ShakeCast User Web Interface

This document describes the User Web Interface of ShakeCast. The User Web Interface is called the "ShakeCast Portal" and is used for all interaction with the ShakeCast system, such as reviewing ShakeCast damage assessment summary for facilities affected by earthquakes, applying for a ShakeCast user account, or signing-up for automatic ShakeCast notifications on facilities likely affected after earthquakes. The key features of the ShakeCast Portal are:

- Runs on any of the popular Web browsers connected to the Internet.
- Accesses to all processed ShakeMaps for both actual and scenario earthquakes.
- Displays all pertinent information associated with facilities including facility parameters, intensity measures and damage estimates
- Management automatic ShakeCast notifications for both message formats and facilities of interest.
- Accesses to ShakeCast web GIS interface.
- For users with administrative privileges, an additional "Administration Panel" link will also become available.

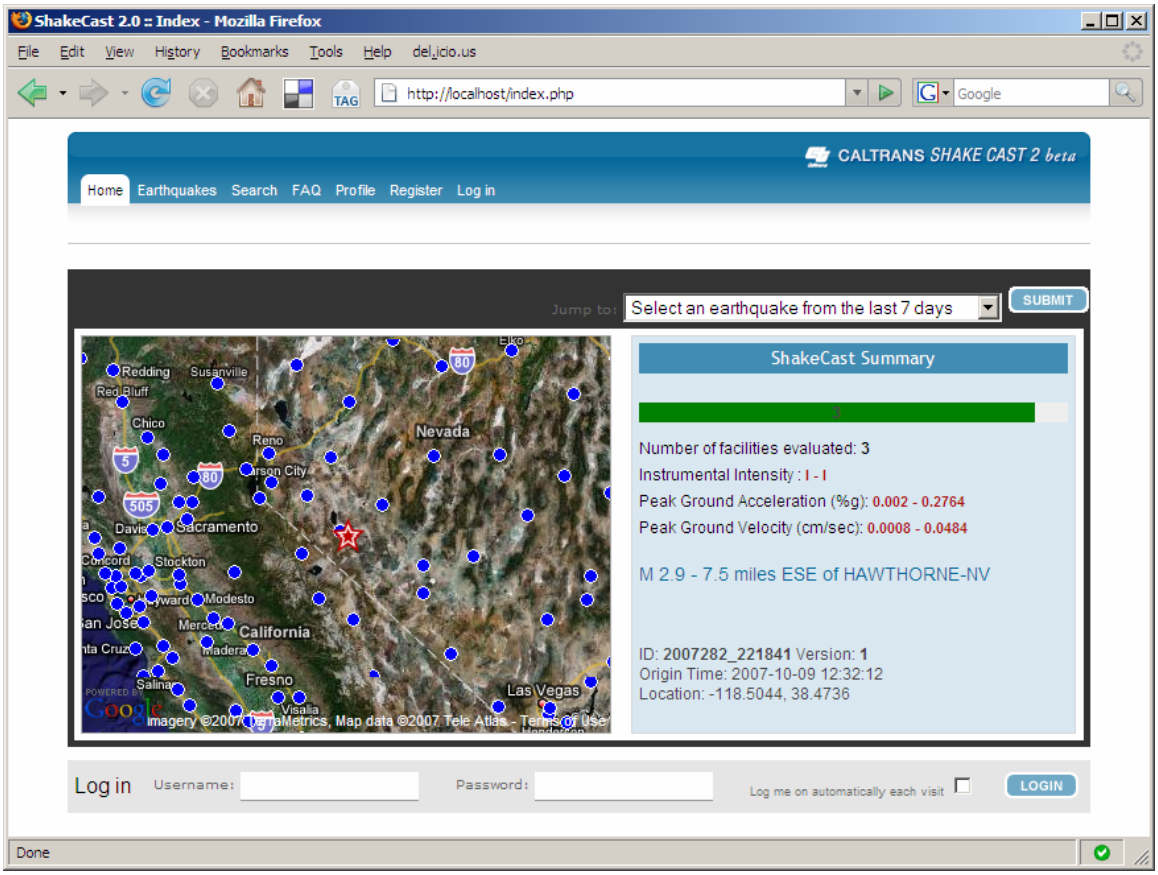

Figure 1. Default web page of the ShakeCast Portal.

System Requirements
The ShakeCast Portal is implemented with common web technologies, such as PHP, Javascript, and AJAX, etc., and is compliant with the HTML 4 specifications. The Portal runs on any browser with HTML Strict DTD support, which includes Microsoft's Internet Explorer 7 and up as well as Firefox. If you do not have one of these browsers, then you may freely download them from Microsoft and Mozilla. The ShakeCast Portal is supported for Windows 98, Windows 2000, Windows XP, Mac OS X, Linux, Sun Solaris and other UNIX-based operating systems.

If operated from behind a firewall, the ShakeCast Portal will operate properly only if the firewall allows HTTP requests to Port 80. If the Portal is repeatedly unable to connect to the ShakeCast and Google Map GIS servers, then you should contact your system administrator.

Log In Procedure
In order to log in, you must be a registered ShakeCast user. Registering can be accomplished by clicking on the "Register" link on the ShakeCast Portal front page. Note that only registered users can modify their personal preferences for receiving ShakeCast notifications.

Logging in requires you to provide a user-id and password. Both user-id and password are case sensitive. If you forget your password, click on the "I forgot my password" link and fill in the information requested; your new password will be then be emailed to you.

If the user-id and password are entered correctly, both the "Register" and "Log In" links at the Portal will be replaced with the "Log out" link with the user-id indicated.

Log Out Procedure
To log out of ShakeCast Portal, you must either click on the "Log out" link from the Portal, which will close your active session with the server but leave the Portal browser open, or close the browser window/quit the application, which also will close the active session.

Front Page of ShakeCast Portal
The ShakeCast Portal front page is shown in Figure 1. The Portal window is partitioned into a number of components that each serves a different purpose:

1. Primary navigation links: a horizontal panel located beneath the organization's logo and ShakeCast banner contains a set of primary navigation links that allows a user to perform operations or access additional information.
2. System message: an area between the primary navigation links and the ShakeCast summary panel that displays event specific information. Typical system messages are a banner indicating a scenario earthquake and crucial comments manually entered by an administrator.
3. Recently processed earthquake selector: a pull-down menu that allow a user to view ShakeCast summary for recently processed earthquakes.

4. ShakeCast facility/ShakeMap overview: an area in the middle left of the ShakeCast summary panel that displays an overview map with both the ShakeMap and facility layers.
5. ShakeCast facility summary: an area in the upper right of the ShakeCast summary panel that displays the number of facilities evaluated, facility potential damage estimates, and the units and the range of ground shaking intensity measures extracted from ShakeMap.
6. ShakeCast event summary: an area in the lower right of the ShakeCast summary panel that displays the key source parameters of the earthquake evaluated. The list of parameters includes the event ID, ShakeMap version number, magnitude, location, and origin time.

Primary Navigation Link Tabs

To Primary navigation link tabs currently have the following links in a panel on top of the ShakeCast Portal. Clicking one will invoke the described operation:

- Home: direct the browser window back to the default page of the ShakeCast portal.
- Earthquakes: direct the browser window to the ShakeCast listing of processed ShakeMaps.
- Search: direct the browser window to the ShakeCast search function for information regarding facility inventories and processed ShakeMaps.
- FAQ: direct the browser window to a list of answers to common problems ShakeCast users encountered.
- Profile: direct the browser window to allow ShakeCast user for managing personal information and notification preferences.
- Register: direct the browser window to the user registration page that allows a non-user to sign-up for an account.
- Administration Panel: direct the browser window to the restricted section for system maintenance and management. This feature is only visible and available to ShakeCast users with administrative privileges.
- Log In/Log Out: the Log In link appears when a user first accesses the page without signing-in. It directs the browser window that allows a user to enter information of username and password or to retrieve a lost password. The Log Out link terminates the current Log In session and redirect the browser window to the default portal page.

Listing of ShakeCast Summary for Earthquakes

ShakeCast summary of affected facilities for earthquakes is accessed via the Earthquake link. This feature allows a ShakeCast user to view facility damage assessment for past earthquakes. The list of processed earthquakes is divided into three categories: 1) Latest Earthquake, 2) Earthquake Archive, and 3) Scenario earthquakes.

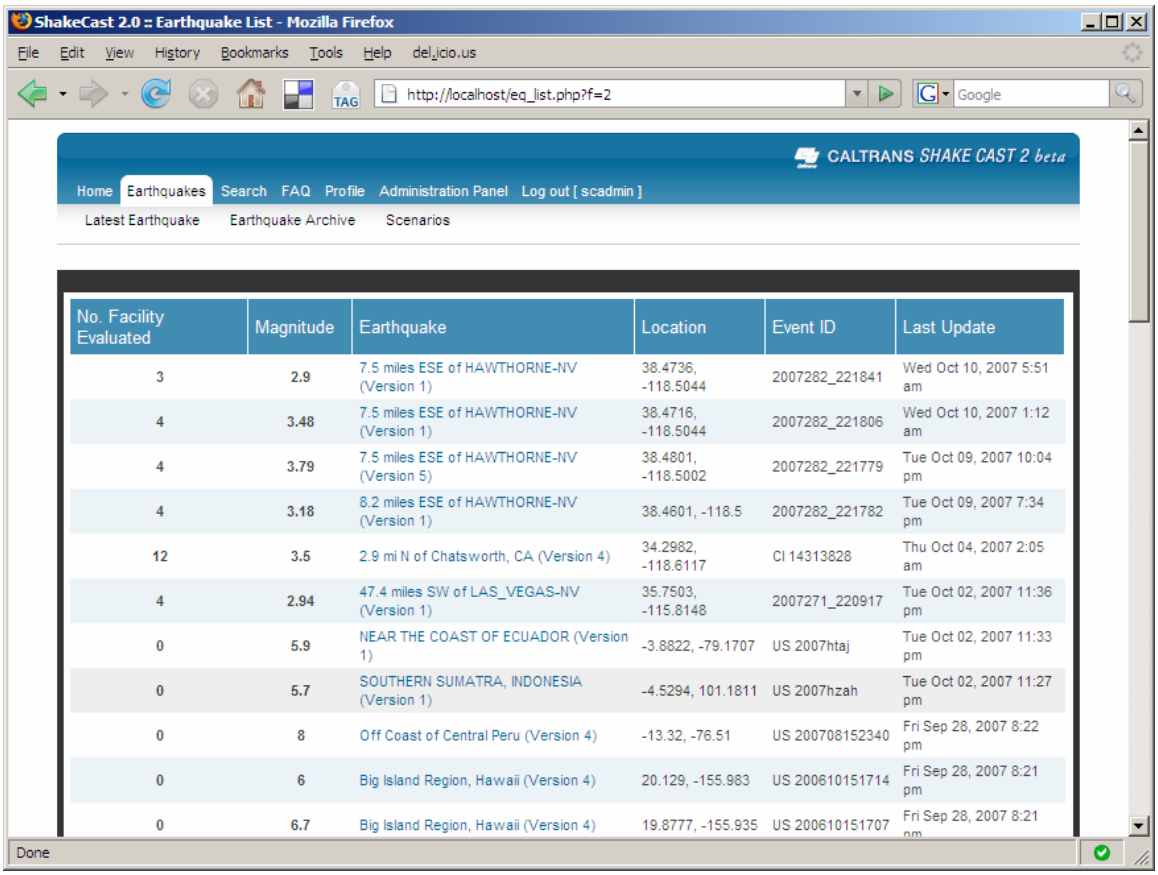

Figure 2. The Earthquake page lists the events processed by the ShakeCast system and the number of evaluated facilities in reverse chronological order.

- Latest Earthquake: display a table listing all versions of published ShakeMaps for the most recently processed earthquake. As a common earthquake refining process, the source parameters for a significant earthquake and associated ground motion estimates are constantly updated as more information become available. The ShakeCast system tracks version changes of ShakeMap for an earthquake and re-evaluate facility damage assessment accordingly.
- Earthquake Archive: display a table listing previously processed ShakeMaps for actual earthquakes and their facility damage assessment.
- Scenarios: display a table listing previously processed scenario ShakeMaps and their facility damage assessment. ShakeCast scenarios also include converted actual ShakeMaps for the purpose of local testing.

All tabs can be sorted by selecting the top of any column.

ShakeCast Facility Damage Assessment

The ShakeCast facility damage assessment view is the center piece of the web portal. ShakeCast users interact with the view in either table or map mode.

- Table mode: display facility damage assessment in a number of paged tables connected with navigation links. Each row of the table represents ShakeCast damage assessment for one facility. It consists of facility information, damage state estimate, and ground motion estimates at the location of facility. To view the facility on a map, click the facility row to enable the mapping inset.

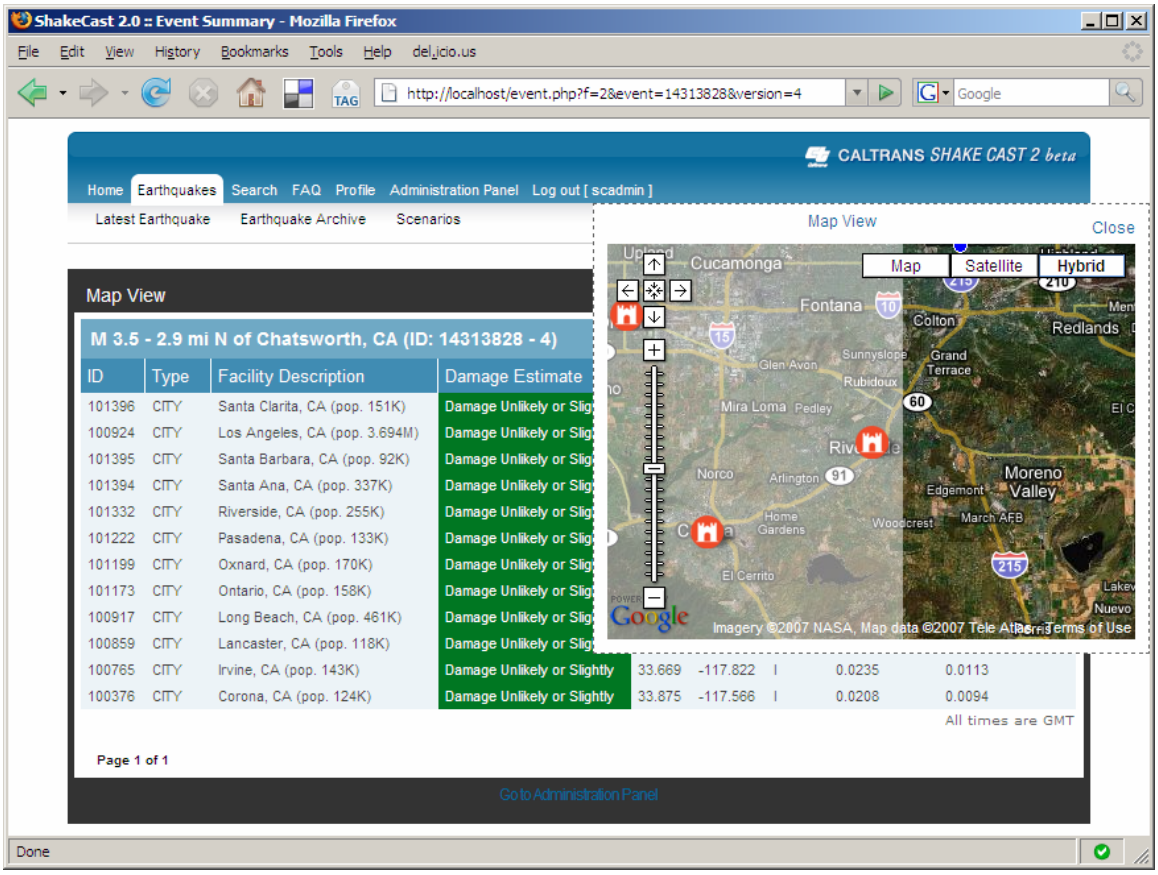

Figure 3. The Event page displays in table mode. Facilities with damage estimates are listed in paged tables with navigation links. Each row of the table represents one facility and contains information regarding facility description, damage estimate, and ground shaking estimates for the site for all available metrics.

- Map mode: display facility damage assessment via a web based mapping interface, currently the Google Maps interface. Facilities are presented in both images and list items with facility-type filtering. The facility markers within the mapping area become visible at proper zoom level and are color-coded corresponding to damage estimates. To view the ground motion measures of a facility, click the facility marker in the mapping area to display the parametric values.

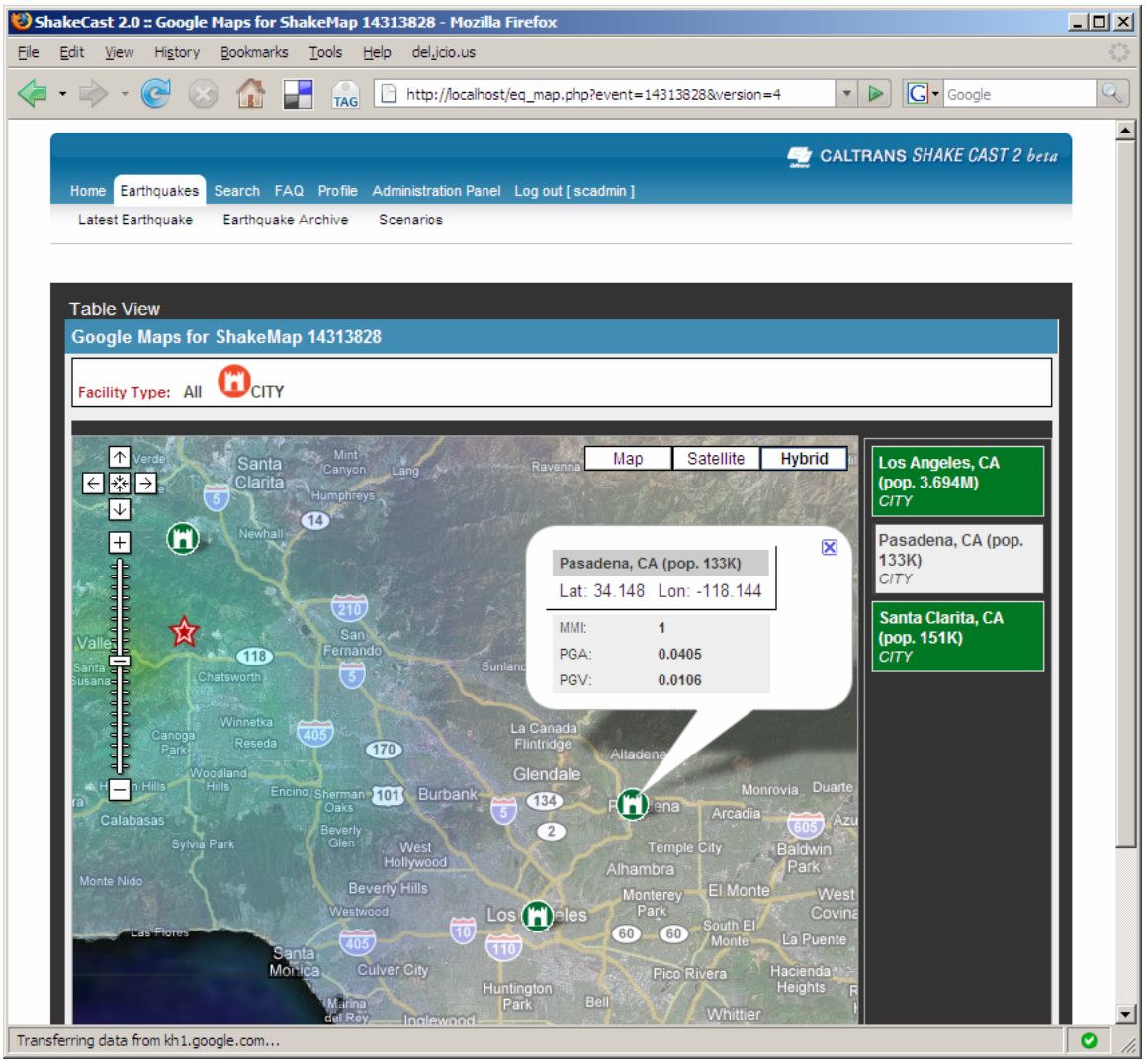

Figure 4. The Event page displays in map mode. The map display is divided into three regions: 1) Facility type selector is located on top of the display and is used to turn on/off facilities of certain type; 2) Facility list panel to the right of the display shows a list of facilities located within the mapping area with color-coded damage estimates; and 3) The interactive mapping area displays the facility locations with the ShakeMap image overlay. The facility markers are in color-coded damage levels and users can pan, zoom, and click on the facilities to reveal shaking parameters.

Search Facilities

The search function is designed to retrieve facility information inside the ShakeCast database. The search result contains facility information, fragility settings including metrics and ranges of threshold, and damage estimates from all previously processed ShakeMaps.

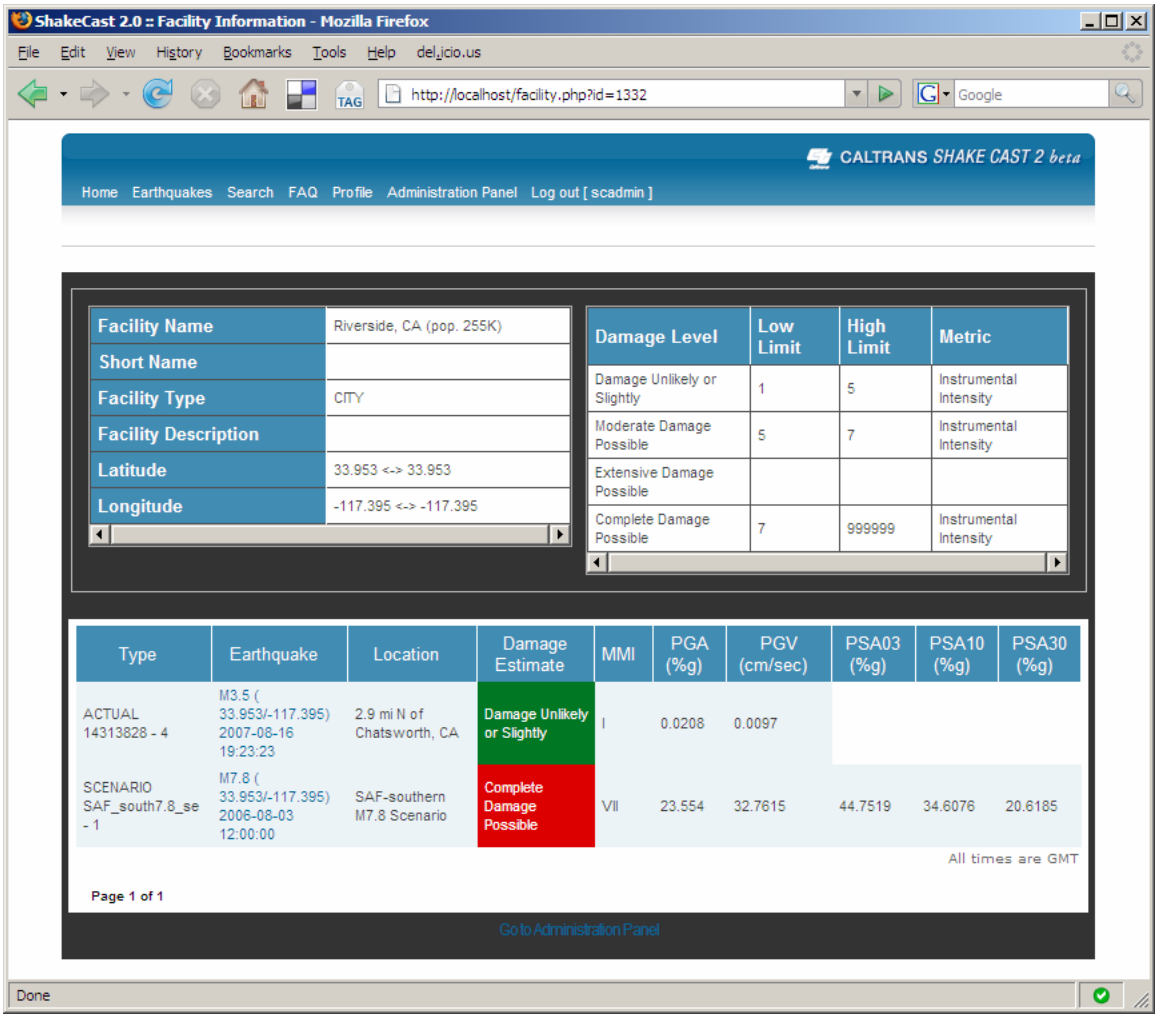

Figure 5. The search result of a facility displays parameters for the facility and the history of damage estimates from previous earthquakes.

Frequently Asked Questions (FAQ)

The FAQ page is intended to answer some of the more commonly asked questions. Users should contact the ShakeCast administrator for further questions and bug reports.

User Profile Management

ShakeCast users manage their registered information, delivery methods for notifications, and notification profiles from the profile page. This page view is consisted of three editing panels: 1) General Settings; 2) Email List; and 3) Notification Profiles.

- General Settings: display user editable password and contact information. New password will take effect after the current active session is closed, either by closing the browser window or by logging out of the ShakeCast system.

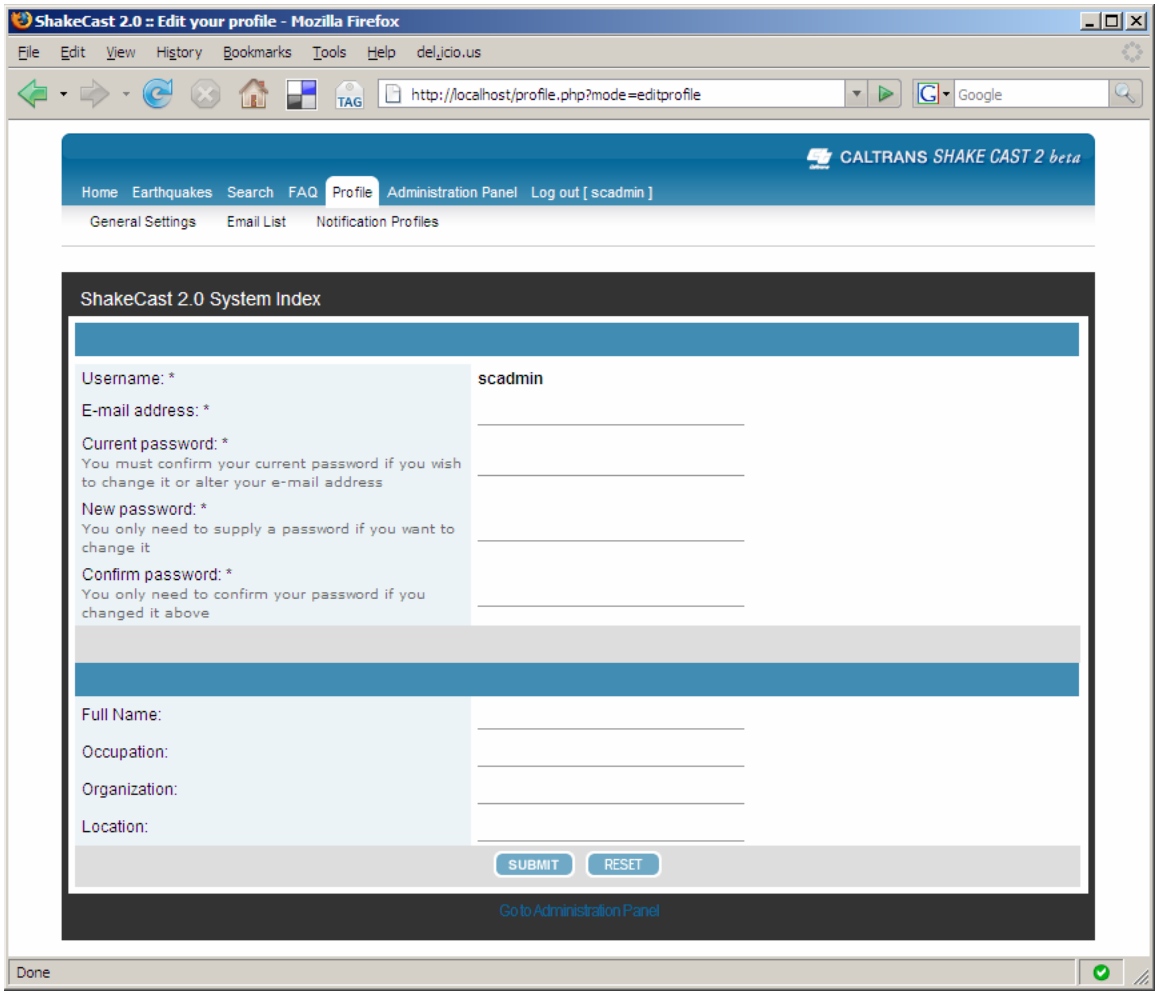

Figure 6. The General Settings page displays editable information for a registered ShakeCast user. The user can use this form to update his/her password and contact information.

- Email List: display an editable list of addresses the ShakeCast user registered with the system. A user can registered up to three different addresses for receiving content rich HTML notification messages, plain text email notifications, or short text paging messages. The default email address will be used for receiving ShakeCast notifications if no custom addresses are specified in this panel. All newly registered delivery addresses activations by either the user or system administrator. User activation is completed by clicking on an activation link in the confirmation message sent to the new delivery address. Before a delivery address is activated, a lock symbol will appear in the panel and no ShakeCast notifications will be delivered to that address.

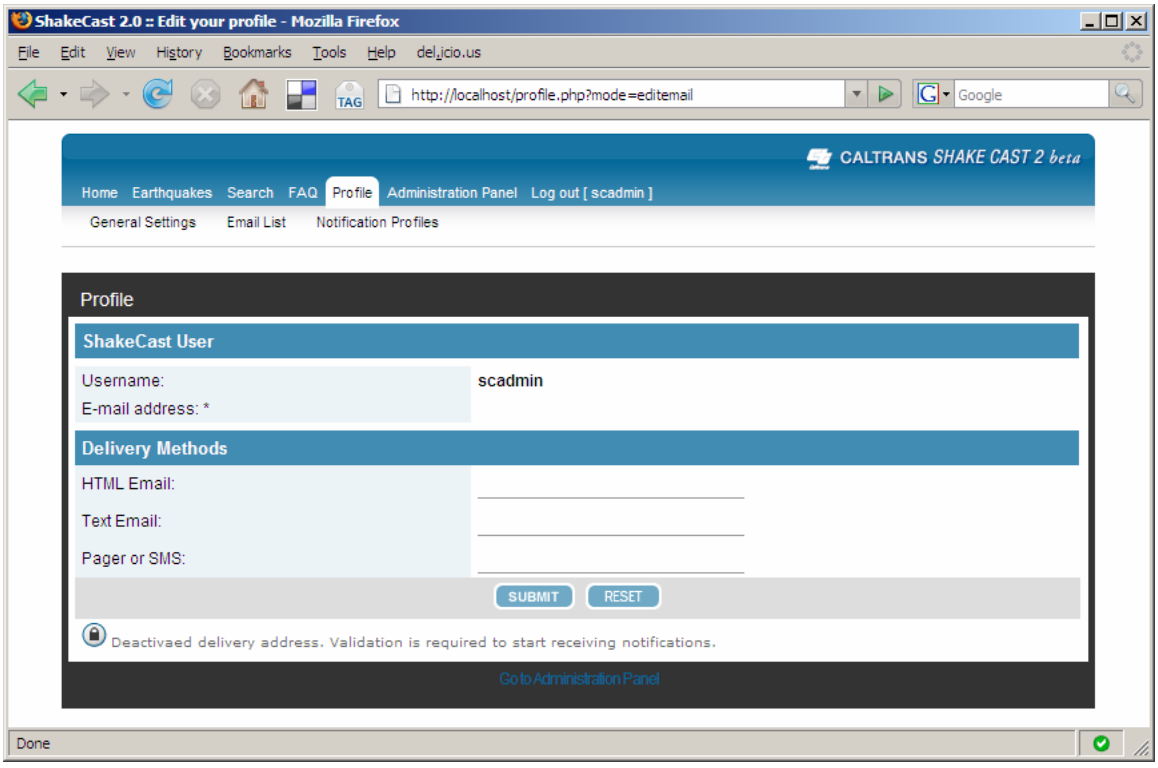

Figure 7. The Delivery Methods page displays user defined email addresses to receiving ShakeCast notification. All new delivery addresses requires activation before they can be used to receive notifications.

- Notification Profiles: display a list of selectable notification profiles that are available to the user. To add a profile to user's notification preference, click on the profile to highlight the selection. The coverage area will be shown in the map area. Uncheck a profile from the list to remove it from user's preference. At the end of profile selections, the user will need to click on the button "Update Notification Profiles" to submit the changes to the ShakeCast database.

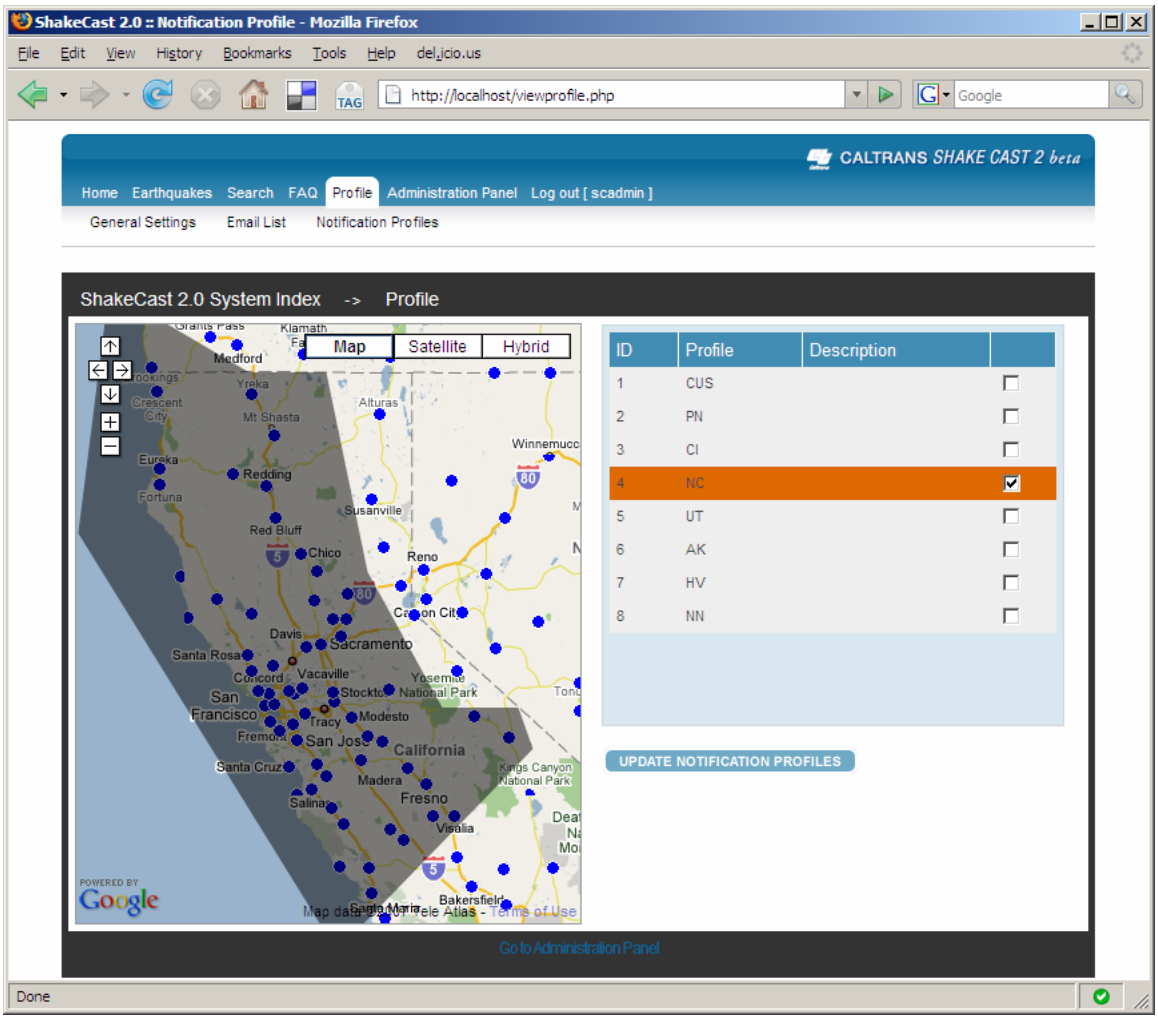

Figure 8. The Notification Profiles page displays a list of pre-defined notification profiles to the user. A user subscribe or unsubscribe a profile by checking and un-checking the profile in the table. Changes will be take effect after the user submits the form.

User Registration

By default, a ShakeCast system is pre-configured with restricted access to registered users. The registration process is typically a two step process. In the first step a new user submits contact information to sing up for a new account and will receive a confirmation email message for the submitted request. After the ShakeCast administrator receives and approves the request, the user will receive a second approval email message. To activate the account and to log in for the first time, click on the link provided inside the approval message. If a user account is created by an administrator, the new user will simply receive one confirmation email message for account activation.

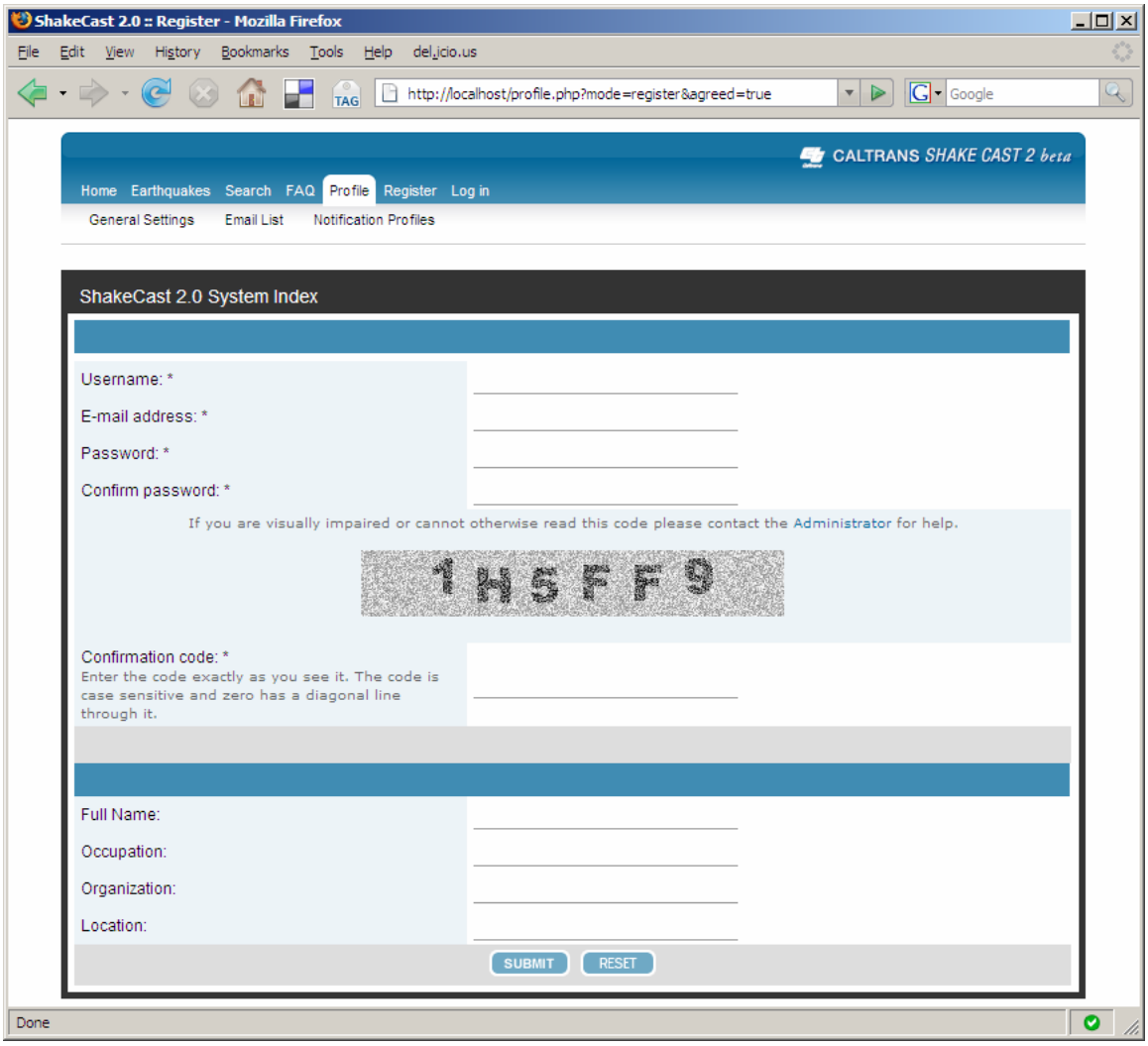

Figure 9. The Registration page displays a form in which the prospect user submits contact information for review. Depending on system configuration the user will receive one confirmation message for submittal and another for account activation.