Red Hat Enterprise MRG 1.1

Management Console Installation Guide

Installing the MRG Management Console for use with MRG Messaging

Lana Brindley

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Installing the MRG Management Console for use with MRG Messaging
Edition 2

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This book contains basic overview and installation procedures for the MRG Management Console component of the Red Hat Enterprise MRG distributed computing platform. The MRG Management Console provides a web-based tool for management of MRG Messaging

Preface

Red Hat Enterprise MRG

This book contains basic overview and installation information for the MRG Management Console component of Red Hat Enterprise MRG. Red Hat Enterprise MRG is a high performance distributed computing platform consisting of three components:

1. *M*essaging — Cross platform, high performance, reliable messaging using the Advanced Message Queuing Protocol (AMQP) standard.
2. *R*ealtime — Consistent low-latency and predictable response times for applications that require microsecond latency.
3. *G*rid — Distributed High Throughput (HTC) and High Performance Computing (HPC).

All three components of Red Hat Enterprise MRG are designed to be used as part of the platform, but can also be used separately.

MRG Management Console

The MRG Management Console, also known as Cumin, provides a web-based graphical tool to manage your Red Hat Enterprise MRG deployment.

MRG Messaging is an open source, high performance, reliable messaging distribution that implements the Advanced Message Queuing Protocol (AMQP) standard. MRG Messaging is based on *Apache Qpid*[1], but includes persistence options, additional components, Linux kernel optimizations, and operating system services not found in the Qpid implementation. We have worked closely with companies that rely heavily on high performance messaging, and created a system to meet their real-world needs.

This book shows you how to install the MRG Management Console and explains the basic options available. For information on installing MRG Messaging see the *MRG Messaging Installation Guide*. If you want to write your own applications for use with MRG Messaging, see the *MRG Messaging Tutorial*.

1. Document Conventions

This manual uses several conventions to highlight certain words and phrases and draw attention to specific pieces of information.

In PDF and paper editions, this manual uses typefaces drawn from the *Liberation Fonts*[2] set. The Liberation Fonts set is also used in HTML editions if the set is installed on your system. If not, alternative but equivalent typefaces are displayed. Note: Red Hat Enterprise Linux 5 and later includes the Liberation Fonts set by default.

1.1. Typographic Conventions

Four typographic conventions are used to call attention to specific words and phrases. These conventions, and the circumstances they apply to, are as follows.

[1] http://cwiki.apache.org/qpid/
[2] https://fedorahosted.org/liberation-fonts/

Mono-spaced Bold

Used to highlight system input, including shell commands, file names and paths. Also used to highlight key caps and key-combinations. For example:

> To see the contents of the file **my_next_bestselling_novel** in your current working directory, enter the **cat my_next_bestselling_novel** command at the shell prompt and press **Enter** to execute the command.

The above includes a file name, a shell command and a key cap, all presented in Mono-spaced Bold and all distinguishable thanks to context.

Key-combinations can be distinguished from key caps by the hyphen connecting each part of a key-combination. For example:

> Press **Enter** to execute the command.
>
> Press **Ctrl**+**Alt**+**F1** to switch to the first virtual terminal. Press **Ctrl**+**Alt**+**F7** to return to your X-Windows session.

The first sentence highlights the particular key cap to press. The second highlights two sets of three key caps, each set pressed simultaneously.

If source code is discussed, class names, methods, functions, variable names and returned values mentioned within a paragraph will be presented as above, in **Mono-spaced Bold**. For example:

> File-related classes include **filesystem** for file systems, **file** for files, and **dir** for directories. Each class has its own associated set of permissions.

Proportional Bold

This denotes words or phrases encountered on a system, including application names; dialogue box text; labelled buttons; check-box and radio button labels; menu titles and sub-menu titles. For example:

> Choose **System > Preferences > Mouse** from the main menu bar to launch **Mouse Preferences**. In the **Buttons** tab, click the **Left-handed mouse** check box and click **Close** to switch the primary mouse button from the left to the right (making the mouse suitable for use in the left hand).
>
> To insert a special character into a **gedit** file, choose **Applications > Accessories > Character Map** from the main menu bar. Next, choose **Search > Find…** from the **Character Map** menu bar, type the name of the character in the **Search** field and click **Next**. The character you sought will be highlighted in the **Character Table**. Double-click this highlighted character to place it in the **Text to copy** field and then click the **Copy** button. Now switch back to your document and choose **Edit > Paste** from the **gedit** menu bar.

The above text includes application names; system-wide menu names and items; application-specific menu names; and buttons and text found within a GUI interface, all presented in Proportional Bold and all distinguishable by context.

Note the **>** shorthand used to indicate traversal through a menu and its sub-menus. This is to avoid the difficult-to-follow 'Select **Mouse** from the **Preferences** sub-menu in the **System** menu of the main menu bar' approach.

Mono-spaced Bold Italic or ***Proportional Bold Italic***

Whether Mono-spaced Bold or Proportional Bold, the addition of Italics indicates replaceable or variable text. Italics denotes text you do not input literally or displayed text that changes depending on circumstance. For example:

> To connect to a remote machine using ssh, type **ssh *username*@*domain.name*** at a shell prompt. If the remote machine is **example.com** and your username on that machine is john, type **ssh john@example.com**.
>
> The **mount -o remount *file-system*** command remounts the named file system. For example, to remount the **/home** file system, the command is **mount -o remount /home**.
>
> To see the version of a currently installed package, use the **rpm -q *package*** command. It will return a result as follows: ***package-version-release***.

Note the words in bold italics above — username, domain.name, file-system, package, version and release. Each word is a placeholder, either for text you enter when issuing a command or for text displayed by the system.

Aside from standard usage for presenting the title of a work, italics denotes the first use of a new and important term. For example:

> When the Apache HTTP Server accepts requests, it dispatches child processes or threads to handle them. This group of child processes or threads is known as a *server-pool*. Under Apache HTTP Server 2.0, the responsibility for creating and maintaining these server-pools has been abstracted to a group of modules called *Multi-Processing Modules* (*MPMs*). Unlike other modules, only one module from the MPM group can be loaded by the Apache HTTP Server.

1.2. Pull-quote Conventions

Two, commonly multi-line, data types are set off visually from the surrounding text.

Output sent to a terminal is set in `Mono-spaced Roman` and presented thus:

```
books        Desktop   documentation  drafts  mss    photos   stuff  svn
books_tests  Desktop1  downloads      images  notes  scripts  svgs
```

Source-code listings are also set in `Mono-spaced Roman` but are presented and highlighted as follows:

```
package org.jboss.book.jca.ex1;

import javax.naming.InitialContext;

public class ExClient
{
   public static void main(String args[])
       throws Exception
```

```
   {
      InitialContext iniCtx = new InitialContext();
      Object         ref    = iniCtx.lookup("EchoBean");
      EchoHome       home   = (EchoHome) ref;
      Echo           echo   = home.create();

      System.out.println("Created Echo");

      System.out.println("Echo.echo('Hello') = " + echo.echo("Hello"));
   }

}
```

1.3. Notes and Warnings

Finally, we use three visual styles to draw attention to information that might otherwise be overlooked.

Note

A note is a tip or shortcut or alternative approach to the task at hand. Ignoring a note should have no negative consequences, but you might miss out on a trick that makes your life easier.

Important

Important boxes detail things that are easily missed: configuration changes that only apply to the current session, or services that need restarting before an update will apply. Ignoring Important boxes won't cause data loss but may cause irritation and frustration.

Warning

A Warning should not be ignored. Ignoring warnings will most likely cause data loss.

2. We Need Feedback!

If you find a typographical error in this manual, or if you have thought of a way to make this manual better, we would love to hear from you! Please submit a report in Bugzilla: *http://bugzilla.redhat.com/bugzilla/* against the product **Red Hat Enterprise MRG.**

When submitting a bug report, be sure to mention the manual's identifier: *Management_Console_Installation_Guide*

If you have a suggestion for improving the documentation, try to be as specific as possible when describing it. If you have found an error, please include the section number and some of the surrounding text so we can find it easily.

Installing the MRG Management Console

In order to install the MRG Management Console you will need to have registered your system with *Red Hat Network*[1]. This table lists the Red Hat Enterprise MRG channels available on Red Hat Network for the MRG Management Console.

Channel Name	Operating System	Architecture
Red Hat MRG Management	RHEL-5 Server	32bit, 64bit

Table 1.1. Red Hat Enterprise MRG Channels Available on Red Hat Network

Hardware Requirements

It is recommended that you have the following *minimum* hardware requirements before attempting to install the MRG Management Console:

- Intel Pentium IV or AMD Athlon class machine
- 512MB RAM
- 10 GB disk space
- A network interface card

Important

Before you install Red Hat Enterprise MRG check that your hardware and platform is supported. A complete list is available on the *Red Hat Enterprise MRG Supported Hardware Page*[2].

Installing the MRG Management Console on Red Hat Enterprise Linux 5

1. Install the MRG Management Console group using the **yum** command.

```
# yum groupinstall "MRG Management"
```

2. You can check the installation location and that the components have been installed successfully by using the **rpm -ql** command with the **cumin** package name. For example:

```
# rpm -ql cumin
/etc/cumin.conf
/usr/bin/cumin
/usr/bin/cumin-database-init
/usr/bin/cumin-test
/usr/lib/python2.4/site-packages/cumin
/usr/lib/python2.4/site-packages/cumin/__init__.py
...[output truncated]...
```

[1] https://rhn.redhat.com/help/about.pxt

Note

If you find that yum is not installing all the dependencies you require, make sure that you have registered your system with *Red Hat Network*[3].

Start Console

First Run

Before you run the MRG Management Console for the first time, you will need to configure the **postgresql** database server and prepare the Cumin database.

1. The configuration file for the **postgresql** database is in **/var/lib/pgsql/data/pg_hba.conf**. You will need to check whether or not this file exists on your system. If it does not exist, run the following command as root to create it:

```
# service postgresql start
Starting postgresql service:               [  OK  ]

# service postgresql stop
Stopping postgresql service:               [  OK  ]
```

2. Once you have ensured that the **/var/lib/pgsql/data/pg_hba.conf** file exists, change to the **postgres** user:

```
$ su - postgres
```

Open the file in your preferred text editor, and locate the configuration settings at the end of the file. You will need to add the following line before the other similar lines:

```
host    cumin       cumin       127.0.0.1/32          trust
```

Important

Using the *trust* parameter means that any local user can access and modify **postgresql** data, including Cumin data. For some deployments, where a dedicated machine hosts the web console, this is acceptable. If, however, the web console is to be installed on a shared multi-user system, you should take care to use a more restrictive **postgresql** authentication method. See the **postgresql** documentation for more information.

Your configuration settings should now look like this:

```
...[output truncated]...
# TYPE  DATABASE    USER        CIDR-ADDRESS          METHOD

host    cumin       cumin       127.0.0.1/32          trust

# "local" is for Unix domain socket connections only
local   all         all                               reject
```

```
# IPv4 local connections:
host    all         all         127.0.0.1/32          reject

# IPv6 local connections:
host    all         all         ::1/128               reject
```

3. Ensure you are running as the root user, and restart the **postgresql** service to pick up the configuration changes:

```
# service postgresql status
postmaster is stopped

# service postgresql start
Starting postgresql service:                  [  OK  ]
```

4. Initialize the Cumin database and schema:

```
# cumin-database-init
Executed 102 statements from file '/var/lib/cumin/sql/schema.sql'
Executed 6 statements from file '/var/lib/cumin/sql/indexes.sql'
```

5. A username and password is required to log on to the MRG Management Console. Run the **cumin-admin add-user** command as the root user to add a new user:

```
# cumin-admin add-user testuserSet password: *****
Retype password: *****
User 'testuser' is added
```

Install Sesame

Sesame is a messaging package that is used to assist the MRG Management Console connect to MRG Grid.

1. Sesame is part of the **MRG Messaging** yum package group and should be automatically installed. You can check if it is installed on your system by running the following command:

```
$ rpm -q sesame
```

2. To install the Sesame package individually on Red Hat Enterprise Linux 5 use yum:

```
# yum install sesame
```

On Red Hat Enterprise Linux 4 use up2date:

```
# up2date sesame
```

3. In order to send system information, Sesame needs to be configured. Open the **/etc/sesame/sesame.conf** in your preferred text editor and locate the *host* parameter. Adjust the value of this parameter to the address of the broker to send QMF data to:

```
host=example.com
```

   You can also adjust the *port* parameter, although the default settings should be adequate for nmost configurations.

   If authentication is enabled on the broker, the *uid* and *pwd* parameters will also need to be adjusted accordingly.

4. Enable Sesame for the default run levels using **chkconfig**:

```
$ chkconfig sesame on
```

5. Start the Sesame service:

```
$ service sesame start
```

6. To test that Sesame is connected and publishing system information, use **qpid-tool** to connect to your broker and query for objects of type *sysimage*:

```
$ qpid-tool example.com
Management Tool for QPID
qpid: list
Management Object Types:
ObjectType                  Active  Deleted
=========================================
com.redhat.sesame:sysimage  1       0
qpid: list sysimage
Objects of type com.redhat.sesame:sysimage
ID   Created   Destroyed  Index
=================================================================
101  16:00:13  -          40fda910-dade-40b3-9ff0-df5e787b3339
qpid:
```

Starting the MRG Management Console

The MRG Management Console is a web-based tool. You can use any internet browser to access the tool, with or without an internet connection.

1. By default, the web console is bound to **localhost**, which allows only local connections to be made. To make the MRG Management Console accessible from other hosts on the network, add

the IP address of the host to the configuration file. You can do this by editing the **/etc/cumin/cumin.conf** file directly, or by using a command line option.

To edit the configuration file directly, open **/etc/cumin/cumin.conf** with your preferred text editor and add the following line with the host IP address:

```
addr: 192.168.0.20
```

To set the host IP address using a command line option, run the following command as the *cumin* user:

```
# su cumin

$ cumin --addr 192.168.0.20
```

2. For security over a network Secure Socket Layer (SSL) support can be enabled, either by editing the **/etc/cumin/cumin.conf** file directly, or by using a command line option.

   To edit the configuration file directly, open **/etc/cumin/cumin.conf** with your preferred text editor and add the following line:

   ```
   ssl: yes
   ```

   To enable SSL encryption using a command line option, run the following command as the *cumin* user:

   ```
   # su cumin

   $ cumin --ssl yes
   ```

   By default, the MRG Management Console is installed with a self-signed certificate. This is useful for testing a deployment, but it is not secure. You can install a new certificate and key and save them at **/etc/cumin/cumin.crt** and **/etc/cumin/cumin.key**.

   When Cumin is restarted with the **--ssl** option, it will use the new certificate files.

3. You may also want to adjust how often the MRG Messaging broker sends updated information to the MRG Management Console. The default value is 10 seconds. If you are attempting to reduce the load on the broker or your network, you may want to increase the interval for fewer updates. If you want higher-resolution statistics, you may want to decrease the interval time to 5 seconds for more frequent updates. This can be done using the **mgmt-pub-interval** option with MRG Messaging.

   ```
   # /usr/sbin/qpidd --mgmt-pub-interval 30
   ```

4. To start Cumin as a service, become the root user and use the **service start** command at **/sbin/service**

   ```
   # /sbin/service cumin start
   ```

```
Starting Cumin daemon:                     [  OK  ]
```

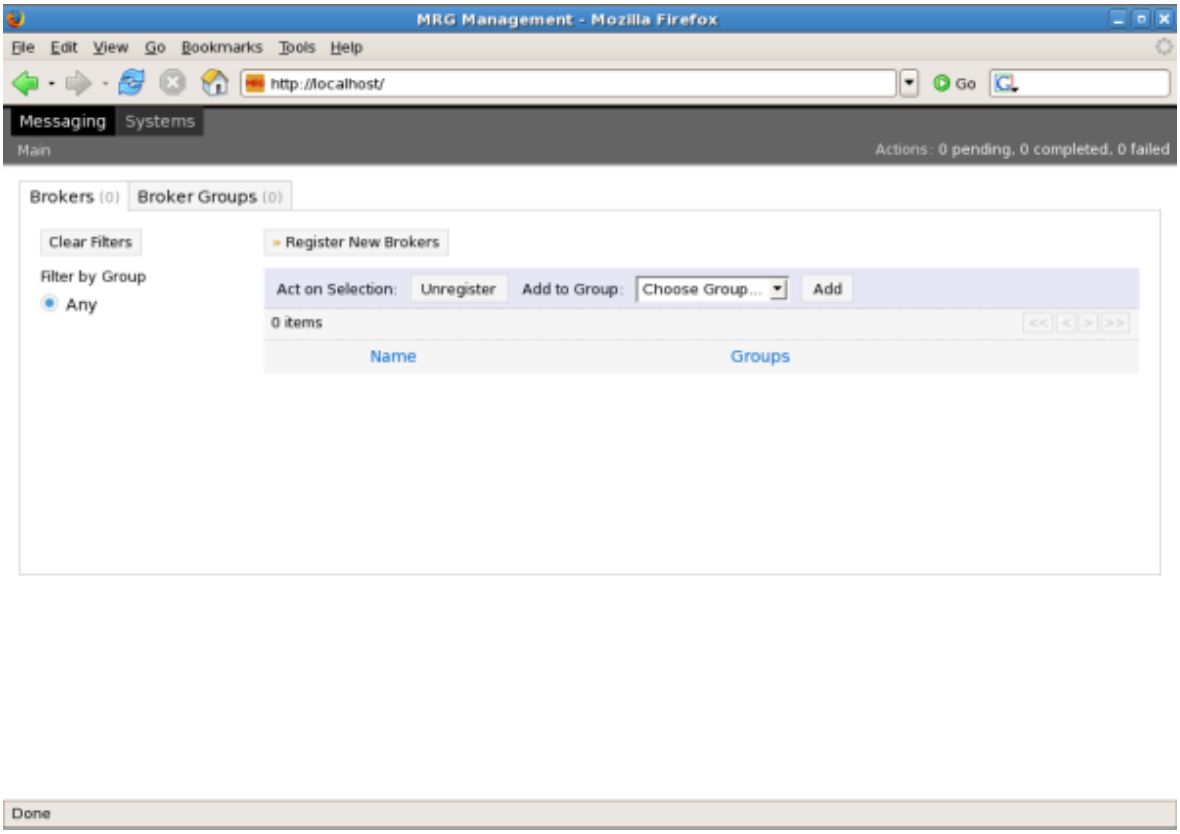
You can also use the **`service`** commands to stop and restart Cumin, and check on the status:

```
# /sbin/service cumin status
cumin (pid PID) is running...

# /sbin/service cumin restart
Stopping Cumin daemon:                     [  OK  ]
Starting Cumin daemon:                     [  OK  ]


# /sbin/service cumin stop
Stopping Cumin daemon:                     [  OK  ]
```

5. To start Cumin as an unprivileged user, you will need to identify an unprivileged port for it to run on. You can do this with the **`--port`** option.

```
$ cumin --port 8080
```

6. Open your internet browser and navigate to the MRG Management Console page. If you started Cumin as root, use *http://localhost:45672/*.



7. You can now begin using the MRG Management Console to add and manage MRG Messaging brokers.

Connecting the MRG Grid to the MRG Management Console

Be sure to install MRG Grid using the procedures located in the *Grid Installation Guide*

Configure **~condor/condor_config.local**

1. Add the following line on *Schedulers*:

```
SCHEDD.PLUGINS = $(LIB)/plugins/MgmtScheddPlugin-plugin.so
```

2. Add the following line on *Central Managers*:

```
COLLECTOR.PLUGINS = $(LIB)/plugins/MgmtCollectorPlugin-plugin.so
NEGOTIATOR.PLUGINS = $(LIB)/plugins/MgmtNegotiatorPlugin-plugin.so
```

3. Add the following to the configuration file on *all nodes* (including *Schedulers* and *Central Managers*):

```
# Plugin configuration
MASTER.PLUGINS = $(LIB)/plugins/MgmtMasterPlugin-plugin.so
QMF_BROKER_HOST = <ip/hostname_of_broker>
```

Note

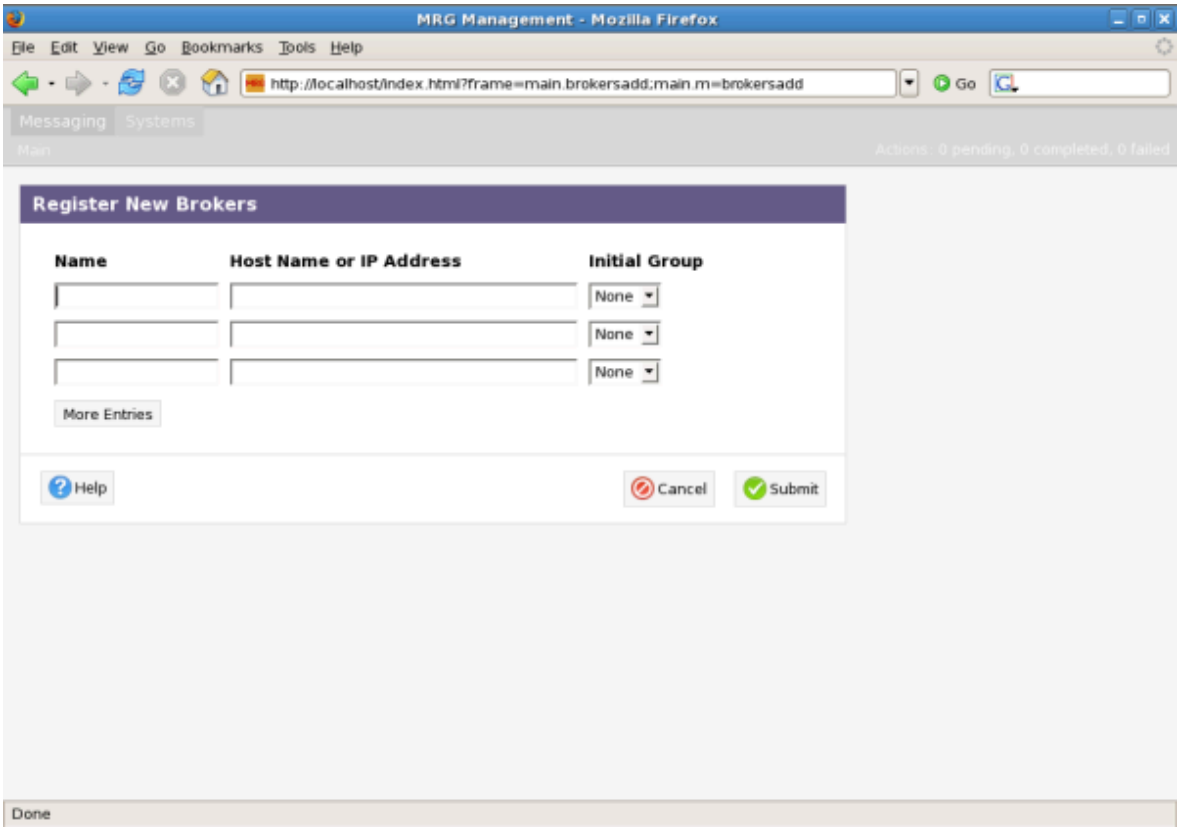
QMF_BROKER_PORT is an *optional* value used to define the port to talk to if the broker is not running on the default port of 5672.

Using the MRG Management Console

Register New Brokers

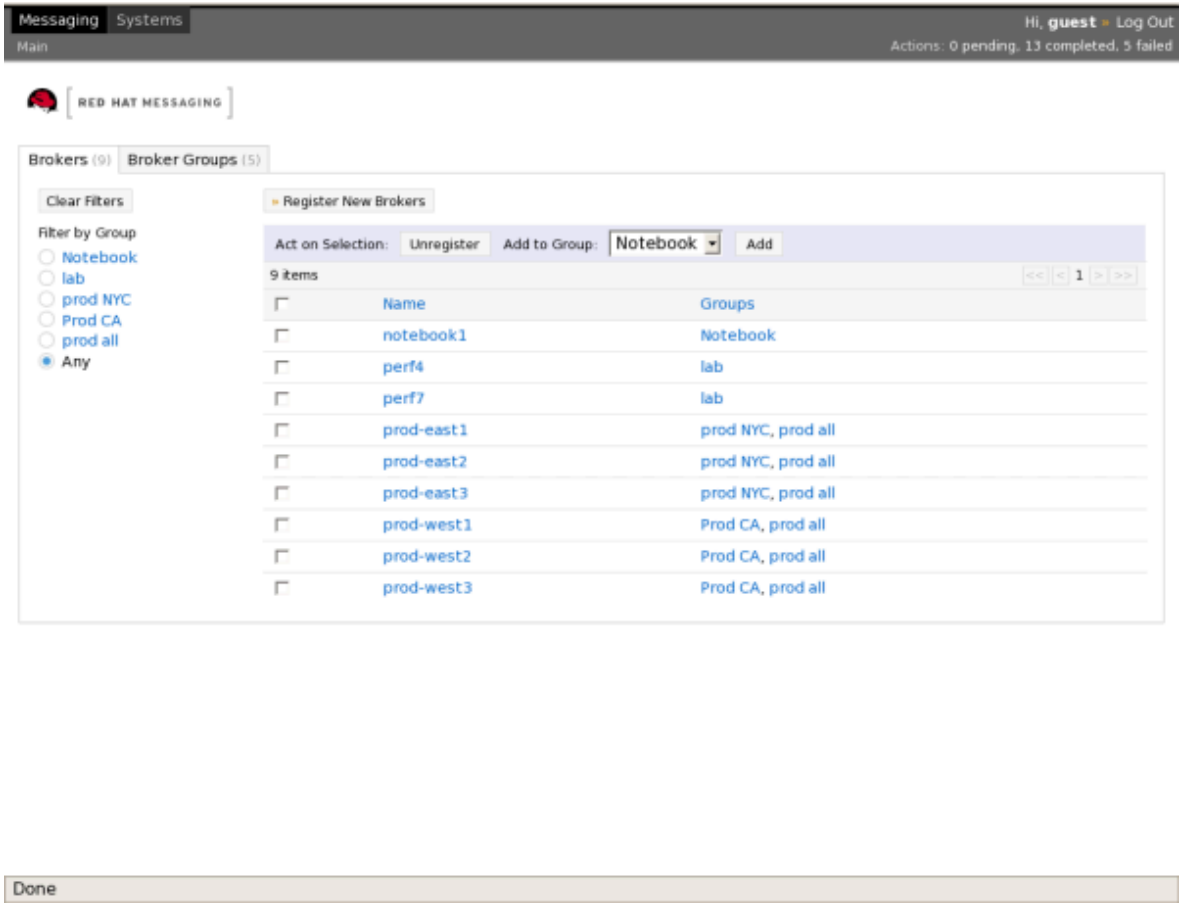
To begin using the MRG Management Console you will need to register some brokers.

1. Select **Register New Brokers** from the main window.



2. Enter the name of the new broker and its host name or IP address. Click on **Submit** to save your information and return to the Brokers screen. You should be able to see your new broker listed.

3. From the main screen you can select the name of your new broker to edit its properties, or select brokers to perform actions.


Messaging
Systems
Main
Hi, guest » Log Out
Actions: 0 pending, 13 completed, 5 failed
RED HAT MESSAGING
Brokers (9)
Broker Groups (5)
Clear Filters
» Register New Brokers
Filter by Group
Notebook
lab
prod NYC
Prod CA
prod all
Any
Act on Selection:
Unregister
Add to Group:
Notebook
Add
9 items
<< < 1 > >>
Name
Groups
notebook1
Notebook
perf4
lab
perf7
lab
prod-east1
prod NYC, prod all
prod-east2
prod NYC, prod all
prod-east3
prod NYC, prod all
prod-west1
Prod CA, prod all
prod-west2
Prod CA, prod all
prod-west3
Prod CA, prod all
Done

More Information

Reporting a Bug

If you have found a bug in MRG Management Console, follow these instructions to enter a bug report:

1. You will need a *Bugzilla*[1] account. You can create one at *Create Bugzilla Account*[2].
2. Once you have a Bugzilla account, log in and click on *Enter A New Bug Report*[3].
3. When submitting a bug report, you will need to identify the product (Red Hat Enterprise MRG), the version (1.1), and whether the bug occurs in the software (component = management) or in the documentation (component = Management_Console_Installation_Guide).

Further Reading

- Red Hat Enterprise MRG and MRG Messaging Product Information
  - *http://www.redhat.com/mrg*
- Red Hat Enterprise MRG manuals
  - *http://redhat.com/docs/en-US/Red_Hat_Enterprise_MRG*
- MRG Messaging Development Wiki
  - *http://rhm.et.redhat.com/page/Main_Page*
- MRG Messaging Users Mailing List
  - Subscribe by sending an email to `rhm-users-request@redhat.com` with the word *Subscribe* in the subject line.

Appendix A. Revision History

Revision 1.8 Mon Jan 19 2009 Lana Brindley *lbrindle@redhat.com*

Added links to product page

Revision 1.7 Tue Jan 13 2009 Lana Brindley *lbrindle@redhat.com*

BZ #477068 - Sesame Documentation

Revision 1.5 Mon Dec 22 2008 Michael Hideo *mhideo@redhat.com*

Further changes as per BZ #470847

Revision 1.4 Mon Dec 8 2008 Lana Brindley *lbrindle@redhat.com*

Further changes as per BZ #470107

Revision 1.3 Tue Nov 18 2008 Lana Brindley *lbrindle@redhat.com*

BZ #470107

Revision 1.2 Thu Oct 30 2008 Lana Brindley *lbrindle@redhat.com*

Minor changes in preparation for technical review
BZ #451198
BZ #460144

Revision 1.1 Thu Sep 4 2008 Lana Brindley *lbrindle@redhat.com*

Updated branding

Revision 1.0 Thu Jun 5 2008 Lana Brindley *lbrindle@redhat.com*

Completed Revision for 1.0 Release

Revision 0.1 Fri Mar 7 2008 Lana Brindley *lbrindle@redhat.com*

Technical Review Completed

Revision 0.1 Mon Mar 3 2008 Lana Brindley *lbrindle@redhat.com*

Initial Draft