TIBCO Hawk®

Console User Guide

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Contents

TIBCO Hawk Console Dashboard

The TIBCO Hawk Console is a web application that provides a central view of all the distributed components interacting within the TIBCO Hawk system.

The landing page of Hawk Console displays a heat map of all alerts and the information cards for each registered Hawk domain.

For more details about the Hawk Console features, see *TIBCO Hawk Concepts Guide*.

Starting Hawk Console

Start the Hawk Console to view all the information of the Hawk system in its web interface.

Prerequisite

Ensure that the transport parameters are setup in the Hawk Console configuration file (`hawkconsole.cfg`). For details about Hawk Console configurations, see TIBCO Hawk Installation, Configuration, and Administration Guide.

Procedure

1. Start the Hawk Console by using either of the following steps:
   - Run `tibhawkconsole.exe`. (or `tibhawkconsole.sh`, depending on your operating system) from *HAWK_HOME*`\bin\`.
   - (Windows only) Click **Start > All Programs > TIBCO > *HAWK_HOME* > TIBCO Hawk > Start Hawk Console**.
2. In a web browser enter the URL `http://`*<Console_host_IP>*`:`*<Host_port>*`/HawkConsole`.

3. On the Hawk Console login page, enter your login credentials for the Hawk Console and click **Login**.

Result

The Hawk Console dashboard is displayed with information about the domain and their alerts, see TIBCO Hawk Console Dashboard.

Note When you start Hawk Console for the first time, you see information on only the default domain.

What to do Next

After logging in to the Hawk Console, you can perform either of the following major tasks:

- Configuring a Domain to Hawk Console
- Viewing Alerts for the Hawk Agent.
- Creating an Alert Rule for a Hawk Agent

Alerts Heat Map

The heat map is a graphical representation of alerts and notifications in the entire monitoring ecosystem (across agents and domains).

Figure 1: Hawk Console Alerts Heat map

The color of the individual cell in the map represents different alert levels. The size of the individual cell is directly proportional to the number of alerts/notifications of that type. The color scheme of the alerts indicate the following type of alerts:

- [Red] High

- [Orange] Medium
- [Yellow] Low
- [Green] Notification

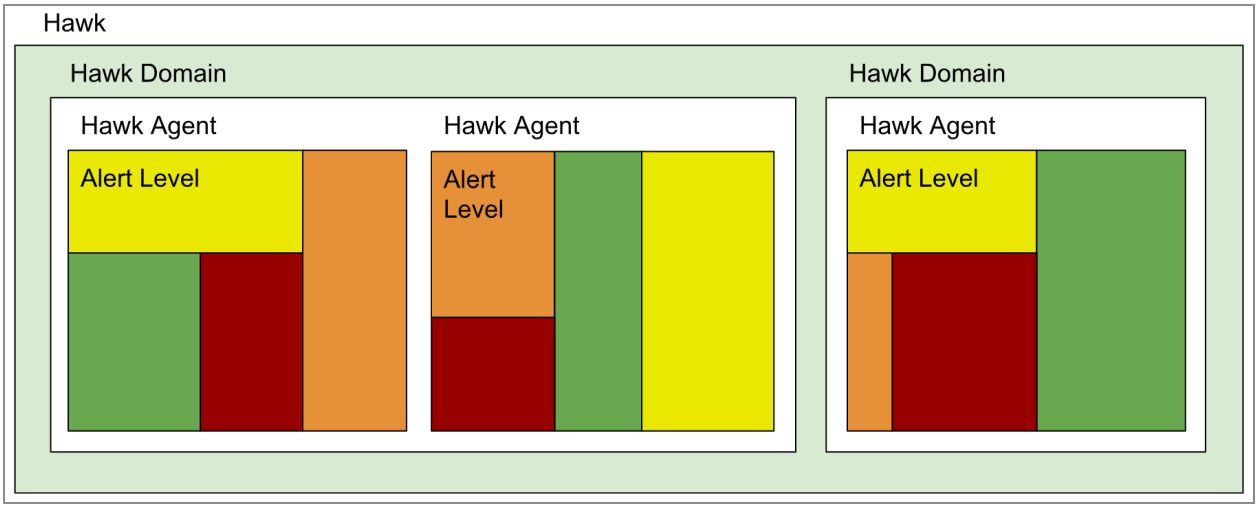
Heat Map Hierarchy

Heat map implementation in Hawk Console is a treemap representation. The treemap charts display hierarchical data in a set of nested rectangles. You can click any rectangle to drill down to its nested rectangles (levels). A rectangle's size is directly proportional to the specified dimension of the data.

The dimensions of hierarchy in Hawk Console is:

- Hawk domain
- Hawk agent
- Alert level

Figure 2: Hawk Console Alerts Heat Map Hierarchy



Drill Down Capability

The top-level heat map shows all alerts in all agents in all domains. You can drill down to any level of the hierarchy (dimension) to see the details. For example, if there are four domains, you can drill down to one domain to see all the agents in the domain in an expanded form. You can further drill down to an agent in the domain to see all alerts in expanded view. You can drill down to the last level in the hierarchy which is the cell for

Alert category for an Agent. On clicking this cell, the user is navigated to Agent Alerts Details page filtered with the Alert Category.

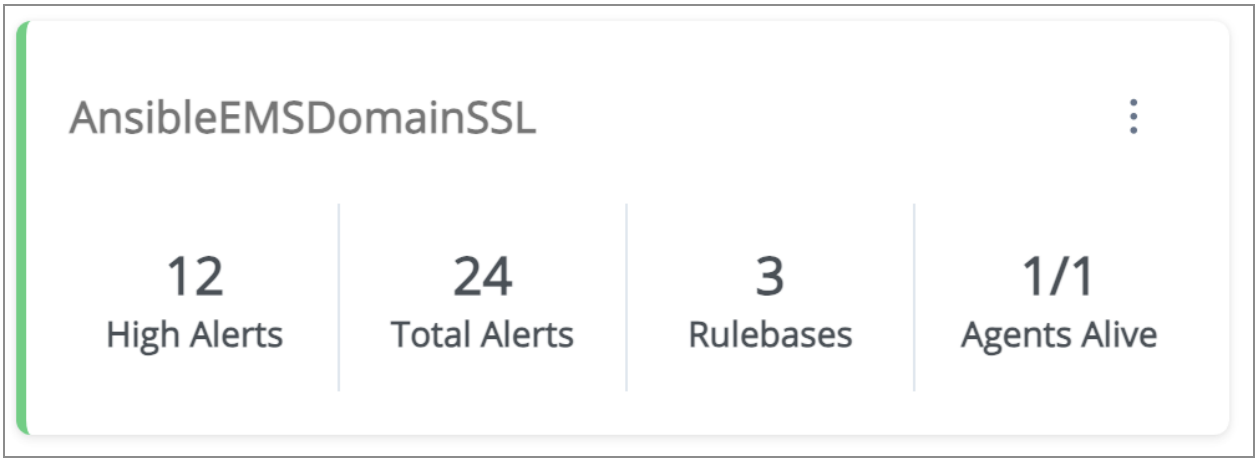
Heat Map Auto Updates

The heat map are autoupdated after every 20 seconds. If the agent previously had less number of high alerts, the size of high alerts cell for the agent was small as compared to other cells. However, if the agent starts generating a large number of high alerts, then the size of high alerts cell for the agent starts growing dynamically and all other cells in the entire heat map are automatically adjusted accordingly.

Domain Information Cards

The landing page of Hawk Console also displays information card for each registered Hawk domain. Information cards list key information about each registered Hawk domain.

Figure 3: Domain Information Cards in Hawk Console



The following information is displayed in each domain card:

- **Domain name** - The registered name of the domain.
- **High Alerts** - Number of alerts with the *high* status generated for all agents in the domain.
- **Total Alerts** - Total number of alerts generated for all agents in the domain.
- **Rulebases** - Total number of rulebases defined for all agents in the domain.

- **Agents Alive** - Number of agents that are in the running state out of the total number of agents in the domain.

The green indicator is shown if the domain status is connected and yellow indicator if the domain status is disconnected.

For domain details, in the upper-right corner of domain information card, click the ⋮ icon and click Details from the menu.. The following domain details are included:

- Domain Status
- Transport Type
- Daemon URL
- Self URL
- Security Policy Used

Actions

On the domain information section, you can perform the following actions:

- **Configure a domain** - You can also configure a Hawk domain to the Hawk Console and start monitoring that Hawk domain by using the web interface. For details, see Configuring a Domain to Hawk Console.
- **Unregister a domain** - Click the ⋮ icon and click unregister from the menu in the domain information card to unregister the domain from the Hawk Console. After successful deregistration, you can not monitor Hawk agents in that domain through the current Hawk Console.
- **View domains in a list** - If needed, you can also view the domain information in a table. Click the **List View** icon on the right to switch to the list view for the domains. You can view both **List View** and **Cards View** and the selected view icon is highlighted. You can sort the table rows based on any column. The columns available in the table are same as the information available in the information card. You can also switch back to the Information cards by clicking on the **Cards View** icon.

For more details about any particular domain, click the domain card (in card view) or the domain name (in list view) for drilling down to that domain. For details, see Viewing the Agent Details.

Configuring a Domain to Hawk Console

In the Hawk Console, you can configure a domain through the web interface. After configuration, you can also monitor that domain.

Prerequisites

Ensure that the Hawk domain that you are configuring is already running.

Note Ensure to take the backup of the DomainTransportConfig.yml file before configuring a Hawk domain to the Hawk Console. The Configure Domain option removes all the commented configurations from the `DomainTransportConfig.yml` file.

Procedure

1. Start the Hawk Console and sign in with your user name and password.
   The Hawk Console dashboard is displayed with the Alerts heat map and domain information cards.
2. In the Domains section, click the **configure**.

   The Configure Domain window is displayed with options to register a domain to the Hawk Console.
3. In the Configure Domain window, enter the details for registering the domain on the Hawk Console and click **Configure**. For details, see The Domain Configuration Reference.

Result

The information card for the newly configured domain is displayed on the dashboard.

What to do Next

After domain registration you can either view the alerts for the agent or create new alert rules:

- Viewing Alerts for the Hawk Agent.
- Creating an Alert Rule for a Hawk Agent

The Domain Configuration Reference

From the Hawk Console web interface, on the Configure Domain window, you can configure a Hawk domain.

For more information about Hawk domains and their transport configuration, see *TIBCO Hawk Installation, Configuration, and Administration* guide.

Configure Domain Fields

Field	Description
Domain Type	Specify whether the Hawk domain to be registered is a regular domain. Based on the domain type, the fields are displayed on the Configure Domain window. The values are: • `regular` - For details about fields for the regular domain type, see Configure Domain Fields for Regular Domain Type.
Domain Name	Specify the Hawk domain name.
Security Policy	Select the security policy that you want to apply to a domain: • **Default:** None • **Trusted:** Select this option to apply Trusted Security policy. • **Trusted with Domains (only for Windows XP domains):** Select this option for Microsoft Windows XP domains only. • **Custom:** To apply a custom security policy select this policy and enter the name of the custom security policy. For more information about Hawk Trusted Security Model, see *TIBCO Hawk Installation, Configuration, and Administration guide*.

Configure Domain Fields for Regular Domain Type

Field	Description
Transport	Type of transport that the Hawk domain is using. The following transport types are available: • `TCP` - TCP Transport for TIBCO Hawk • `RV` - TIBCO Rendezvous Transport • `EMS` - TIBCO Enterprise Message Service (EMS) Transport Based on the transport type selected, transport configuration fields are displayed.
TCP Transport for TIBCO Hawk	
Self Url	Unique socket address of the Hawk Console for connecting to the TCP Transport for TIBCO Hawk cluster.
Daemon Url	The socket address of the Cluster Manager acting as the seed node for the TCP Transport for TIBCO Hawk cluster.
Additional transport options	Select the check box to provide additional details for SSL based TCP transport for the domain. The following fields are displayed after you select the check box:
Key store	Absolute path of the keystore that contains the Monitoring Console certificate and key to be loaded while communicating with the Hawk domain. You must provide a custom keystore that has a password protected key.
Key store password	Password to access the keystore.

Field	Description
Key password	Password to access the private key.
Trust store	Absolute path to trust store which will be used to validate the Hawk component certificates while communicating with the Hawk domain.
Trust store password	Password to access the trust store.
SSL protocol	This is an optional field. Only TLSv1.2 protocol is supported. If you want to specify a protocol in this field, then it must be TLSv1.2.
SSL Enabled Algorithms	This is an optional field. Default value: `TLS_RSA_WITH_AES_128_CBC_SHA`
TIBCO Rendezvous Transport	
RV Service	Specify the service that the Rendezvous daemon uses to convey messages on this transport. You can specify the port number as the service to be used, for example, `7474`.
RV Network	Specify the network that the Rendezvous daemon uses for all communications involving this transport. The network parameter consists of up to three parts, separated by semicolons: network, multicast groups, and send address.
RV Daemon	Specify the socket address of the Rendezvous daemon.
TIBCO Enterprise Message Service (EMS) Transport	
EMS Server URL	Specify the location of the EMS server.

Field	Description
EMS Username	Specify the user name to login to the EMS server.
EMS Password	Specify the password for the **EMS Username**.
Additional transport options	Select the check box to provide additional details for SSL based EMS transport for the domain. The following fields are displayed after you select the check box: • EMS SSL Vendor • EMS SSL Trace • EMS SSL Trusted • EMS SSL Private Key • EMS SSL Expected Hostname • EMS SSL Password

Viewing the Agent Details

In Hawk Console, you can create rulebases and rules to monitor a Hawk agent. Also, you can view all the alerts related to the Hawk agent.

Procedure

1. Start the Hawk Console and sign in with your user name and password.
   For steps, see Starting Hawk Console.
   The Hawk Console dashboard is displayed with the Alerts heat map and domain information cards.
2. On the Hawk Console dashboard, click the information card for the domain whose Hawk agent you want to view.
3. On the Domain's page, click the information card for the Hawk agent for which you want to view the details.

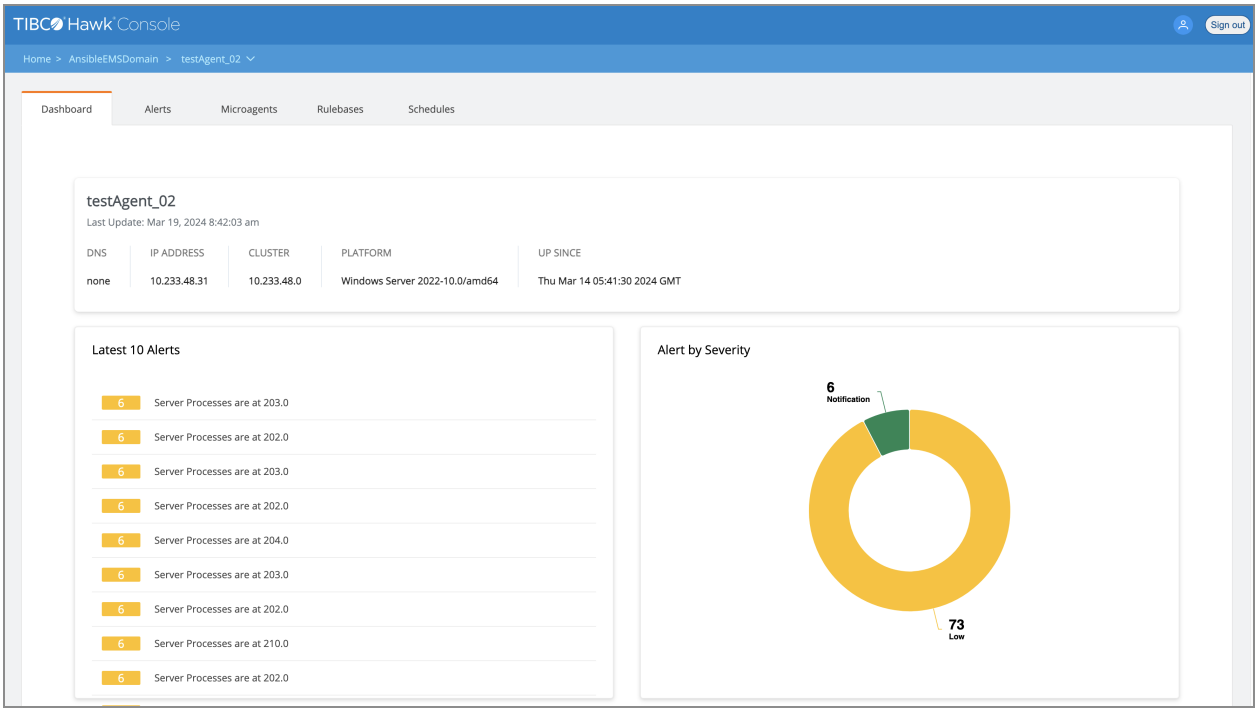
The Hawk Agents page with multiple tabs (for Hawk agent actions and information) is displayed.

Result

The Agents page displays the following tabs to perform various functions:

- **Dashboard** - It displays agent's and alerts information in a single view. For details, see Dashboard Tab.
- **Alerts** - The Alerts tab lists all the alerts for the Hawk agent in a table. For details, see Alert Messages.
- **Microagents** - In the Microagents tab, you can view microagents and their methods for the Hawk agent. For details, see Microagent Management.
- **Rulebases** - The Rulebases page shows all the rulebases for the agent. For details, see Rulebase Management.
- **Schedules** - The Schedules tab enables you to define a schedule and deploy the schedule to the Hawk agent. For details, see Schedule Management.

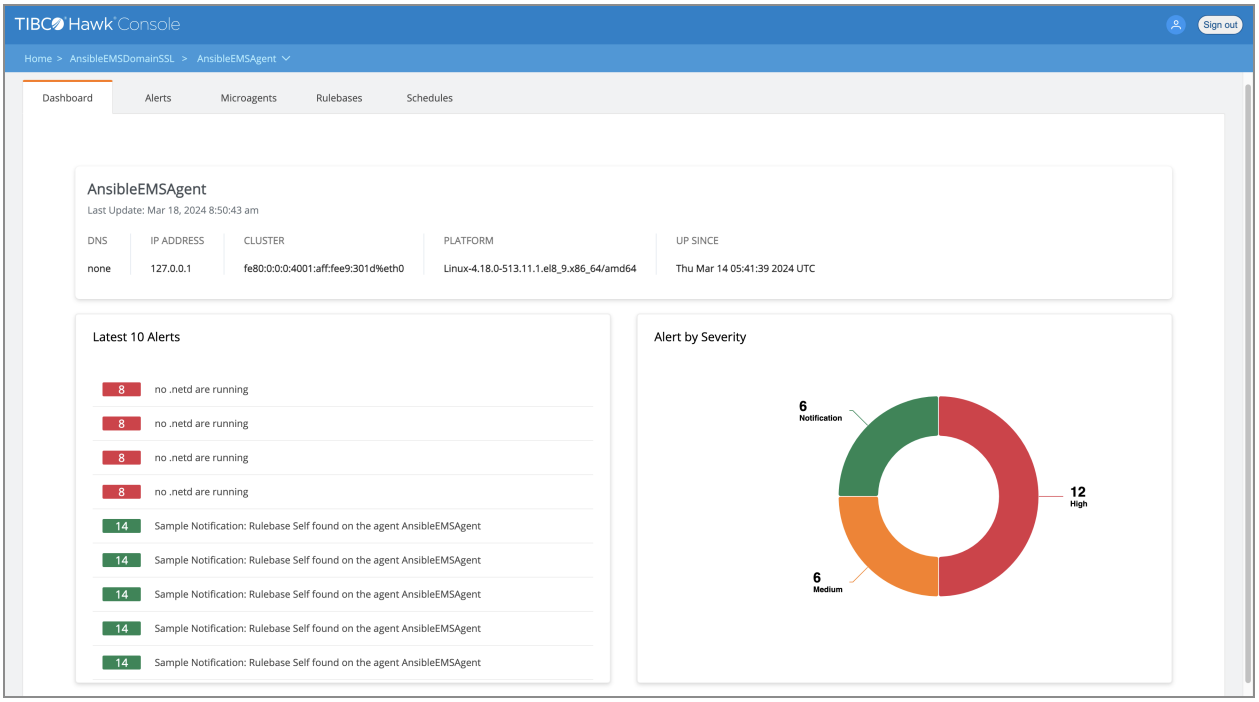
Figure 4: Agent's Details Page



Dashboard Tab

The Dashboard tab displays agent information and alerts information in a single view.

Figure 5: The Dashboard Page for the Hawk Agent



The following sections are displayed on the Dashboard tab:

- **Agent Description** - The section displays the infrastructure details of the Hawk agent. The following field values are displayed for the agent:
  - DNS
  - IP Address
  - Cluster
  - Platform
  - Up Since
- **Latest 10 Alerts** - The section lists most recent ten alerts for the Hawk agent.
- **Alert by Severity** - The section shows the doughnut chart for the alerts based on their severity. Each colored section denotes different severity. Click on any section of the doughnut chart to open the list of alert message of that severity.

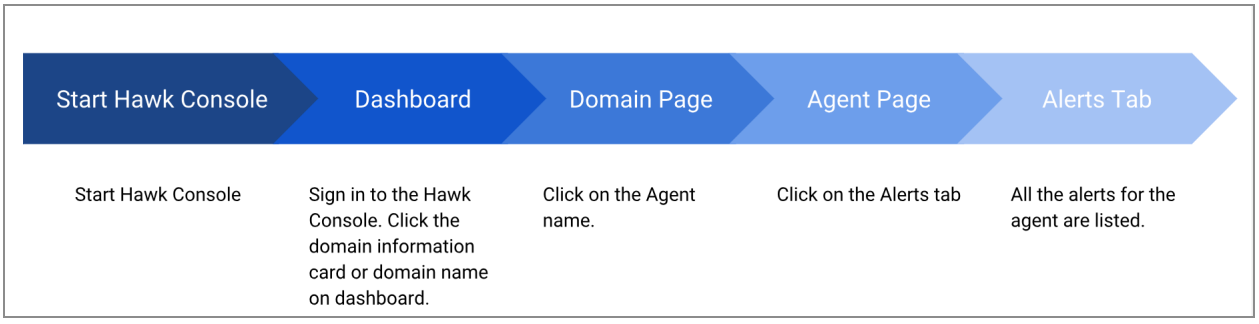
Alert Messages

Alerts are messages an agent sends to TIBCO Hawk Console. Alerts originate from rulebases when a specified condition occurs that enforces your monitoring criterion.

Viewing Alerts for the Hawk Agent

By using the Hawk Console you can view all the alerts generated for a Hawk agent based on the rules deployed for the Hawk agent.

The following procedure helps you to view all the alerts for the Hawk agent; however, if you want to see the filtered result only based on the alert type, you can use the Alerts heat map.



Procedure

1. Start the Hawk Console and sign in by using your user name and password.
   The Hawk Console dashboard is displayed with the Alerts heat map and domain

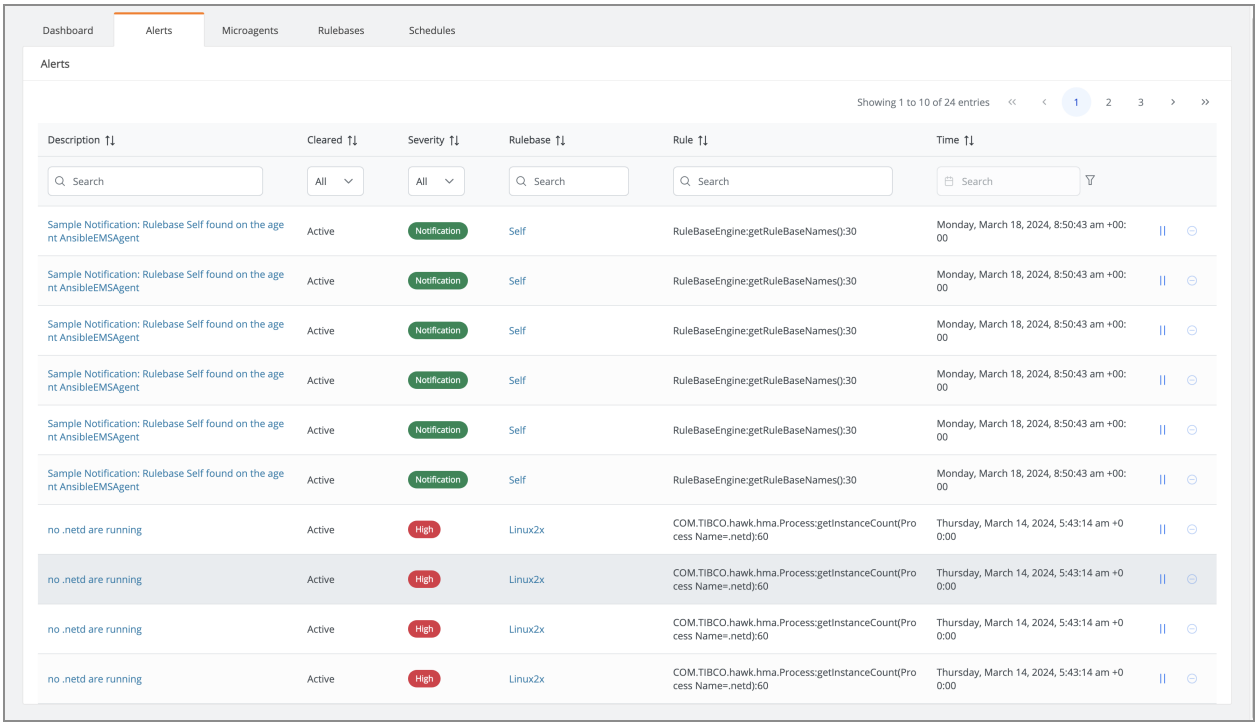
information cards.

2. Click the domain information card for the domain of your Hawk agent.
   The domain details page is displayed with Hawk agents information card.
3. Click the information card for the Hawk agent for which you want to see alerts.
   The Agents page with several tabs for various operations is displayed. For details about the Agents page, see Viewing the Agent Details.
4. Click the **Alerts** tab.
   All the alerts for the Hawk agent are listed in a table. For details, see Alerts Tab.

Alerts Tab

The Alerts tab lists all the alerts for the Hawk agent in a table. You can sort and filter these alerts by using these columns.

Figure 6: The Alerts Page for the Hawk Agent



For each alert, the following details are provided and you can filter out the results based on these details:

- **Description** - A string that describes the alert. Click the description link to view more details about the alert. The following details are displayed:
  - Description
  - Alert ID
  - Rulebase name
  - Data source
  - Rule (that triggered this alert)
  - Test condition
  - Action
  - DataIndex
- **Cleared** - It specifies if the alert has been cleared or not.
- **Severity** - The type of severity which can be one of High, Medium, Low, or Notification.
- **Rulebase** - The name of the rulebase which generated this alert. Click the Rulebase link to get the details of the rulebase that triggered the alert. The rulebase details are displayed in the Rulebase tab.
- **Rule** - The name of the rule that triggered the alert.
- **Time** - Timestamp when the alert was generated. For filtering alerts based on their timestamp, you can use the date and time picker to select a range.
- **Actions** - The action that you want to take on this alert.
  - Suspend the alert for a specified amount of time. For details, see Suspending an Alert.
  - Purge suspended alerts from the alerts list. For details, see Purging Suspended Alerts.

Suspending an Alert

If an alert might interrupt another monitoring task, you can temporarily suspend it.

For example, if a condition such as a process failure is generating a high-level alert with a warning bell and the problem is being worked on, you can suspend the alert until the

problem is resolved. Suspension details are added to the properties of the message. These details are visible to you, other Hawk Console users, and Console API applications.

Suspending an alert message affects only the action of the generated alert. If the condition that generates the alert message also generates another type of action, such as attempting to restart the process, that action is unaffected.

Procedure

1. In the Hawk Console, open the Hawk Agent page for which you want to suspend an alert.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Alerts** tab.

   All the alerts for the Hawk agent are listed in the tab. For details, see Alerts Tab.
3. In the Alerts tab, click the **Suspend** icon for the alert that you want to suspend.
4. In the Suspend Alert window, enter the **Time** (in minutes) for which you want to suspend the alert.
5. Specify a valid reason for suspending the alert in the **Reason** field and click **Suspend**.

   On successful suspension, the successful message is displayed.

Result

All the alerts with the specified `AlertID` are suspended. The Cleared column value is changed to `Cleared`. Also, for all the suspended alerts the **Purge** icon becomes active.

What to do Next

You can purge the suspended alerts from the alerts list. For details, see Purging Suspended Alerts.

Purging Suspended Alerts

You can purge all the suspended alerts to clean up the alerts list. You can only purge suspended alerts .

Procedure

1. In the Hawk Console, open the Hawk Agent page for which you want to purge suspended alerts.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Alerts** tab.

   All the alerts for the Hawk agent are listed in the tab. For details, see Alerts Tab.
3. In the Alerts tab, click the **Purge** icon for the suspended alert that you want to purge. The suspended alert have the Cleared column value as `Cleared`.

   A Confirmation dialog box is displayed to confirm the purging of the alerts with the displayed alert ID.
4. In the Confirmation dialog box, click **Ok** to purge all the cleared alerts with same `AlertID`.

   On successful purging, the successful message is displayed with the number of alerts purged. Click **Ok** to close the dialog box.

Result

All purged alerts are removed from the alerts list in the **Alerts** tab.

Microagent Management

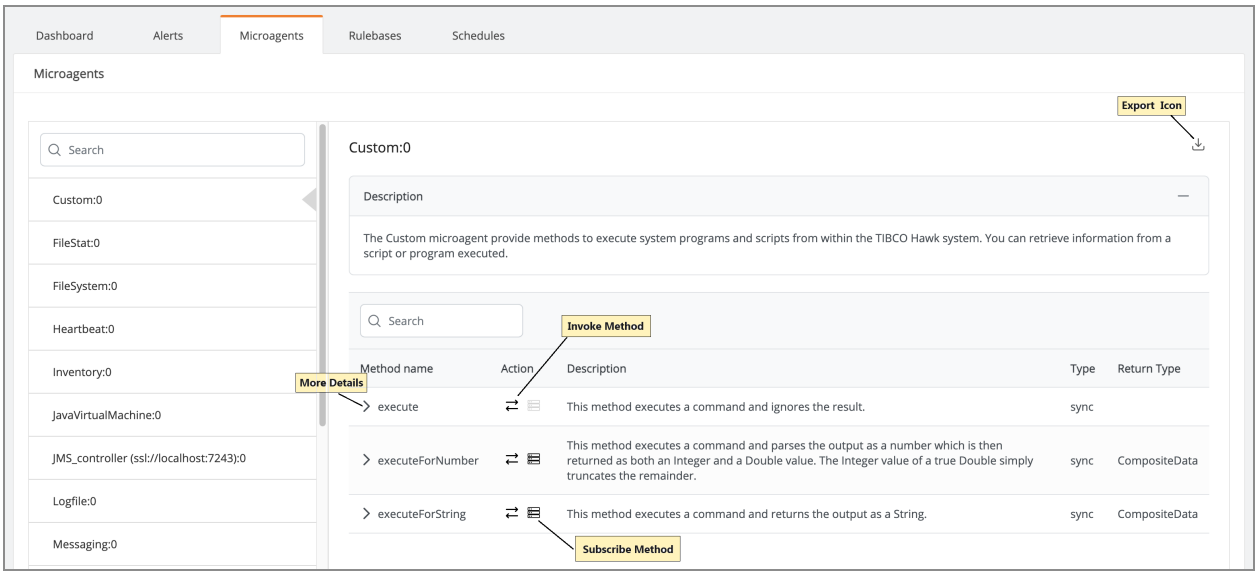
This chapter contains steps to perform operations supported on the Microagent tab.

Microagents Tab

Each agent has a set of default microagents, which is discovered by agents when it is started. If you install and start an adapter or gateway, or instrument an application with AMI, microagents for these objects are dynamically added to the agent. In the Microagents tab, you can view microagents and their methods for the Hawk agent.

For more details about microagents, see *TIBCO Hawk Concepts Guide*.

Figure 7: The Microagents Page for the Hawk Agent



The left panel on the page lists all the microagents available for the Hawk agent. Select any microagent to view its description and all the available methods on the right panel.

For each method, the following details are displayed in a table:

- **Method Name** - Displays the name of the method. To see more technical specifications of the method, click the right-pointing triangle in front of the method name. It displays more details about the method, such as arguments and returns. For details about microagent and methods, see TIBCO Hawk Microagent Reference Guide.
- **Action** - You can perform the following actions for each method.
  - **Invoke** - Use the Invoke action to immediately view the results. Invoking is useful when you want to test a method before using it in a rule, or to check a return value for troubleshooting purposes, see Invoking a Microagent Method.
  - **Subscribe** - Use the Subscribe action to view the microagent method results over time. Creating a subscription is useful when you want to test a range of return values before specifying boundaries in a rule, or to identify general patterns of activity, see Subscribing to a Microagent Method.
- **Description** - A short description of what the method does.
- **Type** - Specifies whether the subscription information is returned synchronously, on a regular time schedule, or asynchronously, when data becomes available.
- **Return Type** - Specifies if the data is returned as Tabular Data or Composite data.

Exporting the Description for a Microagent

You can either view or download the microagent description to a file. Click the **Export MAD** icon for the microagent and select the location to save the microagent description (`.hmd`) file.

Invoking a Microagent Method

Invoke a microagent method to immediately view its result. Invoking is useful when you want to test a method before using it in a rule, or to check a return value for troubleshooting purposes.

The invoke results are displayed in the Invoke window. The results vary, depending on the arguments required for the invoked method. For information about all the microagent methods, see TIBCO Hawk Microagent Reference Guide.

For all methods that have some return values, the result of the method is displayed on the window and for all the methods without any return values, no result is displayed.

Procedure

1. In the Hawk Console, open the Hawk Agent page for which you want to invoke the microagent method.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Microagents** tab.

   All the microagents for the Hawk agent are displayed in the tab. For details, see Microagents Tab.
3. Select the microagent whose method you want to invoke.

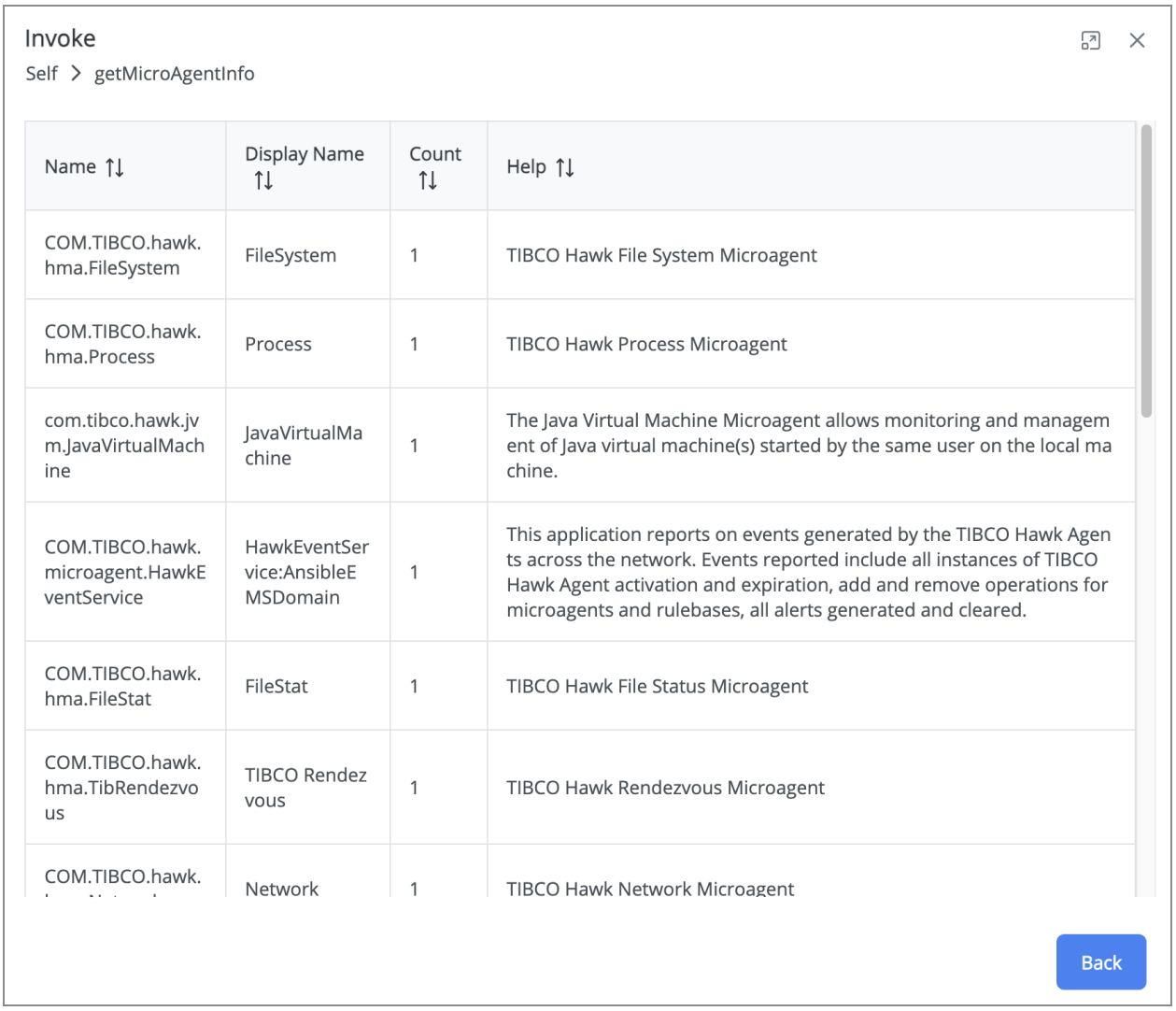
   The right panel displays the microagent details and all its methods.
4. Under the Actions column, click the **Invoke** icon to invoke the microagent method.

   The Invoke window is displayed with all the required parameters for the microagent method.
5. In the Invoke window, enter the details of the fields and click **Invoke**.
6. Click **Close** or, to define parameters for the method, click **Back**.

Example

For example, the following figure shows the sample result for invoking the `Self:getMicroAgentInfo` method without any supplied argument.

Figure 8: Sample Result of Invoking getMicroAgentInfo Method



Subscribing to a Microagent Method

Subscribe to a microagent method to view its results over time. Creating a subscription is useful when you want to test a range of return values before specifying boundaries in a rule or to identify general patterns of activity.

Prerequisites

Ensure that the return type is defined for the microagent method that you want to subscribe to.

Note You cannot subscribe to microagent methods that do not have a return type.

For more information on the microagent methods, either view the microagent method details on the **Microagents** tab or see *TIBCO Hawk Microagent Reference Guide*.

Procedure

1. In the Hawk Console, open the Hawk Agent page for which you want to subscribe to a microagent method.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Microagents** tab.

   All the microagents for the Hawk agent are displayed in the tab. For details, see Microagents Tab.
3. Select the microagent whose method you want to invoke.

   The right panel displays the microagent details and all its methods.
4. Under the Actions column, click the **Subscribe** icon to start a subscription of the microagent method.

   The Subscribe window is displayed with all the required parameters for the microagent method.
5. In the Subscribe window, enter the details of the fields, select the subscription interval, and click **Start Subscription**.
   The fields displayed on the window vary depending on the arguments required for the subscribed method. For reference information on all the microagent methods, either view the microagent method details on the **Microagents** tab or see *TIBCO Hawk Microagent Reference Guide*.

   The result of the method is displayed on the window with a new line added after each subscription interval. If required, you can also select the **Update same line** option to display every result after updating the same line.
6. Click **Minimize** icon to minimize the Subscription window while the results are published in the background.

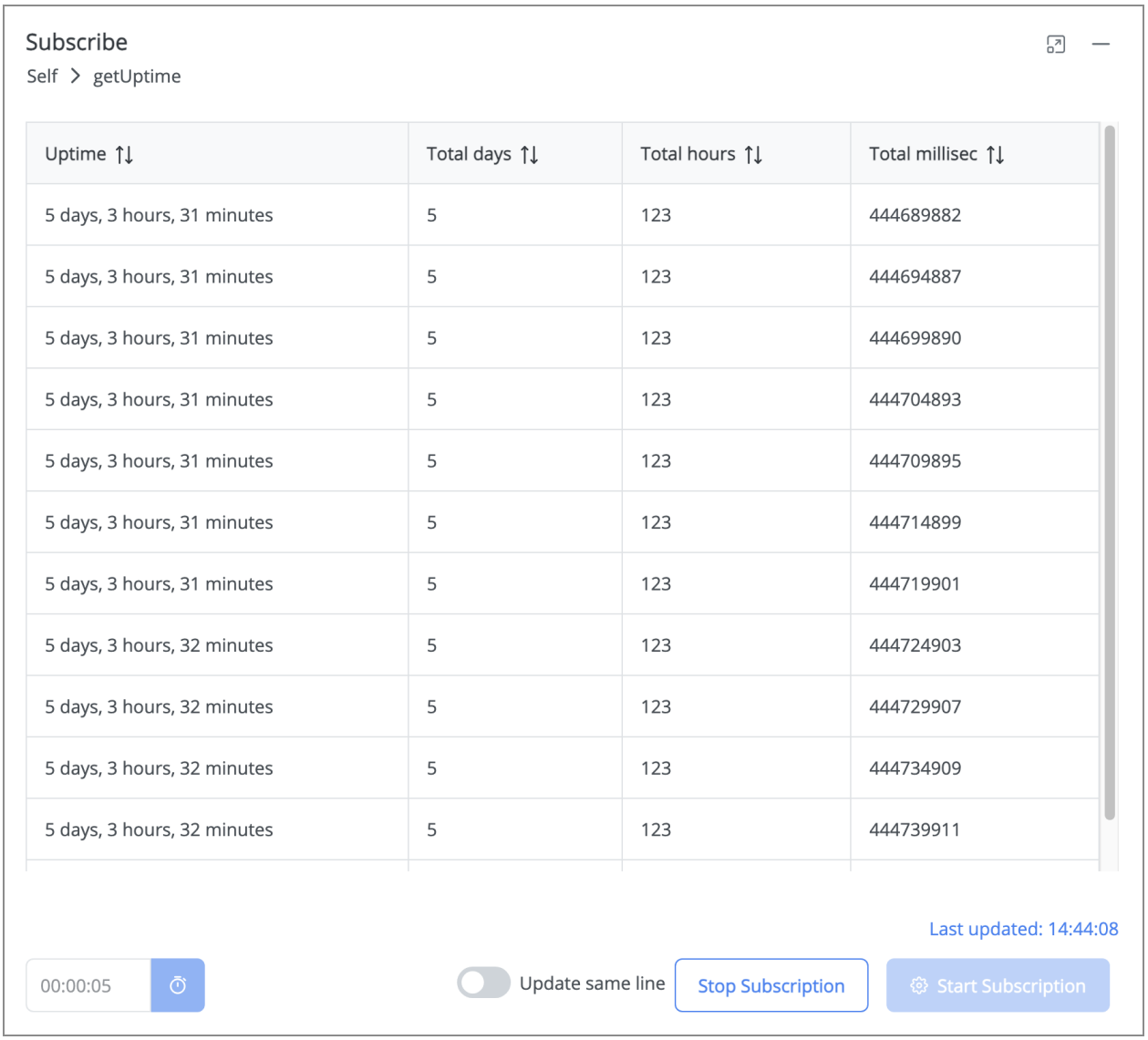
   After minimizing, the **Subscribe** icon for the method is changed to a gear icon. Click the gear icon to restore the Subscription window.

7. In the Subscription window, click **Stop Subscription** to stop receiving the subscription results. After stopping the subscription, click the **Close** icon to close the subscription window.

Example

For example, the following figure shows the sample subscription result for the `getUptime` method of the `Self` microagent with the subscription interval set to 5 seconds.

Figure 9: Sample Result for Subscription of getUptime Method



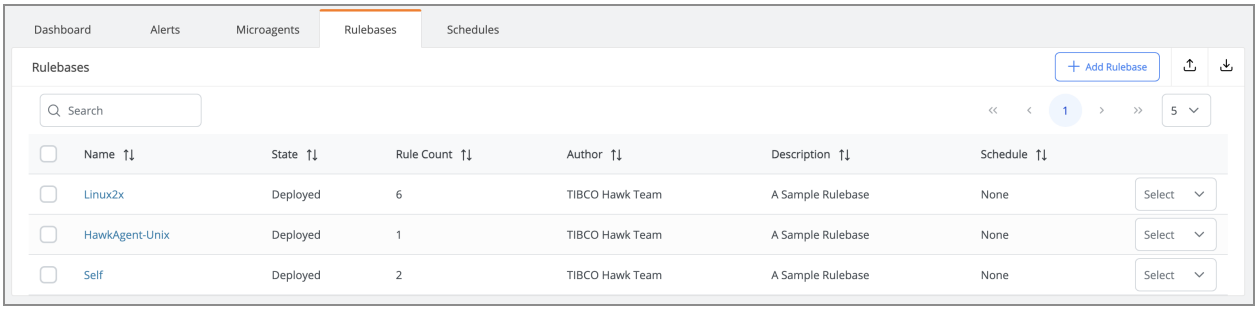
Rulebase Management

This chapter contains steps for the operations supported on the **Rulebases** tab.

Rulebases Tab

The **Rulebases** tab shows all the rulebases for the agent. You can select the number of rulebases displayed on a page by selecting 5, 10 or 20 from the records per page drop-down menu.

Figure 10: The Rulebases Page for the Hawk Agent



The following information is displayed for each rulebase:

- **Name** - the name of the Rulebase
- **State** - whether the rulebase is deployed or undeployed
- **Rule Count** - the number of rules in the Rulebase
- **Author** - name of person or entity that created the Rulebase
- **Description** - text used to describe the Rulebase
- **Schedule** - the name of the schedule that is used by the Rulebase
- **Actions** - you can take the following actions on the Rulebase:
  - get alerts
  - edit the rulebase
  - deploy or undeploy the rulebase on the agent
  - delete the rulebase
  - export the rulebase to a `.hrb` file
  - derive a new rulebase based on an existing one
  - deploy the rulebase to an agent other than the agent on which the rulebase exists
  - undeploy the rulebase from an agent on which it was previously deployed

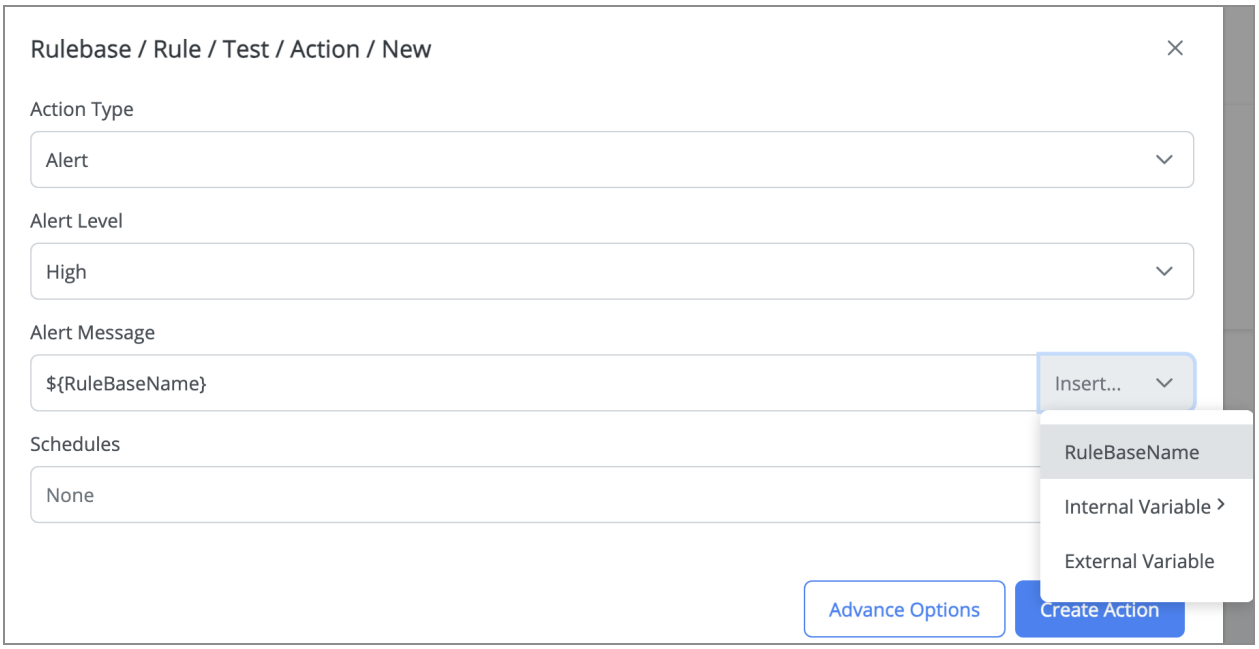
Apart from this information, can also perform two more operations on the **Rulebases** tab:

- **Import a rulebase** - Click the Import icon to import an existing rulebase (the `.hrb` file) to the Hawk agent. For details, see Importing a Rulebase to the Hawk Agent.
- **Create a new rulebase** - Click the Add Rulebase to create a new rulebase for the Hawk agent, see Adding a Rulebase to the Hawk Agent.

Rulebase Variables in Alert Messages

You can use rulebase internal variables while defining rulebase alert actions message, along with microagent specific variables in the alert message text. For example, in a rulebase with Self microagent as the data source, you can choose rulebase internal variables such as rulebase name, rule name, test name, and so on. You can also use Self microagent specific variables such as RuleBaseName, Internal Variable, External Variable in your alert message text. For details, see Variables in a Rulebase.

Figure 11: Variables Usage in Alert Messages



Drilling Down Rulebases

In the Rulebase tab, you can drill down the rulebase details to the action level. You can drill down the rulebase details in the following hierarchy:

Figure 12: Drilling Down Rulebases

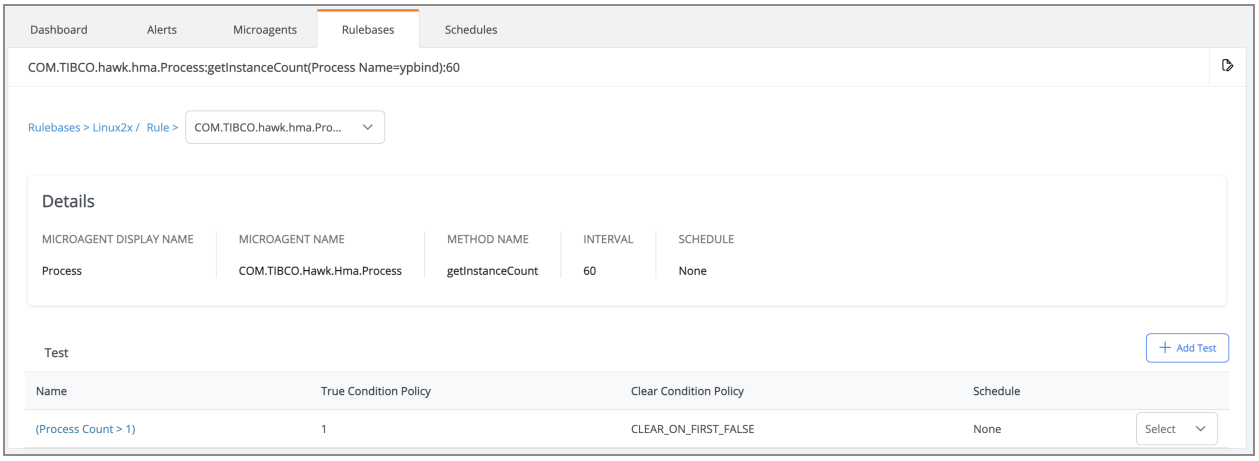
At each level, you can view the details of that entity and list of its subsequent entities. For example, when you click a rulebase name, the rulebase details are displayed and also the list of rules associated with it is displayed.

Also, at each level, you can perform some actions specific to that level. For example, on the **Rulebases** tab, click the **Add Rulebase** to add a new rulebase, when you drill down to the rulebase details page, you can click the **Add Rule** to add a new rule to the rulebase.

Rule Details Page

In the Rule details page, you can view all the details of a rule as well as you can add test conditions for the rule.

Figure 13: Rule Details Page



Details

- **Microagent Display Name** - The name of the microgent to be displayed.
- **Microagent Name** - The microagent whose methods can act as the data source for the rule.
- **Method Name** - The microagent method which acts as the data source for the rule.
- **Interval** - The time interval after which Hawk Console checks the rule.
- **Schedule** - The schedule applied to the rule. For details about schedule, see Schedule Management.
- **Tests** - List of all the tests, associated with the rule, and their details. For tests details, see Test Details Page.

Actions

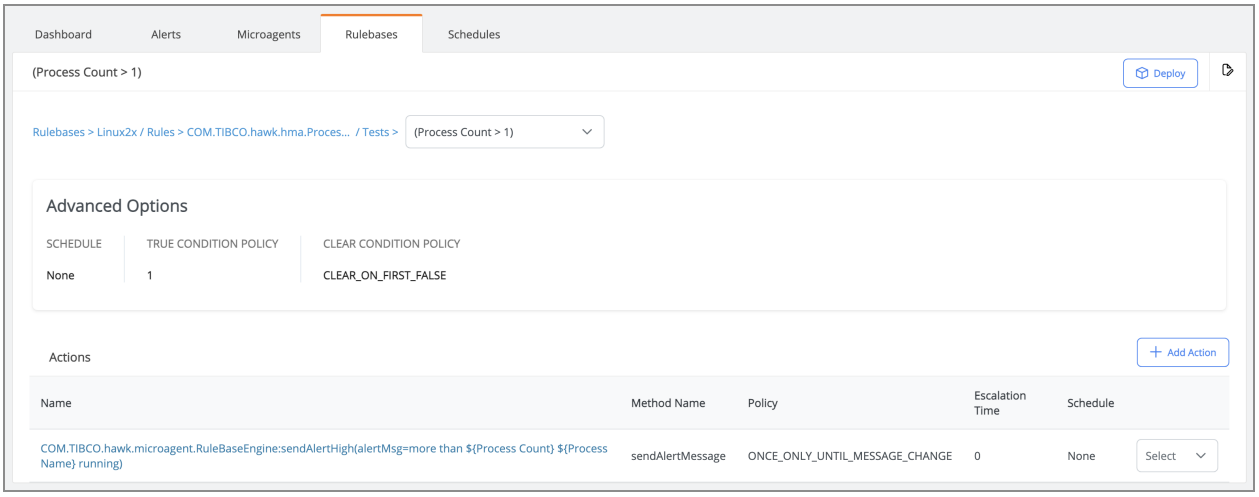
- Add an test condition - Click **Add Test** to add a new test condition to the rule. For details, see Creating a Test in the Rule.
- Edit the rule - Click the edit icon to edit the details of the rule.

- Edit a test condition - Select the **Edit** option under the Actions column for an test condition to edit it.
- Derive a test condition - Select the **Derive** option under the Actions column to duplicate the test.
- Delete a test condition - Select the **Delete** option under the Actions column for a test condition to delete it.

Test Details Page

In the Test details page, you can view details of the test condition and add an action for the test condition.

Figure 14: Test Details Page



Details

- **Schedule** - The schedule applied to the rule. For details about schedule, see Schedule Management.
- **True Condition Policy** - A counter which specifies after how many times, when the condition is true, the action is triggered.
- **Clear Condition** - The condition which when true triggers a clear action.
- **Actions** - List of all the actions, associated with the test condition, and their details.
  - Name

- Method Name
- Policy
- Escalation Time
- Schedule
- Actions

Click the action **Name** to view the Action details page, see Actions Details Page.

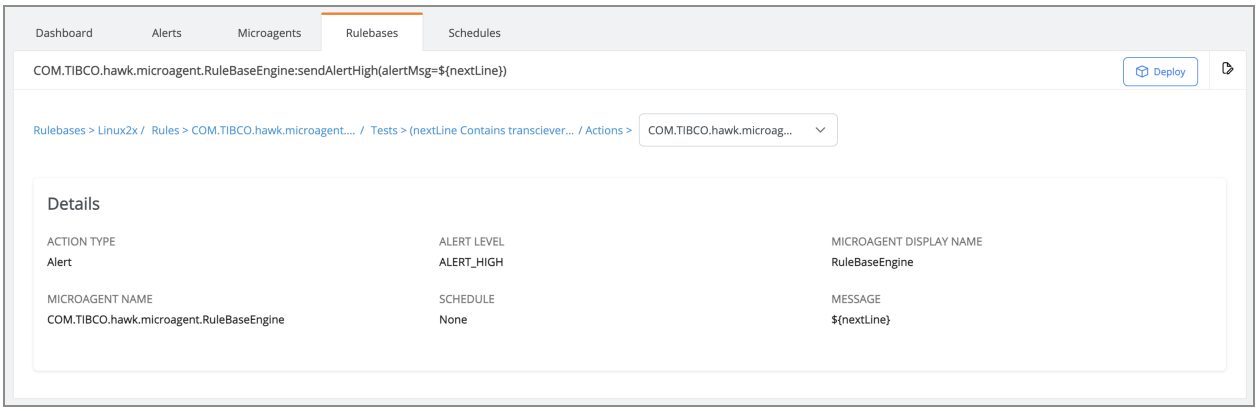
Actions

- Add an action - Click the **Add Action** to add a new action to be taken when the test condition is true. For details, see Creating an Action for a Test Condition.
- Edit the test condition - Click the edit icon to edit the details of the test condition.
- Deploy the rulebase - Click the **Deploy** to deploy the rulebase to the Hawk agent. For details, see Deploying a Rulebase to the Associated Hawk Agent.
- Edit an action - Select the **Edit** option under the Actions column for an action to edit it.
- Derive an action - Select the **Derive** option under the Actions column to duplicate the action.
- Delete an action - Select the **Delete** option under the Actions column for an action to delete it.

Actions Details Page

In the Action details page, you can view details of the action configured for the test condition.

Figure 15: Action Details Page



Details

- **Action type** - Type of the action configured. Based on the action type other fields are displayed.
- **Alert Level** - Severity of the alert.
- **Microagent Display Name** - The name of the microgent to be displayed.
- **Microagent Name** - The microagent associated with the rulebase.
- **Message** - Alert message to be displayed.

Actions

- Edit the action - Click the edit icon to edit the details of the test condition.
- Deploy the rulebase - Click the **Deploy** to deploy the rulebase to the Hawk agent. For details, see Deploying a Rulebase to the Associated Hawk Agent.

Adding a Rulebase to the Hawk Agent

A rulebase is a collection of rules. To add rules to any Hawk agent, you must create a rulebase first.

Procedure

1. In the Hawk Console, open the Hawk Agent page to which you want to add a rulebase.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Rulebases** tab.

   All the rulebases for the Hawk agent are displayed in the tab. For details, see Rulebases Tab.
3. Click the **Add Rulebase** icon to open the New Rulebase wizard.
4. In the New Rulebase wizard, enter the following details:
   - **Name** - A name of the new rulebase.
   - **Description** - A brief description about the rulebase.
   - **Schedules** - Select the schedule to associate with the rulebase. The rulebase is active only for the inclusion period defined in the selected schedule.
5. Click **Create Rulebase**.

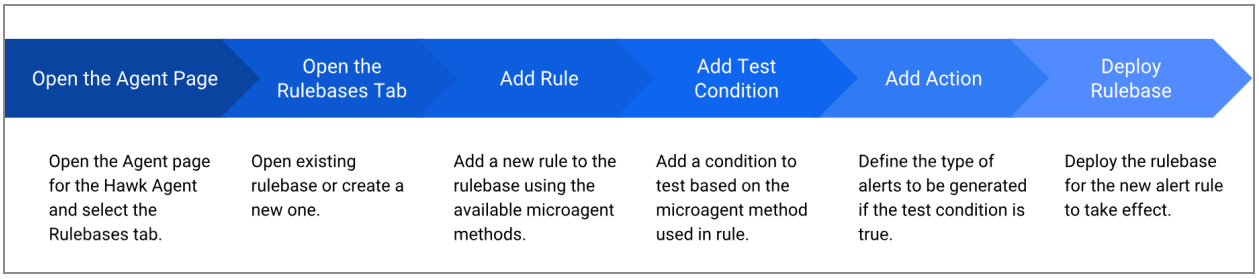
   The newly created Rulebase is listed on the **Rulebases** tab.

What to do Next

Add rules to the rulebase that you can apply for your monitoring requirement. For details, see Creating an Alert Rule for a Hawk Agent.

Creating an Alert Rule for a Hawk Agent

In the Hawk Console, you can define rules to generate alerts or emails based on predefined test condition. The test condition can be designed by using the rulebase and microagent variables.



Procedure

1. In the Hawk Console, open the Hawk Agent page for which you want to create the rule.
   For steps, see Viewing the Agent Details.
2. In the Agent's page, select the **Rulebases** tab.
   All the rulebases for the Hawk agent are displayed. For details, see Rulebases Tab.
3. Click on an existing rulebase name to which you want to add the new rule.

   Or, you can add a new rulebase to the agent and add a new rule to it, see Adding a Rulebase to the Hawk Agent.

   Details of the rulebase and list of all its rules are displayed on the **Rulebase** tab.
4. In the **Rules** section, click **Add Rule**. The New Rule wizard opens.
5. In the New Rule wizard, enter the value for the fields and click **Create and Add Test**. Some of the common fields are listed in the following table.

New Rule Wizard Common Fields

Fields	Description
Microagents	Select the microagent whose method you want to use for the rule.
Methods	Select the microagent method that you want to use in the rule. The list displays only those methods that are relevant to the microagent selected. Based on the microagent method selected, some more fields might be displayed on the wizard.
Interval	Enter the time interval after which the rule runs. The default value is 60 (seconds).
Schedules	Select the name of an existing schedule to apply to this rule. This is an optional field. By default, the rule is always active.

The New Test window opens to enter the details for the condition to test for the rule.

6. In the New Test window, create the test condition by using the existing fields and click **Create and Add Action**. For details of defining the test condition, see Creating a Test in the Rule.

   The New Action window opens to add an appropriate action for the rule if the test condition is true.

7. In the New Action window, select the action you want to perform and enter the details to relevant fields. The following actions are available:

   — Alert

   — Notification

   — Method

   — Email

   — Post-Condition

   For details, see Creating an Action for a Test Condition.

8. Click **Create Action** to create a new action for the test condition.
   The New Rule wizard closes and the action is created for the test condition created.

What to do Next

Deploy the rulebase to the domain for the new rule to take effect, see Deploying a Rulebase to the Associated Hawk Agent.

Exporting a Rulebase to a File

To add a rulebase to a Hawk agent that is similar to the one already defined in another Hawk agent, you can export the existing rulebase and import the same to the Hawk agent.

The rulebase is exported in a `.hrb` file. This exported file contains all the details of the rulebase and all its rules. You can also select multiple rulebases and export them in a `.zip` file.

Procedure

1. In the Hawk Console, open the Hawk Agent page from which you want to export the rulebase.
   For steps, see Viewing the Agent Details.
2. In the Agent details page, select the **Rulebases** tab.

   All the rulebases for the Hawk agent are displayed in the tab. For details, see Rulebases Tab.
3. On the **Rulebases** tab, export the rulebase by using either of the following ways:
   - From the rulebases list, under the **Actions** column, select the **Export** option for the rulebase that you want to export.
   - Click the rulebase name that you want to export. Now, in the rulebase details page, click the ⋮ icon and click **Export** from the menu. The Save As window opens to save the exported rulebase (`.hrb`) file.
   - To export multiple rulebases, select the check boxes next to rulebases which you want to export and click the export icon in the top left corner. The `.zip` is downloaded to the Downloads folder of your machine which contains exported rulebase (`.hrb`) files.
4. In the Save As window, browse to the location where you want to save the `.hrb` or `.zip` file and click **Save**.

Importing a Rulebase to the Hawk Agent

If you want to add a rulebase that is similar to the one already defined in another Hawk agent, you can import the rulebase from the other Hawk agent.

The rulebase is exported in a `.hrb` file. This exported file contains all the details of the rulebase and all its rules. You have to import the `.hrb` file and deploy (with or without modifications) to your Hawk agent for applying all the rules of the rulebase to the Hawk agent. You can also import multiple rulebases (.hrb files) in a `.zip` file.

Prerequisites

You must have the `.hrb` file that contains the exported rulebase.

For the procedure to generate this exported file, see Exporting a Rulebase to a File.

Procedure

1. In the Hawk Console, open the Hawk Agent page to which you want to import the rulebase.
   For steps, see Viewing the Agent Details.
2. In the Agent details page, select the **Rulebases** tab.

   All the rulebases for the Hawk agent are displayed on the tab. For details, see Rulebases Tab.
3. On the **Rulebases** tab, click the import icon in the top right corner.
   - To import single rulebase, select the rulebase (`.hrb`) file that you want to import.
   - To import multiple rulebases at the same time, select the `.zip` file that contains all the rulebase files that you want to import.
4. Click **Open**.

Result

If the import is successful, the imported rulebase is listed on the **Rulebases** tab.

What to do Next

If required, modify the rulebase rules and deploy the imported rulebase to the Hawk agent. For details, see Deploying a Rulebase to the Associated Hawk Agent.

Deploying a Rulebase to the Associated Hawk Agent

For the rules of a rulebase to be activated for the Hawk agent, deploy the rulebase to the Hawk agent.

Procedure

1. In the Hawk Console, open the Hawk Agent page to which you want to deploy the rulebase.
   For steps, see Viewing the Agent Details.

2. In the Agent page, select the **Rulebases** tab.

   All the rulebases for the Hawk agent are displayed in the tab. For details, see Rulebases Tab.

3. On the **Rulebases** tab, deploy the rulebase by using either of the following ways:

   — From the rulebases list, under the **Actions** column, select the **Deploy** option for the rulebase that you want to deploy.

   — Click the rulebase name that you want to deploy. Now, in the rulebase details page, click the **Deploy** icon.

   The deployment confirmation dialog box is displayed.

4. In the deployment confirmation dialog box, click **Yes**.

Result

The successful deployment message is displayed.

Deploying a Rulebase to Another Hawk Agent

If you want to activate the rules of a rulebase for any other Hawk agent added to the Hawk Console, you can do that by using the deploy-to option.

Procedure

1. In the Hawk Console, open the Hawk Agent page from which you want to deploy the rulebase to another Hawk agent.
   For steps, see Viewing the Agent Details.

2. In the Agent page, select the **Rulebases** tab.

   All the rulebases for the Hawk agent are displayed in the tab. For details, see Rulebases Tab.

3. On the **Rulebases** tab, deploy the rulebase to another Hawk agent by using either of the following ways:

   — From the rulebases list, under the **Actions** column, select the **Deploy To** option for the rulebase that you want to deploy to another Hawk agent.

— Click the rulebase name that you want to deploy. Now, in the rulebase details page. Click the ⋮ icon and click **Deploy To** from the menu.

4. In the Deploy To window, select the Hawk agents to which the rulebase must be deployed and click **Deploy**.

Result

A message indicating successful deployment is displayed.

Creating a Test in the Rule

In the Hawk Console, you can define test condition for the rules. The alerts are generated based on a predefined test condition. The test condition can be designed by using the rulebase and microagent variables.

Procedure

1. In the Hawk Console, open the Hawk Agent page to which you want to create a test condition.
   For steps, see Viewing the Agent Details.
2. In the Agent's page, select the **Rulebases** tab.
   All the rulebases for the Hawk agent are displayed. For details, see Rulebases Tab.
3. On the **Rulebases** tab, click the rulebase name which you want to edit.
   All the rules in the rulebase are listed. For details, see Rule Details Page.
4. Click the rule name to which you want to add the test condition.
   All the test conditions in the rule are listed. For details, see Test Details Page.
5. Under the Tests section, click **Add Test**.
6. In the New Test window, define a test condition by using the test builder.
   For details about the test condition builder elements, see Test Condition Builder Reference.
7. (Optional) Click **Advance Options** to add extra conditions to the test.
   For the list of Advance Options fields, see Test Condition Advance Options Fields.
8. (Optional) Click **Create and Add Action**.

The New Action window opens to add an appropriate action for the rule if the test condition is true. For details, see Creating an Action for a Test Condition.

9. Click **Create Test**.

   On successful creation of the test condition, the New Test window closes.

Result

The new test condition is now listed on the Rule details page.

What to do Next

Create a new action for the test condition. For details, see Creating an Action for a Test Condition.

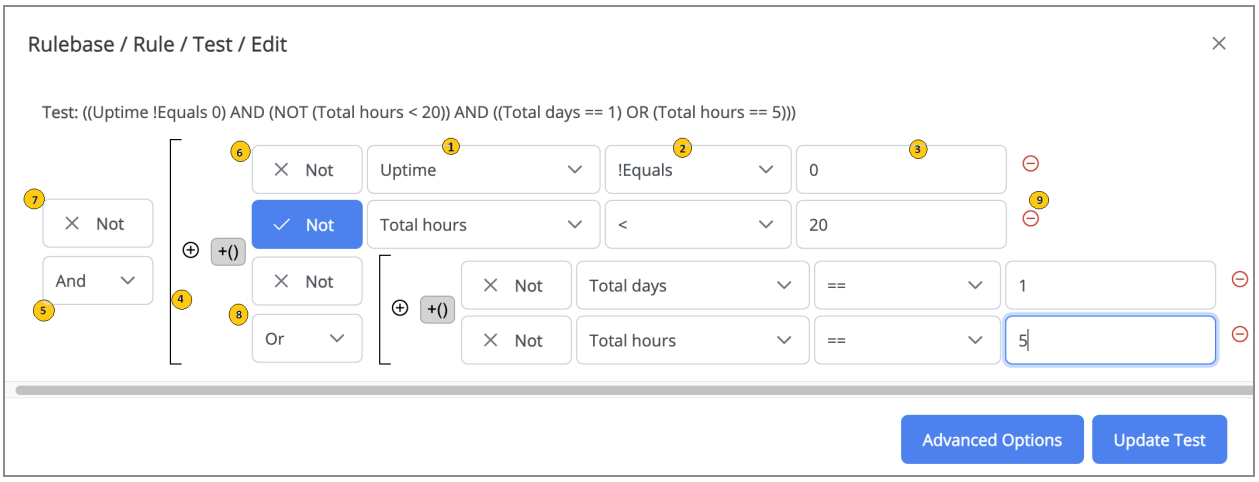
Test Condition Builder Reference

You can define a simple test condition by using just a test variable, a test operator, and a test value. If needed, you can also define a compound test condition by using multiple test expressions at multiple levels joined by logical operators.

Test Condition Builder Core Elements

The following figure shows a sample compound test condition and has numbers to mark different test elements. The following table lists the test elements marked in the figure that you can use to define the test condition.

Figure 16: Sample Test Condition with Element Markers



Test Condition Elements

Legend No.	Test Element	Description
1	Test variable	Select the test variable for your test expression. The drop-down lists all the result fields of the microagent method used in the parent rule. For example, the following variables are listed for the `Self:getUptime()` method: • `Uptime` • `Total days` • `Total hours` • `Total millisec`
2	Test operator	Select the test operator for your test expression. The drop-down lists all the valid test operators based on the data type of the test variable. For the list of operators displayed based on the data type, see Test Operators Reference.

Legend No.	Test Element	Description
3	Test value	Enter the value of the test variable that you want to check for the test condition. Provide the values according to the data type of the test variable. When a test variable, the test operator, and a test value are provided, a test expression is created. For example, `Uptime !Equals 0`
4	Add Expression	Click the **Add Expression** icon to add one more expression to the test condition at the same level. The expressions are joined by using the logical operator specified (`AND` or `OR`) For example, the following test condition joins two expressions by using the `AND` operator: `((Uptime !Equals 0) AND (NOT (Total hours < 20))`
5	Logical operator	Select the logical operator to join two expressions. The values are: `AND` and `OR`. You can use the **Add Expression** icon to add one more expression to the test condition. For example, the following test condition joins two expressions by using the `AND` operator: `((Uptime !Equals 0)` **`AND`** `(NOT (Total hours < 20))`
6	NOT operator for expression	Select this `NOT` operator for the expression if you want to negate the

Legend No.	Test Element	Description
		result of that single expression. For example, the following test condition has an expression whose result is negated by using the `NOT` operator: `((Uptime !Equals 0) AND (`**`NOT`**` (Total hours < 20))`
7	NOT operator for expressions set	Select this `NOT` operator for the set of expressions if you want to negate the result of that set of expressions. For example, the following is the test expression when the `NOT` operator is selected: `(`**`NOT`**` ((Uptime !Equals 0) AND (NOT (Total hours < 20)))`
8	Add sub-expression	Click to add a sub-expression, that is another set of test expression that is one level under (nested). For example, the following test condition has two expressions at the same level but another set of expression is nested: `((Uptime !Equals 0) AND (NOT (Total hours < 20)) AND ((Total days == 1) AND `**`(Total hours == 5))`**`)`
9	Remove Expression	Click the Remove Expression icon to remove the test expression from the test condition. **Note:** You must have at least one test expression to create a test condition.

Advance Options Fields

The following table lists the Advance Options fields displayed for the new test.

Test Condition Advance Options Fields

Fields	Description
True Count Threshold	Enter the number of true evaluation for the test condition after which the action is triggered. For example, to check for consistently high CPU usage and ignore any brief spikes, you can set the true test counter for the test to five. The action is triggered when the test expression (CPU use high) is true for five consecutive test evaluations. The default value is `1`.
Schedules	Select the schedule that you want to apply for the test. The drop-down lists all the schedules deployed on the Hawk agent. The drop-down also lists the negative of the schedules as well, which when selected means that the conditions are checked at times other than the schedule. For example, if the `Weekend` schedule defines the time interval for every Saturday and Sunday then the `!Weekend` schedule means the time interval other than every Saturday and Sunday. By default, the test is always active. For more details about schedules, see Schedule Management.
Clear Condition Policy	Select a clear condition for the test. The values are: • (Default)**`CLEAR_ON_FIRST_FALSE`** - After the test becomes `true`, the test is cleared when the first time the test changes from `true` to `false`. This is the default behavior for a test with a synchronous data source. • **`CLEAR_TIMER`** - Specify a wait interval in seconds. After the test becomes `true` it remains `true`

Fields	Description
	until this interval has passed without an additional `true` test. This is the default behavior for a test with an asynchronous data source, and the default wait interval is 900 seconds (15 minutes). • **CLEAR_TEST** - Specify an extra test expression for clearing the test. After the test becomes `true`, it becomes `false` only when the clear test expression becomes `true`. The clear test uses the microagent method result fields of the data source as input. For example, a test monitors each line in a log file for the string `Feed Line Down`. If this string is found, an alert is generated. A clear test for the original test checks for a log file line that signals the condition is resolved, such as `Feed Line Up`. When the clear test evaluates to `true`, the original alert message is cleared.

Test Operators Reference

The following tables describe the test operators you can apply to numeric, text and Boolean test variables while building test expressions.

Test Operators for Numeric Method Results

Operator	Description
== ! =	The test expression is true when the value of the test parameter is (equal to, not equal to) the operator value.
< <= > >=	The test expression is true when the value of the test parameter is (less than, less than or equal to, greater than, greater than or equal to) the operator value.

Operator	Description
InRange	The test expression is true when the value of the test parameter is between two extremes of a range. Endpoints are included.
OutOfRange	The test expression is true when the value of the test parameter is outside the range of two operator values. Endpoints are excluded.
Increase	The test expression is true when the value of the test parameter has increased at least by the operator value between two successive test evaluations. For example, the amount of disk space in use has increased by more than 10 MB in a sample period.
%Increase	The test expression is true when the value of the test parameter increases by at least the operator value as a percentage (the increase divided by the previous value times 100) between two successive test evaluations. For example, the amount of disk space in use has increased by more than 10 percent in a sample period.
Decrease	The test expression is true when the value of the test parameter decreases by at least the operator value between two successive tests.
%Decrease	The test expression is true when the value of the test parameter decreases by at least the operator value as a percentage (the decrease divided by the previous value times 100) between two successive test evaluations.
NetChange	The test expression is true when the value of the test parameter increases or decreases by at least the operator value between two

Operator	Description
	successive test evaluations. The operator value specifies the absolute value of the increase or decrease.
%NetChange	The test expression is true when the value of the test parameter increases or decreases by at least the operator value as a percentage (the increase or decrease divided by the previous value times 100) between two successive test evaluations. The operator value specifies the absolute value of the percentage increase or decrease.
postedConditionExists	The test expression is true when the specified posted condition exists. This operator displays when a posted condition is selected in the parameter list. For more information, see Creating and Using Posted Conditions in Hawk Console
!postedConditionExists	The test expression is true when the specified posted condition does not exist. This operator displays when a posted condition is selected in the parameter list. For more information, see Creating and Using Posted Conditions in Hawk Console

Test Operators for Text String Results

Operator	Description
Equals	The test expression is true when the value of the test parameter exactly matches the operator value. This is a case-sensitive match.
!Equals	The test expression is true when the value of the test parameter does not exactly match the operator value. This is a case-sensitive match.
StartsWith	The test expression is true when the value of the test parameter starts with the operator value. This is a case-sensitive match.
Contains	The test expression is true when the value of the test parameter contains the operator value. This is a case-sensitive match.
!Contains	The test expression is true when the value of the test parameter does not contain the operator value. This is a case-sensitive match.
Perl5 PatternMatch	The test expression is true when a match is found by using a regular expression as an operator value.

Test Operators for Boolean Results

Operator	Description
isTrue	The test expression is true when the value of the test parameter is true.
isFalse	The test expression is true when the value of the test parameter is false.

Creating an Action for a Test Condition

In the Hawk Console, you can define an action to take when a test condition for a rule of the Hawk agent becomes true.

Procedure

1. In the Hawk Console, open the Hawk Agent page to which you want to add an action.
   For steps, see Viewing the Agent Details.
2. In the Agent's page, select the **Rulebases** tab.
   All the rulebases for the Hawk agent are displayed. For details, see Rulebases Tab.
3. On the **Rulebases** tab, click the rulebase name which you want to edit.
   All the rules in the rulebase are listed. For details, see Rule Details Page.
4. Click the rule name for which you want to add the action.
   All the test conditions in the rule are listed. For details, see Test Details Page.
5. Click the test condition name to which you want to add action.
   All the actions in the test are listed. For details, see Actions Details Page.
6. Under the Actions section, click **Add Action**.
   The New Action window opens.
7. In the New Action window, select the action you want to perform and enter the details to relevant fields. The following table lists all the available actions.

Action Types in the Action Editor

Action Type	Result	Usage Notes
Alert (default)	Sends an alert message to Hawk Console	In the Message field, type the alert text that you want to display in the **Alerts** tab. Specify an alert level: high (default), medium or low.
Notification	Sends a	In the Notification field, type the

Action Type	Result	Usage Notes
	notification message to Hawk Console	notification text that you want to display in the Hawk Console **Alerts** tab.
Method	Invokes a microagent method on the TIBCO Hawk agent machine	Select a microagent and method from the Microagent Info panel. Specify any required arguments.
Email	Sends an email message.	Specify a message recipient as *recipient@domain.com*. Specify a subject string, an SMTP mail server for sending the message, and message text.
Post Condition	Creates a posted condition to use in another rule in the same rulebase	In the Posted Condition field, type a label for the posted condition. For more information, see Creating and Using Posted Conditions in Hawk Console.

8. Select the **Schedule** that you want to apply to the action. For details about the schedules, see Schedule Management.
9. (Optional) Click **Advance Options** to add flexibility in timing when an action is performed.

   The following table lists the Advance Options fields displayed for the new test.

New Rule Wizard Common Fields

Fields	Description
Escalation Period	To escalate a problem, type a wait interval in seconds in the Escalation Period field. The action is not performed the first time the associated test is `true`, but instead starts an internal

Fields	Description
	timer. When the action is triggered by a test transition from `false` to `true`, the timer is started. If the associated test remains `true` for another evaluation after the specified interval, then the action is performed. You can use an escalation period to respond to continuing or deteriorating conditions.
Action Policy	Specify how actions are performed. The values are: • **`ALWAYS`** - The action is performed each time the associated test is evaluated as `true`, even if the test was `true` in the last evaluation. • **`COUNT_ON_INTERVAL`** - Specify the maximum number of times the action can be performed in the **Max Count** field, no matter how long the associated test continues to remain `true`. If the test becomes `false`, the counter is reset. Specify the number of seconds to wait between actions, in the **Interval** field, as long as the test is `true`. The related action can only be triggered at a test evaluation, so the actual interval between actions might be longer than the specified **Interval**. This option is useful when the action runs a paging script. A single page might be lost, but paging at each test evaluation (such as once per minute) is too often. With this option, you can send the page every five minutes until it is likely to be received. • **`ONCE_ONLY_UNTIL_MESSAGE_CHANGE`** - The first time this action is triggered by a test, the action is performed. On subsequent `true` evaluations, the action is performed only until there is a change in the alert message. This option is applicable only if the associated action creates an alert message with some

Fields	Description
	string variables. The action is performed each time the value of the string variable changes resulting in a change in the alert message. Substituting variables in alert messages overrules this feature. • **ONCE_ONLY** - The first time this action is triggered by a test, the action is performed. On subsequent `true` evaluations, the action is not performed. The action is not performed again until the test becomes `false` and then `true` again. This is the default behavior for all actions. Substitution of variables in alert messages has no impact on this feature.
Max Count	Use this field when the **Action Policy** is `COUNT_ON_INTERVAL`. Specify the maximum number of times the action can be performed, no matter how long the associated test continues to remain `true`. If the test becomes `false`, the counter is reset.
Interval	Use this field when the **Action Policy** is `COUNT_ON_INTERVAL`. Specify the number of seconds to wait between actions, as long as the test is `true`.

10. Click **Create Action**.
    The New Action window closes and the action is created for the test condition.

What to do Next

Deploy the rulebase to the domain for the new action to take effect, see Deploying a Rulebase to the Associated Hawk Agent.

Variables in a Rulebase

You can reference several kinds of variables in a rulebase. By referencing variables, the rulebase can adapt to changes on multiple machines. For example, not all machines store log files or temporary files in the same directory. Also, rulebases used on multiple platforms have subtle differences in how path names are expressed. You can use variables rather than specifying this information manually.

When an action contains variable substitution, a new alert is generated each time the test is true and the value of the variable changes. Variable substitution is most useful for values that are slowly changing, very important or both.

Note	Variable substitution affects the performance of rulebase processing. Therefore, you must reference a variable only when it provides a clear benefit.

Supported Variables Types

The following types of variables are supported in a TIBCO Hawk rulebase:

- External, such as user-defined variables
- Internal, such as the name of a test in a rule
- Data source, such as a microagent method result field (Data source variables can be referenced in actions only)

Referencing these variables outside of a rulebase is not supported.

External Variables

External variables are variables defined by a user on the machine where the TIBCO Hawk agent runs.

First, you define the variable values in a properties file on the local machine. Then you specify the variable file by using the `-variable` option when starting Hawk agent. Then you can reference the external variable in a rulebase. For more information on agent startup parameters, see *TIBCO Hawk Installation Configuration and Administration Guide*.

After variable values are defined and the properties file is specified to the agent, you can reference external variables in a rulebase by using the following syntax:

```
${External.<variable-name>}
```

where *variable-name* is the name of an environment variable defined in the properties file. The file uses a standard Java property file format, with one line per variable defined. Each entry is a name-value pair in the following format:

```
<variable-name>=<value>
```

You can reference external variables in string arguments of actions and in data source method string arguments. For example, the Hawk Services sample rulebase provides a rule for sending a high-level alert. Without variable substitution, the text of the alert is generic. With variable substitution, the alert includes information specific to the generating condition.

Restrictions

In Microsoft Windows, the following restrictions apply to external variables:

- The variables file to support External variables in the agent must conform to the Java properties file format.
- Variables and variable names cannot include spaces or any of the following characters: equals sign (=), period (.), or forward slash(\).
- Any special characters must be escaped to be evaluated properly.

On UNIX systems, the `env` command outputs environment values in the correct format.

Internal Variables

Internal variables refer to elements of the current rulebase. This type of variable is defined internally by the TIBCO Hawk agent and requires no properties file. Values are assigned to variables when the rule is processed.

Like external variables, internal variables can be referenced in string arguments of methods used as a rule's data source or in string arguments of actions. You can manually type internal variable syntax in the string argument of a method, or, for action arguments, TIBCO Hawk Console provides a dropdown list of internal variables.

Manually entering variables

To manually enter internal variables, specify the variable by using the following syntax:

```
${Internal.<variable>}
```

where <*variable*> can be `Agent Name`, `Agent IP Address`, or so on.

The variables are substituted with the appropriate value before the command runs. For example, the command `Telnet ${Internal.Agent Name}` runs as `Telnet kimyou` if the command runs for agent `kimyou` from the Agent page.

Data Source Variables

Data source variables are Hawk variables that represent the return fields of a microagent method. The method must be used as the data source of the current rule. You can reference data source variables only in actions.

For example, the Hawk Services sample rulebase provides a rule for monitoring an event log and sending a high-level alert message when an error is written to the log. The Alert action type used in this rule allows you to specify a text string for the alert message. In this example, the text string is:

```
Hawk Agent : ${nextLine}
```

where ${nextLine} is the text of the error message in the log. nextLine is a label for values returned by the microagent method that extracts information from the log file. Without variable substitution, you can include only static text, such as `High level alert` or a similar string, in the alert message.

How Variable Substitution Affects Actions

Action text strings can include variable references, where you include pertinent information from the data source in the alert text.

For example, the alert text:

```
Disk space on ${Instance} is at ${% Free Space}%
```

might display as:

```
Disk space on C: is at 10.2%
```

when generated. Or, if you call a script named `ClearTempFiles.exe` in an action whose data source provides information on disk partitions, you can specify the following command syntax:

```
ClearTempFiles.exe ${Instance}
```

and the agent inserts the name of the logical drive into the command line.

Variable substitution can cause actions to be taken more than once. If an action raises an alert with a variable reference, a new alert is generated at each test evaluation when the text message is different until the alert is cleared, even if the action that raises the alert was configured to take place only once.

Creating and Using Posted Conditions in Hawk Console

You can use posted condition to test for conditions in more than one managed object. A posted condition is an internal status message, similar to an alert message. Posted conditions are the result of actions in a rule and can pass status information to other rules in the same rulebase. Each rule uses only a single data source for input, so the posted condition serves as a link between rules with different data sources. For more information about posted conditions, see *TIBCO Hawk Concepts Guide.*

Procedure

1. When creating an action for a test condition, select **Post-Condition** as an action type. For steps, see Creating an Action for a Test Condition. You can use this post condition in another rule in the same rulebase.
2. To use post condition in another rule, in the test condition builder, click the **Add Expression** icon and, from the list, select the post condition that you have already created. You can apply `postedConditionExists, !postedConditionExists` and other numeric operators while building test expression. For details about the test condition builder elements, see Test Condition Builder Reference.

You can create and use multiple post conditions.

Schedule Management

This chapter contains simple examples that demonstrate the operations supported on the Schedules tab.

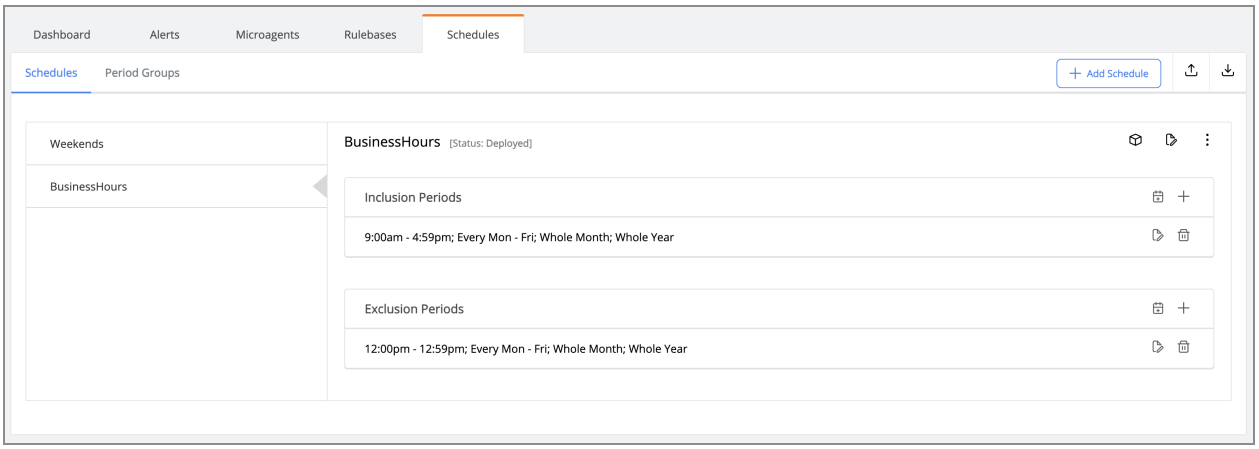
Schedules Tab

A schedule is a configuration object that defines when a rulebase, rule, test, or action is active. The schedule tab enables you to define a schedule and deploy the schedule.

For more details about schedules, see *TIBCO Hawk Concepts Guide*.

The **Schedules** tab lists the schedules in the left pane. Select the schedule to view its inclusion and exclusion period.

Figure 17: The Schedules Page for the Hawk Agent



Actions

The following actions are available on the Schedules tab for schedules:

- **Add new schedule** - Click **Add Schedule** to create a new schedule for the Hawk agent. For details, see Adding a Schedule.
- **Export schedules** - Use this option if want to create same schedules in another Hawk agent. You can use the exported schedule (.hsf) file to import these schedules to another Hawk agent and this saves you time to recreate the same schedules. For details, see Exporting a Schedule.
- **Import schedules** - Use this option if you have some exported schedules from another Hawk agent which you want to use in your Hawk agent. For details, see Importing a Schedule.

The following actions are available for each schedule:

- **Deploy schedule** - Click the deploy icon to deploy the schedule to the Hawk agent. After deployment, the schedule can be applied to the rulebases and rules for the Hawk agent. For details, see Deploying a Schedule to the Associated Hawk Agent.
- **Deploy schedule to another agent** - Click the deploy-to icon to deploy the schedule to another Hawk agent registered in the same Hawk Console. After deployment, the schedule can be applied to the rulebases and rules for the Hawk agent to which the schedule is deployed. For details, see Deploying a Schedule to Another Hawk Agent.

- **Delete schedule** - Click the ⋮ icon and click **Delete** from the menu. For details, see Deleting a Schedule.
- **Add inclusion period** - Click the plus + icon on the inclusion period, for the selected schedule, to specify the time period when you would like the system to apply the rule or rulebases depending on whether the conditions are met. You can define the following parameters in the inclusion period of a schedule:
  - Time of the day
  - Day of the month
  - Week day of the month
  - Month of the year

  For details, see Adding Inclusion Period to a Schedule.
- **Add exclusion period** - Click the plus + icon on the exclusion period for the selected schedule to specify the time period when you would like the system to ignore the rule or rulebases. For details, see Adding Exclusion Period to a Schedule.

Adding a Schedule

A schedule is a configuration object that defines when a rulebase, rule, test, or action is active. The Schedules tab enables you to define a schedule and deploy the schedule. Then you can send the schedule to one or more Hawk agents, and apply the schedule to rulebase objects.

Procedure

1. In the Hawk Console, open the Hawk Agent page for which you want to create the schedule.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Schedules** tab.

   All the schedules for the Hawk agent are displayed in the left panel of the tab. For details, see Schedules Tab.
3. In the Schedules tab, click Add Schedule.

The Add Schedule window opens to specify schedule details.

4. In the Add Schedule window, enter the new **Schedule Name** and select the **Time Zone** of the schedule.
5. Click **Save**.

Result

The new schedule with the specified **Schedule Name** is listed in the left panel.

What to do Next

Define the inclusion period of the schedule. For details, see Adding Inclusion Period to a Schedule.

Adding Inclusion Period to a Schedule

You can define a period when you want the system to apply the rulebases and rules whenever the conditions are met.

Procedure

1. In the Hawk Console, open the Hawk Agent page for which you want to add the inclusion period of a schedule.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Schedules** tab.

   All the schedules for the Hawk agent are displayed in the left panel of the tab. For details, see Schedules Tab.
3. In the **Schedules** tab, select the schedule for which you want to add the inclusion period.

   The list of inclusion periods and exclusion periods are displayed in the right panel.
4. On the left panel, click the **Add** icon for the Inclusion Periods.

   The Period Details window opens to define a new period.
5. In the Period Details window, define the following parameters in the inclusion period of a schedule:

- **Time of Day** - Select the starting and ending time interval for the period. If you want to specify multiple time intervals for the schedule, you must add multiple Inclusion periods.
- **Day of Month** - Select the dates for the schedule to be active. Click **Select All** to select all days of the month.
- **Week Day of Month** - Select the days of the week and weeks in the month for the period.
- **Month of Year** - Select the month of the year for the period. Click **Select All** to select all months of the year.

The Week Day of Month and Day of Month selections must overlap in order for a day to be selected.

6. Click **Save**.

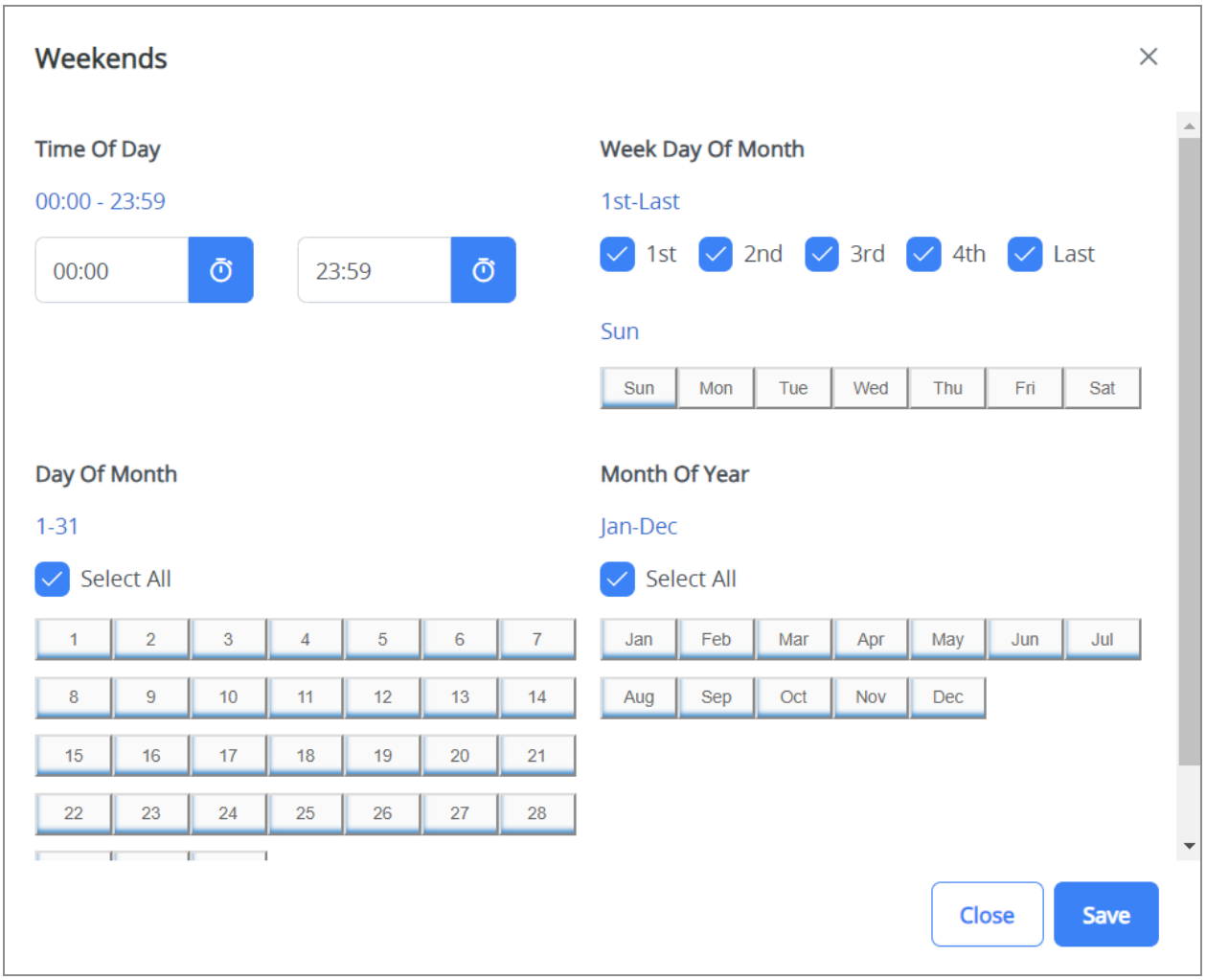
Result

The new inclusion period is listed under the **Inclusion Periods** list for the schedule.

Example

For example, the following figure shows the selection for the inclusion period of a *Weekend* schedule, where the applied rules and rulebases are active on every Sunday for 24 hours.

Figure 18: Weekend Schedule Inclusion Period



What to do Next

- (Optional)If you want to define a period when you want the system to ignore the rulebases and rules, add an exclusion period for the schedule. For details, see Adding Exclusion Period to a Schedule.
- Deploy the schedule to the Hawk agent for applying it to all rules and rulebases of the Hawk agent. For details, see Deploying a Schedule to the Associated Hawk Agent.

Adding Exclusion Period to a Schedule

You can define a period when you want the system to ignore the rulebases and rules.

Procedure

1. In the Hawk Console, open the Hawk Agent page for which you want to add the exclusion period of a schedule.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Schedules** tab.

   All the schedules for the Hawk agent are displayed in the left panel of the tab. For details, see Schedules Tab.
3. In the **Schedules** tab, select the Schedule for which you want to add the exclusion period.

   The list of inclusion periods and exclusion periods are displayed in the right panel.
4. On the right panel, click the **Add** icon for the Exclusion Periods.

   The Period Details window opens to define a new period.
5. In the Period Details window, define the following parameters in the exclusion period of a schedule:
   - **Time of Day** - Select the starting and ending time interval for the period. If you want to specify multiple time intervals for the schedule, you must add multiple Exclusion periods.
   - **Day of Month** - Select the dates for the schedule to be active. Click **Select All** to select all days of the month.
   - **Week Day of Month** - Select the days of the week and weeks in the month for the period.
   - **Month of Year** -Select the month of the year for the period. Click **Select All** to select all months of the year.

   The **Week Day of Month** and **Day of Month** selections must overlap in order for a day to be selected.
6. Click **Save**.

Result

The new exclusion period is listed under the **Exclusion Periods** list for the schedule.

What to do Next

- If you want to define a period when you want the system to apply the rulebases and rules whenever conditions are met, add an inclusion period for the schedule. For details, see Adding Inclusion Period to a Schedule.
- Deploy the schedule to the Hawk agent for applying it to all rules and rulebases of the Hawk agent. For details, see Deploying a Schedule to the Associated Hawk Agent.

Editing a Schedule

If needed, you can edit a schedule and redeploy it to a Hawk agent. You cannot modify the name of a schedule but you add or edit the inclusion and exclusion periods.

Procedure

1. In the Hawk Console, open the Hawk Agent page for which you want to edit the schedule.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Schedules** tab.

   All the schedules for the Hawk agent are displayed in the left pane of the tab. For details, see Schedules Tab.
3. In the **Schedules** tab, select the Schedule which you want to edit.

   The list of inclusion periods and exclusion periods are displayed in the right panel.
4. On the right panel, you can perform either of the following operations to edit the schedule:
   - Click the **Add** icon for the Inclusion Periods to add a new inclusion period, see Adding Inclusion Period to a Schedule.
   - Click the **Edit** icon for the inclusion period to edit the period details, see In the Period Details window, define the following parameters in the inclusion period of a schedule: and Click Save. in Adding Inclusion Period to a Schedule.

- Click the **Delete** icon for the inclusion period to delete that inclusion period.
- Click the **Add** icon for the Exclusion Periods to add a new exclusion period, see Adding Exclusion Period to a Schedule.
- Click the **Edit** icon for the exclusion period to edit the period details, see In the Period Details window, define the following parameters in the exclusion period of a schedule: and Click Save. in Adding Exclusion Period to a Schedule.
- Click the **Delete** icon for the exclusion period to delete that exclusion period.

Result

The new or updated inclusion and exclusion periods are listed for the schedule under the **Schedules** tab.

What to do Next

Deploy the updated schedule to the Hawk agent for applying it to all rules and rulebases of the Hawk agent. For details, see Deploying a Schedule to the Associated Hawk Agent.

Exporting a Schedule

If needed, you can also apply the same schedule that you defined for a Hawk agent to another Hawk agent. You can export the schedules from a Hawk agent to another Hawk agent.

Procedure

1. In the Hawk Console, open the Hawk Agent page from which you want to export the schedule.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Schedules** tab.

   All the schedules for the Hawk agent are displayed in the left pane of the tab. For details, see Schedules Tab.
3. In the Schedules tab, click the **Export Schedule** icon.
4. In the Save As window, browse to the location where you want to save the schedules file (`.hsf`), enter a name for the file, and click **Save**.

Result

The schedules file (`.hsf`) is saved in the location specified.

What to do Next

You might want to import the exported schedules file (`.hsf`) to another Hawk agent registered in another Hawk Console. For details, see Importing a Schedule.

Importing a Schedule

If needed, you can also apply the same schedule that was defined for another Hawk agent to your Hawk agent. You can import the schedules, exported from another Hawk agent, to your Hawk agent.

Procedure

1. In the Hawk Console, open the Hawk Agent page to which you want to import the schedule.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Schedules** tab.

   All the schedules for the Hawk agent are displayed in the left panel of the tab. For details, see Schedules Tab.
3. In **Schedules** tab, click the **Import Schedule** icon.

   The Open window opens to select the schedules file (`.hsf`).
4. In the Open window, browse to the location of the schedules file (`.hsf`), select the schedules file (`.hsf`), and click **Open**.

Result

The schedules from the schedules file (`.hsf`) are listed in the Schedules tab.

What to do Next

Deploy the schedule to the Hawk agent for applying it to all rules and rulebases of the Hawk agent. For details, see Deploying a Schedule to the Associated Hawk Agent.

Deploying a Schedule to the Associated Hawk Agent

For applying the schedules to your Hawk agent, you must first deploy them on the Hawk agent.

Procedure

1. In the Hawk Console, open the Hawk Agent page to which you want to deploy the schedule.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Schedules** tab.

   All the schedules for the Hawk agent are displayed in the left panel of the tab. For details, see Schedules Tab.
3. In the **Schedules** tab, select the schedule that you want to deploy.

   The list of inclusion and exclusion periods for the schedule is displayed in the right panel.
4. Click the **Deploy Schedule** icon for the schedule.

   A Confirmation dialog box is displayed.
5. In the Confirmation dialog box, click **Yes** to deploy the schedule.

Result

After successful deployment, the success message dialog box is displayed. Click **Ok** to close the success message dialog box.

Deploying a Schedule to Another Hawk Agent

To apply the schedules to another Hawk agent registered on Hawk Console, you must first deploy them on that Hawk agent.

Procedure

1. In the Hawk Console, open the Hawk Agent page which has the schedule you want to deploy.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Schedules** tab.

   All the schedules for the Hawk agent are displayed in the left panel of the tab. For details, see Schedules Tab.
3. In the **Schedules** tab, select the schedule that you want to deploy.

   The list of inclusion and exclusion periods for the schedule is displayed in the right panel.
4. Click the ⋮ icon and click **Deploy To** option from the menu, for the schedule. The Deploy To window is displayed to select the Hawk agent.
5. In the Deploy to window, select Hawk agents to which you want to deploy the schedule and click **Yes**.

Result

After successful deployment, the success message dialog box is displayed. Click **Ok** to close the success message dialog box.

Deleting a Schedule

If you don’t require a schedule for the Hawk agent, you can delete the schedule from the Hawk Console.

Procedure

1. In the Hawk Console, open the Hawk Agent page from which you want to delete the schedule.
   For steps, see Viewing the Agent Details.
2. In the Agent page, select the **Schedules** tab.

   All the schedules for the Hawk agent are displayed in the left panel of the tab. For details, see Schedules Tab.

3. In the **Schedules** tab, select the schedule that you want to delete.

   The list of inclusion and exclusion periods for the schedule is displayed in the right panel.

4. Click the ⋮ icon and click **Delete** from the menu, for the schedule. A Confirmation dialog box is displayed.

5. In the Confirmation dialog box, click **Yes** to delete the schedule.

   After successful deletion, the success message dialog box is displayed. Click **Ok** to close the success message dialog box.

Result

The deleted schedule is also deleted from the schedules list under the **Schedules** tab.

Rulebase Repository Management

This chapter contains information about the rulebase repository that stores configuration objects. The configuration objects include rulebases, schedules, and rulebase map.

Overview

The Hawk Console contains a rulebase repository that stores configuration objects and then distributes and deploys them to Hawk agents. The configuration objects include rulebases, schedules, and rulebase map. You can create new objects or update existing objects in the repository. Hawk Console deploys the configuration objects from the repository to selected Hawk agents when they start.

Rulebase Mapping

A rulebase mapping defines a mapping between rulebases and Hawk agents. The Hawk Console deploys the mapped rulebases to the Hawk agent during start. The mapping can be between a rulebase and Hawk agent, or between a rulebase and a group of Hawk agents. You can create a rulebase mapping by using the Hawk Console.

For details about creating a rulebase mapping, seeCreating Rulebase Mapping.

Agent Groups

The Hawk agents that have similar rulebase needs are grouped together in an agent group. The agent groups are of two types: system-defined and user-defined.

System-defined groups

Hawk automatically creates the following agent groups:

- Operating system group — Hawk groups Hawk agents based on their operating system. The name of agent groups starts with a ++ symbol followed by the name of the operating system.

  For example, all the Hawk agent running on the Solaris operating system are part of the `++Solaris` group.

- All group — Hawk groups all registered Hawk agents into one group. The name of the agent group is ++.

User-defined groups

You can group any Hawk agent into a group. The name of the group starts with the + symbol.

For details about creating an agent group, see Creating Agent Groups.

Rulebases and Schedules

In the rulebase repository, rulebase and schedule in a rulebase repository work in the same way as they work in Hawk agents.

You can also use existing rulebases and schedules from Hawk agents and store them in a rulebase repository. For details, seeMigrating Rulebases and Schedules from Hawk Agent to Rulebase Repository.

Also, for details about the effect of actions performed on rulebases and schedules in the rulebase repository, see Actions on Rulebase Repository Configuration Objects.

Rulebase Repository Configuration

You must configure the repository in the Hawk Console by using the `hawk_console_repository_path` environment variable. It specifies the path of the repository on the Hawk Console machine. Hawk Console loads and saves the configuration objects in the repository at `<hawk_console_repository_path>/<domain_name>`.

Rulebase Repository Actions

Hawk Console updates the configuration objects based on the action performed on the configuration objects.

For details about the effect of actions performed in repository, see Actions on Rulebase Repository Configuration Objects.

Creating Agent Groups

The Hawk agents that have similar rulebase needs are grouped together in an agent group. You can create an agent group by using the Hawk Console.

To create an agent group:

1. In Hawk Console, open the domain for which you have to create an agent group.
2. On the **Domain** page, click **Rulebase Repository**.
3. On the **Rulebase Repository** page, select the **Groups** tab.
4. On the **Groups** tab, click the **Add Group** icon  .
5. Enter the name of the new agent group and click **OK**.
6. From the **Available Members** list, click the **Add Members** icon  for the Hawk agent that you want to add to the agent group.
7. Verify the **Members Mapped** list for the agent group and click **Save Mapping**.

You can now map the rulebase to this agent group. For more details about rulebase mapping, see Creating Rulebase Mapping.

Creating Rulebase Mapping

A rulebase mapping defines a mapping between rulebases and Hawk agents. You can create a rulebase mapping by using the Hawk Console.

To create a rulebase mapping:

1. In Hawk Console, open the domain for which you have to create a rulebase mapping.

2. On the **Domain** page, click **Rulebase Repository**.
3. On the **Rulebase Repository** page, select the **Rulebase-Map** tab.
4. On the **Rulebases-Map** tab, select a rulebase which you want to map to Hawk agents or groups.
5. From the **Available Members** list, click the **Add Members** icon  for the group or Hawk agent that you want to map to the rulebase.
6. Verify the **Members Mapped** list for the rulebase and click **Save Mapping**.

Migrating Rulebases and Schedules from Hawk Agent to Rulebase Repository

For the optimized use of the rulebase repository, you must migrate existing rulebases and schedules from Hawk agents to the rulebase repository. In Hawk Console, you can create a rulebase mapping for these migrated rulebases. Based on these rulebase mapping, the rulebase repository deploys the rulebases and schedules to Hawk agents.

You can migrate the rulebases and schedules from Hawk agents to a rulebase repository by following either of these procedures:

Migrating rulebases and schedules from Hawk agents to a rulebase repository

Scenario	Steps
Move each rulebase one by one	1. In Hawk Console, open the Hawk Agent page from which you want to migrate the rulebase. 2. On the Agent page, select the **Rulebases** tab. 3. On the **Rulebases** tab, from the rulebases list, under the **Actions** column, select the **Send to Repository** option for the rulebase that you want to migrate. 4. Click **Yes** to confirm the migration.
Move each schedule one by one	5. In Hawk Console, open the Hawk Agent page from which you want to migrate the schedule.

Scenario	Steps
	6. On the Agent page, select the **Schedules** tab. 7. On the **Schedules** tab, select the schedule that you want to migrate. 8. Click the ⋮ icon and click **Send to Repository** from the menu. 9. Click **Yes** to confirm the migration.
Move rulebases and schedules in bulk	10. Copy all the rulebase files (`.hrb`) and schedule files (`.hsf`) from your Hawk agent to the domain folder in the Hawk Console repository path. The repository path is specified by the `hawk_console_repository_path` environment variable. Thus, the path to copy the rulebase and schedule files is `<hawk_console_repository_path>/<domain_name>`. 11. Start the Hawk Console to load these rulebases and schedules in the rulebase repository.

The rulebase repository in Hawk Console, lists all the migrated rulebases and schedules. You can then perform different operations on these rulebases and schedules.

Actions on Rulebase Repository Configuration Objects

Hawk Console contains a rulebase repository that stores configuration objects and then distributes and deploys them to Hawk agents. The configuration objects include rulebases, schedules, and rulebase map.

Rulebase Repository Configuration Objects Files

You must configure the repository in Hawk Console by using the `hawk_console_repository_path` environment variable. Hawk Console loads and saves configuration objects in the repository at `<hawk_console_repository_path>/< domain_name>`. Hawk Console stores the configuration objects in the following files:

Configuration Object	File Extension
Rulebase mapping and agent group mapping	`.hrm` The default file is `rbmap.hrm`.
Rulebase	`.hrb`
Schedule	`.hsf` The default file is schedules`.hsf`.

Hawk Console Actions

The following table lists the effect of the action performed on the Hawk Console to the configuration objects:

Effects of Actions in Rulebase Repository

Event / Action	Effect on Rulebase Map	Effect on Rulebase	Effect on Schedule
Hawk Console starts up	Hawk Console loads rulebase mapping and agent groups from the `rbmap.hrm` file present in the rulebase repository.	Hawk Console loads all rulebase files from the rulebase repository.	Hawk Console loads schedules from the `schedules.hsf` file present in the rulebase repository.
Hawk agent starts up	If the agent group for Hawk agent operating system is not present, Hawk Console adds a new agent group to the list of operating system groups of the rulebase repository.	Hawk Console deploys rulebases to the respective Hawk agent based on the rulebase mapping.	Hawk Console deploys all the schedules from the rulebase repository to the Hawk agent.

Event / Action	Effect on Rulebase Map	Effect on Rulebase	Effect on Schedule
Create and save a new rulebase or schedule	Not applicable	The Hawk Console adds the new rulebase to the rulebase repository and saves it to a `.hrb` file. **What to do next:** To deploy the new rulebase to Hawk agents, you must create a rulebase mapping for it, see Creating Rulebase Mapping.	Hawk Console adds a new schedule to the rulebase repository and saves it to the schedule.hsf file. **What to do next:** To deploy this new schedule to all Hawk agents in the domain, on the **Schedules** tab, click the **Deploy Schedule** icon and confirm the action.
Update and save an existing rulebase or schedule	Not applicable	The Hawk Console updates the rulebase in the rulebase repository and saves the update to the respective `.hrb` file. **What to do next:** To deploy the updated rulebase to all mapped Hawk agents, on the **Rulebase Mapping** tab, click **Save Mapping** for the rulebase.	Hawk Console updates the schedule in the rulebase repository and saves the update to the `schedule.hsf` file. **What to do next:** To deploy this updated schedule to all Hawk agents in the domain, on the **Schedules** tab, click the **Deploy Schedule** icon and confirm the action.
Delete a rulebase	Hawk Console removes all the	Hawk Console	Not applicable

Event / Action	Effect on Rulebase Map	Effect on Rulebase	Effect on Schedule
	rulebase mappings for the rulebase and updates the `rbmap.hrm` file.	deletes the rulebase file (`.hrb`) from the rulebase repository. If the deleted rulebase was mapped to Hawk agents or agent groups, then these mapped rulebases are undeployed from Hawk agents after they are restarted.	
Delete a schedule	Not applicable	Not applicable	Hawk Console deletes the schedule from the rulebase repository and the `schedule.hsf` file. If the deleted schedule was deployed to Hawk agents or agent groups, then these schedules are undeployed from Hawk agents after they are restarted.
Create and save a rulebase mapping	Hawk Console adds rulebase mapping to the rulebase repository and updates the `rbmap.hrm` file.	Hawk Console deploys the rulebase to the mapped Hawk agents and agent groups.	Not applicable

Event / Action	Effect on Rulebase Map	Effect on Rulebase	Effect on Schedule
Update and save existing rulebase mapping	Hawk Console updates rulebase mapping in the rulebase repository and updates the `rbmap.hrm` file.	If Hawk agents or agent groups are added to the rulebase mapping, Hawk Console deploys the rulebase to new members. If Hawk agents or agent groups are removed from the rulebase mapping, Hawk Console undeploys the respective rulebase from those Hawk agents or members of agent group.	Not applicable
Create a new agent group	Hawk Console creates an agent group in memory only. **What to do next:** To save the agent group information in the `rbmap.hrm` file, either add Hawk agents to the agent group or map the group to a rulebase. For details, see Creating Agent Groups and Creating	Not applicable	Not applicable

Event / Action	Effect on Rulebase Map	Effect on Rulebase	Effect on Schedule
	Rulebase Mapping.		
Add new Hawk agents to the agent group and save the agent group mapping	Hawk Console updates the group mapping information in the `rbmap.hrm` file in the rulebase repository.	If the agent group is already mapped to rulebases, then these mapped rulebases are not automatically deployed to new agents. **What to do next:** To deploy the mapped rulebase to new Hawk agents, on the **Rulebase Mapping** tab, click **Save Mapping** for the rulebases that are mapped to the updated agent group.	Not applicable
Remove Hawk agents from the agent group and save the agent group mapping	Hawk Console updates the group mapping information in the `rbmap.hrm` file in the rulebase repository.	If the agent group is already mapped to rulebases, then these mapped rulebases are not automatically undeployed from the removed Hawk agents. **What to do next:** To undeploy the mapped rulebases from the removed	Not applicable

Event / Action	Effect on Rulebase Map	Effect on Rulebase	Effect on Schedule
		Hawk agents, on the **Rulebase Mapping** tab, click **Save Mapping** for those mapped rulebases.	
Delete an agent group	Hawk Console deletes the agent group from the rulebase repository and updates the `rbmap.hrm` file.	If the deleted agent group was mapped to rulebases, then these mapped rulebases are undeployed from Hawk agents after they are restarted.	Not applicable

TIBCO Documentation and Support Services

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

How to Access TIBCO Documentation

Documentation for TIBCO products is available on the Product Documentation website, mainly in HTML and PDF formats.

The Product Documentation website is updated frequently and is more current than any other documentation included with the product.

Product-Specific Documentation

The documentation for this product is available on the TIBCO Hawk® Documentation page.

How to Contact Support for TIBCO Products

You can contact the Support team in the following ways:

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

How to Join TIBCO Community

TIBCO Community is the official channel for TIBCO customers, partners, and employee subject matter experts to share and access their collective experience. TIBCO Community offers access to Q&A forums, product wikis, and best practices. It also offers access to extensions, adapters, solution accelerators, and tools that extend and enable customers to gain full value from TIBCO products. In addition, users can submit and vote on feature

requests from within the TIBCO Ideas Portal. For a free registration, go to TIBCO Community.

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