

Getting Started with vFabric Hyperic

v.5.7

June 2013

EN-000956-01

vmware®

Legal Notice

Copyright © 2013 VMware, Inc. All rights reserved. This product is protected by U.S. and international copyright and intellectual property laws. VMware products are covered by one or more patents listed at <http://www.vmware.com/go/patents>. VMware is a registered trademark or trademark of VMware, Inc. in the United States and/or other jurisdictions. All other marks and names mentioned herein may be trademarks of their respective companies.

VMware, Inc.
3401 Hillview Ave.
Palo Alto, CA 94304
www.vmware.com

Contents

About Getting Started with vFabric Hyperic.....	5
Intended Audience	5
vFabric Hyperic Quick Start Installation	6
Key Facts for vFabric Hyperic Installers	7
vFabric Hyperic Security Features and Recommendations	7
About SSL in vFabric Hyperic	9
Agent Configuration	12
Agent Launcher and Agent Startup	13
Agent - Server Communication	15
Agent Directory Structure	17
Sizing Profiles in vFabric Hyperic	17
vFabric Hyperic Installation and Startup Process.....	21
Step 1 – Obtain vFabric Hyperic Installer	21
Step 2 – Set Up vFabric Hyperic Database	21
Step 3 - Set Up vFabric Hyperic Server	22
Step 4 - Set Up the vFabric Hyperic Agent	24
Step 5 - Next Steps for New Installations	27
vFabric Hyperic Upgrade Processes.....	28
Step-by-Step Procedures	29
Select and Download an Installer	29
Configure JREs for vFabric Hyperic Components	30
Configure SSL Options.....	32
Install vFabric Hyperic vApp	34
vFabric Hyperic Server vApp Administration Console	37
Deploy vFabric Hyperic vApp with vCloud Director	38
Set Up vFabric Hyperic Database	41
Run vFabric Hyperic Installer	46
Run vFabric Hyperic Server Windows Setup Wizard	51

Run vFabric Hyperic Agent Windows Setup Wizard	52
Install an Agent-Only Package	53
Install vFabric Hyperic Agents in Volume	54
Install vFabric Hyperic Server RPM	56
Install vFabric Hyperic Agent RPM.....	61
Set Up Agent Interactively	63
Set Up Agent in Properties File	66
Encrypt Agent Property Value	79
Migrate v4 vFabric Hyperic Server and Database to v5.7	80
Upgrade vFabric Hyperic Agent.....	92
Upgrade a vFabric Hyperic 5.0 Installation	95
Uninstalling an Agent.....	97
Change vFabric Hyperic Server Sizing Profile	98
Configure Unidirectional Agent - Server Communication	99
Install or Configure vFabric Hyperic License	100
Troubleshoot Agent and Server Problems.....	103
Looking for Clues	103
vFabric Hyperic Server Problems	106
Agent Startup or Connection Problems	108
Invalid or Unknown Availability.....	111
Slow User Interface	113
Warning Messages in the Agent Log	113

About Getting Started with vFabric Hyperic

Getting Started with vFabric Hyperic provides procedures for installing VMware® vFabric™ Hyperic® components, including setting up the vFabric Hyperic database and installing the vFabric Hyperic Server and vFabric Hyperic Agents.

- [vFabric Hyperic Quick Start Installation](#)
- [Key Facts for vFabric Hyperic Installers](#)
- [vFabric Hyperic Installation and Startup Process](#)
- [vFabric Hyperic Upgrade Processes](#)
- [Step-by-Step Procedures](#)
- [Troubleshoot Agent and Server Problems](#)

Intended Audience

Getting Started with vFabric Hyperic is intended for operations personnel who set up and support the core vFabric Hyperic infrastructure.

Last updated June 10, 2013

vFabric Hyperic Quick Start Installation

Note: If you obtain VMware® vFabric™ vFabric Hyperic® as part of a vFabric Suite (previously known as "vFabric Platform"), first complete the license activation and installation procedures in *Getting Started with vFabric Suite*. Then follow procedures in this document to set up your environment for vFabric Hyperic and complete any remaining vFabric Hyperic-specific installation and configuration tasks.

To evaluate vFabric Hyperic components, you can get up and running quickly by installing the vFabric Hyperic Server and a vFabric Hyperic Agent on the same host, using vFabric Hyperic's built-in database.

For comprehensive installation information, see [vFabric Hyperic Installation and Startup Process](#).

Procedure

1. Verify *vFabric Hyperic Supported Configurations and System Requirements* for the vFabric Hyperic Server and vFabric Hyperic Agent.
2. [Select and Download an Installer](#). Choose a "full" installer.
3. Install the components as described in [Run vFabric Hyperic Installer](#).
4. For post-installation tips, review [vFabric Hyperic Installation and Startup Process](#).

Key Facts for vFabric Hyperic Installers

vFabric Hyperic Security Features and Recommendations

SSL Best Practices for New vFabric Hyperic Installations

vFabric Hyperic supports the use of SSL communication for both server-to-agent and agent-to-server communications. VMware recommends that you install trusted keystores from your CA for vFabric Hyperic. If you do not configure your own SSL keystores for vFabric Hyperic Agents and the vFabric Hyperic Server, the components will generate keystores with self-signed certificates — this is not recommended.

For more information about SSL communications, configuration, and default behavior in vFabric Hyperic, see [About SSL in vFabric Hyperic](#).

Agent-Initiated Communication

You can configure vFabric Hyperic such that vFabric Hyperic Agents initiate all communications with the vFabric Hyperic Server. This feature — referred to as *unidirectional communication* is useful if your network topology requires managed platforms to initiate all communication with processes outside a firewall.

You can configure unidirectional communication interactively at first agent startup, or with the `agent.setup.unidirectional` in the agent's `agent.properties` file. See the requirements described at `agent.setup.unidirectional`.

Password Encryption

This section has information about the credentials that the vFabric Hyperic Server and the vFabric Hyperic Agent must provide to related product components during normal operation, and how those credentials are supplied, saved, and secured.

Regardless of how the passwords used by the server or agent are supplied, or where they are saved, the password values are always encrypted. Specifically:

- The vFabric Hyperic Server supplies a username and password to connect to the vFabric Hyperic database. In vFabric Hyperic 4.5 and later, the vFabric Hyperic installer prompts for the database credentials during the installation process, and saves them in `ServerHome/conf/hq-server.conf`. The value of the password is encrypted.
- The vFabric Hyperic Agent supplies a username and password to connect to the vFabric Hyperic Server. There are two ways to define the credentials:
 - You can define the username and password for connecting to the server interactively, the first time you start the agent. Upon successful first connection to the server, the agent saves the credentials in its `/data` directory. The value of the password is encrypted.

- You can define the username and password for connecting to the server in the agent's `agent.properties` file prior to starting the agent for the first time. At first startup, the agent will use the credentials specified in the properties file, and upon successful connection to the server, the agent will (as with interactive configuration) save the credentials in its `/data` directory, encrypting the password. The agent will also remove the plain text password from the properties file, and add a password property definition with an encrypted value. Note that you can add encrypted properties to `agent.properties` yourself, as described in [Encrypt Agent Property Value](#).
- If the server and agent have user-managed keystores, each component stores the password to its keystore in its properties file.
 - The vFabric Hyperic's Server's keystore can be configured interactively at installation. The keystore path and password are saved in `hq-server.conf`, with the password encrypted. If you define the keystore password in the properties file yourself, after installation, The vFabric Hyperic Server will encrypt the password value at next startup.
 - The vFabric Hyperic's Agent's keystore can only be configured in the `agent.properties` file. You can add encrypted properties to `agent.properties` yourself, as described in [Encrypt Agent Property Value](#). Otherwise, if you define the password in plain text in the properties file, the agent will encrypt the value at next startup.

Protection of Sensitive Data

In this version of vFabric Hyperic, the vFabric Hyperic installer writes some sensitive data to installation log files.

Sensitive Data Best Practices

After successfully installing vFabric Hyperic Server, delete `InstallerHome/logs/hq-install.log` and `hq-install.log.verbose`, or the whole the exploded installer.

Use LDAP Authentication

vFabric Hyperic Server encrypts user passwords using a encryption key you supply during installation. Note however, that vFabric Hyperic Server does *not* have a strength-of-password policy, or a lockout policy for failed login attempts. Best practice is to integrate vFabric Hyperic with your existing enterprise directory. For information about integrating vFabric Hyperic with LDAP, Active Directory, and Kerberos, see [Configure LDAP Properties](#) and [Configure Kerberos Properties](#).

About SSL in vFabric Hyperic

About this section...

This section has information about SSL communications in vFabric Hyperic. Read this page to understand vFabric Hyperic's default behaviors and SSL configuration options and tasks. For instructions on configuring SSL communications and certificates, see:

For new vFabric Hyperic installations — [vFabric Hyperic Installation and Startup Process](#)

For upgrade installations — [vFabric Hyperic Upgrade Processes](#)

To change existing SSL configuration — [Configure SSL Options](#)

vFabric Hyperic SSL Support

vFabric Hyperic (version 4.6 and later) supports the use of SSL communication for both server-to-agent and agent-to-server communications. Server-to-agent communication is *always* SSL; you cannot configure vFabric Hyperic to use plain HTTP for server-to-agent communication.

You configure SSL for agent-to-server communication when you configure agent-server communications, either interactively at first agent startup, or in

AgentHome/conf/agent.properties using the agent.setup.camSecure property.

The vFabric Hyperic Agent can manage products over SSL, if the product plugin supports it.

Overview of vFabric Hyperic SSL Configuration and Defaults

When the vFabric Hyperic Server and a vFabric Hyperic Agent communicate over SSL, each component validates the other's SSL certificate.

Ideally, you should configure vFabric Hyperic components to communicate with each other via SSL at installation time. Detailed instructions are provided in [vFabric Hyperic Installation and Startup Process](#).

About vFabric Hyperic Server and SSL

If you are using the standard vFabric Hyperic installer `setup.sh` or `setup.bat`, install the vFabric Hyperic Server's keystore *before* installing the server. When you run the installer in `full` mode, it offers you the option of configuring the location and password of an existing keystore on the vFabric Hyperic Server host. Choose the "user-managed keystore" option and supply the keystore path and password during the server installation dialog.

If you do *not* configure the server to use an existing keystore, and supply its location and password during server installation, the vFabric Hyperic installer will create a keystore for the server with a self-signed certificate. The keystore, named `hyperic.keystore`, will be in `ServerHome/conf`, and have the password "hyperic". The server will present the self-signed certificate when communicating with agents.

Note that if you are deploying the vFabric Hyperic Server vApp, the deployment dialog does not allow you to configure the vFabric Hyperic Server for a user-managed keystore. If you deploy the server vApp and want to configure it for a user-managed keystore, see [Reconfigure vFabric Hyperic for Trusted SSL Certificates](#) on [Configure SSL Options](#).

About vFabric Hyperic Agent and SSL

If you want to use SSL for agent-to-server communication, install the vFabric Hyperic Agent's keystore *prior* to first startup. You *must* configure the keystore path and password (and also its alias, if you configure unidirectional agent-server communication) in the `AgentHome/conf/agent.properties` file before starting the agent the first time. The agent properties related to SSL are:

- `agent.keystore.alias`
- `agent.keystore.password`
- `agent.keystore.path`
- `agent.setup.camSecure`

If you do *not* configure the keystore information in `agent.properties` before first startup, the agent will create a keystore with a self-signed certificate. If you choose to run with vFabric Hyperic-generated keystores, update the password for each vFabric Hyperic-generated keystore; edit `agent.keystore.password` in the `agent.properties` file, and restart the agent.

In vFabric Hyperic 4.6 and later vFabric Hyperic plugins that connect to managed products over SSL are updated to support certificate verification. To enable management of such products by a 4.6.x agent, it may be necessary to manually import the target server's certificate into the agent keystore if the server's certificate is not trusted. For more information see [Managed Products and SSL](#).

vFabric Hyperic Certificate Processing

The first time a vFabric Hyperic Agent initiates a connection to the vFabric Hyperic Server (the first time you start the agent after installation), the server presents its SSL certificate to the agent. If the agent trusts the certificate that the server presented, the agent imports the server's certificate into its own keystore.

How the Agent Decides to Trust the Server's Certificate

The agent trusts a server certificate:

- if that certificate already exists in the agent's keystore, or
- if the certificate has the same CA as the agent's certificate.

By default, if the agent does not trust the certificate presented by the server, the agent issues a warning — you can terminate the configuration process, do the SSL setup. If you wish, you can continue the config process, in which case the agent will import the untrusted certificate presented by the vFabric Hyperic Server.

By default, the vFabric Hyperic Server and the vFabric Hyperic Agent do not import untrusted certificates unless you explicitly respond "yes" to the warning prompt described above. Note, however that both components can be configured to accept untrusted certificates automatically, with no warning. For security reasons, this practice is strongly discouraged. Check the values of `agent.setup.acceptUnverifiedCertificate` (in `AgentHome/conf/agent.properties`) and `accept.unverified.certificates` in `ServerHome/conf/hq-server.conf`.

SSL Between a 5.0 Server and Pre-4.6 Agents

To ensure backwards compatibility with pre-4.6 vFabric Hyperic Agents, the vFabric Hyperic Server upgrade procedure does *not* provide a mechanism for configuring the server to access a user-managed keystore.

When a newly-upgraded vFabric Hyperic 4.6.x Server starts up, it generates a self-signed SSL certificate.

When a pre-4.6 vFabric Hyperic Agent first connects to a newly-upgraded vFabric Hyperic 4.6.x server, its self-signed certificate is imported into the server's keystore.

SSL and vFabric Hyperic Product Plugins

vFabric Hyperic plugins that connect to managed products over SSL are updated to support certificate verification. To enable management of such products, it may be necessary to manually import the target server's certificate into the agent keystore if the server's certificate is not trusted. Affected plugins include:

- vSphere
- RabbitMQ

Import of the managed server's certificate is necessary only if the vFabric Hyperic Agent cannot verify the certificate. If the agent's keystore contains a CA cert and the managed server's certificate has been signed by that CA, the agent will be able verify the certificate. Otherwise, you should import the certificate of the signing CA, which is preferable to simply importing the managed server's certificate. If you are not sure of all of the CAs for signed certificates, you might consider importing the certificates in your JRE cacert file, which contains certificates for a variety of common CAs.

Agent Configuration

About this section...

This section has information about agent configuration data - how it is initially supplied, where it is saved, and how to change it.

For information about where agent configuration fits into the vFabric Hyperic deployment process, see:

[Step 4 - Set Up the vFabric Hyperic Agent](#) on the [vFabric Hyperic Installation and Startup Process](#) page — for new vFabric Hyperic installations
[vFabric Hyperic Upgrade Processes](#) — for upgrade installations

Agent Startup Configuration Data

The configuration choices you must supply for the agent to start up specify where and how it communicates with the vFabric Hyperic Server, and vice versa. You can supply these setup values either interactively at first startup, or in the agent's `agent.properties` file before first startup. For a list of setup properties and definitions, see [Communication Properties Reference](#).

After the agent and server establish successful communication upon first agent startup:

- The vFabric Hyperic Agent saves the server's connection data in `AgentHome/data`. The agent creates the `/data` directory upon first successful startup. On subsequent startups, the agent will look at the connection data stored in its `/data` directory to determine where and how to connect to the vFabric Hyperic Server.
- The vFabric Hyperic Server stores the agent's connection data in the vFabric Hyperic database.

Optional Agent Configuration Properties

As described above in [Agent Startup Configuration Data](#), at first successful startup, the agent saves the server connection data in its `/data` directory, and upon subsequent startups, looks there for the server connection data. If agent finds the server connection data in its `/data` directory, it does not look at `agent.properties` for the connection data.

Other agent properties that configure optional features and behaviors are persisted only in `agent.properties`. For a complete list of agent properties, see [Agent Properties](#).

Supported Locations for `agent.properties`

`agent.properties` is installed in `AgentHome/conf`.

Note however, that the agent first honors an external (from the agent installation) location for the properties file: an `.hq` directory under the home directory of the user under which the agent runs. The agent honors this location for `agent.properties` so that if you upgrade an agent by installing a full agent package (rather than just updating the agent bundle), you will not lose the configuration settings defined in `agent.properties`.

You can also ensure that you do not lose agent configuration settings by backing up `Agent/conf/agent.properties` before installing a full package, and restoring the file after installation.

You can upgrade a 4.x agent by installing an agent bundle only - you can perform this upgrade operation from the vFabric Hyperic user interface or using a manual procedure. When you upgrade the agent bundle only, the agent's `/conf` directory is not updated — this method preserves the `agent.properties` file within the agent installation through the upgrade.

How to Change Agent Setup Configuration Properties

You configure an agent's setup properties either interactively at first startup, or in `agent.properties` prior to first startup. The properties that relate to where and how to contact the vFabric Hyperic server, are saved in the agent's `/data` directory; those related to how the server can reach the agent are stored in the vFabric Hyperic database.

If you need to make changes to those configuration values for an agent at a later time, you can delete the agent's `/data` directory, edit the `agent.setup.*` properties in the `agent.properties` file, and restart the agent. You *must* use this method if you wish to change the agent's listen port — you cannot change port settings without restarting the agent.

If you prefer to change the startup configuration (other than agent listen port) without having to restart the agent, run the following command in a command shell, while the agent is running.

```
AgentHome/hq-agent.sh setup
```

This will allow you to interactively supply new values for the setup properties, as described in [Set Up Agent Interactively](#). This will cause all properties in the properties file to be re-read, and take effect.

Agent Launcher and Agent Startup

About this section...

This page describes the vFabric Hyperic Agent launcher and the agent startup process.

For information about:

Starting an agent — See [Start, Stop, and Other Agent Operations](#)

SSL certificate verification — See [About SSL in vFabric Hyperic](#)

Agent Launcher

The vFabric Hyperic Agent launcher is based on the Java Service Wrapper (JSW), a configurable tool that allows Java applications to be run as an NT service or Unix daemon process. It includes fault correction software to automatically restart crashed or frozen JVMs.

JSW runs as a native executable; it invokes and monitors the vFabric Hyperic Agent's JVM, based on configuration information provided to the wrapper at startup. In this way, the wrapper supports restarts of the JVM process without stopping the wrapper process itself. The JSW process acts as a watchdog for the JVM process, periodically pinging it for availability.

For information about wrapper configuration, see [Agent Java Service Wrapper Configuration](#).

What Happens When an Agent Starts Up

A vFabric Hyperic Agent needs to know how to connect to the vFabric Hyperic Server, and the vFabric Hyperic Server needs to know how to connect to the vFabric Hyperic Agent — each component needs the IP address and listen port (and other connection properties) to use to establish a connection with the other. As described in [About Agent Configuration](#) you can define the connection properties interactively at first agent startup, or in the agent's `agent.properties` file.

When you start a vFabric Hyperic Agent:

5. The agent checks to see if there is a `/data` directory that contains the vFabric Hyperic Server's connection properties.
 - At first startup, the `/data` directory will not exist — it is created after the first successful connection between agent and server is established.
 - If the agent finds the connection properties, it tries to connect to the vFabric Hyperic Server - see step 5 below.
6. If the agent did not find the `/data` directory, it looks for an `agent.properties` file in a hidden directory named `.hq` in the home directory of the user that runs the agent.
 - This directory will not exist unless you have previously created it. This location for the properties file is supported to ensure configuration data is not lost in the event that the complete agent installation is overwritten in an upgrade.
 - If the agent finds the connection properties, it tries to connect to the vFabric Hyperic Server - see step 5 below.
7. If the agent did not find the agent-server connection properties in an `agent.properties` file in the hidden `/ .hq` directory, it looks at the `agent.properties` file in its `/conf` directory.
 - If the agent finds the connection properties, it tries to connect to the vFabric Hyperic Server - see step 5 below.
8. If the agent did not find connection properties in the `agent.properties` file in its `/conf` directory, it prompts for the properties to be supplied interactively in the command shell.
9. Upon obtaining the agent-server connection properties, the agent attempts to connect to the vFabric Hyperic Server.
10. Once communications between agent and server have been successfully established:
 - The agent saves the vFabric Hyperic Server connection settings in `AgentHome/data`.

- The vFabric Hyperic Server saves the vFabric Hyperic Agent's connection settings in the vFabric Hyperic database.

Automatic Restart Behavior

As described above, JSW process periodically pings the agent JVM process.

If the JVM process exits with a non-zero exit code, indicating the JVM is hung or crashed, the JSW will restart the JVM process. Messages in the Agent and JSW logs indicate that the JSW has restarted the Agent. If the JSW cannot restart the JVM process, it will try again, up to a total of five times. You can configure different actions for the JSW, including the action it takes upon a particular JVM process exit code, and the number of times that it will attempt to restart the process.

Agent - Server Communication

This section is an overview of the communications between a vFabric Hyperic Agent and the vFabric Hyperic Server.

Agent-to-Server Communication

Upon startup, a vFabric Hyperic Agent initiates a communications channel with the vFabric Hyperic Server. The agent continuously batches and sends monitoring results for the platform to the server. Agent-to-server data flows over HTTPS via a byte-encrypted XML protocol called Lather.

The agent sends this data to the server:

- SSL certificate — When an agent connects to a server using https, it presents an SSL certificate as part of the handshake. For information about certificate verification, see [vFabric Hyperic 4.6.x SSL Certificate Processing](#) on [About SSL in vFabric Hyperic](#).
- plugin status — When an agent starts up and loads the plugins in its plugin directory, it sends a plugin status report to the server, including the MD5 checksum of each plugin it loaded. This server uses this information for the server-agent plugin synchronization (SAPS) process, described in [About Plugin Sync at Agent Startup](#) on [Plugin Deployment and Management](#) in [vFabric Hyperic Administration](#).
- metrics — You can configure the batch size using the `agent.maxBatchSize` property in `agent.properties`.
- event — You can configure the batch size using `agent.eventReportBatchSize` in `agent.properties`.
 - auto-discovery results — Auto-discovery results are reported after each auto-discovery scan.
 - By default, the default scan runs every 15 minutes. You can configure the frequency using the `autoinventory.defaultScan.interval.millis` in `agent.properties`

- By default, the run-time scan runs once a day. You can configure the frequency using the `autoinventory.runtimeScan.interval.millis` in `agent.properties`.

Server-to-Agent Communication

Unless a vFabric Hyperic Agent is configured for unidirectional communication, the vFabric Hyperic Server initiates communication with a vFabric Hyperic Agent to provide metric collection schedules, and relay the commands and data issued or configured by authorized users.

Server-to-agent traffic is always over SSL, and includes:

- SSL certificate — When the vFabric Hyperic Server connects to an agent using https, it presents an SSL certificate as part of the handshake. For information about certificate verification, see [vFabric Hyperic 4.6.x SSL Certificate Processing](#) on [About SSL in vFabric Hyperic](#).
- metric collection schedules
- resource control actions
- requests to initiate auto-inventory scans
- plugin updates — If, during the SAPS process, the vFabric Hyperic Server detects plugin mismatches between the product plugins on the server and those deployed on an agent, the server syncs the agent's plugin population to resolve the mismatches, and restarts the agent. This behavior is described in [About Plugin Sync at Server Startup](#) on [Plugin Deployment and Management](#) in [vFabric Hyperic Administration](#).

Unidirectional Agent-Server Communications

The default communication between an agent and the server is bi-directional — the vFabric Hyperic Agent establishes a connection with the vFabric Hyperic Server to send the data described in [Agent-to-Server Communication](#), and the vFabric Hyperic Server establishes a connection with the vFabric Hyperic Agent to send the data described in [Server-to-Agent Communication](#).

If your security policies dictate, you can configure the agent to initiate all communications with the vFabric Hyperic Server. You can configure unidirectional communications interactively, at first agent startup, or in an agent's `AgentHome/conf/agent.properties` file. If you want to change from bidirectional to unidirectional communications after initial agent configuration, see [Configure Unidirectional Agent - Server Communication](#).

If an agent is configured for unidirectional communication, the vFabric Hyperic Server does not establish a connection to the agent. Instead, at startup, the agent establishes a persistent connection to the vFabric Hyperic Server, and polls the server periodically for server communication.

Unidirectional Communication via a Proxy

If you use unidirectional communications, you can configure the vFabric Hyperic Agent to communicate with the vFabric Hyperic Server via a proxy server. You must configure this behavior in each agent's `agent.properties` file. For more information, see [Set Up Agent in Properties File](#).

Agent Directory Structure

The structure of the vFabric Hyperic Agent installation directory is shown below.

```
agent-4.6.n
  bin
  bundles
    agent-4.x.y-nnnn
  conf
  data
  log
  wrapper
```

The root of the directory structure shown above as `agent-4.x.y` is typically referred to in vFabric Hyperic documentation as the *AgentHome* directory. Key agent directories include:

- `AgentHome/bin` - contains agent start scripts: `hq-agent.sh` and `hq-agent.bat`
- `AgentHome/conf` - contains `agent.properties`
- `AgentHome/data` - this is the directory where the agent saves the connection properties it uses to contact the vFabric Hyperic Server.
- `AgentHome/log` - contains:
 - `agent.log`
 - `agent.startup.log`
 - `wrapper.log`

Sizing Profiles in vFabric Hyperic

About this section...

This page describes how the vFabric Hyperic installer in vFabric Hyperic 4.6.5 and later sets the values of key server properties that affect the system resources allocated to server processing.

Tuning vFabric Hyperic HQ

Sizing profiles are a vFabric Hyperic feature. The vFabric Hyperic HQ installer does not prompt for a sizing profile, and sets related server properties to the values shown in the "Small (less than 50 platforms)" column of the table in [Server Property Values for Sizing Profile](#). To tune the vFabric Hyperic HQ server, manually edit the properties values. For more information, see [Scaling and Tuning vFabric Hyperic Performance](#).

Deployment Size and Installation Sizing Profiles

Starting in vFabric 4.6.5, the vFabric Hyperic installer prompts you to select a sizing profile based on the size of your vFabric Hyperic deployment. Depending on the volume of platforms you will manage, you choose a "small", "medium", or "large" sizing profile.

Based on the profile you select, the installer sets the values of a variety of vFabric Hyperic Server sizing properties in `ServerHome\server.conf` and `ServerHome\hq-engine\hq-server\webapps\ROOT\WEB-INF\web.xml`. The choice you make — "small", "medium", or "large" — determines the values of server properties that specify the Java options used to start the vFabric Hyperic Server, the server's JMS memory limits, the vFabric Hyperic database connection pool size, and the number of threads available to the vFabric Hyperic Server's internal application server.

Server Property Values for Sizing Profile

The table below lists the vFabric Hyperic Server properties whose values are set based by the vFabric Hyperic installer, upon the selected sizing profile, and the values associated with "small", "medium", and "large" profiles.

Property	Small (less than 50 platforms)	Medium (50-250 platforms)	Large (more than 250 platforms)
<code>server.jms.highestmemory</code>	350	1400	2400
<code>server.jms.maxmemory</code>	400	1600	3600
<code>server.database-minpoolsize</code>	5	20	50
<code>server.database-maxpoolsize</code>	100	200	400

Property	Small (less than 50 platforms)	Medium (50-250 platforms)	Large (more than 250 platforms)
server.java.opts	- Djava.awt.headless=true - XX:MaxPermSize=192m -Xmx512m -Xms512m - XX:+HeapDumpOnOutOfMemoryError - XX:+UseConcMarkSweepGC	- Djava.awt.headless=true - XX:MaxPermSize=192m -Xmx4g -Xms4g - XX:+HeapDumpOnOutOfMemoryError - XX:+UseConcMarkSweepGC	-Djava.awt.headless=true -XX:MaxPermSize=192m -Xmn4g -Xmx8g -Xms8g - XX:+HeapDumpOnOutOfMemoryError -XX:+UseConcMarkSweepGC -XX:SurvivorRatio=12 -XX:+UseCompressedOops
tomcat.maxthreads (new in vFabric Hyperic 4.6.5)	500	2000	4000
tomcat.minsparethreads (new in vFabric Hyperic 4.6.5)	50	100	200
org.hyperic.lather.maxConns (in ServerHome\hq- engine\hq- server\webapps \ROOT \WEB- INF\web.xml)	475	1900	3800

How to Select an Installation Sizing Profile

The vFabric Hyperic installer you to select an sizing profile size when you run it with the `-full` qualifier. If you run the vFabric Hyperic with no qualifier, or a qualifier other than `-full`, default property values are set in accordance with the "small" profile.

Sizing Profiles and Upgrade Installations

When you run the vFabric Hyperic installer with the `-upgrade` qualifier, the new vFabric Hyperic Server properties `{tomcat.maxthreads}` and `(tomcat.minsparethreads)` are added to `server.conf`, with values corresponding to the "small" sizing profile. You can apply a different sizing profile after installation, as described in [Change vFabric Hyperic Server Sizing Profile](#).

vFabric Hyperic Installation and Startup Process

About this section...

This page lists required and optional steps for a new installation of the vFabric Hyperic Server and vFabric Hyperic Agent. Steps that are not required for all installations are marked "Optional" or "As Necessary".

For upgrade options and instruction see [vFabric Hyperic Upgrade Processes](#).

Note: If you obtain vFabric Hyperic as part of vFabric Suite (previously known as "vFabric Platform"), first complete the license activation and installation procedures in *Getting Started with vFabric Suite*. Then follow procedures in this document to set up your environment for vFabric Hyperic and complete any remaining vFabric Hyperic-specific installation and configuration tasks.

Step 1 – Obtain vFabric Hyperic Installer

See [Select and Download an Installer](#) for instructions.

Step 2 – Set Up vFabric Hyperic Database

When to skip this step

Skip this step if you are:

- deploying the vFabric Hyperic virtual appliance (vApp), or
- planning to use the embedded PostgreSQL database.

If you will use an external PostgreSQL database, rather than use the embedded database, create the vFabric Hyperic database *before* installing vFabric Hyperic Server. In large environments, set up the vFabric Hyperic database on a dedicated platform.

Follow the instructions on [Set Up vFabric Hyperic Database](#).

For information about vFabric Hyperic database requirements and recommendations, see [Host Machine Requirements](#).

Step 3 - Set Up vFabric Hyperic Server

Before installing the server:

1. Configure user-managed keystore for server (Optional).
If you want the vFabric Hyperic server to use a keystore that you manage yourself for SSL communication, rather than vFabric Hyperic-generated keystores, set up a JKS format keystore for the vFabric Hyperic Server on its host and import the SSL certificate for it. Make a note of the full path to the keystore, and its password — you will supply this information when you run the vFabric Hyperic installer (in `-full` mode).

Password Requirement for vFabric Hyperic Keystores

The vFabric Hyperic Server's keystore password and private key password **must** be the same — otherwise, the vFabric Hyperic Server's internal Tomcat-based server will be unable to start.

For more information, see [About SSL in vFabric Hyperic](#)

2. Define Server HQ_JAVA_HOME (As necessary).
vFabric Hyperic platform-specific server installers include a JRE; platform-independent installers do not. Depending on your environment and the installer you use, you may need to define the location of the JRE to ensure that the server can find the JRE you want it to use.

For more information, and instructions, see [Configure JREs for vFabric Hyperic Components](#).

3. Make sure the vFabric Hyperic database is available.
During the installation process, the vFabric Hyperic Server will test the database connection.

Procedure

1. Install vFabric Hyperic Server.
Follow the instructions for installer you are using:
 - [Install vFabric Hyperic vApp](#)
 - [Run vFabric Hyperic Installer](#)
 - [Install vFabric Hyperic Server RPM](#)
2. Install License.
 - Evaluation versions of vFabric Hyperic have a built-in, time-limited evaluation license — you should not need to install a license.
 - If you are installing a licensed version of vFabric Hyperic, follow the the instructions on [Install or Configure vFabric Hyperic License](#).

3. Start the vFabric Hyperic Server.

- Follow the instructions that apply to your environment:
If you installed the vFabric Hyperic Server from the VMware yum repository to an RHEL VM, the vFabric Hyperic Server is configured to start automatically each time the VM starts up. If you installed the vFabric Hyperic Server for a downloaded RPM, following these steps to start the vFabric Hyperic Server as a daemon:
- Log in to the vFabric Hyperic Server host as `root`.
 - Open a terminal window and run the `/etc/init.d/hyperic-hq-server` script with the `start` parameter:

```
/etc/init.d/hyperic-hq-server start
```

On Unix-Like platforms, to start the vFabric Hyperic Server as a daemon:

- a. Open a command shell.
- b. Change directory to `ServerHome/bin`, and enter:

```
hq-server.sh start
```

On Windows platforms, to install the vFabric Hyperic Server Windows service and start the service:

- a. Open a terminal window.
- b. Change directory to `ServerHome\bin` and enter

```
hq-server.bat install  
hq-server.bat start
```

The script will display startup information on stdout, then detach and run in the background.

4. Verify that the vFabric Hyperic Server started successfully.

- Verify that the vFabric Hyperic Server started successfully by pointing your web browser to the vFabric Hyperic user interface.
- After the vFabric Hyperic Server starts up, which may take a moment or so, display the vFabric Hyperic user interface at the following URL, replacing "ServerHostName" with the server's hostname (or "localhost" from the server host). Replace "7080" with the appropriate port number if you configured the server to listen on a different port.

```
http://ServerHostName:7080
```

- The vFabric Hyperic Dashboard should appear. Note that there will not be any resources in inventory until you start a vFabric Hyperic Agent.
- If the vFabric Hyperic Dashboard does not appear, check `server.log` and `bootstrap.log` in `ServerHome/logs/` for information about server startup status.

Sensitive Data Best Practices

In this version of vFabric Hyperic, the vFabric Hyperic installer writes some sensitive data to installation log files. After successfully installing vFabric Hyperic Server, delete `InstallerHome/logs/hq-install.log` and `hq-install.log.verbose`, or the whole the exploded installer.

Step 4 - Set Up the vFabric Hyperic Agent

1. Before installing the agent, or if you have already installed the agent, before starting it for the first time:
 - a. Configure user-managed keystore for vFabric Hyperic Agent (Optional)
If you want the vFabric Hyperic Agent to use a keystore that you manage yourself for SSL communication, rather than a vFabric Hyperic-generated keystore, set up a JKS format keystore for the vFabric Hyperic Agent on its host and import the SSL certificate for it. Make a note of the full path to the keystore, and its password — you will configure this data in the agent's `agent.properties` file.

Password Recommendation for Agent Keystore

The agent keystore password and the private key password must be the same.

- b. Import certificates for selected managed products to agent keystore (Optional).
In vFabric Hyperic 4.6 and later, vFabric Hyperic plugins that connect to managed products over SSL are updated to support certificate verification. To enable management of such products by a 4.6.x agent, it may be necessary to manually import the target server's certificate into the agent keystore if the server's certificate is not trusted. Affected plugins include vSphere and Rabbit MQ. For more information, see [About SSL in vFabric Hyperic](#).
- c. Define Agent `HQ_JAVA_HOME` (As necessary).
vFabric Hyperic platform-specific agent installers include a JRE; platform-independent installers do not. Depending on your environment and the installer you use, you may need to define the location of the JRE to ensure that the agent can find the JRE you want it to use. For more information, and instructions, see [Configure JREs for vFabric Hyperic Components](#).

- d. Open firewall port if necessary.

If there is a firewall blocking incoming traffic to a platform where you will install vFabric Hyperic Agents, you must open the agent listen port (by default, 2144 for plaintext or 2443 for SSL) so that the agent will accept connections from the vFabric Hyperic Server. Note that the firewall built into Windows blocks remote connections by default; in Windows environments you *must* open the agent listen port.

2. **Install the agent**, following the instructions for the desired installation method:

- [Install an Agent-Only Package](#)
- [Run vFabric Hyperic Installer](#)
- [Install vFabric Hyperic Agent RPM](#)

3. **Install database drivers for vFabric Hyperic HQ .**

- In vFabric Hyperic HQ, the plugins packaged with the vFabric Hyperic Agent for MSSQL, Oracle, Informix, DB2, and Sybase do not include the database vendor's JDBC plugin. (The database plugins in vFabric Hyperic include the JDBC drivers.) After installing vFabric Hyperic HQ you must download and install the vendor-provided JDBC drivers for these plugins to work. Install drivers in:

```
AgentHome/bundles/AgentBundle/pdk/lib/jdbc
```

4. **Configure vFabric Hyperic Agent in the Properties file** (As necessary).

- You can define the properties that enable the vFabric Hyperic Agent and vFabric Hyperic Server to communicate with each other and other agent behaviors in an agent's `agent.properties` file prior to first startup. If you do not, you can supply the values interactively the first time you start the agent (as described in the following step.)
- Note however, that some agent properties *cannot* be supplied interactively. You *must* edit `agent.properties` before first agent startup, as described in [Set Up Agent in Properties File](#) if:
 - You want the agent to use an SSL keystore that you manage, rather than a vFabric Hyperic-generated keystore.
 - The agent will manage vSphere components.
 - The agent will connect to the vFabric Hyperic Server via a proxy server. (Supported in vFabric Hyperic only.)
- Configuring an agent in its properties file, rather than interactively, is also useful particularly when you deploy a lot of agents.

5. Start the vFabric Hyperic Agent for the first time.

- a. Make sure that the vFabric Hyperic Server is running.
- b. Follow the instructions that apply to your environment:
 - On Unix-Like platforms, to start the vFabric Hyperic Agent as a daemon:
 - Open a command shell.
 - Change directory to `AgentHome/bin`, and enter:

```
hq-agent.sh start
```

- On Windows platforms, to set up the vFabric Hyperic Agent to run as a service and start the service:
 - a. Open a terminal window.
 - b. Change directory to `ServerHome\bin` and enter:

```
hq-agent.bat install
hq-agent.bat start
```

- If you configured all required agent properties in `agent.properties`, the agent will start up and discover the resources on the platform. Otherwise, the agent will prompt for required properties that have not been defined. For instructions on the configuration prompts, see [Set Up Agent Interactively](#).

SSL Warnings?

By default, if the agent does not trust the certificate presented by the server, the agent issues this warning:

```
The authenticity of host 'ServerHost' can't be established. Are you sure you
want to continue connecting? [default=no]:
```

If this warning is issued, for strongest security, press **Return** to terminate the agent configuration process. Before restarting the agent configuration process, obtain an SSL certificate for the agent, and one for the server, both signed by the same trusted CA. Then follow the instructions in [Configure SSL Options](#). If you enter "yes" to continue the agent configuration process, the agent displays the following warning, prompting you to confirm your choice before it imports the certificate that the server presented:

```
The server to agent communication channel is using a self-signed certificate and
could not be verified
Are you sure you want to continue connecting? [default=no]: yes
```

6. Import discovered resources.

- After the vFabric Hyperic Agent starts up and runs the auto-discovery process, the resources discovered on the platform appear in the **Auto-Discovery** portlet on the vFabric Hyperic Dashboard.
- Open the vFabric Hyperic user interface as described above in [View the vFabric Hyperic Dashboard](#).
- For information about aut-discovery and related instructions, see [Discover and Import Resources to Inventory](#).
- If no resources appear in the **Auto-Discovery** portlet, check the log files (`agent.log`, `agent.log.startup`, and `wrapper.log`) in `AgentHome/logs` to make sure the agent started up successfully.

Step 5 - Next Steps for New Installations

If you are implementing a large deployment, see [Scaling and Tuning vFabric Hyperic Performance](#).

For information about establishing your monitoring environment see *vFabric Hyperic Administration* for instructions on setting up:

- Resource groups and applications
- Users and roles
- Alerts for resources and resource types
- Configurable alert notification types
- Resource auto-discover options

vFabric Hyperic Upgrade Processes

About this section...

This page is a guide to vFabric Hyperic upgrade procedures, which vary depending on the version and package of vFabric Hyperic you use. For information about performing a new installation of vFabric Hyperic components, see [vFabric Hyperic Installation and Startup Process](#).

- **Migrate vFabric Hyperic Server and Database to Version 5.7** — Follow the instructions on [Migrate v4 vFabric Hyperic Server and Database to v5](#) to upgrade a vFabric Hyperic 4.x Server and database to version 5.0.
- **Upgrade from vFabric Hyperic 5.7** — Follow the instructions on [Upgrade a vFabric Hyperic 5.0 Installation](#) to upgrade a version 5.x Server to a later 5.x version.
- **Upgrade vFabric Hyperic vApp** — To upgrade the vFabric Hyperic Server vApp, follow the instructions in the [Upgrade vFabric Hyperic Server vApp](#) section of the [vFabric Hyperic Server vApp Administration Console](#) page.
- **Upgrade vFabric Hyperic Agents** — Follow the instructions on [Upgrade vFabric Hyperic Agent](#).

Step-by-Step Procedures

Select and Download an Installer

About this section...

This section has instructions for selecting the right vFabric Hyperic installation package.

After obtaining the appropriate installation package, see:

[vFabric Hyperic Installation and Startup Process](#) — For instructions on doing a new installation.

[vFabric Hyperic Upgrade Processes](#) — For instructions on doing an upgrade installation.

Key Facts About vFabric Hyperic Installer Packaging

- About JRE packaging
 - Some vFabric Hyperic installation packages include a 1.7 JRE.
 - vFabric Hyperic installers referred to as *platform-independent* do not include a JRE — use a platform-independent package if you have a pre-existing JRE on the target platform that you want the server or agent to use. A platform-independent package for Unix-like environments is also appropriate if there is no vFabric Hyperic installer for your operating system.
 - The Agent RPM does not include a JRE.
- About vFabric Hyperic database options
 - Platform-independent server packages do not support the option of installing vFabric Hyperic Server with a built-in database.

Installer Types

There are several ways you can install vFabric Hyperic components:

- vFabric Hyperic vApp — A virtual appliance (vApp) is one or more virtual machine image files (.ovf), each with a preconfigured operating system environment and application. The vFabric Hyperic vApp contains two VM images, one for the vFabric Hyperic Server and one for the vFabric Hyperic database. Deploying the vFabric Hyperic vApp offers these advantages over traditional installation:
 - Greatly simplified deployment, because the components are already configured to work, and to work with each other
 - Reduced support impacts and risks because the components are self-contained and hence unable to interact, undesirably or otherwise, with other applications.

About vApp Packaging

The vFabric Hyperic vApp is available as an .ova archive that contains the .ovf descriptor, .mf, and .vmdk files necessary to deploy the vFabric Hyperic Server and vFabric Hyperic Database vApps using the vSphere client. You can also create a vFabric Hyperic vApp in your virtual cloud from a vApp template using VMware vCloud Director.

- **vFabric Hyperic Installer** — The hyperic installer is script-based and prompts you for installation options with options. You can do a quick install that sets up defaults for most vFabric Hyperic Server configuration options, or run it in "full" mode to respond to the configuration dialog yourself. You can also use this installer to install the vFabric Hyperic Agent. To install an agent, the installer simply creates a home directory for the agent, and unpacks the agent archive into it — you configure agent behavior by editing its properties file prior to first startup, or via an interactive dialog at first startup. Full installer packages are available for both Windows and Unix-like environments, with and without built-in JREs.
- **Agent Archives** — Agent-only archives are useful when you roll out agents to a large number of platforms with varying operating systems and architectures. Agent archives are available for both Windows and Unix-like environments, with and without built-in JREs.
- **RHEL RPMs** — RPMs are available. Note that the vFabric Hyperic Server RPM is the standard vFabric Hyperic installer wrapped in an Expect script.

Where to Get vFabric Hyperic Installation Packages

vFabric Hyperic and vFabric Hyperic HQ installers are available on the VMware download page at <http://downloads.vmware.com/>. Navigate to the page and choose **VMware vFabric Hyperic**.

Configure JREs for vFabric Hyperic Components

About this section...

This section has information about how to configure vFabric Hyperic components to use a particular JRE.

It is not generally necessary to configure the location of the JREs used by the vFabric Hyperic Server or vFabric Hyperic Agents. For more information, see [About vFabric Hyperic JREs](#) below.

If you do need to configure the location of the JRE for a vFabric Hyperic component, define the environment or system variable, as described below, and restart the system before starting the vFabric Hyperic component.

About vFabric Hyperic JREs

Both vFabric Hyperic Server and vFabric Hyperic Agents require a JRE. Some vFabric Hyperic installers include a JRE; they are called *platform-specific*. Installers without a JRE are called *platform-independent*. Depending on your environment and the installation package you use, you may need to define the location of the JRE for the server or your agents.

- You **do not** need to configure the location of the JRE when you do a platform-specific server install on a machine with no JRE.
- You **do** need to configure the location of the JRE when you:
 - Install the vFabric Hyperic Server (or the vFabric Hyperic Agent) with a platform-independent installer,
 - Install the vFabric Hyperic Server (or the vFabric Hyperic Agent) with a platform-specific installer on a machine that has its own JRE that you prefer to use.
 - Install a vFabric Hyperic Agent from an RPM. Agent RPMs do not include a JRE.

How vFabric Hyperic Server Resolves its JRE on any Platform

On both Unix-Like and Windows platforms, vFabric Hyperic Server resolves the JRE to use in this order:

1. `HQ_JAVA_HOME` environment variable
2. embedded JRE
3. `JAVA_HOME` environment variable

The vFabric Hyperic Agent has resolves its JRE differently than the vFabric Hyperic Server does, and differently depending on platform type. For more information, see the appropriate section:

- [vFabric Hyperic Agent JRE on Unix](#)
- [vFabric Hyperic Agent JRE on Windows](#)

vFabric Hyperic Agent JRE on Unix

The vFabric Hyperic Agent installer, like the server installer, is available with or without a JRE. If you do a platform-specific agent install on a machine without an existing JRE, you do not need to explicitly configure the location of the JRE to use.

You should configure the JRE location with the `HQ_JAVA_HOME` environment variable if you do a platform-independent agent install, or a platform-specific install on a Unix machine that already has a JRE that you prefer to use.

How a vFabric Hyperic Agent Resolves its JRE on Unix

On Unix-like platforms, vFabric Hyperic Agent resolves the JRE to use in this order:

1. `HQ_JAVA_HOME` environment variable
2. Embedded JRE
3. `JAVA_HOME`

vFabric Hyperic Agent JRE on Windows

The vFabric Hyperic Agent installer, like the server installer, is available with or without a JRE.

You should configure the JRE location with the `HQ_JAVA_HOME` system variable if you do a platform-independent agent install on Windows, or a platform-specific install on a Windows machine that already has a JRE that you prefer to use.

How a vFabric Hyperic Agent Resolves its JRE on Windows

On Windows platforms, vFabric Hyperic Agent resolves the JRE to use in this order:

1. `HQ_JAVA_HOME` **system** variable (*not* an environment variable)
2. Embedded JRE

To define a system variable, use:

My Computer > Properties > Advanced > Environment Variables >
System variables > New

Configure SSL Options

About this section...

This section has information about configuring vFabric Hyperic components for user-managed keystores. If you do not configure the vFabric Hyperic Server and vFabric Hyperic Agents to use keystores you establish and manage, they will generate default keystores with self-signed certificates.

vFabric Hyperic recommends user-managed keystores. For more information, see [About SSL in vFabric Hyperic](#).

The information on this page relates to the [Configure User-Managed Keystore for Server](#) and [Configure User-Managed Keystore for Agent](#) steps in the [vFabric Hyperic Installation and Startup Process](#).

SSL Setup for New vFabric Hyperic Installations

This section summarizes the key steps in configuring a new vFabric Hyperic 4.6 deployment for user-managed keystores. To see how these steps fit into the overall installation and startup process, see [vFabric Hyperic Installation and Startup Process](#).

1. Obtain SSL certificates for the vFabric Hyperic Server and each vFabric Hyperic Agent.
2. Set up a JKS format keystore for the vFabric Hyperic Server on its host, import the SSL certificate for it, and note the full path to the keystore and its password. When you run the vFabric Hyperic installer in `-full` mode, the installer prompts for this information.
3. Setup a keystore for each vFabric Hyperic Agent on its host, import the SSL certificate for it, and configure its location and password in the agent's `AgentHome/conf/agent.properties` file, by setting the values of `agent.keystore.path` and `agent.keystore.password`.

Password Requirement for vFabric Hyperic Keystores

The vFabric Hyperic Server's keystore password and private key password **must** be the same — otherwise, the vFabric Hyperic Server's internal Tomcat-based server will be unable to start. Follow the same convention for a vFabric Hyperic Agent keystore — set the password for the agent keystore be the same as the agent private key,

4. If you plan to configure vFabric Hyperic Agents for unidirectional communication, define the keystore name using the `agent.keystore.alias` property.
5. Restart each agent after editing its properties file.

SSL Setup for Upgrade Installations

Please see [vFabric Hyperic Upgrade Processes](#).

Managed Products and SSL

In vFabric Hyperic 4.6, vFabric Hyperic plugins that connect to managed products over SSL are updated to support certificate verification. To enable management of such products by a 4.6 agent, it may be necessary to manually import the target server's certificate into the agent keystore if the server's certificate is not trusted. Affected plugins include:

- [vSphere](#)
- [RabbitMQ](#)

Import of the managed server's certificate is necessary only if the vFabric Hyperic Agent cannot verify the certificate. If the agent's keystore contains a CA cert and the managed server's certificate has been signed by that CA, the agent will be able verify the certificate. Otherwise, you should import the certificate of the signing CA, which is preferable to simply importing the managed server's certificate. If you are not sure of all of the CAs for signed certificates, you might consider importing the certificates in your JRE cacert file, which contains certificates for a variety of common CAs.

Reconfigure vFabric Hyperic for Trusted SSL Certificates

This section has instructions for changing vFabric Hyperic's SSL certificate configuration from default, vFabric Hyperic-generated keystores to user-managed keystores.

1. Install and configure a trusted PKC12 format keystore for vFabric Hyperic Server:
 - a. Obtain an SSL certificate from your CA and install it on the vFabric Hyperic Server host.

If your certificate is not PKCS12 format, you can use the **openssl** tool to convert it. For more information, see <http://community.jboss.org/wiki/sslsetup>.

After ensuring your certificate is in the correct format, use **java-keytool** to install it. For more information, see <http://java.sun.com/j2se/1.4.2/docs/tooldocs/windows/keytool.html>.
 - b. Open `ServerHome/conf/hq-server.conf` in a text editor.

- c. Set the value of `accept.unverified.certificates` to "false".
 - d. Define the location of your trusted keystore with the `server.keystore.path` property.
 - e. Define the password for your trusted keystore with the `server.keystore.password` property.
 - f. Save your changes.
 - g. Restart the vFabric Hyperic Server.
2. For each vFabric Hyperic 4.6 Agent reporting to the vFabric Hyperic Server:
 - a. Obtain an SSL certificate from your CA and install it on the vFabric Hyperic Agent host.
 - b. Open `AgentBundle/AgentHome/agent.properties` in a text editor.
 - c. Set the value of `agent.setup.acceptUnverifiedCertificate` to "false".
 - d. Define the location of your trusted keystore with the `agent.keystore.path` property.
 - e. Define the password for your trusted keystore with the `agent.keystore.password` property.
 - f. Save your changes.
 - g. Restart the vFabric Hyperic Agent.

Reconfigure vFabric Hyperic for Self-Signed Certificates

This section has instructions for changing vFabric Hyperic's SSL certificate configuration from user-managed keystores to default, vFabric Hyperic-generated keystores.

Default Certs Not Recommended

For best security, do not configure vFabric Hyperic to use self-signed certificates.

1. Open `ServerHome/conf/hq-server.conf` in a text editor.
 - a. Set the value of `accept.unverified.certificates` to "true".
 - b. Restart the vFabric Hyperic Server.
2. For each vFabric Hyperic 4.6 Agent reporting to the vFabric Hyperic Server:
 - a. Open `AgentBundle/AgentHome/agent.properties` in a text editor.
 - b. Set the value of `agent.setup.acceptUnverifiedCertificate` to "true".
 - c. Save your changes.
 - d. Restart the vFabric Hyperic Agent.

Install vFabric Hyperic vApp

About this section...

This section has instructions for deploying the vFabric Hyperic Virtual Appliance (vApp). After deploying the vApp, proceed with "Step 4 - Set Up the vFabric Hyperic Agent" of the [vFabric Hyperic Installation and Startup Process](#).

For information about using the regular vFabric Hyperic installer, rather than deploying the vApp, see [Run vFabric Hyperic Installer](#).

If you wish to upgrade an existing vFabric Hyperic deployment, please see [vFabric Hyperic Upgrade Processes](#).

About the vFabric Hyperic vApp

A virtual appliance (vApp) is one or more virtual machine image files (.ovf), each with a preconfigured operating system environment and application. The vFabric Hyperic vApp contains two VM images, one for the vFabric Hyperic Server and one for the vFabric Hyperic database. Deploying the vFabric Hyperic vApp offers these advantages over traditional installation:

- Greatly simplified deployment, because the components are already configured to work, and to work with each other.
- Reduced support impacts and risks because the components are self-contained and hence unable to interact, undesirably or otherwise, with other applications.

Prerequisites

The prerequisites for this procedures are:

- vCenter is installed and running.
- vSphere Client is installed.
- If you intended to assign fixed IP addresses to the vFabric Hyperic Server and vFabric Hyperic database, which is the recommended best practice, be prepared to supply those IP addresses when you run the deployment wizard.

Procedure

1. Log in to the vSphere Client as Administrator.
2. Select **File > Deploy OVF Template**.
3. On the "Source" page, enter a URL from which to download the vFabric Hyperic OVF file, or a disk location accessible from your computer.
4. On the "OVF Template Details" page, click **Next** to proceed.
5. On the "End User License Agreements" page, click **Next** to proceed.
6. (Optional) On the "Name and Location" page, edit the name and select the folder location within the inventory where the vApp will reside, and click **Next**.
7. Specify the deployment scale you want to use.
The default deployment scale is "small", for deployment of fewer than 50 agents.
8. On the "Host/Cluster" page, select the host or cluster on which you want to deploy the OVF template, and click **Next**.
9. On the "Disk Format" page, select the disk format to store the virtual machine virtual disks, and click **Next**.

Thick Provision Lazy Zeroed — Creates a virtual disk in a default thick format.

Space required for the virtual disk is allocated when the virtual disk is created. Data remaining on the physical device is not erased during creation, but is zeroed out on demand at a later time on first write from the virtual machine. Using the default flat virtual disk format does not zero out or eliminate the possibility of recovering deleted files or restoring old data that might be present on this allocated space. You cannot convert a flat disk to a thin disk.

Thick Provision Eager Zeroed — A type of thick virtual disk that supports clustering features such as Fault Tolerance. Space required for the virtual disk is allocated at creation time. In contrast to the flat format, the data remaining on the physical device is zeroed out when the virtual disk is created. It might take much longer to create disks in this format than to create other types of disks.

Thin Provision — Use this format to save storage space. For the thin disk, you provision as much datastore space as the disk would require based on the value that you enter for the disk size. However, the thin disk starts small and at first, uses only as much datastore space as the disk needs for its initial operations. If the thin disk needs more space later, it can grow to its maximum capacity and occupy the entire datastore space provisioned to it. Also, you can manually convert the thin disk into a thick disk.

10. On the "Network Mapping" page, select a network by right-clicking the **Destination Network** column in your infrastructure to set up the network mapping.
11. On the "IP Address Allocation" page, you can choose one of:
 - **Fixed** — May be preferable for production environments. You will be prompted to enter the IP addresses in the **Appliance Properties** page.
 - **Transient** — IP addresses are allocated from a specified range when the appliance is powered on. The IP addresses are released when the appliance is powered off.
 - **DHCP** — A DHCP server is used to allocate the IP addresses
12. On the "Properties" page, enter values in the following fields and click **Next** to proceed:
 - DB username
 - DB password
 - vFabric Hyperic admin username
 - vFabric Hyperic admin password
13. On the "Ready to Complete" page:
 - a. Review the options you have selected on the "Ready to Complete" page.
 - b. If you want the vFabric Hyperic Server started when deployment is complete, check the Power on after deployment box.
 - c. Click Finish to proceed.

The Deploying vFabric Hyperic page appears.

Logon to vApp

Use `root` user to logon to the vApp machines — both vFabric Hyperic Server and vFabric Hyperic database. Supply the password that was defined during deployment for the vFabric Hyperic Server admin account, `hqadmin` by default.

Start and Stop vFabric Hyperic Server

Use the "hyperic" user to start, stop, and restart the vFabric Hyperic Server.

vFabric Hyperic Server vApp Administration Console

This page provides instructions for using the web-based management console for administration of the vFabric Hyperic Server vApp.

About the vApp Management Console

The vFabric Hyperic Server vApp provides a web interface for performing common server administration tasks. The vApp console is available only when the vApp is powered on. The functions provided by the vApp console can also be performed from a command shell.

Connect to vFabric Hyperic Server vApp Management Console

Connect to the vFabric Hyperic Server vApp management console at this URL:

```
https://host:5480
```

where `host` is the IP address or DNS name of the vFabric Hyperic Server vApp host.

Log on to the management console as `root`, and supply the password that was defined during deployment for the vFabric Hyperic Server admin account, `hqadmin` by default.

View vFabric Hyperic Server vApp System Information

The **System > Information** page presents the following information about the vApp:

- Vendor
- Appliance Name
- Appliance Version
- Hostname
- OS Name

Two command buttons appear in the **Actions** section:

- **Reboot** — This command restarts the vApp.
- **Shutdown** — This command powers down the vApp.

Set vFabric Hyperic Server vApp Time zone

The **System > Time Zone** page allows you to set the time zone.

View vFabric Hyperic Server vApp Network Status

The **Network > Status** page presents the following network details for the vApp:

- Hostname
- IPv4 Gateway
- Preferred DNS Server
- Alternate DNS Server

The following information is listed for each network interface on the vApp

- Interface Name
- Type — Indicates the method by which the interface obtains its IP address, for example, via DHCP, or static assignment.
- Address — IP address of the interface.
- Netmask — Subnet of the interface.
- Managed by VAMI — Indicates whether the interface is under Virtual Appliance Management Infrastructure (VAMI) management.

Manage vFabric Hyperic vApp Network Address Settings

The **Network > Address** page allows you to configure the method by which the interface obtains its IP address.

Configure vFabric Hyperic vApp Proxy Settings

The **Network > Proxy** page allows you to configure a proxy server for HTTP communications between the vApp machine and the external Internet.

To configure a proxy server:

1. Check the **Use a proxy server** box.
2. Enter the IP address or domain name of the proxy server in the **HTTP Proxy Server** field.
3. Enter the port on the proxy server to connect to in the **HTTP Port** field.
4. If the proxy server authenticates connections, enter the username for connecting to the proxy server in the **Proxy Username** field.
5. If the proxy server authenticates connections, enter the password for connecting to the proxy server in the **Proxy Password** field.
6. Click **Save Settings**.

Upgrade vFabric Hyperic Server vApp

The **vFabric Hyperic Server Upgrade** page allows you to upgrade a vFabric Hyperic Server vApp to a new version.

After taking snapshots of the vFabric Hyperic Server and database VMs, enter the path to the new vFabric Hyperic installer, and click **upgrade**.

Deploy vFabric Hyperic vApp with vCloud Director

This section has instructions for creating a vFabric Hyperic vApp in your virtual cloud from a vApp template using VMware vCloud Director.

Prerequisites and Requirements

These instructions assume that:

- The vFabric Hyperic Server and vFabric Hyperic Database OVF files have been uploaded to a vCloud catalog to which you have access.
- Your browser is configured appropriately for accessing and using the vCloud web-based console. See *vCloud Director User Guide* for more information.
- You are a knowledgeable vCloud Director user.

Step 1 - Complete the vApp Profile

When you create a new vApp, you must provide some basic information.

1. Log in to the vCloud Director Web console.
2. Click **My Cloud**.
3. In the left pane, click **vApps** and then click the **Build New vApp** icon in the right pane.
4. In the **Name this vApp** pane, type a name, for example, "vFabric Hyperic" and an optional description for the vApp.
5. Select a runtime and storage lease and click **Next**.

Step 2 - Add Virtual Machines to the vApp

In this step you select the vFabric Hyperic Server and vFabric Hyperic database VMs from the appropriate catalog to add to the vFabric Hyperic vApp. Note that you must be an organization administrator or vApp author to access public catalogs.

1. In the **Add Virtual Machines** panel, select **My organization's catalogs** or **Public catalogs** (depending on which contains the vFabric Hyperic vApp templates) from the "Look In" drop-down menu.
2. Browse to (or search for) the vFabric Hyperic Server and Database VMs.
 - a. Select "vFabric Hyperic Server v5.1 Virtual Appliance" and click **Add**.
 - b. Select "vFabric Hyperic Database 5.1 Virtual Appliance" and click **Add**.The selected vApps appear in the lower table.
3. Click **Next**.

The "VMware End user License Agreement" appears.
4. Checkmark the box at bottom of page and click **Next** to agree to the EULA.

Step 3 - Configure the Virtual Machines

1. In the **Configure Virtual Machines** panel, select a virtual datacenter (vDC) where the vFabric Hyperic vApp will run.
2. (Optional) Accept the default, or modify the full name and computer name of each virtual machine.
3. Accept the default, or select a different primary NIC and network for each virtual machine.

4. Select an IP assignment method for each NIC.
Static IP address assignment is recommended
5. Click **Next**.

Step 4 - Configure Credentials

In the **Application** panel:

1. Enter the password (twice) and username for the vPostgres database in the **DB password** and **DB username** fields.
2. For now, leave the **What is the address of the vPostgres database** field blank
3. Enter the password (twice) and username for the vFabric Hyperic database in the **DB password** and **DB username** fields.
4. Enter the password (twice) and username for the vFabric Hyperic Server admin account in the vPostgres database in the **vFabric Hyperic admin password** and **vFabric Hyperic admin username** fields.
5. Click **Next**.

Step 5 - Configure Networking

In the **Networking** panel:

1. Checkmark the "Always use assigned IP addresses until this vApp or associated networks are deleted.
2. Click **Next**.

Step 6 - Deploy vFabric Hyperic vApp

On the **Ready to Complete** page:

1. Review the summary for the vApp.
2. Click **Finish**.

Step 7 - Power on vFabric Hyperic Database

1. In the left panel of the vCloud Director, in the **v Apps** section, click on the vFabric Hyperic vApp.
2. Click the **Virtual Machines** tab.
3. Select the vPostgres database VM.
Note the IP address of the database in the IP address column. You will update the vFabric Hyperic Server properties with this information in step 7.
4. Right-click to display the vApp menu, and select **Power On**.

Step 8 - Configure vFabric Hyperic Server with Database Location

1. In the left panel of the vCloud Director, in the **v Apps** section, click on the vFabric Hyperic vApp.
2. Click the **Virtual Machines** tab.
3. Select the vFabric Hyperic Server VM.
4. Right-click to display the vApp menu, and select **Properties**.

5. Click the **Custom Properties** tab.
6. Enter the IP address of the vFabric Hyperic database in the **What's the address of the vPostgres database field**.

Step 9 - Power On vFabric Hyperic Server.

1. In the left panel of the vCloud Director, in the **v Apps** section, click on the vFabric Hyperic vApp.
2. Click the **Virtual Machines** tab.
3. Select the vFabric Hyperic Server VM.
4. Right-click to display the vApp menu, and select **Power On**.

Set Up vFabric Hyperic Database

This section has instructions for setting up PostgreSQL as your vFabric Hyperic database.

This task corresponds to [Step 2 - Set Up vFabric Hyperic Database](#) of [vFabric Hyperic Installation and Startup Process](#).

Download PostgreSQL

Download a 9.1.x PostgreSQL RPM from:

<http://www.PostgreSQL.org/download/>

Install PostgreSQL

This section contains a procedure for installing PostgreSQL on RHEL 5. For comprehensive PostgreSQL installation documentation, see <http://www.PostgreSQL.org/download/>.

Perform the installation as root.

1. Download a 9.1 PostgreSQL RPM from the PostgreSQL yum repository.

```
wget http://yum.PostgreSQL.org/9.1/redhat/rhel-5-x86_64/pgdg-redhat91-9.1-5.noarch.rpm
```

2. Install the PostgreSQL server and contrib modules.

```
yum install PostgreSQL91-server PostgreSQL91-contrib
```

3. Initialize PostgreSQL.

```
service PostgreSQL-9.1 initdb
```

The `initdb` command creates the directories that will contain database information, generates shared catalog tables, and creates the `template1` and `postgres` databases. New databases you create will be based on the `template1` database. The `postgres` database is a default database for use by all users, utilities and third party applications.

Solving Initialization Problems

If database initialization fails, look for error messages in `/var/lib/pgsql/9.1/pgstartup.log`.

Redefine Data and Log Locations

Depending upon your environment, you may want to select a location other than the default for data files. For instance, you may want to store data files on a volume with plenty of space for housekeeping operations.

To set up a different location for data files, perform the following steps, replacing `PathToPreferredDisk` with the path to a disk location with the optimal space and throughput:

1. Stop PostgreSQL.

```
/usr/pgsql-9.1/bin/pg_ctl -D /var/lib/pgsql/9.1/data -l ~/logs/logfile stop -m fast
```

2. Define the `$PGDATA` environment variable to point to the desired location:

```
Export $PGDATA PathToPreferredDisk/data
```

3. Create a directory on the desired volume.

```
mkdir -p PathToPreferredDisk
```

4. Move data files to new location.

```
mv /var/lib/psql/9.1/data PathToPreferredDisk
```

5. Restart Postgres.

```
/usr/pgsql-9.1/bin/pg_ctl -D $PGDATA -l $PGDATA/pg_log/logfile start
```

Another optimization that may be useful to store logs in a different location than the data file.

Note: This is appropriate only if your I/O device is saturated; be sure to locate the logs on a different disk than your data files.

Perform the following steps:

1. Stop PostgreSQL.

```
/usr/pgsql-9.1/bin/pg_ctl stop -m fast
```

2. Move the logs.

```
mv PathToPreferredDisk/data/pg_xlog /var/tmp/
```

3. Create a symbolic link to the new location of the pg_xlog.

```
ln -s /var/tmp/pg_xlog PathToPreferredDisk/data/pg_xlog
```

4. Restart PostgreSQL.

```
/usr/pgsql-9.1/bin/pg_ctl -D $PGDATA -l $PGDATA/pg_log/logfile start
```

Define Environment Variables

As the `postgres` user, update your bash configuration file by running the following commands:

```
export PGDATA="/data/pgdata"
export PGHOME="PostgresqlHome"
export PATH="$PGHOME/bin/:$PATH"
```

where `PostgreSQLHome` is the path to the PostgreSQL installation.

Configure PostgreSQL Properties

Update the following properties in `PostgreSQL.conf`:

- `listen_addresses` — Enable database connections on all IP interfaces on the platform with this property setting:
 - `listen_addresses = '*'`
- `max_connections` — Set the maximum number of connections based on the sizing profile that corresponds to the scale of your environment. (See About Sizing Profiles in vFabric Hyperic.) Use:
 - `max_connections = ?` — for small
 - `max_connections = ?` — for medium
 - `max_connections = 500` — for large
- `shared_buffers` and `effective_cache_size` — Assuming the database runs on a dedicated platform, set `shared_buffers` to 70-80% of memory and `effective_cache_size` to 10-20%, leaving some memory remaining for the operating system. For example, given 12 GB of memory:
 - `shared_buffers = 8GB`
 - `effective_cache_size= 2GB`

- `checkpoint_segments` — Set the value of `checkpoint_segments` (a parameter related to write-ahead log behavior) based on the sizing profile that corresponds to the scale of your environment. Use:
 - `checkpoint_segments = 3` (the default value) — for small
 - `checkpoint_segments = 3` (the default value) — for medium
 - `checkpoint_segments = 32` — for large

Configure Client Authentication

PostgreSQL client authentication is defined in the `pg_hba.conf` file, which contains lines, referred to as records, that specify allowed connection types, users, client IP addresses, and authentication method. Locate this line in the file:

```
# TYPE DATABASE USER CIDR-ADDRESS AUTH-METHOD
```

and add this line below it:

```
host all all all password
```

For more information about `pg_hba.conf`, see <http://www.PostgreSQL.org/docs/9.1/static/auth-pg-hba-conf.html>

Start PostgreSQL

Start PostgreSQL with the following command:

```
$PGHOME/bin/pg_ctl -D $PGDATA -l PathToLogDirectory/logfile.log start
```

where:

`PathToLogDirectory/logfile.log` designates a file to which server log output will be written. Other PostgreSQL logs are located in `$PGDATA/pg_log/`

Create vFabric Hyperic Database User and Database

In this step you create the account that the vFabric Hyperic Server will use to connect to the vFabric Hyperic database. Follow the procedure below to create an account with username `hqadmin` and password `hqadmin`.

1. Change user to `postgres` and connect to the database locally.

```
# psql
```

The `psql` prompt is displayed.

2. Create a user named `hqadmin` with `login` and `createdb` privileges.

```
CREATE USER hqadmin WITH ENCRYPTED PASSWORD hqadmin;
```

The `ENCRYPTED` keyword is optional.

3. Create a default database for vFabric Hyperic. Place quotes around the string `HQ` so that the database name will be uppercase.

```
CREATE DATABASE "HQ" OWNER hqadmin ENCODING 'UTF8';
```

Install vFabric Hyperic Server

Install the vFabric Hyperic Server. For instructions, see [Step 3 - Set Up vFabric Hyperic Server](#) of the [vFabric Hyperic Installation and Startup Process](#).

Don't start up the server yet

Do not start the vFabric Hyperic Server until after completing the steps in the following section.

Start vFabric Hyperic Server

Start the vFabric Hyperic Server. For instructions, see the ["Start the vFabric Hyperic Server" step](#) of the [vFabric Hyperic Installation and Startup Process](#).

If the server fails to start up, there may be problems with your PostgreSQL configuration. Check the PostgreSQL logs for connection failures or errors.

Troubleshoot PostgreSQL Connection Problems

To troubleshoot connection issues, run this command from the vFabric Hyperic Server host:

```
telnet <dbserver hostname> 5432
```

If network connections to the database fail, you can troubleshoot the issue in PostgreSQL log files, using the UNIX® `tail` command with the `-f` parameter

`tail -f` displays the lines at the end of a file, and displays additional log messages that follow to the terminal. This is useful for watching log files, or any other file which may be appended over time. Failed connection messages are written to the following files:

- `/var/lib/pgsql/data/pg_log/PostgreSQL-day.log`
- `/var/lib/pgsql/pgstartup.log`

If the vFabric Hyperic Server fails to connect to the PostgreSQL database, it may be a firewall issue.

To turn the firewall off on RHEL or Centos, run the following command as root:

```
/etc/init.d/iptables stop
```

Stop PostgreSQL

Stop PostgreSQL with the following command:

```
$PGHOME/bin/pg_ctl stop -m fast
```

fast is one of several shutdown modes supported by PostgreSQL. For more information, see <http://www.PostgreSQL.org/docs/9.1/static/app-pg-ctl.html>.

Run vFabric Hyperic Installer

About this section...

This section has instructions for performing a **new** installation of vFabric Hyperic components using the vFabric Hyperic installer. Before running the installer, see [vFabric Hyperic Installation and Startup Process](#) for information about where installation fits in the implementation process. For production environments, there are several steps to perform before installing the vFabric Hyperic Server and vFabric Hyperic Agent, including database setup and SSL configuration.

If you wish to upgrade an existing vFabric Hyperic deployment, please see [Migrate v4 vFabric Hyperic Server and Database to v5](#) and [Upgrade vFabric Hyperic Agent](#).

Obtain vFabric Hyperic Installer

If you have not done so already, download the vFabric Hyperic installer. See [Select and Download an Installer](#).

About the Setup Script

The setup script — `setup.bat` for Windows, `setup.sh` for Unix-like environments — is in the vFabric Hyperic installation package. You can use the setup script to install the vFabric Hyperic Server, the vFabric Hyperic Agent, or both.

When you run the setup script, you can supply a qualifier that sets the installation mode.

- `none` — Run the setup script with no qualifier to perform a quick install. Selected components will be installed with default values for most configuration options. If you install the vFabric Hyperic Server, it will be configured to use its built-in vPostgreSQL database. A quick install is useful when you evaluate vFabric Hyperic.
- `-full` — In "full" mode, the installer dialog will prompt for all setup configuration options. Use this option if you plan to use an external database or to configure the vFabric Hyperic Server to use an SSL keystore that you manage yourself, rather than a vFabric Hyperic-generated keystore. For best security and best "configurability", run the installer in "full" mode.

- `-upgrade` — Use "upgrade" mode to upgrade a 5.x vFabric Hyperic Server to a later version. To upgrade a 4.x vFabric Hyperic Server to 5.7, see [Migrate v4 vFabric Hyperic Server and Database to v5](#). If you have an existing vFabric Hyperic Server installation. The server configuration and the contents of the existing vFabric Hyperic database are preserved. See [vFabric Hyperic Upgrade Processes](#) before doing an upgrade installation.
- `-updateScale` — Run the installer with this option to change the sizing profile for the vFabric Hyperic Server. For information about sizing profiles, see [About Sizing Profiles in vFabric Hyperic](#). For information about changing the sizing profile for vFabric Hyperic Server, see [Change vFabric Hyperic Server Sizing Profile](#).

Configuration Options for Quick Installs

When you do a quick install by running the installer with no qualifier or with the `-PostgreSQL` qualifier, the installer **does not**:

- Prompt for the ports on which the vFabric Hyperic Server listens for agent and user interface requests — the default ports are automatically configured.
- Allow you to specify the location and password for a user-managed server keystore — instead, the vFabric Hyperic Server will use a vFabric Hyperic-managed keystore.

Run the Setup Script

This section describes the dialog that the installation script presents if you run it in `-full` mode. If you use a different mode, some of the prompts described below will not appear — default values for most configuration options will apply.

1. Create a directory for the vFabric Hyperic installation.
The installation dialog assumes your vFabric Hyperic installation directory is `/home/hyperic` on Unix-like systems and `c:\Program Files` on Windows.
2. Unpack the tarball or zip archive.
Use GNU Tar to unpacking vFabric Hyperic tarballs. Use of proprietary Unix Tar utilities will result in warnings. GNU Tar is available at <http://www.gnu.org>

```
tar zxvf hyperic-hq-installer-4.x.y-xxx.tgz
```

If you are installing vFabric Hyperic components on a Windows platform, you must run the installer on a local drive.

3. Open a command shell.
 - On Unix-based platforms, enter:

```
PathToInstaller/setup.sh -full
```

- On Windows platforms, enter:

```
PathToInstaller\setup.bat -full
```

where *mode* is one of the values in the table above, with the exception of upgrade — if you are upgrading an existing vFabric Hyperic deployment, see [vFabric Hyperic Upgrade Processes](#).

The VMware License agreement is displayed.

4. Accept the license agreement to proceed.
5. Choose which software to install 1: vFabric Hyperic HQ Server 2: vFabric Hyperic HQ Agent
To install both the server and the agent, enter:

```
1,2
```

6. HQ server installation path [default '.....']:
Accept the default, or enter a directory location. The account you are running under must have write access the directory location.
7. What port should the HQ server's web-based GUI listen on for http communication? [default '7080']:
Accept the default, or enter a different (unused) port.
8. What port should the HQ server's web-based GUI listen on for secure https communication? [default '7443']
Accept the default, or enter a different (unused) port.
9. Would you like us to use your own java keystore? [default '2']
1: Yes 2: No
 - Enter "1" if you wish to configure the vFabric Hyperic Server to use a certificate you manage, rather than generate its own, and proceed to the next step.
 - If you accept the default "2", a default keystore will be generated at: `ServerHome/conf/hyperic.keystore` with the password `hyperic`, and the next three prompts will not appear.
10. What is the file path to your java keystore?
 - This prompt appears if you are configuring vFabric Hyperic Server for a user-managed keystore.
 - Enter the path to your keystore.
11. What is the file password to your java keystore?
 - This prompt appears if you are configuring vFabric Hyperic Server for a user-managed keystore.
 - Enter the path to your keystore.

12. Enter the base URL for the vFabric Hyperic server's web-based GUI [default...]
- The URL used to access the vFabric Hyperic Server. This value is used in alert notification emails. This value can be changed on the **Administration** page in the vFabric Hyperic Portal.
13. Enter the fully qualified domain name of the SMTP server that vFabric Hyperic will use to send email messages [default FQDN.local]
- If the installer does not find a local SMTP server, and you do not specify one, vFabric Hyperic cannot send alert notifications. Other alert functionality is unaffected.
 - You can configure vFabric Hyperic for an external SMTP server after installing vFabric Hyperic Server. See [Configuring vFabric Hyperic Server for SMTP Server](#).
14. Enter the email address that HQ will use as the sender for email messages [default...]
- The email address of the vFabric Hyperic Administrator. Note that most mail servers will not deliver mail without a valid domain name in the From field.
15. What is the installation profile? default '1':]
- 1: small (less than 50 platforms)
 - 2: medium (50-250 platforms)
 - 3: large (larger than 250 platforms)
 - Select the profile that fits your deployment. For more information, see [About Sizing Profiles in vFabric Hyperic](#).

The sizing prompt is only presented in vFabric Hyperic, and only when you are running a `-full` installation.

If you plan to use the embedded PostgreSQL database, rather than an external database (required for production environments), select the "small" sizing profile. The "medium" and "large" profiles are *not* supported unless you use an external vFabric Hyperic database.

16. *What backend database should the HQ server use? [default '1']:Choices:*
- 1: *HQ Built-in Database*
 - 2: *PostgreSQL*
 - Enter "1" if you wish to use the built-in vPostgres database, and proceed to step 16.
 - Enter "2" if you wish to use an external PostgreSQL database (which must already be set up) and proceed to step 17.

17. What port should HQ's built-in database use? [default '9432']:
 - a. Accept the default, or enter a different port number.
 - b. Proceed to step 20.
18. The following dialog appears if you are configuring the vFabric Hyperic Server for an external vPostgreSQL database:
 - a. Enter the vPostgres DB hostname [default 'localhost'].
Accept the default, or enter another hostname.
 - b. Enter the vPostgres DB port [default '5432']:
Accept the default, or enter another (unused) port.
 - c. Enter vPostgres DB name [default: 'HQ']:
Accept the default, or enter another name for the vFabric Hyperic database.
 - d. Override the JDBC connection URL for the PostgreSQL database [default
'jdbc:PostgreSQL://localhost:5432/HQ?protocolVersion=2']:
Correct the URL, if necessary.
19. Enter the username to use to connect to the database:
Enter a username.
20. Enter the password to use to connect to the database:
Enter a password.
The installer will not echo the password but will prompt for it twice.
21. Would you like to use an auto generated encryption key to encrypt the database password? [default '1']
If you accept the default, the installer will generate a key for encrypting the database password. Enter 2 if you prefer to supply the string yourself, and when prompted, enter a string of at least 8 characters.
22. What should the username be for the initial admin user? [default 'hqadmin']:
Accept the default, or enter another username.
23. What should the password be for the initial admin user?:
The installer will not echo the password but will prompt for it twice.
24. What should the email address be for the initial admin user?
[default 'hqadmin@eng.vmware.com']:
25. If the installer detects a database from a previous vFabric Hyperic installation, it will prompt you to:
 - o **1: Upgrade the HQ server database** — Choose this option to preserve your existing vFabric Hyperic data, then follow the instructions in [Migrate v4 vFabric Hyperic Server and Database to v5](#).

- **2: Overwrite the HQ server database** — This option erases all of the data in your vFabric Hyperic database. If you do not want to preserve the contents of the database, it would be quicker to drop and recreate the database prior to installing vFabric Hyperic Server.
- **3: Exit the installer**

26. HQ agent installation path [default '.....']:

Accept the default, or enter a different path.

The installer indicates the installation was successful, provides the URL for the vFabric Hyperic Portal along with the default username and password, and returns you to the command prompt.

After installing the vFabric Hyperic Server, proceed with license installation (for vFabric Server only) and start the server, as described in the [Install License](#) and [Start the vFabric Hyperic Server](#) steps of [vFabric Hyperic Installation and Startup Process](#).

Run vFabric Hyperic Server Windows Setup Wizard

About this section...

*This section has instructions for performing a **new** installation of vFabric Hyperic Server using the vFabric Hyperic Server Windows Setup Wizard. Before running the wizard, see [vFabric Hyperic Installation and Startup Process](#) for information about where installation fits in the implementation process. For production environments, there are several steps to perform before installing the vFabric Hyperic Server and vFabric Hyperic Agent, including database setup and SSL configuration.*

If you wish to upgrade an existing vFabric Hyperic deployment, please see [Migrate v4 vFabric Hyperic Server and Database to v5](#).

The instruction below assume you have already downloaded the vFabric Hyperic Server Setup Wizard to the platform where you want to run the server.

Remove existing Windows service

If you are installing the vFabric Hyperic Server on a platform where a previous version of vFabric Hyperic Server ran, before performing the installation:

1. Stop the existing vFabric Hyperic Server if it is running:
`hq-server.bat stop`
2. Remove the Windows service for the previous instance:
`hq-server.bat remove`

To install the vFabric Hyperic Server:

1. In Windows Explorer, double-click the `vFabric-hyperic-hqee-server-5.x.x.exe` file.
2. On the **Welcome** page click **Next** to start the installation.

3. On the Administrator User Information page, enter a username and password for the vFabric Hyperic admin account.
4. The **HQ Server Properties** page displays default values for the vFabric Hyperic Server's plain text and SSL listen ports, 7080 and 7443, respectively. Enter different values as desired, or accept the defaults and click **Next**.
5. On the **Server Database Choice** page, select whether you wish to use the built-in or an external Postgres database and click **Next**.

For more information, see [About Sizing Profiles in vFabric Hyperic](#).

If you are going to use an external Postgres database, it must be set up prior to vFabric Hyperic Server installation. If you have not already configured the vFabric Hyperic database, click **Cancel**, and configure the vFabric Hyperic database as described in **Set Up vFabric Hyperic Database** before installing the vFabric Hyperic Server.

6. On the Server Profile Choice page, choose the appropriate scaling profile for your environment and click **Next**.
For more information, see [About Sizing Profiles in vFabric Hyperic](#).
7. On the **License Agreement** page, accept the agreement and click **Next** to continue.
8. On the **Select Destination Location** page, accept the default installation directory, or browse to the desired directory, and click **Next**.
9. On the **Completing..** page, click **Finish** to complete the installation.

Run vFabric Hyperic Agent Windows Setup Wizard

About this section...

*This section has instructions for performing a **new** installation of vFabric Hyperic Agent using the vFabric Hyperic Agent Windows Setup Wizard. Before running the wizard, see [vFabric Hyperic Installation and Startup Process](#) for information about where installation fits in the implementation process.*

If you wish to upgrade an existing vFabric Hyperic deployment, please see [Upgrade vFabric Hyperic Agent](#).

The instruction below assume you have already downloaded the vFabric Hyperic Agent Setup Wizard to the platform where you want to run the agent.

Remove existing Windows service

If you are installing the vFabric Hyperic Agent on a platform where a previous version of agent ran, before performing the installation:

1. Stop the existing vFabric Hyperic Agent if it is running:
`hq-agent.bat stop`
2. Remove the Windows service for the previous instance:
`hq-agent.bat remove`

To install the vFabric Hyperic Agent:

1. In Windows Explorer, double-click the `vFabric-hyperic-hqee-agent-5.x.x.exe` file.
2. On the **Welcome** page click **Next** to start the installation.
3. On the **vFabric Hyperic Server Information** page, enter the address of the vFabric Hyperic Server. The default server ports for plain text and SSL communication are displayed; edit the port values if different ports were configured at server installation, and click **Next**.
4. The **Administrator User Information** page displays the default vFabric Hyperic Server admin username. If a different username was configured, enter it, and then enter the password configured for the account, and click **Next**.
5. On the **Agent Server Communication** page, select "Yes" if you wish all communication between agent and server to be agent-initiated, and click **Next**. For more information, see [Unidirectional Agent-Server Communications](#).
6. On the **License Agreement** page, accept the agreement and click **Next** to continue.
7. On the **Select Destination Location** page, accept the default installation directory, or browse to the desired directory, and click **Next**.
8. On the **Completing..** page, click **Finish** to complete the installation.

Install an Agent-Only Package

- [Install from Agent Tarball](#)
- [Install from Agent Zip Archive](#)

About this section...

*This section has instructions for performing a fresh agent installation from an agent-only archive — they correspond to the **Install the Agent** task in [Step 4 - Set Up the vFabric Hyperic Agent](#) step of the [vFabric Hyperic Installation and Startup Process](#). Before installing the agent, review the agent setup instructions make sure that you have performed prerequisite steps appropriate for your environment, such as SSL setup and JRE configuration.*

If you have multiple agents to install, see [Install vFabric Hyperic Agents in Volume](#).

Install from Agent Tarball

On non-Windows systems, the vFabric Hyperic Agent is automatically installed as a daemon.

1. Create a directory for the vFabric Hyperic Agent.
2. Unpack the tarball into the agent directory.
Starting the agent will run it as a daemon process.

Unpack Tarballs with GNU Tar Only

Use GNU Tar to unpacking vFabric Hyperic tarballs. Use of proprietary Unix Tar utilities will result in warnings. GNU Tar is available at <http://www.gnu.org>

After installing the agent, proceed to the next step in [Step 4 - Set Up the vFabric Hyperic Agent](#).

Install from Agent Zip Archive

To install the vFabric Hyperic Agent as a Windows Service on a Windows system:

1. Create a directory for the vFabric Hyperic Agent.
2. Unpack the archive into the agent directory.

After installing the agent, proceed to the next step in [Step 4 - Set Up the vFabric Hyperic Agent](#).

Install vFabric Hyperic Agents in Volume

About this section...

This section has recommendations for how to deploy agents in volume in a large vFabric Hyperic environment. Before performing the steps below, see [vFabric Hyperic Installation and Startup Process](#) for information about prerequisite steps. The instructions below are one way to perform [Step 4 - Set Up the vFabric Hyperic Agent](#) of that process.

Establish Installation Environment

Set up an Install Server

Choose a machine that can access all target platforms from which to perform remote installation. We refer to this as the "install server". On the install server, create a user account, for instance "hyperic", with permissions required to SSH into each target platform without a password.

Establish Environment on Target Platforms

On each platform on which you will install the vFabric Hyperic Agent:

- Create an user account that is identical to the one you created on the install server.
- Create identical installation directories, for example, /home/hyperic.
- Set up a trusted keystore, if desired. See [SSL Setup for New vFabric Hyperic Installations](#) on [Configure SSL Options](#) for recommendations.

Create Standard Agent Properties File

To enable mass agent deployment, you create an `agent.properties` that defines the agent properties required for the agent to start up and connect with the vFabric Hyperic Server. If you supply the necessary information in the properties file, each vFabric Hyperic Agent will find its setup configuration at startup, rather querying for it interactively.

For example, you can create a standard agent profile that you can copy to the agent installation, or to a location available to the agent installation.

In a standard `agent.properties` — one that you can deploy to multiple agents that report to the same vFabric Hyperic Server, you do not edit the properties that specify an agent's listen address and port. At first startup, if explicit values for IP address and port are not set, the vFabric Hyperic Agent - which detects the network interfaces on the platform - uses the first detected interface as its listen address, and port 2144 or 2443 as its listen port, depending on whether you configure the agent for plain text or SSL communications.

At a minimum, you must define the vFabric Hyperic Server address and port. In addition, you can configure optional agent behaviors that are controlled by agent properties. For more information, see [Set Up Agent in Properties File](#).

The first time you start the agent, it will read its properties file for the server connection information, connect to the server, and register itself.

Encrypted values in agent.properties file

If your standard `agent.properties` contains any encrypted values, you must distribute the file that contains the encryption key, in addition to `agent.properties`. The encryption key is stored in the `agent.scu` file in the `AgentHome/conf/` directory of the agent installation where the encryption was performed. The `agent.scu` file must be installed in the same directory on each agent you deploy with the standard properties file.

Perform Remote Agent Installations

Install and Start Agents One-by-One

Follow these steps to install agents one-by-one. To install to all target platforms at once, see [Deploy and Start Multiple Agents at Once](#) below.

3. Log on to your installation account on the install server.
4. SSH to the remote platform.
5. Copy the agent archive to the agent host.
6. Unpack the agent archive.
7. Copy the `agent.properties` file to the `/.hq` directory under the home directory of the standard agent installation user account.
8. Start the new agent.

Deploy and Start Multiple Agents at Once

Follow these step to install and start the agent on multiple hosts:

1. Create a `hosts.txt` file on your install server that maps hostname to IP address for each platform to which you wish to install the agent.
2. Open a command shell on the install server.

3. Entering the following command in the shell, supplying the correct name of the agent package in the export command:

```
$ export AGENT=hyperic-hq-agent-4.6.0-x86-linux.tgz
$ for host in `cat hosts.txt`; do scp $AGENT $host:</path/to/agent/install>
&& ssh $host "tar zxf $AGENT && ./hyperic-hq-agent-4.6.0/hq-agent.sh
start"; done
```

If target hosts have sequential names (for example, host001, host002, host003, etc), you can skip the hosts.txt file and use the seq command like this:

```
$ export AGENT=hyperic-hq-agent-4.6.0-x86-linux.tgz
$ for i in `seq 1 9`; do scp $AGENT host$i: && ssh host$i "tar zxf
$AGENT && ./hyperic-hq-agent-4.6.0/hq-agent.sh start"; done
```

Verify Successful Agent Startup

After registering itself with the vFabric Hyperic Server, an vFabric Hyperic Agent runs an auto-discovery scan, and should discover its host platform, and supported managed products running on the platform. Check the **Auto-Discovery** portlet in the vFabric Hyperic Dashboard to verify the the platforms were discovered.

If you have problems, see [Troubleshoot Agent and Server Problems](#).

Install vFabric Hyperic Server RPM

About this section...

This section has instructions for installing vFabric Hyperic Server 5.0 from a downloaded RPM to an RHEL 5 or RHEL 6 virtual machine

Before running the installer, see [vFabric Hyperic Installation and Startup Process](#) for information about where server installation fits in the implementation process. For production environments, there are several steps to perform before installing the vFabric Hyperic Server, including database setup and SSL configuration.

About vFabric Hyperic Server RPM

The name of the vFabric Hyperic Server RPM package is vFabric-hyperic-server-5.x.y.EE-1.x86_64.rpm.

You define server configuration options in a properties file, either before or after installation.

The installation owner and the installation group are both hyperic.

By default, yum will install the server in /opt/vmware/hyperic/server-current, where /opt/vmware/hyperic/server-current is a symbolic link to a sibling versioned directory, such as /opt/vmware/hyperic/server-5.0.0-EE.

Upgrade from earlier RPM not supported

Upgrade of a pre-5.0.0 vFabric Hyperic Server installed via RPM to the 5.7 RPM is not supported. An attempt to install the 5.7 RPM on a machine with a previous vFabric Hyperic Server installation will result in an error message that manual upgrade is required.

Configure Server Properties File

This section has instructions for configuring vFabric Hyperic Server in a properties file prior to installation. If you do not create a properties file prior to installing the server, the installer will configure the vFabric Hyperic Server in accordance with a default properties file. You can reconfigure the server after installation, following the instructions in [Configure vFabric Hyperic Server in Properties File after Installation](#).

To define vFabric Hyperic Server installation options in a properties file:

1. Running as `root`, or using `sudo`, create a directory for the properties file:

```
mkdir -p /opt/vmware/hyperic
```

2. Specify the server installation settings in a file named `vfabric_hyperic_server.properties`.

You must name the file exactly as described and put it in the specified location for the RPM installation to work correctly.

See [Server Properties File for RPM Installation](#) for a listing of a sample `vfabric_hyperic_server.properties` file. The example properties file configures vFabric Hyperic Server to use the built-in local vFabric Postgres database. You can edit the properties file to configure vFabric Hyperic Server to use an external PostgreSQL or vFabric Postgres database.

3. Copy `vfabric_hyperic_server.properties` to the `/opt/vmware/hyperic/` directory.
4. Install vFabric Hyperic Server following the instructions in the next section.

Install vFabric Hyperic Server

Start local SMTP server on vFabric Hyperic Server host

The RPM installer requires that your SMTP server is listening on port 25 on the vFabric Hyperic Server host.

Install vFabric Hyperic Server:

1. On the platform where you wish to install the vFabric Hyperic Server:

```
yum install vfabric-hyperic-server
```

2. yum resolves dependencies and displays the packages it plans to install.

If this is the first time that you have installed a vFabric component on the VM, yum also installs the vfabric-eula RPM and prompts you to accept the VMware license agreement.

3. Enter `y` at the prompt to start the installation.
4. What happens next depends on whether you specified the server configuration in the `/opt/vmware/hyperic/vfabric_hyperic_server.properties` file. If you *did* create the properties file, the setup dialog and responses from the properties file are displayed, and an "Installation Complete" message appear. After seeing this message, proceed to the [Start the vFabric Hyperic Server](#) step of [vFabric Hyperic Installation and Startup Process](#).

If you *did not* specify the server configuration in the properties file, the following message is displayed:

```
/opt/vmware/hyperic/vfabric_hyperic_server.properties, not found. HQ will
be installed, but not configured.

Please use /opt/hyperic/hyperic-hqee-installer/setup.sh to interactively
configure HQ.
```

Configure vFabric Hyperic Server in Properties File after Installation

1. Specify the server installation settings in a file named `vfabric_hyperic_server.properties`. A sample of `vfabric_hyperic_server.properties` is shown in [Server Properties File for RPM Installation](#). The sample properties file configures vFabric Hyperic Server to use the built-in local PostgreSQL database. You can edit the properties file to configure vFabric Hyperic Server to use an external PostgreSQL database.

Do not change installation directory property

The value of `HQ_SERVER_INSTALL_PATH` must be `/opt/vmware/hyperic`. Do not change the value.

Copy `vfabric_hyperic_server.properties` to the `/etc/vmware/vfabric/hyperic/` directory.

2. Run the `setup_from_properties_file.sh` script in `/opt/hyperic/hyperic-hqee-installer`:
Note: You must run `setup_from_properties_file.sh` as root, or as the "hyperic" user.

```
$ sh setup_from_properties_file.sh
```

3. After setup is complete, you can start the vFabric Hyperic Server. For instructions, see [Start and Stop vFabric Hyperic Server](#).

Configure License

Perform the steps in [Install or Configure vFabric Hyperic License](#) before starting the vFabric Hyperic Server.

Start the vFabric Hyperic Server

`yum` installs vFabric Hyperic Server to start automatically each time your RHEL VM is booted. The init script is `/etc/init.d/hyperic-hq-server`.

Follow these steps to start the vFabric Hyperic server manually:

1. Log in to the RHEL VM as `root`.
2. Open a terminal window and run the init script:

```
/etc/init.d/hyperic-hq-server start
```

The first time vFabric Hyperic Server starts it may take a few minutes to initialize; subsequent startups will be faster.

3. After vFabric Hyperic Server starts, invoke the vFabric Hyperic user interface in your browser:

```
http://host:7080
```

Where `host` is the hostname of the RHEL VM on which you just installed vFabric Hyperic Server. **#*** If your browser is on the same computer on which you installed vFabric Hyperic Server, you can use `localhost` rather than the name of the computer.

4. Log in using the default administration username/password of `hqadmin/hqadmin`; be sure to change the password after you log into the vFabric Hyperic UI.

After Installing vFabric Hyperic Server

- For information about installing the vFabric Hyperic Agent, see [Install vFabric Hyperic Agent RPM](#).

- For information and required and optional vFabric Hyperic Server Configuration see [vFabric Hyperic Installation and Startup Process](#).

Server Properties File for RPM Installation

This section contains a listing of `vfabric_hyperic_server.properties`.

```
# Properties file for vFabric Hyperic Server Configuration
#
# This file must be place in /etc/vmware/vfabric/hyperic/ with a name of
# vfabric_hyperic_server.properties to be used by the vfabric-hyperic-server
# rpm for vFabric Hyperic Server configuration.
#
#
# To configure the build-in local PostgreSQL database uncomment the below
# sections. See below for other database types.
#
#####
# Configuration of local built-in PostgreSQL database
#
# Use the local built-in PostgreSQL database instead of other database types
BUILT_IN_POSTGRESQL=yes
#
# Do you accept the terms of the agreement?
HQ_ACCEPT_EULA=y
#
# HQ server installation path
HQ_SERVER_INSTALL_PATH=/opt/vmware/hyperic
#
# email address that HQ will use as the sender for email messages
HQ_SENDER_EMAIL_ADDRESS=hqadmin@eng.vmware.com
#
# username be for the initial admin user
HQ_ADMIN_USER=hqadmin
#
# password be for the initial admin user
HQ_ADMIN_PASSWORD=hqadmin
#
# email address be for the initial admin user
HQ_ADMIN_EMAIL_ADDRESS=hqadmin@eng.vmware.com
#
# End of configuration for local built-in PostgreSQL database
#####
#
# To configure HQ with a local or remote database other than the built-in
# local instance of PostgreSQL comment out the above section and uncomment
# the properties in the section below. Supported databases include local or
# remote versions of vPostgreSQL or PostgreSQL.
#
#####
```

```
# For configuration with local or remote vPostgreSQL or PostgreSQL databases

### Do you accept the terms of the agreement?
#HQ_ACCEPT_EULA=y

### HQ server installation path
#HQ_SERVER_INSTALL_PATH=/opt/vmware/hyperic

### email address that HQ will use as the sender for email messages
#HQ_SENDER_EMAIL_ADDRESS=hqadmin@eng.vmware.com

### database type of [PostgreSQL]
#HQ_DB_TYPE=PostgreSQL

### database connection string
#HQ_DB_URL=jdbc:PostgreSQL://localhost:5432/HQ?protocolVersion=2

### username to use to connect to the database
#HQ_DB_USERNAME=hqadmin

### password to use to connect to the database
#HQ_DB_PASSWORD=hqadmin

### username be for the initial admin user
#HQ_ADMIN_USER=hqadmin

### password be for the initial admin user
#HQ_ADMIN_PASSWORD=hqadmin

### email address be for the initial admin user
#HQ_ADMIN_EMAIL_ADDRESS=hqadmin@eng.vmware.com

### HQ server installation profile [small|medium|large]
#HQ_SERVER_INSTALLATION_PROFILE=medium

# End of configuration
#####
```

Install vFabric Hyperic Agent RPM

About this section...

This section has instructions for installing vFabric Hyperic Agent from an RPM.

Before running the installer, see [vFabric Hyperic Installation and Startup Process](#) for information about where agent installation fits in the implementation process.

About vFabric Hyperic Agent RPM

The name of the vFabric Hyperic Agent RPM package is `vFabric-hyperic-agent-5.x.y.EE-1.noarch.rpm`. Note that the agent in the RPM does not include a JRE. Agent hosts must have the J2RE virtual package installed. A Sun 1.7 JRE is required. The RPM:

- Creates the user and group named "hyperic" if they do not exist.
- Sets the home directory of the hyperic user to `/opt/hyperic`.
- Installs the agent files into `/opt/hyperic/hyperic-hqee-agent`.
- Installs an `init` script to `/etc/init.d/hyperic-hqee-agent`.

Adds `init` script to `chkconfig` and sets it to "on" for runlevels 2, 3, 4, and 5.

Open firewall port on vFabric Hyperic Agent, if necessary

If `iptables` (a host-based firewall tool typically enabled by default on Redhat and Fedora installations) is configured, you may need to open up the vFabric Hyperic Agent's listen port for communication from the vFabric Hyperic Server, using a command similar to:

```
`/sbin/iptables -ARH-Firewall-1-INPUT -p tcp --dport 2144 -j ACCEPT`
```

If SELinux is enabled, additional configuration may be required.

Install Agent RPM

To install and configure the vFabric Hyperic Agent from a downloaded RPM:

1. On the platform the agent will manage, use `yum` to install the agent

```
yum install vfabric-hyperic-agent
```

2. If you have not already done so, install a JDK or JRE on the platform.
3. As the root user, edit the `/etc/init.d/hyperic-hqee-agent` file, setting the `HQ_JAVA_HOME` to home directory of the JDK or JRE you want the agent to use.

Configure and Start vFabric Hyperic Agent

Follow the instructions for configuring and starting the agent, starting with the [Configure vFabric Hyperic Agent in properties file](#) step of [vFabric Hyperic Installation and Startup Process](#).

Set Up Agent Interactively

About this section...

This section has instructions for interactively configuring a newly installed vFabric Hyperic Agent to communicate with the vFabric Hyperic Server, or reconfiguring the communication behavior of an existing agent.

Before following the instructions below, see [vFabric Hyperic Installation and Startup Process](#) to see how agent configuration fits into the overall vFabric Hyperic implementation process and to understand agent configuration options and requirements.

Depending upon your situation, it may be preferable to configure agent-server communication settings in the agent's `agent.properties` file, rather than interactively:

Some communication features, such as user-managed SSL keystore location, can only be configured in an agent's properties file. For more information, see the [Configure vFabric Hyperic Agent in properties file](#) step of [vFabric Hyperic Installation and Startup Process](#).

If you have a lot of agents to configure, properties file configuration is faster than interactive configuration, as described in [Install vFabric Hyperic Agents in Volume](#).

About the Agent Configuration Dialog

The agent configuration dialog appears in the shell when you launch a vFabric Hyperic Agent that lacks the configuration values that specify the location of the vFabric Hyperic Server. The dialog queries for the address and port of the vFabric Hyperic server, and other connection-related data. To understand the details of how the agent figures out where to contact the vFabric Hyperic Server see [What Happens When an Agent Starts Up](#) on [About the Agent Launcher and Agent Startup](#).

The agent configuration dialog is presented in these cases:

- The first time you start an agent (assuming that have not supplied the properties in `agent.profile`).
- When you start an agent that whose saved server connection data is corrupt or has been removed.
- When you run the agent launcher with the `setup` option, which causes the agent to prompt for new connection property settings.

You can also run the agent launcher with the `to` to re-run the configuration dialog

Launch the Configuration Dialog

1. Open a terminal window on the platform where the agent is installed.
2. Navigate to the `AgentHome/bin` directory.
3. Run the agent launcher with the `start` or `setup` option:
 - On Unix-like platforms:

```
sh hq-agent.sh start
```

- On Windows platforms, install the Windows service for the agent, and then start it:

```
sh hq-agent.bat install
sh hq-agent.bat start
```

4. Respond to the prompts described below in [Agent Configuration Dialog](#).

Agent Configuration Dialog

1. Should Agent communications to HQ be unidirectional [default=no]?
This prompt only appears if you are installing vFabric Hyperic. To understand this option, see [About Agent - Server Communication](#).

2. What is the HQ server IP address?
Enter the listen address of your vFabric Hyperic Server. The server must be running. If the server is on the same machine as the agent, you can enter localhost.

If there is a firewall blocking traffic from the agent to the server, specify the address of the firewall.

3. Should Agent communications to HQ always be secure [default=yes]?
Accept the default to configure vFabric Hyperic to use SSL for agent-to-server communication. (Server-agent communication is *always* SSL.)

SSL configuration is strongly recommended, and **required** if you configured unidirectional communications in Step 1.

To configure vFabric Hyperic to use plain HTTP for agent-to-server communication, enter "no".

4. You are prompted to identify the server port where the vFabric Hyperic server listens for agent communication. Depending on whether you selected SSL in the previous step, one of the following prompts appears:

- What is the secure HQ server port [default=7443] — If the vFabric Hyperic Server is configured to listen for SSL communications on the default SSL port of 7443, press **Return**.
- What is the HQ server port [default=7080] — If the vFabric Hyperic Server is configured to listen on the default port of 7080, press **Return**. If there is a firewall blocking traffic from the agent to the server, configure it to forward traffic on TCP port 7080 (or 7443) to the host running the vFabric Hyperic Server.

5. What is your HQ login [default=hqadmin]?

By default, the vFabric Hyperic Server is initially configured with an administrative account with username `hqadmin`. Unless you have configured a different vFabric Hyperic user account for agent-server communications, accept the default.

6. What is your HQ password?

Enter the password for the username you supplied at the previous prompt.

7. What IP should HQ use to contact the agent [default=n.n.n.n]?
The prompt will show the first IP address the agent detects on the host.

If there is another IP address on the host you prefer to use, enter it.

If there is a firewall blocking traffic from the server to the agent, enter the IP address of the firewall, and configure the firewall to forward traffic intended for the vFabric Hyperic Agent to the listen address of the agent host.

8. What port should HQ use to contact the agent [default=2144]?
Enter the agent port the vFabric Hyperic Server should use when it initiates contact with the agent. Specify the port that the agent binds to at startup, which by default is 2144.

If you have previously edited `agent.properties` to explicitly define a different listen port, using the optional `agent.listenPort` property, that is the value you should supply to this prompt.

If there is a firewall blocking traffic from the server to the agent, configure the device to forward traffic on TCP port 2144 to the vFabric Hyperic Agent.

After you respond to the last prompt the agent initiates a connection to the server and the server verifies that it can communicate with the agent.

If you have not configured user-managed keystores on the agent and server the agent will issue warning related to the components' self-signed SSL certificates. For more information see the [SSL Warnings](#) note on [vFabric Hyperic Installation and Startup Process](#).

Once the agent and server successfully establish communication and complete the registration process, messages similar to the following appear:

```
Received temporary auth token from agent
Registering agent with HQ
HQ gave us the following agent token
1215038691323-8570363106994871928-8259195015465958356
Informing agent of new HQ server
Validating
Successfully setup agent
```

The vFabric Hyperic Agent discovers the platform and supported products running on it. For more information, see the [Import discovered resources](#) step on [vFabric Hyperic Installation and Startup Process](#).

Set Up Agent in Properties File

About this section...

This section has instructions for configuring a newly installed vFabric Hyperic Agent to communicate with the vFabric Hyperic Server in its properties file. It corresponds to the [Configure vFabric Hyperic Agent in properties file](#) step of the [vFabric Hyperic Installation and Startup Process](#).

Note that if you start an agent without previously configuring required data in the properties file, you will be prompted to supply connection-related data in the shell, as described in [Set Up Agent Interactively](#).

If you have multiple vFabric Hyperic Agents to deploy, it is more efficient to configure agent behaviors in the properties files. [Install vFabric Hyperic Agents in Volume](#) describes options for remote agent installation and configuration using a standard `agent.properties` file that you can use for all agents in your environment.

Agent Properties Location

The vFabric Hyperic Agent looks for its properties file in two locations, in this order:

- `HqUserHome/.hq` — If this directory exists and contains `agent.properties`, the vFabric Hyperic Agent will use the property values defined there. (vFabric Hyperic honors this location for historical reasons. In pre-4.2 versions of vFabric Hyperic, storing the properties file in a location external to the agent installation directory was a method of ensuring that agent configuration settings survived an agent upgrade. This precaution is not necessary in vFabric Hyperic 4.2 — you can update the agent bundle from the vFabric Hyperic user interface without risk of overwriting the properties settings.)
- `AgentHome/conf` — This is the default location of `agent.properties`.

If the agent does not find the properties it needs to establish communications with the vFabric Hyperic Server in either of these locations, it prompts for the property values at startup.

Procedure: Configure Agent-Server Communication Properties

1. Open or create an agent.properties file

Make a copy of the `agent.properties` file from the agent installation.

2. Uncomment Agent-Server Communication Properties

In the `agent.properties` file, find the section excerpted below, and remove the hash mark (#) in front of each the properties shown at the end of the excerpt.

```
## Use the following if you'd like to have the agent setup
## automatically from these properties. The values for these
## properties are used to answer the setup questions
##
## If any of these properties are left undefined, the setup
## process will prompt for their values
##
```

```
## If the value that should be used is the default when interactive
## setup is done, use the string *default* as the value for the option

#agent.setup.camIP=localhost
#agent.setup.camPort=7080
#agent.setup.camSSLPort=7443
#agent.setup.camSecure=yes
#agent.setup.camLogin=hqadmin
#agent.setup.camPword=hqadmin
#agent.setup.agentIP=*default*
#agent.setup.agentPort=*default*
#agent.setup.resetupTokens=no
```

3. Define Communication Properties in the agent.properties File

See [Communication Properties Reference](#) below for property definitions.

The `agent.properties` file contains properties you can configure to govern both agent-initiated and server-initiated communication.

Specify the location and credentials the agent should use to contact the vFabric Hyperic Server with these properties:

- `agent.setup.camIP` — Specify the address or hostname of the vFabric Hyperic Server.
- `agent.setup.camPort` — The default value is the standard plaintext vFabric Hyperic Server listen port. If your server is configured for a different listen port, supply the port number.
- `agent.setup.camSSLPort` — The default value is the standard SSL vFabric Hyperic Server listen port. If your server is configured for a different listen port, supply the port number.
- `agent.setup.camSecure` — The default value is "yes" (use SSL). SSL configuration is strongly recommended, and **required** if you are going to configure the agent for unidirectional communications. Change to "no" if you do not require the agent to use secure communications when contacting the vFabric Hyperic Server.
- `agent.setup.camLogin` — Specify the username the agent should use when connecting to the server. If you change the value from the default value ("hqadmin"), make sure that that user account is properly configured on the vFabric Hyperic Server.
- `agent.setup.camPword` — Specify the password the agent should use, along with the username above, when connecting to the server. Make sure that the password is the one configured in vFabric Hyperic for the user account.

About Password Encryption

The first time you start the vFabric Hyperic Agent, if `agent.setup.camPword` is uncommented, and has a plain text value, the agent will encrypt the value. Note that you can encrypt this and other agent property values yourself, as described in [Encrypt an Agent Property Value](#).

You may specify the address or hostname and the listen port the vFabric Hyperic Server should use to contact the vFabric Hyperic Agent with the following properties. Note however, that if you are creating a standard `agent.properties` file that can be used for all agents (as described in [Install vFabric Hyperic Agents in Volume](#)), uncomment these properties, but *do not* change the value of either:

- `agent.setup.agentIP` — If you leave the default setting — **"*default*"** — the vFabric Hyperic Agent will detect an IP address on the platform and choose it as its listen address.
- `agent.setup.agentPort` — If you leave the default setting — **"*default*"** — the vFabric Hyperic Agent will use the default listen port (2144 for plaintext or 2443 for SSL) as its listen address. If that port is unavailable, the agent will detect a free port and choose it as its listen port.

These are the minimum properties required for agent-server communication.

4. Configure Unidirectional Communications (Optional)

By default, agent-server communication is bidirectional. If your policies dictate that all communication between agent and server are agent-initiated, you can uncomment the `agent.setup.unidirectional` property and set it to "yes". For more information, see [Unidirectional Agent-Server Communication](#).

If you configure unidirectional communication, and the agent will contact the vFabric Hyperic Server via a proxy server, define the proxy server host in the following properties, which you must add to the properties file:

- `agent.proxyHost`
- `agent.proxyPort`

See [agent.setup.unidirectional](#), [agent.proxyHost](#) and [agent.proxyPort](#) below for property definitions.

5. Configure Agent Keystore (Optional)

Perform this step if you want the agent to use a keystore you configure, rather than have it generate and use a self-signed certificate for SSL communication with the vFabric Hyperic Server.

vFabric Hyperic and SSL Communication

Read [About SSL in vFabric Hyperic](#) for information about SSL certificates and certificate verification in vFabric Hyperic 4.6 and later.

- a. Uncomment the following properties in `agent.properties`. Define the full path to the keystore with `agent.keystore.path` and the keystore password with `agent.keystore.password`. For more information, see [agent.keystore.path](#) and [gent.keystore.password](#) below.

```
# agent.keystore.path=  
# agent.keystore.password=
```

- b. If you configured the agent for unidirectional communication as described in step 4 above, add `[agent.keystore.alias` to the properties file, and set it to the alias for the keystore's primary certificate/private key entry.
- c. Verify that `agent.setup.acceptUnverifiedCertificate` is "false".
See [Communication Properties Reference](#) below for property definitions.

6. Configure Additional Agent Behaviors (Optional)

As desired, you can configure additional agent behaviors in the `agent.properties` file. For information about configurable agent behaviors, see:

- [Configure Auto-Discovery Scanning and Reporting](#)
- [Configure Plugin Loading](#)
- [Configure Agent Logging](#)
- [Tweak the Agent to Enable a Resource Plugin](#)

7. Save Changes

After completing your edits, save your changes and start the agent.

For instruction on how to start the agent for the first time, see [Start the vFabric Hyperic Agent for the first time](#) on the [vFabric Hyperic Installation and Startup Process](#) page.

Encrypt an Agent Property Value

Starting in vFabric Hyperic 4.6.6, the `agent.properties` file supports encrypted property values.

If, prior to first agent startup, you uncomment and assign a plain text value to `agent.setup.camPword` or `agent.keystore.password`, the agent will automatically encrypt the property value, as described in [vFabric Hyperic Security Features and Recommendations](#).

If you prefer, you can encrypt these (and other, if desired) property values yourself.

About Where the Agent Finds Server Connection Data

Note that upon first successful connection to the vFabric Hyperic Server, a vFabric Hyperic Agent saves the credentials it used in its `/data` directory. Upon each restart, the agent looks first in that directory for server connection details. Hence, edits to the username and password (`agent.setup.cam.Login` and `agent.setup.camPword`) configured in `agent.properties` have no effect, if the agent has valid connection data in its `/data` directory.

To add an encrypted entry to `agent.properties`, run the agent start script (`AgentHome/bin/hq-agent.sh` or `AgentHome/bin/hq-agent.bat`) with the new `set-property` option, and supply the name of the property and the value you wish to encrypt.

Do not use set-property option on an agent upgraded to v4.6.6

The `set-property` option is only supported for newly installed agents. You cannot manually encrypt properties for an agent that you upgraded to 4.6.6 by pushing the 4.6.6 bundle from the vFabric Hyperic Server. Note however that if an upgraded agent's `agent.properties` file contains uncommented password properties with plaintext values, they will be automatically encrypted.

The command syntax is:

```
./hq-agent.sh set-property PropertyKey PropertyValue
```

For example, to set the `agent.setup.camPword` to "hqadmin":

```
./bin/ hq-agent.sh set-property agent.setup.camPword hqadmin
```

If the properties file does not already define the property, the property definition is added at the end of the `agent.properties` file; the encrypted value (not plain text) is shown. For example:

```
agent.setup.camPword=ENC(gaSh3I8gg1o1L1EDHHJo/g==)
```

The key that was used to encrypt the value is saved in `AgentHome/conf/agent.scu`.

If you encrypt another property value, the key in `AgentHome/conf/agent.scu` will be used.

Note that after you encrypt `agent.setup.camPword` (or any property that the agent uses to connect to the server) the agent must be able to access `AgentHome/conf/agent.scu` or it will fail to start up. **Do not delete `agent.scu`.**

If your agent deployment strategy involves distributed a standard `agent.properties` file to all agents, you must also distribute `agent.scu`. For more information, see [Install vFabric Hyperic Agents in Volume](#).

If `agent.scu` is missing...

If a vFabric Hyperic Agent's `AgentHome/conf/agent.scu` file is missing, subsequent attempts to run the agent start script (`hq-agent.sh` or `hq-agent.bat`) with the `setup` option will fail. To resolve this problem, you must either:

- Reinstall the agent, or
- Perform these steps:
 - a. Stop the agent.
 - b. Delete its `/data` directory.
 - c. Set `agent.setup.camPword` in `AgentHome/conf/agent.properties` to a plain text value.
 - d. Start the agent.

Communication Properties Reference

See [Agent Properties](#) for definitions of all agent properties.

agent.setup.camIP

Description

You can use this property to define for the agent the IP address of the vFabric Hyperic Server. The vFabric Hyperic Agent reads this value only in the event that it cannot find connection configuration in its `data` directory. Specifying this and other `agent.setup.*` properties is a way to reduce the user interaction required to configure an agent to communicate with the server.

The value can be provided as an IP address or a fully qualified domain name. To identify an server on the same host as the server, set the value to `127.0.0.1`.

If there is a firewall between the agent and server, specify the address of the firewall, and configure the firewall to forward traffic on port 7080, or 7443 if you use the SSL port, to the vFabric Hyperic Server.

Default

Commented out, `localhost`.

agent.setup.camPort**Description**

You can use this property to define for a vFabric Hyperic Agent, at first startup after installation, what server port to use for non-secure communications with the server. The agent reads this value only in the event that it cannot find connection configuration in its `data` directory. Specifying this and other `agent.setup.*` properties is a way to reduce the user interaction required to configure an agent to communicate with the server.

Default

Commented out, 7080.

agent.setup.camSSLPort**Description**

You can use this property to define for the vFabric Hyperic Agent, at first startup after installation, what server port to use for SSL communications with the vFabric Hyperic Server. The agent reads this value only in the event that it cannot find connection configuration in its `data` directory. Specifying this and other `agent.setup.*` properties is a way to reduce the user interaction required to configure an agent to communicate with the server.

Default

Commented out, 7443.

agent.setup.camSecure**Description**

You can use this property to define for the agent, at first startup after installation, whether to communicate with the server over SSL. If you set this property to yes, all agent-server communications will be use the SSL secure port.

If acceptable in your environment, non-SSL communication offers improved performance for agent-server communications.

The agent reads this value only in the event that it cannot find connection configuration in its `data` directory. Specifying this and other `agent.setup.*` properties is a way to reduce the user interaction required to configure an agent to communicate with the server.

Default

Commented out, value of yes.

agent.setup.camLogin**Description**

You can use this property to define for the vFabric Hyperic Agent, at first startup after installation, the vFabric Hyperic username to use when registering itself with the server.

The permission required on the server for this initialization is Create, for Platforms.

A login from the agent to the server is only required during the initial configuration of the agent.

The agent reads this value only in the event that it cannot find connection configuration in its `data` directory. Specifying this and other `agent.setup.*` properties is a way to reduce the user interaction required to configure an agent to communicate with the server.

Default

Commented out, `hqadmin`.

agent.setup.camPword**Description**

You can use this property to define the password that the vFabric Hyperic Agent will use when connecting to the vFabric Hyperic Server, so that the agent will not prompt for the user to supply the password interactively at first startup. (This is the password for the user specified by `agent.setup.camLogin`.)

The agent reads this value only in the event that it cannot find connection configuration in its `/data` directory. Specifying this and other `agent.setup.*` properties is a way to reduce the user interaction required to configure an agent to communicate with the server. Starting in Hyper 4.6.6, the first time you start the vFabric Hyperic Agent after installation, if `agent.keystore.password` is uncommented and has a plain text value, the agent will automatically encrypt the property value. If you prefer, you can encrypt these (and other, if desired) property values yourself prior to starting the agent. For more information, see [Encrypt Agent Property Value](#).

Default

Commented out, `hqadmin`

agent.setup.agentIP

Description

This specifies the IP address that the vFabric Hyperic Server will use to contact the vFabric Hyperic Agent. If the agent is on the same host as the server, value of 127.0.0.1 is valid. If there is a firewall between the server and agent, specify the IP address of the firewall, and configure the firewall to forward traffic intended for the agent to the agent's listen address, which can be configured with `agent.listenIP`.

The agent reads this value only in the event that it cannot find connection configuration in its `data` directory. Specifying this and other `agent.setup.*` properties is a way to reduce the user interaction required to configure an agent to communicate with the server.

Default

As installed, `agent.properties` contains a commented out statement that sets the value to **default**. If you use the `agent.setup.*` properties to supply an agent's configuration at first startup, and uncomment this property and leave the value `default`, the vFabric Hyperic Server will contact the agent using the IP address that SIGAR detects on the agent host.

agent.setup.agentPort

Description

This specifies the port (on the IP address configured with `agent.setup.agentIP`) on the vFabric Hyperic Agent on which the vFabric Hyperic Server will communicate with the agent.

If there is a firewall between the agent and the server, set `agent.setup.agentPort` to the appropriate port on the firewall, and configure the firewall to forward traffic intended for the agent to the agent listen port, which can be configured with.

The agent reads this value only in the event that it cannot find its connection configuration in its `data` directory. Specifying this and other `agent.setup.*` properties is a way to reduce the user interaction required to configure an agent to communicate with the server.

Default

As installed, `agent.properties` contains a commented out statement that sets the value to `*default*`. If you use the `agent.setup.*` properties to supply an agent's configuration at first startup, and uncomment this property and leave the value `*default*`, the vFabric Hyperic Server will contact the agent on port 2144, unless SIGAR detects it is not available, in which case another default is selected.

agent.setup.resetupToken

Description

You can use this property to configure a vFabric Hyperic Agent to create a new token to use to authenticate with the server at startup. The agent reads this value only in the event that it cannot find connection configuration in its data directory. Regenerating a token is useful if the Agent cannot connect to the server because the token has been deleted or corrupted.

Regardless of the value of this property, an agent will generate a token the first time it is started after installation.

Default

As installed, `agent.properties` contains a commented out statement that sets the value to "no".

agent.setup.unidirectional

Description

Enables the unidirectional communications between the vFabric Hyperic Agent and vFabric Hyperic Server in vFabric Hyperic. For more information, see [Configure Unidirectional Agent - Server Communication](#).

Note that a for a unidirectional agent with a user-managed keystore, you must configure the keystore name in `agent.properties`. See `agent.keystore.alias`.

About unidirectional communication

If you configure an agent for unidirectional communication, all communication with the server is initiated by the agent. You can configure unidirectional communication at first agent startup, or with the `agent.setup.unidirectional` property in `agent.properties`. Related topics:

- [About Agent - Server Communication](#)
- [vFabric Hyperic Security Features and Recommendations](#).

Default

Commented out, defaults to no.

agent.keystore.path

Description

This property configures the location of a vFabric Hyperic Agent's (version 4.6 or later) SSL keystore. Specify the full path to the keystore. Define the password for the keystore using the `agent.keystore.password` property.

The values of `agent.keystore.path` and `agent.keystore.password` can only be supplied by defining them in `agent.properties`.

Specifying keystore path on Windows

On Windows platforms, specify the path to the keystore in this form:

```
C:/Documents and Settings/Desktop/keystore
```

Best Practices for vFabric Hyperic Agent Keystore

Please see:

- [vFabric Hyperic Security Features and Recommendations](#)
- [Configure SSL Options](#)

Default

`AgentHome/data/keystore`

agent.keystore.password

Description

This property configures the password for a vFabric Hyperic Agent's SSL keystore. Define the location of the keystore using the `agent.keystore.path` property.

These values of `agent.keystore.path` and `agent.keystore.password` can only be supplied by defining them in `agent.properties`.

Starting in Hyper 4.6.6, the first time you start the vFabric Hyperic Agent after installation, if `agent.keystore.password` is uncommented and has a plain text value, the agent will automatically encrypt the property value. If you prefer, you can encrypt these (and other, if desired) property values yourself prior to starting the agent. For more information, see [Encrypt Agent Property Value](#).

Password Requirement for vFabric Hyperic Keystores

The vFabric Hyperic Server's keystore password and private key password **must** be the same — otherwise, the vFabric Hyperic Server's internal Tomcat-based server will be unable to start. For information about why, see <http://tomcat.apache.org/tomcat-6.0-doc/ssl-howto.html>. Follow the same convention for a vFabric Hyperic Agent keystore — set the password for the agent keystore be the same as the agent private key,

Best Practices for vFabric Hyperic Keystores

Please see:

- [vFabric Hyperic Security Features and Recommendations](#)
- [Configure SSL Options](#)

Default

none

agent.keystore.alias

Description

For agents set up for unidirectional communication with the vFabric Hyperic Server, the `agent.keystore.alias` property configures the name of the user-managed keystore for the agent. By default, the agent looks for keystore named "hq". For unidirectional agents with user-managed keystores, you must define the keystore name with `agent.keystore.alias`.

For example, given this user-managed keystore for a unidirectional agent:

```
(hq self-signed cert), Jul 27, 2011, trustedCertEntry,  
Certificate fingerprint (MD5): 98:FF:B8:3D:25:74:23:68:6A:CB:0B:9C:20:88:74:CE  
hq-agent, Jul 27, 2011, PrivateKeyEntry,  
Certificate fingerprint (MD5): 03:09:C4:BC:20:9E:9A:32:DC:B2:E8:29:C0:3C:FE:38
```

Define the name of the keystore like this:

```
agent.keystore.alias=hq-agent
```

If the value of `agent.keystore.alias` does not match the keystore name, agent-server communication will fail.

About unidirectional communication

If you configure an agent for unidirectional communication, all communication with the server is initiated by the agent. You can configure unidirectional communication at first agent startup, or with the `agent.setup.unidirectional` property in `agent.properties`. Related topics:

- [About Agent - Server Communication](#)
- [vFabric Hyperic Security Features and Recommendations](#)

Default

hq

agent.proxyHost

Description

The host name or IP address of the proxy server that the vFabric Hyperic Agent must connect to first when establishing a connection to the vFabric Hyperic Server. Supported in vFabric Hyperic only, for agents configured for unidirectional communication.

Use in conjunction with `agent.proxyPort` and `agent.setup.unidirectional`.

Default

none

agent.proxyPort

Description

The port number of the proxy server that the vFabric Hyperic Agent must connect to first when establishing a connection to the vFabric Hyperic Server. Supported in vFabric Hyperic only, for agents configured for unidirectional communication.

Use in conjunction with `agent.proxyHost` and `agent.setup.unidirectional`.

Default

none

Encrypt Agent Property Value

Starting in vFabric Hyperic 4.6.6, the `agent.properties` file supports encrypted property values.

If, prior to first agent startup, you uncomment and assign a plain text value to `agent.setup.camPword` or `agent.keystore.password`, the agent will automatically encrypt the property value, as described in [vFabric Hyperic Security Features and Recommendations](#).

If you prefer, you can encrypt these (and other, if desired) property values yourself.

About Where the Agent Finds Server Connection Data

Note that upon first successful connection to the vFabric Hyperic Server, a vFabric Hyperic Agent saves the credentials it used in its `/data` directory. Upon each restart, the agent looks first in that directory for server connection details. Hence, edits to the username and password (`agent.setup.cam.Login` and `agent.setup.camPword`) configured in `agent.properties` have no effect, if the agent has valid connection data in its `/data` directory.

To add an encrypted entry to `agent.properties`, run the agent start script (`AgentHome/bin/hq-agent.sh` or `AgentHome/bin/hq-agent.bat` with the new `set-property` option, and supply the name of the property and the value you wish to encrypt.

Do not use set-property option on an agent upgraded to v4.6.6

The `set-property` option is only supported for newly installed agents. You cannot manually encrypt properties for an agent that you upgraded to 4.6.6 by pushing the 4.6.6 bundle from the vFabric Hyperic Server. Note however that if an upgraded agent's `agent.properties` file contains uncommented password properties with plaintext values, they will be automatically encrypted.

The command syntax is:

```
./hq-agent.sh set-property PropertyKey PropertyValue
```

For example, to set the `agent.setup.camPword` to "hqadmin":

```
./bin/ hq-agent.sh set-property agent.setup.camPword hqadmin
```

If the properties file does not already define the property, the property definition is added at the end of the `agent.properties` file; the encrypted value (not plain text) is shown. For example:

```
agent.setup.camPword=ENC(gaSh3I8gg1o1L1EDHHJo/g==)
```

The key that was used to encrypt the value is saved in `AgentHome/conf/agent.scu`.

If you encrypt another property value, the key in `AgentHome/conf/agent.scu` will be used.

Note that after you encrypt `agent.setup.camPword` (or any property that the agent uses to connect to the server) the agent must be able to access `AgentHome/conf/agent.scu` or it will fail to start up. **Do not delete `agent.scu`.**

If your agent deployment strategy involves distributed a standard `agent.properties` file to all agents, you must also distribute `agent.scu`. For more information, see [Install vFabric Hyperic Agents in Volume](#).

If agent.scu is missing...

If a vFabric Hyperic Agent's `AgentHome/conf/agent.scu` file is missing, subsequent attempts to run the agent start script (`hq-agent.sh` or `hq-agent.bat`) with the `setup` option will fail. To resolve this problem, you must either:

- Reinstall the agent, or
- Perform these steps:
 - a. Stop the agent.
 - b. Delete its `/data` directory.
 - c. Set `agent.setup.camPword` in `AgentHome/conf/agent.properties` to a plain text value.
 - d. Start the agent.

Migrate v4 vFabric Hyperic Server and Database to v5.7

About this section...

This section has instructions for upgrading the vFabric Hyperic Server and database to 5.0.

About the 5.7 Upgrade

This section has instructions for upgrading vFabric Hyperic Server 4.6.0 and later to 5.7 and migrating the vFabric Hyperic database to vPostgreSQL 9.1.9.

Note: If you wish to upgrade a 4.2, 4.3, or 4.4 vFabric Hyperic Server and database to 5.7, you must first upgrade the vFabric Hyperic Server to 4.6.0 or later. The download location is http://downloads.vmware.com/d/info/datacenter_downloads/vmware_vfabric_hyperic/4_6

The database migration supports export from vFabric Hyperic databases running on:

- PostgreSQL 8.2.5 and 8.3
- MySQL 5.0.x and 5.1.x
- Oracle 10g and 11g

The vFabric Hyperic 5.7 installer contains a migration package for performing the upgrade. The migration package, `hq-migrate-5.0.zip` is in `InstallerHome/installer/bin`. It contains a migration script, `hq-migrate/bin/hq-migrate.sh` (or `.bat`).

By default, the migration utility exports your monitoring configuration (alert definitions, resource groups, escalation schemes, and so on) and metric data. If desired, you can run the script with an option that causes only the monitoring configuration data to be exported.

Prerequisites

You run the migration utility on both the vFabric Hyperic 4.6 (or later) host and the vFabric 5.7 host. Each system must have:

- 64-bit Java 1.7 JRE
- 6 to 7 GB of free disk space
- The migration process creates a directory structure on the 4.x host for the exported data, and archives the directory tree. The target host also requires the free disk space, as you will copy the export archive to that platform and unpack it there.
- For large deployments, 8GB of RAM.

Upgrade Process Alternatives

The migration process consists of exporting data from your existing vFabric Hyperic deployment and importing it into your 5.7 installation. You can perform the import and export as two separate steps as described below in [Two-Step Migration Procedure](#), or in some environments, as a single step, as described in [One-Step-Migration](#).

Regardless of whether you perform the migration in one step or two, you can supply command arguments at the command line, or in a properties file. The [Two-Step Migration Procedure](#) and [One-Step-Migration](#) procedures have instructions for supplying arguments at the command line. For information about defining the arguments in a properties file, see [Specify Migration Options in a Properties File](#).

Before performing the migration procedure, review [Migration Defaults and Options](#) below, which describes migration behavior, required and optional command options, and default settings.

Account Permission Requirements

The user account under which the import process runs should be the same as the one used to install and run the target vFabric Hyperic 5.7 Server to avoid startup errors resulting from file permission issues.

The database user account that the import process runs under must have superuser permissions.

Two-Step Migration Procedure

In this procedure "two-step" refers the fact that export and import processes are separate steps.

. Before you start the process, verify that you have installed vFabric 5.7 and vPostgreSQL

The two-step upgrade process consists of these steps:

1. [Export Data from vFabric Hyperic 4.x](#)
2. [Import Data to vFabric Hyperic 5.7](#)

1. Export Existing Database and Server Configuration

- a. Shut down the 4.6 (or later) vFabric Hyperic Server.
Note that if the server is running when you execute the migration script, the migration process will stop the vFabric Hyperic Server.
- b. Copy the migration package, `hq-migration-5.7.zip` from the vFabric Hyperic 5.7 installer to the 4.x vFabric Hyperic Server host.
The package is located in the `installer/bin` directory of the 5.7 installer home directory.
- c. On the vFabric Hyperic 4.x host, unpack `hq-migration-5.7.zip`.
The expanded package has this directory structure:

```
hq-migration-5.7
  logs
  lib
  data
  bin
```

The root of the unpacked migration package directory structure, `hq-migration-5.7` in the directory tree above, is referred to henceforth as `MigrationHome`.

- d. To export all configuration and metric data, run the following command in a command shell:

```
./hq-migrate.sh hq-export -Dhqserver.install.path=PathToServerHome
```

where `PathToServerHome` is the full path to the vFabric Hyperic Server installation directory, or the path relative to `MigrationHome`.

If you want to export configuration data only, not metric data, add `-DconfigOnly=true` to the command line.

The script reads your pre-5.7 vFabric Hyperic Server's `hq-server.conf` file, connects to your existing vFabric Hyperic database, exports the database, and creates a tarball with key artifacts and the database dump, in `hq-migration-export-HqVersion.tgz`.

- o The archive is written to the import staging directory, `migration_home/tmp/export-data` by default, or the value of `staging.dir` if specified.
- o Export log files `install.log` and `install.log.verbose` are written to the `logs` directory.

2. Import Server Configuration and Database

The import process must run under an database account with superuser permissions. By default, the process will use the database credentials defined by the `server.database-user` and `server.database-password` properties in `hq-server.conf`. If the database user account defined in `hq-server.conf` is not a superuser, you must supply a superuser account's credentials at the the command line using `-Dtarget.database.username` and `-Dtarget.database.password` (or in a properties file using `target.database.username` and `target.database.password`).

- a. Copy the export tarball to the the vFabric Hyperic 5.7 Server host, or make it available to the machine on which the 5.7 server is installed. In the latter case, expect some network latency overhead.
- b. Run the migration script with the import option.

```
./hq-migrate.sh hq-import -Dhqserver.install.path=PathToServerHome -  
Dexport.archive.path=PathToExportArchive
```

- o replacing `PathToServerHome` and `PathToExportArchive` appropriately.

Note: Enter the command on a single line.

One-Step Migration Procedure

Note: In this procedure "one-step" refers the fact that export and import processes comprise a single step.

Define JAVA_HOME

Before running the one-step migration procedure, set the JAVA_HOME environment variable to point to the JRE that the target (5.7) vFabric Hyperic Server runs in.

In the process described in [Migration Procedure](#) above, you run the migration in two steps — first you export data from your previous vFabric Hyperic Server installation, then you import that data into your vFabric Hyperic 5.7 environment.

If both the source and destination directories and databases are accessible from a single machine, either because they physically reside there, or are mounted on your file system, you can perform a *one-step-migration*, in which you initiate export and import with a single command.

As noted above in [Account Permission Requirements](#) execute the migration process under the same user account used to install the vFabric Hyperic 5.7 Server. Note also the database user requirements described in [Step 3: Import Server Configuration and Database](#).

After performing [Step 1: Install vFabric Hyperic 5.7 Server and vPostgreSQL](#) you can run a one-step-migration, supplying arguments at the command line, with a command in this form:

```
./hq-migrate.sh -Dsource.hqserver.install.path=SourceServerHome  
-Dtarget.hqserver.install.path=TargetServerHome
```

Note: Enter the command on a single line.

Specify Migration Options in a Properties File

In the instructions provided above for two-step and one-step procedures, you supply command arguments — such as the source and target server installation directories — on the command line. Alternatively, you can define the command arguments in a properties file, and specify the file location at the command line.

You define the desired command arguments as `name=value` pairs.

For example, instead of typing this command:

```
./hq-migrate.sh hq-export -Dhqserver.install.path=/opt/vFabric Hyperic46/server-  
4.6.0-EE
```

you could create a text file with this line:

```
hqserver.install.path=vFabric Hyperic46/server-4.6.0-EE
```

and run this command :

```
./hq-migrate.sh hq-export -Dsetup.file=/opt/hyperic-hqee-installer-  
5.7/installer/hq-migration-5.7
```

Key Tips for Properties Files

- Put one property definition per line; put a new line at the end of each `name=value` pair.
- Make sure there are no embedded spaces within a property definition, nor spaces at the beginning or end of a line.
- On Windows platforms, in a property whose value is a path specification, either:

- use Unix-style path separators, as in

```
hqserver.install.path=vFabric Hyperic46/server-4.6.0-EE
```

- or, escape Windows-style path separators, as in

```
hqserver.install.path=vFabric Hyperic46\\server-4.6.0-EE
```

Validating Migration Integrity

After running the migration utility — whether to export data, import data or perform a one-step migration — you can check for errors by searching migration log files for the string 'xception'. For information about log files, see [Log Files](#).

Migration Defaults and Options

The tables in the section summarize migration options and arguments.

Note: For help at the command line, enter:

```
./hq-migrate.sh usage
```

Summary of Required and Optional Command Arguments

This table documents lists the required and optional arguments for each `hq-migrate.sh` (or `.bat`) command. (See the table in the following section for argument definitions and defaults.)

Command	Required	Optional
hq-export	hqserver.install.path staging.dir	configOnly setup.file scale
hq-import	export.archive.path hqserver.install.path	staging.dir setup.file target.database.user target.database.password quiet
one-step-migration	source.hqserver.install.path target.hqserver.install.path staging.dir	setup.file
usage	none	none

Command Argument Definitions

This table defines the arguments supported by `hq-migrate.sh` (or `.bat`) commands.

Argument	Description	Default Behavior
configOnly	<p>This optional argument can be used with both <code>hq-export</code> and <code>hq-import</code>.</p> <p>When used with <code>hq-export</code>, <code>{configOnly}</code> causes export of monitoring configuration settings (resource groups, alert definitions, escalations, and in vFabric Hyperic, roles) only.</p> <p>When used with <code>hq-import</code>, <code>configOnly</code> causes only monitoring configuration settings to be imported, even if the export archive includes metric data.</p>	Both metrics and configuration setting are exported.

Argument	Description	Default Behavior
<code>export.archive.path</code>	<p>This required <code>hq-import</code> argument points to the archive that contains the data exported from your vFabric Hyperic 4.x installation.</p> <p>Specify the full path to the archive, or the path relative to <code>MigrationHome</code>.</p> <p>On Windows platforms, either use Unix-style path separators or escape Windows-style path separators, as shown in the examples in Key Tips above.</p>	
<code>hqserver.install.path</code>	<p>This required <code>hq-export</code> and <code>hq-import</code> argument points to the vFabric Hyperic Server that is the target of the export or import operation.</p> <p>Specify the full path to the vFabric Hyperic Server installation directory, or the path relative to <code>MigrationHome</code>.</p> <p>On Windows platforms, either use Unix-style path separators or escape Windows-style path separators, as shown in the examples in Key Tips above.</p>	
<code>quiet</code>	<p>This optional argument applies to the <code>hq-import</code> command only.</p> <p>It causes the import process to run without pauses.</p>	<p>If not specified, there is a pause after each major task in the process is completed.</p>

Argument	Description	Default Behavior
scale	<p>This optional <code>hq-export</code> argument indicates that the scale of the vFabric Hyperic environment is "large", causing the vFabric Hyperic Server and database to be configured accordingly. Note that use of this argument requires that the vFabric Hyperic 5.7 is configured with the "large" sizing profile.</p> <p>For more information about sizing profiles, see About Sizing Profiles in vFabric Hyperic.</p>	
setup.file	This optional argument is supported by all three migration commands. If you choose to configure the migration process in a properties file, instead of at the command line, use this property to specify the file location.	<p>If you do not use a properties file you must supply command options at the command line.</p> <p>Command arguments specified at the command line must be prefixed with <code>-D</code>.</p>
source.hqserver.install.path	<p>This required <code>one-step-migration</code> command argument points to the 4.x vFabric Hyperic Server installation directory.</p> <p>On Windows platforms, either use Unix-style path separators or escape Windows-style path separators, as shown in the examples in Key Tips above.</p>	none

Argument	Description	Default Behavior
<code>staging.dir</code>	<p>This optional <code>hq-export</code> and <code>hq-import</code> argument specifies the directory that the migration utility will use as a working directory for manipulating export and import data.</p> <p>The directory name may include the string <code>export-data</code>; if it does not, the export procedure will append the string to the name you specify. If the path specified does not exist at the time of export, it will be created.</p> <p>On Windows platforms, either use Unix-style path separators or escape Windows-style path separators, as shown in the examples in Key Tips above.</p>	By default the staging directory is <code>migration_home/tmp/export-data</code> .
<code>target.hqserver.install.path</code>	<p>This required <code>one-step-migration</code> command argument points to the 5.7 vFabric Hyperic Server installation directory.</p> <p>On Windows platforms, either use Unix-style path separators or escape Windows-style path separators, as shown in the examples in Key Tips above.</p>	
<code>target.database.password</code>	<p>This <code>hq-import</code> command option is required if the database user in <code>hq-server.conf</code> is not a super user.</p> <p>The import will fail if is the user account running it is not defined as a superuser.</p>	By default, the database password defined in <code>hq-server.conf</code> is used.
<code>target.database.user</code>	This <code>hq-import</code> command option is required if the database user in <code>hq-server.conf</code> is not a super user.	By default, the database user defined in <code>hq-server.conf</code> is used.

Optional Migration Execution Parameters

It is possible to configure certain export execution parameters in the `migrate.xml` file, in the `/data` directory in the root of the migration utility directory tree. The export execution parameters are defined in the table below.

Parameter	Description	Default
<code>queryTimeoutSecs</code>	How long before a query times out	2,000 seconds
<code>no.exporter.batchSize</code>	Controls how many rows are exported per batch.	Depends on whether or not the <code>scale</code> argument is specified: <ul style="list-style-type: none"> if <code>scale=true</code> not specified, batch size is 5,000. if <code>scale=true</code> is specified, batch size is 10,000.
<code>no.exporter.Workers</code>	Number of export threads	Depends on whether or not the <code>scale</code> argument is specified: <ul style="list-style-type: none"> if <code>scale=true</code> not specified, 5 if <code>scale=true</code> is specified, batch size is 12.
<code>no.importer.batchSize</code>	Controls how many rows are imported per batch.	Depends on whether or not the <code>scale</code> argument is specified: <ul style="list-style-type: none"> if <code>scale=true</code> not specified, batch size is 5,000. if <code>scale=true</code> is specified, batch size is 10,000.
<code>no.importer.Workers</code>	Number of import threads	Depends on whether or not the <code>scale</code> argument is specified: <ul style="list-style-type: none"> if <code>scale=true</code> not specified, 5 if <code>scale=true</code> is specified, batch size is 12.
<code>disabled</code>	For troubleshooting.	
<code>noOfPartitions</code>	The export process partitions some data tables so that instead of a single thread exporting all records serially, multiple threads export different chunks of a table in parallel. This behavior is configured for selected tables in <code>migrate.xml</code> with the <code>noOfPartitions</code> parameter.	See <code>migrate.xml</code> for default values.

Export Process Artifacts

Exported Data Files

The export process creates a subdirectory in the staging directory (`MigrationHome/export-data` by default) for each table that it exports. The export process populates this directory, which has the same name as the table — for example `EAM_PLATFORM` — with files that contain the data from the table. The export data for a table is split among files based on the value of the `batchsize` parameter in `hq-migrate.xml` (1,000 by default), and for big tables, the value of the `noOfPartitions` parameter for the table (10, by default), also in `hq-migrate.xml`.

Hence, the export files for a table for which partitioning is not configured will contain a 1,000 rows of data (except for the final file in the set).

The export files for a table for which partitioning is configured, will contain data from a single partition of 1,000 rows. The naming convention for the export files is:

`TABLE_NAME_BATCH_NO._PARTITION_NO.out`

where:

- `BATCH_NO` indicates the batch sequence number. For the first export file written for a table, `BATCH_NO` is "0", for the next file, `BATCH_NO` is "1".
- `PARTITION_NO` is the partition sequence number.
 - Given a file for which partitioning is configured, `PARTITION_NO` is 0 for the first partition, "1", for the next. For example, `EAM_MEASUREMENT_DATA_1D_0._0.out`, `EAM_MEASUREMENT_DATA_1D_0._1.out` and so on.
 - Given a file for which partitioning is not configured, `PARTITION_NO` is always 0. For example, `EAM_PLATFORM_0_0`, `EAM_PLATFORM_1_0.out`, `EAM_PLATFORM_2_0.out`, and so on.

Export Metadata

In addition to the data files, the export process creates file for each table it exports, named `TableName.metadata`, where `TableName` is the name of the table, for example `EAM_PLATFORM.metadata`. The file is written to the directory that contains the export data files for that table, for example `MigrationHome/export-data/EAM_PLATFORM.metadata`. The metadata file contain the total number of exported records and the column order in which the data was exported; the file is not compressed and is and is human-readable.

Log Files

The export process directs its output to three targets:

- console — By default, the trace level is `info`. You can alter the level by specifying one of these commandline arguments: `-verbose` or `debug`.
 - On Unix-like platforms, that output is colored.

- `hq-install.log` — this file contains the same information that is output to the console, and its trace level is controlled by the same arguments.
- `hq-install.log.verbose` — Provides debug level tracing.

Upgrade vFabric Hyperic Agent

About this section...

This section has instructions for upgrading the vFabric Hyperic Agent to 5.7. Before performing the steps on this page, see [vFabric Hyperic Upgrade Processes](#) for information about upgrade options and other steps in the upgrade process.

If you want to configure your 5.7 agents for a user-managed keystore, see the information in the [Upgrade Server and Agent with User-Managed Keystores](#) section of [vFabric Hyperic Upgrade Processes](#).

Agent Upgrade Methods

To upgrade a vFabric Hyperic 4.x Agent to 5.7 you can either:

- Install just the 5.7 agent bundle, by pushing it from your upgraded vFabric Hyperic 5.7 Server to each agent (in vFabric Hyperic only) as described in [Push Agent Bundle from the vFabric Hyperic Server](#), or by manually copying the bundle to each agent as described in [Upgrade Agent Bundle Manually](#). If desired, you can first create your own agent bundle, as described in [Create a Custom Agent Upgrade Bundle](#).
- Install complete 5.7 agent package, as described in [Upgrade Agent Using a Full Agent Package](#).

Push Agent Bundle from the vFabric Hyperic Server

You can update one or more vFabric Hyperic Agents by pushing the new bundle to it from the vFabric Hyperic Server, using the vFabric Hyperic user interface. The bundle must reside in the `ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-bundles` directory.

The agent upgrade command is available on the **Views** tab for an vFabric Hyperic Agent (or a group of agents). For more information see *Start, Stop, and Other Agent Operations in vFabric Hyperic Configuration*.

Note: When you update an agent bundle, the configuration settings in the agent's `AgentHome/conf/agent.properties` file are not changed. However, the first time you start an agent that you have updated from 4.5 or earlier, passwords specified in the file will be encrypted.

Agent Name Unchanged by Bundle Upgrade Process

Note that if you upgrade a pre-4.6 agent by pushing a new bundle from the vFabric Hyperic Server, the name of the agent is not changed. So, an agent name that contains the vFabric Hyperic version number — as is the default naming convention — reflects the originally installed version, rather than the version to which it has been upgraded. For example, if you push a 5.7 bundle to an agent whose name is "HQ Agent 4.5", the agent name will remain "HQ Agent 4.5".

Upgrade Agent Bundle Manually

Follow these steps if you wish to manually upgrade the agent bundle in your agent installation, instead of pushing the bundle from the vFabric Hyperic Server.

Note: When you update an agent bundle, your previous agent configuration is preserved — the `AgentHome/conf/agent.properties` file is not overwritten.

1. Copy the agent bundle (`agent-5.x.y-nnn.tgz` or `agent-5.x.y-nnn.zip`) from

```
ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-bundles
```

to

```
AgentHome/bundles
```

2. Unpack the agent bundle.
3. Edit the `rollback.properties` file in `AgentHome/conf` to specify the location of the new agent bundle and the bundle it will supersede.

Property	Description	Example
<code>HQ_AGENT_BUNDLE</code>	Name of directory with the new bundle, without full path specification.	<code>agent-5.x.y-EE-nnn</code>
<code>HQ_AGENT_ROLLBACK_BUNDLE</code>	Name of directory with the old bundle (the one you are upgrading from), without full path specification.	<code>agent-4.5.0-EE-nnn</code>

4. Restart the agent. For instructions, see *Start, Stop, and Other Agent Operations* in *vFabric Hyperic Configuration*.

If the upgrade to the new agent bundle fails, an attempt will be made to start the agent using the old agent bundle.

You can determine whether the upgrade was successful and what version you are running by looking at the log files in `AgentHome/logs`.

Create a Custom Agent Upgrade Bundle

This section describes how to create a custom agent bundle. Pre-configuring the agent eases the process of upgrading multiple agents. For additional information, see [Install vFabric Hyperic Agents in Volume](#).

1. Back up an existing agent located in:

```
ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-bundles
```

For example:

```
cp ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-  
bundles/agent-4.5.0-EE-nnn.tgz  
ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-bundles/agent-  
4.5.0-EE-nnn.tgz.bak
```

2. Extract the bundle. For example:

```
tar xzf ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-  
bundles/agent-4.5.0-EE-nnn.tgz
```

This results in a new directory corresponding to the agent bundle, like this:

```
ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-bundles/agent-  
4.5.0-EE-nnn
```

3. Update the contents of expanded directory. For instance, you could add custom plugins to the plugins directory:

```
ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-bundles/agent-  
4.5.0-EE-nnn/pdk/plugins
```

4. Rename expanded directory to the name of custom agent bundle. For example:

```
mv ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-  
bundles/agent-4.5.0-EE-nnn  
ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-bundles/my-  
bundle
```

5. Pack up agent bundle, using the directory name from the previous step as the tarball file name. For example:

```
tar cvf ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-  
bundles/my-bundle.tar  
ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-bundles/my-  
bundle;  
gzip ServerHome/hq-engine/hq-server/webapps/ROOT/WEB-INF/hq-agent-  
bundles/my-bundle
```

Upgrade Agent Using a Full Agent Package

Upgrade a vFabric Hyperic 4.x Agent using full the agent package:

1. Stop the 4.x agent.
2. Preserve the existing agent configuration.
 - Back up the `agent.properties` file from your previous installation. The default location for `agent.properties` in 4.x installations is the `AgentHome/conf` directory.
 - Note: In some vFabric Hyperic environments, `agent.properties` is stored in an alternative location that eases the process of automating the deployment of multiple agents. On Unix-based platforms, that location is the `.hq` subdirectory of the home directory of the user that runs the Agent. If your agent configuration is stored in that location, it will not be over-written by the new installation.
3. If the agent runs on Windows, uninstall the agent service from a command shell in `AgentHome/bin`:

```
hq-agent.bat remove
```

4. Unpack the 5.7 agent into the agent installation directory.
5. Restore the backed up `agent.properties` file to `AgentHome/conf` (unless you keep the properties file in the `.hq` subdirectory of the home directory of the user that runs the agent.)
6. Start the vFabric Hyperic Agent
 - On Unix-like platforms, enter this command in a shell:

```
sh hq-agent.sh start
```

- On Windows, install the new agent service and start the agent. In a command shell in `AgentHome/bin` enter:

```
hq-agent.bat install
hq-agent.bat start
```

Upgrade a vFabric Hyperic 5.0 Installation

About this section...

This section has instructions for upgrading a version 5.x vFabric Hyperic Server to a new version.

What Happens During Server Upgrade

You upgrade the vFabric Hyperic Server using the vFabric Hyperic installer, using the upgrade option. (The installer does not upgrade the vFabric Hyperic Agent.)

The installer installs a new version of vFabric Hyperic Server; it obtains the configuration information from your previous server installation configuration files and configures the new server instance accordingly.

If you use vFabric Hyperic's internal database, the installer creates a new database instance that contains the data from the existing instance. The new instance has an updated schema, but the PostgreSQL server itself is not upgraded to a new version.

If you use an external database, the installer updates the existing instance.

Upgrade vFabric Hyperic Server on Unix-Based Platforms

Before you start

1. Stop the current server instance. For example:

```
/opt/hyperic/server-5.0.0/bin/hq-server.sh stop
```

2. If you use an external vFabric Hyperic database, back it up before proceeding.
3. Archive your old vFabric Hyperic Server directory, so that if you want, you can revert to the previous version. For example:

```
tar -zcvf hq-server-5.0.0-archive.tgz hq-server-5.0.0-EE
```

Upgrade the vFabric Hyperic Server

1. Run the vFabric Hyperic installer in upgrade mode. For example:

```
/opt/hyperic/hyperic-hq-installer/setup.sh -upgrade
```

2. Acknowledge the VMware license agreement.
3. Enter the path to the previous vFabric Hyperic Server instance, for example:

```
/opt/hyperic/server-5.0.0
```

4. The installer prompts for the path to the new server instance. Enter the path to the directory under which the new server instance will be installed. For example, to install the new instance under your existing vFabric Hyperic home directory:

```
/opt/hyperic
```

The installer will finish the upgrade.

5. Start the new server instance. For example:

```
/opt/hyperic/server-5.1.0/bin/hq-server.sh start
```


Upgrade vFabric Hyperic Server on Windows Platforms

1. Stop the existing server instance using the Windows Services Control Panel.
2. Follow the instructions that apply, depending on whether you use the vFabric Hyperic built-in database or an external database:
 - If you use the built-in vFabric Hyperic database, the upgrade process will migrate your database schema to the latest edition. Note that PostgreSQL itself is not upgraded to the latest version that ships with vFabric Hyperic. The database server remains the one installed when you first installed vFabric Hyperic Server.
 - If using an external database, back it up.
3. Archive your previous vFabric Hyperic Server directory so that if you wish you can revert to the previous version.
4. Run the vFabric Hyperic installer in upgrade mode:

```
c:\hyperic\hyperic-hq-installer\setup.bat -upgrade
```

5. Acknowledge the VMware license agreement.
6. The installer prompts for the path to the previous vFabric Hyperic Server instance. Enter the full path to your existing server installation, for instance:

```
c:\hyperic\server-5.0.0
```

7. The installer prompts for the path where the upgrade version should be installed. Enter the path to the directory that will contain the new server installation. For instance, to install the new instance under your existing vFabric Hyperic home directory:

```
c:\hyperic\
```

The installer will finish the upgrade.

8. Update the Windows Service with the new version information:

```
c:\hyperic\server-5.1.0\bin\hq-server.bat install
```

9. Start the upgraded vFabric Hyperic Server using the Windows Services Control Panel.

Upgrade vFabric Hyperic Agents

See the instructions in [Upgrade vFabric Hyperic Agent](#).

Uninstalling an Agent

If the agent is managed by vFabric Hyperic, remove the platform for the agent before uninstalling it. Then, simply delete the agent's installation folder.

If the agent is installed the agent as a Windows service, run `hq-agent.bat remove` to remove the Windows service.

Change vFabric Hyperic Server Sizing Profile

In vFabric Hyperic 4.6.5 and later, you can set the values of vFabric Hyperic Server resource-related properties by selecting a small, medium, or large *sizing profile*, based on the number of platforms you will manage. The platform thresholds for each profile and server property values for small, medium, and large installation are defined on [About Sizing Profiles in vFabric Hyperic](#).

When you perform a new server installation by running the vFabric Hyperic installer with the `-full` qualifier, the installer prompts you to select a sizing profile, as described in [Run vFabric Hyperic Installer](#).

You can also select an installation profile after installing the vFabric Hyperic Server, or for a vFabric Hyperic Server you have upgraded to 4.6.5, by running the vFabric Hyperic installer with the `-updateScale` qualifier.

1. Open a command shell on the vFabric Hyperic 4.6.5 Server host.

- On Unix-based platforms, enter:

```
PathToInstaller/setup.sh -updateScale
```

- On Windows platforms, enter:

```
PathToInstaller\setup.bat -updateScale
```

The installer will prompt:

```
Please enter the installation profile (small, medium, large)
```

2. Enter the desired profile, for instance:

```
medium
```

If you use the embedded PostgreSQL database, rather than an external database (required for production environments), select the "small" sizing profile. The "medium" and "large" profiles are *not* supported unless you use an external vFabric Hyperic database.

The installer will prompt:

```
Please enter the current server installation directory
```

3. Enter the full path to the server installation directory.
The installer will confirm that the profile has been updated, for example:

```
The server is now updated to "medium" profile...
```

4. Restart the vFabric Hyperic Server to make the changes take effect.

Configure Unidirectional Agent - Server Communication

If your security policies dictate, you can configure the agent to initiate all communications with the HQ Server. You can configure unidirectional communications at first startup. Unidirectional communications are always via SSL.

This section has instructions for changing agent communications from bidirectional to unidirectional and vice versa after the agent has already been configured.

Changing from Bidirectional to Unidirectional Communications

1. Stop the agent.
2. Remove the agent's `\data` directory.
Removing the `\data` directory will cause the agent, at next startup, to look for the startup settings it needs to connect to the HQ Server in its `agent.properties` file; if the properties file doesn't contain them, it will prompt for settings in the shell.
3. Configure the agent for unidirectional communications using one of these methods:
 - If your practice is to provide all agent startup properties in the properties file, edit `agent.properties` to set `agent.setup.unidirectional=yes`, and start the agent.
 - If your practice is to configure the agent startup properties interactively, start the agent, and respond "yes" when asked if the agent should be configured for unidirectional communications.
4. In the HQ user interface, navigate to the platform's Inventory tab and click **Edit** in the "Type & Network Properties" section.
In the edit view for "Type & Network Properties", the "Agent Connection" drop-down list will show your currently selected port for bidirectional communications, something like 10.2.0.213:2144, where 10.2.0.213 is the IP address of the platform, and 2144 is the bidirectional port number previously used.
5. Expand the drop-down list and select the entry that shows the same IP address, and "-1" as the port:
6. 10.2.0.213:-1

Your agent will now use unidirectional communications.

Changing from Unidirectional to Bidirectional Communications

1. Stop the agent.
2. Remove the agent's `data` directory.
Removing the `data` directory will cause the agent, at next startup, to look for the startup settings it needs to connect to the HQ Server in its `agent.properties` file; if the properties file doesn't contain them, it will prompt for settings in the shell.
3. Configure the agent for bidirectional communications using one of these methods:
 - If your practice is to provide all agent startup properties in the properties file, edit `agent.properties` to set `agent.setup.unidirectional=no`, and start the agent.
 - If your practice to configure the agent startup properties interactively, start the agent, and when prompted for communications direction, respond "no" when asked if the agent should be configured to run in uni-directional mode.
4. In the HQ user interface, navigate to the platform's Inventory tab and click Edit in the "Type & Network Properties" selection.
5. Select the appropriate agent in the "Agent Connection" drop down.
In the edit view for "Type & Network Properties", the "Agent Connection" drop-down list will show your currently selected port for unidirectional communications, something like 10.2.0.213:-1, where 10.2.0.213 is the IP address of the platform, and -1 is the port number.
6. Expand the drop-down list and select the entry that shows the same IP address, and "2144" as the port (or the port you are configured to use, if not the default), for example, 10.2.0.213:2144

Your agent will now use bidirectional communications.

Install or Configure vFabric Hyperic License

License Types in vFabric Hyperic

In addition to being available as a standalone product, vFabric Hyperic is part of several VMware product sets — VMware vFabric Suite, VMware vCenter Operations Management Suite, and vCloud Suite — each with its own licensing mechanism.

If you obtained vFabric Hyperic standalone, or as part of vFabric Suite, you configure vFabric licensing.

If you obtained vFabric Hyperic as part of vCenter Operations Management Suite, you configure vCenter Operations Management Suite licensing.

If you obtained vFabric Hyperic as part of vCloud Suite, you configure vCloud licensing.

Note that if you have more than one license, you configure each of them, as described in the sections that follow.

License Consumption

vFabric Hyperic is licensed on a per managed platform basis, where a platform is:

- A physical machine or a VM with a vFabric Hyperic Agent running on it.
 - If an agent manages a vSphere vCenter instance, it consumes a license for the platform that hosts vCenter, a license for each vSphere vHost administered by the vCenter instance, and — if an agent is installed in each VM — a license for each vSphere VM on each vHost.
- A network device or network host managed remotely by a vFabric Hyperic Agent. ([Network Device](#) in *vFabric Hyperic Resource Configuration and Metrics* describes vFabric Hyperic functionality for managing remote devices and hosts.)

If you have licenses for both vFabric Suite and vCenter Operations Management Suite, you are licensed for the total number of managed platforms allowed by the vFabric license plus the number of platforms allowed by the vCenter Operations Management Suite license.

Configure vFabric License

If you obtain vFabric Hyperic as part of vFabric Suite (previously known as "vFabric Platform") refer first to the licensing information and procedure in *Getting Started with vFabric Suite*. If necessary, complete additional licensing tasks in this document.

vFabric Hyperic evaluation distributions include a time-limited license for 60 platforms.

After you purchase vFabric Hyperic, a production license specifies the number of platforms you may manage, and unless you have a perpetual license, the license expiration date.

To activate your license:

- If you acquired vFabric Hyperic standalone:
 - a. Create a file named `vf.hyp-serial-numbers.txt` that contains the product serial number provided by VMware.
 - b. Install the serial number file in:
 - `/etc/opt/vmware/vfabric/` on Unix-like platforms
 - `%ALLUSERSPROFILE%\vmware\vfabric` on Windows platforms.
- If you obtained vFabric Hyperic as a part of vFabric Suite:
 - configure the location of the VMware License Server that administers the network license for vFabric Suite, by adding the `vfabric.licenseServer.url` property to `ServerHome/conf/hq-server.conf`.

After performing the appropriate step above, restart the vFabric Hyperic Server.

Configure vCenter Operations Management Suite License

To configure your vCenter Operations Management Suite license, add the following line to the `ServerHome/conf/hq-server.conf` file:

```
vcops.license.key=LicenseKey
```

where `LicenseKey` is the vCenter Operations Management Suite license key.

After configuring the license, restart the vFabric Hyperic Server.

Configure vCloud License

To configure your vCloud license, add the following line to the `ServerHome/conf/hq-server.conf` file:

```
vcloud.license.key=LicenseKey
```

where `LicenseKey` is the vCloud license key.

After configuring the license, restart the vFabric Hyperic Server.

View License Terms

You can view your license terms and usage on the **Administration** tab of the vFabric Hyperic user interface.

Troubleshoot Agent and Server Problems

This section has tips for troubleshooting problems in a VMware vFabric™ vFabric Hyperic® deployment.

Looking for Clues

This section describes options for getting information that might help you diagnose problems in an vFabric Hyperic deployment.

HQ Health

The **HQ Health** page, available in the "Plugins" section of the **Administration** page, displays a variety of metrics and status about your vFabric Hyperic deployment, including server host statistics and vFabric Hyperic Server process information.

HQ Health provides views, queries, and diagnostic tools that provide visibility into metric loads, caches, the vFabric Hyperic database, and agents across your deployment. For more information, see *ui-HQHealth* in *vFabric Hyperic User Interface*.

hqstats and agentstats

Mainly of use to vFabric Hyperic Support (or others with an internals-level knowledge of vFabric Hyperic), the files in the `hq-server/logs/hqstat` and `AgentHome/logs/agentstats` folders contain a variety of system and subsystem performance, resource usage, and other statistics for the vFabric Hyperic Server and vFabric Hyperic Agent, respectively.

The statistics files in the `hqstat` and `agentstats` directories are in `.csv` format and can be viewed in a spreadsheet program or other `.csv` viewer.

Agent Metrics

vFabric Hyperic Agent metrics are helpful in diagnosing many problems that can occur. By default, these metrics are reported:

- Availability
- JVM Free Memory - Indicator
- JVM Total Memory - Indicator
- Number of Metrics Collected Per Minute - Indicator
- Number of Metrics Sent to the Server Per Minute
- Server Offset
- Total Time Spend Fetching Metrics per Minute

Depending on your environment, you may find it useful to track other agent metrics, such as:

In addition to the default metrics

- Number of Metrics which Failed to be Collected
- Number of Metrics which Failed to be Collected per Minute
- Maximum Time Spent Processing a Request
- Number of Connection Failures
- Total Time Spent Fetching Metrics per Minute

For more information about default and available agent metrics see [View vFabric Hyperic Agent Metrics](#).

Log Files

The following log files can be a useful source of information in the event that a problem occurs in a vFabric Hyperic deployment:

- `ServerHome/logs/wrapper.log`
- `ServerHome/logs/bootstrap.log`
- `ServerHome/logs/server.log`
- `ServerHome/logs/hqdb.log` (only available for deployments using the built-in PostgreSQL database.)
- `AgentHome/logs/wrapper.log`
- `AgentHome/logs/agent.log`
- `AgentHome/logs/agent.log.startup`

You can increase the level of logging an agent performs in its `agent.properties` file. Note that debug logging is very verbose and uses more system resources. vFabric Hyperic recommends configuring debug logging only when troubleshooting problems, and only at the subsystem level. For more information, see [Configure Agent Logging](#).

Thread Dumps

This section has instructions for generating thread dumps for the vFabric Hyperic Server and vFabric Hyperic Agent.

Generate a vFabric Hyperic Server Thread Dump from User Interface

Follow these steps to output a server thread dump to your browser.

1. Click the **Administration** tab.
2. Click **HQ Health** in the **Plugins** section of the **Administration** page.
3. Click **Print** in the **HQ Process Information** section on the **HQ Health** page.

Generate a vFabric Hyperic Server Thread Dump from Command Line

To generate a thread dump on Windows:

- If vFabric Hyperic Server is running in a terminal window — Try **<cntrl><break>** in the terminal window.
- If vFabric Hyperic Server is running as a service — Use a tool like [StackTrace](#).

To generate a thread dump on Unix-like systems, use `jstack`

<http://download.oracle.com/javase/1.5.0/docs/tooldocs/share/jstack.html> on the vFabric Hyperic Server process. For example, if the server's PID is 215:

```
jstack 215 >mydumpfile.txt
```

How to find the vFabric Hyperic Server PID

You can run `jps` in a shell to determine the vFabric Hyperic Server's process ID — look for the process named "Bootstrap". For example:

```
$ jps
187 WrapperStartStopApp
408 Jps
215 Bootstrap
```

On Unix-like systems, you can also run `Kill -3` on the vFabric Hyperic server process. Note however, that if you do, the thread dump will be written to `wrapper.log`, and be difficult to parse.

Generate Agent Thread Dump from User Interface

Run the agent launcher with the `dump` option. For more information see [Start, Stop, and Other Agent Operations](#).

Check Port Availability

The vFabric Hyperic Server must be able to establish a connection with the agent, and vice versa.

To verify that the server can access the agent's listen port, run the following from the server platform:

```
telnet AgentIp AgentPort
```

For example:

```
$ telnet 192.168.1.114 2144
```

For a successful connection, the results are similar to:

```
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^\\'.
GET

Connection closed by foreign host.
```

To verify that the agent can access the server's listen port, run the following from the agent platform:

```
$ telnet ServerIP ServerPort
```

For example:

```
$ telnet 192.168.1.114 7080
```

vFabric Hyperic Server Problems

This section describes problems that could prevent the vFabric Hyperic Server from starting up.

Large Event Table

A message like the following in `server.log` indicates that the `EAM_EVENT_LOG` is so large that trigger initialization is taking more than 15 minutes.

License Issues

In vFabric Hyperic, the number of platforms you can manage is limited by your license. For more information, see [Install or Configure vFabric Hyperic License](#).

Backlogged vFabric Hyperic Server

When the vFabric Hyperic Server starts after a period of downtime, it can be inundated with metric reports from agents that continued to run while the server was down. When the server is processing a large metric backlog from many agents, the maximum size of the agent-server connection pool size can become a bottleneck and affect server performance.

You can check the "Current Thread Busy" metric for the vFabric Hyperic Server's internal Tomcat server to determine whether connection pool size is an issue.

To enable a restarted server catch up with a metric backlog you can increase the maximum size of the agent-server connection pool — typically this is the only time that increasing the size of the connection pool is indicated. The maximum number of agent-server connections is configured with the `org.hyperic.lather.maxConns` property in `web.xml`. Note however that, in effect, the number of connections is limited by the maximum number of server execution threads, which is configured using the `tomcat.maxthreads` property in `server.conf`. So, when you increase the value of `org.hyperic.lather.maxConns`, it may be necessary to increase the value of `tomcat.maxthreads`.

To enable a backlogged vFabric Hyperic Server to catch up, enable 5% to 10% more connections than there are agents reporting to the server. For example, if you have 1000 agents, enable 1050 to 1100 agent-server connections.

To change the size of the agent-server connection pool:

1. As necessary, update the maximum number of agent-server connections — `org.hyperic.lather.maxConns` — in `<Server installation directory>/hq-engine/hq-server/webapps/ROOT/WEB-INF/web.xml` file, in the snippet shown below. Ensure that the value of `maxConns` is 5% to 10% greater than the number of agents that report to the server.

```
<init-param>
  <param-name>org.hyperic.lather.maxConns</param-name>
  <param-value>3000</param-value>
</init-param>
```

2. As necessary, configure the maximum number of Tomcat threads — `tomcat.maxthreads` — in `server.conf`. Ensure that the value of `maxThreads` greater than the value of `maxConns`.
3. Restart the vFabric Hyperic Server to enable the changes to take effect.

Decryption Errors

If the vFabric Hyperic Server attempts to decrypt data using a different database password encryption key than was supplied during vFabric Hyperic Server installation, decryption errors like the following may be written to the `server.log` file.

```
org.jasypt.exceptions.EncryptionOperationNotPossibleException
```

Such errors can occur if the `ServerHome/server.conf` file is lost, the value of the `server.encryption-key` property in that file is changed is lost or changed, or (if vFabric Hyperic Server is configured for high availability) after server failover.

To resolve this problem, you must restore the encryption key that was originally configured, as described below:

1. Stop the vFabric Hyperic Server.
2. Retrieve the `server.encrypted-key` values from the `EAM_ENCRYPTION_KEYS` table in reverse chronological order, using this SQL statement:

```
select * from EAM_ENCRYPTION_KEYS order by creation_date desc
```

3. Set the value of the `server.encrypted-key` property in `server.conf` with the `EAM_ENCRYPTION_KEYS.ENCRIPTION_KEY` value previous to the current one.
4. Restart the vFabric Hyperic Server.
5. Review `server.log` for encryption errors.
 - o Lack of encryption errors indicates the problem is solved.
 - o If encryption errors are still occurring, set the `server.encrypted-key` property to the next earlier value, and repeat the process as necessary until the problem is solved.

Agent Startup or Connection Problems

This section describes problems that could prevent the vFabric Hyperic Agent from starting up or connecting to the vFabric Hyperic Server.

Agent Failed to Connect to Server at First Startup

Every time an agent starts up it attempts to contact the vFabric Hyperic Server. If, the first time you start up an agent, it cannot connect to the server, the agent will continue to have problems connecting to the server, even after the server is reachable.

The first time a vFabric Hyperic Agent successfully connects with the vFabric Hyperic Server, the agent saves the server connection settings in its `/data` directory. If the server is not available (because the wrong address/port was configured for the agent, or because the server hasn't been started or is still in the process of starting up) the agent will fail to connect, and hence fail to persist the server connection data. Upon agent restart, the agent will not be able to find the connection data it requires, and fail to connect to the server. In this case, `server.log` will contain a message similar to:

```
2010-04-20 11:04:26,640 ERROR [Thread-1|Thread-1] [AutoinventoryCommandsServer]
Unable to send autoinventory platform data to server, sleeping for 33 secs before
retrying. Error: Unable to communicate with server -- provider not yet setup
```

To solve this problem:

1. Delete the agent's `/data` directory.
This forces the agent to obtain new agent - server communication properties.
2. Verify the address and listen port for the vFabric Hyperic Server.
Is there a firewall between agent and server? See the instructions in [Configure Agent - Server Communication Interactively](#) or [Configure Agent - Server Communication in Properties File](#).
3. Verify the vFabric Hyperic Server is up.
4. Start the agent, supplying the correct server connection properties, either in `agent.properties` or interactively. See the instructions referenced in step 2 above.

Server Does Not Have Agent Token

Starting in 4.6.5, if all platforms managed by an agent are removed from vFabric Hyperic inventory, the vFabric Hyperic Server also removes the saved authentication token for that agent from the vFabric Hyperic database. So after you delete a platform that is managed by an agent that does not manage any other platforms (as in the case of an agent that manages only the platform it runs on), the vFabric Hyperic Server will not accept connections from that agent.

If you want the agent to rediscover the platform, you must repeat the initial agent setup process. To force the agent setup dialog:

- While the agent is running, by running the agent launcher with the `setup` option, or
- By deleting the agent's `/data` and restarting the agent.

Agent Start Script Timeout

By default, the agent start script times out after five minutes if the startup sequence is not successful. Check the `agent.log.startup` file for messages.

If desired, you can configure a longer timeout period – to give the agent more time to connect to the server — by adding the `agent.startupTimeout` property, defined below, to the `agent.properties` file.

agent.startupTimeout

Description

The number of seconds that the agent startup script will wait before determining that the agent did not startup successfully. If the agent is not determined to be listening for requests within this period of time, an error is logged, and the startup script times out.

Default

As installed, `agent.properties` does not contain a line that defines the value of this property. The default behavior of the agent is to timeout after 300 seconds.

After editing the `agent.properties` file, save your changes and restart the agent.

Java Service Wrapper Timeout

Under high load, the agent may become unresponsive. If this occurs and there are no coincident errors or warnings in the agent log that indicate another explanation, it may be that the agent JVM was starved for memory, and unresponsive to a ping from the Java Service Wrapper (JSW).

In that case the `wrapper.log` file will contain an entry like this:

```
ERROR | wrapper | 2009/01/15 02:15:18 | JVM appears hung: Timed out waiting for signal from JVM.
```

To resolve the problem, you can configure the JSW to give the agent more time to respond to startup and ping requests.

Increase the JSW's timeout period from 30 seconds to 300. To do so, add this property to `AGENT_HOME/bundles/agent-4.x.xxxx/conf/wrapper.conf`.

```
wrapper.ping.timeout=300
```

This will cause the JSW to wait longer for a ping response before determining that the JVM is hung.

Increase the agent's startup timeout from 30 seconds to 300. This will give the agent more time to start up before wrapper gives up on it and kills the process. To do so, add this property value:

```
wrapper.startup.timeout=300
```

to

```
AgentHome/bundles/agent-4.x.xxxx/conf/wrapper.conf
```

Problem Running Start Script setup Option

If agent.scu is missing...

If a vFabric Hyperic Agent's `AgentHome/conf/agent.scu` file is missing, subsequent attempts to run the agent start script (`hq-agent.sh` or `hq-agent.bat`) with the `setup` option will fail. To resolve this problem, you must either:

- Reinstall the agent,
or
- Perform these steps:
 - a. Stop the agent.
 - b. Delete its `/data` directory.
 - c. Set `agent.setup.camPword` in `AgentHome/conf/agent.properties` to a plain text value.
 - d. Start the agent.

Invalid or Unknown Availability

This section describes reasons that vFabric Hyperic might incorrectly show an agent (or agent-managed resource) as unavailable, show its availability status as "Unknown" (availability icon is grey), or "flapping" availability values.

Out-of-Sync Agent and Server Clocks

If vFabric Hyperic erroneously indicates that resources are unavailable, it may be because the system clocks on the agent and server hosts are out-of-sync. By default, vFabric Hyperic monitors the offset between the server and an agent — see the "Server Offset" metric on the **Monitor** tab. An offset of less than one minute is unlikely to pose problems; with a larger offset, problems may occur.

To solve an offset problem, install NTP and synchronize system clocks on the agent and server hosts.

To prevent agent and server becoming significantly out-of-sync, you can run NTP on each system, use vFabric Hyperic to monitor the offset on each system, and set alerts based on the offset metric. To do so, configure a platform service of type "NTP" to monitor each NTP service, and set alerts to fire when an offset from the time authority grows unacceptably high. For more information, see the "Network Services" section in *vFabric Hyperic Resource Configuration and Metrics*.

Overloaded Backend

If the vFabric Hyperic database cannot process metrics at the rate it receives them, resources that are available may be incorrectly shown as unavailable.

You can view vFabric Hyperic Server process statistics, as well as load and utilization data - load, process, system and JVM memory, and so on - on the **HQ Health** page.

Based on your load, it may be appropriate to tune vFabric Hyperic Server, the vFabric Hyperic database, or both. For more information, see [Scaling and Tuning vFabric Hyperic Performance](#).

Important: First and foremost: run the vFabric Hyperic database on dedicated hardware. Competition for system resources can slow down metric processing.

Overloaded Agent

If an agent's queue of metrics grows to a certain level over a period of time, the following warning message is written to the `agent.log` file:

```
The Agent is having a hard time keeping up with the frequency of metrics taken.  
Consider increasing your collection interval.
```

To investigate, you can configure the agent to report the "Total Time Spent Fetching Metrics per Minute" metric — if the agent spends more than half its time fetching metrics — it is overloaded.

You can alleviate the problem by increasing metric collection intervals — For most metrics, the default is every 5 or 10 minutes. You can change the collection interval for all metrics collected for a resource type on the **Administration > Monitoring Defaults** page for the resource type.

Want to Change a Whole Bunch of Metric Collection Intervals?

If you want to change metric templates in bulk, or without using the vFabric Hyperic user interface, you can change metric collection settings - including collection intervals - for a resource type with the HQApi **metricTemplate** command. You can use the **metricTemplate sync** option from the command line or in a script, as desired. For more information, see *HQApi metricTemplate* command section in *vFabric Hyperic Web Services API*.

Try to redistribute load

If an agent that logs metric volume warnings is monitoring a large number of remote services over the network (for example, HTTP, FTP, SNMP, or another service type whose protocol the agent supports), you can spread the load around — configure a different agent to monitor some of the network services. You can compare the agent loads on the **Agents** tab of **HQ Health**.

Slow User Interface

If vFabric Hyperic's web user interface is slow, the cause may be an overloaded backend - the vFabric Hyperic database, or the vFabric Hyperic Server itself. See [Overloaded Backend](#).

Warning Messages in the Agent Log

This section has information about the significance of selected warning messages that might be written to the `agent.log` file.

Connection Timeout Messages

Lather, the connection protocol for agent-to-server communication, is configured such that agent connections time out after five minutes, and a timeout message is written to `agent.log`. You can increase the timeout period from 300000 to 900000 in this file:

```
hq-engine/server/default/deploy/lather-jboss.sar/jboss-lather.war/WEB-INF/web.xml
```

in this snippet:

```
<init-param>
<param-name>org.hyperic.lather.execTimeout</param-name>
<param-value>900000</param-value>
</init-param>
```