TIBCO Hawk ActiveMatrix® Plug-in

Installation and Configuration

Software Release 1.2
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Contents

Preface

> **This software may be available on multiple operating systems. However, not all operating system platforms for a specific software version are released at the same time. Please see the readme file for the availability of this software version on a specific operating system platform.**

The TIBCO Hawk ActiveMatrix® Plug-in software enables TIBCO Hawk to monitor and manage TIBCO ActiveMatrix software.

Topics

Related Documentation

This section lists documentation resources you may find useful.

TIBCO Hawk ActiveMatrix Plug-in Documentation

The following documents form the TIBCO Hawk ActiveMatrix Plug-in documentation set:

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

- *TIBCO Hawk ActiveMatrix Plug-in User's Guide* Read this manual for detailed information about the features of this plug-in.

- *TIBCO Hawk ActiveMatrix Plug-in Release Notes* Read the release notes for a list of features. This document also contains lists of known issues for this release.

Other TIBCO Product Documentation

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

- TIBCO Hawk® software

- TIBCO ActiveMatrix® Service Grid software

- TIBCO ActiveMatrix BusinessWorks™ Service Engine software

Third-Party Documentation

- Apache ANT documentation - Useful for working with rulebases.

Typographical Conventions

The following typographical conventions are used in this manual.

Table 1   General Typographical Conventions

Convention	Use
TIBCO_HOME	Many TIBCO products can be installed within the same directory. This directory is referenced in documentation as TIBCO_HOME. The value of TIBCO_HOME depends on the operating system. For example, on Windows systems, the default value is `C:\tibco`.
CONFIG_HOME	A TIBCO configuration folder stores configuration data generated by TIBCO products. Configuration data can include sample scripts, session data, configured binaries, logs, and so on. This folder is referenced in documentation as CONFIG_HOME.
HAWK_HOME	TIBCO Hawk installs into a directory within *<TIBCO_HOME>* that may be different to the TIBCO_HOME where ActiveMatrix is installed. 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\4.9`.
HAWK_CONFIG	HAWK_CONFIG is the configuration home for TIBCO Hawk. All the Hawk runtime data is stored in this folder. With respect to CONFIG_HOME, HAWK_CONFIG is CONFIG_HOME/hawk.
HKAM_ROOT	TIBCO Hawk ActiveMatrix Plug-in installs into a directory within *<HAWK_HOME>*. This directory is referenced in documentation as *HKAM_ROOT*. The default value of *HKAM_ROOT* depends on the operating system. For example on Windows systems, the default value is `C:\tibco\hkam\1.2`.
`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.
`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]`

Table 1   General Typographical Conventions (Cont'd)

Convention	Use
italic font	Italic font is used in the following ways: • To indicate a document title. For example: See *TIBCO ActiveMatrix 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 destination 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

After you join TIBCOmmunity, you can access the documentation for all supported product versions here:

http://docs.tibco.com/TibcoDoc

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   **Installation Overview**

This chapter provides an overview of the installer program.

Topics

- Installer Overview, page 2
- Required and Optional TIBCO Products, page 6

Installer Overview

Overview

Universal Installer enables TIBCO Hawk ActiveMatrix Plug-in to be installed in multiple *TIBCO_HOME*. During installation, you can select the existing *TIBCO_HOME*. If the existing *TIBCO_HOME* is selected, it may have other products installed including TIBCO Hawk ActiveMatrix Plug-in.

The installer creates and setsup directories under TIBCO_HOME/hkam/<version>.

The installer updates the following folders:

- TIBCO_HOME/release_notes

- TIBCO_HOME/amx/3.2/samples/hawk

- TIBCO_HAWK_HOME/samples/rulebases/amx3

- TIBCO_HAWK_HOME/plugin/amx

- TIBCO_HAWK_HOME/plugin/commonlogging

- AMX_HOME/components/shared/1.0.0

The installer updates the following files:

- AMX_HOME/tibcohost/3.2/scripts/node_classpath_3.1.2.tra

Installation Profile

The following table shows the installation profiles used.

Installation Profile	Description
Administration Administrator	Installs only components required for ActiveMatrix.
	• ActiveMatrix 3.2 Service Monitoring Application requires prior installation of ActiveMatrix Administrator as part of the TIBCO ActiveMatrix Administration installation.

Installation Profile	Description
Hawk Agent	Installs only components for TIBCO Hawk. • ActiveMatrix Common Logging Microagent • ActiveMatrix Runtime Microagents Requires prior installation of a full version of TIBCO Hawk including the Process and HMA.
Typical	Install all components including Documentation. Requires prior installation of TIBCO ActiveMatrix Administration and a full version of TIBCO Hawk.

Features

The following table lists the features of TIBCO Hawk ActiveMatrix Plug-in.

Feature	Description
ActiveMatrix 3.2 Service Monitoring Application	Optional but required for operation statistics. Only installed on Admin machine. Must be installed into existing TIBCO_HOME with TIBCO ActiveMatrix Administrator. For details, refer to *TIBCO Hawk ActiveMatrix Plug-in User's Guide*.
ActiveMatrix Common Logging Microagent	Required for sending JVM information to TIBCO Administrator as seen in the TIBCO Administrator dashboards. It is installed on all machines where TIBCO Host is installed including TIBCO Administrator. Installed in: `hawk/<version>/plugin` For more details, refer to *TIBCO Hawk ActiveMatrix Plug-in User's Guide*.

Feature	Description
ActiveMatrix Runtime Microagents	Required for monitoring component status and operation statistics. Installed on all machines where TIBCO Host is installed including TIBCO Administrator. It includes the ActiveMatrix Host Microagent and ActiveMatrix Services Microagent.
	Installed in: `hawk/<version>/plugin`. For more information, refer to *TIBCO Hawk ActiveMatrix Plug-in User's Guide*.
Samples	Two sets of rulebases and an ActiveMatrix project for testing.
Documentation	Optional. Includes product documentation in PDF and HTML formatt.
	Installed in: `HKAM_HOME/docs`

Installation Directory

If this is the first TIBCO software product you are installing on the system, you can specify the installation directory where TIBCO Hawk ActiveMatrix Plug-in will be installed. On Microsoft Windows, the default installation directory is `C:\tibco`. On UNIX, the default installation directory is `/opt/tibco`.

install-path

If you accept the default installation path on Microsoft Windows, *install-path* is `C:\tibco\hkam\<version>`.

Installation Modes

The installer allows you to run in different modes. Each mode is supported on all platforms.

- GUI mode
- Console mode
- Silent mode

GUI Mode

In GUI mode, the installer presents panels that allow you to make choices about product selection, product location, and so on. When you invoke the installer by double-clicking on the icon, GUI mode is used.

Console Mode

Console mode allows you to run the installer from the command prompt or terminal window. This is useful if your machine does not have a Windows environment.

Silent Mode

Silent mode either installs using default settings or uses a response file that was saved during an earlier installation. Silent mode installs without prompting you for information.

- If no response file has been recorded earlier and you invoke the installer with the `-silent` argument, the default installation parameters are used.

- If a response file exists, and the installer is started with `-options` *<responseFileName>* as an argument, the installer uses the values specified by the user when the response file was generated.

Required and Optional TIBCO Products

Depending on the tasks you wish to perform, you must install one or more other TIBCO products.

Refer to the product readme to get the list of supported product versions.

TIBCO Hawk

Required. TIBCO Hawk is a tool for monitoring and managing distributed applications and operating systems. The software is designed specifically for monitoring distributed systems, so there is no centralized console or frequent polling across the network. With this structure, TIBCO Hawk software is able to scale to multi-thousand node global networks without the use of hierarchical managers and has the flexibility to allow individual managed entities to be added or modified without the need to re-configure or re-start any other parts of the system. For details, refer to *TIBCO Hawk Installation and Configuration*.

TIBCO ActiveMatrix Service Grid

Required. TIBCO ActiveMatrix Service Grid is a scalable and extensible platform for developing, deploying, and managing applications that conform to the service-oriented architecture. Refer to *TIBCO ActiveMatrix Service Grid Installation and Configuration* for details about product installation.

TIBCO ActiveMatrix BusinessWorks Service Engine

Optional. TIBCO ActiveMatrix BusinessWorks Service Engine is a gateway for TIBCO ActiveMatrix BusinessWorks to the Service Oriented Architecture (SOA) world. The product provides an ActiveMatrix container to deploy ActiveMatrix BusinessWorks projects using TIBCO ActiveMatrix Administrator. For details, refer to *TIBCO ActiveMatrix BusinessWorks Service Engine Installation*.

TIBCO ActiveMatrix Service Bus

Optional. TIBCO ActiveMatrix Service Bus is a scalable and extensible platform for developing, deploying, and managing applications that conform to a service-oriented architecture. For details, refer to *TIBCO ActiveMatrix Service Bus Installation and Configuration*.

Chapter 2　**Installing on Microsoft Windows**

This chapter explains how to install TIBCO Hawk ActiveMatrix Plug-in on computers running the Microsoft Windows 2003, 2008, or XP operating system. Information in this chapter applies to all three platforms unless otherwise noted.

Topics

Installation Prerequisites

Read this section before you start installation.

Supported Operating Systems

Refer to the readme for the supported platforms and versions.

User Privileges

You must have administrator privileges to install TIBCO Hawk ActiveMatrix Plug-in. If you do not, the installer will exit. You must then log out of the system and log in as a user with administrator privileges.

Installing to a Networked Drive

If you intend to install the product onto a networked drive, you must have permissions to write to that drive.

If you do not know how to do this, go to the machine so you can install locally, or consult Microsoft Windows online help.

Disk Space and Memory

This section lists the minimum free disk space and memory required for each platform.

During installation, the entire package is extracted into a temporary directory, typically one of the following:

- *SystemDrive*:\Temp
- *SystemDrive*:\Documents & Settings*user_name*\Local Settings\Temp

Before actually installing the files, the installer calculates the disk space that the selected components will require in the installation directory. The installer will proceed only if sufficient free disk space is available in the installation directory.

If some of the required disk space is taken by another process during installation, the installer may fail and display a failure message.

Temp Directory

At least 150 MB free space is required in the temp directory.

Installation Directory

At least 150 MB free space is required in the TIBCO Hawk ActiveMatrix Plug-in installation directory.

RAM

All platforms require at least 2 GB RAM.

Installing TIBCO Hawk ActiveMatrix Plug-in

Installation Media

You can either download the TIBCO Hawk ActiveMatrix Plug-in installation package or install the components from a CD.

Installation Registry

The installer maintains an installation registry. The registry location depends on the platform. This section explains where the registry files are located.

⚠️ Do not edit, modify, rename, move, or remove any of the registry files.

On Windows platforms, the installation registry is maintained in the `%CommonProgramFiles%` folder:

```
%CommonProgramFiles%\InstallShield\Universal\TIBCO\Gen1\_vpddb\_en
vInfo.xml
```

Installation Packages

The following table lists the installation packages.

Table 2   Installation Package Filenames for Microsoft Windows

OS	Package Filename
Microsoft Windows XP Microsoft Windows 7 Microsoft Windows Vista SP2 Microsoft Windows Server 2003 Microsoft Windows Server 2008 Microsoft Windows Server 2008 R2	`TIB_hkam_<version_num>_win_x86.zip`
Microsoft Windows 7 Microsoft Windows Server 2003 Microsoft Windows Server 2008 Microsoft Windows Server 2008 R2	`TIB_hkam_<version_num>_win_x86_64.zip`

Installation Modes

Install Using GUI Mode

GUI mode performs the installation in an interactive graphical interface. The installer prompts you for values specific to your environment.

- To install in GUI mode, open the physical media or download the TIBCO Hawk ActiveMatrix Plug-in package. For example, `TIB_hkam_<version_num>_win_x86.zip` for Microsoft Windows platform.

- Double-click the icon named `TIBCOUniversalInstaller.exe`.

Install Using Console Mode

Console mode allows you to install the software in a non-windows environment. The installer will prompt you for values.

To install from a Microsoft Windows command window, type:
```
TIBCOUniversalInstaller -console
```

When running in console mode you can move through the installation process as described next:
```
Enter Key = Moves forward in the installer
2 = Returns to the previous screen
3 = Cancels the Wizard and exits the installation or uninstallation

4 = Redisplays the current screen
```

Install in Silent Mode

The following procedure explains how to install a TIBCO Hawk ActiveMatrix Plug-in product in silent mode. It installs TIBCO Hawk ActiveMatrix Plug-in using default values.

The `TIBCOUniversalInstaller-hkam1x_<version>.silent` file is packaged in the directory that contains the universal installer. You must edit the file with information for your environment before launching the silent installation. The file includes comments that describe the installation properties you can set.

While you can use the `TIBCOUniversalInstaller-hkam1x_<version>.silent` file, it is a good practice to copy the file to a different name and edit that file for the silent install.

If errors occur during installation, they will be listed in the installation log file (see the *User_Home*/`.TIBCO` directory).

1. Open the physical media or download the TIBCO Hawk ActiveMatrix Plug-in product package.

2. Extract the TIBCO Hawk ActiveMatrix Plug-in product archive file to a temporary directory.

3. Using a console window, navigate to the temporary directory that contains the universal installer.

4. Copy the `TIBCOUniversalInstaller-hkam1x_<version>.silent` file and rename the copy.

5. Using a text editor, open the copied file and update the install location, and features to install.

6. Run the installer using this command line:

```
TIBCOUniversalInstaller.exe -silent
```

> If `.silent` file is not named
> `TIBCOUniversalInstaller-hkam1x_<version>.silent` then the command to call silent installation is `TIBCOUniversalInstaller.exe -silent -V responseFile="<pathAndFilename>"` where `<pathAndFilename>` is the absolute directory path and file name to the .silent file.

A line similar to the following is written to the installer log file when installation completes:

```
... Install, com.tibco.installer.util.TIBCOInstaller,
dbg.Debug, Executing Event:::OnEndInstall
```

Uninstalling TIBCO Software

The uninstaller removes all files under the TIBCO Hawk ActiveMatrix Plug-in installation, even if those files were modified or created by the user or the application.

Before proceeding with the uninstallation, make sure to backup the user-modified or created files you need to keep.

Uninstallation Instructions

To uninstall the software:

1. Navigate to *TIBCO_HOME*/tools/universal_installer.

   a. Run the platform-specific installer executable.

   b. Select **Uninstall Products From Selected TIBCO Home Location**.

   c. The wizard provides uninstall options:

   — Custom Uninstall (select TIBCO products to uninstall)

   — Typical Uninstall (uninstall all TIBCO products)

   d. Click **Next**. If you selected Custom Uninstall, select the checkboxes for products to uninstall and then click **Uninstall**.

   e. The Pre-Uninstall Summary displays. Click **Uninstall**.

   When uninstalling, a popup window displays asking to clean up the /tools directory. Click **Yes, clean it up.**

   f. The summary screen appears. Click **Finish** to exit the uninstall wizard. After uninstalling the software, the uninstaller may prompt you to reboot your computer.

2. If you selected Typical Uninstall (uninstalling all TIBCO products) then manually delete the directories under *TIBCO_HOME*.

Chapter 3 **Installing on UNIX**

This chapter explains how to install the TIBCO Hawk ActiveMatrix Plug-in on computers running the UNIX operating system.

Topics

Installation Prerequisites

Read this section before you start installation.

Supported Operating Systems

Refer to the readme for the supported platforms and versions.

Make sure that all patches required by other TIBCO products or third-party software are installed before installing TIBCO Hawk ActiveMatrix Plug-in.

Disk Space and Memory

During installation, the entire package is extracted into a temporary directory. Before actually installing the files, the installer calculates the disk space that the selected components will require in the installation directory. The installer will proceed only if sufficient free disk space is available in the installation directory.

If some of the required disk space is taken by another process during installation, the installer may fail and display a failure message.

If your system does not have sufficient free disk space in the temp directory listed in the table below, you can use a different temp directory by including the following option when starting the installer, where /new_tmp has sufficient free disk space:

```
-is:tempdir /new_tmp
```

Table 3   Required Disk Space in the Temp and Installation Directories

Operating System	Temp Directory Free Space	Installation Directory Free Space
Solaris	150 MB in /var/tmp	150 MB
HP-UX	200 MB in /var/tmp	200 MB
AIX	150 MB in /tmp	150 MB
LINUX	150 MB in /tmp	150 MB

Home Directory

The user's home directory must at least have 200 MB of free disk space for the installation registry.

RAM

All platforms require at least 2 GB RAM.

Installing TIBCO Hawk ActiveMatrix Plug-in on UNIX

Before you begin installation, close all open applications.

Installation Registry

The installer maintains an installation registry. The registry location depends on the platform. This section explains where the registry files are located.

⚠️ Do not edit, modify, rename, move, or remove any of the registry files.

If installation is performed by a regular user (non-root), the installation registry is maintained in the following files in the user's home directory:

USER_HOME/InstallShield/Universal/TIBCO/Gen1/_vpddb/_envInfo.xml

If installation is performed by super-user (root), the installation registry is maintained as follows:

• On Linux, *USER_HOME* is /root.

Installation Packages

Copy the appropriate tar file from the download site or the CD and unpack it on your system. The following table lists the platform-specific installation packages, where <version_num> is the TIBCO Hawk ActiveMatrix Plug-in software release number.

Table 4   UNIX Installation tar Package Filenames

OS	tar Package Filename
Solaris 9, 10 (Sun SPARC) (32-bit)	TIB_hkam_<version_num>_sol9_sparc.zip
Solaris 9, 10 (Sun SPARC) (64-bit)	TIB_hkam_<version_num>_sol9_sparc_64.zip
Solaris 10 (x86) (32-bit)	TIB_hkam_<version_num>_sol10_x86.zip
Solaris 9, 10 (x86) (64-bit)	TIB_hkam_<version_num>_sol10_x86_64.zip

Table 4 UNIX Installation tar Package Filenames (Cont'd)

OS	tar Package Filename
HP-UX IA64 (64-bit)	`TIB_hkam_<version_num>_hpux112_ia64.zip`
AIX (64-bit)	`TIB_hkam_<version_num>_aix53_power_64.zip`
Linux (32-bit)	`TIB_hkam_<version_num>_linux26gl23_x86.zip`
Linux (64-bit)	`TIB_hkam_<version_num>_linux24gl23_x86_64.zip`

Installation Modes

The installer allows you to install in different modes. Each mode is supported on all platforms.

Install Using GUI

GUI mode performs the installation in an interactive graphical interface. The installer prompts you for values specific to your environment.

To install, doubleclick the icon

`TIBCOUniversalInstaller-sol-sparc.bin`.

Install Using Console Mode

Console mode allows you to install the software from a UNIX terminal window. The installer prompts you for values. When installing in console mode you move through the installation process as shown:

```
Enter Key = Moves forward in the installer
2 = Returns to the previous screen
3 = Cancels the Wizard and exits the installation or uninstallation
4 = Redisplays the current screen
```

To install from a UNIX terminal window, type:

```
    TIBCOUniversalInstaller-sol-sparc.bin -is:javaconsole -console
```

Install in Silent Mode

The following procedure explains how to install a TIBCO Hawk ActiveMatrix Plug-in product in silent mode.

The `TIBCOUniversalInstaller-hkam1x_<version>.silent` file is packaged in the directory that contains the universal installer. You must edit the file with information for your environment before launching the silent installation. The file includes comments that describe the installation properties you can set.

While you can use the `TIBCOUniversalInstaller-hkam1x_<version>.silent` file, it is good practice to copy the file to a different name and edit that file for the silent install.

If errors occur during installation, they will be listed in the installation log file (see the *User_Home/*`.TIBCO` directory).

1. Open the physical media or download the TIBCO Hawk ActiveMatrix Plug-in product package.

2. Extract the TIBCO Hawk ActiveMatrix Plug-in product archive file to a temporary directory.

3. Using a console window, navigate to the temporary directory that contains the universal installer.

4. Copy the `TIBCOUniversalInstaller-hkam1x_<version>.silent` file and rename the copy.

5. Using a text editor, open the copied file and update the install location, and features to install.

6. Run the installer using this command line:

   ```
   TIBCOUniversalInstaller-sol-sparc.bin -is:silent -silent
   ```

   If you are using the `TIBCOUniversalInstaller.silent` file (rather than a copy), you need not supply the file name and can use this command line:

   ```
   TIBCOUniversalInstaller -silent
   ```

   A line similar to the following is written to the installer log file when installation completes:

   ```
   ... Install, com.tibco.installer.util.TIBCOInstaller,
   dbg.Debug, Executing Event:::OnEndInstall
   ```

Uninstalling TIBCO Software

The uninstaller removes all files under the TIBCO Hawk ActiveMatrix Plug-in installation, even if those files were modified or created by the user or the application.

⚠️ Before proceeding with the uninstallation, make sure to backup the user-modified or created files you need to keep.

Uninstallation Instructions

To uninstall the software:

1. Navigate to *TIBCO_HOME*/tools/universal_installer.

   a. Run the platform-specific installer executable.

   b. Select **Uninstall Products From Selected TIBCO Home Location**.

   c. The wizard provides uninstall options:

   — Custom Uninstall (select TIBCO products to uninstall)

   — Typical Uninstall (uninstall all TIBCO products)

   d. Click **Next**. If you selected Custom Uninstall, select the checkboxes for products to uninstall and then click **Uninstall**.

   e. The Pre-Uninstall Summary displays. Click **Uninstall**.

   When uninstalling, a popup window displays asking to clean up the /tools directory. Click **Yes, clean it up.**

   f. The summary screen appears. Click **Finish** to exit the uninstall wizard. After uninstalling the software, the uninstaller may prompt you to reboot your computer.

2. If you selected Typical Uninstall (uninstalling all TIBCO products) then manually delete the directories under *TIBCO_HOME*.

Chapter 4 **Configuring ActiveMatrix Host and Services Microagents**

Overview

This chapter covers optional configuration of two microagents and the monitoring application provided with this product, that together provide the monitoring and management of ActiveMatrix hosts, nodes, components, and services via TIBCO Hawk.

The rulebases and scripts provided in this sample demonstrate the use of the ActiveMatrix Host microagent (introduced in TIBCO Hawk 4.9), to monitor and manage ActiveMatrix 3.x hosts and nodes. For more details on rules refer to, Appendix A, Configuring TIBCO ActiveMatrix 3.x Hawk Rulebase Samples.

Configuration Prerequisites

These two microagents and the monitoring application may be installed into one or two TIBCO_HOME environments.

- Activ.eMatrix Host Microagent
- ActiveMatrix Service Microagent
- ActiveMatrix 3.2 Monitoring Service Application

The two microagents are installed with TIBCO Hawk on every machine where ActiveMatrix nodes and hosts are running. The configuration step allows these microagents to monitor multiple nodes and even multiple hosts on each machine.

The monitoring application is installed onto the machines that run the ActiveMatrix System or Administration node. The configuration step deploys the application to all nodes through the ActiveMatrix Administrator web interface.

Before configuring ActiveMatrix Host Microagent & ActiveMatrix Service Microagent on Windows Platform, please make sure that PowerShell is installed on the machine.

Configuration Instructions

Use the following steps to get the ActiveMatrix 3.x sample rulebases configured for use with TIBCO Hawk 4.9.

If you have installed the product across multiple TIBCO_HOMEs, use the location where the TIBCO Hawk Agents were installed (with TIBCO Hawk).

1. Go to `HKAM_ROOT/samples/rulebases` directory.

⚠️ To reference a backslash ("`\`") in a path, use double-backslashes ("`\\`") in the properties file.

It is recommended to use forward slash ("`/`") for Windows path names.

2. Edit the `autoconfigure-amx-hrb.properties` to specify the following variables:

    — tibco.amx.home - TIBCO_HOME used for ActiveMatrix 3 installation.

    For example, `c:/amx301ga`

    — tibco.hawk.home - TIBCO_HOME used for TIBCO Hawk 4.9 installation

    For example, `c:/hawk49ga`

    — tibco.config.mgmt.home - same as specified using TCT

    For example, `c:/amx301ga/data`

    — hawk.config.mgmt.home - config home for TIBCO Hawk 4.9 (different from AMX 3.x config home)

    For example, `c:/hk49data/tibco/cfgmgmt/hawk`

    — tct.instance.install.dir - the TCT Admin Server configuration run to be used to configure the ActiveMatrix properties

    For example,
    `tct.instance.install.dir=CONFIG_HOME/tct/admin/2010-09-16-13`
    `-06-04/scripts`

    If you are working on a standalone host, please use the following configuration:
    `tct.instance.install.dir=CONFIG_HOME/tct/tibcohost/2010-09-1`
    `6-13-06-04/scripts`

    — amx.hpa.is.secure - true or false if the TIBCO Host is secured or not.

    For example, `amx.hpa.is.secure=false`

    — hawk.property.file - the output property files which will be used in `hawkagent.cfg` (as external variables). Note that you don't have to edit this property if you want to keep the default value.

    For example,
    `hawk.property.file=HAWK_CONFIG/data/Hawk-amx_variables.prope`
    `rties`

3. Run the autoconfigure script from the command line (errors can be monitored).

   Windows: `.\autoconfigure.bat`

   UNIX: `./autoconfigure.sh`

4. On UNIX and Windows:

- On UNIX

  Edit the `HAWK_CONFIG/bin/hawkagent.cfg` to configure the following properties
  a. `hma_plugin_dir "`*`HAWK_CONFIG`*`/plugin"`
  b. `variables "`*`HAWK_CONFIG`*`/data/Hawk-amx_variables.properties"`

  c. `auto_config_dir "`*`HAWK_CONFIG`*`/autoconfig"`

- On Windows

  Launch the `tibhawkconfig.exe` to add or modify these properties.

Under the "Agent" Tab:

   a. Set the Autoconfiguration Directory as *`HAWK_CONFIG/autoconfig`*

   b. Set the value of "Plugins" as *`HAWK_CONFIG/`*`plugin`

   c. Set the variables file as
      `HAWK_CONFIG/``data/Hawk-amx_variables.properties`

Start HawkAgent, Hawk HMA, Hawk Display and so on, as appropriate for your platform.

Managing and Monitoring Multiple TIBCO Host Instances in the same Hawk Agent

In order to generate rulebases and microagent configurations for multiple TIBCO Host instances on the same machine, and manage these via the same Hawk agent, you need to repeat setup Steps 1 and 2 for each TIBCO Host instance you need to configure.

This will update the existing TIBCO Hawk Variables file and merging properties for each instance into the same file.

Separate configuration properties and rulebases will be either created or merged in following folders for each TIBCO Host instance.

   a. Configuration Properties -
      `HAWK_CONFIG/data/Hawk-amx_variables.properties` folder

   b. Rulebases - `HAWK_CONFIG/autoconfig` folder

Monitoring Application

In order to collect service operation statistics on each node, the ActiveMatrix Service microagent requires the deployment of an ActiveMatrix 3.x Monitoring Application to each node that the microagent is monitoring.

The application must be deployed separately to each Environment with nodes to be monitored.

Log into the TIBCO ActiveMatrix Administrator.

1. Navigate to Applications tab.

2. Select **New**.

   This will open the New Application wizard.

3. Enter any Application name such as, "Monitoring App".

4. Choose the environment you wish to configure from the drop-down.

   Leave the application template source as "An existing application template".

5. Select **Next** to move to the template selection screen.

6. Scroll and select the "TIBCO Hawk ActiveMatrix Service Monitoring Application".

7. Select **Next** to move to the Summary screen.

8. Select **Save and Exit** to close the wizard.

9. Continue to configure the application by navigating to the Distribution tab.

10. Select all nodes to distribute the application to:

    — Save the configuration.

    — Deploy the application.

    — Start the application.

    Verify through the ActiveMatrix Services Microagent `getConfig` method. The Monitoring Application State should be "RUNNING".

Chapter 5 **Configuring Service Rulebase Samples**

Node-level rules can be created that apply to all components or services on a node. The parameters to the microagent methods can be left blank or given as wild-cards that match the substrings in many or all available components and operations.

Few examples are located in:
HKAM_ROOT/samples/rulebases/servicerulebases.

Installation

The rules have been created against the **default node** and **default host** with a generated microagent name
com.tibco.hawk.amx.SystemHost_DevNode_Service. Change this name to reflect your own environment. Some rulebases also need an SMTP host to be configured.

Load the rulebases through Hawk Display or copy into:
HAWK_CONFIG/autoconfig.

Rulebase Details

The following table provides information about the rulebase details.

Rulebase	Description
Pending Responses	Alert if, more than five pending responses for an operation (may indicate hung service).
PowerCycle-RestartNodewith Faults	Restart node if, faults at 100% and more than five hits (assumes systemic failure).
ResponseTimeTrend	Alert if, the response time doubles over sampling the period.
Service Availability	Alert and Email notification if, the service binding has stopped unexpectedly.
Service Faults	Alert if, more than 20% of hits are faults.

Rulebase	Description
Service Hits Sudden Burst	Alert if, orderBook hits increases by more than 50% in the last five minutes.

Appendix A **Configuring TIBCO ActiveMatrix 3.x Hawk Rulebase Samples**

Sample Location

`TIBCO_HOME/hkam/<version>/samples/rulebases/readme.txt`

The sample provides the following functionality related to the AMX Host microagent and the TIBCO EMS microagent:

• Detect when the connected ActiveMatrix Host (TibcoHost) is abnormally shutdown and restart it. Restart is only attempted if, the connected EMS server is running.

• Detect when the Administrator Node (SystemNode) was abnormally shutdown and restart it. (Assumes that the SystemNode is also managed by the connected ActiveMatrix Host). Restart is only attempted when the Admin database (if external) is running, and the connected EMS server is running.

    A sample `DBping` microagent is included to support this scenario. Note that the rulebases to support this scenario B are only setup when the ActiveMatrix Administrator instance is created via TCT.

• Auto-detect runtime nodes managed by the connected ActiveMatrix Host (TibcoHost), and provide or generate rulebases for each node that restart the node when abnormally shutdown. Restart is only attempted when the connected EMS server is running.

The rulebases and scripts are auto-configured from the output of a TIBCO Configuration Tool (TCT) run.

When TCT is run on a machine to setup either an ActiveMatrix Administrator instance or a TIBCO Host instance, its output directory can be used to configure the Hawk rulebases and scripts to manage the installed ActiveMatrix Administrator and/or TIBCO Host and nodes.

For detailed information on configuring the rulebases and scripts, refer to Configuration Instructions.

Scenarios

Scenario A   Detect when connected TIBCO Host is abnormally shutdown, and restart only if EMS server is running:

Rulebase Name

`SystemNodeRB-${tibcohost.instance.name}`

Microagents Used

- `com.tibco.hawk.amx.AMXHost`
- `com.tibco.hawk.tibjms.HawkListener`
- `COM.TIBCO.hawk.hma.Process`

Implementation

- Use `AMXHost.isHostRunning()` to determine if the tibcohost is running

  if Running is `False`

  then post '`th_not_running`' condition and send Medium level alert: "TibcoHost is not running".

- Use `AMXHost.getHostInfo` to determine runtime state of the tibcohost.

  if Runtime State = '`LOST_CONTACT`' or Runtime State='`NOT_RUNNING`'

  then post '`th_lost_contact`' condition and send Medium alert: "Lost Contact with Tibco Host, Host is in a NOT_RUNNING state".

- Use `HawkListener<tibcohost.ems.url>.isRunning()` to determine the state of the EMS server connected to tibcohost.

  if running is `True`

  then `post ems.server.<tibcohost.ems.url>.isrunning` condition

  if running is `False`

  then send High alert: "Tibcohost Qin EMS Server is down: Rules will NOT restart TH".

- Use `Process.getInstanceCount(ProcessName='tibcohost')` to determine

  whether there is a running OS process for the tibcohost.

  if Process Count < 1 AND the following posted conditions exist:

  `ems.server.<tibcohost.ems.url>.isrunning` AND `th_not_running` then execute `start_tibcohost` script, and send High alert: "ActiveMatrix Host is not running, going to restart it."

Scenario B   Detect when the Administrator Node (SystemNode) was abnormally shutdown and restart it, only if the external database (if used) is alive, and if the connected EMS server is running.

Rulebase Name

- For external database -
  `SystemNodeRB-extdb-${tibcohost.instance.name}`

- For embedded database - `SystemNodeRB-${tibcohost.instance.name}`

Microagents Used

- com.tibco.hawk.amx.AMXHost

- com.tibco.hawk.tibjms.HawkListener

- COM.TIBCO.hawk.hma.Process

- com.tibco.hawk.samples.DBPingMicroAgent

Implementation

During auto-configuration of the rulebases, determine whether an external database is used.

If external database IS used, setup the following rules:

- Use `AMXHost.onNodeEvent` to determine runtime state of the SystemNode.

  if Runtime State = 'LOST_CONTACT' or Runtime State='NOT_RUNNING'

  then post `th_lost_contact_systemnode` condition and send High Alert: "Lost Contact with SystemNode"

- Use `HawkListener<tibcohost.ems.url>.isRunning()` to determine the state of the EMS server connected to tibcohost.

  if running is `True`

  then post `ems.server.<tibcohost.ems.url>.isrunning` condition

- Use `DBPingMicroAgent.ping()` to determine the state of the external Database.

  if ping is `True`

  then post `systemnode.db.isRunning` condition

- Use `Process.getInstanceCount(ProcessName='SystemNode')` to determine whether there is a running OS process for the SystemNode.

  if Process Count < 1 AND the following posted conditions exist:

  `ems.server.<tibcohost.ems.url>.isrunning` AND
  `th_lost_contact_systemnode` AND `systemnode.db.isRunning`

  then execute `AMXHost.startNode('SystemNode')`

If external database is NOT used, setup the following rules:

- Use `AMXHost.onNodeEvent` to determine runtime state of the SystemNode.

  if Runtime State = 'LOST_CONTACT' or Runtime State='NOT_RUNNING'

  then post `th_lost_contact_systemnode` condition and send High Alert: "Lost Contact with SystemNode".

- Use `HawkListener<tibcohost.ems.url>.isRunning()` to determine the state of the EMS server connected to tibcohost.

  if running is `True`

  then post `ems.server.<tibcohost.ems.url>.isrunning` condition.

- Use Process.getInstanceCount(ProcessName='SystemNode') to determine whether there is a running OS process for the SystemNode.

  if Process Count < 1 AND the following posted conditions exist:

  `ems.server.<tibcohost.ems.url>.isrunning` AND `th_lost_contact_systemnode`

  then execute `AMXHost.startNode('SystemNode')`.

Scenario C   Auto-detect runtime nodes managed by the connected AMX Host (TibcoHost), and provide or generate rulebases for each node that restart the node when abnormally shutdown. Restart is only attempted when the connected EMS server is running.

Rulebase Name

AMXNodeManagerRB

Microagents Used

- `com.tibco.hawk.amx.AMXHost`
- `COM.TIBCO.hawk.microagent.RuleBaseEngine`

Use `AMXHost.getNodeInfo` to determine the names of all nodes (every 30 seconds)

if Node Name != 'SystemNode'

then execute the ANT project : 'scripts/antrunner generate-noderb.xml' with argument amx.node.name= Node Name

then execute the method `RuleBaseEngine.loadRuleBaseFromFile(${Node Name}RB-${tibcohost.instance.name}.hrb)`.

The ANT project `generate-noderb.xml` will generate a rulebase file in the Hawk autoconfig folder called `'${Node Name}RB-${tibcohost.instance.name}.hrb`.

This rulebase is based on a template that has the following behavior.

Rulebase Template Name

`AMXNodeRB`

Microagents Used

- com.tibco.hawk.amx.AMXHost
- com.tibco.hawk.tibjms.HawkListener
- COM.TIBCO.hawk.hma.Process

Implementation

- Use `AMXHost.onNodeEvent` to determine runtime state of the AMXNode.

  if Runtime State = 'LOST_CONTACT' or Runtime State='NOT_RUNNING'

  then post `th_lost_contact_node` condition and send High Alert: "Lost Contact with ${Node Name}".

- Use `HawkListener<tibcohost.ems.url>.isRunning()` to determine the state of the EMS server connected to tibcohost.

  if running is `True`

  then post `ems.server.<tibcohost.ems.url>.isrunning` condition.

- Use `Process.getInstanceCount(ProcessName=${Node Name})` to determine whether there is a running OS process for the AMXNode.

  if Process Count < 1 AND the following posted conditions exist:

  `ems.server.<tibcohost.ems.url>.isrunning AND th_lost_contact_node`

  then execute `AMXHost.startNode('${Node Name}')`.

Appendix B # Installing and Testing Sample Application

This is a sample ActiveMatrix application (`BookOrderTutorial.app`) that is intended to be deployed on ActiveMatrix 3.x installations for use in testing the TIBCO Hawk ActiveMatrix Plug-in.

This application is built with the following:

Two Java Components:

- BookOrderComponent,

- BookSearchComponent

and

Two Binding Services:

- BookOrderService

- BookSearchService

Each has one operation that is, orderBook and searchBook (respectively).

The BookOrderComponent invokes the BookSearchComponent with a Component reference.

The summary of monitorable binding services and references, component services and references is show below. (This detail is important to understand the monitoring results from the ActiveMatrix Service microagent).

ApplicationName: `BookOrderTutorial.app`

Bindings:
`BookOrderServiceBinding`
`BookSearchServiceBinding`

Component services and references:

 BookOrderComponent:

  Services

   `BookOrderService (Contract=BookOrderPT)`

  References

     `BookOrderReference (Contract=BookSearchPT)`

 BookSearchComponent:

  Services

```
BookSearchService (Contract=BookSearchPT)
```

Setup Instructions

Prerequisites

Running installation of ActiveMatrix 3.2.

1. Go to `HKAM_ROOT/samples/amxproject`.

2. Edit the `build.properties` to set the TIBCO_HOME (root directory for ActiveMatrix installation).

3. Edit the `remote_props.properties` to configure the adminURL and authentication settings for your Admin Server.

4. Run the ANT project with the following command (replace `$TIBCO_HOME` with your installation path):
   - `java -cp $TIBCO_HOME/tools/lib/antpackage.jar`
   - `org.apache.tools.ant.launch.Launcher deploy.bookorder`

Testing

Prerequisites

soapUI (see soapui.org)

Follow these steps to test the soapUI project:

1. Import the provided soapUI project :

   ```
   TIBCO_HOME/hkam/1.2/samples/amxproject/BookOrderTutorial/soapui
   /AMX3BookOrderTutorial-soapui-project.xml
   ```

   A load test is provided which exercises the BookOrderTutorial application previously deployed. This load test is called "orderBookLoadTest".

2. Run this load test.

   You can now verify the service metrics using the ActiveMatrix Service microagent.

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