TIBCO Hawk®

Plug-in Reference Guide

Software Release 5.2.0
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TIBCO®

Two-Second Advantage®

Contents

Preface

TIBCO Hawk Enterprise Message Service microagent enables TIBCO Hawk to monitor and manage Enterprise Message Service servers. TIBCO Hawk Java Virtual Machine Plug-in software enables TIBCO Hawk to monitor and manage Java virtual machine processes

Topics

Changes from the Previous Release of this Guide

Added new chapters on the Inventory Plug-in and Heartbeat Plug-in microagents.

Related Documentation

This section lists documentation resources you may find useful.

TIBCO Hawk Documentation

The following documents form the TIBCO Hawk documentation set:

- *TIBCO Hawk Concepts* This manual includes basic descriptions of TIBCO Hawk concepts.

- *TIBCO Hawk Installation, Configuration, and Administration* Read this book first. It contains step-by-step instructions for installing TIBCO Hawk software on various operating system platforms. It also describes how to configure the software for specific applications, once it is installed. An installation FAQ is included.

- *TIBCO Hawk Microagent Reference* A reference to the microagents and methods used by a TIBCO Hawk Agent for system and application monitoring.

- *TIBCO Hawk WebConsole User's Guide* This manual includes complete instructions for using TIBCO Hawk WebConsole.

- *TIBCO Hawk Programmer's Guide* All programmers should read this manual. It contains detailed descriptions of Application Management Interface (AMI), Application Programming Interface (API) concepts, and the TIBCO Hawk security framework and its classes. It also contains detailed descriptions of each class and method for the following APIs:

  — AMI API

    Java, C++ and C API

  — Console API

    Java API

  — Configuration Object API

    Java API

  Programmers should refer to the appropriate language reference sections for the AMI API details. The TIBCO Hawk Application Management Interface (AMI) exposes internal application methods to TIBCO Hawk.

- *TIBCO Hawk Plug-in Reference Guide* Contains details about the Enterprise Message Service, Messaging and JVM microagents methods that are used to administer and monitor the TIBCO Enterprise Message Service server.

- *TIBCO Hawk Plug-ins for TIBCO Administrator* Contains detailed descriptions of the TIBCO Hawk plug-ins accessed via TIBCO Administrator.

- *TIBCO Hawk HTTP Adapter User's Guide* Contains information about performing discovery, monitoring of agent status, monitoring of agent alerts, method invocation, method subscription, and many more activities on TIBCO Hawk and third-party products.

- *TIBCO Hawk Admin Agent Guide* Contains basic configuration details for TIBCO Hawk Admin Agent and complete instructions for using the web interface of TIBCO Enterprise Administrator for TIBCO Hawk.

- *TIBCO Hawk Release Notes* Read the release notes for a list of new and changed features. This document also contains lists of known issues and closed issues for this release.

Other TIBCO Product Documentation

You may find it useful to read the documentation for the following TIBCO products:

- TIBCO® Enterprise Administrator

  — *TIBCO Enterprise Administrator User's Guide*

  — *TIBCO Enterprise Administrator Installation Guide*

  — *TIBCO Enterprise Administrator Developer's Guide*

- TIBCO ActiveSpaces®

  — *TIBCO ActiveSpaces Developer's Guide*

  — *TIBCO ActiveSpaces Administration*

  — *TIBCO ActiveSpaces Installtion*

  — *TIBCO ActiveSpaces C Reference*

- TIBCO Rendezvous®

  — *TIBCO Rendezvous Concepts*

  — *TIBCO Rendezvous Administration*

  — *TIBCO Rendezvous Configuration Tools*

- TIBCO Enterprise Message Service™

  — *TIBCO Enterprise Message Service Installation*

  — *TIBCO Enterprise Message Service User's Guide*

Typographical Conventions

The following typographical conventions are used in this manual.

Table 1   General Typographical Conventions

Convention	Use
ENV_HOME *TIBCO_HOME* *HAWK_HOME* *CONFIG_FOLDER*	TIBCO products are installed into an installation environment. A product installed into an installation environment does not access components in other installation environments. Incompatible products and multiple instances of the same product must be installed into different installation environments. An installation environment consists of the following properties: • **Name** Identifies the installation environment. This name is referenced in documentation as *ENV_NAME*. On Microsoft Windows, the name is appended to the name of Windows services created by the installer and is a component of the path to the product shortcut in the Windows Start > All Programs menu. • **Path** The folder into which the product is installed. This folder is referenced in documentation as *TIBCO_HOME*. TIBCO Hawk installs into a directory within a *TIBCO_HOME*. This directory is referenced in documentation as *HAWK_HOME*. The default value of *HAWK_HOME* depends on the operating system. For example on Windows systems, the default value is `C:\tibco\hawk\5.2`. A TIBCO Hawk configuration folder stores configuration data generated by TIBCO Hawk. Configuration data can include sample scripts, session data, configured binaries, logs, and so on. This folder is referenced in documentation as *CONFIG_FOLDER*. For example, on Windows systems, the default value is `C:\ProgramData\tibco\cfgmgmt\hawk`.
`code font`	Code font identifies commands, code examples, filenames, pathnames, and output displayed in a command window. For example: Use `MyCommand` to start the foo process.

Table 1   General Typographical Conventions (Cont'd)

Convention	Use
bold code font	Bold code font is used in the following ways: • In procedures, to indicate what a user types. For example: Type **admin**. • In large code samples, to indicate the parts of the sample that are of particular interest. • In command syntax, to indicate the default parameter for a command. For example, if no parameter is specified, MyCommand is enabled: MyCommand [**enable**	disable]
italic font	Italic font is used in the following ways: • To indicate a document title. For example: See *TIBCO BusinessWorks Concepts*. • To introduce new terms For example: A portal page may contain several portlets. *Portlets* are mini-applications that run in a portal. • To indicate a variable in a command or code syntax that you must replace. For example: MyCommand *pathname*
Key combinations	Key name separated by a plus sign indicate keys pressed simultaneously. For example: Ctrl+C. Key names separated by a comma and space indicate keys pressed one after the other. For example: Esc, Ctrl+Q.
	The note icon indicates information that is of special interest or importance, for example, an additional action required only in certain circumstances.
	The tip icon indicates an idea that could be useful, for example, a way to apply the information provided in the current section to achieve a specific result.
	The warning icon indicates the potential for a damaging situation, for example, data loss or corruption if certain steps are taken or not taken.

Connecting with TIBCO Resources

How to Join TIBCOmmunity

TIBCOmmunity is an online destinaton for TIBCO customers, partners, and resident experts—a place to share and access the collective experience of the TIBCO community. TIBCOmmunity offers forums, blogs, and access to a variety of resources. To register, go to http://www.tibcommunity.com.

How to Access All TIBCO Documentation

You can access TIBCO documentation here:

http://docs.tibco.com/

How to Contact TIBCO Support

For comments or problems with this manual or the software it addresses, please contact TIBCO Support as follows.

- For an overview of TIBCO Support, and information about getting started with TIBCO Support, visit this site:

  http://www.tibco.com/services/support

- If you already have a valid maintenance or support contract, visit this site:

  https://support.tibco.com

  Entry to this site requires a user name and password. If you do not have a user name, you can request one.

Chapter 1   **Overview**

This chapter provides overview of the TIBCO Hawk Plug-in and how to create a custom Hawk plug-in.

Topics

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TIBCO Hawk Plug-in

TIBCO Hawk plug-in is a type of Hawk micro agent that resides with the process space of a Hawk Agent. Such Hawk plug-ins are used to communicate with a host of third party applications using their specific protocols and allow them to be monitored and managed within the Hawk subsystem.

TIBCO Hawk installation provides two fully functional ready-to-use plug-ins:

- Enterprise Message Service Plug-in
- Java Virtual Machine Plug-in

However, one can always write a custom Hawk plug-in to suit specific needs, using the set of available Hawk API methods.

Writing a Custom Hawk Plug-in And Registering it With The Existing Hawk Agent

Hawk is an extensible product and additional monitoring capabilities can be added by creating plug-ins to it. Every plug-in requires a `.hma` file, which is a HMA configuration file, and a `.jar` file, which is a Java implementation of various methods you want to expose via the Hawk subsystem. Follow the below steps to create a plug-in:

1. Create the `.hma` file.

   Refer to the *HAWK_HOME*`/examples/ma_plugin/DM*.hma` file for guidance.

   — Most important constituent of this `.hma` file is the main/startup class of the plug-in implementation. That is to be mentioned under the `<classname>` tag. For example:

   `<classname>com.A.B.myPluginControllerClass</classname>`

   — You can also specify some optional arguments that you would expect the users to configure externally without the need to change plug-in implementation. Such optional arguments should be mentioned under the `<argmuents>` tag. For example:

   `<arguments><arg>-traceDir</arg><arg>C:/LogDir</arg></arguments>`

   — Absolute path of the implementation `.jar` files and all the required third party libraries should be mentioned under `<classpath>` tag. For example:

   `<classpath><path>C:/TPCL/libs/slf4j-api-1.6.4.jar</path></classpath>`

2. Place the `.hma` file into the folder *CONFIG_FOLDER*`/plugin`.

If you have more than one Hawk plug-ins, please make sure that all `.hma` files are present in the *CONFIG_FOLDER*/`plugin` subfolder.

3. Edit the *CONFIG_FOLDER*/`bin/hawkagent.cfg` to set or uncomment the following parameter:

`-hma_plugin_dir      ${CONFIG_FOLDER}/plugin.`

4. Ensure that you have created the implementation `.jar` file in the same folder that is specified in the `<classpath>` tag within the `.hma` file.

    Refer to the *HAWK_HOME*/`examples/ma_plugin/DM*.java` for guidance.

5. Restart the Hawk agent.

    You should now be able to view your custom plug-in microagent and corresponding methods in Hawk WebConsole and Hawk Display.

Chapter 2 **Enterprise Message Service™ Plug-in Microagent**

This chapter provides information about the Enterprise Message Service™ Plug-in microagent. It also gives details about the microagent methods that are used to administer and monitor the TIBCO Enterprise Message Service server.

Topics

Installation and Configuration

TIBCO Hawk installer installs Enterprise Message Service Plug-in microagent in `TIBCO_HOME/hawk/<version>/plugin/ems` folder.

To configure the plug-in, follow these steps:

1. Make sure that TIBCO Enterprise Message Service is installed and running.

2. Ensure that the TIBCO Enterprise Message Service installation path is set in the `hawkemsadmin.hma` file (located in *TIBCO_HOME*/hawk/*<version>*/plugin/ems folder).

If you are using EMS 6.3, update the default `jms-2.0.jar` classpath entry (for EMS 8.0) to the `jms.jar` classpath (for EMS 6.3) in the `hawkemsadmin.hma` file.

The default classpath entry for EMS 8.0:

`<path>%TIBCO_EMS_HOME_ESC%/lib/jms-2.0.jar</path>`

The required classpath entry for EMS 6.3:

`<path>%TIBCO_EMS_HOME_ESC%/lib/jms.jar</path>`

3. Copy the file `hawkemsadmin.hma` from *TIBCO_HOME*/hawk/*<version>*/plugin/ems to *CONFIG_FOLDER*/plugin.

CONFIG_FOLDER is the folder where all the configuration files of all TIBCO products are available. The default config folder for TIBCO Hawk is `C:\TIBCO_CONFIG_HOME\tibco\cfgmgmt\hawk`.

If the `plugin` folder does not exist under *CONFIG_FOLDER*, you need to create it.

4. Edit `hawkagent.cfg` in *CONFIG_FOLDER*/bin and set the following option:

    -hma_plugin_dir *CONFIG_FOLDER*/plugin

5. Navigate to *CONFIG_FOLDER*/plugin directory and open the `hawkemsadmin.hma` file in a text editor.

6. Specify the TIBCO Hawk microagent class you wish to use in the *<classname>* element. You can use either the `HawkListener` class if you only want to monitor the server, or you can specify the `HawkController` class if you want to monitor and manage the server.

7. Specify the **username** and **password** and **server URL** to use to connect to the TIBCO Enterprise Message Service server in the appropriate *<arg>* elements. See Table 2, Parameters.

For example:

```
<arguments>
<arg>-user</arg>
<arg>admin</arg>
<arg>-password</arg>
<arg>MyPassword</arg>
<arg>-server</arg>
<arg>tcp://server1.yourcompany.com:7222</arg>
<arg>-timeout</arg>
<arg>5</arg>
</arguments>
```

To use an SSL connection to the TIBCO Enterprise Message Service server, set the additional SSL arguments in the `hawkemsadmin.hma` file.

8. Restart the Hawk Agent.

Parameters

Table 2   Parameters (Sheet 1 of 2)

Parameter	Description
`-user` `-password`	The MicroAgent identifies itself with this user name and password when it connects to the EMS server.
	When absent, the default user name is `admin`. When absent, the default password is the empty string.
`-user` `-encryptedPassword`	To use an encrypted password, specify this pair. As the value for `-encryptedPassword`, supply the output you obtain by running the Hawk utility program `tibhawkpassword` located in your *CONFIG_FOLDER*/`bin` directory: `tibhawkpassword -encrypt` Enter your current password when prompted. See the *TIBCO Hawk Installation and Configuration Guide* for details.
`-server`	The MicroAgent connects to the EMS server at this URL (host computer and port). When absent, the default is `tcp://localhost:7222`.
`-timeout`	Limits the time (in seconds) that the MicroAgent waits for the EMS server to respond to queries.
	Acceptable values are in the range [5, 3600]. When absent, the default is 60.
`-version`	EMS server version

Table 2   Parameters (Sheet 2 of 2)

Parameter	Description
`-server_in_agent_name`	Includes the server url with the microagent name.
	To monitor multiple servers on one Hawk agent, you must include the -server_in_agent_name argument in the hawkemsadmin.hma file.
`-ssl_trace`	Prints the certificates loaded by the server and do more detailed tracing of SSL-related situation.
`-ssl_vendor`	The name of the vendor of the SSL implementation. The valid choices are: • j2se-default—Use this option when you want to use the default JCE bundled with the • Java JRE—On IBM platforms (such as AIX), this option defaults to ibm. • j2se • entrust61—Use this option when you want to use the Entrust libraries. • ibm—On non-IBM platforms, this option can be used only if the IBM version of JCE is installed.
`-ssl_trusted`	Specifies the file name of the server certificates. This option can be repeated if more than one certificate file is used.
`-ssl_identity`	Specifies the digital certificate of the TIBCO Hawk components.
`-ssl_expected_hostname`	The name that is expected in the name of the CN field of the server certificates is specified by this option. The value of this option is used when the -ssl_no_verify_hostname option is absent from the configuration file.
`-ssl_password`	The password to decrypt the identity file of the Hawk component.
`-traceDir`	Path of EMS plugin trace directory default is *<CONFIG_FOLDER>*/logs
`-traceFilename`	Name of the trace file. Default is `emshma.log`.
`-traceLevel`	Trace log level. The default value is `7`, that is info.

COM.TIBCO.hawk.tibjms.HawkListener

Microagent

Purpose   The `HawkListener` microagent monitors the EMS Server using the TIBCO Enterprise Message Service Administration API. The display name for this microagent in the Hawk WebConsole is `JMS_controller (server url)`.

> The `server url` is present in the microagent name when the option -server_in_agent_name is used.

Remarks   These `HawkListner` microagent method are supported on all platforms.

Methods

Method	Description	Page
HawkListener:isRunning	Checks if the server is running	11
HawkListener:getNumConnections	Gets the number indicating current server connections	12
HawkListener:getServerinfo	Gets the configuration parameters	13
HawkListener:getConnections	Gets information on all current connections	17
HawkListener:getUsers	Gets information on users for this server	18
HawkListener:getQueues	Gets information on queues on this server	19
HawkListener:getRoutes	Gets information on routes on this server	22
HawkListener:getTopics	Gets information on topics on this server	24
HawkListener:getDurables	Gets information on durables on this server	27
HawkListener:getConsumers	Gets information on consumers on this server	29
HawkListener:getProducers	Gets information on producers on this server	30

Method	Description	Page
HawkListener:getListenPorts	Gets information on server listen ports	31
HawkListener:getCMLedgerInfo	Gets statistics on RV CM ledgers on this server	32
HawkListener:getTransports	Gets statistics on all transports on this server	33
HawkListener:getTransport	Gets statistics rn a transport on this serve	34
HawkListener:getDbStores	Gets database stores on this server	35
HawkListener:getFileStores	Gets information on file stores on this server	36
HawkListener:getStores	Gets information on stores on this server	38
HawkListener:getChannels	Gets information on multicast channels on this server	39

HawkListener:isRunning

Method

Purpose   This method (on all platforms) checks if the server is running.

Remarks

Type   Synchronous, IMPACT_INFO

Arguments   None.

Returns

Name	Type	Description
running	Boolean	The flag passed to indicate whether the server is running

HawkListener:getNumConnections

Method

Purpose	This method (on all platforms) gets the number indicating current server connections.
Remarks	
Type	Synchronous, IMPACT_INFO
Arguments	None.

Returns

Name	Type	Description
numConnects	Integer	The value indicating number of connections

HawkListener:getServerinfo

Method

Purpose   This method (on all platforms) gets the configuration parameters.

Remarks

Type   Synchronous, IMPACT_INFO

Arguments   None.

Returns

Name	Type	Description
asyncDBSize	Long	The value indicating total size of the asynchronous message store
authorizationEnabled	Boolean	The flag passed to indicate whether the authorization is turned on for this server
backupName	String	Returns the name of the fault tolerant backup for this store
connectionCount	Integer	Number of connections to the server.
connectionCountUsage	Double	Number of connections to the server as a fraction of maxConnections
diskReadRate	Long	The value indicating the rate at which messages are being read from the disk
diskWriteRate	Long	The value indicating the rate at which messages are being written to the disk
durableCount	Integer	Number of durable subscribers on the server
faultTolerantActivation	Integer	The value indicating the time period for which a backup server will wait for a heartbeat message before concluding that the active server has failed
faultTolerantHeartBeat	Integer	The value indicating the time period in seconds of heartbeat messages sent by the server
faultTolerantReconnectTimeout	Integer	The time period for which a server that has just become the active server following a failover will wait for clients, to reconnect before their state is removed from the shared state

Name	Type	Description
faultTolerantURL	String	Returns fault tolerant URL for this server
flowControlEnabled	Boolean	The flag passed to indicate whether the flow control is enabled
fsyncEnabled	Boolean	The flag passed to indicate whether the fsync is enabled
inboundBytesRate	Long	The value indicating overall inbound bytes per second on this server
inboundMessageCount	Long	The value indicating number of inbound messages for the server
inboundMessageRate	Long	The value indicating rate at which messages are coming into the server
logFileMaxSize	Long	The value indicating maximum allowed size of the log file
logFileName	String	Returns log file name, or null if not set
logFileSize	Long	The value indicating total size of log file
maxConnections	Integer	Maximum number of connections this server will allow
maxMsgMemory	Long	The value indicating maximum memory, in bytes, which server is allowed to use for storing messages in memory
maxStatisticsMemory	Long	The value indicating maximum statistics memory, in bytes
messagePoolBlockSize	Long	The value of msg_pool_block_size setting
messagePoolSize	Long	The value of msg_pool_size setting
messageSwappingEnabled	Boolean	The flag passed to indicate whether the message swapping is enabled
messageMemory	Long	The amount of memory in use to store messages
messageMemoryUsage	Double	The amount of memory in use to store messages as a fraction of maxMsgMemory

Name	Type	Description
messageMemoryPooled	Long	The amount of memory in use by the message pools
multicastEnabled	Boolean	The flag passed to indicate whether the multicast is turned on for this server
outboundBytesRate	Long	The overall outbound bytes per second on this server
outboundMessageCount	Long	The number of outbound messages for the server
outboundMessageRate	Long	The rate at which messages are flowing out of the server
pendingMessageCount	Long	Total number of pending messages for this server
pendingMessageSize	Long	Total size for all pending messages for this server
pid	Integer	The current process id of server
queueCount	Integer	Number of queues on the server
rateInterval	Long	The value indicating the statistics rate interval in milliseconds
reserveMemory	Long	The amount of reserve memory in bytes
routingEnabled	Boolean	The flag passed to indicate whether the routing is enabled for this server
routeRecoverInterval	Long	The value indicating route recover interval in milliseconds
serverName	String	Returns name of this server
serverRateInterval	Long	The value indicating the server statistics rate interval in milliseconds
startTime	Long	The value indicating time in milliseconds that the server was started
state	String	Returns the current state of the server
statisticsCleanupInterval	Long	The value indicating statistics cleanup interval in milliseconds

Name	Type	Description
statisticsEnabled	Boolean	The flag passed to indicate whether the statistics are enabled
storeAsyncMinimum	Long	The minimum size of the server's asynchronous store file
storeCRCEnabled	Boolean	The flag passed to indicate whether the server uses CRC verification when reading store files
storeDirectory	String	Returns server store files directory
storeMinimum	Long	The minimum size in bytes of sever store files
storeSyncMinimum	Long	The minimum size of the server's synchronous store file
storeTruncateEnabled	Boolean	The flag passed to indicate whether the server attempts to truncate store files when possible
syncDBSize	Long	Total size of the synchronous message store
topicCount	Integer	Number of topics on the server
trackCorrelationIds	Boolean	The flag passed to indicate whether the server tracks messages by correlation ID
trackMsgIds	Boolean	The flag passed to indicate whether the server tracks messages by message ID
upTime	Long	The value indicating time in milliseconds since this server was started
URL	String	URL for this server
userAuth	String	Returns locations this server uses for authenticating users
versionInfo	String	Returns version info for this server

HawkListener:getConnections

Method

Purpose	This method (on all platforms) gets information on all current connections.
Remarks	
Type	Synchronous, IMPACT_INFO
Arguments	None.

Returns

Name	Type	Description
clientID	String	Returns client ID for this connection
consumerCount	Integer	Number of consumers for this connection
host	String	Returns host for this connection
ID	Long	The value indicating connection ID
producerCount	Integer	Number of producers for this connection
sessionCount	Integer	Number of sessions for this connection
startTime	Long	The value indicating creation time, in milliseconds, for this connection
type	String	Returns destination type for this connection
upTime	Long	The value indicating time, in milliseconds, that this connection has been connected
URL	String	Returns URL for this connection
userName	String	Returns username for this connection

HawkListener:getUsers

Method

Purpose   This method (on all platforms) gets information on users for this server.

Remarks

Type   Synchronous, IMPACT_INFO

Arguments   None.

Returns

Name	Type	Description
name	String	Returns user name
description	String	Returns description of this user

HawkListener:getQueues

Method

Purpose   This method (on all platforms) gets information on queues on this server.

Remarks   The `queueRegExp` argument is a pattern match using regular expressions. Test any regular expressions you plan to use in rulebases by first using them interactively to ensure they return the desired results.The cursorInitialPosition and cursorSize arguments allows to return only a set number of queues instead of all queues.

Type   Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
queueRegExp	String	Queue Name. Empty argument string provides information on all queues.
queueType	String	Queue type. Empty argument string provides information on all topics.
cursorInitialPosition	Integer	Initial position of the cursor.
cursorSize	Integer	Size of the cursor to determine the number of queues to return.

Returns

Name	Type	Description
name	String	Name of this queue
description	String	Description of this queue
pendingMessageSize	Long	The value indicating the total size for all pending messages for this queue
pendingMessageSizeUsage	Double	The value indicating the total size as a fraction of maxBytes for this queue
pendingMessageCount	Long	The value indicating the total number of pending messages for this queue
pendingMessageCountUsage	Double	The value indicating the total number of pending messages as a fraction of maxMsgs for this queue
inTransitCount	Long	The value indicating the number of messages in transit to client

Name	Type	Description
deliveredMessageCount	Long	The value indicating the number of messages delivered to client
consumerCount	Integer	Number of consumers for this queue
receiverCount	Integer	Number of active receivers on this queue
exclusive	Boolean	The flag passed to indicate whether the queue is exclusive
expiryOverride	Long	The value indicating the expiry override property
failsafe	Boolean	The flag passed to indicate whether the queue is failsafe
flowControl	Long	target max size of pending messages in bytes before flow control starts
global	Boolean	The flag passed to indicate whether the queue is global
hasSenderName	Boolean	The flag passed to indicate whether the sender_name property is set
maxBytes	Long	The value indicating the maximum number of message bytes that the server stores for pending messages bound for this queue.
maxMsgs	Long	The value indicating the maximum number of messages that the server stores for pending messages bound for this queue.
maxRedelivery	Integer	Maximum number of redelivery attempts
overflowPolicy	String	Overflow policy for this queue
prefetch	Integer	Number of messages prefetched by the client
routeConnected	Boolean	The flag passed to indicate whether the route for this queue is connected
routed	Boolean	The flag passed to indicate whether this is a routed queue
routeName	String	The name of the route for this routed queue

Name	Type	Description
secure	Boolean	The flag passed to indicate whether the queue is secure
senderNameEnforced	Boolean	The flag passed to indicate whether sender_name_enforced property is set
static	Boolean	The flag passed to indicate whether the queue is static
temporary	Boolean	The flag passed to indicate whether the queue is temporary
outboundByteRate	Long	The value indicating the outbound bytes per second
outboundMessageRate	Long	The value indicating the outbound messages per second
outboundTotalBytes	Long	The value indicating the outbound total bytes
outboundTotalMessages	Long	The value indicating the outbound total messages
inboundByteRate	Long	The value indicating the inbound bytes per second
inboundMessageRate	Long	The value indicating the inbound messages per second
inboundTotalBytes	Long	The value indicating the inbound total bytes
inboundTotalMessages	Long	The value indicating the inbound total messages

HawkListener:getRoutes

Method

Purpose	This method (on all platforms) gets information on routes on this server.
Remarks	
Type	Synchronous, IMPACT_INFO
Arguments	None

Returns

Name	Type	Description
name	String	Name of the remote server
URL	String	URL of the remote server on this route
connected	Boolean	The flag passed to indicate the state of this route
stalled	Boolean	The flag passed to indicate whether the is route stalled
connectionID	Long	The value indicating the connection ID of route
configured	Boolean	The flag passed to indicate whether the route is configured
zoneName	String	Name of the zone that route is in
zoneType	String	Type of zone the route is in
outboundByteRate	Long	The value indicating the outbound bytes per second
outboundMessageRate	Long	The value indicating the outbound messages per second
outboundTotalBytes	Long	The value indicating the outbound total bytes
outboundTotalMessages	Long	The value indicating the outbound total messages
inboundByteRate	Long	The value indicating the inbound bytes per second
inboundMessageRate	Long	The value indicating the inbound messages per second

Name	Type	Description
inboundTotalBytes	Long	The value indicating the inbound total bytes
inboundTotalMessages	Long	The value indicating the inbound total messages

HawkListener:getTopics

Method

Purpose	This method (on all platforms) gets information on topics on this server.
Remarks	The topicRegExp argument is a pattern match using regular expressions. Test any regular expressions you plan to use in rulebases by first using them interactively to ensure they return the desired results.The cursorInitialPosition and cursorSize arguments allows to return only a set number of topics instead of all topics.
Type	Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
topicRegExp	String	Topic Name. Empty argument string provides information on all topics.
topicType	String	Topic type. Empty argument string provides information on all topics.
cursorInitialPosition	Integer	Initial position of the cursor.
cursorSize	Integer	Size of the cursor to determine the number of topics to return.

Returns

Name	Type	Description
name	String	Name of this topic
description	String	Description of this topic
pendingMessageSize	Long	The value indicating the total size for all pending messages for this topic
pendingMessageSizeUsage	Double	The value indicating the total size as a fraction of maxBytes for this topic
pendingMessageCount	Long	The value indicating the total number of pending messages for this topic
pendingMessageCountUsage	Double	The value indicating the total number of pending messages as a fraction of maxMsgs for this topic
consumerCount	Integer	Number of consumers for this topic
subscriberCount	Integer	Number of subscribers for this topic

Name	Type	Description
subscriptionCount	Integer	Number of subscription for this topic.
		For EMS 8.0, due to the shared subscription feature (between subscribers) in the jms-2.0 specifications, the value of `subscriptionCount` could be different than the value of `subscriberCount`.
		The field is visible only if you specify EMS version 8.0 in the `hawkemsadmin.hma` file.
durableCount	Integer	Number of durable subscribers for this topic
durableSubscriptionCount	Integer	Number of durable subscriptions for this topic.
		For EMS 8.0, due to the shared subscription feature (between subscribers) in the jms-2.0 specifications, the value of `durableSubscriptionCount` could be different than the value of `durableCount`.
		The field is visible only if you specify EMS version 8.0 in the `hawkemsadmin.hma` file.
activeDurableCount	Integer	Number of active durable subscribers for this topic
expiryOverride	Long	The value indicating the expiry override property
failsafe	Boolean	The flag passed to indicate whether the topic is failsafe
flowControl	Long	The value indicating the target max size of pending messages in bytes before flow control starts
global	Boolean	The flag passed to indicate whether the topic is global
hasSenderName	Boolean	The flag passed to indicate whether the sender_name property is set
maxBytes	Long	The value indicating the maximum number of message bytes that the server will store for pending messages bound for this topic
maxMsgs	Long	The value indicating the maximum number of messages that the server will store for pending messages bound for this topic

Name	Type	Description
overflowPolicy	String	Overflow policy for this topic
secure	Boolean	The flag passed to indicate whether the topic is secure
senderNameEnforced	Boolean	The flag passed to indicate whether the sender_name_enforced property is set
static	Boolean	The flag passed to indicate whether the topic is static
temporary	Boolean	The flag passed to indicate whether the topic is temporary
channel	String	Multicast channel for this topic
outboundByteRate	Long	The value indicating the outbound bytes per second
outboundMessageRate	Long	The value indicating the outbound messages per second
outboundTotalBytes	Long	The value indicating the outbound total bytes
outboundTotalMessages	Long	The value indicating the outbound total messages
inboundByteRate	Long	The value indicating the inbound bytes per second
inboundMessageRate	Long	The value indicating the inbound messages per second
inboundTotalBytes	Long	The value indicating the inbound total bytes
inboundTotalMessages	Long	The value indicating the inbound total messages

HawkListener:getDurables

Method

Purpose This method (on all platforms) gets information on durables on this server.

As this method is deprecated, use the method `getConsumers` instead.

Remarks The durableRegExp argument is a pattern match using regular expressions. Test any regular expressions you plan to use in rulebases by first using them interactively to ensure they return the desired results.

Type Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
durableRegExp	String	Durable Name. Empty argument string provides information on all durables.

Returns

Name	Type	Description
name	String	Name of this durable
topicName	String	Name of the topic that this durable subscribes to
active	Boolean	The flag passed to indicate whether the durable is connected
clientID	String	Client ID associated with this durable
consumerID	Long	The value indicating the ID of consumer
userName	String	Name of the user, if active, connected, and authenticated
pendingMessageSize	Long	The value indicating the total size, in bytes, of messages waiting to be delivered to this durable
pendingMessageCount	Long	The value indicating the number of messages waiting to be delivered to this durable
deliveredMessageCount	Long	The value indicating the number of delivered messages

Name	Type	Description
noLocalEnabled	Boolean	The flag passed to indicate whether the durable will not receive messages published on its own connection
static	Boolean	The flag passed to indicate whether the durable is statically defined

HawkListener:getConsumers

Method

Purpose	This method (on all platforms) gets information on consumers on this server.
Remarks	
Type	Synchronous, IMPACT_INFO
Arguments	None

Returns

Name	Type	Description
connectionID	Long	The value indicating the connection ID
createTime	Long	The value indicating the creation time in milliseconds
destinationName	String	Destination name
destinationType	String	Destination type
ID	Long	The value indicating the unique ID
sessionID	Long	The value indicating the session ID
userName	String	User name
multicast	Boolean	The flag passed to indicate the multicast consumer
consumerByteRate	Long	The value indicating the consumer bytes per second
consumerMessageRate	Long	The value indicating the number of consumer messages per second
consumerTotalBytes	Long	The value indicating the consumer total bytes
consumerTotalMessages	Long	The value indicating the number of consumer total messages

HawkListener:getProducers

Method

Purpose   This method (on all platforms) gets information on producers on this server.

Remarks

Type   Synchronous, IMPACT_INFO

Arguments   None

Returns

Name	Type	Description
connectionID	Long	The value indicating the connection ID
createTime	Long	The value indicating the creation time in milliseconds
destinationName	String	Destination name
destinationType	String	Destination type
ID	Long	The value indicating the unique ID
sessionID	Long	The value indicating the session ID
userName	String	User name
producerByteRate	Long	The value indicating the producer bytes per second
producerMessageRate	Long	The value indicating the number of producer messages per second
producerTotalBytes	Long	The value indicating the producer total bytes
producerTotalMessages	Long	The value indicating the number of producer total messages

HawkListener:getListenPorts

Method

Purpose   This method (on all platforms) gets information on server listen ports.

Remarks

Type   Synchronous, IMPACT_INFO

Arguments   None

Returns

Name	Type	Description
port	String	Server listen port

HawkListener:getCMLedgerInfo

Method

Purpose This method (on all platforms) gets statistics on RV CM ledgers on this server.

Remarks The transport and subjPattern arguments are a pattern match using regular expressions. Test any regular expressions you plan to use in rulebases by first using them interactively to ensure they return the desired results.

Type Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
transport	String	Transport Name. It should be a valid transport name i.e. the name of the transport whose ledger file is to be summarized. It cannot be an empty string.
subjPattern	String	Subject Pattern Name. Empty argument string provides information on all topics.

Returns

Name	Type	Description
subject	String	Subject that this row summarizes
lastSent	Long	The value indicating the sequence number of the most recent message sent on this subject
totalMsgs	Integer	Total number of messages stored on this subject
totalSize	Integer	Total storage size in bytes for this subject

HawkListener:getTransports

Method

Purpose	This method (on all platforms) gets statistics on all transports on this server.
Remarks	
Type	Synchronous, IMPACT_INFO
Arguments	None

Returns

Name	Type	Description
name	String	Name of this transport
type	String	Transport type
topicImportDeliveryMode	String	Delivery mode for messages imported from this transport to a topic
queueImportDeliveryMode	String	Delivery mode for messages imported from this transport to a queue
exportHeaders	Boolean	The flag passed to indicate whether the JMS header information is included in message exported from this transport
exportProperties	Boolean	The flag passed to indicate whether the JMS property information is included in message exported from this transport

HawkListener:getTransport

Method

Purpose	This method (on all platforms) gets statistics on a particular transport on this server.
Remarks	The name argument is a pattern match using regular expressions. Test any regular expressions you plan to use in rulebases by first using them interactively to ensure they return the desired results.
Type	Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
name	String	Name. The transport name should be the exact name of the transport. It cannot be `null`, empty string, or a pattern match regular expression.

Returns

Name	Type	Description
name	String	Name of this transport
type	String	Transport type
topicImportDeliveryMode	String	Delivery mode for messages imported from this transport to a topic
queueImportDeliveryMode	String	Delivery mode for messages imported from this transport to a queue
exportHeaders	Boolean	The flag passed to indicate whether the JMS header information is included in message exported from this transport
exportProperties	Boolean	The flag passed to indicate whether the JMS property information is included in message exported from this transport

HawkListener:getDbStores

Method

Purpose   This method (on all platforms) gets database stores on this server.

Remarks

Type   Synchronous, IMPACT_INFO

Arguments   None.

Returns

Name	Type	Description
name	String	Name of this store
msgCount	Long	The value indicating the number of stored data messages
swappedCount	Long	The value indicating the number of swapped non-persistent data messages
driverName	String	JDBC driver class name
url	String	JDBC driver URL
userName	String	User name used to access database
driverDialect	String	SQL dialect

HawkListener:getFileStores

Method

Purpose	This method (on all platforms) gets information on file stores on this server.
Remarks	
Type	Synchronous, IMPACT_INFO
Arguments	None.

Returns

Name	Type	Description
name	String	Name of this store
msgCount	Long	The value indicating the count of stored data messages
msgBytes	Long	The value indicating the number of bytes of stored data messages
swappedCount	Long	The value indicating the number of swapped non-persistent data messages
swappedBytes	Long	The value indicating the number of bytes of swapped non-persistent data messages
freeSpace	Long	The value indicating the amount of free space in bytes
usedSpace	Long	The value indicating the amount of used space in bytes
fileSize	Long	The value indicating the total size of the file in bytes
fileName	String	Name of the store file.
fileMinimum	Long	The value indicating the minimum size in bytes
fileCRCEnabled	Boolean	The flag passed to indicate whether CRC verification is to be used
fileTruncateEnabled	Boolean	The flag passed to indicate whether truncation is to be done, if possible

Name	Type	Description
fileSyncEnabled	Boolean	The flag passed to indicate synchronous write mode

HawkListener:getStores

Method

Purpose   This method (on all platforms) gets information on the stores of this server.

Remarks

Type   Synchronous, IMPACT_INFO

Arguments   None.

Returns

Name	Type	Description
name	String	Name of the store
msgCount	Long	The value indicating the count of stored data messages
msgBytes	Long	The value indicating the number of bytes of stored data messages
swappedCount	Long	The value indicating the number of swapped non-persistent data messages
swappedBytes	Long	The value indicating the number of bytes of swapped non-persistent data messages
freeSpace	Long	The value indicating the amount of free space in bytes
usedSpace	Long	The value indicating the amount of used space in bytes
fileSize	Long	The value indicating the total size of the file in bytes

HawkListener:getChannels

Method

Purpose   This method (on all platforms) gets information on the multicast channels on this server.

Remarks

Type   Synchronous, IMPACT_INFO

Arguments   None.

Returns

Name	Type	Description
name	String	Name of the channel
address	String	Channel address
interface	String	Channel interface
ttl	Integer	Number of channel ttl
priority	Integer	Number of channel priority
maxrate	Long	The value indicating channel maximum rate
maxtime	Long	The value indicating channel maximum time
active	Boolean	The flag passed to indicate whether the channel is active
backlogCount	Long	The value indicating the number of messages waiting to be transmitted
backlogSize	Long	The value indicating the number of bytes waiting to be transmitted
transmittedBytes	Long	The value indicating the number of bytes transmitted
retransmittedBytes	Long	The value indicating the number of bytes retransmitted
bufferedBytes	Long	The value indicating the number of bytes buffered for retransmission
channelByteRate	Long	The value indicating the channel bytes per second

Name	Type	Description
channelMessageRate	Long	The value indicating the channel messages per second
channelTotalBytes	Long	The value indicating the channel total message bytes
channelTotalMessages	Long	The value indicating the channel total messages

COM.TIBCO.hawk.tibjms.HawkController

Microagent

Purpose The `HawkController` microagent manages and monitors the EMS Server using the TIBCO Enterprise Message Service Administration API. The display name for this microagent in the Hawk WebConsole is `JMS_controller (server url)`. The HawkController microagent contains entire methods of the HawkListener microagent for monitoring purposes. In addition, the HawkController microagent has following methods for managing EMS server.

The `server url` is present in the microagent name when the option -server_in_agent_name is used.

Remarks These `HawkController` microagent methods are supported on all platforms.

Methods

Method	Description	Page
HawkController:shutdown	Shuts down this server.	42
HawkController:purgeDurable	Purges pending messages for the durable with the given name and client ID on this server.	43
HawkController:purgeQueue	Purges pending messages for the given queue on this server.	44
HawkController:purgeTopic	Purges pending messages for the given topic on this server.	45
HawkController:rotateLog	Rotates servers log file on this server.	46
HawkController:compact	Compacts the given file store on this server.	47

HawkController:shutdown

Method

Purpose	This method shuts down the server.
Remarks	
Type	Synchronous, IMPACT_ACTION
Arguments	None.
Returns	None.

HawkController:purgeDurable

Method

Purpose	This method purges pending messages for the durable with the given name and client ID on this server.
Remarks	
Type	Synchronous, IMPACT_ACTION

Arguments

Name	Type	Description
durableName	String	Get name of the durable to be purged

Returns	None.

HawkController:purgeQueue

Method

Purpose   This method purges pending messages for the given queue on this server.

Remarks

Type   Synchronous, IMPACT_ACTION

Arguments

Name	Type	Description
queueName	String	Queue Name. Get name of the queue to be purged.

Returns   None.

HawkController:purgeTopic

Method

Purpose This method purges pending messages for the given topic on this server.

Remarks

Type Synchronous, IMPACT_ACTION

Arguments

Name	Type	Description
topicName	String	Topic Name. Get name of the durable to be purged.

Returns None.

HawkController:rotateLog

Method

Purpose	This method (on all platforms) rotates the server's log files.
Remarks	
Type	Synchronous, IMPACT_ACTION
Arguments	None.
Returns	None.

HawkController:compact

Method

Purpose	This method (on all platforms) compacts the given file store on this server.
Remarks	
Type	Synchronous, IMPACT_ACTION_INFO

Arguments

Name	Type	Description
storeName	String	Store Name. Get name of the store file to compact.
maxTime	Long	The value indicating upper limit in seconds on compact time

Returns

Name	Type	Description
completed	Boolean	The flag passed to indicate whether the compact completed before timeout expired

Chapter 3   # Java Virtual Machine Plug-in Microagent

This chapter provides information about the Java Virtual Machine Plug-in microagent. It also gives details about the microagent methods.

Topics

Installation and Configuration

TIBCO Hawk Java Virtual Machine Plug-in microagent enables TIBCO Hawk to monitor Java virtual machine processes started by the same user on the local machine.

To configure this plug-in into your TIBCO Hawk installation:

1. Copy the `hawkvm.hma` file from *HAWK_HOME*`/plugin/jvm` to *CONFIG_FOLDER*`/plugin`.

2. Edit and verify `hawkvm.hma` in *CONFIG_FOLDER*`/plugin` to correct version and path of jars and Trace Log Configuration.

```
<!--Trace Configuration -->
<arg>--traceDir</arg>
<arg>%TIBCO_HAWK_HOME_ESC%/plugin/jvm/log</arg>
<arg>--traceFilename</arg>
<arg>jvmhma.log</arg>

<!-- Trace Level  -->
<!-- ALL = -1, ALWAYS=0, INFO=1, WARNING=2, ERROR=4 DEBUG=8 -->
<!-- Default is INFO + WARNING + ERROR -->
<arg>--traceLevel</arg>
<arg>7</arg>
```

3. Edit *CONFIG_FOLDER*`/bin/tibhawkagent.tra` to add `<JAVA_HOME_ESC>/lib/tools.jar` in `tibco.class.path.extended`, if using external JRE and not already added.

4. Edit `hawkvm.hma` to ensure correct path for `tools.jar` - most preferably from *HAWK_HOME*`/tibcojre{64}/1.8.0/lib` in the classpath section.

5. Make sure the `-hma_plugin_dir` property is uncommented and have a value "*HAWK_HOME*/plugin" in *CONFIG_FOLDER*`/bin/hawkagent.cfg`.

6. Make sure the "`application.args -file hawkagent.cfg`" is not commented in the *CONFIG_FOLDER*`/bin/tibhawkagent.tra` file.

7. Restart the Hawk Agent.

Note that if invoking the JVM->getVirtualMachineInfo method on an agent does not return any data, then ensure the following:

- On Windows Platform: Ensure that `attach.dll` is present in the `jre\bin` folder. The JRE could be the one supplied by TIBCO installer (v1.8 if chosen during the installation), or any of the JRE v1.8.x you may have previously installed. This library is not part of pure JRE v1.8.x distribution bundle from ORACLE, although it was part of JRE v1.6.x distribution bundle from ORACLE/Sun. This library however is required for HAWK JVM plugin operation. It is present as part of `jdk\jre` distribution. You may also get it from ORACLE download site.

- On UNIX Platform(s): Ensure that `libattach.so` is present in `jre\lib` folder. It is present in JDK distribution under `jdk/jre`. The JRE could be the one supplied by TIBCO installer (v1.8 if chosen during the installation), or any of the JRE v1.8.x you may have previously installed. This library is not part of pure JRE v1.8.x distribution bundle from ORACLE, although it was part of JRE v1.6.x distribution bundle from ORACLE/Sun. This library however is required for HAWK JVM plugin operation. It is present as part of `jdk\jre` distribution. You may also get it from ORACLE download site.

COM.TIBCO.hawk.jvm.JavaVirtualMachine

Microagent

Purpose Monitoring of the Java Virtual Machine(s) processes started by the same user on the local machine using Java Attach API through Hawk.

Methods

Method	Description	Page
getVirtualMachineInfo	Discovers and provides detailed information of all Java Virtual Machine(s) started by the same user on the local machine	53
getThreadInfo	Returns general thread information, execution information, and synchronization statistics of a specific thread or all threads of a particular Java Virtual Machine. The Process Name field is mandatory and cannot be left blank.	55
getGarbageCollectorInfo	Returns details of Garbage Collector of Java Virtual Machine processes started by the same user on the local machine. The Process Name field is mandatory and cannot be left blank.	58
getMemoryPoolInfo	Returns details of memory pools of Java Virtual Machine processes started by the same user on the local machine. The Process Name field is mandatory and cannot be left blank.	59

getVirtualMachineInfo

Method

Purpose   This method returns details of the Java virtual machine processes started by the same user on the local machine by the Java virtual machine process name. If the process name argument is blank then the method discovers all Java virtual machine(s) and returns the details of each Java virtual machine. If provided, the Process name argument serves as a regular expression used to filter the Java virtual machines returned.

Type   Open, Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
Process Name	String	The name. Empty argument string provides information on all Java Virtual Machine processes.

Returns

Name	Type	Description
Process Id	String	JAVA Process Id
Name	String	The name representing the running Java Virtual Machine
Up Time	Long	The uptime of the Java Virtual Machine in milliseconds
Start Time	Long	The start time of the Java Virtual Machine in milliseconds
Process CPU Time	Integer	The CPU time used by the process on which the Java Virtual Machine is running
Current Heap Size	Long	The size of used memory in bytes
Committed Memory	Long	The size of memory in bytes that is committed for the Java Virtual Machine to use
Maximum Heap Size	Long	The maximum size of memory in bytes that can be used for memory management

Name	Type	Description
Free Heap Size	Long	The amount of free memory in bytes
Non Heap Memory Used	Long	The amount of used non heap memory in bytes
Live Threads	Integer	The current number of live threads including both daemon and non-daemon threads
Peak Threads	Integer	The peak live thread count since the Java Virtual Machine was started or peak was reset
Daemon Threads	Integer	The current number of live daemon threads
Total Threads Started	Long	The total number of threads created and started since the start of Java Virtual Machine
Current classes loaded	Integer	The number of classes currently loaded into Java Virtual Machine
Total classes loaded	Long	The total number of classes loaded since the start of Java Virtual Machine execution
Total classes unloaded	Long	The total number of classes unloaded since the start of Java Virtual Machine execution
Virtual Machine Name	String	The Java Virtual Machine implementation name
Virtual Machine Vendor	String	The Java Virtual Machine implementation vendor
Virtual Machine Version	String	The Java Virtual Machine implementation version
Command Line	String	The command used to launch Java Virtual Machine process

getThreadInfo

Method

Purpose Returns general, execution information and synchronization statistics of Thread by Thread Name, Java Virtual Machine process name and/or Thread State. It returns general, execution information and synchronization statistics of all thread(s) of particular Java virtual machine, if the Thread Name argument is blank. The Process Name field is mandatory and cannot be left blank.

Type Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
Thread Name	String	The thread name. Empty argument string provides information on all running Java Virtual Machine threads.
Java Virtual Machine Process Name	String	The Java Virtual Machine process name.
Thread State Thread State Possible Values: • Blank • NEW • RUNNABLE • BLOCKED • WAITING • TIME_WAITING • TERMINATED	String	The Thread State. Empty argument string provides information on all threads irrespective of the state.

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

Name	Type	Description
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 (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 `Object.wait` method
Lock Owner Id	String	The thread ID which holds the monitor lock of an object on which the thread is blocked

Name	Type	Description
Lock Owner Name	String	The thread name which holds the monitor lock of an object on which the thread is blocked

getGarbageCollectorInfo

Method

Purpose This method returns details of Garbage Collector of the Java virtual machine processes started by the same user on the local machine by the Java virtual machine process name. The Process Name field is mandatory and cannot be left blank.

Type Open, Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
Process Name	String	The Java virtual machine process name. The Process Name field is mandatory and cannot be left blank.

Returns

Name	Type	Description
Process Id	String	JAVA Process Id
Process Name	String	The Java virtual machine process name
Garbage collector	String	The Garbage Collector name
GC Count	Long	The Garbage Collector count since Java Virtual Machine started
GC Time	Long	Garbage Collector time since Java Virtual Machine started

getMemoryPoolInfo

Method

Purpose   This method returns details of memory pools of the Java virtual machine processes started by the same user on the local machine by the Java virtual machine process name. The Process Name field is mandatory and cannot be left blank.

Type   Open, Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
Process Name	String	The Java virtual machine process name. The Process Name field is mandatory and cannot be left blank.

Returns

Name	Type	Description
Process Id	String	JAVA Process Id
Process Name	String	The Java virtual machine process name
Memory Pool Name	String	The name of the memory pool
Peak Usage Committed	Long	Peak Usage Committed
Peak Usage Used	Long	Peak Usage Used
Peak Usage Init	Long	Initial Peak Usage
Peak Usage Max	Long	Maximum Peak Usage
Current Usage Committed	Long	Current Usage Committed
Current Usage Used	Long	Current Usage Used
Current Usage Init	Long	Current Usage Init
Current Usage Max	Long	Current Usage Max

Chapter 4 **Inventory Plug-in Microagent**

This chapter provides information about the Inventory Plug-in microagent. It also gives details about the microagent methods.

Topics

Installation and Configuration

TIBCO Hawk Inventory Plug-in microagent enables TIBCO Hawk to check the inventory of various installed products.

To configure this plug-in into your TIBCO Hawk installation:

1. Copy the `inventory.hma` file from *HAWK_HOME*/plugin/inventory to *CONFIG_FOLDER*/plugin.

2. Edit and verify `inventory.hma` in *CONFIG_FOLDER*/plugin to correct version and path of jars and Trace Log Configuration.

```
<!--Trace Configuration -->
<arg>--traceDir</arg>
<arg>CONFIG_FOLDER/hawk/logs</arg>
<arg>--traceFilename</arg>
<arg>inventoryhma.log</arg>

<!-- Trace Level  -->
<!-- ALL = -1, ALWAYS=0, INFO=1, WARNING=2, ERROR=4 DEBUG=8 -->
<!-- Default is INFO + WARNING + ERROR -->
<arg>--traceLevel</arg>
<arg>7</arg>
```

3. Edit *CONFIG_FOLDER*/bin/tibhawkagent.tra to add `<JAVA_HOME_ESC>/lib/tools.jar` in `tibco.class.path.extended`, if using external JRE and not already added.

4. Make sure the `-hma_plugin_dir` property is uncommented and have a value *CONFIG_FOLDER*/plugin in *CONFIG_FOLDER*/bin/hawkagent.cfg.

5. Make sure the "`application.args -file hawkagent.cfg`" is not commented in the *CONFIG_FOLDER*/bin/tibhawkagent.tra file.

6. Restart the Hawk Agent.

COM.TIBCO.hawk.microagent.inventory.InventoryMicroAgent

Microagent

Purpose   The Inventory plugin allows you to check the inventory of the various installed products.

Methods

Method	Description	Page
getAllEnvironments	Returns the details of installed TIBCO Homes.	64
getEnvironmentDetail	Returns the details of a specific environment.	65
getProductsInAllEnvironments	Returns the details of installed TIBCO products.	66
getProductsInAnEnvironment	Returns product details from a specific environment.	67
getSpecificProductDetail	Returns specific product details from a specific environment.	68
getProductFeatureDetail	Returns feature details from a specific product.	69

getAllEnvironments

Method

Purpose	This method returns a list of all installed TIBCO products across all TIBCO HOMES installed and configured on the machine..
Type	Open, Synchronous, IMPACT_INFO
Arguments	None.

Returns

Name	Type	Description
Index	String	TIBCO Home index
Environment	String	The name of an installed environment
Location	String	The installation location of an installed environment
Configuration Folder	String	The configuration location of an installed environment
Created On	String	The install timestamp of an installed environment
Total Installed Products	String	Number of installed products

getEnvironmentDetail

Method

Purpose   This method returns the details of a specific environment.

Type   Open, Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
Environment	String	The name of an installed environment

Returns

Name	Type	Description
Index	String	<TIBCO_HOME> index
Environment	String	The name of an installed environment
Location	String	The installation location of an installed environment
Configuration Folder	String	The configuration location of an installed environment
Created On	String	The install timestamp of an installed environment
Total Installed Products	String	Number of installed products

getProductsInAllEnvironments

Method

Purpose   This method returns the details of installed TIBCO products.

Type   Open, Synchronous, IMPACT_INFO

Arguments   None.

Returns

Name	Type	Description
Product ID	String	The product serial number
Environment	String	The name of an installed environment
Location	String	The installation location of an installed environment
No	String	Product number
Product Name	String	The name of an installed product
Product Version	String	The version of an installed product
Product Timestamp	String	The install timestamp of an installed product
Configuration Folder	String	The configuration location of an installed environment

For methods such as getEnvironmentDetail and getProductsInAllEnvironments we have difference of one installed product/component on invocation and subscription result. This is because in the detail product listing in an environment, "tpcl" as a product gets ignored.

getProductsInAnEnvironment

Method

Purpose   This method returns product details from a specific environment.

Type   Open, Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
Environment	String	The name of an installed environment

Returns

Name	Type	Description
Product Id	String	The product serial number
Environment	String	The name of an installed environment
Location	String	The installation location of an installed environment
No	String	Product number
Product Name	String	The name of an installed product
Product Version	String	The version of an installed product
Product Timestamp	String	The install timestamp of an installed product
Configuration Folder	String	The configuration location of an installed environment

getSpecificProductDetail

Method

Purpose This method returns specific product details from a specific environment.

Type Open, Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
Environment	String	The name of an installed environment.
Product Id	String	The product serial number

Returns

Name	Type	Description
Product Id	String	The product serial number
Environment	String	The name of an installed environment
Location	String	The installation location of an installed environment
No	String	Product number
Product Name	String	The name of an installed product
Product Version	String	The version of an installed product
Product Timestamp	String	The installed timestamp of an installed product
Configuration Folder	String	The configuration location of an installed environment

getProductFeatureDetail

Method

Purpose This method returns feature details from a specific product.

Type Open, Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
Environment	String	The name of an installed environment.
Product Id	String	The product serial number

Returns

Name	Type	Description
Product Id	String	The product serial number
Environment	String	The name of an installed environment
Location	String	The installation location of an installed environment
Product Name	String	The name of an installed product
Product Version	String	The version of an installed product
Feature	String	The feature name of an installed product
Feature Version	String	The feature version of an installed product
Visible? (Y/N)	String	The product feature visibility during product installation

Chapter 5   **Heartbeat Plug-in Microagent**

This chapter provides information about the Heartbeat Plug-in microagent. It also gives details about the microagent methods.

Topics

Installation and Configuration

TIBCO Hawk Heartbeat Plug-in microagent enables you to check the status of various servers.

To configure this plug-in into your TIBCO Hawk installation:

1. Copy the `heartbeat.hma` file from *HAWK_HOME*/plugin/heartbeat to *CONFIG_FOLDER*/plugin.

2. Read the `heartbeat.hma` file located in the `<CONFIG_FOLDER>`/plugin directory carefully before modifying the default configuration. This file contains comments that are self-explanatory and will guide you on how to set the health check status monitoring configurations as per your needs. There are 7 sections in this file that are explained later in this document. Each one caters to different a need. Follow the instructions given in the comments verbatim, especially when commenting and uncommenting the sections. Every section has the following Trace Log configuration. Edit this file per your requirements.

```
<!--Trace Configuration -->
<arg>--traceDir</arg>
<arg>CONFIG_FOLDER/hawk/logs</arg>
<arg>--traceFilename</arg>
<arg>heartbeathma.log</arg>

<!-- Trace Level  -->
<!-- ALL = -1, ALWAYS=0, INFO=1, WARNING=2, ERROR=4 DEBUG=8 -->
<!-- Default is INFO + WARNING + ERROR -->
<arg>--traceLevel</arg>
<arg>7</arg>
```

3. Edit *CONFIG_FOLDER*/bin/tibhawkagent.tra to add `<JAVA_HOME_ESC>/lib/tools.jar` in tibco.class.path.extended, if using external JRE and not already added.

4. Make sure the `-hma_plugin_dir` property is uncommented and have a value "*CONFIG_FOLDER*/plugin" in *CONFIG_FOLDER*/bin/hawkagent.cfg.

5. Make sure the "`application.args -file hawkagent.cfg`" is not commented in the *CONFIG_FOLDER*/bin/tibhawkagent.tra file.

6. Restart the Hawk Agent.

COM.TIBCO.hawk.microagent.heartbeat.HeartbeatMicroAgent

Microagent

Purpose   This Plugin allows you to check the health status of the various servers.

- Default out-of-the-box Configuration

- EMS Server

- EMS Server in Secured (SSL) Configuration

- FTP Server

- HTTP Server

- Database Server (using various JDBC Drivers)

- SMTP Mail Server

For each of the above, certain configuration and supporting libraries are required. Each of the following sections describe minimum & necessary artifacts to be configured.

Make sure you uncomment the required XML section, keeping the remaining sections commented. When you uncomment, remove the "#" from ">-#-" in the uncommented block, and vice versa in the commented block to ensure a valid XML document.

Methods

Method	Description	Page
pingEMSServer	Pings TIBCO EMS server using the connection parameters specified. The connection URL formats for available drivers are as follows: `scheme://<host>:<port>` scheme could be `tcp` or `ssl` (for secured connectivity). The default port is 7222.	76

Method	Description	Page
pingSecuredEMSServer	Pings SSL secured TIBCO EMS server using the connection parameters specified. The connection URL formats for available drivers are as follows: `scheme://<host>:<port>` scheme could be `ssl` for secured connectivity. The default port is 7243.	77
pingFTPServer	Pings an FTP server using the connection parameters specified. The connection URL formats for available drivers are as follows: `scheme://<host>:<port>` scheme could be `ftp` or `sftp` (for secured connectivity). The default port for `ftp` is 21 and for `sftp` is 22.	79
pingHTTPServer	Pings a web server using the HTTP connection parameters specified. The connection URL formats for available drivers are as follows: `scheme://<host>:<port>` scheme could be `http` or `https` (for secured connectivity). The default port for `http` is 80 and for `https` it is 443. Only the server URL is mandatory. The rest are optional.	80

Method	Description	Page
pingJDBCDriver	Connect to a database server using the JDBC driver connection parameters specified. The connection URL formats for available drivers are as follows: `jdbc:oracle:thin:@<host>:<port>:<database>` Default Port:1521 `jdbc:sqlserver://<host>:<port>;databaseName=<database>` Default Port:1433 `jdbc:sybase:Tds:<host>:<port>/<database>` Default Port:5000 `jdbc:db2://<host>:<port>/<database>:currentSchema;` Default Port:5000 `jdbc:mysql://<host>:<port>/<database>.` Default Port:3306	
pingSMTPServer	Pings a SMTP server using the connection parameters specified.	

pingEMSServer

Method

Purpose Pings TIBCO EMS server using the connection parameters specified. The connection URL formats for available drivers are as follows: `scheme://<host>:<port>`

scheme could be `tcp` or `ssl` (for secured connectivity). The default port is 7222.

Type Open, Synchronous, `IMPACT_INFO`

Arguments

Name	Type	Description
EMS Server URL	String	EMS host URL in the form (tcp)://<host>:<port>
EMS User	String	EMS user name
Password	String	EMS password
Is Password Encrypted?	String	Is the password encrypted? Yes or No
Connection Timeout	String	Connection timeout in seconds. By default it is empty.

Returns

Name	Type	Description
isServerAccessible	String	Is server accessible? True or False
Status Code	String	Status code
Status Details	String	Status details

pingSecuredEMSServer

Method

Purpose   Pings SSL secured TIBCO EMS server using the connection parameters specified. The connection URL formats for available drivers are as follows:
scheme://<host>:<port>

scheme could be ssl for secured connectivity. The default port is 7243.

Type   Open, Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
EMS Server URL	String	EMS host URL in the form (tcp)://<host>:<port>
EMS User	String	EMS user name
Password	String	EMS password
Is Password Encrypted?	String	Is the password encrypted? Yes or No
Connection Timeout	String	Connection timeout in seconds. By default it is empty.
SSL Vendor	String	SSL vendor
SSL Trace	String	SSL trace
SSL Debug Trace	String	SSL debug trace
SSL Trusted	String	SSL Trusted
SSL Hostname	String	SSL Hostname
SSL Identity	String	SSL identity
SSL Key	String	SSL Key
SSL Password	String	SSL password
SSL Ciphers	String	SSL ciphers

Returns

Name	Type	Description
isServerAccessible	String	Is server accessible? True or False

Name	Type	Description
Status Code	String	Status code
Status Details	String	Status details

pingFTPServer

Method

Purpose	Pings an FTP server using the connection parameters specified. The connection URL formats for available drivers are as follows: `scheme://<host>:<port>`

scheme could be `ftp`, `ftps` (`ftp` with SSL), or `sftp` (for secured connectivity). The default port for `ftp` is 21 and for `sftp` is 22.

Type Open, Synchronous, `IMPACT_INFO`

Arguments

Name	Type	Description
FTP Server URL	String	FTP host URL in the form {ftp/sftp}://<host>:<port>
FTP User	String	FTP user name
Password	String	FTP password
Connection Timeout	String	Connection timeout in seconds. By default left empty.

Returns

Name	Type	Description
isServerAccessible	String	Is server accessible? True or False
Status Code	String	Status code
Status Details	String	Status details

pingHTTPServer

Method

Purpose Pings a web server using the HTTP connection parameters specified. The connection URL formats for available drivers are as follows: `scheme://<host>:<port>`

scheme could be `http` or `https` (for secured connectivity). The default port for `http` is 80 and for `https` it is 443. Only the server URL is mandatory. The rest are optional.

Type Open, Synchronous, `IMPACT_INFO`

Arguments

Name	Type	Description
HTTP Server URL	String	HTTP host URL in the form {http/https}://<host>:<port>
HTTP User	String	HTTP user name
Password	String	HTTP password
Connection Timeout	String	Connection timeout in seconds. By default left empty.

Returns

Name	Type	Description
isServerAccessible	String	Is server accessible? True or False
Status Code	String	Status code
Status Details	String	Status details

pingJDBCDriver

Method

Purpose Connect to a database server using the JDBC driver connection parameters specified. The connection URL formats for available drivers are as follows: `jdbc:oracle:thin:@<host>:<port>:<database>` Default Port:1521

`jdbc:sqlserver://<host>:<port>;databaseName=<database>` Default Port:1433

`jdbc:sybase:Tds:<host>:<port>/<database>` Default Port:5000

`jdbc:db2://<host>:<port>/<database>:currentSchema;` Default Port:5000

`jdbc:mysql://<host>:<port>/<database>.` Default Port:3306

Type Open, Synchronous, `IMPACT_INFO`

Arguments

Name	Type	Description
JDBC Driver	String	JDBC Driver
JDBC Driver URL	String	JDBC Connection URL
JDBC User	String	JDBC user name
Password	String	JDBC Password
Connection Timeout	String	Connection timeout in seconds. By default left empty.

Returns

Name	Type	Description
isServerAccessible	String	Is server accessible? True or False
Status Code	String	Status code
Status Details	String	Status details

pingSMTPServer

Method

Purpose Pings a SMTP server using the connection parameters specified.

Type Open, Synchronous, IMPACT_INFO

Arguments

Name	Type	Description
SMTP Server URL	String	SMTP Host URL
Connection Timeout	String	Connection timeout in seconds. By default left empty.

Returns

Name	Type	Description
isServerAccessible	String	Is server accessible? True or False
Status Code	String	Status code
Status Details	String	Status details

Index

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