

8 System Administration

This chapter contains information on general system administration of the OpenClinica software stack.

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8.1 Configure Postgres to Allow Additional Connections

To allow access to a Postgres DB server from any location other than "localhost," some modifications have to be made to the Postgres server configuration files.

Postgres 8.4 comes already configured to serve the database on all IP's. Postgres 8.2 however only serves the database on localhost by default and not on all of the IP's (note: There is no version of OpenClinica that runs on Postgres 8.3). Regardless of whether you are using Postgres 8.2 or 8.4, to open up additional connections you will need to add an entry in the Postgres conf file so the Postgres server can allow the connection.

The following lists instructions to both (a) serve your database on all IP's, and (b) modify Postgres' configuration to allow additional connection.

Postgres configuration files location:

- For Windows - C:\Program Files\PostgreSQL\8.4\data
 - Note "Program Files" may be "Program Files x86" for your installation.
- For Linux - /opt/PostgreSQL/8.4/data

The two main configuration files which are both located in the data directories referenced above are "postgresql.conf" and "pg_hba.conf."

To get Postgres 8.2 to listen on all IP's:

- Edit the postgresql.conf file and set the listen_address variable to "listen_addresses = '*'"
- Save postgresql.conf
- Restart Postgres (Ensure any tomcat instances pointed to the databases on the server are stopped.)
- Postgres 8.2 is now listening on all IP addresses on the server ([Reference Material](#))

Enable Postgres to accept additional connections:

- Edit the pg_hba.conf file to allow connections ([Reference Material](#)).

- The `pg_hba.conf` file is like an ACL (Access Control List) for the database. It only allows connections from servers that match the ACL list.
- The file can restrict access based on IP, username and database and any combination of the above.
- The file can also setup authentication requirements for that connection.
- An example entry that will allow all IP's and all usernames to connect to all databases is below.
 - `host all all 0.0.0.0/0 md5`
- Most of the time the error message you get will show you what you need to add to the file. (Shown below under Error Messages)
- Once you are done editing the file, restart Postgres to apply the new settings (Ensure any Tomcat instances pointed to the database(s) on the server are stopped).
 - Alternatively, you can reload the `pg_hba` configuration without restarting by sending the main server process a SIGHUP signal. If you edit the file on an active system, you will need to signal the server (using [pg_ctl reload](#) or `kill -HUP`) to make it re-read the file. This will also load any changes to `postgresql.conf`.
- The Postgres server should now allow you to connect as configured.

Error Messages:

The following error message means that the server is not running on the host. This error message could also mean that the Postgres is not listening on all IP's--this typically only occurs with Postgres 8.2. To resolve this issue, see above section on getting Postgres 8.2 to listen on all IP's.

psql: could not connect to server: Connection refused

Is the server running on host "192.168.15.163" and accepting

TCP/IP connections on port 5432?

The following error message means that the server does not have an entry in `pg_hba.conf` for your connection. The message helps indicate the type of entry you would need to add.

psql: FATAL: no `pg_hba.conf` entry for host "192.168.15.56", user "postgres", database "openclinica", SSL off

The above message is saying your IP is "192.168.15.66", your user is "postgres" and you are trying to connect to database "openclinica." Based on this information, your new `pg_hba.conf` configuration line would be the following:

```
host postgres openclinica 192.168.15.66/32 md5
```

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8.2 Email Configuration and Troubleshooting Tips

This page provides example settings for how to configure email functionality within OpenClinica.

OpenClinica can work with several different email server configurations. Some of the most common configurations are below. These configurations have been tested and are known to work with OpenClinica 3.1.2.

SMTP Relay (no user authentication)

```
mailHost=IPHOSTNAME OF YOUR E-MAIL SERVER
mailPort=25
mailProtocol=smtp
mailUsername=
mailPassword=
mailSmtpAuth=false
mailSmtpStarttls.enable=false
mailSmtpsAuth=false
mailSmtpsStarttls.enable=false
mailSmtpConnectionTimeout=1000
mailErrorMsg=developers@openclinica.com
```

SMTP Relay (user authentication)

```
mailHost=IPHOSTNAME OF YOUR E-MAIL SERVER
mailPort=25
mailProtocol=smtp
mailUsername=USERNAME
mailPassword=PASSWORD
mailSmtpAuth=true
mailSmtpStarttls.enable=false
mailSmtpsAuth=false
mailSmtpsStarttls.enable=false
mailSmtpConnectionTimeout=1000
mailErrorMsg=developers@openclinica.com
```

SMTP SSL - GMAIL

```
mailHost=smtp.gmail.com
mailPort=465
mailProtocol=smtps
mailUsername=USERNAME@gmail.com
mailPassword=PASSWORD
mailSmtpAuth=false
```

```
mailSmtpStarttls.enable=false
mailSmtpsAuth=true
mailSmtpsStarttls.enable=false
mailSmtpConnectionTimeout=1000
mailErrorMsg=developers@openclinica.com
```

[Gmail reference material](#)

SMTP TLSSTARTTLS - GMAIL

```
mailHost=smtp.gmail.com
mailPort=587
mailProtocol=smtp
mailUsername=USERNAME@gmail.com
mailPassword=PASSWORD
mailSmtpAuth=true
mailSmtpStarttls.enable=true
mailSmtpsAuth=false
mailSmtpsStarttls.enable=false
mailSmtpConnectionTimeout=1000
mailErrorMsg=enterprise-support@akazaresearch.com
```

[Gmail reference material](#)

Troubleshooting Tips

While the above configurations have been tested and work, some people may nonetheless find issues sending email. If you are still having trouble sending email with your OpenClinica instance, the information below may assist you.

Make sure the mail server is accessible from your OpenClinica server:

Servers typically have firewalls in place that filter network traffic. You can use the following "telnet" command to ensure that your server can communicate on its port designated for email. For instance if you are using SMTP, most likely your mail server port is 25.

```
telnet $IP 25
```

Simply replace \$IP with the IP address or hostname of your email server. If you see "Connected to \$IP" the mail server is accessible from your server.

If you see "telnet: Unable to connect to remote host: Connection refused" the problem lies with your network access and you will not be able to send email until your server can communicate with the mail server through the specified port. Please consult your IT department to enable the network access you need.

Test email delivery:

You may use the following to test email delivery via telnet. This will allow you to rule out the OpenClinica application as the cause of the issue preventing email from working. This test is usually the most helpful in determining your issue with email delivery. (Note: this will not work for SMTPS or STARTTLS mail servers.)

Testing for SMTP no user authentication - <http://www.yuki-onna.co.uk/email/sntp.html>

Testing for SMTP with user authentication

- http://www.webpan.com/Customers/Email/SMTP_Authentication_Telnet_Test.htm

If you are able to receive the test email sent via telnet on the OpenClinica server, then OpenClinica should have no issues with email delivery.

If you get an error message or issue with the telnet test on the OpenClinica server please contact your IT department or mail provider for help in resolving.

Other ideas or suggestions:

If you would like to submit any new configuration examples or troubleshooting tips based on your own experience, we would be more than happy to post them on this page. To submit new configurations or tips please post to the users email list with a Subject of "E-mail Additions" and we will add them to this page. Thanks!

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8.3 Backup and Restore OpenClinica

This page covers how to backup and restore OpenClinica data on the PostgreSQL database. OpenClinica keeps data needed to run the system in two locations, the actual database and the openclinica.data folder. Note: If changes to either of the variables below (which reference other folders) were made in the datainfo.properties configuration file you will need to backup these folders in your configured location in order to have a complete backup.

- attached_file_location
- exportFilePath

Backup OpenClinica

A full backup of OpenClinica data can be accomplished by the following steps:

1. Backup the DB
2. Backup the openclinica.data folder

Backup the DB

Here are the steps for backing up your DB for both Linux and Windows:

Linux

Before you backup the DB stop Tomcat. Once Tomcat has stopped, take a backup of the DB using the "pg_dump" command from PostgreSQL. To accomplish this run the following commands:

- /etc/init.d/tomcat stop (**Confirm Tomcat is stopped before continuing.**)
- /opt/PostgreSQL/8.4/bin/pg_dump -F c -U postgres openclinica > openclinica.backup (**When**

prompted for a password enter your "postgres" DB superusers password.)

You now have a complete backup of your OpenClinica DB.

In case you need it, here is some pg_dump [reference material](#).

Windows

Before you backup the DB stop Tomcat. Once stopped we will take a backup using the "pg_dump" command from PostgreSQL. To accomplish this run the following commands:

- Open a command prompt and type "net stop tomcat6" and hit "enter" to stop tomcat.
- C:\Program Files (x86)\PostgreSQL8.4\bin\pg_dump.exe -F c -U postgres openclinica > openclinica.backup (When prompted for a password enter your "postgres" db superusers password)
 - On 32-Bit editions of windows the path will be the following for pg_dump.exe C:\Program Files\PostgreSQL8.4\bin\pg_dump.exe

You now have a complete backup of your OpenClinica DB.

In case you need it, here is some pg_dump [reference material](#).

Backup the openclinica.data folder

Here are the steps to backup the openclinica.data folder in Linux or Windows:

Linux

The following will create a backup of your openclinica.data folder into the current directory:

- `cp -rf /usr/local/tomcat/openclinica.data .`

Windows

The following illustrates how to get a backup of your openclinica.data folder on Windows:

- Open "My Computer" or "Explorer"
- Navigate to "c:\octomcat"
- Copy the folder labeled "openclinica.data" within "c:\octomcat" to your backup location.

Restore OpenClinica

Restoring OpenClinica is quite simple. The recommended method is simply follow the OpenClinica installation guide for your OS. Once you have a blank OpenClinica instance ready, use the following steps to restore your data. By installing a blank OpenClinica instance first you can more easily rule out potential problems which may be caused by configuration issues.

The basic steps to restore your data into OpenClinica are:

1. Install a new blank OpenClinica instance.
2. Restore the OpenClinica DB from backup.
3. Restore the openclinica.data folder from backup.

Step 1: Install a new blank OpenClinica instance

Linux

- Please follow this [guide](#) to install a new OpenClinica instance on Linux.

Once you see the OpenClinica login screen you are ready to proceed to Step 2.

Windows

- Please follow this [guide](#) to install a new OpenClinica instance.

Once you see the OpenClinica login screen you are ready to proceed to Step 2.

Step 2: Restore the OpenClinica DB

To restore the OpenClinica DB:

- Stop Tomcat
- Drop the current DB
- Create a new DB
- Restore your database backup file into the DB

The following describes how to do this for both Linux and Windows:

Linux

Run the following commands:

- `/etc/init.d/tomcat stop` (**Confirm tomcat is stopped before continuing**)
- `/opt/PostgreSQL/8.4/bin/dropdb -U postgres openclinica` (**When prompted for a password enter your "postgres" db superusers password**)
- `/opt/PostgreSQL/8.4/bin/psql -U postgres -c "CREATE DATABASE openclinica WITH ENCODING='UTF8' OWNER=clinica"` (**When prompted for a password enter your "postgres" db superusers password**)
- "cd" to change directory to where your backup DB file is located.
- `/opt/PostgreSQL/8.4/bin/pg_restore -U postgres -d openclinica < $DBBACKUPFILE` (**When prompted for a password enter your "postgres" db superusers password**)

The backup of your DB has now been restored.

dropdb - [Reference Material](#)

pg_restore - [Reference Material](#)

Windows

- Open a command prompt and type "net stop tomcat6" to stop tomcat.
- In the command prompt "cd" to the following directory "C:\Program Files (x86)\PostgreSQL8.4\bin"
 - On 32-Bit editions of windows the path will be the following C:\Program Files\PostgreSQL8.4\bin

- In the command prompt now run the following commands.
 - `dropdb -U postgres openclinica` (**When prompted for a password enter your "postgres" db superusers password**)
 - `psql -U postgres -c "CREATE DATABASE openclinica WITH ENCODING='UTF8' OWNER=clinica"` (**When prompted for a password enter your "postgres" db superusers password**)
 - `pg_restore -U postgres -d openclinica < $DBBACKUPFILE` (**When prompted for a password enter your "postgres" db superusers password**)

The backup of your DB has now been restored. This can also be done via PGAdminIII.

dropdb - [Reference Material](#)

pg_restore - [Reference Material](#)

Restore the openclinica.data folder

Restoring the openclinica.data folder is quite simple--just copy the folder to your new installation location after deleting the current default folder. Below list the steps to accomplish this for Linux and Windows.

Linux

- Issue the following command to go to the root folder of the openclinica.data directory "`cd /usr/local/tomcat`"
- Issue "`rm -rf openclinica.data`" to remove the current default installations openclinica.data folder.
- Issue "`cp -rf $OPENCLINICA.DATAFOLDER BACKUP /usr/local/tomcat/`" to restore your openclinica.data folder.
- Next issue a "`chown -R tomcat /usr/local/tomcat/*`". This ensures your permissions are setup correctly for OpenClinica to access the folder.

Your openclinica.data folder is now restored.

Windows

- Open "My Computer" or "Explorer"
- Navigate to "c:octomcat"
- Delete the current "openclinica.data" folder within "c:octomcat"
- Copy the openclinica.data folder you backed up to "c:octomcat"

Your openclinica.data folder is now restored.

Current Community Contributed Content

http://en.wikibooks.org/wiki/OpenClinica_User_Manual/BackupAndRestore

Other Useful Links

<http://www.postgresql.org/docs/8.4/static/backup.html>

<http://www.cyberciti.biz/tips/howto-backup-postgresql-databases.html>

<http://archives.postgresql.org/pgsql-admin/2001-03/msg00143.php>

http://wiki.postgresql.org/wiki/Automated_Backup_on_Windows

<http://www.wisdombay.com/articles/article000013.htm>

Other Ideas or Suggestions

If you would like to submit any new configuration examples or troubleshooting tips based on your own experience, we would be more than happy to post them on this page. To submit new configurations or tips please post to the users email list with a Subject of "DOCS SITE:Backup and Restore" and we will add them to this page. Thanks!

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8.3.1 Community Contributed Backup Scripts

You will need to have 7zip installed for this method to work.

You may download the files reference in this article [here](#)

Dear All,

I would like to share my OC daily backup script and OC daily archive backup script to the community, both of them should works with both OC 3.0.x and OC 3.1.x (please note that both of scripts are for OC installed on Windows only).

Please see the description of individual script file below:

1. OC_Daily_Backup.txt (please rename its extension to .cmd after copied to OC server)

Description:

- Configurable OC backup related parameters
- Expect to scheduled execute on daily basis
- Steps are VACUUM DB (db maintenance), OC DB backup, OC configuration file backup, and OC data directory backup
- After successfully executed, it will create single zip file with the following name format OC_Daily_[Year]-[Month]-[Date]-[Date Init]-[Hour]-[Min].zip

(i.e. OC_Daily_2012-02-29-Wed--001-49.zip) in configured OC backup path

- The script also perform zip self test and generate test results file with the following name format OC_Daily_[Year]-[Month]-[Date]-[Date Init]-[Hour]-[Min]_Zip_Status.txt

(i.e. OC_Daily_2012-02-29-Wed--001-49_Zip_Status.txt) in configured OC backup path, sample of file is in attached.

2. OC_Daily_Backup_Archive.txt (please rename its extension to .cmd after copied to OC server)

Description:

- Configurable OC backup archive related parameters
- Expect to scheduled execute on periodically basis (every xx days)
- Steps are added all existing OC daily backup zip files and OC daily backup zip status files into single archive file with the following name format OC_Archive_[Year]-[Month]-[Date]---[Hour]-[Min].zip

(i.e. OC_Archive_2012-02-29--01-48.zip) in configured OC backup archive path

- After successfully executed, it will delete all existing daily backup zip file(s) and zip status file(s)
- The script also perform zip self test and generate test results file with the following name format OC_Archive_[Year]-[Month]-[Date]---[Hour]-[Min]_Zip_Status.txt

(i.e. OC_Archive_2012-02-29--01-48_Zip_Status.txt) in configured OC backup archive path, sample of file is in attached.

Please feel free to edit/modify them according to your environment or your need, any comment/feedback are welcome J

Hope it helps & cheers,

Montri

8.4 Loading the Demo Database

The OpenClinica Demo Database provides some pre-configured example studies that can help you learn about OpenClinica. The [download package is available here](#) and contains a database as well as some supporting files.

The demo database can be loaded either via your system's command line or with the free graphical tool, pgAdmin ([download here](#)). If you want to load the demo database from the command line, you can follow these [Backup and Restore](#) instructions.

If you would prefer to use pgAdmin, we will be posting instructions here soon. In the meantime, feel free to ask any questions on the [OpenClinica Forums](#).

Approved for publication by Warren Vandeventer. Signed on 2017-02-01 3:55PM

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