

eqServer

Version 1.0.0

User Guide

November 2004



eqServer forms part of the **eqSuite** seismic data collection and analysis software suite developed by the Seismology Research Centre.

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Overview

eqServer is a collection of web pages, servlets and JSPs for viewing and extracting data generated by eqWatch and eqLogger.

They allow you to:

- Retrieve waveform files from the archive created by eqLogger and eqWatch
- Search for Earthquakes located by eqWatch and eqFocus
- View Earthquake reports created by eqWatch
- View waveforms currently being displayed on eqLogger
- View the State of Health and health history of seismographs
- Search, modify and add seismographs to the eqSuite database
- Search, modify, and add places to the eqSuite database

Tomcat

eqServer is supplied with a free Web Application server called Tomcat. Tomcat's main purpose is to serve Java servlets and JSPs (Java Server Pages), such as eqServer.

By default Tomcat is installed in `C:\Program Files\Apache Group\Tomcat 4.1\` and all the eqServer files are stored in subdirectories of this.

For a fuller explanation of Tomcat refer to the documentation at:

`tomcat\webapps\tomcat-docs\index.html`

or

<http://jakarta.apache.org/tomcat/index.html>

eqServer is installable on other brands of Web Application Server, such as JRun, but it has not been tested on other platforms.

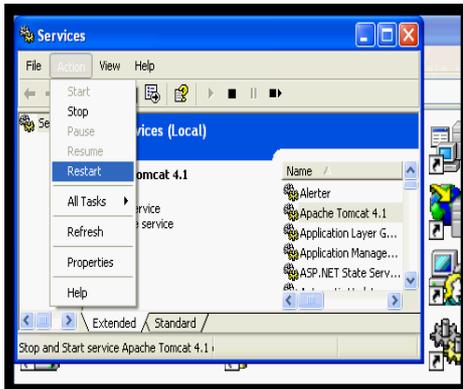
Starting and Stopping Tomcat

When upgrading eqServer, changing passwords, or making other major changes to the setup of Tomcat, it may be necessary to restart the program. Tomcat runs as a Windows Service that can be stopped and started in the Services Control Panel.

Open **Start->Settings->Control Panel->Administrative Tools->Services**

Select **Apache Tomcat 4.1** from the list.

Click on the **Action** menu, and then select **Stop, Start** or **Restart**



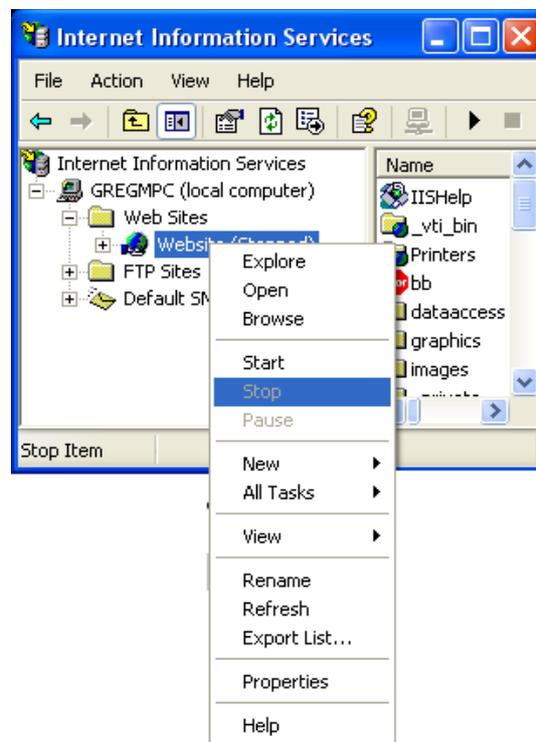
Installing

The default setup assumes that the eqSuite programs and the Database are installed on the same computer as eqServer.

1. Turn OFF the built in IIS Web server.

To do this, Open the **Internet Information Services** application, found at StartMenu->Settings->Control Panel->Administrative Tools-> Internet Information Services.

Then click the [+] to the left of the local computer, and then the [+] to the left of **Web Sites**. Right click on the website, and select **Stop**.



2. Install Tomcat by double-clicking "jakarta-tomcat-4.1.30.exe"
3. Accept defaults until "Setup: Installation Options"
You will see a number of options with checkboxes to tick.
Tick the "NT Service" option.
4. When Asked for a Password for "admin", don't put in a password, just hit the "Next>" button.
5. Install eqServer by double-clicking "setupeqserver.bat"

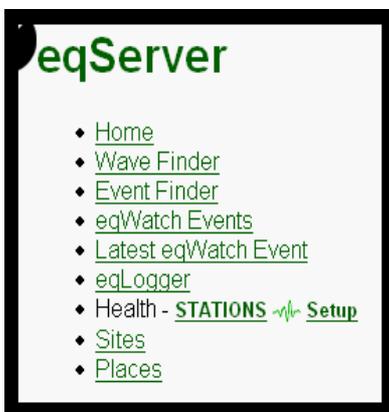
This will give you a default setup that should run without need of any modification.

Running

1. Open a web browser
2. If you are on the computer running eqServer, open the URL:
<http://localhost/eqserver>
Otherwise you will need to know the IP Address of the computer running eqServer.

Setting up the eqServer Web Pages

eqServer should work without any changes. However the following notes explain how to modify the installation from the default setup.



Username and Passwords

By default access to eqServer is restricted by a username and password.

These can be changed, and others can be added by editing the file

`tomcat\conf\tomcat-users.xml`

Open the file.

Look for a line containing the text `roles="eqserveruser"`, which indicates that this user can access eqServer.

A line similar to:

```
<user username="seis" password="xxxxyyzzz" roles="eqserveruser"/>
```

and edit "seis" and "xxxxyyzzz".

You can make copies of this line, changing the user and password, in order to allow other users to access eqServer.

Look and Feel

The default Fonts, Images and Colours of the eqServer web pages are designed to be part of the ES&S web site. They are however easily modified by anyone with some web editing experience.

Fonts, colours and other style issues are set in the Cascading Style Sheet file `tomcat\webapps\eqserverdata\eqstyle.css`
Cascading Style Sheets are not difficult to understand and edit.
There are a variety of tutorials on CSS on the web.

All images files are stored in the directory `tomcat\webapps\eqserverdata\graphics`
These can be changed as long as their filenames remain the same.

Database Settings

If the Internet address, usernames or passwords of the Database are changed, then settings in the files `eqserver.props` and `SQLServlet.properties` will need to be changed.

Setup

Open `tomcat\webapps\eqserver.props`

Find text similar to this, and change the appropriate values:

```
#connect to the seismic database
# the driver used to connect to a MySQL database
dbdriver=com.mysql.jdbc.Driver

# where the database is located, and it's name
# in this case, located locally ("localhost") and named eqsuite.
dburl=jdbc:mysql://localhost:3306/eqsuite

#username and password for connecting to the database
dbuser=auser
dbpassword=apassword

# only set true for debugging.
showdbpassword=false
```

Open `tomcat\webapps\SQLServer.properties`

Find a line similar to this, and change the appropriate values:

```
eqsitedb=com.mysql.jdbc.Driver,jdbc:mysql://localhost:3306/eqsuite,
usrname,passwd
```

localhost = the internet address of the computer with the Database

eqsuite = the name of the database

usrname = username needed to access the database "seis" by default

passwd = password needed to access the database

The settings in both files should be identical to those set in `eqWatch`.

Tomcat does **not** need to be restarted after editing these files.

Wave Finder

eqLogger and eqWatch store waveforms in file archives. This page allows the user to enter a date and time, and extract a waveform file from the archives that is viewable in eqWave.

Wave Finder

Date: 2004 01 01 (yyyy mm dd)
Time: 00 00 (hh mm)
Duration: 5 minutes
Archive: Melbourne
Get: All
Only Vertical:
Get Waveform

Setup

Open `tomcat\webapps\eqserver.props`

You will see text similar to this:

```
#File Archive stored in eqsuite format and accessible by FTP
#FTP server, username and password
server.0=localhost
user.0=seis
pass.0=bund3083

# path to the folder eqLogger places waveform files into
continuouspath.0=/archive

# path to folder eqWatch places waveform files into
triggerpath.0=/triggers

# short and long human readable name for this server
servername.short.0 = bkn
servername.long.0 = Bakun

# "eqsuite" if reading waveforms from an eqSuite system
# "naq" if reading waves from a Nanometrics system.
archiveformat.0=eqsuite
```

Update the text to suit your local setup.

You can have more than one File Archive. Copy the above text, increment their number, eg "server.0" becomes "server.1", and adjust the new values.

Event Finder

eqWatch and eqFocus store earthquake events in the Database.

This web page allows the user to search for events according to date, geographic location, magnitude and other criteria.

The screenshot shows the 'Event Finder' web interface. It features a search form with the following fields and options:

- Start Date:** Two rows of date pickers. The first row is set to 2002-01-01 (yyyymmdd). The second row is set to 2003-01-01 (yyyymmdd).
- Lat/Long:** Two input fields for latitude and longitude. The first is set to -37.45° and the second to 144.58°.
- Radius:** A radio button is selected for 'Radius', with an input field set to 200 km.
- 2nd Lat/Long:** A radio button is unselected for '2nd Lat/Long', with input fields set to -40.0° and 150.0°.
- Filtering:** Seven rows of filters, each starting with 'AND' and a dropdown menu set to 'ignore'. The first three rows have 'min' and 'max' input fields set to 0 and 10 respectively. The last four rows have 'OR' operators and empty input fields.
- Get Events:** A button at the bottom right of the form.

Setup

Event Finder uses the Database.

Refer to the **Database Settings** section.

eqWatch Events

The directs you to a raw listing of web pages generated by eqWatch of automatically located earthquakes.

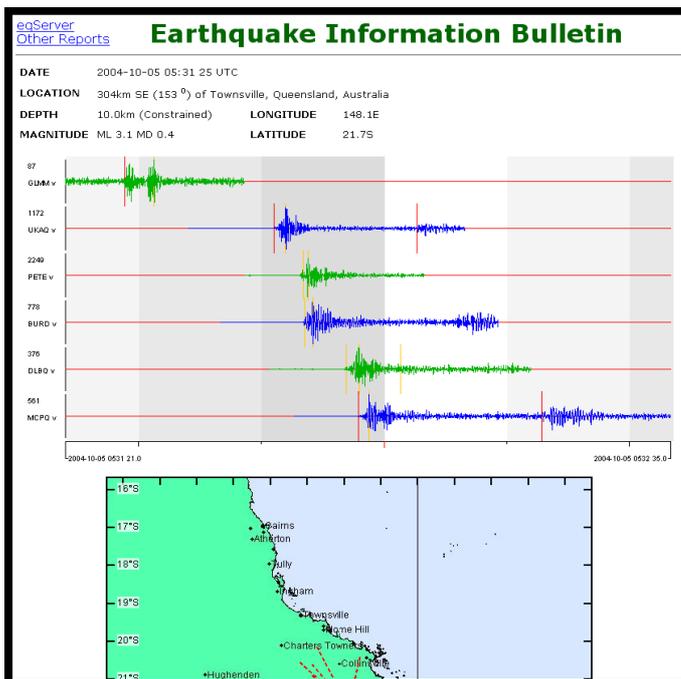
Directory Listing For /reports/ - Up To /		
Filename	Size	Last Modified
.DS_Store	6.0 kb	Thu, 11 Sep 2003 01:59:33 GMT
2003-07/		Fri, 26 Sep 2003 20:59:19 GMT
2003-08/		Sat, 30 Aug 2003 03:08:51 GMT
2003-09/		Wed, 08 Oct 2003 04:17:05 GMT
2003-10/		Fri, 31 Oct 2003 00:26:33 GMT
2003-11/		Sun, 30 Nov 2003 21:26:09 GMT
2003-12/		Fri, 05 Mar 2004 06:47:14 GMT

Setup

Configure eqWatch to write web pages to: `tomcat\webapps\eqserverdata\reports`
 Refer to the eqWatch manual for instructions.

Latest eqWatch Event

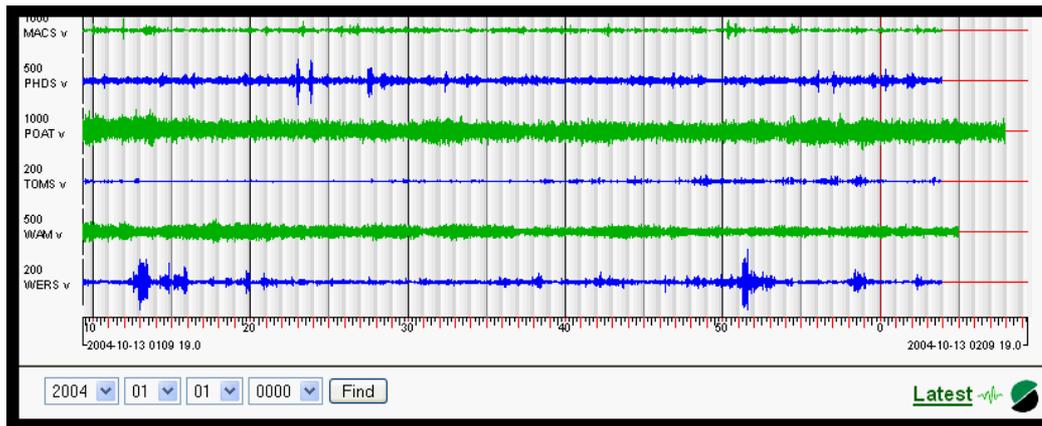
Opens the web page for the most recent earthquake located by eqWatch.
 Refer to the eqWatch Manual for information on this page, and how to change its layout.



eqLogger

This page displays a view identical to that currently being displayed on eqLogger. It is automatically updated each minute.

Older waveforms can be viewed by filling in the date and time, then clicking the Find button.



Setup

Configure eqLogger to write images to: `tomcat\webapps\eqserverdata\eqlogger`
Refer to the eqLogger manual for instructions.

Health

The waveform files received by eqWatch and eqLogger also contain **State of Health** information about the seismograph that sent it. This includes the Battery Voltage, Supply and Charge Current, Capacity and Percent Used of internal memory, and the Temperature.

When eqLogger and eqWatch read the files, this information is extracted and stored in the Database, along with the time the information was recorded and the time the file was read by an eqSuite program.

All this information allows you to see when the Seismograph has been inactive, what kind of delays are in the communications, and potential problems that can be fixed before a failure occurs.

TASMANIA Health

ALL VICTORIA TASMANIA NSW QUEENSLAND Setup

2004-10-13 0420 UTC

Triggered:
 ▲ = 0 to 25.0
 ▲ = 25.0 to 30.0
 ▲ = 30.0 hours +

Continuous:
 ● = 0 to 0.6
 ● = 0.6 to 2.0
 ● = 2.0 hours +

Site	Received	Age	Recorded	Batt V	Sply mA	Chrg mA	Total MB	Mem Free	Temp	Sync Time	Sync	IP
▲ CLAW	2004-10-06 0117	07:03:02	2004-07-22 0005	13.6	306	0	130.0	95%	8*	2004-07-21 2358	0.07	---
● LEAH	2004-10-13 0407	00:00:13	2004-10-13 0406	13.6	270	10	130.0	99%	24*	---	---	---
▲ MARG	2004-10-12 1333	00:14:47	2004-10-12 1330	13.5	119	10	129.7	98%	20*	2004-10-12 1325	0.00	---
● POAT	2004-10-13 0407	00:00:13	2004-10-13 0406	13.6	301	30	129.7	99%	35*	---	---	---
▲ SCOT	2004-10-12 0701	00:21:18	2004-10-12 0658	13.2	246	0	129.7	99%	27*	2004-10-12 0632	0.00	---

Seismographs are displayed on a map, colour coded to show how long since data was received from them. The timing for colours is set on the Health Setup Page.

Clicking on the Colour Coded Symbol for a Seismograph sends you to a detailed page of graphs of the History of the Site.

Site: FRED Previous Days: 7 Get

or

FRED Date: 2004-10-09 Days: 7 Get

ALL VICTORIA TASMANIA NSW QUEENSLAND Setup

View Data as [Text](#)

FRED - Delay

Minutes

2004-10-09 0000 2004-10-10 0000

Setup

1. The connection to the Database should be set up, as shown for the Event Finder.
2. Pick a single word name for your network region. For example 'bakun' or 'pirsa'. By default it is called stations.
If you have a seismograph network spread over a wide area you may wish to subdivide it into regions, for example the ES&S network is divided into **queensland**, **nsw**, **victoria** and **tasmania**.
3. Create an image file of a map of each region.

The image must be png format.

The map must be a **Equirectangular, Plate Carree or Geographic Map Projection**, that is, a projection where latitude and longitude lines are all straight, the distance between latitudes remains constant and also distance between longitudes remains constant. A simple square map where latitude and longitude lines are equidistant.



The map should have as little detail as possible and be light coloured and low contrast, so that the Symbols drawn on it are not obscured.

The map images size should be easily viewed on a Web Page.

About 400 x 400 pixels is a good size.

Trim the map so that the corner latitudes and longitudes are exact and known.

Name the image file after the region, such as **bakun.png** or **stations.png**.

Place the file in: `tomcat\webapps\eqserverdata\graphics`

If you have more than one region, also make a map image file called **all.png** that covers all the sub-regions.

4. Open `tomcat\webapps\eqserver.props`

Add a line similar to:

```
#           north, west, south, east of map "nsw.png"
corners.nsw = -33.0, 150.0, -35.0, 151.5
```

Replacing "nsw.png" with the name of your map image file.

This records the north/west and south/east corners of the map.

Open `tomcat\webapps\health.props`

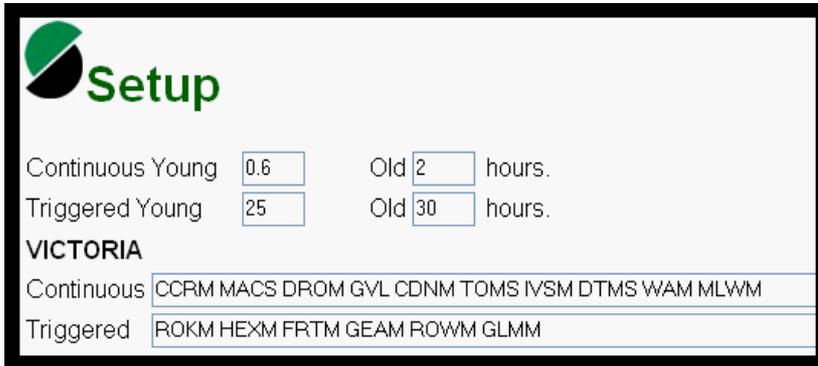
Edit the **sites.all** property with a list of your regions.

For example: `sites.all=victoria tasmania nsw queensland`

The other settings in `health.props` can be edited via the **Health Setup** web page.

Enter the details of your Seismographs into the Database using the **Sites** web page.

Health Setup



Seismographs can be divided into **Continuous** and **Triggered**.

Continuous Seismographs have a permanent connection to the eqSuite computer and send waveforms continuously. These sites are typically installed when Internet bandwidth is affordable.

Triggered Seismographs do not have a permanent connection. They only connect when they have detected an Earthquake, then send a file containing trigger times and a short waveform. These sites are typically installed when internet or phone costs are higher or time-based, for example when using a GSM modem.

Young sets the number of hours before the Green icon for the site turns Yellow.
Old set the number of hours before the Yellow icon turns Red.

For each region, type in the Sitecodes for the Continuous and Triggered Seismographs to be monitored. The site codes must already be entered in the database.

Sites and Places

These pages allow the user to search and edit the Database of Seismograph Sites, and Places.

Seismograph Sites

Find Sites

Min Latitude: Min Longitude:
 Max Latitude: Max Longitude:
 Site Code: Operator: Owner:
 Location:

Add Site

Site Code:
 Latitude: Longitude: Elevation:
 Start Date: End Date:
 Operator: Owner: Location:

Update Site

Site Code:

Delete Site

Site Code:
 Are You Sure?

Places

Find Places

Min Latitude: Min Longitude:
 Max Latitude: Max Longitude:
 Name: Region: Country:
 Minimum Size:

Add Place

Latitude: Longitude:
 Name: Region: Country:
 Size:

Update Place

Name: Region: Country:

Delete Place

Name: Region: Country:
 Fill in the complete Name, Region and Country
 Are you Sure?

Setup

Configure the database settings found in `SQLServlet.properties`, as shown in **Database Settings**.

Equipment Required

eqServer is constructed entirely of HTML pages, JavaScript, Java Servlets and Java Server Pages (JSPs).

We supply eqServer configured to run on **Windows XP**; on top of the **Tomcat 4.1** Web Application Server and connecting to a **MySQL** database.

eqServer should run on other Operating Systems and other Web Application Servers and databases, but this has not been tested by ES&S.

eqServer requires Java 1.4 or greater installed on the server PC.

Users access eqServer with their Web Browser.

We have used Internet Explorer 5 and 6, Firefox, Opera 6, Safari, and Netscape 6 and 7 without problems.