FuseSource

A Progress Software Company

Fuse HQ

Installing Fuse HQ

Version 4.4

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The experts in open source integration and messaging

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Legal Notices

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Chapter 1. Installation Prerequisites

Before attempting to install Fuse HQ, decide where you are going to install Fuse HQ components and make sure your systems meets the minimum requirements.

Planning your installation

What is Fuse HQ

Fuse HQ is a tool for monitoring and managing the infrastructure. With Fuse HQ you can:

- Inventory resources on your network
- Monitor resources
- Send alerts when problems occur
- Control resources

Fuse HQ Components

Before you begin installation of Fuse HQ, you must decide where you will install the following Fuse HQ functional components:

Component	Description
Fuse HQ Server	The central component that controls agents, manages data, and provides a browser-based GUI. See "Fuse HQ Server Requirements" on page 11.
Fuse HQ Agent	The component that finds resources, gathers data, controls software, and communicates with the server. Agents are installed on the systems in a network that you want to monitor or control. See "Fuse HQ Agent Requirements" on page 13 Note that agents cannot function remotely; they can only monitor resources on the system where they are installed.
Fuse HQ Repository	A database, managed by the Server. It stores Fuse HQ data and is responsible for ensuring data integrity and access. See "Fuse HQ Repository Requirements" on page 14

Fuse HQ Server Requirements

Check this section before you install HQ Server on the machine that will be the central control and management system for Fuse HQ.

Hardware

The machine running Fuse HQ server must meet these minimum specs:

- 1 GHz or higher Pentium 4, or equivalent (2 × 2.4GHz Pentium Xeon or equivalent recommended)
- 1 GB RAM (4 GB or more recommended)
- 1-5 GB Free Disk Space

Operating systems

Fuse HQ server is supported on the following operating systems:

- Linux
- Solaris 10 or higher
- Max OS X (Intel x86)
- Windows 2003 Server

Note

Although HQ Server is not supported under Windows XP in production environments, the configuration works; you can run small evaluation deployments under Windows XP.

Web browsers

Fuse HQ supports the following Web browsers:

- Firefox 2.x
- Firefox 3.x
- Internet Explorer 7
- Internet Explorer 8, except on Windows 2008

Warning

The Skype plugin for Firefox causes unexpected behavior in the HQ user interface. Disable the plugin to work around this problem.

Java

The Fuse HQ Server is bundled with a JRE and its use is recommended. However, if you prefer to use a JRE (or JDK) that may already be installed on the system, the JRE or JDK should be version 1.5 or 1.6. We recommend Java 1.6.

Windows 64-bit JRE

HQ Server does not support 64-bit JREs under Windows. Use the 32-bit installer package for Windows, or the platform-independent installer if you prefer to use a pre-existing JRE in your environment.

IP address

The system where you install the Fuse HQ Server must have a static IP address. A dynamic IP address may disable communication with the Fuse HQ Agent. Check with your system administrator to determine if you need to implement a static IP address on the system where you want to install the Fuse HQ Server.

X windows

On UNIX platforms, Fuse HQ Server requires some of the X libraries to create charts and other graphics in the user interface. Specifically `libXp.so.6` must be installed on the system.

The symptoms of missing X libraries are broken graphics and error messages similar to the following:

```
java.lang.NoClassDefFoundError at
          net.hyperic.hq.ui.taglib.NavMapTag._getRe
sourceTree(NavMapTag.java:252) at
          net.hyper
ic.hq.ui.taglib.NavMapTag.doStartTag(NavMapTag.java:160) etc . . .
```

Fuse HQ Agent Requirements

Check this section before you install the Fuse HQ Agent on the systems that you want to monitor.

Hardware

Machines running Fuse HQ agents must meet these minimum specs:

- 500 MHz Celeron or higher, or equivalent
- 256 MB RAM
- 500 MB Free Disk Space

Supported operating systems

Fuse HQ agent is supported on the following operating systems:

- Linux
- Windows XP, 2000, 2003, or 2008 SE
- Windows 7
- Solaris 8 or higher
- Mac OS X
- HP-UX 11.11 or higher
- AIX 5.2 or higher

Java

The Fuse HQ agent is bundled with a JRE and its use is recommended. However, if you prefer to use a JRE (or JDK) that may already be installed on the system, the JRE or JDK should be version 1.5 or 1.6. We recommend Java 1.5.

IP address

The system where you install the Fuse HQ Agent must have a static IP address. A dynamic IP address may disable communication with the Fuse HQ Server. Check with your system administrator to determine if you need to implement a static IP address on the system where you want to install the Fuse HQ Agent.

Fuse HQ Repository Requirements

For evaluation and testing purposes, the Fuse HQ Server installation includes a default, built-in database that you can install on the local host. However, for actual deployment of Fuse HQ (particularly in large installations), you should install and configure one of the following databases on a remote host:

- Oracle 10g or 11g
- PostgreSQL 8.3 or higher

Windows restrictions

PostgreSQL is not supported on Windows in production environments.

- MySQL 5.0.45 or 5.1.x (5.1.x is recommended)

See "Preparing the Fuse HQ Repository" on page 15 for more information.

Chapter 2. Preparing the Fuse HQ Repository

Before installing the Fuse HQ Server or Agents, you should prepare a database to serve as a repository for Fuse HQ data.

Preparing an Oracle Database

Creating an Oracle instance for use as the Fuse HQ repository

Ideally, the Oracle server should run on a system where no other Fuse HQ components are installed.

To create an Oracle instance for use with Fuse HQ:

1. Install Oracle on the machine you will use following the Oracle installtion instructions.
2. Using Oracle Database Configuration Assistant, create a new database.
   - Set **Includes data** files to no.
   - Select **Typical Memory** for the memory configuration.
   - Select **OLTP** as the type of database sizing to use.
3. Create the `TEMP_HQDB` temporary tablespace making it 2 GB in size.
4. Create the `TS_HQDB` tablespace making it 25 GB in size.

Creating the user that will access the database

To create a user for accessing the database:

1. Log into the Oracle instance with SQL*Plus as the system user.
2. Use **CREATE USER** to create a user name and password.

   ```
   SQL> CREATE USER HQUSER IDENTIFIED BY HQPASSWORD;
   ```

   Replace *HQUSER* and *HQPASSWORD* with your own values.
3. Use **GRANT** to give the new user permissions for accessing the database.

   ```
   SQL> GRANT CONNECT, RESOURCE, CREATE VIEW TO HQUSER;
   ```

   Replace *HQUSER* with the user's name.
4. Verify the permission setting:

   ```
   SQL> SELECT GRANTED_ROLE, DEFAULT_ROLE FROM dba_role_privs WHERE
    grantee = 'HQUSER';
   ```

Make sure that you see the following rows for `CONNECT` and `RESOURCE` roles:

```
GRANTED_ROLE DEFAULT_ROLE
CONNECT YES
RESOURCE YES
```

5. If that is not the case, update the permissions:

```
ALTER USER HQUSER DEFAULT ROLE RESOURCE, CONNECT;
```

Obtaining the Oracle JBDC driver

Before installing Fuse HQ you will need to obtain the Oracle JDBC driver. To obtain the driver:

1. Go to http://www.oracle.com/technology/software/tech/java/sqlj_jdbc/index.html.
2. In the **JDBC Driver Downloads** section, select the link for your version of Oracle.
3. On the drivers download page, select the driver for your JDK version.
   - JDK 5.0 — `ojdbc5.jar`
   - JDK 6.0 — `ojdbc6.jar`

   

   Note

   JDeveloper 11g JDBC drivers support JDBC 4.0 features. Use `ojdbc6.jar` with JDK 6.0 for JDBC 4.0 features.

4. On the page that appears accept the licensing agreement.
5. Download the jar file.
6. Copy the driver jar file to `hyperic-hq-installer/installer-4.x.y/lib`.

Preparing a PostgreSQL Database

Prerequisites

Preparing a PostgreSQL database for the Fuse HQ repository is relatively complicated and can vary depending on the operating system and other factors. PostgreSQL usually requires a DBA or someone with DBA knowledge for setup and maintenance. You can also find help by consulting the PostgreSQL documentation[1].

Note

Fuse HQ automatically creates a language in the PostgreSQL database, but not in PostgreSQL 8.0. You must run the following command on a PostgreSQL 8.0 database:

```
createlang plpgsql <DATABASE NAME>
```

The **createlang** executable is located in the `bin` directory of your PostgreSQL installation.

Installing and initializing PostgreSQL

Follow the procedure outlined in the PostgreSQL documentation for installing and initializing PostgreSQL for your platform.

Creating a database and a user account

To create a database and a user account:

1. Log into PostgreSQL interactive shell as a user with administrative privileges.
2. Create a user with permission to log in and create databases.

   ```
   create role admin with login createdb password 'hqadmin';
   ```

   Replace *admin* and *hqadmin* with your own values.
3. Create the database that you will use as the Fuse HQ repository and specify *admin* as the owner.

   ```
   create database "HQ" owner admin;
   ```

[1] http://www.postgresql.org/docs/

Note

The quotes around "HQ" cause the database name to be in uppercase.

4. Exit the PostgreSQL shell.

Configuring PostgreSQL to accept network connections

To configure PostgreSQL to accept network connections:

1. In the PostgreSQL configuration file, *postgreInstall*/data/postgresql.conf, change the default commented listen address entry to:

```
listen_addresses = '*'
```

This causes PostgreSQL to listen to all network interfaces, not just the local loopback address.

2. Add these lines to *postgreInstall*/data/pg_hba.conf, the Host-base Authentication (HBA) file:

```
TYPE    DATABASE  USER  CIDR-ADDRESS    METHOD
local   all       all                   ident sameuser
host    all       all   HQ Server IP address/32  password
```

See the PostgreSQL 8.2.12 Documentation[2] for more information.

Tuning PostgreSQL for Fuse HQ

Now you need to tune your PostgreSQL installation for use with Fuse HQ.

1. In the postgresql.conf file, edit or add the following parameters:

```
fsync=false
shared_buffers=10000
work_mem=2048
statement_timeout=30000
```

2. Configure the database so that Fuse HQ can monitor it by adding the following parameters to the postgresql.conf file:

[2] http://www.postgresql.org/docs/8.2/interactive/auth-pg-hba-conf.html

```
stats_start_collector = true
stats_block_level = true
stats_row_level = true
stats_reset_on_server_start = false
```

Although database monitoring is not required, it is recommended.

Preparing a MySQL Database

Creating a database and a user account

To create the database and user for Fuse HQ server:

1. Connect to a MySQL server as root.

   The `mysql>` prompt will appear.

2. Create a user called `hqadmin`.

   ```
   mysql> create user 'hqadmin'@'localhost' identified by 'passwd';
   ```

3. Create a database called `HQ`.

   ```
   mysql> create database HQ;
   ```

4. Grant the `hqadmin` user full access to the `HQ` database.

   ```
   mysql> grant all on HQ.* to 'hqadmin'@'localhost';
   ```

Configuring MySQL

You configure the MySQL database by editing the settings in its configuration file. On Unix and Linux, the file is `/etc/my.cnf`. On Windows the file is *`MySQLInstallDir`*`\my.ini`.

For more information about InnoDB startup options and system variables, see http://dev.mysql.com/doc/refman/5.0/en/innodb-parameters.html.

Configure MySQL as follows:

1. Enable the full query log.

   ```
   [mysqld]
   log-error = /home/mysql/log/mysqld.err
   log = /home/mysql/log/mysql_general.log
   ```

   Every query (even ones with incorrect syntax) that the database server receives will be logged. This is useful for debugging, but it is usually disabled in production use. Be sure to change the paths given here to match your environment.

2. Print warnings to the error log file.

```
log_warnings
server-id       = 1
```

If you have any problem with MySQL, you should enable logging of warnings and examine the error log for possible explanations.

3. Configure buffer pool size.

```
innodb_buffer_pool_size = 256M
```

The size of the MySQL buffer pool is has a significant impact on MySQL performance. If your database is on a dedicated machine, make the buffer pool about 80% of total memory.

4. Configure the frequency with which the log buffer is written to the log, and the log is flushed to the disk.

```
innodb_flush_log_at_trx_commit = 2
innodb_log_buffer_size = 64M
innodb_log_file_size = 256M
```

Setting this value to `0` dramatically increases MySQL performance, but with this setting, you are likely to lose data in the event of a server crash. If loss of data is unacceptable, use a value of `2` instead. We do not recommend setting the value to `1`.

5. Configure innodb as the default storage engine.

```
default-storage_engine=innodb
bulk_insert_buffer_size = 32M
join_buffer_size = 8M
max_heap_table_size = 256M
tmp_table_size = 256M
max_tmp_tables = 48
myisam_sort_buffer_size = 256M
```

6. Configure the sort buffer size.

```
sort_buffer_size = 64K
```

MySQL recommends a sort_buffer_size larger than 64K.

An article on experimenting with sort buffer size is available at http://www.mysqlperformanceblog.com/2007/08/18/how-fast-can-you-sort-data-with-mysql.

7. Configure the read buffer size.

```
read_buffer_size = 1M
read_rnd_buffer_size = 10M
table_cache = 2048
set-variable = max_connections=400
key_buffer_size = 256M
thread_cache_size = 32
```

Because Fuse HQ does a significant volume of sequential reads, a large read buffer improve performance.

8. Configure the number of threads that can run in the InnoDB kernel.

```
innodb_thread_concurrency = 8
```

A starting point for setting this value is to to set a value equal to twice the number of CPUs times the number of disks.

9. Set the method that is used to flush data and log files.

```
innodb_flush_method=O_DIRECT
innodb_rollback_on_timeout=1
```

For battery-backed-up storage with write-back cache mode on Linux, the `O_DIRECT` flush method is good.

10. Set the size of the query cache.

```
query_cache_size = 0
```

Generally, the higher this value, the better the performance. However, in MySQL versions older than 5.0.50, beware of setting this variable too high, as it may cause the database to pause. For more information, see the bug description at http://bugs.mysql.com/bug.php?id=21074.

11. Set the query cache limit.

The default value here is 1M. If the qcache_hits-to-qcache_inserts ratio is low, raise this value.

```
query_cache_limit = 8M
```

12. Set the character encoding to utf-8.

```
default-character-set=utf8
collation_server=utf8_bin
```

Tuning the Batch Aggregate Inserter for MySQL

Important

Perform these steps only after installing the Fuse HQ Server.

These tuning recommendations are based on a performance tuning exercise in an environment with 700 Fuse HQ Agents reporting to an Fuse HQ Server on an 8 way / 16 GB host with an MySQL database running on an 8 way / 8 GB host, each running CentOS 5, with:

- Workers: 4
- QueueSize: 4000000
- BatchSize: 2000

With 7 hours of backfilled data the server peaked out at 2.2 million rows inserted.

This intent of the strategy was to keep the Batch Aggregate Inserter (BAI) on "cruise control", instead throwing threads at the queued metrics all at once and causing CPU spikes. It was found that the BAI workers had no trouble keeping up with the "normal" incoming load, and in a catchup scenario (after backfilling) the high Queue Size allowed them plenty of time to catch up.

For a smaller deployment, consider only tweaking the number of workers down to 1 or 2. This will ease random CPU spikes and MySQL should have no problem keeping up with the incoming traffic.

To update the Batch Aggregate Inserter settings for MySQL run these commands at the mysql prompt as the `hqadmin` user:

```
mysql> update HQ.EAM_CONFIG_PROPS set propvalue = 4 where propkey =
 'BATCH_AGGREGATE_WORKERS';
mysql> update HQ.EAM_CONFIG_PROPS set propvalue = 2000 where propkey
 = 'BATCH_AGGREGATE_BATCHSIZE';
mysql> update HQ.EAM_CONFIG_PROPS set propvalue = 4000000 where
propkey = 'BATCH_AGGREGATE_QUEUE';
```

Chapter 3. Installing the Fuse HQ Server

*You install the Fuse HQ Server on a system that you want to use to manage and monitor Fuse HQ. You download and unpack the installation files. Then you run the installer (the **setup** script) to complete the installation.*

Downloading a Fuse HQ Server Installation Package

Download page

Go to the Fuse HQ download web page[1] to obtain an installation package for Fuse HQ Server. If you do not already have an account on the `fusesource.com` Web site, you will be prompted to create an account before you proceed with the download.

Selecting an installation package

Select the installation package that matches the system where you intend to install Fuse HQ Server. See "Hardware" on page 11 for details of supported platforms.

Note

If you already have a JRE that you want to use, download the No JRE package. However, be sure that your `JAVA_HOME` environment variable is set to point to the particular JRE you want Fuse HQ to run on.

Save the file (a `.zip` or a `.tar.gz` file) to a directory where you can unpack it. Unpack the file using the appropriate utility (WinZip, **tar**, **gunzip**, etc.).

Note

On some Solaris systems, the default version of tar is incompatible with Fuse HQ installation packages. When tar is incompatible, unpacking will be incomplete and you may see checksum errors. The solution is to install GNU tar. See the instructions for installing GNU tar[2] for more information.

[1] http://fusesource.com/download_fuse_hq
[2] http://sunsolarisadmin.blogspot.com/2007/03/how-to-install-gnu-tar-in-solaris.html

Running the Fuse HQ Server Installer

The installer script

The Fuse HQ Server Installer is a script called **setup.bat** on Windows platforms and **setup.sh** on non-Windows platforms. You run the installer on the system that you want to use to manage and monitor Fuse HQ.

Choosing the install mode

Before you begin, you should decide which install mode to run. You specify the install mode as an argument to the **setup** command. The mode arguments are listed in Table 3.1.

Table 3.1. Installation Mode Arguments for the setup Command

Argument	Installation Mode
No argument	Quick install mode. It installs the Fuse HQ components with default settings, including the built-in repository.
-postgresql	Quick install mode when using a PostgreSQL database as a repository, which should be created prior to the Server installation. See instructions for preparing a PostgreSQL database. This mode asks for database connection information but uses defaults for everything else.
-oracle	Quick install mode when using an Oracle database as a repository, which should be created prior to the Server installation. See instructions for preparing an Oracle database. This mode asks for database connection information but uses defaults for everything else.
-mysql	Quick install mode when using a MySQL database as a repository, which should be created prior to the Server installation. This mode asks for MySQL database connection information but uses defaults for everything else. See instructions for preparing a MySQL database on page 21 and copying the MySQL JDBC driver.

Argument	Installation Mode
-full	Full install mode. The installer prompts for almost everything: ports to use, administrator user name and password, repository to use, etc.

Copying the MySQL JDBC driver to the installer bin directory

If you plan to use MySQL as a repository, you must copy the MySQL JDBC driver JAR file to the `fuse-hq-installer\installer-4.4.0.0-fuse\bin` directory.

Running the installer

To run the installer:

1. unpack the Fuse HQ download.
2. Open a command shell.
3. Navigate to the `fusehq-installer` directory.
4. Run **setup**.

   For example, the following command would start the installer in full install mode:

   ```
   setup -full
   ```

5. Read the *HQ Clickwrap License Agreement*.
6. Accept the terms of the agreement.
7. Read the *VMWare License Agreement*.
8. Accept the terms of the agreement.
9. Select the components you want to install.
10. Specify the installation path.
11. Complete the installation process.

Note

If you see a message stating that `tools.jar` cannot be found, ignore it. This message occurs when the `JAVA_HOME` variable does not

reference a JRE that is part of a JDK. This condition does not affect the installer.

Choosing components

When you get past the license agreement, the installer asks which components you wish to install. Select at least one of the following components:

Component	Number	Description
Fuse HQ Server	1	The central component that controls agents, manages data, and provides a user interface.
Fuse HQ Agent	2	A component that monitors the system it is installed on. It reports to and is managed by the Fuse HQ Server. The Fuse HQ Agent is installed on one or many systems and can be installed on the same system that is running the Fuse HQ Server.

You can select multiple components by entering component numbers separated by commas. For example, the following shows how you would select the Fuse HQ Server and Shell:

```
         Choose which software to install:
1:  HQ Server
2:  HQ Agent
You may enter multiple choices, separated by commas.
1,2
```

Completing the installation

What happens next, depends on which installation mode you chose:

- If you chose to do a quick install, the installation completes with all the default configuration settings. You can view the installation log, `hq-install.log` in `fuse-hq-installer/installer-4.4.0.0-fuse/logs/hq-install.log`.

- If you chose to do a quick install with one of the external repository options (**-postgresql**, **-oracle**, or **-mysql**), the installer will prompt you to enter a JDBC connection URL, a user name, and a password. Then, the installation completes with all the default configuration settings.

  The installer offers a default JDBC connection URL, which you can use if you installed the repository on the same system as the Fuse HQ Server.

The user name and password should refer to an account that has administrative privileges. The instructions in "Preparing the Fuse HQ Repository" on page 15 describe how to create administrative accounts in all three types of repository.

- If you chose a full install, the installer prompts you for configuration settings.

Post installation

When the installation completes, you can:

- If you are using MySQL, see "Tuning the Batch Aggregate Inserter for MySQL" on page 24 for pointers on tuning the BAI.
- install Fuse HQ Agents on the systems you want to monitor.
- start the Fuse HQ Server and Agents that you already installed.

Fuse HQ Server Configuration Settings

If you run the installer using the -full option, the installer prompts you for configuration settings in the order shown in Table 3.2.

Table 3.2. Configuration Settings for the Fuse HQ Server

Setting	Default	Description
HTTP port	7080	The port the Fuse HQ Server's web-based GUI uses for HTTP communications.
HTTPS port	7443	The port the Fuse HQ Server's web-based GUI uses for secure HTTPS communications.
JNP port	2099	The port the Fuse HQ Server uses for the JNP service.
Mbean port	9093	The port the Fuse HQ Server uses for the Mbean Server .
GUI URL	http://*hostname*:*_http_port*	The URL Fuse HQ Agents will use to send alert notifications to the web-based GUI. (You can change this value on the Fuse HQ Server **Administration** screen.)
Fuse HQ Server's email address	hqadmin@*hostname*	The `From` address on alert notification emails sent by the Fuse HQ Server. Note that most email servers will not deliver mail without a valid domain name in the `From` field.
Backend database	HQ Built-in Database	The type of database that the Fuse HQ Server will use as a repository. If you choose anything other than the default built-in database, the installer will prompt you for a JDBC connection URL, a user name, and a password. If you choose the built-in database, the installer will prompt you for a port number. The default is 9432.
Administrator's user name	hqadmin	The user name of the original Fuse HQ administrator.
Administrator's password	hqadmin	The password of the original Fuse HQ administrator.
Administrator's address	hqadmin@*hostname*	The email address assigned to the initial Fuse HQ administrator. Alert notifications are sent to this address if the Administrator is configured to receive alert notifications.

The installer saves your settings in a file named `hq-server-install.conf` in the *`ServerInstallDir`*`/data` directory. You can open and view this file in a text editor after the installation completes.

Installing the Fuse HQ Server License

Obtaining an evaluation license

After logging on to the `fusesource.com` Web site and downloading the Fuse HQ Server software as described in "Downloading a Fuse HQ Server Installation Package" on page 26, you should receive a 90-day evaluation license by e-mail within 24 hours.

Obtaining a full license

Full licenses for Fuse HQ are available to organizations that have purchased support. For details, please contact Customer Support[3].

Installing the license

You will receive the license file as an e-mail attachment, `license.xml`. To install the license, copy the `license.xml` file into the *`InstallDir`*`/conf` directory of your server installation (over-writing the existing dummy license file at that location).

Note

It is essential that the license file is spelled *exactly* as shown here, all in lowercase letters. If your mail software changes the capitalization of the file name, `license.xml`, make sure to correct the spelling when you save it to the file system.

[3] http://fusesource.com/contact

Chapter 4. Installing Fuse HQ Agents

After installing the Fuse HQ Server, install Fuse HQ Agents on the systems that you want to monitor. Agent-only installations are accomplished by unpacking downloads.

Downloading a Fuse HQ Agent Installation Package

Download page

Go to the Fuse HQ download web page[1] to obtain an installation package for Fuse HQ Agent. If you do not already have an account on the `fusesource.com` Web site, you will be prompted to create an account before you proceed with the download.

Selecting an installation package

If you intend to install *both* a Fuse HQ Server and Agent, choose a package for one of the platforms described in "Fuse HQ Server Requirements" on page 11 and follow the instructions in "Running the Fuse HQ Server Installer" on page 27.

Select the installation package that matches the system where you intend to install Fuse HQ Agent (see "Fuse HQ Agent Requirements" on page 13 for details of supported platforms).

Note

If you already have a JRE that you want to use, download the No JRE package. However, be sure that your `JAVA_HOME` environment variable is set to point to the particular JRE you want Fuse HQ to run on. If you have a particular JRE you want Fuse HQ to run on, you can set the `HQ_JAVA_HOME` environment variable.

Save the file to the directory where you want to install the Fuse HQ Agent. On Windows, for example, Agents are often installed in a folder created under `C:\Program Files`, but there is no requirement to use any particular installation directory. However, you must install the Fuse HQ Agent on the system that you want to monitor. Agents cannot monitor remote systems.

[1] http://fusesource.com/download_fuse_hq

Fuse HQ Agent Installations

Agent-only installations

When the Fuse HQ Agent installation package is downloaded to a suitable directory, unpack the file using the appropriate utility (WinZip, **tar**, **gunzip**, etc.). Unpacking completes the installation. It is not necessary to run an installer.

Note

On some Solaris systems, the default version of tar is incompatible with Fuse HQ installation packages. When tar is incompatible, unpacking will be incomplete and you may see checksum errors. The solution is to install GNU tar. See the instructions for installing GNU tar[2] for more information.

After unpacking the installation package, you will see the following files and folders:

```
bin/                    log/
bundles/                wrapper/
conf/                   README.txt
jre/
```

Server and Agent installations

You can also install a Fuse HQ Agent when you run the installer (**setup**) that comes with Fuse HQ Server packages. See "Installing the Fuse HQ Server" on page 25 for more details.

[2] http://sunsolarisadmin.blogspot.com/2007/03/how-to-install-gnu-tar-in-solaris.html

Chapter 5. Running the Fuse HQ Server and the Fuse HQ Agent

When installation is complete, start the Fuse HQ Server and Agents. The initial startup of the Fuse HQ Agent prompts for configuration information.

Starting and Stopping the Fuse HQ Server

Starting and stopping the Fuse HQ Server on Windows systems

The Fuse HQ Server can be started on Windows after establishing it as a service.

To establish the Fuse HQ Server as a service:

1. In a command prompt window, open the *ServerInstallDir*\bin directory.
2. Run the following command:

```
hq-server.exe -i
```

When the command completes, you will be able start and stop the Fuse HQ Server and the built-in database from the Services control panel (**Start>Programs>Administrative Tools>Services**). From the Services control panel, the Fuse HQ Server is identified as `Hyperic HQ Server` and the built-in database is identified as `Hyperic HQ Database`.

Note

If you are using something other than the built-in database for the Fuse HQ Repository, be sure to start the database *before* starting the Fuse HQ Server.

Starting and stopping the Fuse HQ Server on non-Windows systems

To start the Fuse HQ Server on non-Windows systems:

1. In a terminal window, open the *ServerInstallDir*/bin directory.
2. Run the following command:

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

The script displays some startup information on `stdout`, and then runs in the background. The web-based component of the Fuse HQ Server displays startup progress information until it is completely started. For detailed startup information, see the following log file:

ServerInstallDir/logs/server.log

To stop the Fuse HQ Server on non-Windows systems:

1. In a terminal window, open the *ServerInstallDir*/bin directory.
2. Run the following command:

   ./hq-server.sh stop

Starting and Stopping the Fuse HQ Agent

Installing the Fuse HQ Agent as a Windows service

To install the Agent as a Windows service:

1. In a command prompt window, open the *AgentInstallDir*\bin directory.
2. Run the following command:

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

Starting the Agent on Windows for the first time

To start the Fuse HQ Agent for the first time on Windows:

1. In a command prompt window, open the *AgentInstallDir*\bin directory.
2. Run the following command:

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

Do *not* run **hq-agent.bat** by double-clicking on it in Windows Explorer.

When you start a Fuse HQ Agent for the first time, the startup process prompts you for the configuration settings shown in Table 5.1.

Table 5.1. Configuration Settings for the Fuse HQ Agent

Setting	Default	Description
Server IP Address	none	The IP address of the system running the Fuse HQ Server. If the Fuse HQAgent is on the same host as the Server, you can use 127.0.0.1 which allows communication on the loopback interface. If the Server is running on a remote host you can run **ping** to get the IP address.
Secure communications	no	Specify if HTTPS should be used for secure communications between Fuse HQ Server and Agent. Saying **no** improves performance. Secure communication is not always necessary (for example, when the Fuse HQ Agent and Server are on a private network).
Server port	7080 or 7443	The port the Fuse HQ Agent uses to communicate with the Server. If secure communication was specified, an HTTPS port (default 7443) must be supplied. Otherwise, an HTTP port (default 7080) must be supplied.

Setting	Default	Description
HQ login	hqadmin	The username of an HQ user. The default, hqadmin, is based on the assumption that you used that username for the administrative account when you configured the Fuse HQ Server. However, the hqadmin account has permissions to create platforms, servers, and services on the Server. For security reasons, you may want to use a more restrictive account.
HQ password	none	The password for the specified username.
Agent IP Address	Detected IP Address	The IP address of the system running the Fuse HQ Agent. If the Fuse HQAgent is on the same host as the Server, you can use 127.0.0.1 which allows communication on the loopback interface. If there is a firewall between the Fuse HQ Server and Agent, use the IP address of the firewall. Note that the firewall must be configured to forward Fuse HQ Agent traffic to the correct location. Also note that IP addresses must be static for systems running a Fuse HQ Server or an Agent. In Fuse HQ, IP addresses are referenced in configuration files. If the IP address was dynamic and it changed, the configuration file would not be updated to reference the new address.
Agent Port	2144	The port the Fuse HQ Server uses to communicate with the Agent. Note that this port number is the value of the *agent.setup.agentPort* configuration parameter, which is passed to the Server at startup and which the Server will use to communicate with the Agent. However, there is another configuration parameter, *agent.listenPort*, which is not passed to the Server. It is the port that the Agent actually uses to receive communications. By default, the value of *agentPort* is identical to the value of *listenPort* (2144). So the Server is sending to the same port that the Agent is using to receive. You might set *agentPort* and *listenPort* to different values if a firewall or proxy intervenes between the Server and Agent. In that case, the firewall or proxy must be configured to receive messages on *agentPort* and forward them to *listenPort*. You can set these Fuse HQ Agent configuration parameters in the `agent.properties` file, which is located in the Agent's installation directory.

An alternative to configuring each Agent during initial startup is to create and copy an `agent.properties` file to each install location. See "Automatic Fuse HQ Agent configuration" on page 42 for more information.

Stopping the Fuse HQ Agent on Windows

Stopping (and starting) the Fuse HQ Agent can be managed from the Windows Service Manager, where the service is registered under the name, `Hyperic HQ Agent`.

Starting the Fuse HQ Agent on non-Windows systems

To start the Fuse HQ Agent on a non-Windows system:

1. In a terminal window, open the *`AgentInstallDir`*`/bin` directory.
2. Run the following command:

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

When you start a Fuse HQ Agent for the first time, the startup process prompts you for the configuration settings shown in Table 5.1 on page 40.

Checking Agent status on a non-Windows system

When a Fuse HQ Agent is running, use the following command to display status information:

```
./hq-agent.sh status
```

Stopping the Fuse HQ Agent on non-Windows systems

To stop the Fuse HQ Agent on a non-Windows system:

1. In a terminal window, open the *`AgentInstallDir`*`/bin` directory.
2. Run the following command:

```
./hq-agent.sh stop
```

Automatic Fuse HQ Agent configuration

If you enter connection configuration information in an `agent.properties` file before initial startup, the Fuse HQ Agent starts without prompting you for the information. If you are installing multiple Agents, it is useful to have an `agent.properties` file that you can copy and paste to each installation directory. You will avoid entering the same information during every initial startup.

On Windows systems, an `agent.properties` file is in the conf sub-directory of the Fuse HQ Agent installation. On non-Windows systems, you might find an `agent.properties` file in a `~/.hq` directory.

The following shows the startup entries that you must edit, along with their default values:

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

Chapter 6. Upgrading Fuse HQ

You can upgrade to a more recent version of Fuse HQ without losing data or configuration information.

Upgrading the Fuse HQ Server

Running the Fuse HQ Server installer

When you run the Fuse HQ Server installer in upgrade mode, you install a new Fuse HQ Server and use the configuration information from the previously installed Server.

To upgrade the Fuse HQ Server, perform the following steps:

1. Stop the existing Fuse HQ Server if it is running.

   See "Starting and stopping the Fuse HQ Server on Windows systems" on page 38 or "Starting and stopping the Fuse HQ Server on non-Windows systems" on page 38 for more information.

2. Back up the repository

   This step is not necessary if you are using the built-in database. See "Backing up the repository" on page 47) for more information.

3. Stop the database server for the repository.

4. Download and unpack the installation package.

   See "Downloading a Fuse HQ Server Installation Package" on page 26 for more information.

5. Run the installer in upgrade mode.

   On Windows, you run **`setup.bat -upgrade`**. On non-Windows systems, you run **`setup.sh -upgrade`**.

6. When prompted by the installer enter the full pathname of the current Fuse HQ Server and the location where the new Server should be installed. Note that you should not install the new Server in the same directory that contains the old Server.

7. Archive the old Fuse HQ Server directory (using `tar` or `zip`), in case you need to revert to the older version.

After successfully completing the upgrade, you should be able to start the repository and run the new Fuse HQ Server.

Backing up the repository

You are not required to back up the repository if you are using the built-in database. The installer automatically creates a copy of the built-in database and places the copy in the new install location.

If the repository is not the built-in database, it will be upgraded in place . Therefore, you should back up the database before the upgrade so you can restore the repository from the backup.

Working around Oracle update problem

If you are running an Oracle database as a repository, you may see one of the following errors:

```
Error updating EAM_SERVICE.SERVICE_TYPE_ID:
java.sql.SQLException: ORA-02296: cannot enable (HQDBUSER.)
- null values found
```

```
Error executing statement desc=[null] SQL=[ ALTER TABLE
eam_stat_errors DROP CONSTRAINT rt_errs_fk_rstat CASCADE ]
java.sql.SQLException: ORA-02443: Cannot drop constraint -
nonexistent constraint
```

Do the following to fix the problem:

1. Restore the repository from the backup.
2. Run the following SQL command:

   ```
   DELETE FROM EAM_SERVICE WHERE SERVICE_TYPE_ID IS NULL;
   ```

3. Re-run the upgrade.

Upgrading the Fuse HQ Agent

Preserving configuration information

You can use configuration parameters from the previous installation of the Fuse HQ Agent, as long as you log in as the same user and the upgraded Agent has the same install path.

Many configuration parameters are stored in an `agent.properties` file. You can copy this file from your previous Fuse HQ Agent installation to use the same configuration for your upgraded Agent. See "Automatic Fuse HQ Agent configuration" on page 42 for more information.

In addition, if you are using custom plugins, you can use the existing `../hq-plugins` directory (one up from the installation directory) to preserve your plugins.

Upgrade procedure

To upgrade a Fuse HQ Agent:

1. Stop the Fuse HQ Agent service. See "Stopping the Fuse HQ Agent on Windows" on page 42 or "Stopping the Fuse HQ Agent on non-Windows systems" on page 42.
2. On Windows platforms, uninstall the Agent service by running the following command:

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

3. Back up the `agent.properties` file from the previous Agent installation.
4. Download and unpack the Agent-only package into its installation directory. See "Downloading a Fuse HQ Agent Installation Package" on page 34 for more information..
5. Restore the backed up properties from the `agent.properties` file.
   - If upgrading between 4.x releases, you can just over-write the existing *`AgentInstallDir`*`/conf/agent.properties` file with the backed up `agent.properties` file.
   - If upgrading from a 3.x to a 4.x release, however, you must edit the new *`AgentInstallDir`*`/conf/agent.properties` file and manually copy property settings from the backed up `agent.properties` file

(this is because the 4.x `agent.properties` file contains some properties not present in the older version).

6. On Windows, install the new Agent service by running the following command:

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

7. Start the new Agent. See "Starting and Stopping the Fuse HQ Agent" on page 40 for more information.

Chapter 7. Uninstalling Fuse HQ Components

Uninstalling the Fuse HQ Server

Removing the Fuse HQ Server Windows service

To remove the Fuse HQ Server service in Windows:

1. In a command prompt window, open the *ServerInstallDir*\bin directory.
2. Run the following command:

```
hq-server.exe -u
```

Uninstalling

To uninstall Fuse HQ Server, simply stop the running server process and delete the Fuse HQ Server directory on your hard drive.

Uninstalling a Fuse HQ Agent

Removing the agent Windows service

To remove the Fuse HQ agent service in Windows:

1. In a command prompt window, open the *AgentInstallDir*\bin directory.
2. Run the following command:

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

Uninstalling

To uninstall a Fuse HQ agent, simply stop the running agent process and delete the Fuse HQ agent directory on the host machine.