Sealog User's Guide

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Introduction

The impetus for developing a new open-source event-logging system came from the growing need to have a modern, freely-available, general-purpose event-logging capability on research vessels. There are other event-logging systems in use on research vessels however many of them are purpose-built to support a single operation, are written in a depreciated technology and difficult to maintain, or are prohibitively expensive.

Sealog is not intended to be a "one-size-fits-all" event logging solution but instead strives to provide a solution that has value "as-is" and be a platform that can be easily extended to meet custom event-logging requirements.

The vehicle variant of the Sealog client is tailored for use with vehicle systems such as ROVs, AUVs, and HOVs. It include features for defining lowerings and organized the display events by the defined lowerings.

Events and Ancillary Data

An 'event' is any observation, whether scientific or operational in nature, that is worth recording and that may not already be directly captured in textual form by other data logging systems.

Examples of scientific events include in-situ biological and geological observations. Examples of operational events are things such as cruise/dive milestones (I.e. 'on-station', 'vehicle-in-water', 'vehicle-on-bottom', 'start-of-survey', etc). An example of an event relevant to both science and operations would be the collection of a sample, it's sample id number and its placement on a sample tray.

Within Sealog an event is comprised of a timestamp, an author, the event's high-level value, optionally event-specific key/value pairs, optional free-form text and optional comment.

The Sealog data model provides the ability to associated multiple ancillary data points with an event. These ancillary data points may be real-time ship/vehicle navigation, frame capture filenames, real-time sensor data, etc. Ancillary data points can be added at the time the event is created or at anytime after the event is created. Taking this decoupled approach adds some complication to the overall architecture but enables the flexibility to accommodate sensor failures or the need to associate datasets that are unavailable when the event is created.

Cruises and Lowerings

Sealog does not internally organized events by cruises or by lowerings. Events simple exists on their own and are given unique UUID at the time of creation. This allows multiple events to have the same timestamp. It also means that things like name, location, start/stop times for cruises and lowerings do not have to be defined prior to creating events.

Sealog treats cruises and lowerings as metadata records. These metadata records include a UUID, name, start time, stop time, and some optional additional data points. Events for a particular lowering are retrieved simply by querying the table of events for all events that were created between the start and stop times defined in the lowering metadata record. Likewise the list of lowerings that occurred during a cruises can be retrieved by querying the table of lowerings for all lowerings where the lowering start/stop times occurred within the start/stop time listed in the cruise metadata record.

The Sealog Client Interface

The Sealog Client user interface is completely web-based and accessible from any device with a modern web-browser.

Login Screen

The first screen users see when they open Sealog is the login screen. The login form includes the standard username/password form elements, a login button, a link to create a new account and a link to retrieve a forgotten password.

Logins are required in order to associate an author with an event however a generic "Guest" account is available for user groups that do not wish to have individual accounts. The login screen includes a "Login as Guest" button streamline the process of logging in.

Passwords for accounts are optional. This is useful for using general accounts that are role-based (i.e. Port Observer, Starboard Observer).

Main Screen

After logging into the system the user is taken to the main event logging screen. The main event-logging screen is where users submit new events and can view recently submitted events. The main screen includes:

- Navigation Bar
- Event templates (blue buttons),

- Free-form text field,
- Recent event history,
- Sealog Auto-Snapshot (ASNAP) service status

Navigation Bar

The navigation bar at the top of the interface includes links and dropdown menus to the various parts of the client. The options available are determined by the role of the user.

Event Templates

Event templates are user-defined formatted events. The event templates are visualized on the interface as blue buttons. Event templates allow users to quickly submit commonly used events. Clicking these blue buttons can either immediately add an event or optionally open a dialog window allowing users to add additional event-specific details.

Free-form text field

The free-form text field is for submitting in-situ events that can not be captured via the event templates.

Recent Event History

The recent event history card displays recently submitted events. This panel displays all events submitted by all users and is updated automatically in real-time. Clicking on the text for an event in the event history card will display a modal element containing all data related to the event included any associated ancillary data. The icons in the upper-right of the event history panel header allow the user to expand the history to display the last 25 events or hide the event history entirely. There is also a button to hide/show the automatically-created "ASNAP" events.

Sealog Auto-Snapshot (ASNAP) service status

The Sealog Auto-Snapshot (ASNAP) service status is displayed at the bottom of the page. This shows the current status of the Auto-Snap feature. When ASNAP is "On" ASNAP events are automatically created every 10 seconds. These ASNAP events are hidden from the event history by default. Clicking the "Show ASNAP" button with display any recently created ASNAP events.

Submitting Events

There are two ways to submit events from the Sealog client: the event templates (blue buttons) and the free-form text field.

Using the Event Templates

To submit and event from one of the event templates simply click on the desired blue button. The event templates may be configured as simple one-click event submitter or it may provide the user with an expanded interface to capture additional event-specific data points.

Using the Free-form Text Field

To submit a free form event simply type text into the text field and click the “Submit” button located to the right of the free-form text field. The free-form text field is for summiting events for which there is no event template.

Event Comments

Event comments provide a clear mechanism for user to add additional context to an event after it’s been created. Examples of comment content include:

- An observation is incorrect
- Additional observations not included in the orignial event submission
- Preliminary notes on the importance of an event

Reviewing Events from a Lowering

To review the events from a lowering, click the “Review Cruises/Lowerings” link from the top navigation bar. This will display the lowering selection page.

Use the interface to select the desired year, cruise and lowering. The interface will display the contents of the selected cruise and lowering metadata records. Once the desired lowering is selected, the user will be presented with four options for reviewing the lowering.

- Replay → VLC-style controls and a slider for scanning through a lowering. All associated data for a given event is displayed including preview of image data.
- Review → Similar to Replay but with a focus on just the events and without the VLC-style controls, slider or display of associated data. Users can choose to display the associated data for and event by clicking the window icon next to the desired event.
- Map → Similar to Replay and Review but with a focus on the position where the event was created. This interface includes a map of the lowering trackline and a slider for quickly scanning through the lowering.
- Gallery → Displays only the image data collected for each event, organized by camera name.

Filtering Events

The Replay, Review and Map interfacing include an event filter form. This form is used to filtered the events shown. Events can be filtered by event value, author, time or free text. The search form is case insensitive and partial matching is supported. Use commas between event values to search for multiple event values (i.e. FISH, CORAL). Prefixing an event value with a “!” character will perform a logical NOT operation.

Exporting events

Sealog allows users to export all or a subset of events from the database. Events can be exported with or without their associated ancillary data and the data can be exported in either JSON or CSV format.

Events can be exported from the Replay, Review or Map modes. To export the events, click the Download icon in the Filtered Events card and select the type of export. The export is for the exact list of events shown in the Filtered Events card. Use the Event Filter form to construct the desired list of the event prior to exporting.

Event Templates (those blue buttons)

Event templates can be added and/or changed at anytime. To add/edit an event template go to the “System Management” dropdown menu in the navigation bar and select “Event Templates” This will take you the Event Templates section of the Sealog interface. This option is only available to users with the role of “event manager” or “admin”.

The Event Templates section has 4 parts:

- A list of system event templates
- A list of non-system event templates,
- A button to add a new event template
- A form card used for creating/editing event templates

System vs Non-System Event Templates

There are 2 classes of event templates: system and non-system.

System event templates can only be created/edited/deleted by users with the role of “admin”. The reason for system templates is to allow the vessel operator to define a set of event that should not be modified by the visiting science party.

Non-system events can be created by any user with the role of “event-manager” or “admin”. These are the events that can/should be managed by the science party to support their specialized needs.

Adding/Editing Event Templates

When a user first arrives in the Event Templates section the create event template form is already displayed. This allows the user to immediately start building a new event template.

To edit an existing template click the blue pencil icon next to the template you wish to edit. To preview what the template will look like in the main event-logging section click the green test tube icon next to the template you wish to preview. To delete and existing template click the red trash can icon next to the template you wish to delete. The Sealog client will prompt the user to confirm the delete to prevent accidental deletion.

The form to create/edit a template is dynamically built for the template. The most basic event template includes:

- *Button Name* → the name that will appear on the blue button.
- *Event Value* → the string that will be submitted as the event's value.
- Free text Required → whether or not the observer MUST add some free-form text before submitting the event.

Beyond the basic template definition it is possible to add additional event template options. To add an event template option click the blue “Add Option” button. There are three types of event template options:

- Text → allows entering free-form text.
- Dropdown → allows selected one value from a pre-defined list.
- Checkboxes → allows selected one or more from a pre-defined list.

These additional optional are for customizing the event template so that users are aware of what additional information can/must be included when submitting a particular event. Each additional element includes a “Require” checkbox. If the Require checkbox is selected then any when an event is created using this template, Sealog will require that the user complete that section of the event options form before the event may be submitted.

Exporting Event Templates

It is possible to export event templates to file. There are three reasons to export event templates:

- Including the event templates as part of the cruise data package
- Wanted to move/copy the event templates to another instance of Sealog
- Wanting to use the same event templates on a future cruise aboard the same vessel.

To export event templates to file, click the download icon in the header of the event templates tables.

Only users with the role of “admin” can export system event templates. Users with the role of “event managers” or “admin” can export non-system templates.

Importing Event Templates from file

To import event templates from a file, use the blue “Import From File” button located below the Event Templates table. This button is only available to “admin” users. Clicking the button will open a modal window that presents the user with the option to select a file for import. After selecting the file the modal will display the number of event templates found in the file and real-time status messages displaying the number of event templates pending, imported, skipped (because they already exist) and errors (problem with the event template data in the file).

Cruise and Lowering Records

Cruise and Lowering records are used to organize events for review and export. These records contain information such as the cruise name, vessel name, PI, cruise/lowering locations, start/stop times, participant lists, description/summaries, etc.

There are sections within the Sealog Client for adding/editing Cruise and Lowering records. These sections are accessible from the System Management dropdown on the top navigation bar.

General Layout

The Cruise and Lowering sections are organize in a similar manner. Each section has 2 main components:

- Table of cruises/lowerings
- Form to Add/Edit a cruise/lowering
- Button to Import cruises/lowerings from file.

Table of Cruises/Lowerings

The cruise/lowering table displays all cruises/lowerings available in Sealog. The search text field at the header of the Cruises card of the table can be used to filter the list. The download icon next to the search text field can be used to export all the cruises in the table.

To edit an existing cruise/lowering click the blue pencil icon next to the cruise/lowering you wish to edit. To delete an existing cruise/lowering click the red trash can icon next to the cruise/lowering you wish to delete. The Sealog client will prompt the user to confirm the delete to prevent accidental deletion.

To hide a cruise/lowering from non-admin users click the orange eye icon next to the cruise/lowering you wish to hide. To un-hide a cruise/lowering from non-admin users click the grey slash-eye icon next to the cruise/lowering you wish to un-hide.

Adding/Editing Cruises/Lowerings

When a user first arrives in the Cruises or Lowerings section the create cruise/lowering form is already displayed. This allows the user to immediately start creating a new cruise/lowering.

To edit an existing cruise/lowering click the blue pencil icon next to the cruise/lowering you wish to edit. This will populate the form with the contents of the selected cruise/lowering. Required fields are designated with a red asterisks.

When done completing or updating the form, click the blue “Create” or “Update” button to save the cruise/lowering.

Exporting Cruises/Lowerings

It is possible to export cruises/lowerings to file. There are two reasons to export cruises/lowerings:

- Including the cruise/lowerings as part of the cruise data package
- Wanting to move/copy the cruises/lowerings to another instance of Sealog

To export users to file, click the download icon in the header of the users tables.

Only users with the role of “admin” can export system users. Users with the role of “cruise manager” or “admin” can export non-system users.

Importing Cruises/Lowerings from file

To import cruises/lowerings from a file, use the blue “Import From File” button located below the Cruises/Lowerings table. This button is only available to “admin” users. Clicking the button will open a modal window that presents the user with the option to select a file for import. After selecting the file the modal will display the number of cruises/lowerings found in the file and real-time status messages displaying the number of cruises/lowerings pending, imported, skipped (because they already exist) and errors (problem with the cruise/lowering data in the file).

Additional Lowering Functionality

For installations where vehicle navigation is integrated as ancillary data for the events there is additional functionality in the Lowerings section. This additional functionality includes the ability to use the navigation data to refine lowering start/stop times as well as capture additional metadata such as a geographic bounding box for the lowering, max depth and on-bottom/off-bottom times.

To access this additional functionality, click the orange “Milestones/Stats” button in the Update Lowering form.

Event Management

The Event Management section allows admins to view all events in the Sealog database. The Event Management section is available from the System Management dropdown on the top navigation bar.

The Event Management section includes a table of events and an event filter form.

Filtering Events

The Event Filter form is used to filtered the events shown. Events can be filtered by event value, author, time or free text. The search form is case insensitive and partial matching is supported. Use commas between event values to search for multiple event values (i.e. FISH, CORAL). Prefixing an event value with a “!” character will perform a logical NOT operation.

Exporting events

The events shown in the table of events can be exported to file. To export the events, click the Download icon in the header of the Filtered Events card and select the type of export. The export is for the exact list of events shown in the Filtered Events card. Use the Event Filter form to construct the desired list of the event prior to exporting.

Users

Users can be added and/or changed at anytime. To add/edit a user go to the “System Management” dropdown menu in the navigation bar and select “Users” This will take you the Users section of the Sealog interface. This option is only available to users with the role of “cruise manager” or “admin”.

The Users section has 4 parts:

- A list of system users
- A list of non-system users,
- A button to add a new user
- A form card used for creating/editing users

System vs Non-System Users

There are 2 classes of users: system and non-system.

System users can only be created/edited/deleted by users with the role of “admin”. The reason for system users is to allow the vessel operator to define a set of users that should not be modified by the visiting science party.

Non-system users can be created by any user with the role of “cruise manager” or “admin”. These are the users that can/should be managed by the science party to support their specialized needs.

Table of Users

The user tables displays all users available in Sealog. The search text field at the header of the System Users and Users cards can be used to filter the users displayed in the corresponding table. The download icon next to the search text field can be used to export all the cruises in the table.

To edit an existing user click the blue pencil icon next to the user you wish to edit. To delete an existing user click the red trash can icon next to the user you wish to delete. The Sealog client will prompt the user to confirm the delete to prevent accidental deletion.

Adding/Editing Users

When a user first arrives in the Users section the create new user form is already displayed. This allows the user to immediately start building a new user.

To edit an existing cruise/lowering click the blue pencil icon next to the user you wish to edit. This will populate the form with the contents of the selected user. Required fields are designated with a red asterisks. When done completing or updating the form, click the blue “Create” or “Update” button to save the user.

Admin users can promote/demote a user to system-user. This option appears as a “System User” checkbox on the user create/update form.

Admin users can disable user accounts. User accounts can be disabled if the operator wants to temporary prevent the account from being used. This option appears as a “Account Disabled” checkbox on the user create/update form.

Exporting Users

It is possible to export users to file. There are three reasons to export users:

- Wanting to make a backup of the users table.
- Wanting to move/copy the users to another instance of Sealog
- Wanting to use the same users on a future cruise aboard the same vessel.

To export users to file, click the download icon in the header of the users tables.

Only users with the role of “admin” can export system users. Users with the role of “cruise manager” or “admin” can export non-system users.

Importing Users from file

To import users from a file, use the blue “Import From File” button located below the Users table. This button is only available to “admin” users. Clicking the button will open a modal window that presents the user with the option to select a file for import. After selecting the file the modal will display the number of users found in the file and real-time status messages displaying the number of users pending, imported, skipped (because they already exist) and errors (problem with the user data in the file).

Auto-Snapshot (ASNAP)

Auto-Snapshot (ASNAP) is used to automatically create a pre-defined event at a set interval. The reason for ASNAP is for applications where the user wants a minimum frequency of events, even through there may not be anything “event-worthy” happening. Examples of ASNAP’s uses includes regular event creation during CTD casts or ROV dives where ancillary data such as sensor values and navigation are associated with events.

The current status of the ASNAP functionality is displayed in the lower-left corner of the client. To change the ASNAP status, click the “System Management” dropdown on the top navigation bar and select Toggle ASNAP.

The ASNAP service is completely independent of the Sealog Client and is actually part of the Sealog Server. To ensure ASNAP is working, click the “Show ASNAP” button in the header of the event history card and verify new ASNAP event are arriving.