communications and errors. Methods are:</p> <p>Network:getStatistics</p> <p>Network:getConfig</p>

COM.TIBCO.hawk.hma.System

Microagent

Purpose

The System microagent (on Mac OS X) is used to collect information on system-wide usage of the CPU and memory, summarizing all processes on the computer.

Methods

Method	Description	Page
System:getSystemInfo	Returns information on system resource utilization	System:getSystemInfo
System:getCpuInfo	Returns information on CPU utilization	System:getCpuInfo
System:getProcessorSetInfo	Returns information on processor set utilization	System:getProcessorSetInfo
System:getSwapInfo	Returns information on the utilization of system swap space	System:getSwapInfo
System:getTunableInfo	Returns information on system	System:getTunableInfo

Method	Description	Page
	tunable variables	

System:getSystemInfo

Method

Purpose

This method (on Mac OS X) returns information that pertains to multi-tasking process management by the system, including process swapping and run queuing. It also returns information on the memory usage.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Up Time	Long	System up time in seconds
Real Memory	Long	Total real memory in kilobytes

Name	Type	Description
Free Memory	Long	Free Memory in kilobytes
% Free Real Memory	Double	% Free Real Memory
Avg Running	Double	Average number of processes running over 1 minute
Avg Running (5 min)	Double	Average number of processes running over 5 minutes
Avg Running (15 min)	Double	Average number of processes running over 15 minutes
% Time Usage	Integer	% Time Usage
% User Time	Double	Percent of the time currently run processes execute in user mode
% System Time	Double	Percent of the time currently run processes execute in kernel mode
% Time Idle	Double	Percent of the time wait process is the currently- running process

System:getCpuInfo

Method

Purpose

This method (on Mac OS X) returns information on processor activity for all processors on the computer.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Processor	Integer	Processor (slot) number
Running	Integer	Value of one (1) indicates the processor is running
Master	Integer	Value of one (1) indicates that the processor is the master processor
% User Time	Double	Percent of the time currently run processes execute in user mode
% System Time	Double	Percent of the time currently run processes execute in kernel mode
% Time Idle	Double	Percent of the time when the CPU is in idle state

System:getProcessorSetInfo

Method

Purpose

This method (on Mac OS X) returns information on processor set utilization.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Processor Set	Integer	Processor (slot) number
CPU Count	Integer	
Load Average	Double	Load average of the processor set is a measure of how much processing resources is being utilized
Mach Factor	Double	A variant of the Load Average which indicates how much processing resources is available
Total Processes	Integer	Total processes in the processor set
Total Threads	Integer	Total threads in the processor set

System:getSwapInfo

Method

Purpose

This method (on Mac OS X) returns information on the utilization of system swap space.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Page Size	Long	The size of a page in bytes
Page Free	Long	The total number of free pages in the system
Page Active	Long	The total number of pages currently in use and pageable
Page Inactive	Long	The total number of pages on the inactive list
Page Wired Down	Long	The total number of pages that cannot be paged out

Name	Type	Description
Page Copy-On-Write	Long	The number of faults that caused a page to be copied
Page Reactivated	Long	The total number of pages that have been moved from the inactive list to the active list
Pageins	Long	The number of requests for pages from a pager
Pageouts	Long	The number of pages that have been paged out
Hit Rate	Double	The percentage of page hits over page lookup

System:getTunableInfo

Method

Purpose

This method (on Mac OS X) returns tunable system information.

Type

Synchronous, IMPACT_INFO.

Arguments

None.

Returns

Name	Type	Description
Max. Vnodes	Integer	Maximum number of Vnodes
Max. Processes	Integer	Maximum number of processes
Maximum Files	Integer	Maximum Files
Maximum Files/Process	Integer	Maximum number of open files per process
Maximum Process/User	Integer	Maximum number of processes per user

COM.TIBCO.hawk.hma.Process

Microagent

Purpose

The Process microagent (on Mac OS X) furnishes information about processes running on the system.

Methods

Method	Description	Page
Process:getProcess	Returns information on a process	Process:getProcess
Process:getInstanceCount	Returns the number of instances of a process	Process:getInstanceCount
Process:getInstanceCountByCommand	This method returns a count of processes, filtered by argument	Process:getInstanceCountByCommand

Process:getProcess

Method

Purpose

This method (on Mac OS X) returns a process table filtered by the Process Name argument.

Remarks

The argument is treated as a pattern to match. If no argument string is given, all processes are returned.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Process Name	String	Process name. Empty argument returns information for all processes.

Returns

Name	Type	Description
Process Name	String	Name of the process being executed
ID Process	Integer	Process ID of the process. Table is indexed on ID process.
Parent Process ID	Integer	Parent process ID of the current process
User Name	String	Effective user name of the process

Name	Type	Description
Status	String	Status of process
State	String	Process status
Virtual KBytes	Integer	The size of virtual address space, in kilobytes
Real KBytes	Integer	The size of the real address space, in kilobytes
Threads	Integer	The number of threads in the process
CPU Time	Double	CPU usage: the user time plus system time, in milliseconds.
% CPU	Double	Percent of CPU used
% Memory	Double	Percent of memory used
Page Faults	Integer	The number of page faults
COW faults	Integer	The number of copy-on-write faults
Pageins	Integer	The number of actual pageins
System Calls	Long	The number of system calls made
Command	String	Command line used to start process
Start Time	Integer	The number of seconds since the process started

Process:getInstanceCount

Method

Purpose

This method (on Mac OS X) returns an instance count for the process denoted by the `Process Name` argument.

Remarks

The argument is treated as a pattern to match. If no argument string is given, the count of all processes is returned.

Type

Synchronous, `IMPACT_INFO`.

Arguments

Name	Type	Description
Process Name	String	Process name. Empty string returns combined instance count for all processes.

Returns

Name	Type	Description
Process Name	String	Process name. Table is indexed on Process Name.
Process Count	Integer	Number of instances

Process:getInstanceCountByCommand

Method

Purpose

This method (on Mac OS X) returns a count of processes, filtered by argument.

Remarks

Regular expressions can be used to query status of a group of processes.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Command	String	Command-line argument

Returns

Name	Type	Description
Command	String	Command-line argument
Process Count	Integer	Process count for specified command

COM.TIBCO.hawk.hma.FileSystem

Microagent

Purpose

The FileSystem microagent (on Mac OS X) is used to collect information on file systems connected to this computer.

Methods

Method	Description	Page
FileSystem:getByPartition	Returns utilization statistics for currently mounted file systems filtered by device name	FileSystem:getByPartition
FileSystem:getByMountPoint	Returns utilization statistics for currently mounted file systems filtered by mount	FileSystem:getByMountPoint

Method	Description	Page
	directory	
FileSystem:getByFileSyste m	Returns utilization statistics for the currently mounted filesystems	FileSystem:getByFileSyste m

FileSystem:getByPartition

Method

Purpose

This method (on Mac OS X) returns utilization statistics for currently mounted file systems, filtered by device name. Information will be listed for only local partitions with non-zero data blocks.

Remarks

The argument is being treated as a pattern to match. If no argument string is given the whole mount table is reported.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Partition	String	Device name (hard disk partition)

Returns

Name	Type	Description
Partition	String	Device name of a hard disk partition. Table is indexed by Partition.
Mount Point	String	Mount point
% Free	Integer	The amount of disk space on the mounted file system that is currently free, expressed as a percentage of total size
% Used	Integer	The amount of disk space on the mounted file system that is currently in use, expressed as a percentage of total size
KBytes Free	Long	The amount of disk space on the mounted file system that is currently free, expressed as an absolute value in kilobytes
KBytes Used	Long	The amount of disk space on the mounted file system that is currently in use, expressed as an absolute value in kilobytes

Name	Type	Description
KBytes Total	Long	The amount of disk space on the mounted file system, expressed in kilobytes
% Minimum	Integer	The minimum % free (for super user only)

FileSystem:getByMountPoint

Method

Purpose

This method (on Mac OS X) returns utilization statistics for currently mounted file systems filtered by the mount directory. Information will be listed for only local partitions with non-zero data blocks.

Remarks

The argument is being treated as a pattern to match. If no argument is given, the entire mount table is reported.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
Mount Point	String	Name of the directory where the file system is mounted.

Returns

Name	Type	Description
Mount Point	String	Mount point. Table is indexed by Mount Point.
Partition	String	Device name of a hard disk partition
% Free	Integer	The amount of disk space on the mounted file system that is currently free, expressed as a percentage of total size
% Used	Integer	The amount of disk space on the mounted file system that is currently in use, expressed as a percentage of total size
KBytes Free	Long	The amount of disk space on the mounted file system that is currently free, expressed as an absolute value in kilobytes
KBytes Used	Long	The amount of disk space on the mounted file system that is currently in use, expressed as an absolute value in kilobytes
KBytes Total	Long	The amount of disk space on the mounted file system, expressed in kilobytes
% Minimum	Integer	The minimum % free (for super user only)

FileSystem:getByFileSystem

Method

Purpose

This method (on Mac OS X) provides utilization statistics for the currently mounted filesystems filtered by device name and file system type. The argument is treated as a pattern to match. If no argument is specified, the entire mount table is reported.

Type

Synchronous, IMPACT_INFO.

Arguments

Name	Type	Description
File System Type	String	Name of the file system type

Returns

Name	Type	Description
Partition	String	Device name of a hard disk partition
Mount Point	String	Mount point of device. Table is indexed on Mount Point.

Name	Type	Description
File System Type	String	Name of the file system type
% Free	Integer	Amount of disk space on the mounted file system that is currently free, expressed as percentage of total size
% Used	Integer	Amount of disk space on the mounted file system currently in use, expressed as percentage of total size
KBytes Free	Long	Amount of disk space on the mounted file system that is currently free, expressed as absolute value (kilobytes)
KBytes Used	Long	Amount of disk space on the mounted file system currently in use, expressed as absolute value (kilobytes)
KBytes Total	Long	Total amount of disk space on mounted file system (kilobytes)
% Minimum	Integer	Minimum Percentage free

COM.TIBCO.hawk.hma.Network

Microagent

Purpose

The *Network* microagent (on Mac OS X) furnishes information about network utilization statistics, identification, communications, and errors.

Methods

Method	Description	Page
Network:getStatistics	Returns network performance information	Network:getStatistics
Network:getConfig	Returns information on network addresses and masks	Network:getConfig

Network:getStatistics

Method

Purpose

This method (on Mac OS X) returns network performance information in a manner similar to using the `netstat` command. All statistics are for the lifetime of the system since it was last booted.

Type

Synchronous, `IMPACT_INFO`.

Arguments

Name	Type	Description
Interface Name	String	Name of the network interface

Returns

Name	Type	Description
Interface Name	String	Name of the network interface. Table is indexed on Interface Name.
Input Bytes	Long	The number of octets of data received through the interface
Input Packets	Integer	Packets received on the interface, lifetime total
Input Packet Errors	Integer	Packet errors received on the interface, lifetime total
Output Bytes	Long	The number of octets of data sent through this interface
Output Packets	Integer	Packets sent on the interface, lifetime total
Output Packet Errors	Integer	Packet errors sent on the interface, lifetime total
Network Collisions	Integer	Collisions, lifetime total
Framing Errors	Integer	Framing errors, lifetime total

Name	Type	Description
No Carrier Errors	Integer	No carrier errors, lifetime total
% Network Collisions	Double	Rate (percentage) of collisions against total number of output packets, lifetime total

Network:getConfig

Method

Purpose

This method (on Mac OS X) returns network configuration information in a manner similar to using the `ifconfig` command.

Type

Synchronous, `IMPACT_INFO`.

Arguments

Name	Type	Description
Interface Name	String	Name of the network interface

Returns

Name	Type	Description
Interface Name	String	Name of the network interface. Table is indexed on Interface Name
Network Address	String	Network Address in dotted format, 32 bit Value
Hardware Address	String	Hardware Address in colon format
Broadcast Address	String	Broadcast address for the interface
Network Mask	String	Network mask for the interface
MTU	String	

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