Table of Contents

1 Introduction

OpenEMM is feature-rich enterprise software for e-mail marketing, newsletters and service mails (transaction mails and event or time triggered mails) and mainly written in Java and Python. OpenEMM employs Java frameworks like Hibernate, Spring and Struts. Some performance-sensitive code is written in C. OpenEMM runs on top of a well proven Open Source software stack: Linux, Java, MySQL and web container Resin (included in OpenEMM).

This document will guide you through some nessessary steps, which are needed to install and configure OpenEMM. It requires a basic knowledge of Linux system administration and (in case you need it) of Domain Name Services (DNS). The command-line examples are based on Red Hat and SuSE Linux.

1.1 Requirements:

- Red Hat Enterprise Linux 4 or later, Fedora Core 5 or later, CentOS 4 or later or any other Linux distribution
- Sun Java SE JDK **6** or later
- Packages: mysql-server, MySQL-python (and sendmail-cf, if you want to use OpenEMM with Sendmail)

1.2 Install Script

If you work with a Red Hat based Linux distribution and plan to use Sendmail as SMTP server, please download the OpenEMM installer script *OpenEMM-Installer-v1.2.sh* (or a later version) from SourceForge, copy it to your /tmp directory, change to the tmp directory with

cd /tmp
assign execution rights with
chmod u+x OpenEMM-Installer-1.2.sh
and launch the script with
./ OpenEMM-Installer-1.2.sh
In this case you do not have to read any further because the installer script will guide you through all necessary steps to set up OpenEMM with a default configuration. If you want to know more about all configuration options, please read on!

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2 Operating System

2.1 Operating System: Updates

(run as super user)
Update the operating system to its latest release. This will keep your system at the most stable state and harding it against various intrusion attempts.
- Red Hat Linux: **yum update**
- SuSE Linux: **yast->Software->Online Update**

2.2 Operating System: Package Installation

(run as super user)
Install the required packages. Further depencies will be resolved automatically by the installation programm.
- Red Hat Linux: **yum install mysql-server sendmail-cf MySQL-python libxml2**
- SuSE Linux: **yast -i mysql python-mysql sendmail libxml2**

If package python-mysql is not available in OpenSuse, it is probably not needed. If you do not want to use OpenEMM with Sendmail, you do not need to install package sendmail-cf/sendmail.

2.3 Operating System: Create the 'openemm' User

(run as super user)
Create a special group and user for OpenEMM:
groupadd openemm
useradd -m -g openemm -d /home/openemm -c "OpenEMM 6.x.y" openemm
(Note: In this document x and y are used as placeholders for the version number of the current release of OpenEMM.)
The default directory */home/openemm* will be used by the OpenEMM software. OpenEMM runs completely under the permission of that user. Only the mail sending component, which requires the root TCP port 25, will be run with super user permissions. OpenEMM's userspace concept adds more safety to your server and its services.

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3 Installation: Sun Java JDK

(run as openemm user)
OpenEMM's web container requires the installation of Sun's Standard Edition Java Development Kit (SE JDK) 6 - not the GNU version of Java! If Sun's Java SE SDK 6 is not included in your distribution and has not been installed yet, you have to install it by yourself:

Point your browser to *java.sun.com* and visit the download section, subsection Java SE (Standard Edition). Download the binary (*.bin) of the latest Java SE JDK 6 (Java Development Kit).
- Copy the file to your /tmp directory: **cp jdk-6u16-linux-i586.bin /tmp**
- Change to the /tmp directory: **cd /tmp**
- Grant the file execution permission: **chmod u+x jdk-6u16-linux-i586.bin**
- Execute the file: **./jdk-6u16-linux-i586.bin**
- Follow the onscreen instructions and confirm the license agreement
- Create a directory: **mkdir -p /opt/openemm.org/software**
- Move the JDK-directory in there: **mv jdk1.6.0_16 /opt/openemm.org/software**
- Change to that directory: **cd /opt/openemm.org/software**
- Create a symbolic link for the JDK: **ln -s jdk1.6.0_16 java**
- Test the JDK: **/opt/openemm.org/software/java/bin/java -version**

You should get an output like this:
java version "1.6.0_16"
Java(TM) SE Runtime Environment (build 1.6.0_16-b01)
Java HotSpot(TM) Client VM (build 14.2-b01, mixed mode, sharing)

NOTE: If you want to use an installed JDK, simple edit */home/openemm/.bash_profile* after the installation of the OpenEMM tarball and adjust the PATH and the JAVA_HOME variable. Note: **Only** Java 6 is supported by OpenEMM 6.x.y since SUN does no longer support Java 5 with free bug fixes and security fixes.

4 Enable OpenEMM access in the iptables firewall

(run as super user)

4.1 Red Hat Linux

Edit the file */etc/sysconfig/iptables* to open ports 25 (SMTP), 8080 (OpenEMM console and redirection) and 8044 (OpenEMM update service). Add the following lines in the section *-A RH-Firewall-1-INPUT*:

-A RH-Firewall-1-INPUT -m state --state NEW -m tcp -p tcp --dport 25 -j ACCEPT
-A RH-Firewall-1-INPUT -m state --state NEW -m tcp -p tcp --dport 8044 -j ACCEPT
-A RH-Firewall-1-INPUT -m state --state NEW -m tcp -p tcp --dport 8080 -j ACCEPT

If you plan to use the internal SMTP server of OpenEMM instead of Sendmail (see chapter 5) you have to add this line to open port 8025 (OpenEMM SMTP server):

-A RH-Firewall-1-INPUT -m state --state NEW -m tcp -p tcp --dport 8025 -j ACCEPT

Additionally, you have to enable a prerouting forwarding rule from port 25 to 8025. This is done by adding the following code after the comments at the top in file */etc/sysconfig/iptables*:

***nat**
:PREROUTING ACCEPT [0:0]
:POSTROUTING ACCEPT [0:0]
:OUTPUT ACCEPT [0:0]
-A PREROUTING -i eth+ -p tcp --dport 25 -j REDIRECT --to-port 8025
COMMIT

Commiting all these changes requires a restart of iptables, which is done by

/etc/init.d/iptables restart

4.2 SuSE Linux

Use Yast to open ports 25 (SMTP), 8080 (OpenEMM) and 8044 (update):

yast -> Security and Users -> Firewall -> Allowed Services

Select *Mail Server*. After that add permission for port 8080, 8025 and 8044:

-> Advance -> Settings for Zone: External Zone -> TCP Ports: 8080 8025 8044

You can omit port 8025 if you plan to use Sendmail (see chapter 5). If you want to use the internal SMTP server of OpenEMM you have to enable a prerouting forwarding rule from port 25 to 8025 by setting parameter *FW_REDIRECT* in file */etc/sysconfig/SuSEfirewall2* to

"0/0,0/0,tcp,25,8025"

Commiting this change is done by

/etc/init.d/SuSEfirewall2_setup restart

5 Installation of OpenEMM 6.x.y

(run as super user)

Get the latest version of the OpenEMM binary code from

http://www.sourceforge.net/projects/openemm/files

Copy the tarball to a temporary location - */tmp* is a good choice. Change to that directory and run the following commands (and do not forget option "p" for the tar command, because some files need to have owner and group *root* or special permissions which are preset in the tarball!):

cd /home/openemm
tar xzvpf /tmp/OpenEMM-6.x.y.bin.tar.gz
mkdir -p /usr/share/doc/OpenEMM-6.x.y
mv USR_SHARE/* /usr/share/doc/OpenEMM-6.x.y

The installation process fills directory */home/openemm* of the user *openemm* and also creates a documentation directory including this document and various others at */usr/share/doc/OpenEMM-6.x.y*. If you decide to install OpenEMM in a other directory than */home/openemm* please change the paths in file *emm.properties* in directory */home/openemm/webapps/core/WEB-INF/classes* accordingly.

5.1 Read Access to Maillog

OpenEMM requires read access to log file */var/log/maillog*.

For Red Hat Linux open file */etc/logrotate.d/syslog* and add the following line after the line *sharedscripts*:

create 0604
Also run
chmod 604 /var/log/maillog
to set the permissions of the current maillog.

For SuSE Linux open file */etc/syslog-ng/syslog-ng.conf.in* and change the line
options { long_hostnames(off); sync(0); perm(0640); stats(3600); };
to
options { long_hostnames(off); sync(0); perm(0644); stats(3600); };
Also change the line
destination mail { file("/var/log/mail"); };
to
destination mail { file("/var/log/maillog"); };
Finally, activate the changes with
/sbin/SuSEconfig

5.2 Initialize/Update the OpenEMM and the OpenEMM CMS Database

Make sure that MySQL is running.
Red Hat Linux: **/etc/init.d/mysqld restart**
SuSE Linux: **/etc/init.d/mysql restart**

Since OpenEMM 6.x.y works with a CMS database which did not exist before version 6.0, you have to setup this database and load its layout if you update OpenEMM from a version before 6.0:
mysqladmin -u root -p create openemm_cms
(omit option –p in case your MySQL system is not password protected)
mysql -u root -p openemm_cms < openemm_cms.sql
If you would like to use not an empty CMS database but a demo CMS database with samples, please do not load file *openemm_cms.sql* as noted in the command line before, but use file *openemm_demo-cms.sql* instead. This file contains a CM template, 10 content module types and 12 content modules as samples to work with.

Now you have three options:

A.) In case you want to setup the OpenEMM database from scratch, use the following commands:
cd /usr/share/doc/OpenEMM-6.x.y
mysqladmin -u root -p create openemm
(omit option –p in case your MySQL system is not password protected)
If you plan to use the redirect features of OpenEMM, open file *openemm-6.x.y.sql* with a text editor like edit or vim, and find and replace the string
http://localhost:8080
with a valid redirection URL. In our example it is
http://www.openemm.org:8080
If you plan to use the bounce management for delayed bounces, replace the empty mailloop string '' directly after the redirection URL you just entered in the step before, with the sender hostname (see section 8.2). In our example it is
news.openemm.org
The sender hostname will be used as domain name for the forward addresses generated by the bounce filter.
Finally, load the OpenEMM database layout by
mysql -u root -p openemm < openemm.sql

B.) In case your old OpenEMM databases are somehow lost but you made backup files *openemm.db* and *openemm_cms.db* from a former installation (see chapter 7), import the databases with
mysql –u root –p openemm < /home/openemm/openemm.sql
mysql –u root –p openemm_cms < /home/openemm/openemm_cms.sql
But you may have to update the database schemas. Therefore, please read the next paragraph too.

C.) If you used OpenEMM before and an OpenEMM database already exists, you might have to update your database schema to add new tables and/or columns. Change to directory */usr/share/doc/OpenEMM-6.x.y* and look for files with names like *update_openemm-5.n.m-6.x.y.sql*. To update your database to the latest version you have to apply some or all of these files (depending on the OpenEMM version you used before) in the right sequence to your database. This is done by the (generic) command:
mysql -u root -p openemm < update_openemm-5.n.m-6.x.y.sql
To give you an example: If you want to update from OpenEMM 5.5 to 6.0 you have to run the following two commands in exactly that sequence:
mysql -u root -p openemm < update_openemm-5.5.0-5.5.1.sql
mysql -u root -p openemm < update_openemm-5.5.1-6.0.0.sql

If you did not install a release candidate (RC) of OpenEMM, you can omit all update files concerning release candidate versions (like **update_openemm-5.3.2-5.4.0rc1.sql** or **update_openemm-5.4.0rc1-5.4.0rc2.sql**).

5.3 Configuration

Properties *system.url* and *ecs.server.url* in file *emm.properties* in directory */home/openemm/webapps/core/WEB-INF/classes* must be set to the URL of your OpenEMM installation, which is usually identical with your redirection URL like
http://www.openemm.org:8080
Property *cms.ccr.url* in file *cms.properties* in the same directory should be set to the identical URL unless the content manager module (central content repository) runs on a different server - which is possible due to its webservices interface.

If you want to work with more than 200,000 addresses in your database, please change the value of the corresponding property in file *emm.properties*:
recipient.maxRows=200000
However, the bigger your database, the more the performance of your OpenEMM installation could degrade! If you want to use the import wizard to import more than 60,000 recipients in one chunk (which could take some time), please adjust the following property in the same file accordingly:
import.maxRows=60000

Due to a bug in OpenEMM < 6.0 some temporary tables were not always deleted. You can identify those tables by the prefix "tmp_crt_" and safely drop them from your database.

To increase security, OpenEMM now blocks logins when the same IP address generates a certain number of failed logins. The default value for the max. number of failed logins is 3 and the default value for the lock out time is 300 seconds. You can change both values in the database in table *company_tbl*, field *max_login_fails* and *login_block_time*.

If you use the CMS module of OpenEMM to build mailings and want to change the default text for text mails, please change the content of field text in table cm_text_version_tbl of database openemm_cms accordingly. At least you should change the domain name of the links from *localhost* to your redirect domain name.

5.4 Start and Stop OpenEMM

Change to user *openemm* with
su – openemm
Do not forget the hyphen in the first line!
To start the OpenEMM environment, change to the home directory of OpenEMM and launch the start script with
cd
OpenEMM.sh start
and to stop OpenEMM
cd
OpenEMM.sh stop
Point your webbrowser to
http://www.openemm.org:8080
(insert your own Console URL here) and log into OpenEMM as
Username: admin
Password: openemm

OpenEMM detects the language setting of your webbrowser and shows the appropiate login page. Obviously, your first step should be to change the password and user name in the settings menu to a new name and a better password.

By default, the menus of OpenEMM are shown in English. To change to your local language, click on menu *Settings* and choose submenu *User*. Select user *admin* (or the new name you have choosen) and change the language field from English to your language. Retype your password twice (password and confirm field) and press the *Save* button. You have to log out and in again to activate the change of the user language.

5.5 Out of memory

If you work with big lists and experience an error message like "Java.lang.OutOfMemoryError: Java heap space", you have to allocate more memory to the Java Virtual machine (JVM). You can increase the minimum and maximum memory in file **core.sh** in directory **/home/openemm/bin** by changing the parameter **-J-Xms128m** for minimum and **-J-Xmx512m** for maximum memory. If you have allocated all memory available and the error remains, you should increase your server RAM to at least 1 GByte (better: 2 GByte) and modify the parameter accordingly.

5.6 Purge the database

The bounce management of OpenEMM stores all bounce information in the database. After one or two years of operation the bounce information can account for 80 or even 90% of the size of your database. But it is not necessary to store

bounce information forever. You can set a limit of how many days bounce information should be stored with the parameter bounce.maxRemain. We recommend the following setting (90 days):
bounce.maxRemain.days=90

You can also set a limit of how many days subscribers, who did not confirm their double opt-in mail should be stored in the database. (If you do not delete them, they can not start to subscribe again.) We recommend the following setting (30 days):
pending.maxRemain.days=30

Because the removal of information can strain your database, you have to set date and time of the removal with the parameter cleanDB.cronExpression. The format of the parameter comes in a cron-like fashion (*second minute hour day_of_month month day_of_week*). We recommend the following setting (every day at 3:00 in the morning):
cleanDB.cronExpression=0 0 3 * * ?

Since brute force attacks from evil hackers to log into OpenEMM could flood the login track table, you can define for how many days records should be stored, the block size for every erase instruction (to prevent the database from stalling) and the purge time. We recommend the following settings (one week, 1,000 data records at a time, 4:00 in the morning:
loginTrackCleaner.retentionTime=7
loginTrackCleaner.deleteBlockSize=1000
loginTrackCleaner.cronExpression=0 0 4 * * ?

All parameters are set in the text file **emm.properties** in directory /home/openemm/webapps/core/WEB-INF/classes.

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6 SMTP Server/MTA

OpenEMM relies on a SMTP server to send out mails and to accept bounces and replies. OpenEMM uses Sendmail for that task by default, because Sendmail is a proven, secure, and fast MTA. However, if you do not want to (or can not) use Sendmail, you can disable its use after installation of OpenEMM. In this case OpenEMM uses an internal SMTP server (like the Windows version of OpenEMM). If you use the internal SMTP server of OpenEMM, please make sure that no other MTA (like Postfix, qmail or Exim) is active on your machine!

If you use Sendmail, you do not have to open port 8025 (see chapter 4), but you might have to change some Sendmail configuration files to adapt Sendmail for OpenEMM before installing OpenEMM. Please see appendix A for further details.

6.1 Enable or disable Sendmail

The use of Sendmail is enabled by default. Depending on your choice whether to use Sendmail or not, you enable Sendmail with
/home/openemm/bin/sendmail-enable.sh
and you disable it with
/home/openemm/bin/sendmail-disable.sh
This has to be done as user *openemm* before starting OpenEMM or after stopping OpenEMM (see section 5.4).

If you plan to use of Sendmail you do not have to start (or stop) it, since this is already done by the start script of OpenEMM. When not using Sendmail you can define a smart mailer via file */home/openemm/conf/smart-relay* with the syntax
<username>:<password>@<smart-relay-domainname>
The use of a smart-relay may be helpful for dial-up users to send out mails via their ISP. The name of the smart-relay is provided by your ISP.

6.2 Manipulate the Sendmail queue

Sendmail keeps a mail for 5 days in its mail queue by default until it gives up trying to deliver this mail. To free the Sendmail mail queue you could re-configure Sendmail to keep mails for a shorter period of time before dropping them. This can be done by amending line
$sm -q1m -NNEVER -OQueueDirectory=$BASE/var/spool/QUEUE -OpidFile=$run/sendmail-openemm-queue.pid
in file *mailer.sh* in directory */home/openemm/bin* with option
-Otimeout.queuereturn=<timespec>
Replace <timespec> with the time Sendmail should keep mails in its queue. While the default value is *5d* (5 days) you could try out *1d* for example or even go for sub-day values like *240m* for 6 hours or *60m* for one hour.

To achieve a high delivery rate OpenEMM processes the Sendmail mail queue in 1 minute cycles, but this also clogs the maillog file. You could change cycle time to 15 minutes. Therefore, you have to change parameter *-q1m* in the line above with *-q15m*.

7 Uninstallation/Upgrade

7.1 Automatic upgrade

If you use OpenEMM 5.4.0 RC1 or later you can use the online update feature in the settings menu of the user interface to upgrade OpenEMM with a single click. If the selected download server causes a problem and the download of the new release hangs, you must kill the upgrade process at the command line. First, find the PID of the process with
ps -u openemm -fww | grep upgrade
This statement should deliver a list with at least one process initiated by *python /home/openemm/bin/scripts/upgrade.py*. Kill this process softly with
kill <pid>
(Please replace <pid> in this example with the PID of the upgrade process.) If the process is still alive afterwards, you have to hard kill it with
kill -9 <pid>
After that you can restart OpenEMM, log in and try to start the upgrade again. If you want to go back to the former version of OpenEMM change directory with
cd /home
and check for a directory named *openemm-x.y* (with x.y being the release number). Delete the current directory *openemm* with
rm -rf openemm
and rename the old directory back to *openemm* with
mv openemm-x.y openemm
When you start OpenEMM now, version x.y of OpenEMM is started. While changes to the database are not rolled back with this approach this should not cause any problems because the database changes are only important for new features (which are missing in the former version).

7.2 Manual upgrade

If you use an OpenEMM version before 5.4.0 RC1 and want to upgrade it to a new version of OpenEMM or if you do not want the online update feature of OpenEMM you have to uninstall the current version first. This is done by a few simple steps:
Change to user openemm: **su – openemm**

Stop OpenEMM: **OpenEMM.sh stop**
Exit openemm user and change back to root: **exit**
Uninstall OpenEMM files:
rm -f README.txt
rm -rf bin conf lib libexec log var webapps webservices
rm –rf /usr/share/doc/OpenEMM-6.x.y

For security reasons make a backup of the OpenEMM database and OpenEMM CMS database (omit option –p in case your MySQL system is not password protected):
mysqldump -aCceQx --hex-blob –u root -p -r /home/openemm.sql openemm
mysqldump -aCceQx --hex-blob –u root -p -r /home/openemm_cms.sql openemm_cms
Or, if you want to start with your next installation from scratch, simply delete both databases:
mysqladmin -u root -p drop openemm
mysqladmin -u root -p drop openemm_cms

If you want to install a new version of OpenEMM, continue with chapter 6 and omit section 6.1. Otherwise delete home directory of OpenEMM
rm -rf /home/openemm
and delete user openemm
userdel openemm

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8 Domain Name Service (DNS) Configuration

If you need background information on terms like FQDN, hostnames, domains and DNS entries, please see appendix B.

8.1 Redirect services

Basically, OpenEMM runs out of the box. It just requires a simple FQDN, which has to be mapped via a DNS entry to an available (fix) IP address provided by your ISP. You can use that FQDN for the redirection services, provided by OpenEMM. Example: Your machines hostname is *host* and your domain is *openemm.org*. In that case simply add that FQDN, as described in section 6.4 A before. It would look like *http://host.openemm.org:8080*, since the redirection services of OpenEMM usually uses port 8080. If you use port 8080, do not forget to include it in external links pointing to

OpenEMM (like subscribe links in forms on your website). Hint: You can map that port to another port - see appendix C for further details.

8.2 Bounce management

The bounce management provides you with the capability to keep your mailinglists clean and up-to-date automatically. A bounce message is an error message, which will be send from a mailserver on the recipient's sider to the sender, if an e-mail is not deliverable. The bounce management administrates e-mails which are temporarily or enduringly undeliverable. It also filters the error messages and autoresponder mails.

If you want OpenEMM to process bounces received during the send process (instant bounces) no further configuration is required, because bounce management for instant bounces works out of the box. However, if you want OpenEMM also to process bounces (and autoresponder mails) which are received hours or even days later (delayed bounces) you have to do some setup. This is recommended if you send mailings to large lists because the number of delayed bounces and autoresponder mails will be significant and the automated bounce management by OpenEMM will save you a lot of work.

If you want to use the bounce management for delayed bounces you need to define a dedicated sender hostname for OpenEMM which is different from the existing host name of your server (see file *hosts* in directory */etc*) and you have to set up an A record and a MX (Mail Exchanger) record in your Domain Name Server (DNS) for the sender hostname. The MX record is used to route mail for a domain to one or more IP addresses. OpenEMM needs the new (virtual) host as a destination, to forward all incoming response to, for further processing by OpenEMM.

In our example the regular hostname is *host* and the sender hostname for OpenEMM will be *news*. The (abbreviated) DNS entry looks like this:

```
---Domain: openemm.org---
                    86400  IN    A     0     83.220.154.85
host                86400  IN    A     10    83.220.154.85
news                86400  IN    A     10    83.220.154.85
news.openemm.org.   86400  IN    MX    10    host.openemm.org.
---Domain: openemm.org---
```

The first line assigns the IP address for *openemm.org* and the second line defines the regular hostname. The third and fourth line define the A record and MX record for sender hostname *news*, meaning that host *host* accepts e-mails sent to host *news*.

Validate your correct setup by using a tool like *host* or *dig*, for example
host –a openemm.org
host –a host.openemm.org
host –a news.openemm.org

When you send e-mails and want to take advantage of the bounce management for delayed bounces there are two possibilities for the format of the sender address:

A.) Use whatever address you like. Set up a bounce filter in OpenEMM (see user manual) to foward the filtered response to a feedback e-mail address of your choice (different from the sender address, of course). Implement a forward mechanism to forward incoming mail sent back to the sender address to the forward address generated by the bounce filter (in our example ext_1@news.openemm.org). The flow for responses of your e-mails works like this:
sender address -> filter-generated forward address (to filter out bounces) -> feedback address

B.) Use an e-mail address with the sender hostname (in our example news@news.openemm.org) Since no real e-mail addresses exist for the sender hostname, normally it would not be possible to reply to an e-mail with this sender address. To forward responses to a valid e-mail address you have to define a bounce filter with an e-mail feedback address of your choice. The forward address generated by the bounce filter (in our example ext_1@news.openemm.org) has to be defined as an alias in directory /home/openemm/conf/bav in a new file named bav.conf-local. Our example:

```
---File: /home/openemm/conf/bav/bav.conf-local----
news@news.openemm.org       alias:ext_1@news.openemm.org
---File: /home/openemm/conf/bav/bav.conf-local ----
```

The flow for responses of your e-mails works like this:
sender address -> bav.conf-local -> filter-generated forward address -> feedback address

If you create the file bav.conf-local please do not forget to re-create it after an update of OpenEMM – otherwise it would be missing!

9 Appendix A: Configuration of Sendmail

(run as super user)

If you want to use the bounce management of OpenEMM not only for instant bounces, but also for delayed bounces, some Sendmail configuration is required: When entering the following lines please make sure that each time the initial apostrophe is a back tick (`), otherwise the M4 preprocessor will fail to interpret the input correctly!

9.1 Red Hat Linux:

Open file */etc/mail/sendmail.mc* and change the line
DAEMON_OPTIONS(`Port=smtp,Addr=127.0.0.1, Name=MTA')dnl
to
dnl DAEMON_OPTIONS(`Port=smtp,Addr=127.0.0.1, Name=MTA')dnl

This will enable Sendmail to listen on all available network interfaces. By default Sendmail is listing only on the local interface lo0 for connections.

Add the following line at the end of the file:
INPUT_MAIL_FILTER(`bav', `S=unix:/home/openemm/var/run/bav.sock, F=T')dnl

This will enable the dynamic mail loop required by the bounce management to process delayed bounces.

If file */etc/mail/relay-domains* does not exist, create the file - for example by
touch relay-domains
and add a line at the end of the file which specifies your DNS entry for the sender hostname (FQDN). In our example it is simply:
news.openemm.org

Open file */etc/mail/mailertable* and add a line at the end which activates the bounce management for that FQDN:
news.openemm.org procmail:/home/openemm/conf/bav/bav.rc

To activate all Sendmail changes, run the following commands:
cd /etc/mail
make
and restart the Sendmail service by
/etc/init.d/sendmail restart

You may ignore the warning that */home/openemm/var/run/bav.sock* is missing, since this file will be provided during installation of OpenEMM

9.2 SuSE Linux

WARNING: Editing the files mentioned below breaks the YaST configuration capabilities for Sendmail. However, you can later re-activate YaST via
MAIL_CREATE_CONFIG="yes"
in file */etc/sysconfig/mail* and YaST will not overwrite your Sendmail configuration but save the new file as sendmail.cf.<name> so that you can compare the settings (with diff). If the changes are too many to copy them manually into the existing sendmail.cf, rename the new file to sendmail.cf, run
/sbin/SuSEconfig
and repeat the steps in this section.

Open file */etc/sysconfig/mail* and change the line:
MAIL_CREATE_CONFIG="yes"
to
MAIL_CREATE_CONFIG="no"

This line excludes Yast from Sendmail configuration and allows you to change the configuration manually by yourself.

Open file */etc/mail/linux.mc* and change line
dnl undefine(`confHOST_STATUS_DIRECTORY')dnl
to
undefine(`confHOST_STATUS_DIRECTORY')dnl

Add the following line at the end of the file:
INPUT_MAIL_FILTER(`bav',`S=unix:/home/openemm/var/run/bav.sock,F=T')dnl

If file */etc/mail/relay-domains* does not exist, create the file - for example by
touch relay-domains
and add a line at the end of the file which specifies your DNS entry for the sender hostname (FQDN). In our example it is simply:
news.openemm.org

Open file */etc/mail/mailertable* and add a line at the end which activates the bounce management for that FQDN:
news.openemm.org procmail:/home/openemm/conf/bav/bav.rc

To activate all Sendmail changes, run the following commands:
cd /etc/mail
m4 linux.mc > /etc/sendmail.cf
m4 linux.submit.mc > submit.mc
make
/etc/init.d/sendmail restart

You may ignore the warning that */home/openemm/var/run/bav.sock* is missing, since this file will be provided during installation of OpenEMM.

IMPORTANT: If you use AppArmor with SuSE, it requires the following entries for the file */etc/apparmor.d/usr.sbin.sendmail*:
/home/openemm/var/spool/ADMIN rwl,
/home/openemm/var/spool/ADMIN/* rwl,
/home/openemm/var/spool/QUEUE rwl,
/home/openemm/var/spool/QUEUE/* rwl,

Otherwise, Sendmail will not be able to communicate with OpenEMM.

Finally, restart the AppArmor Service with
/etc/init.d/boot.apparmor reload

---

10 Appendix B: DNS Entries, FQDN, Hostnames and Domains

10.1 What is a DNS entry and what is its purpose?

A DNS entry maps the IP address of a server to a human readable address. Example: In place of the IP address 83.220.154.85, which points to the OpenEMM webserver, you can use the DNS address www.openemm.org, which is much more convenient.

10.2 What is a Hostname, a Domain and a FQDN

A Fully Qualified Domain Name (FQDN) links to an IP address of a server. The Internet address may be composed of letters and numbers and by using this option nobody has to remember the difficult number sequence (IP). A FQDN is divided in three levels:
- The affix of the domain is the Top Level Domain (TLD). Example: *com*, *org* or *net*
- The domain name will be inserted in front of the TLD. Example: *openemm* or *agnitas*
- The FQDN starts with the hostname. For webpages mostly *www*

Example: The FQDN *www.yourcompany.com* is composed of
- www = hostname
- yourcompany = domain name
- com = TLD

As you can see, the FQDN consists of the hostname, the domain name and the top level domain separated by dots. The combination of domain name and TLD is commonly referred as domain. The FQDN can be expanded by a subdomain (like *miami*). The subdomain will be inserted between the hostname and the domain. Example: www.miami.yourcompany.com

10.3 How do I get a Domain and a FQDN?

There a lot of ISPs where you may host a domain. You will only host the combination of the TLD and the domain name. Example: *yourcompany.com*. You may link a domain name to different targets by using different hostnames. The domain name will be registered with a Domain Name Server (DNS). This server forwards all requests to the particular IP address. After your domain name has been registered, you may set up the FQDN in the ISPs web interface. The ISP allows you to

define several hostnames to create different FQDNs, which will forward to different servers (or different ports of the same server). You may set up different addresses like
- web server: *www.yourcompany.com*
- mail server: *mail.yourcompany.com*
- FTP server: *ftp.yourcompany.com*

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11 Appendix C: OpenEMM as Redirection Server on Port 80

(run as super user)

You can use your server as a redirect server to quantify mail opening rates and link clicks. This is helpful to determine the success of an e-mail marketing campaign. By default, OpenEMM enables that service at port 8080. If you want to use a URL without an explicit declaration of a port, this section shows you a way.

To use your system as a redirection server on HTTP default port 80, first make sure that there are no conflicting services running on TCP port 80, like an Apache Httpd server. On Red Hat Linux the check is done by running
netstat -ant | grep ':::80'
If you see active services, you have to stop them. Example: To stop an active Apache Httpd server run
/etc/init.d/httpd stop
Also make sure that these services do not start automatically after system reboot (for example by using *chkconfig*).

11.1 Red Hat Linux

Enable a Prerouting Forwarding Rule from port 80 to 8080 by adding the following code after the comments at the top in file */etc/sysconfig/iptables*:

```
*nat
:PREROUTING ACCEPT [0:0]
:POSTROUTING ACCEPT [0:0]
:OUTPUT ACCEPT [0:0]
-A PREROUTING -i eth+ -p tcp --dport 80 -j REDIRECT --to-port 8080
COMMIT
```

Commiting the changes requires a restart of iptables, which is done by
/etc/init.d/iptables restart

11.2 SuSe Linux

Enable the prerouting forwarding rule from port 80 to 8080 by setting parameter *FW_REDIRECT* in file */etc/sysconfig/SuSEfirewall2* to
"0/0,0/0,tcp,80,8080"

Commiting this change is done by
/etc/init.d/SuSEfirewall2_setup restart

11.3 Changes to the database

When you have implemented a port forwarding like described above the "old" port 8080 still works, of course. Therefore, you do not have to modify the URLs in existing mailings. However you should change the field *rdir_domain* in table *company_tbl* by removing the substring ":8080" at the end of the domain name like
update company_tbl set rdir_domain = 'www.openemm.org';