TIBCO Silver® Fabric Enabler for TIBCO Hawk®

User's Guide

Software Release 1.1
March 2015

Two-Second Advantage®

Important Information

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Preface

TIBCO Silver® Fabric Enabler for TIBCO Hawk® creates components within the TIBCO Silver® Fabric framework to configure, publish and run TIBCO Hawk on your TIBCO Silver Fabric private cloud infrastructure.

Topics

Related Documentation

This section lists documentation resources you may find useful.

TIBCO Silver Fabric Enabler for TIBCO Hawk Documentation

The following documents form the TIBCO Silver Fabric Enabler for TIBCO Hawk documentation set:

- *TIBCO Silver® Fabric Enabler for TIBCO Hawk® Installation* Read this manual for instructions on site preparation and installation.
- *TIBCO Silver® Fabric Enabler for TIBCO Hawk® User's Guide* Read this manual for instructions on using the product.
- *TIBCO Silver® Fabric Enabler for TIBCO Hawk® Release Notes* Read the release notes for a list of new and changed features. This document also contains lists of known issues and closed issues for this release.

Other TIBCO Product Documentation

To take advantage of more advanced features you will find it useful to read documentation for the following TIBCO products:

- TIBCO Silver® Fabric
- TIBCO Hawk®
- TIBCO Rendezvous®
- TIBCO Enterprise Message Service™
- TIBCO Designer™
- TIBCO Administrator™

Typographical Conventions

The following typographical conventions are used in this manual.

Table 1 General Typographical Conventions

Convention	Use
TIBCO_HOME *ENV_HOME* *SFHK_HOME* *SILVERFABRIC_HOME*	Many TIBCO products must be installed within the same home directory. This directory is referenced in documentation as *TIBCO_HOME*. The default value of *TIBCO_HOME* depends on the operating system. For example, on Windows systems, the default value is `C:\tibco`. Other TIBCO products are installed into an *installation environment*. Incompatible products and multiple instances of the same product are installed into different installation environments. An environment home directory is referenced in documentation as *ENV_HOME*. The default value of *ENV_HOME* depends on the operating system. For example, on Windows systems, the default value is `C:\tibco`. TIBCO Silver Fabric Enabler for TIBCO Hawk is installed into a directory that is referenced in documentation as *SFHK_HOME*. The value of *SFHK_HOME* depends on the operating system. For example, on Windows systems, the default value is `C:\tibco\sfhk` TIBCO Silver Fabric is installed into a directory that is referenced in documentation as *SILVERFABRIC_HOME*. The value of *SILVERFABRIC_HOME* depends on the operating system. For example, on Windows systems, the default value can be `C:\fabric`.
`code font`	Code font identifies commands, code examples, filenames, pathnames, and output displayed in a command window. For example: Use `MyCommand` to start the foo process.
`bold code font`	Bold code font is used in the following ways: • In procedures, to indicate what a user types. For example: Type **`admin`**. • In large code samples, to indicate the parts of the sample that are of particular interest. • In command syntax, to indicate the default parameter for a command. For example, if no parameter is specified, `MyCommand` is enabled: `MyCommand [`**`enable`**` | disable]`

Table 1 General Typographical Conventions (Continued)

Convention	Use
italic font	Italic font is used in the following ways: • To indicate a document title. For example: See *TIBCO Hawk Concepts*. • To introduce new terms. For example: A portal page may contain several portlets. *Portlets* are mini-applications that run in a portal. • To indicate a variable in a command or code syntax that you must replace. For example: `MyCommand` *PathName*
Key combinations	Key names separated by a plus sign indicate keys pressed simultaneously. For example: Ctrl+C. Key names separated by a comma and space indicate keys pressed one after the other. For example: Esc, Ctrl+Q.
	The note icon indicates information that is of special interest or importance, for example, an additional action required only in certain circumstances.
	The tip icon indicates an idea that could be useful, for example, a way to apply the information provided in the current section to achieve a specific result.
	The warning icon indicates the potential for a damaging situation, for example, data loss or corruption if certain steps are taken or not taken.

Connecting with TIBCO Resources

How to Join TIBCOmmunity

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

How to Access All TIBCO Documentation

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

http://docs.tibco.com

How to Contact TIBCO Support

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

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

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

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

  https://support.tibco.com

  Access to this site is restricted to designated customer contacts, but you can request a user login when you have a valid maintenance or support contract.

Chapter 1 Introduction

This chapter briefly introduces this product.

Topics

Product Overview

TIBCO Silver® Fabric Enabler for TIBCO Hawk® is a complementary software component. It allows TIBCO Hawk® projects to be published in cloud environments based on TIBCO Silver® Fabric to leverage Silver Fabric capabilities. This accelerates publishing of projects, enforcing its industry best practices, and provides elastic optimization of computing resources.

Main Functionalities

TIBCO Silver Fabric Enabler for TIBCO Hawk provides the following main functionality:

- Launch a Hawk Agent with the domain, agent name and specific configuration parameters.
- Establish messaging transport protocol connections with TIBCO Rendezvous or TIBCO EMS as configured.
- Optional: Launch Hawk Web Console.
- Monitor EMS via the Hawk Microagent EMS-Plugin and expose EMS statistics in Silver Fabric.TIBCO Silver Fabric Enabler for TIBCO Hawk components

Chapter 2 Creating a TIBCO Silver Fabric Enabler for TIBCO Hawk Stack

This chapter explains how to configure and publish TIBCO Silver Fabric Enabler for TIBCO Hawk Stack.

Topics

Overview

A TIBCO Silver Fabric Enabler for TIBCO Hawk creates a component to configure, publish, and run TIBCO Hawk® on your TIBCO Silver Fabric private enterprise cloud. The TIBCO Hawk Component can be put inside a stack with other components and dependencies for publishing by TIBCO Silver® Fabric. The component running on a Silver Fabric engine deploys with the necessary component dependencies on a platform suitable for TIBCO Hawk monitoring and controls.

A TIBCO Silver Fabric Enabler for TIBCO Hawk stack consists of a TIBCO Hawk® component, and optionally includes component dependencies like TIBCO EMS.

To build and run a TIBCO Silver Fabric Enabler for TIBCO Hawk Stack, you need to perform the following tasks:

- Create and publish a TIBCO Hawk® component. Refer to Creating a TIBCO Hawk Component on page 5
- Optionally create and publish one or more component dependencies in a stack. Refer to Creating a Stack on page 24.

Creating a TIBCO Hawk Component

This component will create a TIBCO Domain, and start TIBCO Hawk services.

To create and configure a Hawk component, perform the following tasks:

At runtime, you can access TIBCO Hawk interfaces using an HTTP redirector with the following URL:

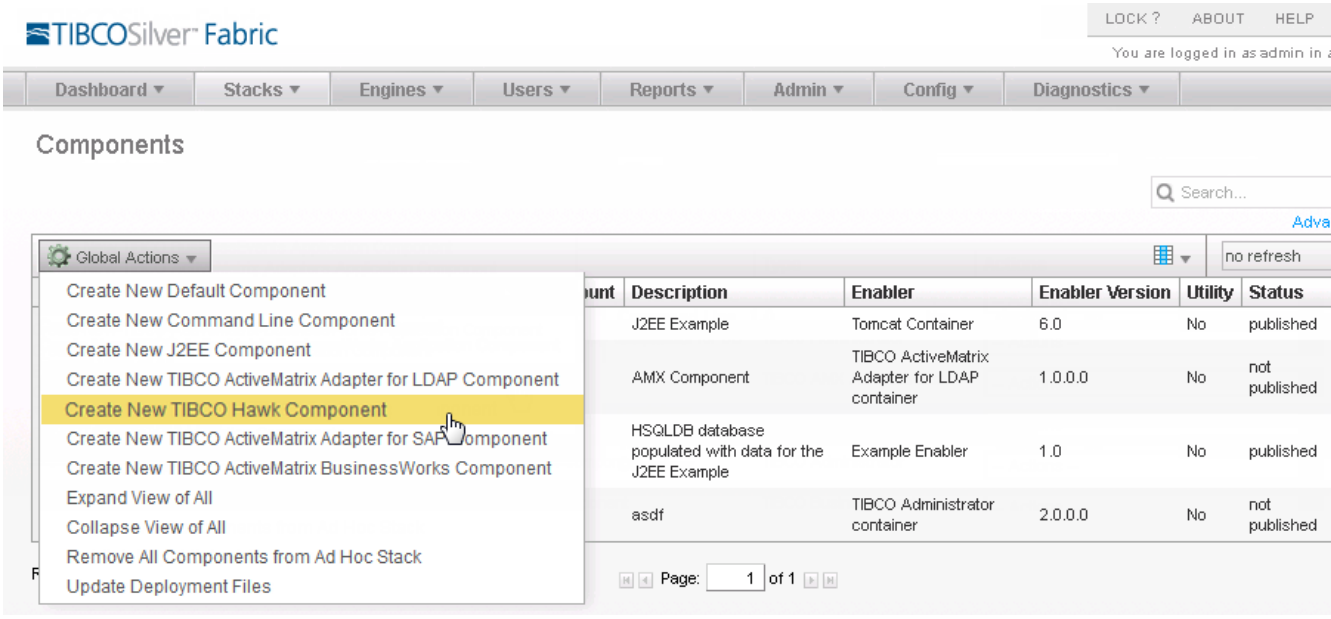
`http://<BrokerMachineName>:<Port>/<ComponentName>/hawkwebconsole`

This will automatically redirect to the machine where the Hawk Web Console is running with a redirected URL and port value calculated using the base port set in Task F, Configure Hawk Web Console Ports, page 14

Task A Create a TIBCO Hawk Component

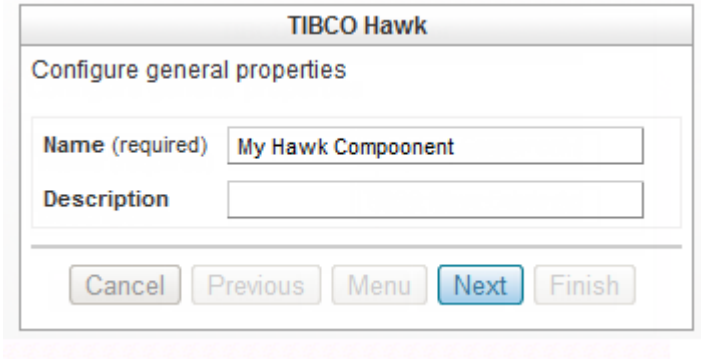
1. Using the TIBCO Silver® Fabric Administration Tool select **Stacks > Components**.
2. On the Components page, select **Create New TIBCO Hawk Component** in the Global Actions drop-down list.

Figure 1 Create a new TIBCO Hawk Component



3. Provide a name for the component and optionally provide a description to further characterize the configuration you will set.

Figure 2 Configuring General Properties



4. Choose the TIBCO product distribution versions to publish. Refer to Figure 3.

   Select a version of each of the installed distributions. It is generally a good practice to use the latest version of a product distribution. Refer to the TIBCO Silver Fabric Enabler for TIBCO Hawk *Readme* for more information on supported distributions. The product versions which are displayed are compatible with the component being defined.

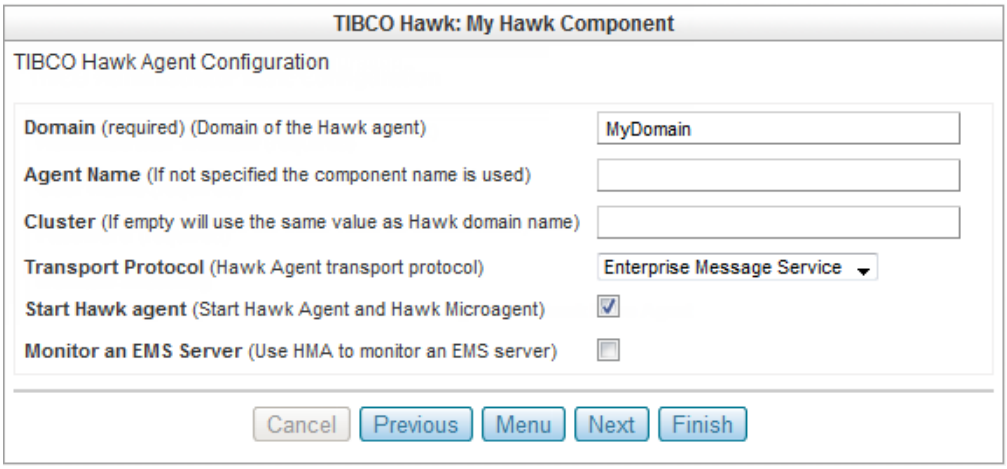
Figure 3 Choosing TIBCO Product Distribution Versions

5. Click the **Next** button after selecting the TIBCO product distribution versions and the TIBCO Administrator: <*ComponentName*> - Basic Configuration panel is displayed as is shown in Task B, Configure TIBCO Domain Values, on page 8.

Task B Configure TIBCO Domain Values

The TIBCO Hawk Agent Configuration page and each of the configuration parameters are described here. Enter appropriate values for each field as applicable.

Figure 4 Editing TIBCO Hawk Agent Configuration



Domain

Choose a unique name that clearly identifies the Hawk Domain.

If a Hawk Server is already running in the sub net, you cannot use that name for a second server with the same messaging parameters. Don't re-use the name of a Hawk Domain.

Domain name length must be less than 64 characters. Alphanumeric characters, hyphens (-) and underscores (_) are accepted, but other characters including periods and commas are not allowed.

Agent Name

Enter a Hawk Agent name here or the component name will be used to name the Hawk Agent. Alphanumeric characters, hyphens (-), and underscores (_) are allowed. The password is not case-sensitive, can not contain spaces, and it can not start with ! [z # or a period.

Cluster

Enter a Hawk Cluster name here or the domain name will be used for the Cluster name.

Transport Protocol

The messaging transport protocol can be set to use TIBCO Rendezvous or TIBCO Enterprise Messaging Service (EMS).

Selection of the transport protocol will determine what pages are presented by the Component Wizard for your implementation configuration.

If you set **Transport Protocol** to **Enterprise Message Service**, the Hawk Agent and the Hawk Web Console will use TIBCO EMS for messaging.

The messaging between TIBCO Hawk Agent, Hawk Microagents, or other Hawk AMI applications will require use of TIBCO Rendezvous as it is implemented in TIBCO Enterprise Messaging Service.

Start Hawk agent

Select this to start the Hawk Agent and Hawk Microagent after the component publishes TIBCO Hawk Distribution for TIBCO Silver Fabric to the engine. Clearing the check box allows you to manually control the start of those agents.

Monitor an EMS Server

You can publish your TIBCO Hawk Component with the configuration settings to monitor a TIBCO EMS instance.

Select **Monitor an EMS Server** and the Component Wizard will show the **Hawk Micro Agent Settings for TIBCO Enterprise Message Service** page to expose configuration settings defining how your TIBCO Hawk Component will connect with a TIBCO EMS. Refer to Hawk Agent Transport Settings for TIBCO Enterprise Message Service on page 11 for more information on this setting.

Clear the check box if you do not want a TIBCO Hawk Microagent to monitor a TIBCO EMS server instance.

Task C Configure the TIBCO Rendezvous Connection

When using TIBCO Rendezvous for the messaging transport, set the protocol, the network and the service connection port between your TIBCO Hawk implementation and the TIBCO Rendezvous distribution that will be published with it.

Figure 5 TIBCO Rendezvous Configuration

RV Daemon

Set the TCP port to configure Hawk to use TIBCO Rendezvous® daemon. as a message transport mechanism between the Hawk Agent and HMA.

The default value is **`tcp:7474`**

TIBCO Rendezvous (RV) is used as the transport when your implementation does not use EMS as a transport (*TIBCO Hawk Agent Configuration* page > *Use EMS as transport* is unchecked). The TIBCO Rendezvous Configuration page provides an interface for configuration of Rendezvous and TIBCO Hawk.

RV Network

This specifies the TIBCO Rendezvous network used for client-server communication.

By default an empty field means that your Hawk runtime will use the local Rendezvous instance.

This variable only needs only to be set on computers with more than one network interface. If specified, the TIBCO Rendezvous daemon uses that network for all outbound messages.

In the following conditions you can use a remote TIBCO Rendezvous Daemon:

— Your working environment has no UDP network protocol.

— All your machines are part of the TIBCO Silver® Fabric Cloud in different networks, but there are no TIBCO Rendezvous daemons between the networks.

For example you can set the value to `tcp:ADMINMACHINE:7500`. All machines that join this TIBCO Domain will use this remote daemon.

RV Service

Required. This specifies the TIBCO Rendezvous Service used for communication. The Rendezvous daemon divides the network into logical partitions. Each transport communicates on a single service. A transport can communicate only on the same service with other transports.

The default TIBCO Rendezvous port setting is 7474, but your specific Hawk implementation may be set to publish according to your needs. If changed you will need to change the TIBCO Rendezvous configuration too, so use the default unless you are an experienced TIBCO Rendezvous user.

Task D Hawk Agent Transport Settings for TIBCO Enterprise Message Service

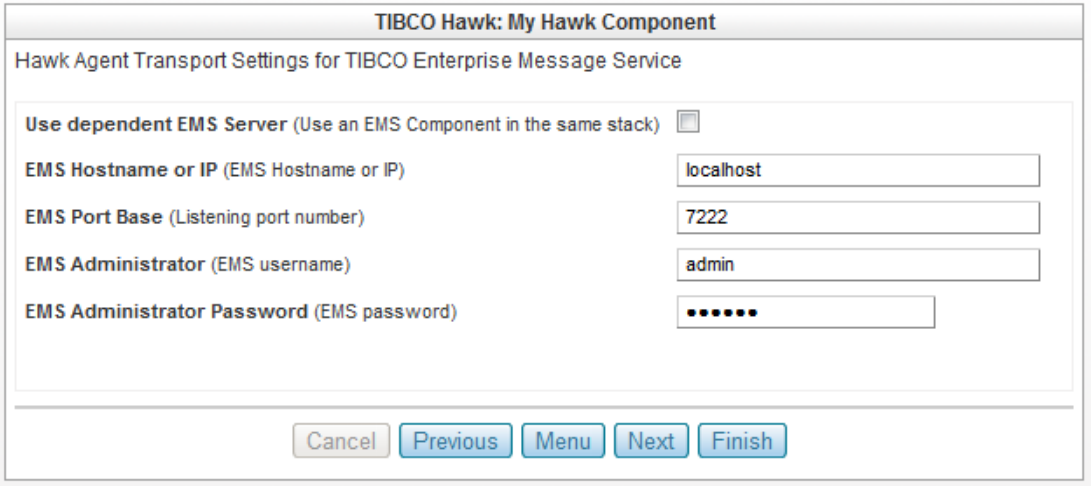
The Component Wizard displays the Hawk Agent Transport Setting for TIBCO Enterprise Message Service page when the **Transport Protocol** is set to **Enterprise Message Service**.

Your TIBCO Hawk component can be set to depend on a TIBCO EMS component published in the same stack or you can specify a TIBCO EMS instance running on an accessible host.

Select the **Use dependent EMS Server** check box and later set a component dependency.

When this TIBCO Hawk component uses a dependent EMS Server as the messaging transport, this same EMS Server should not be monitored by the same TIBCO Hawk component because this will create a circular dependency.
If you wish to monitor a dependent TIBCO EMS component and use EMS as the transport protocol, you must configure this TIBCO Hawk component to use an independent instance of TIBCO EMS as the transport by clearing the **Use dependent EMS Server** check box and entering appropriate connection profile parameter values.

Figure 6 Hawk Agent Transport Settings for TIBCO Enterprise Message Service



Task E TIBCO Hawk AMI Configuration

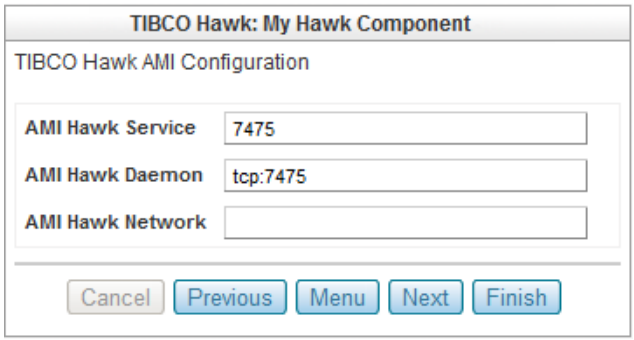
TIBCO Hawk Application Management Interface (AMI) is an API used to instrument applications for management and monitoring by a TIBCO Hawk Agent. TIBCO Silver Fabric Enabler for TIBCO Hawk provides the configuration page to set the Hawk instance AMI service port, daemon location, and network for session initiation.

For management and monitoring of TIBCO Hawk instrumented applications configure the TIBCO Hawk Agent to start with appropriate service, network, and daemon settings so that a TIBCO Rendezvous session can be set up to connect with the application.

The TIBCO Hawk AMI Configuration page defines how TIBCO Hawk will use TIBCO Rendezvous with TIBCO Hawk Microagents (HMA).

Even when TIBCO EMS is used as the primary transport, HMA still use Rendezvous as the transport.

Figure 7 TIBCO Hawk AMI Configuration



AMI Hawk Service

The AMI Hawk Service specifies the TIBCO Hawk port number, for example, TIBCO Rendezvous will connect with TIBCO Hawk on the default port 7475.

AMI Hawk Daemon -

The AMI Hawk Daemon specifies the location of the TIBCO Hawk Daemon. A value of "tcp:*yyyy*" would correspond to a local Hawk Daemon where "*yyyy*" would be the port number. A Hawk Daemon located elsewhere would be specified by a value of the protocol, IP address, and port number: "tcp:*xxx.xxx.xxx.xxx:yyyy*".

The AMI Hawk Service and the AMI Hawk Daemon ports may be the same or they may be different. By default, different TLMs on the same engine daemon (physical machine) are using the same RV transport (default AMI Hawk Service=7474, and default AMI Hawk Daemon=tcp:7474). This setting enables visibility of all of the deployed applications on each TLM even if some applications are NOT deployed on this particular TLM.

AMI Hawk Network

Generally, AMI Hawk Network is an empty string, and all three fields may be left empty, but if a value is set for either AMI Hawk Service or AMI Hawk Daemon then they must both be set with valid values together. Setting only one of them will result in an error.

Task F Configure Hawk Web Console Ports

Review and set the appropriate base ports for your implementation.

HTTP Base Port

In order to avoid HTTP port conflicts when there are multiple instances running on the same machine, TIBCO Silver Fabric Enabler for TIBCO Hawk automatically increments ports being used to the following value:

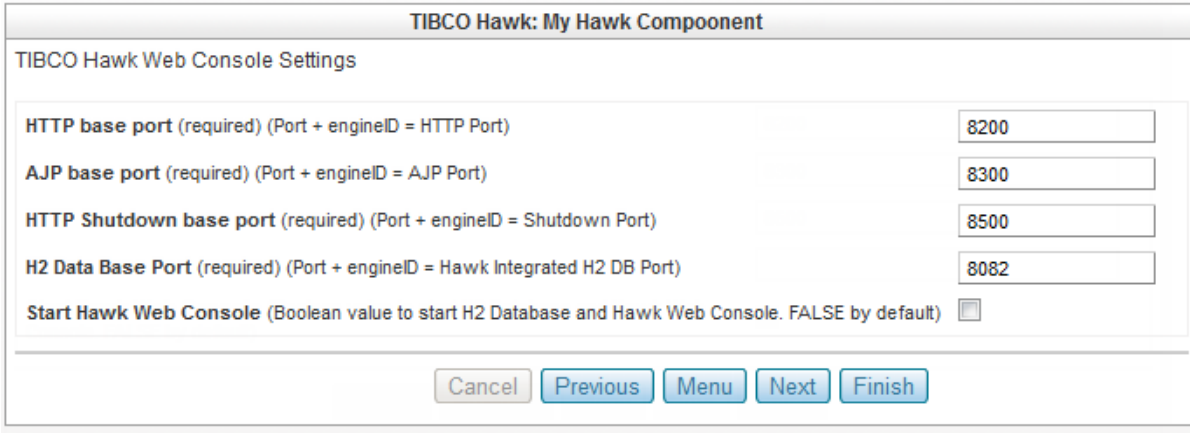
`HTTP Base Port` + *EngineInstanceValue*

The *EngineInstanceValue* is the engine number of the TIBCO Administrator.

For example, on a dual core machine, the default number of engines is 2 (one per core). The first engine has the number `0`, the second one has the number `1`.

For the default `HTTP Base Port` setting of `8200`, the HTTP ports used would be `8200` and `8201` for the first and second engines respectively.

Figure 8 Hawk Web Console



AJP Base Port

AJP, Apache JServ Protocol, base port must be set. The default AJP Base Port value is: `8300`.

HTTP Shutdown Base Port

In order to avoid shutdown port conflicts for TIBCO Administrator when many TIBCO Administrator servers stop working on the same machine, TIBCO Silver Fabric Enabler for TIBCO Hawk automatically sets the shutdown port to the following value:

`HTTP Shutdown Base Port +` *EngineInstanceValue*

The value is calculated in the same way as the TIBCO Administrator `HTTP Base Port` described previously.

H2 Data Base Port

TIBCO Hawk will default to use the native H2 RDMS on port 8082. The actual port at run time will be the value of `H2Port+EngineInstanceID.`

Start Hawk Web Console

Select the check box to start the H2 database and Hawk Web Console. At run time when the Web Console is published and started it will be accessible at:

`http://`*<BrokerMachineName>*`:`*<Port>*`/`*<ComponentName>*`/hawkwebconsole`

By default Virtual Router will route directly to:

`http://`*<EngineName|IP>*`:`*<HTTPBasePort+EngineInstance>*`/hawkwebconsole`

If you know the location of your Hawk machine then the Web Console default would be:

`http://`*HawkMachineHostName*`:8200/hawkwebconsole`

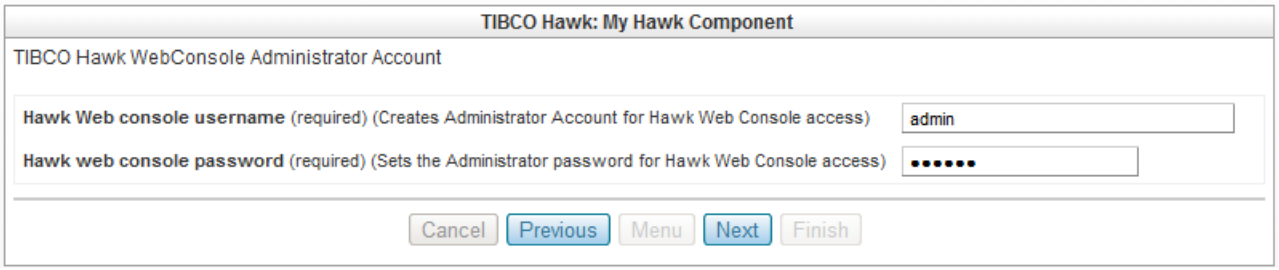
Leaving the check box cleared (default) will allow publishing, but it will not start either H2 or the Hawk Web Console.

If you have selected to start the Hawk Web Console, then the next Component Wizard page allows specification of the user name and password for the Hawk Web Console Administrator account.

Task G TIBCO Hawk Web Console Administrator Account

When the TIBCO Hawk Web Console is configured to start at run time, set the Hawk Web Console administrator account user name and password.

After the Web Console is published and running changing the user name and password using the Component Wizard will require a restart of the component to publish changes to a running instance.


TIBCO Hawk: My Hawk Component
TIBCO Hawk WebConsole Administrator Account
Hawk Web console username (required) (Creates Administrator Account for Hawk Web Console access)
admin
Hawk web console password (required) (Sets the Administrator password for Hawk Web Console access)
Cancel
Previous
Menu
Next
Finish

Task H Monitoring TIBCO EMS using HMA

When TIBCO Hawk Agent is set to **Monitor an EMS Server,** the **Hawk Micro Agent Settings for TIBCO Enterprise Message Service** page provides configuration parameters for connection type and specification.

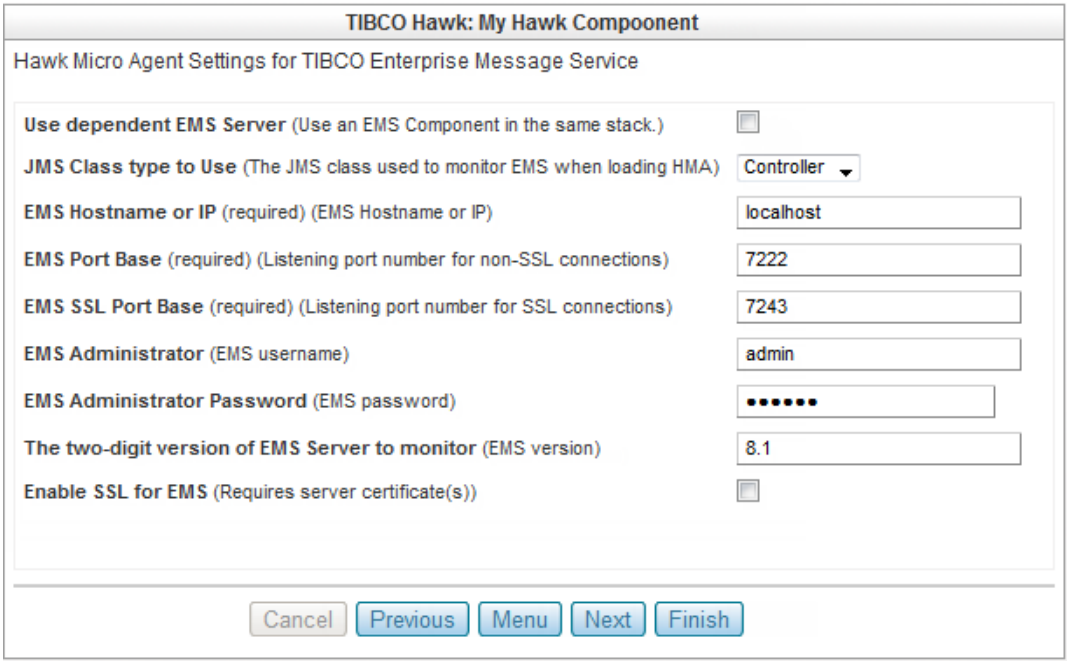
Use Dependent EMS Server

Selecting the **Use dependent EMS Server** check box means that you will monitor a TIBCO EMS component instance that you will publish in the same stack with this TIBCO Hawk component instance. You must include the TIBCO Enterprise Messaging Service Distribution for TIBCO Silver Fabric using the settings on the **Optional Distribution** settings page and you must set a component dependency on that TIBCO EMS component. The EMS location settings will be grayed out and disabled, but the Hawk Microagent can be extended using the `HawkController` JMS class. Refer to the *TIBCO Hawk Plug-in Reference Guide* for more information.

This check box will be locked in the not selected state if you are already using a dependent TIBCO EMS component as the messaging transport. Selecting both would create a circular dependency that is prevented by locking this check box when the other dependency is already configured. If you wish to monitor a dependent TIBCO EMS component and use EMS as the transport protocol then you must configure this TIBCO Hawk component to use an independent instance of TIBCO EMS as the transport.

By default, the **Use dependent EMS Server** check box is cleared so you can monitor an independently published instance of TIBCO Enterprise Messaging Service. If your TIBCO Hawk component will monitor an independent instance of TIBCO EMS you must specify how and where your TIBCO Hawk Microagent will establish that connection.

Figure 9 Hawk Micro Agent Settings for TIBCO Enterprise Message Service



JMS Class Type to Use

You can use either the **Listener** (`COM.TIBCO.hawk.tibjms.HawkListener` class) if you only want to monitor the TIBCO EMS server, or you can specify the **Controller** (`COM.TIBCO.hawk.tibjms.HawkController` class) if you want to monitor and manage the TIBCO EMS server.

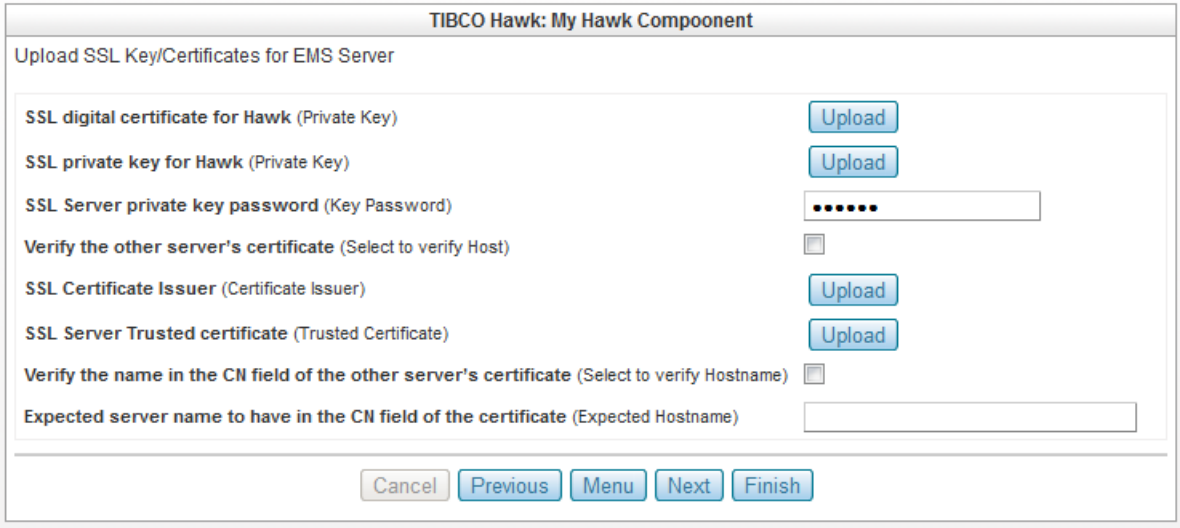
For more information on implementing and extending these classes refer to the *TIBCO Hawk Plug-in Reference Guide*.

Task I Configure Hawk for use of SSL with TIBCO EMS (optional)

When you check the **Enable SSL for EMS** check box on the **Hawk Micro Agent Settings for TIBCO Enterprise Message Service** page, the Component Wizard displays the **Upload SSL Key/Certificates for EMS Server** page to allow you to configure TIBCO Hawk to use SSL when monitoring or controlling TIBCO EMS.

To use SSL to secure communications between TIBCO Hawk and TIBCO EMS upload the digital certificate, enter the private key, certificate chain member, and trusted certificate, as well as enter the private key password for the EMS server on this page:

Figure 10 Upload SSL Key/Certificates for EMS Server



For more information on using these component configurations for SSL with TIBCO EMS, refer to the chapter: *Using the SSL Protocol* in the *TIBCO Enterprise Message Service User's Guide*.

Task J Configure TIBCO Hawk Agent Running Condition

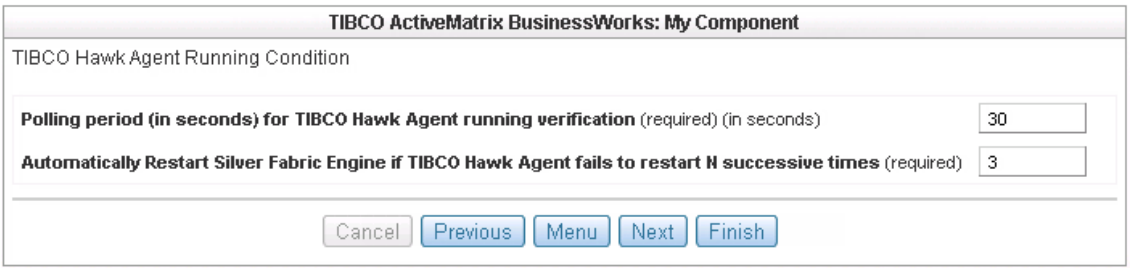
You can ensure continuous Hawk service by setting a running condition check, polling periodically to verify TIBCO Hawk responsiveness.

Polling Period (in seconds) for detection of TIBCO Hawk Agent running verification (required)

Enter an integer to specify the number of seconds between periodic verification checks that the TIBCO Hawk Agent is still running.
If the TIBCO Hawk Agent becomes unresponsive to this verification then the process is automatically restarted.

The running condition check may be disabled with a value of 0.

Figure 11 TIBCO Administrator and Hawk Agent Running Conditions



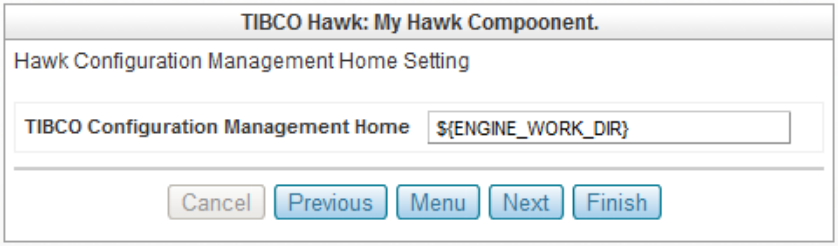
Automatically Restart Silver Fabric Engine if TIBCO Hawk Agent fails to restart N successive times (required)

Enter an integer to specify the number of restart retries for the TIBCO Hawk Agent before the TIBCO Silver Fabric Engine will be restarted. A successful restart will reset the count.

Disable automatic restart of the Silver Fabric Engine with a value of 0.

Task K Set the Hawk Configuration Management Home

Figure 12 Hawk Configuration Management Home Setting page



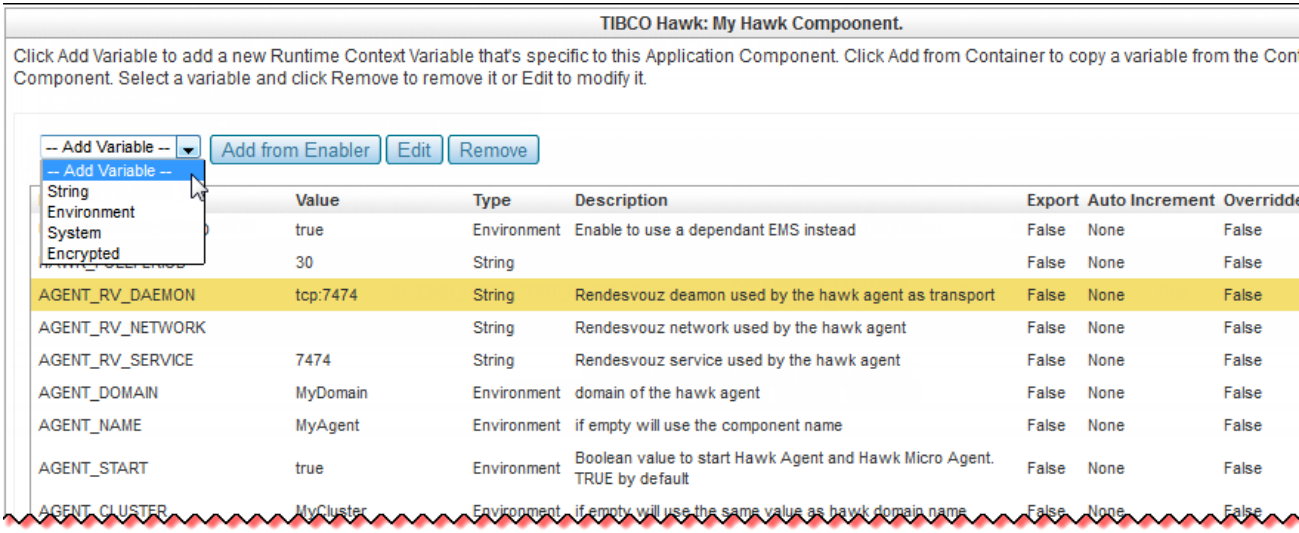
You should leave the default TIBCO Hawk configuration home setting unless you have good reason to change it.

Task L Add or Edit Enabler-specific Runtime Context Variables

String, **Environment**, **System**, or **Encrypted** variables may be added and changed in the component to define and set runtime specific context variables.

Select a variable type from the **Add Variable** pull-down list or **Add from Enabler** to use a variable from a selected enabler.

Figure 13 Adding a Runtime Context Variable



Variable values from an enabler may be added to the runtime as well. Use the **Add from Enabler** button to add enabler-specific context variables.

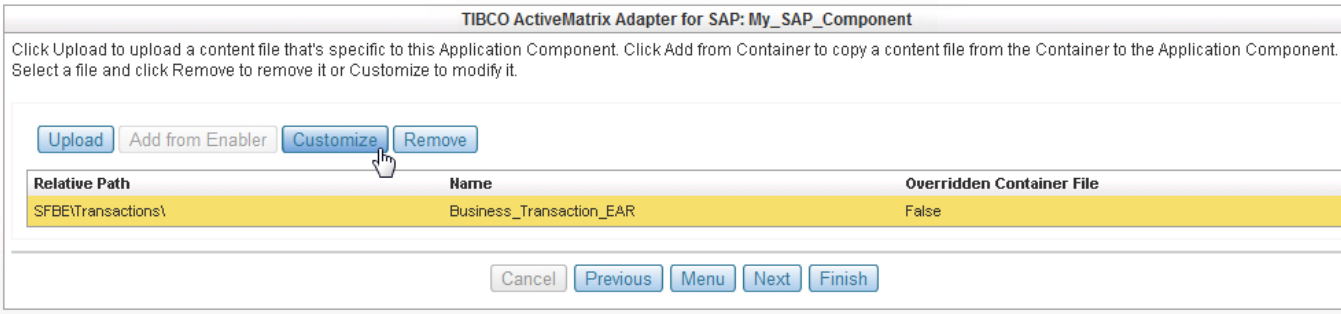
Once you have added any runtime context variable you may select the variable (selected row is highlighted) and **Edit** to change its attributes. Selected rows may also be removed.

Task M Upload a Content File

Content files may be uploaded, added from an enabler, edited with a simple text editor, or removed using the "*Add/override/customize Container and Component-specific content files*" page.

Add files associated with the component that may be required for the Stack to be run according to design.

Figure 14 Uploading Content Files



Task N Edit Configuration File directly (Optional)

One page that must be used only with extreme caution is the *Edit the Configuration File* page. It should not be used unless the configuration.xml is backed up and specific knowledge about the TIBCO Silver Fabric system is being applied. This interface is being exposed to allow for more advanced customizations and normally it should be left alone.

For more information on what and how the `configure.xml` may be changed refer to "The configure.xml File" section in the *TIBCO Silver® Fabric Developer's Guide*.

As an example, if you wanted to change the default Java heap size of the JVM in file `hawkagenttra.template` from 256M to 1024M.

```
<?xml version='1.0' encoding='utf-8' standalone='yes' ?>
  <containerConfig>
    <configFiles
baseDir="${TIBCO_HOME}/tra/5.7/template/domainutility"
include="hawkagenttra.template">
    <regex
pattern="java\.heap\.size\.max\s+[0-9]+[a-zA-Z]+"replacement="java
.heap.size.max 1024M" />
    </configFiles>
  </containerConfig>
```

The property, **`baseDir`**, in the `<configFiles>` element is used to specify the path that includes the file to be updated. It can be modified if needed. For example, if the TIBCO Runtime Administrator (TRA) version was 5.8 instead of 5.7, then the `baseDir` value defined in the code snippet would be changed to:

`${TIBCO_HOME}/tra/`**`5.8`**`/template/domainutility`

The property, **`include`**, in `<configFiles>` element is used to specify which file(s) need to be replaced. It can specify whatever files you want to change. The asterisk wild card may be used to represent a string of characters like for instance: "***.tra***" to change all of the `.tra` files in `%baseDir%`.

The property, **`pattern`**, in the `<regex>` element is used to specify the contents that need to be replaced within the previously specified files. The value of `pattern` can be a regular expression.

The property, **`replacement`**, in `<regex>` element is used to specify the new contents of the node specified by the `pattern` property value.

Task O Finish Configuring the Component

The remaining screens of the Component Wizard are generic for all Silver® Fabric Enablers. The configuration of these is optional for TIBCO Administrator component.

Refer to *TIBCO Silver® Fabric User's Guide* for more information on these configuration screens.

After you click the **Finish** button, make sure that the component is published to make it available to create an Stack.

To do this, select **Publish Component** in the Actions drop-down list located at the line of the component you just created.

Creating a Stack

Components are deployed within a Stack. The TIBCO Silver Fabric Enabler for TIBCO Hawk Component can put TIBCO Hawk with other product components in any application Stack so that they will published to a Silver Fabric Engine or a group of engines as a unit.

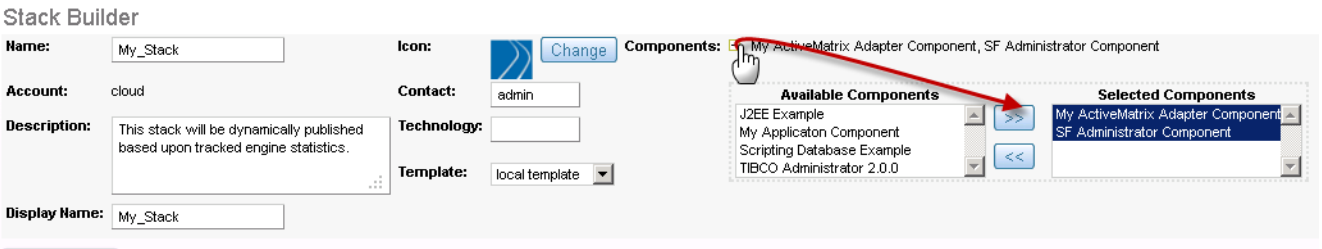
Each *TIBCO_DOMAIN* can have one Stack, but each Domain can have multiple enablers. After initially defining a Stack, you can still update it by adding or removing components.

To create a Stack that includes TIBCO Silver Fabric Enabler for TIBCO Hawk:

1. In the TIBCO Silver® Fabric Administration Tool, select **Stacks > Stacks**.
2. Click the **Create New Stack** button.
3. Enter a Stack name in the Stack Builder page as shown in Figure 16.
4. In the **Components** area:
   a. Add one or more TIBCO Hawk components.

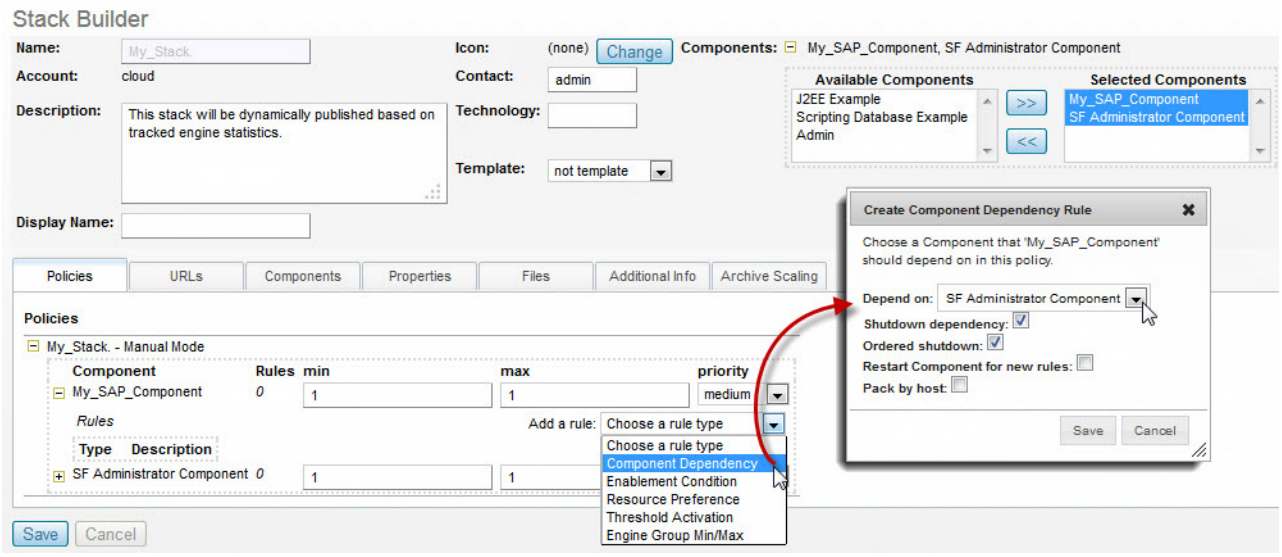
      Other components (EMS, etc) may need to be added to the Stack according to your implementation.

Figure 15 Adding components to a stack



5. In the Policies area, expand the component you just added to view the details of the component.

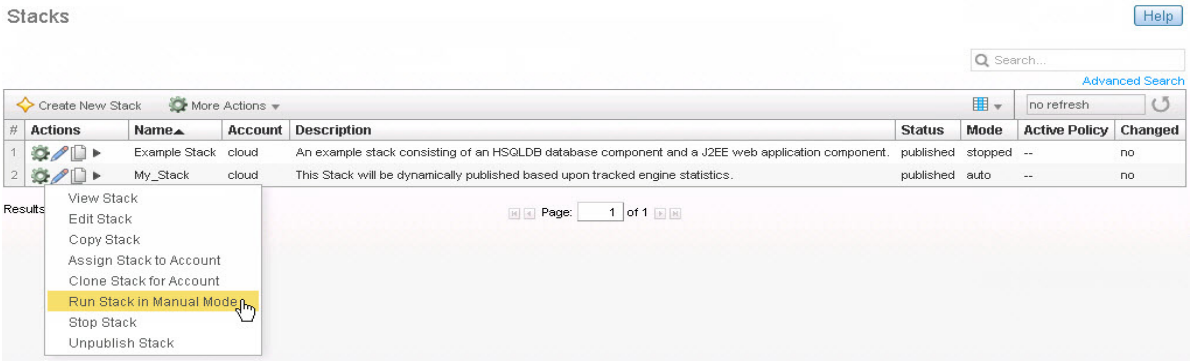
Figure 16 Stack Builder Page with a component dependency.



Running TIBCO Silver Fabric Enabler for TIBCO Hawk Stack

After you have created your Stack, you need to publish it. Then click **Run Stack In Manual Mode** in the Actions drop-down list as shown in Figure 17.

Figure 17 Running a Stack



If you selected a policy schedule while creating an Stack, you can run the Stack in the Auto mode. The Stack runs given the schedule defined.

Updating the TIBCO Hawk Stack

When a Stack is published and running, you can still make changes to the Stack such as adding other components, changing allocation rules, changing threshold activation rules, or deploying and starting archives on the runtime Hawk Stack instantiated on the engine.

Making changes to the Stack is as easy as editing, saving, and publishing those changes to any instances that may be running. Some changes my require restart of the changed resource, so consult the TIBCO Silver Fabric documentation for best practices prior to making changes to a production system.

After making any changes to a Stack, **Save** the changes and then from the Actions list in the main Stack page, select **Publish Changes**. The specified engines will be affected by the changes immediately.

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