

# Installing the Xerxes Project

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## 1 Revisions

1.1.0

\*- Revised for Xerxes

1.0.4

\*- Formatted in LaTeX (to be later converted to DocBook)

1.0.3

\*- Added information regarding exclusivity of Fedora repositories 08/29/05

1.0.2

\*- Added a postfix lookup for mail forwarding as configured in web-cyradm (table virtual)

\*- Added chkconfig entries for mail daemons

\*- Added simple test protocols for pop3, imap, and smtp services

\*- Added appendix, including Michael Hsu's PHP patch 8-12-05

1.0.1.1

\*- Corrected errors related to crypt call in incorrect position

1.0.1

\*- Rewrite for TLDP

1.0.0

\*- Initial Release (6-7-2005)

## 2 Introduction

This is the installation document for the Xerxes Project, which is a fully-featured ISP-style email system consisting of Xerxes E-Mail Administrator, which uses Postfix SMTP, Cyrus-IMAP, a MySQL database backend, as well as optional addons such as SQLWhite, a Postfix policy server. Xerxes Email Administrator is a fork of Web-Cyradm 0.5.4-1.

## 3 Installing the Software

### 3.1 Install A Linux Flavor

Installations have been successful on RedHat based systems (RHEL, Fedora), and this document was written around a RedHat-based installation. Previous Web-Cyradm installations have been done on Debian-based systems as well.

### 3.2 SELinux

If you choose to enable SELinux for security purposes (recommended), it is necessary to execute this command on the document root so that Apache will serve the Xerxes E-Mail Administrator to users.

```
chcon -R -t httpd_sys_content_t /var/www/html
```

### 3.3 Installing the Packages

List of packages to install (via yum, apt-get, etc):

```
cyrus-imapd
cyrus-imapd-devel
cyrus-imapd-utils
cyrus-sasl-devel
cyrus-sasl
cyrus-sasl-md5
cyrus-sasl-gssapi
perl-cyrus
perl-Date-Calc
cyrus-sasl-sql
mysql
mysql-server
mysql-devel
php
php-mysql
httpd
db4
db4-devel
```

(The cyrus packages will have same version numbers, cyrus-sasl packages will also have the same version numbers)

Also, current versions of pear do not have Pear-DB already installed, so install it:

```
[root@mail ~]# pear install DB
```

### 3.4 Building Postfix

The Postfix .rpm binaries do not come with mysql support enabled- therefore you must compile your own. Download the Postfix SRPM and build the packages this way:

```
rpm -ivh postfix.src.rpm
cd /usr/src/redhat/SPECS
```

Fire up your favorite text editor and edit postfix.spec  
Change the line from:

```
%define MYSQL 0
```

to:

```
%define MYSQL 1
```

Exit editor, then:

```
cd ../
rpmbuild -ba SPEC/postfix.spec
```

(It will take a while to finish compiling)

```
cd RPMS/i386
```

Then, install the RPMs:

```
rpm -Uvh *.rpm --replacefiles
```

### 3.5 Installing Xerxes E-Mail Administrator

Download the package from <http://www.sourceforge.net/projects/xerxes/> Extract these files into the /var/www/html/ directory.

```
cd /var/www/html/
tar -xvzf /path/to/xerxes-frontend.tar.gz
mv <name of directory> xerxes-frontend
```

Copy the conf.php.dist file to the active config file:

```
cp conf.php.dist conf.php
```

### 3.6 Ensuring Daemons Run On Startup

Execute these commands in the shell to make daemons run at startup.

```
chkconfig --level 2345 postfix on
chkconfig --level 2345 cyrus-imapd on
chkconfig --level 2345 httpd on
chkconfig --level 2345 mysqld on
```

## 4 Configuring the Software

### 4.1 Create the MySQL Databases and tables

The MySQL scripts must be edited in order to specify passwords for database user mail, the IMAP administrator cyrus, and the Xerxes admin user.

#### 4.1.1 /var/www/html/xerxes-frontend/scripts/create-mysql.sql

Specify passwords for the Xerxes admin user and the cyrus user.

```
INSERT INTO adminuser (username, password) \
    VALUES ('admin', '<whatever you wish>');
INSERT INTO accountuser (username, password) \
    VALUES ('cyrus', '<whatever you wish>');
```

You will need to remember these passwords since you will be logging into Xerxes with the admin user and will be putting the cyrus username and password in the configuration files /etc/imapd.conf.

#### 4.1.2 /var/www/html/xerxes-frontend/scripts/insertuser-mysql.sql

Define the password for mysql user mail by changing line 2 from:

```
INSERT INTO user (Host, User, Password, Select_priv, \
    Insert_priv, Update_priv, Delete_priv, Create_priv, \
    Drop_priv, Reload_priv, Shutdown_priv, Process_priv, \
    File_priv, Grant_priv, References_priv, Index_priv, \
    Alter_priv) VALUES ('localhost', 'mail', PASSWORD('secret'), \
    'N','N', ...
```

to:

```
INSERT INTO user (Host, User, Password, Select_priv, \
    Insert_priv, Update_priv, Delete_priv, Create_priv, \
    Drop_priv, Reload_priv, Shutdown_priv, Process_priv, \
    File_priv, Grant_priv, References_priv, Index_priv, \
    Alter_priv) VALUES ('localhost', 'mail', \
    PASSWORD('<specify mail password>'), 'N', 'N', ...
```

You will need to remember the password you set for mysql user mail, for that is the password used to connect to the database.

### 4.1.3 Executing the Scripts

```
/"pathmysql"/mysql -u root -p < \  
/var/www/html/xerxes-frontend/scripts/insert_user_mysql.sql
```

(type in mysql root password)

Then:

```
/"pathmysql"/mysql mail -u mail -p < \  
/var/www/html/xerxes-frontend/scripts/create_mysql.sql
```

(enter password for mail database)

## 4.2 Postfix

Postfix is a secure and highly-configurable MTA. This section will show how to properly configure Postfix with options that will enable it to deliver to Cyrus, enforce an authentication mechanism, and allow you to specify anti-spam controls.

### 4.2.1 /etc/postfix/main.cf

The Postfix configuration has 300+ parameters. You are responsible to configure Postfix specifically for your needs. Here are some sample parameters. The references to the mysql\*.cf are mandatory configuration options.

```
mydestination = <insert hostname>, localhost.$mydomain, \  
    mysql:/etc/postfix/mysql-mydestination.cf  
mailbox_transport = lmtp:unix:/var/lib/imap/socket/lmtp  
virtual_alias_maps = hash:/etc/postfix/virtual, \  
    mysql:/etc/postfix/mysql-forward.cf, \  
    mysql:/etc/postfix/mysql-virtual.cf  
sender_canonical_maps = mysql:/etc/postfix/mysql-canonical.cf  
smtpd_sasl_auth_enable = yes  
smtpd_sasl_security_options = noanonymous  
broken_sasl_auth_clients = yes  
smtpd_recipient_restrictions=  
    permit_mynetworks,  
    permit_sasl_authenticated,  
    reject_invalid_hostname,  
    reject_non_fqdn_hostname,  
    reject_non_fqdn_sender,  
    reject_non_fqdn_recipient,  
    reject_unknown_sender_domain,  
    reject_unknown_recipient_domain,
```

```

    permit_auth_destination,
    reject
smtpd_sasl_local_domain = <hostname>
smtpd_banner = $myhostname NO UCE
smtpd_helo_required = yes
disable_verify_command = yes
smtpd_client_restrictions =
    permit_mynetworks,
    permit_sasl_authenticated,
# Uncomment this if you wish to use SQLWhite,
# which is highly encouraged ;- )
# check_policy_service inet:127.0.0.1:2502,
    reject_rbl_client dnsbl.sorbs.net,
    permit

smtpd_data_restrictions=
    reject_unauth_pipelining,
    permit

```

(merely examples, you can choose any DNS blacklists as well as policy servers)

#### 4.2.2 /etc/postfix/mysql-mydestination.cf

Create this file as root, and insert these lines. Brackets indicate server-specific information.

```

# mysql config file for local domain (like sendmail's sendmail.cf)
# lookups on postfix
# comments are ok.

# the user name and password to log into the mysql server
hosts = <mysql ip>
user = mail
password = <the mysql user mail's password>
# the database name on the servers
dbname = mail

# the table name
table = domain
#
select_field = domain_name
where_field = domain_name

```

### 4.2.3 /etc/postfix/mysql-virtual.cf

Create this file as root, and insert these lines. Brackets indicate server-specific information.

```
# mysql config file for alias lookups on postfix
# comments are ok.
#

# the user name and password to log into the mysql server
hosts = <mysql ip>
user = mail
password = <the mysql user mail's password>

# the database name on the servers
dbname = mail

# the table name
table = accountuser

#
select_field = username
where_field = username
```

### 4.2.4 /etc/postfix/mysql-forward.cf

Create this file as root, and insert these lines. Brackets indicate server-specific information.

```
# mysql config file for forward lookups on postfix
# comments are ok.
#

# the user name and password to log into the mysql server
hosts = <mysql ip>
user = mail
password = <the mysql user mail's password>

# the database name on the servers
dbname = mail

# the table name
table = virtual

#
select_field = dest
where_field = alias
```

#### 4.2.5 /etc/postfix/mysql-canonical.cf

Create this file as root, and insert these lines. Brackets indicate server-specific information.

```
# mysql config file for canonical lookups on postfix
# comments are ok.
#

# the user name and password to log into the mysql server
hosts = <mysql ip>
user = mail
password = <the mysql user mail's password>

# the database name on the servers
dbname = mail

# the table name
table = virtual
#
select_field = alias
where_field = username
# Return the first match only
additional_conditions = and status = '1' limit 1
```

#### 4.2.6 /usr/lib/sasl2/smtpd.conf

Create this file as root, and insert these lines. Brackets indicate server-specific information.

```
pwcheck_method: auxprop
auxprop_plugin: sql
mech_list: PLAIN LOGIN
sql_engine: mysql
sql_user: mail
sql_passwd: <the mysql user mail's password>
sql_hostnames: <the mysqld hostname>
sql_database: mail
sql_select: SELECT password FROM accountuser WHERE username = '%u@%r' \
OR (username = '%u' AND domain_name = '')
```

### 4.3 Cyrus IMAP

Cyrus IMAP is a powerful POP/IMAP server from Carnegie Mellon University.

#### 4.3.1 /etc/imapd.conf

Here is the basic required information:

```

configdirectory: /var/lib/imap
partition-default: /var/spool/imap
admins: cyrus
sievedir: /var/lib/imap/sieve
sendmail: /usr/sbin/sendmail
hashimapspool: true
sasl_pwcheck_method: auxprop
sasl_auxprop_plugin: sql
sasl_mech_list: PLAIN LOGIN
sasl_sql_engine: mysql
sasl_sql_user: mail
sasl_sql_passwd: <the mysql user mail's password>
sasl_sql_hostnames: <HOSTNAME OR IP OF MYSQL MACHINE>
sasl_sql_database: mail
sasl_sql_select: SELECT password FROM accountuser WHERE username = '%u@%r' \
    OR (username = '%u' AND domain_name = '')
virtdomains: userid
unixhierarchysep: yes
altnamespace: yes

```

#### 4.3.2 /etc/cyrus.conf

Nothing is required to change here, however to allow daily Squatter indexing of mailboxes insert this at the bottom of the file:

```
squatter cmd="/usr/lib/cyrus-imapd/squatter -r -v user/%" at=0405
```

## 4.4 Xerxes E-Mail Administrator

The Xerxes E-Mail Administrator is the web-frontend to the entire Xerxes system. This application will allow you to add and configure domains, users, as well as other administrators.

#### 4.4.1 /var/www/html/xerxes-frontend/config/conf.php

Set:

```

$CYRUS = array(
'HOST' => '<name of mail system>',
'PORT' => 143,
'ADMIN' => 'cyrus',
'PASS' => '<the cyrus password>'
);

```

```

$DB = array(
'TYPE' => 'mysql',
'USER' => 'mail',

```

```
'PASS' => '<the mysql user mail's password>',
'PROTO' => 'unix', // set to "tcp" for TCP/IP
'HOST' => '<the mysql ip>',
'NAME' => 'mail'
```

If you wish to enable support for SQLWhite, a postfix Whitelist/blacklist server, enable this option.

```
$sqlwhite = 1;
```

If you wish to add error-logging to Xerxes add this to bottom of script:

```
error_reporting(E_ALL);
ini_set("log_errors",1);
ini_set("error_log","/var/log/xerxes.log");
```

Then create the log itself in the shell:

```
touch /var/log/xerxes.log
chown apache:apache xerxes.log
```

## 5 Testing the Software

### 5.1 Testing That All Necessary Services Are On

You can check by executing

```
service foo status
```

If a service is running, it should give you a PID number of the service.

A common issue is when cyrus-imapd fails to start. The output generated is

```
Starting cyrus-imapd: preparing databases... FAILED!
```

That usually is a result of a corrupted database file at build, specifically mailboxes.db or annotations.db in the /var/lib/imap directory. Rename them to a backup filename and then restart the service. Cyrus should create new working database files and the service should start with no problems.

### 5.2 Testing SMTP

Telnet into the postfix machine on port 25 and send a mail in this fashion. If you are in the \$mynetworks in /etc/postfix/main.cf, you will not need to authenticate. If you are not, it might be best to use a mail client and send a username and password. Otherwise, SMTP will reject you.

```

[root@mail postfix]\# telnet localhost 25
Trying 127.0.0.1...
Connected to localhost.localdomain (127.0.0.1).
Escape character is '^]'.
220 mail.foobar.com NO UCE
helo localhost.localdomain
250 mail.foobar.com
mail from: foobar@foobar.com
250 Ok
rcpt to: sballmer@microsoft.com
250 Ok
data <enter>
354 End data with <CR><LF>.<CR><LF>
Your mother is a hamster, and your father smells of elderberries. <enter>
. <enter>
250 Ok: queued as DE505FCE0
quit
221 Bye
Connection closed by foreign host.

```

If you see the output "250 Ok: queued as 'some number' ", the mail was sent.  
// Another good test is sending a mail from the command line on the mail machine while running

```
tail -f /var/log/maillog
```

on another terminal (tty1, tty2, etc)

```
echo hello | mail foobar@foobar.com
```

The tail command should show something like this:

```

Aug 12 16:27:17 mail postfix/pickup[20749]: 50F24FDD6: uid=0 from=<root>
Aug 12 16:27:17 mail postfix/cleanup[20930]: 50F24FDD6:
message-id=<20050812202717.50F24FDD6@mail.foobar.com>
Aug 12 16:27:17 mail postfix/qmgr[19739]: 50F24FDD6:
from=<root@mail.foobar.com>, size=275, nrcpt=3 (queue active)
Aug 12 16:27:17 mail lmtpunix[20768]: duplicate_check:
<20050812202717.50F24FDD6@mail.foobar.com> foobar.com!user.foobar 0
Aug 12 16:27:17 mail lmtpunix[20768]: mystore: starting txn 2147483855
Aug 12 16:27:17 mail lmtpunix[20768]: mystore: committing txn 2147483855
Aug 12 16:27:17 mail lmtpunix[20768]: duplicate_mark:
<20050812202717.50F24FDD6@mail.foobar.com> foobar.com!user.foobar 1123878437 17
Aug 12 16:27:17 mail lmtpunix[20768]: mystore: starting txn 2147483856
Aug 12 16:27:17 mail lmtpunix[20768]: mystore: committing txn 2147483856
Aug 12 16:27:17 mail lmtpunix[20768]: duplicate_mark:
<20050812202717.50F24FDD6@mail.foobar.com> .foobar+@foobar.com.sieve. 1123878437 0
Aug 12 16:27:17 mail postfix/lmtp[20933]: 50F24FDD6: to=<foobar@foobar.com>,

```

```
relay=/var/lib/imap/socket/lmtp[/var/lib/imap/socket/lmtp], delay=0,
status=sent (250 2.1.5 Ok)
Aug 12 16:27:18 mail postfix/qmgr[19739]: 50F24FDD6: removed
```

### 5.3 Testing POP3

Create a test account on Xerxes and telnet to the cyrus machine on the pop3 port and authenticate like this:

```
[root@mail postfix]# telnet localhost pop3
Trying 127.0.0.1...
Connected to localhost.localdomain (127.0.0.1).
Escape character is '^'.
+OK mail.foobar.com Cyrus POP3 v2.2.12-Invoca-RPM-2.2.12-1.1.fc3 server ready
<36382431.1123872629@mail.foobar.com>
user foo@foobar.com
+OK Name is a valid mailbox
pass secret123
+OK Mailbox locked and ready
quit
+OK
Connection closed by foreign host.
```

If you get a "+OK Mailbox locked and ready", the POP3 authentication mechanism is working.

### 5.4 Testing IMAP

Run the program `imtest` on the mail machine with a test username:

```
[root@mail postfix]# imtest -a foobar@foobar.com mail.foobar.com
S: * OK mail.foobar.com Cyrus IMAP4 v2.2.12-Invoca-RPM-2.2.12-1.1.fc3 server ready
C: C01 CAPABILITY
S: * CAPABILITY IMAP4 IMAP4rev1 ACL QUOTA LITERAL+ MAILBOX-REFERRALS NAMESPACE UIDPLUS
ID NO_ATOMIC_RENAME UNSELECT CHILDREN MULTIAPPEND BINARY SORT THREAD=ORDEREDSUBJECT
THREAD=REFERENCES ANNOTATEMORE IDLE STARTTLS LISTEXT LIST-SUBSCRIBED X-NETSCAPE
S: C01 OK Completed
Please enter your password:
C: L01 LOGIN foobar@foobar.com {4}
S: + go ahead
C: <omitted>
S: L01 OK User logged in
Authenticated.
Security strength factor: 0
. logout
* BYE LOGOUT received
. OK Completed
Connection closed.
```

If you see the word "Authenticated", imap is working.