NEMO Feature Manual

Version 4.1.0

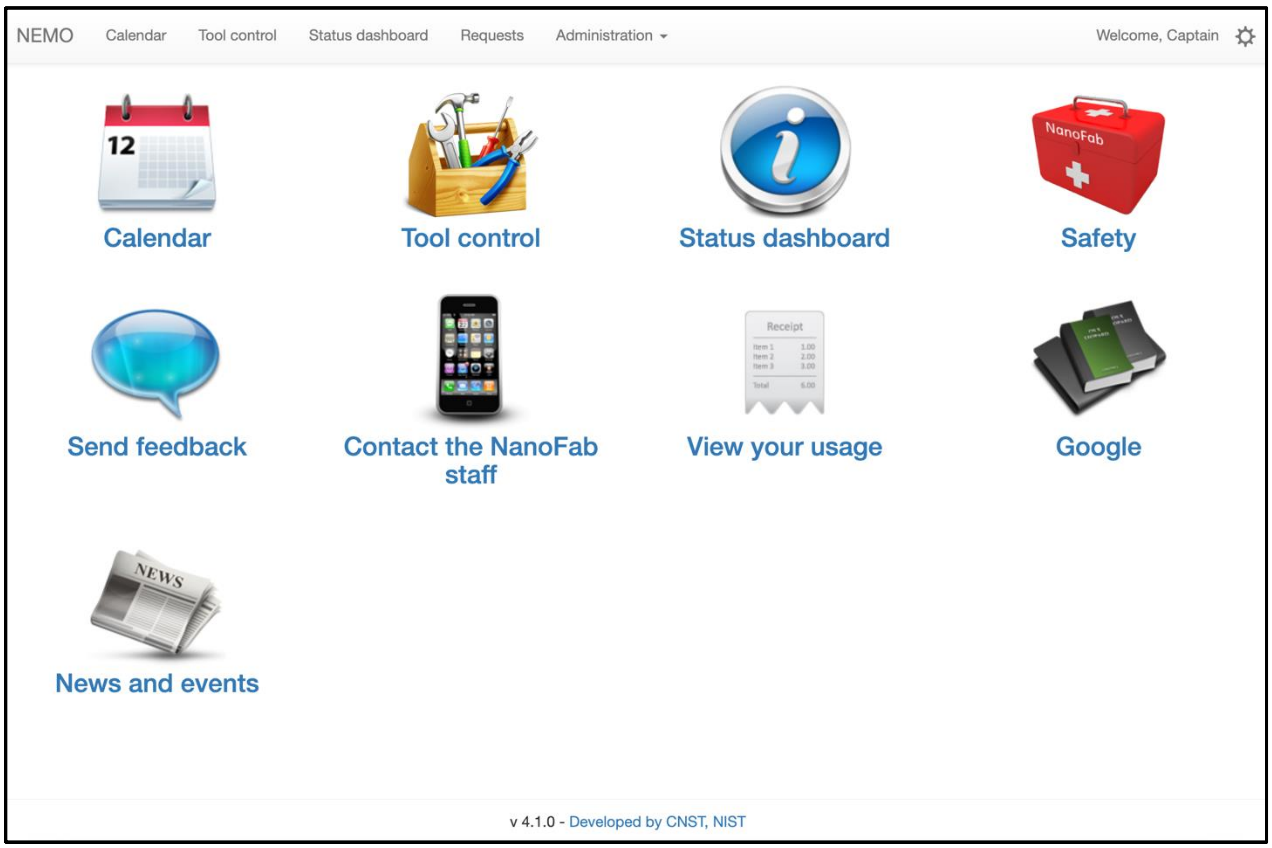


Table of Contents

1 Foreword

The National Institute of Standards and Technology (NIST), Center for Nanoscale Science and Technology (CNST) NanoFab provides researchers with rapid access to state-of-the-art, commercial nanoscale measurement and fabrication tools and methods, along with associated technical expertise, at economical hourly rates. It is well equipped to process and characterize a wide range of nanoscale materials, structures, and devices.

In November 2013, CNST replaced its original lab management software with an in-house designed and developed web application. The NanoFab Equipment Management & Operations (NEMO) web application is laboratory logistics software that strives to be intuitive and easy to use, making life easier in the lab. NEMO manages tool reservations, controls access to areas and tools, and streamlines logistics and communication. The program is being actively developed with new features, improvement, and bug releases approximately once a month.

The code is open source and free so that other labs can benefit. NEMO is hosted at https://github.com/usnistgov/NEMO. The web application is written in the Python programming language and uses the Django web framework. It is system independent (can run on Linux, Windows, or Mac) and does not require special hardware to operate.

Users can customize NEMO for their own laboratory, enabling any customer with a network connected desktop or mobile device to reserve tools, view the operating status of instruments, and seek assistance from laboratory staff.

The CNST hopes to foster a developer community to collaborate on new features and improvements to NEMO. Source code contributions are welcome via GitHub pull requests. The CNST will compile and evaluate these suggestions, modifying NEMO as needed.

2 Introduction

This manual provides an overview of NEMO and detailed information on each webpage and describes how to configure NEMO to add or remove content to suit the end user's needs. The manual is organized to progress through NEMOs web pages in the order presented to a user accessing the website through the navigation bar and landing page.

The manual starts with a description of how NEMO works, then progresses through logging into the website, the site navigation bar and landing page, then details each user accessible page, then each staff accessible page, and finally each site administrator page. Most of the pages are accessible through the navigation bar however, to keep NEMO highly customizable, some pages must be added through the landing page if desired.

Every page description provides details of the pages direct access web address, how the page is used, how to configure optional features, any differences between the desktop view and mobile device view, and any customizations. To minimize the need for direct code changes, many of NEMOs features automatically hide if they have not been configured.

3 How NEMO works

To better understand the features presented in this manual, an overview of NEMO and the key relationships and terms used throughout the manual will be provided.

3.1 NEMO Infrastructure

NEMO is a scalable web application whose features can be run as a distributed application across multiple servers and devices or condensed to run on a single server without additional features. The NEMO components shown below detail the required and optional network connected parts of NEMO (Figure 1). A basic implementation of NEMO can be run with a web server, database, and user authentication as a single standalone server.

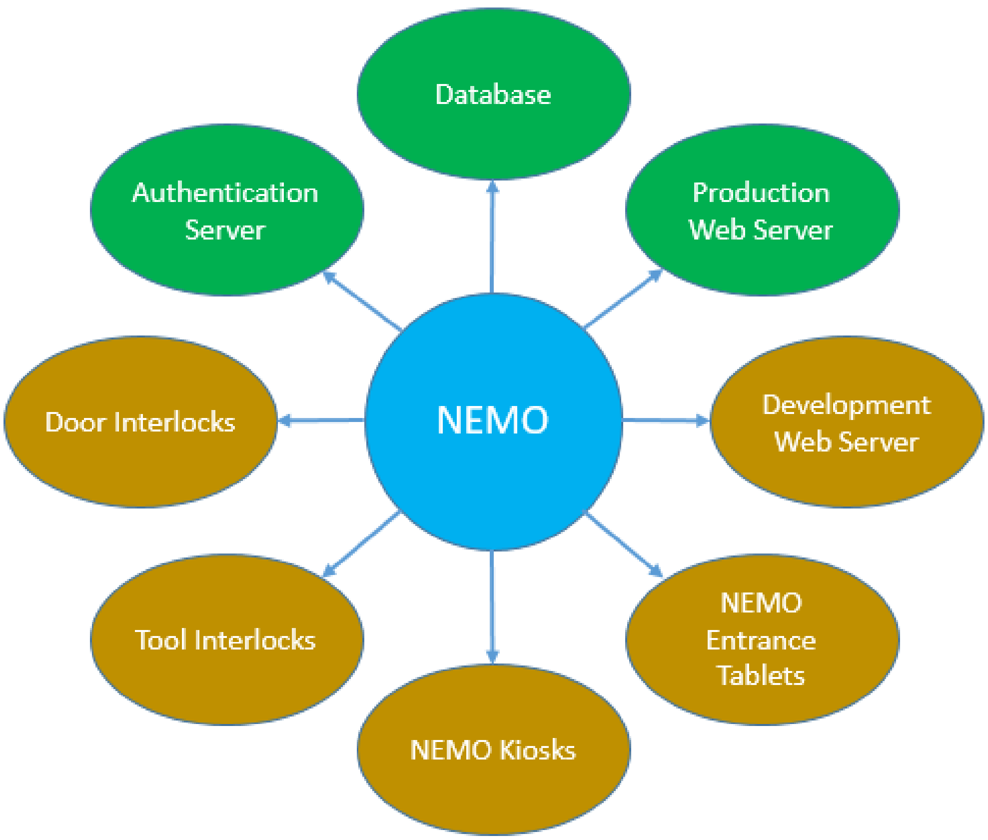


Figure 1 NEMO topographical map

- Production web server – (required) runs NEMO code.
- Database – (required) stores NEMO data.
- Authentication server – (required) authenticates users allowed to access NEMO.
- Development web server – (optional) write and test custom code changes without impacting the production environment
- NEMO entrance tablets – (optional) use NEMO to control access to labs in conjunction with door interlocks.
- NEMO kiosks – (optional) allow users quick access to NEMO via badge reader to enable/disable tools and make reservations.

- Tool interlocks – (optional) physically disable tools to prevent unauthorized access. This is typically disabling a keyboard and mouse, monitor, or tool interlock via relay control.
- Door interlocks – (optional) use NEMO to trigger door strikes on access-controlled doors via relay control.

3.2 User model

The user model begins with an account. Accounts are the highest level grouping and can be thought of in terms of who the bill is sent to. An account could be a business using the lab, a school in a university, or some other operational unit. Accounts are discussed in the accounts and projects section on page 191.

Each account will have one or more projects. Projects allow the account to distinguish what department, group, or project leader is using the account. All activity in NEMO is charged to a project. Projects are discussed in the accounts and projects section on page 191.

Each project will have one or more users. Users can be associated with multiple projects and even projects from different accounts (Figure 2). Users are discussed in the users section on page 278.

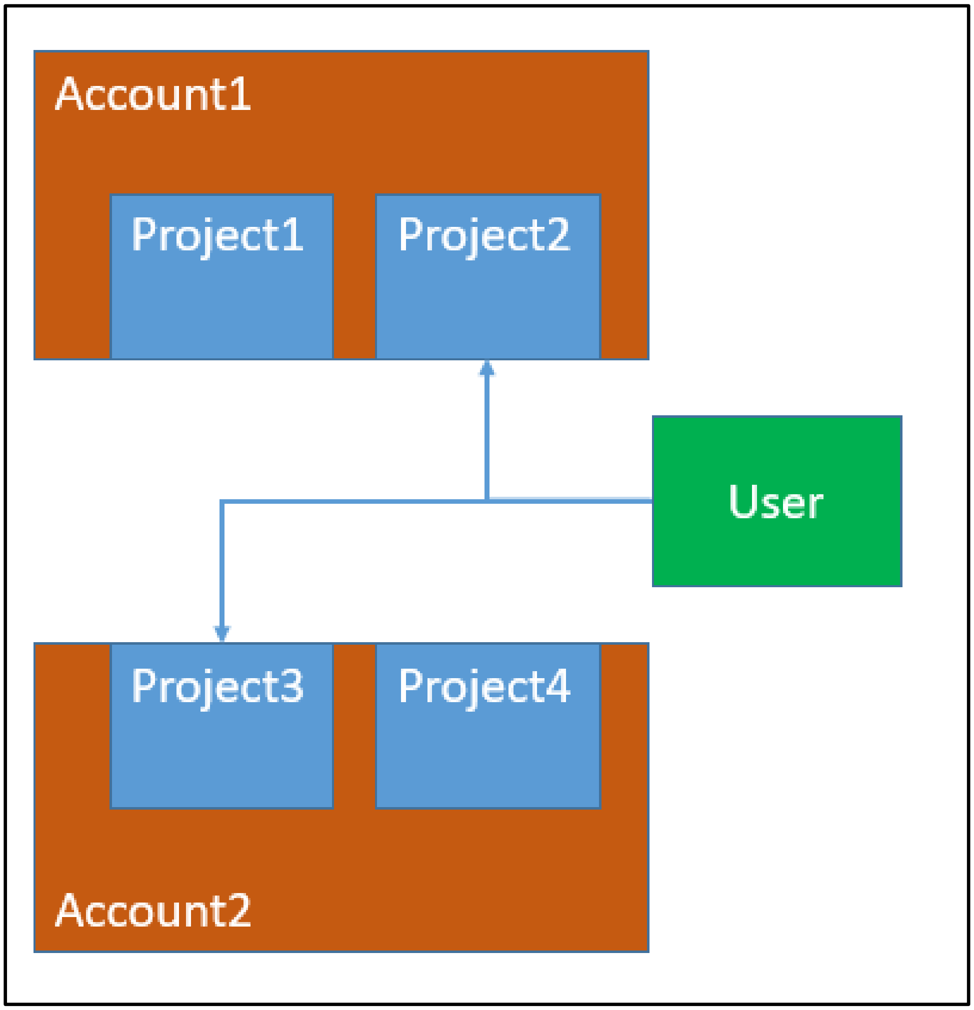


Figure 2 User model

3.3 User roles

NEMO has three types of distinct users to limit access to only the pages needed by the users role. A users role is defined in the users table of the database discussed in the Detailed administration → Users section on page 519.

- The first level is “user” which has basic access to a predefined set of features and functions that allow a user to do work in the lab.
- The second level is “staff” which has all of the basic access of a “user” but can override certain rules that restrict a user as well as an additional set of features specific to staff working in the lab and administering users.
- The third level is “superuser” which has all of the access of a “staff” along with admin access to configuration and database administration. NEMO must have at least one user with “superuser” role that can setup customizations and configure the website.

3.4 Tool model

Tools are the things a user will use, and that the lab is interested in keeping track of. There are many features associated with tools and most are optional (Figure 3). Tools are defined in the tool table of the database discussed in the Detailed administration → Tools section on page 483.

Figure 3 Tool model

- Training – users must be qualified to use a tool. Training and tool qualification is discussed in the training section on page 274.
- Reservations – qualified users can make reservations for tools with customizable rules to limit reservation abuse. Reservations are discussed in the Calendar → Reservations section on page 47. Reservation rules are defined for each tool in the tool table of the database discussed in the Detailed administration → Tools section on page 483.
- Tasks – allow users to report problems with tools and documents repairs. Tasks are discussed in the tool control section starting on page 79.
- Resources – (optional) allows a tool to depend on common facilities which allows shutting down multiple tools by disabling a resource. Resources are discussed in the resource section starting on page 243.
- Configuration – (optional) allows users to select the required configuration of a tool at reservation time and communicates the configuration request to staff. Configurations are discussed in the Configuration Agenda section on page 212.

- Consumable – (optional) allows lab to charge users for consumables used during a process through questions after usage. Consumables are discussed in the supplies section starting on page 269.
- Area – (optional) allows limiting tool use unless user is currently logged into a specific area. Areas are configured in the areas table of the database discussed in the Detailed administration → Areas section starting on page 379.
- Interlock – (optional) allows physical disabling of tool when not logged into by a qualified user. Interlocks are configured in the interlocks table of the database discussed in the Detailed administration → Interlocks section starting on page 414.

3.5 Area model (optional)

Areas can optionally be defined in NEMO to group tools in common places. An area can optionally have doors associated with it and permission for the door can be given to users as physical access levels to control when they can access an area (Figure 4). Areas can optionally be configured to restrict access to doors and tools unless the user has a current area reservation. Areas are configured in the areas table of the database discussed in the Detailed administration → Areas section starting on page 379.

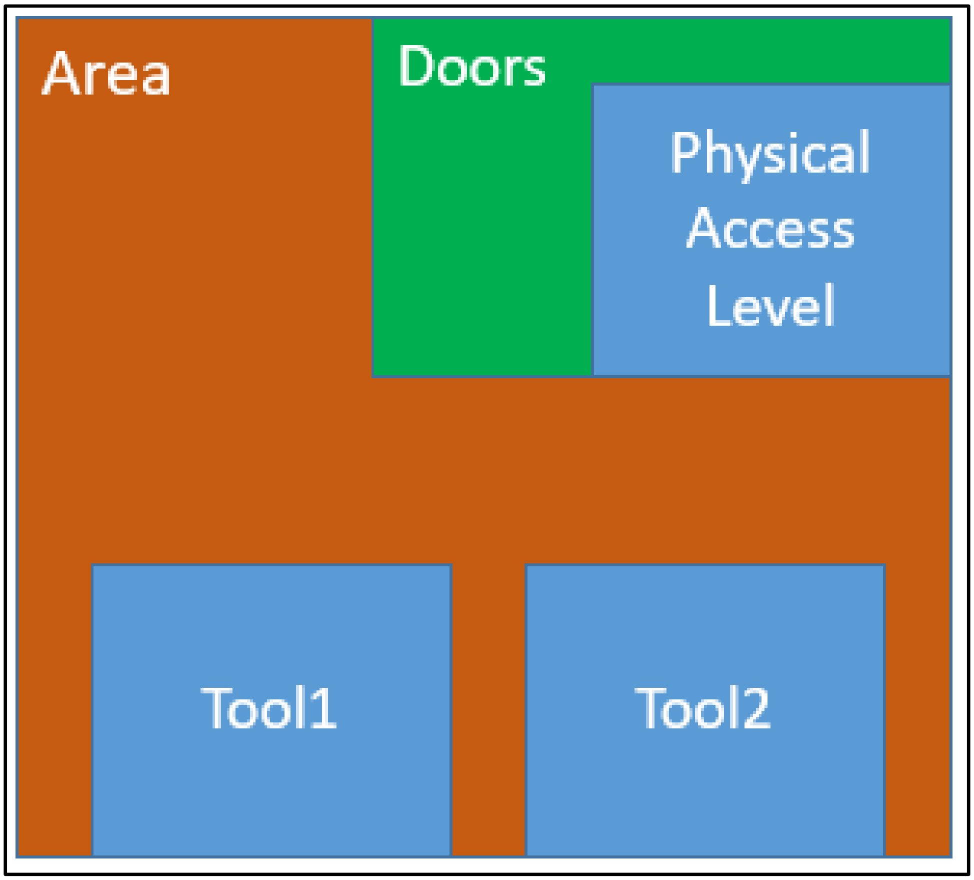


Figure 4 Area model

3.6 Supply model (optional)

NEMO has the ability to track supplies and their distribution to users. In addition, the supply model is used to track consumables used during tool runs (Figure 5). Consumables and supplies are discussed in the [supplies] section starting on page 269.

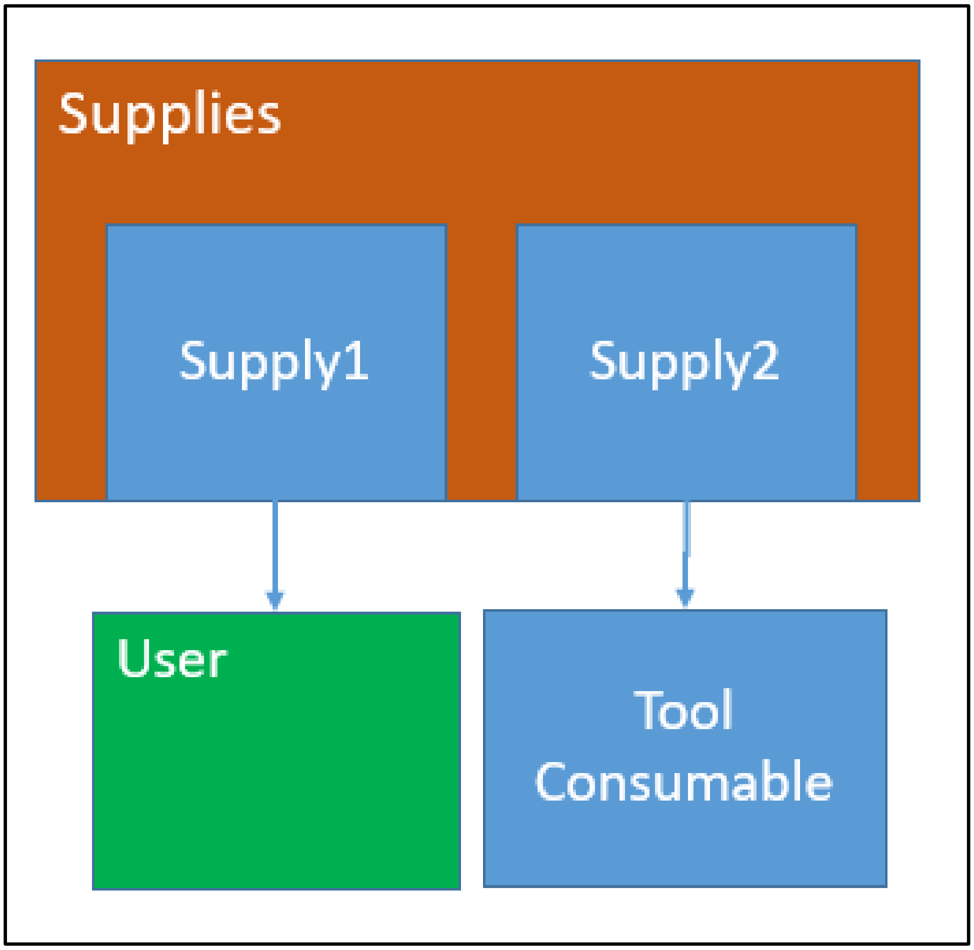


Figure 5 Supply model

3.7 Billing model

NEMO tracks 6 types of billing by default. The data is accessible directly from the database tables or through the API interface. The database tables are discussed in the Detailed administration section starting on page 358. The API is discussed in the API access section starting on page 528.

- Tool usage – Tool usage is tracked in the usage events table of the database.
- Area access – Area access is tracked in the area access records table of the database.
- Consumables – Consumables, both supplies sold to users and supplies consumed during tool runs are tracked in the consumable withdraws table of the database.
- Staff charges – Staff charges, where a staff member performs work on behalf of a user, are tracked in the staff charges table of the database.

- Missed reservations – Missed reservation, where a user fails to show up for a reservation before a grace period expires, are tracked in the reservations table of the database.
- Training sessions – Training sessions are tracked in the training sessions table of the database.

3.8 Controlling NEMO

NEMO is a web application is written in the Python programming language and uses the Django web framework. All NEMO functionality is available using any common web browser by logging into the website to perform any needed actions. In addition, NEMO provides two dedicated interfaces to access NEMO controlled doors (Entrance tablet) and to provide a quick interface to access and reserve tools (Kiosk). The entrance tablet feature is discussed starting on page 566. The kiosk features are discussed in the kiosk section starting on page 553.

4 NEMO user authentication

The first step to accessing the NEMO website is the authentication log in. A successful log in requires authentication against the institutions' account system and an active user name in NEMO. NEMO user creation and user status is discussed in the Users section on page 278.

4.1 Web address

The login page is accessible at site-address/login. For example, www.nemo.com/login/.
The logout page is accessible at site-address/logout. For example, www.nemo.com/logout/.

4.2 Usage

4.2.1 LDAP authentication

If LDAP is used for authentication, the log in page (Figure 6) is displayed. Enter a valid user name and password, then click 'Log in'.

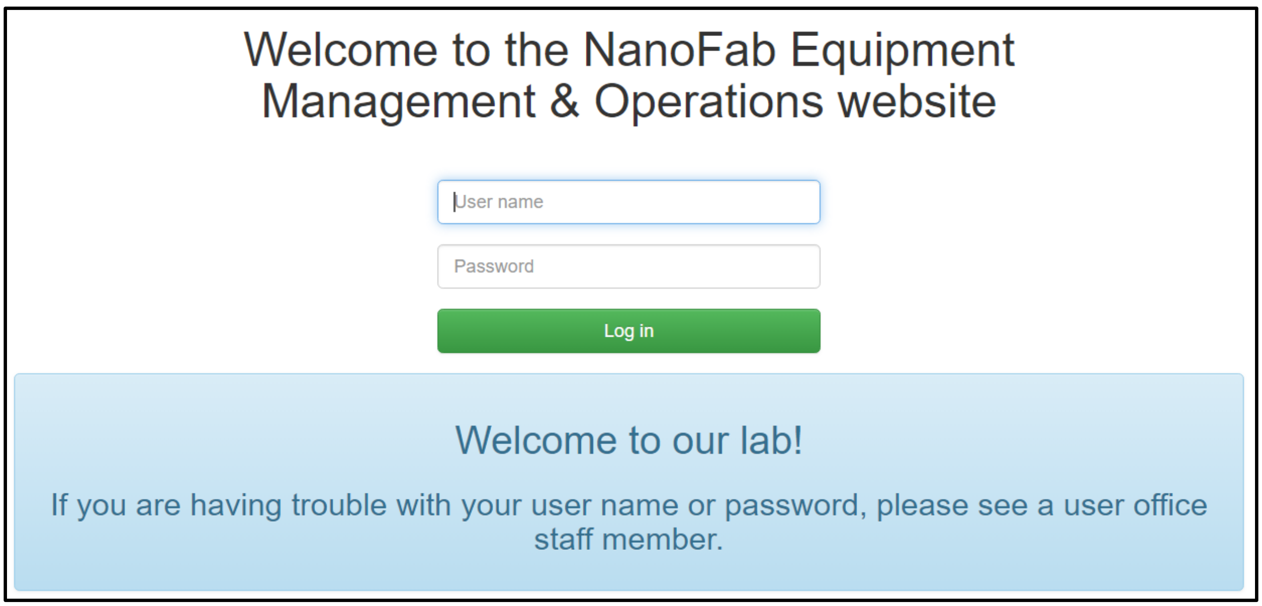


Figure 6 NEMO LDAP Login Page

Upon successful log in, the user will be redirected to the landing page.

If invalid user credentials are entered, the user will be prompted in red with, "The user name or password was not valid" (Figure 7). In this case, enter a valid user name and password to continue.

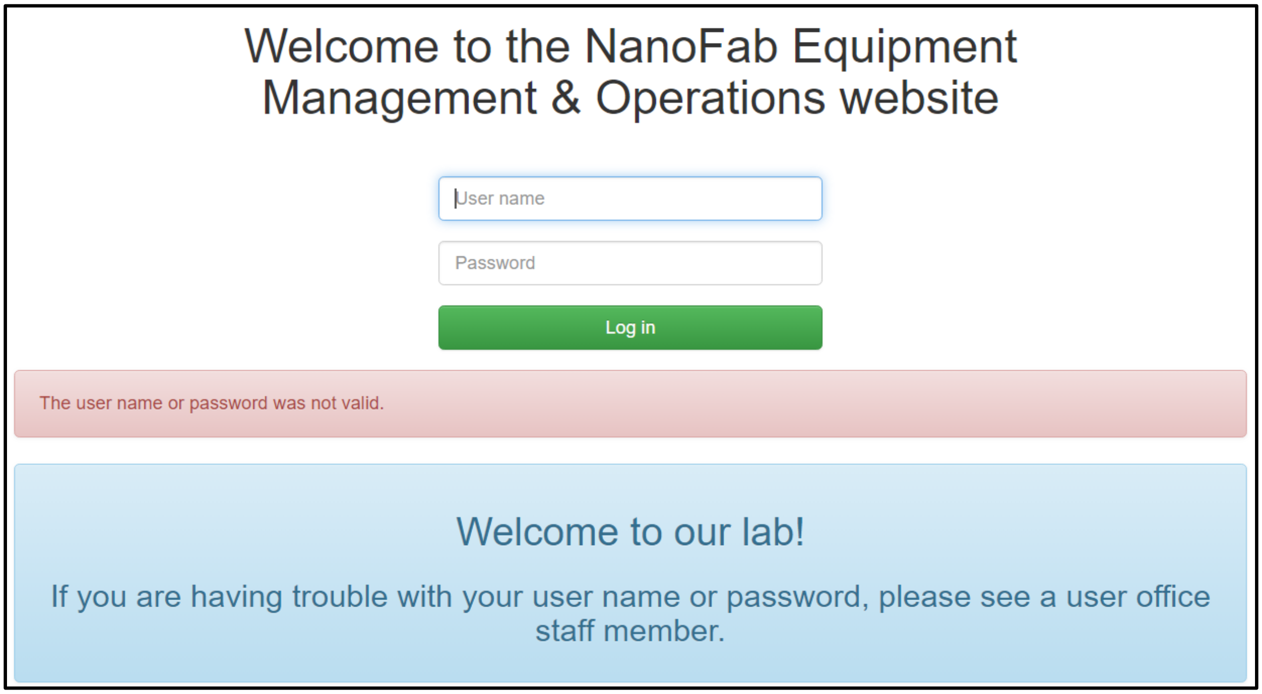


Figure 7 NEMO LDAP Authentication Failed

4.2.2 Remote user authentication

If a remote user authentication such as Kerberos is used, authentication is handled behind the scenes and users **will not** be prompted for a username and password.

Upon successful log in, the user will be redirected to the landing page.

If the user does not have an active NEMO account, they will be denied access to NEMO (Figure 8). This message is customizable and is described in the Customization → NanoFab failed login section on page 315.

You do not have a NEMO user account or your user account has been deactivated. Please contact the NanoFab User Office for assistance.

Figure 8 Remote User Authentication Failure Message

4.3 Mobile device authentication

There are no special user authentication views for mobile devices. The authentication procedures above should be followed.

4.4 Authentication customizations

4.4.1 Authentication

Authentication is configured to set LDAP or Remote User log in via the settings.py file described in the Configuring NEMO settings → Authentication Backends on page 581.

4.4.2 Customizable Login Banner

The log in page has a customizable html banner as shown above in blue. If a banner file has not been loaded, nothing will be shown. Customization of the login banner is described in the Customization → Login banner section on page 215.

4.4.3 Remote User Authorization Failure Message

If NEMO uses remote user authentication and a user is denied access to NEMO because they do not have an active user name, a failure message is displayed. This message is customizable and is described in the Customization → NanoFab failed login section on page 315.

5 Navigation Bar

The navigation bar is available at the top of every NEMO user page. Users that are designated as staff have visibility to more features than non-staff users. The distinction between staff and non-staff is set in the Detailed administration → Users dialog described on page 366.

5.1 User Navigation Bar

The default navigation bar (Figure 9) provides users with useful information and quick links to the most common NEMO features.

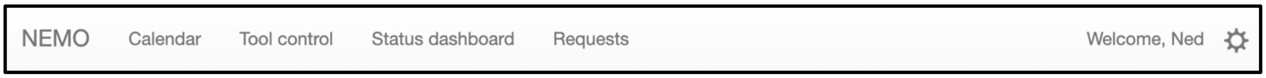


Figure 9 Navigation bar with default features

NEMO – Link to NEMO landing page described on page 28.

Calendar – Link to calendar page described on page 36.

Tool Control – Link to tool control page described on page 79.

Status dashboard – Link to status dashboard page described on page 125.

Requests – This link is optional and is only visible if configured. Link to requests page described on page 141.

Welcome – Identifies the user currently logged into NEMO. This can help reduce confusion in labs where users share computers to access NEMO.

⚙ Preferences – Link to user preference page described on page 185.

Logout – Clicking this link will log the current user out of NEMO and return to the login page described on page 17. The logout link will only be displayed if LDAP authentication is used, and the button is enabled (see customizations below).

5.2 Staff Navigation Bar

The navigation bar for staff (Figure 10) includes the same information for users and adds the Administration menu and an indicator if a staff member is charging time to a user.

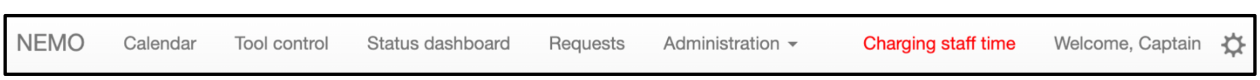


Figure 10 Navigation bar with additional staff features

Administration – Drop down link list to the NEMO administration features that require staff or super user rights to access (Figure 11). Details of the administration pages begin on page 189.

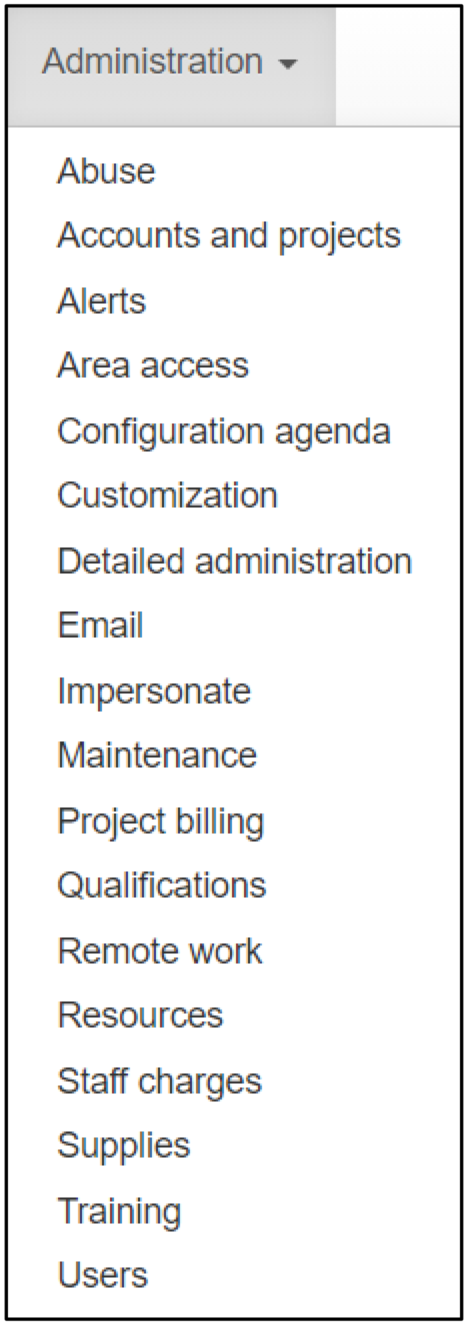


Figure 11 Navigation bar administration menu

Charging Staff Time – If a staff member is charging staff time to a user, it is noted in red on the navigation bar, so the staff member remains aware of accumulating charges. Hovering over 'Charging staff time' will show details of the staff charge including who, what project, and when the charges started (Figure 12). Clicking 'Charging staff time' will take you to the Staff charges page which is detailed on page 254.

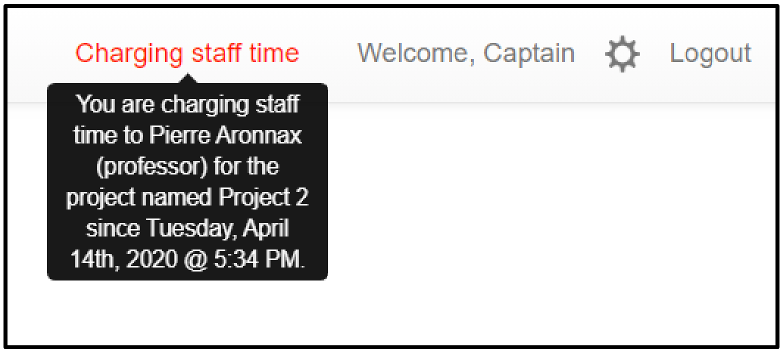


Figure 12 Charging staff time details

5.3 Mobile device navigation bar

The navigation bar will automatically change to a mobile-type menu icon drop down (Figure 13) if the window width is too small to display all information. The links provided for users and staff are maintained. However, there is no indication of charging staff time and the user name is not indicated. In addition, the preferences icon will change to a menu item.

Figure 13 Navigation bar for small windows with menu icon

Clicking on the menu icon will drop down the menu (Figure 14).

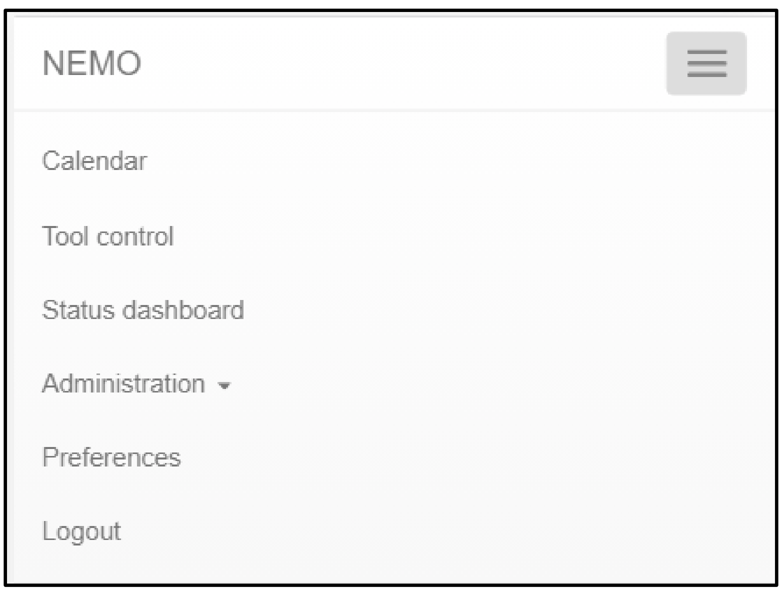


Figure 14 Mobile device drop down menu

5.4 Navigation bar customizations

5.4.1 Logout button

The logout button is configured to display or hide via the settings.py file described in the Configuring NEMO settings → Templates on page 581.

5.5 Landing Page

The landing page (Figure 15) is the home page for NEMO. It provides users and staff with important information as well as quick links that are fully configurable by your organization. In addition, first time lab users are prompted to complete a lab rules tutorial to reinforce important policies.

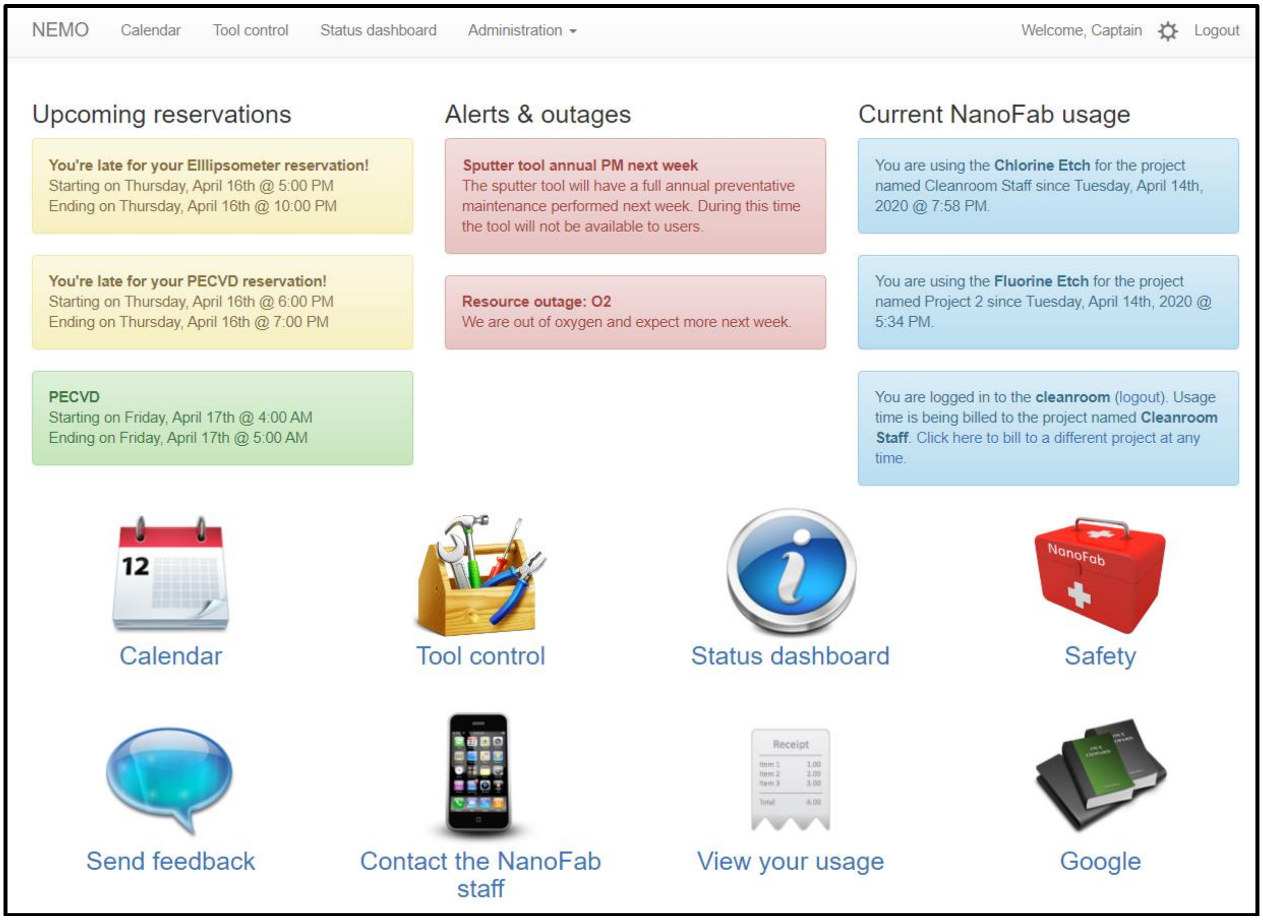


Figure 15 NEMO landing page

5.6 Web address

The landing page is accessible as the home page of NEMO. For example, www.nemo.com/. The page can also be accessed from the navigation bar menu item "NEMO".

5.7 Upcoming reservations

The landing page will list the next three reservations in two background colors, yellow or green. Each reservation box details the tool, start date/time, and end date/time. Details about reservations and how to make them can be found in the Calendar page → Reservations section starting on page 47.

Clicking on an upcoming reservation will take you to the [Tool control page] for the reserved tool which is described on page 79.

Yellow – indicates that you are late for your reservation (Figure 16). Once you log into a late reservation, it will no longer show up on the list. If you log out before your reserved end time, it may reappear.

Figure 16 Late reservation dialog box

Green – indicates a future reservation that has not started yet (Figure 17).

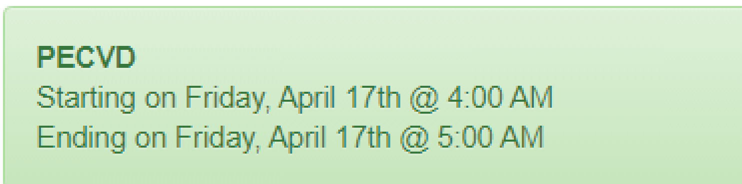


Figure 17 Future reservation dialog box

5.8 Alerts and outages

On occasion, the lab staff need to communicate important information to users. Alerts and outages (Figure 18) are shown in red to indicate their importance. Alerts and outages are configured through the [Alerts page] detailed on page 200.

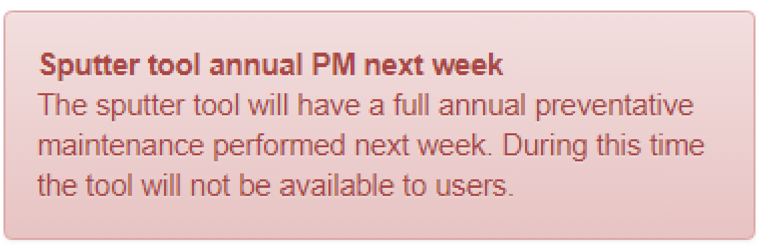


Figure 18 Alert notification dialog box

Lab resource outages are also indicated in red (Figure 19). Resources are fully definable by the organization and associated with tools. Details of the resource feature and how it is used can be found on the [Resources page] on page 243.

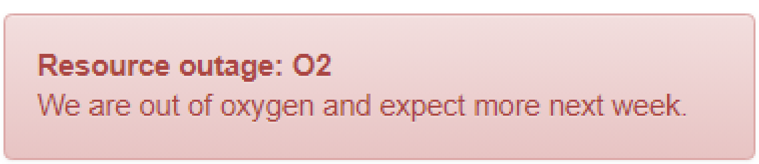


Figure 19 Resource outage notification dialog box

5.9 *Current NanoFab usage*

The landing page will list all current tool usage and lab area access in blue background boxes.

5.9.1 Tool Usage

Each tool usage dialog box (Figure 20) details the tool and start date/time. Clicking on a tool in use dialog box will take you to the Tool control page of the tool which is described on page 79.

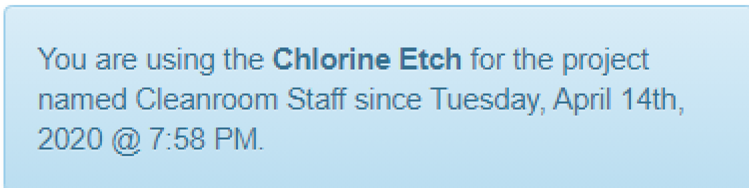


Figure 20 Tool usage dialog box

5.9.2 Staff Charges

If a staff member is actively charging staff time to a user the details are displayed including the user, project, and start time. Clicking on the staff time dialog box will take you to the Staff charges page which is described on page 254.

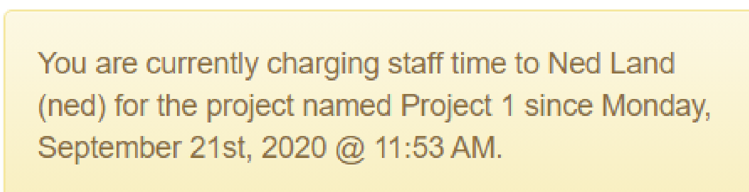


Figure 21 Staff charge dialog box

5.9.3 Lab area access

The lab area access dialog details which lab you are in and which project your lab time is billed to. Area access history is maintained in the database. Lab areas are configured through the Detailed administration → Areas page detailed on page 366.

5.9.3.1 Manual area log in

NEMO can be configured to accommodate manual area log in through the landing page. If manual login is enabled, a green box under Current NanoFab usage provides the interface to log in to an area (Figure 22).

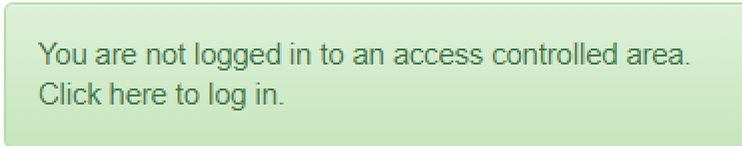


Figure 22 Manual area login dialog box

Clicking anywhere on the box will take you to the self-log-in dialog (Figure 23).

- If you have multiple projects, a radio button list will appear, select a project
- If you only have one project, your active project will be selected automatically
- If there are multiple areas, a radio button list will appear, select an area
- Click Log in to log into the area.

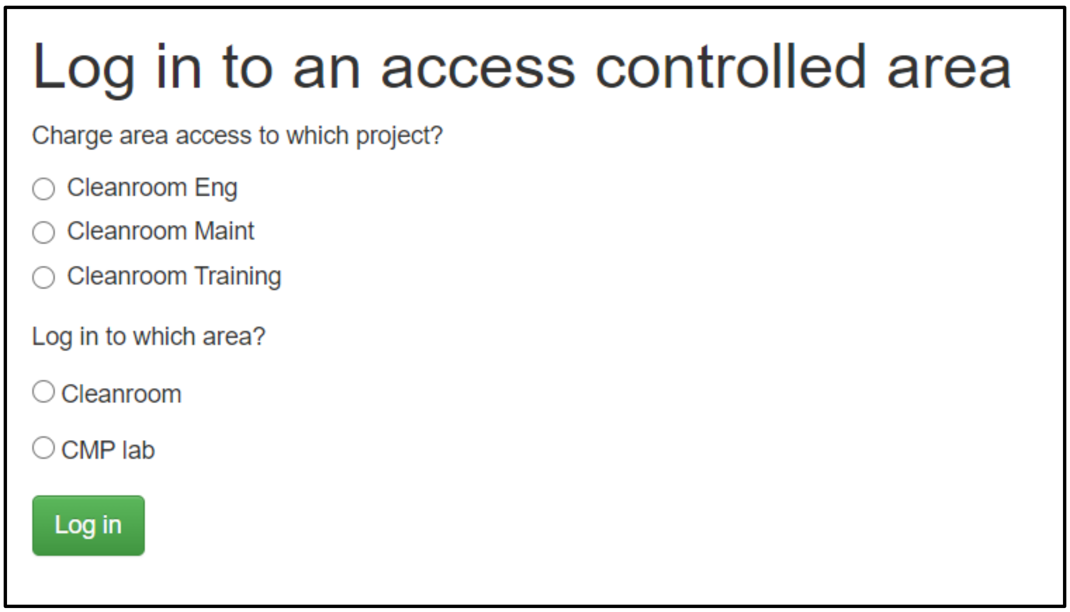


Figure 23 Self log in dialog

Upon success, the user will be logged in to the selected area using the selected project. There are several reasons a user may be denied log in including expired user accounts, no active projects, area closures, resource outages, and more. Additional details about log in errors can be found in the Entrance tablet → Log in errors section starting on page 575.

5.9.3.2 Changing projects

If you have multiple projects, there will be a link to bill your area access time to a different project (Figure 24) than the one you initially selected when logging in.

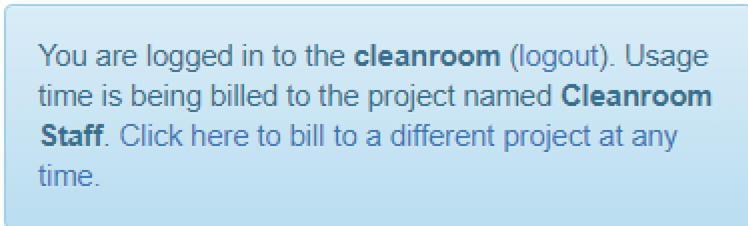


Figure 24 Area usage dialog box

Clicking the link 'Click here to bill to a different project at any time' will take you to the change project page (Figure 25). Click the project name button to change the project. Projects are configured on the [Accounts and projects](#) section detailed on page 191.

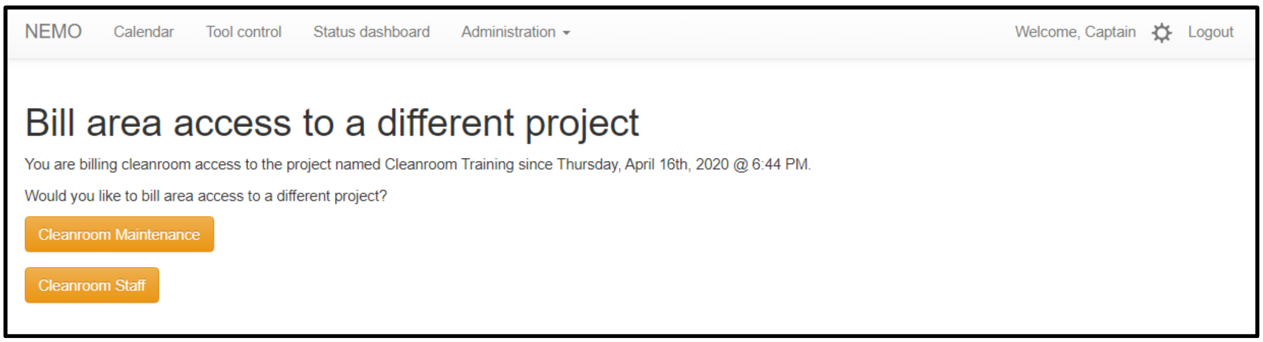


Figure 25 Bill area access to a different project

5.9.3.3 Manual area log out

NEMO can be configured to accommodate manual area log out through the landing page. If manual area log out is enabled, a logout link will appear next to the area name (Figure 26). Click the link to log out of the area (Figure 26).

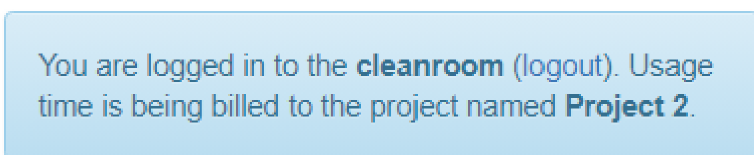


Figure 26 Area manual log out dialog box

5.10 Configurable Quick Links

The NEMO landing page can be configured with custom icon links (Figure 27) that point to commonly used features of NEMO, organizational internal web pages, and external internet pages. Links can be configured with a custom icon, description, how to open, staff only, and desktop or mobile device rendering. Landing page quick links can be configured with a custom icon, description, how to open, staff only, and desktop or mobile device rendering. Setup details can be found under [Detailed administration → Landing page choices](#) on page 414.

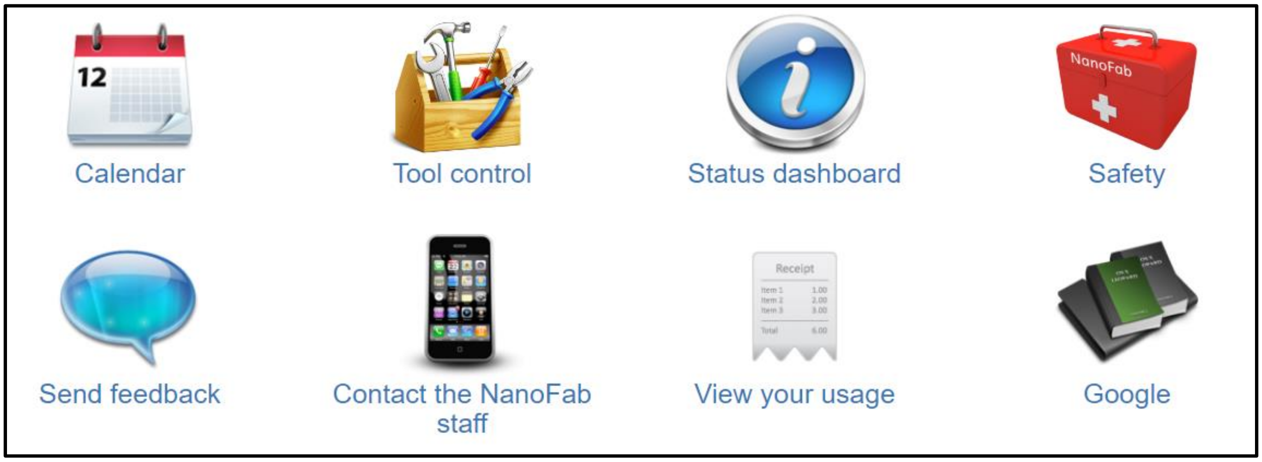


Figure 27 Landing page quick links

5.11 Lab Tutorial

The NanoFab rules tutorial is an opportunity to provide new users with a tutorial about your lab operating procedures and rules. However, it is an optional and fully configurable tutorial that can be triggered in a user's profile. In addition, it is setup to be self-completing so after a user successfully completes it, the trigger will be unchecked. If triggered, it will not allow any reservations or tool log ins until complete. The trigger is set in the user's profile and by default is set upon user creation. NEMO user profiles are discussed in the Users section on page 278. Details for creating the tutorial, tutorial completion email template, and email address can be found in the customization section starting on page 290.

Each time a user with the tutorial trigger set logs into NEMO, they will receive a prompt to begin the tutorial (Figure 28). Clicking anywhere in the dialog box will start the tutorial. The tutorial page can also be reached at any time regardless of the training required setting. The tutorial page is accessible at site-address/facility_rules_tutorial/. For example, http://www.nemo.com/facility_rules_tutorial/.

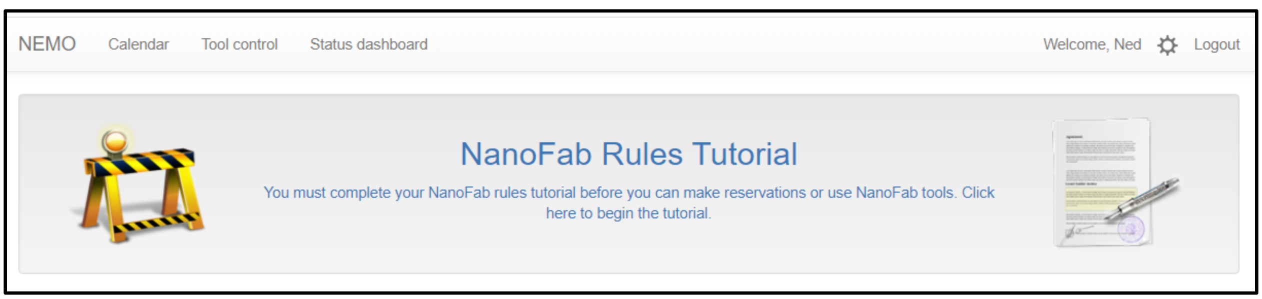


Figure 28 NanoFab rules tutorial dialog box

If the tutorial has not been configured but a user has been checked, an error message will be returned stating, "The NanoFab rules tutorial has not been customized for your organization yet."

Upon completion of the tutorial, the training required checkbox in the user profile will be cleared and an email will be sent if the abuse email address has been configured and the tutorial summary email template has been configured. The user will be prompted with a completion dialog (Figure 29). Click the continue button to return to the landing page.

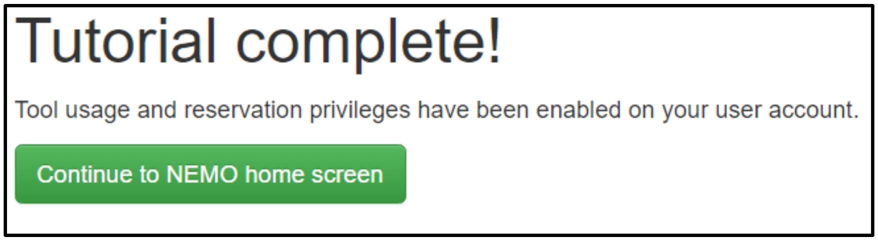


Figure 29 Landing page tutorial complete dialog

5.12 Mobile device landing page

The landing page will automatically change to a mobile display by stacking information into a single scrollable column (Figure 30). Information is prioritized in the order of upcoming reservations, alerts & outages, current NanoFab usage, then quick links. Functionality remains the same. The landing page quick links can be configured to only display on mobile devices or only on desktop computers.

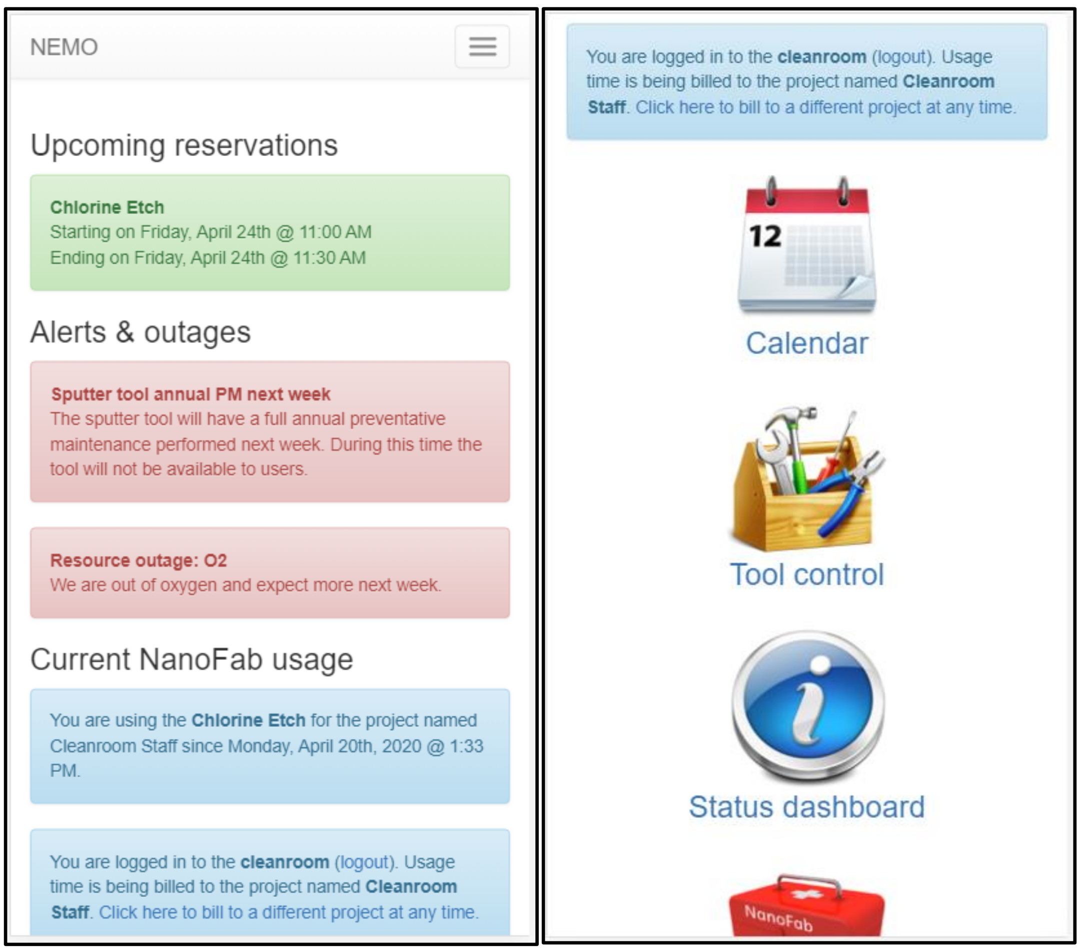


Figure 30 Mobile device view of landing page

5.13 *Landing page customizations*

5.13.1 Area manual log in and log out

The landing page can be configured to allow manual area log in and/or manual area log out. Setup details can be found under Customization → Application settings on page 294.

5.13.2 Configurable quick links

Landing page quick links can be configured with a custom icon, description, how to open, staff only, and desktop or mobile device rendering. Setup details can be found under Detailed administration → Landing page choices on page 414.

5.13.3 Lab tutorial setup

The lab tutorial is a custom JavaScript enabled html page. Details of how to setup and load the tutorial can be found under Customization → NanoFab rules tutorial on page 311.

6 Calendar

The calendar page is the main interface for making area and tool reservations, viewing reservation schedules, and reviewing usage. The page features a side bar to quickly navigate between areas and tools and shows each tools status as well as links to review your reservation schedule and actual usage; and the calendar which can be set for day, week, or month resolution to graphically show your reservation and usage information. Several reservation policies are implemented to limit abuse and ensure fair access to all users. The calendar page will automatically refresh every 30 seconds updating the current calendar view and all tool status icons.

6.1 Web address

The calendar page is accessible at site-address/calendar/. For example, www.nemo.com/calendar/. The page can also be accessed from the navigation bar menu item “Calendar”.

6.2 Calendar Side bar

The side bar allows the calendar mode and an area or tool to be selected and the personal schedule to be selected (Figure 31). If calendar overview options are enabled in in the Customization → Calendar settings page, those links will be displayed in the sidebar as well.

Area Notes:

- The area section of the side bar is only visible if an area is configured to require a reservation for access.
- Area categories are optional.
- Area creation and configuration are discussed in the Detailed administration → Areas section on page 379.

Tool Notes:

- The tool section of the side bar is only visible if tool have been configured.
- Tool categories are required.
- Tool creation and configuration are discussed in the Detailed administration → Tools section on page 483.

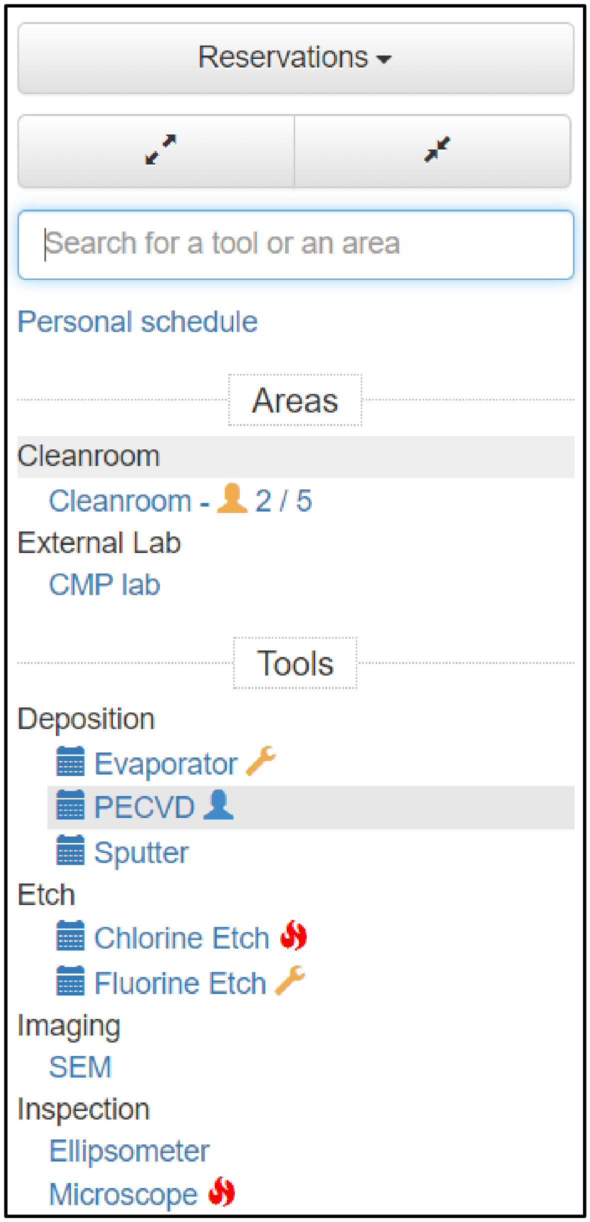


Figure 31 Calendar side bar

6.2.1 Calendar Mode

The top button on the side bar controls what information the calendar displays, and which calendar functions are available (Figure 32). Each mode is detailed in the following sections starting on page 47.

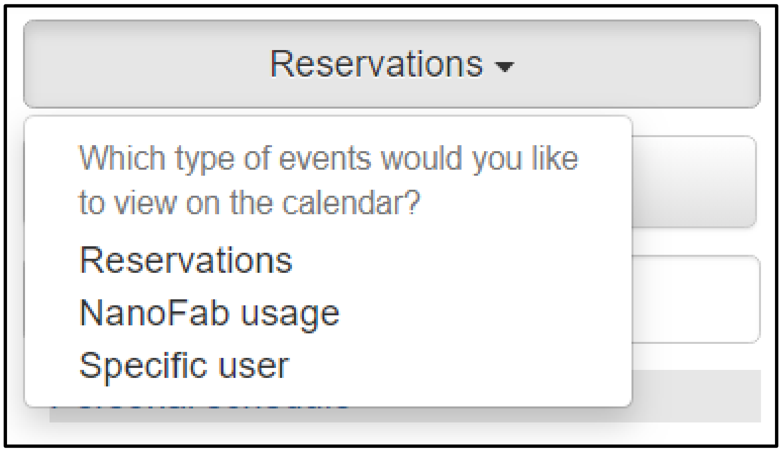


Figure 32 Calendar mode selection

6.2.2 Area and Tool list

The area and tool list has a variety of features to help users visually identify area, tools and training status, as well as convenient navigation.

6.2.2.1 Find the area or tool of interest

The expand and contract buttons (Figure 33) provide a shortcut to open or close the area and tool list.


Figure 33 Expand (left) and contract (right) buttons

Clicking expand will fully expand the area and tool list so all categories, sub-categories, areas, and tools are listed (Figure 31).

Clicking contract will close the area and tool list so only top categories are listed (Figure 34).

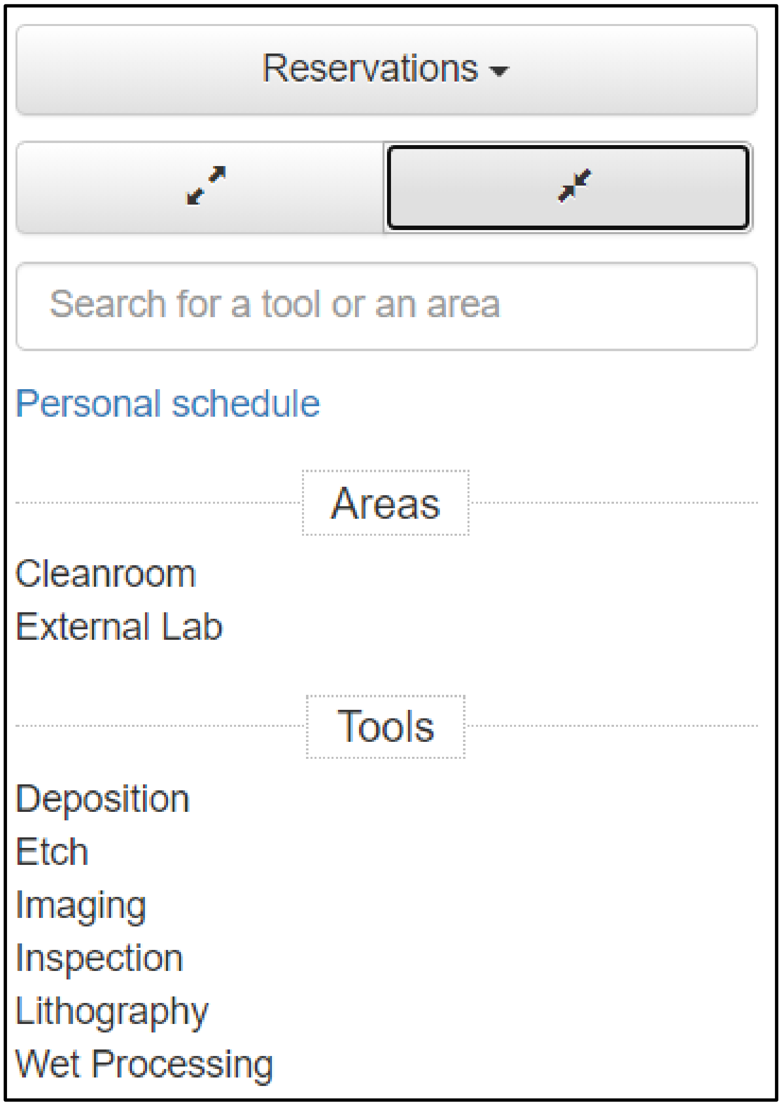


Figure 34 Tool list contracted

To find an area or tool directly, enter the name in the search dialog (Figure 35) then select the name of the list returned. The return list updates automatically as typed, and a tool can be clicked from the list at any time (Figure 36). Once clicked, the list is expanded to show the area or tool clicked and that area or tool is selected.

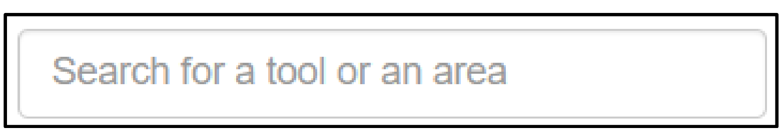


Figure 35 Tool search dialog

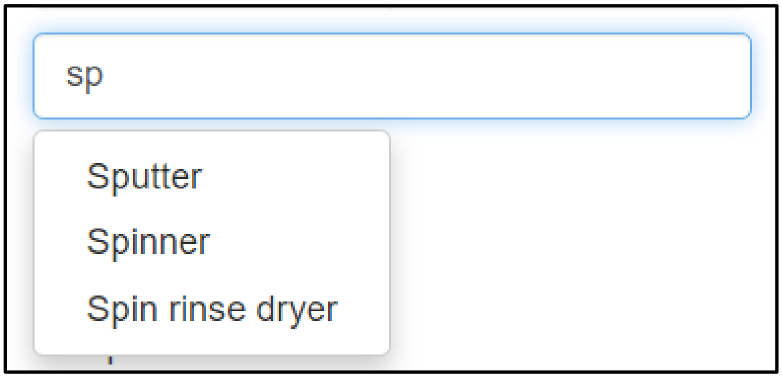


Figure 36 Tool search return list

6.2.2.2 Personal schedule

The personal schedule link appears as the first item in the tool list and provides a way to show reservations or usage across all tools for the current user. Note that since a specific tool is not selected while viewing a personal schedule, reservations cannot be made in this mode.

6.2.2.3 Overview options

Overview options can be enabled in the Customization → Calendar settings page detailed starting on page 296. Once enabled, you will have the options to see “All tools”, “All areas” and “All tools and areas” depending on the settings you decide to enable.
As their name indicates, those options will allow the user to see all tools, areas or both in the calendar. Those links will also work with both the “Reservations” and “Facility usage” event feeds (Figure 37).

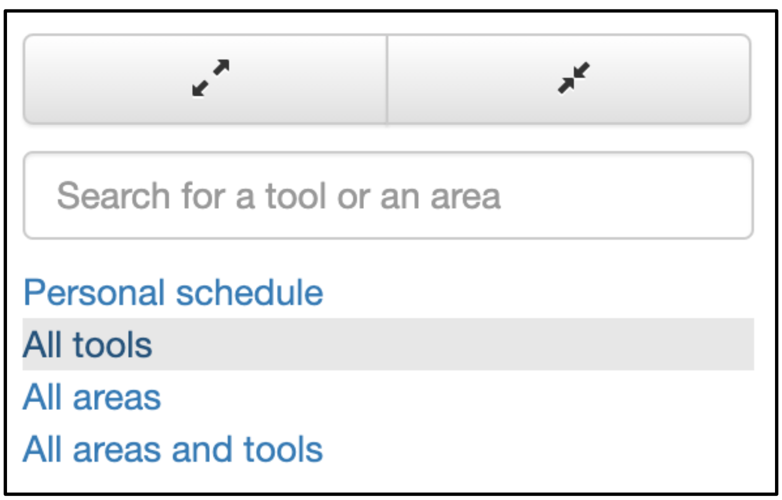


Figure 37 Tool overview options

6.2.2.4 Hierarchy of the area and tool list

The area and tool list are displayed in alphabetical order by top level category, then by second level category, etc. If both areas/tools and sub-categories exist at any level, areas/tools are listed first in alphabetical order, then sub-categories are listed in alphabetical order (Figure 38). All tools must have at least one top level category. Area categories are optional and set in the area table discussed in the Detailed administration → Areas section on page 379. Tool categories are set in the tool table and are discussed in the Detailed administration → Tools section on page 483.

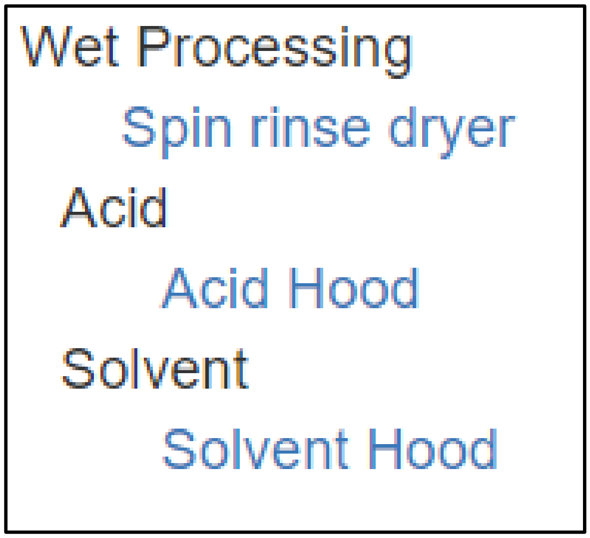


Figure 38 Example of category and tool mixed listing

6.2.2.5 Area list icons

Each area lists information to determine the status of the area. A person icon indicates the occupancy status according to color. A fraction follows indicating the number of occupants versus the total number allowed (Figure 39).

Figure 39 Example Area with icons

The occupancy of this area is low and additional users will be allowed into the area. Hovering over the icon shows a list of current users.

The occupancy is close to the limit. Hovering over the icon shows a list of current users.

The occupancy is at or above the limit and users will not be allowed to enter. Hovering over the icon shows a list of current users.

The list of current users is color coded by role. Users in white, staff in green, and service personnel in orange (Figure 40).

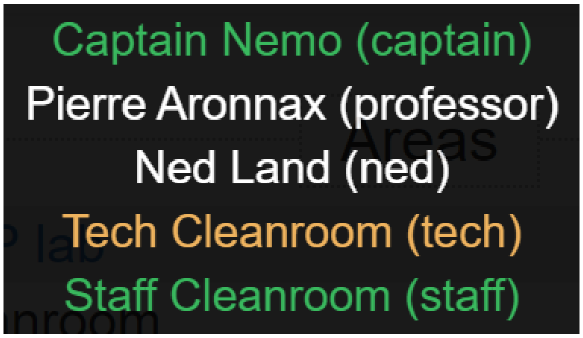


Figure 40 Hover over occupant listing

3 / 5 Fraction indicating the number of users currently logged in to the area versus the total number of users allowed. Hovering over will display the number of users, staff, and service personnel.

Note: The occupancy limits can be configured to include or exclude staff and service personnel in the total occupant count. In that case, they will be listed separately from the occupant count. The occupancy limit and counting staff and service personnel are set in the area table discussed in the Detailed administration → Areas section on page 379.

6.2.2.6 Tool list icons

Each tool can list icons to give a quick reference to visually note the operating status. Hovering over an icon will give a description of its purpose in case the icons meaning isn't known.

The tool requires an area reservation. Before a user can make a reservation on the tool, they must first make an area reservation that will encompass the start time of the tool reservation.

A user is currently logged into the tool. Hovering over the icon will show the logged in user's name.

A delayed logoff is in effect. The tool is not available for users.

A scheduled outage is in effect for this tool. The tool is not available to users.

A scheduled outage of an option resource is in effect for this tool. The tool is available but may not be fully functional.

A required resource is unavailable. The tool is not available to users.

An optional resource is unavailable. The tool is available to users, but the tool may not be fully functional. The optional resource unavailable icon is only displayed if the required resource unavailable icon is not displayed.

The tool is shut down because of a serious problem. The tool is not available to users.

The tool has a problem that may impact usage or results. The tool is available to users, but the tool may not be fully functional. The tool problem icon is only displayed if the tool shut down icon is not displayed.

6.2.2.7 Area and tool qualification

By default, users can not see the areas they are not qualified to access. However, that is configurable in the Customization → Calendar settings page detailed starting on page 296. If enabled, areas that users are not qualified to access will be greyed out in the same manner as tools.

Tools that users are qualified to access will appear dark on the list while tools that a user is not qualified to access will appear greyed out (Figure 41). User tool qualifications are detailed in Qualifications on page 235.

Figure 41 Tool list showing user qualifications

6.3 Calendar

6.3.1 User calendar header bar

The default calendar header bar is displayed above the calendar and provides users an interface to navigate dates and switch views (Figure 42). By default, the calendar displays a one-week view which can be changed to a one-day view or one-month view. The default view is customizable and detailed in the Customization → Calendar settings page detailed starting on page 296.

Figure 42 Default calendar header

6.3.1.1 Arrow buttons

Clicking the left or right arrows will increment or decrement the current view. For example, in the week view, the left arrow will move to the previous week and the right arrow will move to the following week.

6.3.1.2 Today button

Clicking the “Today” button will change the display to include the current day in the selected view. In any view, when the current day is in the view, the background is highlighted in beige (Figure 43).

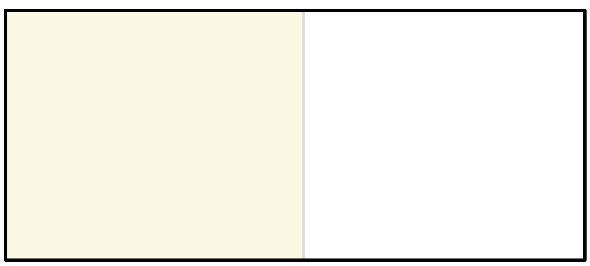


Figure 43 Background for current day (left) and other day (right)

6.3.1.3 Login to the area button

Clicking the login to the area button will log the user into the area selected if they have a current reservation. The login to the area button is only visible if area reservations are required, an area is selected, and the allow area login/logout in the calendar view option is set in the Customization → Application settings section detailed on page 294.

The log in process follows the same steps outlined in the landing page section stating on page 30.

There are several reasons a user may be denied log in including expired user accounts, no active projects, area closures, resource outages, and more. Additional details about log in errors can be found in the Entrance tablet → Log in errors section starting on page 575.

6.3.1.4 Current day/time indicator

The current day is highlighted in each calendar view. On calendar views with the time displayed (day and week views), the current time can optionally be displayed with a red pointer (Figure 44). This option is set in the Customization → Calendar settings page detailed starting on page 296.

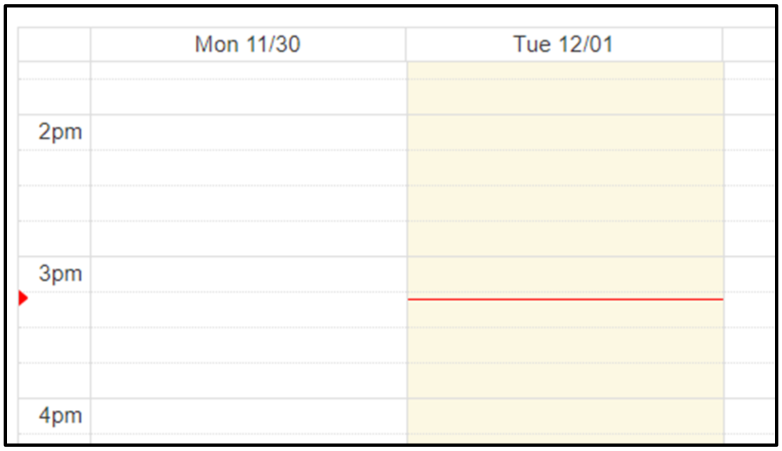


Figure 44 Calendar day and time highlights

6.3.1.5 Day view button

Clicking "Day" will show a single day view calendar. The top of the calendar will show the date in the form of 'day of week mm/dd/yyyy' (e.g. Monday 04/20/2020) (Figure 45). The default date format is customizable and detailed in the Customization → Calendar settings page detailed starting on page 296.

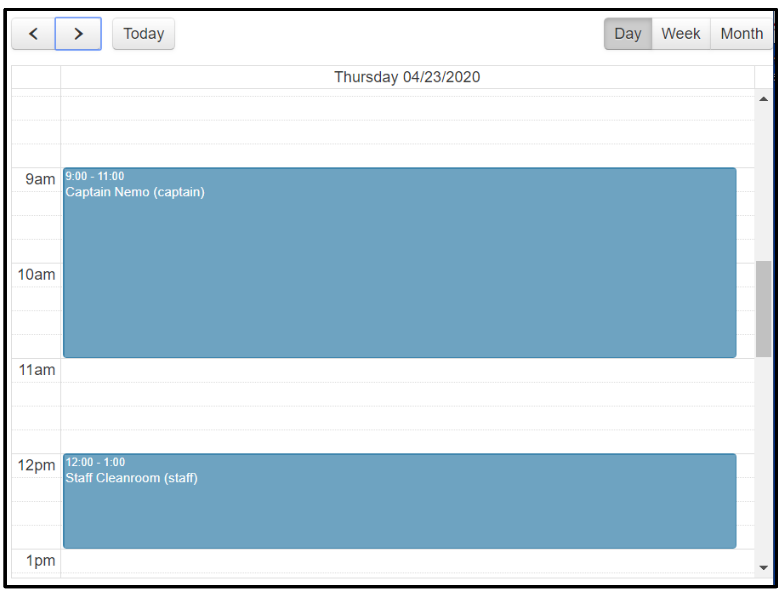


Figure 45 Calendar day view

6.3.1.6 Week view button

Clicking "Week" will show a single week view calendar. The date for each day will be displayed at the top of the calendar in the form of 'day of week mm/dd' (e.g. Mon 4/20) (Figure 46). The default date format is customizable and detailed in the Customization → Calendar settings page detailed starting on page 296.

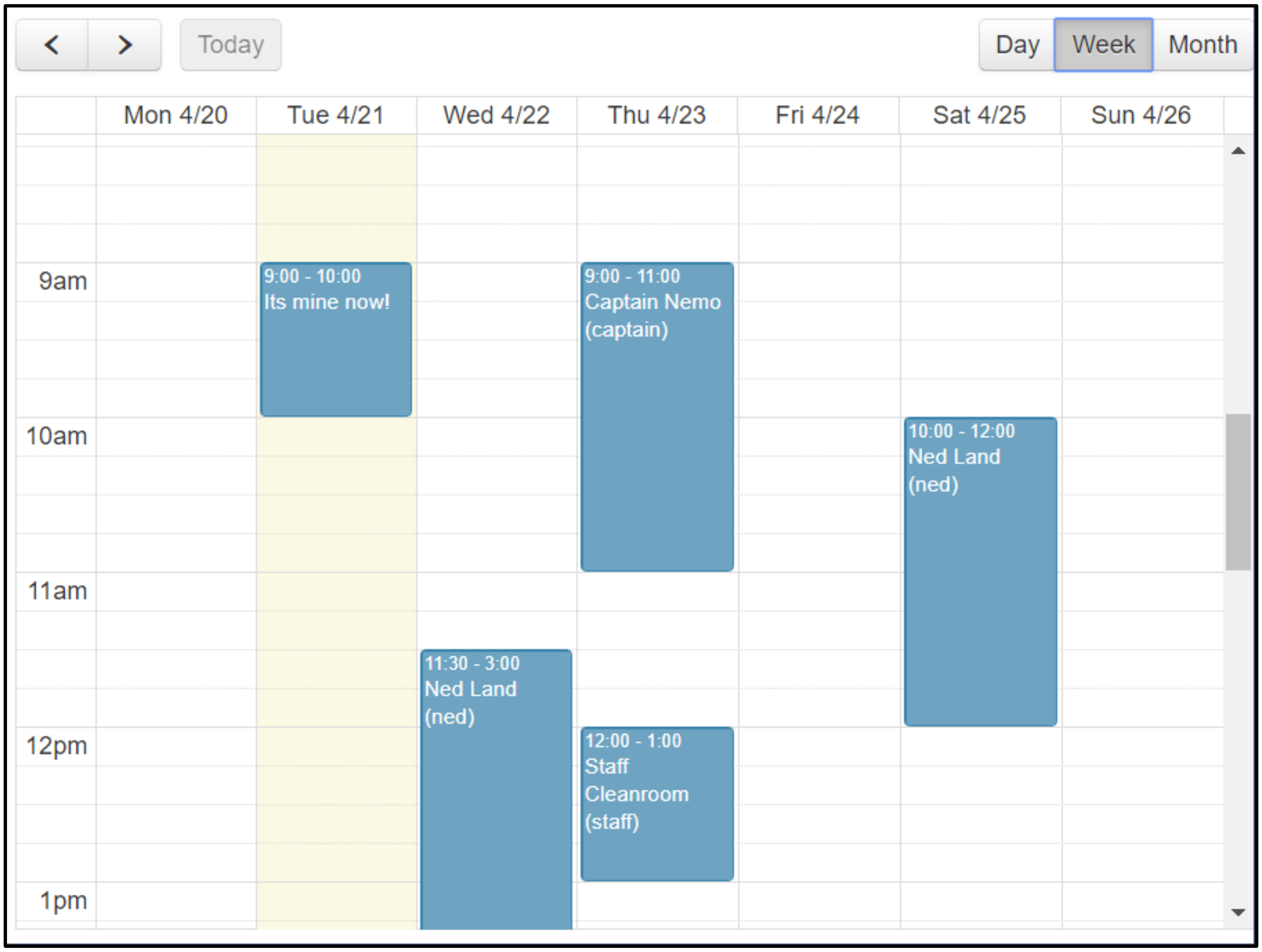


Figure 46 Calendar week view

6.3.1.7 Month view button

Clicking "Month" will show a single month view calendar with leading and trailing day from prior and future months. The calendar header will show the month and year, the top of the calendar will show the days of the week, and each day will show the day of the month (Figure 47). The default date format is customizable and detailed in the Customization → Calendar settings page detailed starting on page 296.

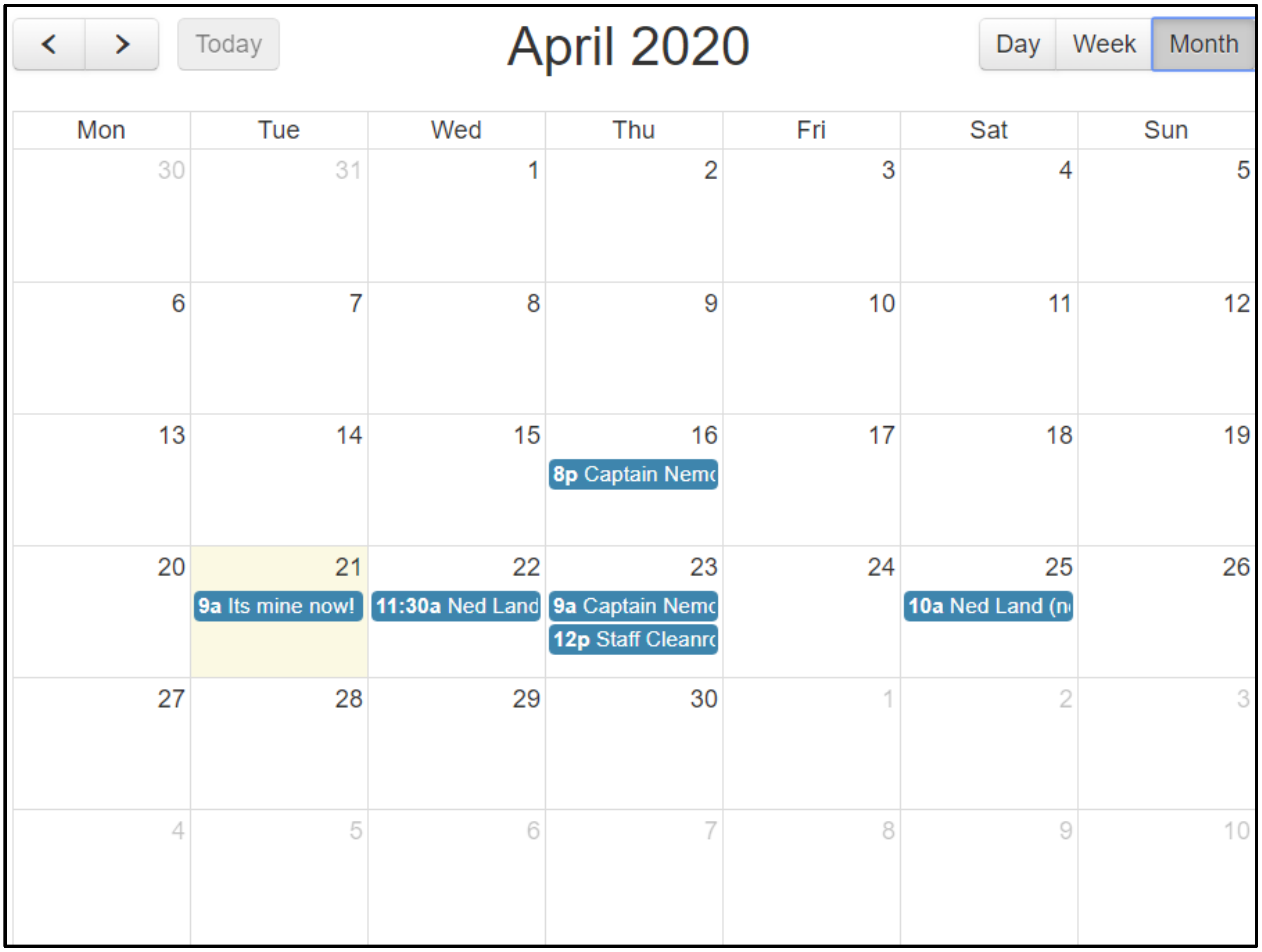


Figure 47 Calendar month view

6.4 Reservations

Selecting "Reservations" mode from the calendar sidebar will allow placement of area specific and tool specific reservations onto the calendar (Figure 48). All reservations are audited through system reservation policies as well as area specific and tool specific reservation policies. The calendar view is used to create a reservation, change a reservation, or view a personal schedule. All tools, all areas or all tools and areas can also be displayed if enabled in in the Customization → Calendar settings page. A reservation history is maintained in the database including active, canceled, missed, moved, and resized reservations. Reservation records are discussed in the Detailed Administration → Reservations section on page 436.

Figure 48 Calendar side bar in Reservations mode

6.4.1 Staff calendar header bar

In “Reservations” mode, the calendar header bar expands for staff (Figure 49) and adds reserving on behalf of someone else and scheduling an outage. The distinction between staff and non-staff is set in the Detailed administration → Users dialog described on page 366.

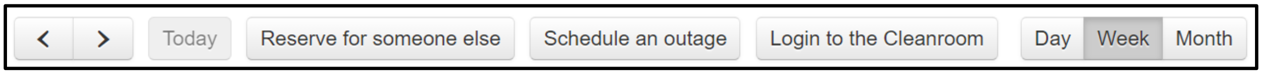


Figure 49 Staff calendar header bar in reservations mode

6.4.1.1 Reserve for someone else button

The ‘Reserve for someone else’ button starts a staff reservation on behalf of another user which is detailed on page 59.

6.4.1.2 Schedule an outage button

The ‘Schedule an outage’ button starts the scheduling of a one time or recurring shutdown of an area or tool which is detailed on page 60.

6.4.2 Calendar view

Reservations for all users and scheduled outages are viewable for the selected tool in the time window displayed (Figure 50). Reservations display in blue and show the start time, end time, and user that reserved the tool. Scheduled outages display in red and show the start time, end time, and outage title. NEMO automatically updates the reservations upon any navigation change for tool selection or time window. A scroll bar will appear on the right side of the calendar view to allow scrolling the time window. Clicking any reservation or scheduled outage will show additional details (Figure 51, Figure 52).

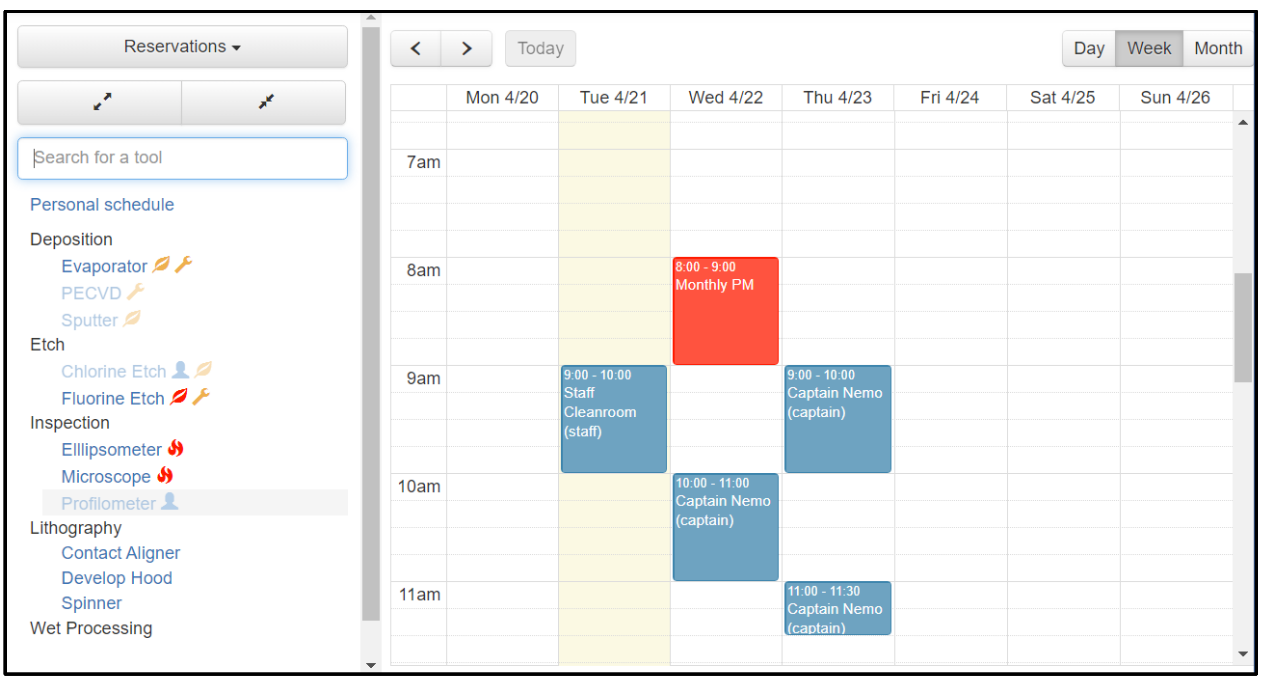


Figure 50 Tool specific calendar view

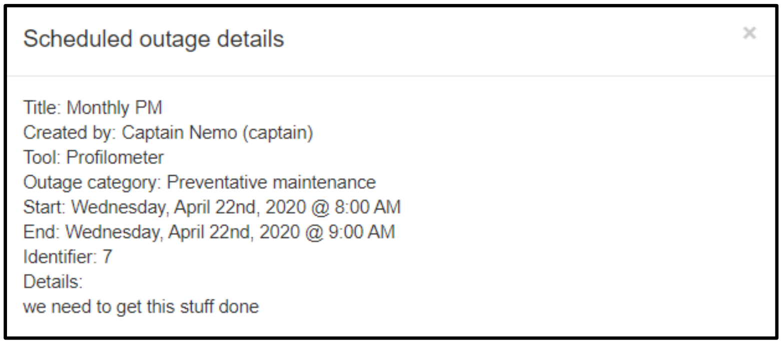


Figure 51 Scheduled outage details dialog

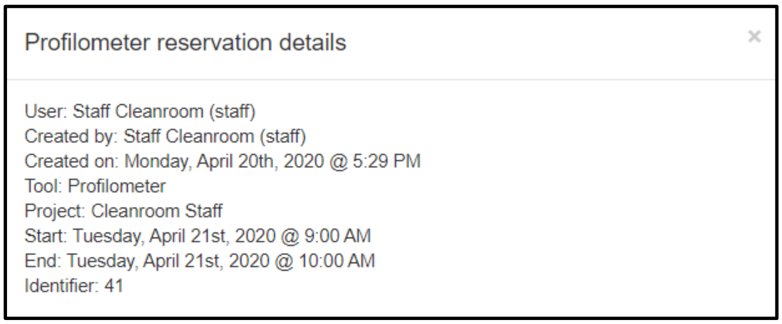


Figure 52 Reservation details dialog

6.4.3 Personal schedule view

The personal schedule view will display all reserved areas and tools for the user in the current time window. Personal schedule reservations display in green and show start time, end time, and the area or tool name (Figure 53). Reservations may be moved or deleted in this view. Clicking any reservation will show additional details (Figure 54).

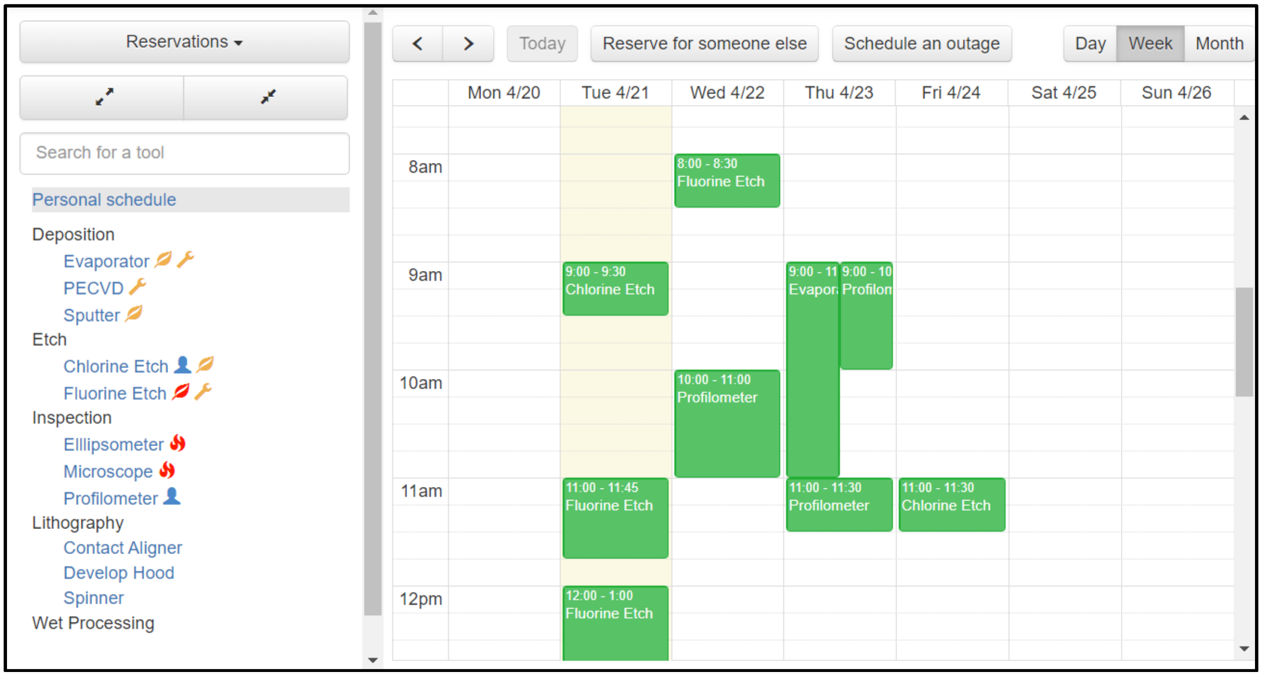


Figure 53 Personal schedule calendar view

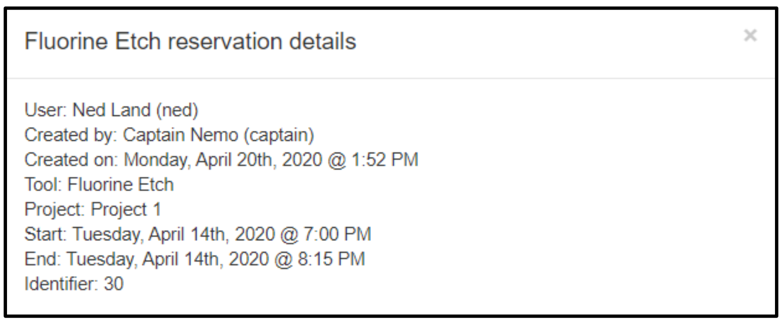


Figure 54 Personal schedule reservation details dialog

6.4.4 All tools, All areas and All tools and areas calendar views

Similar to the personal schedule, selecting “All tools” will allow the user to see all tool reservations (Figure 55). The same goes for “All areas” and “All areas and tools”.

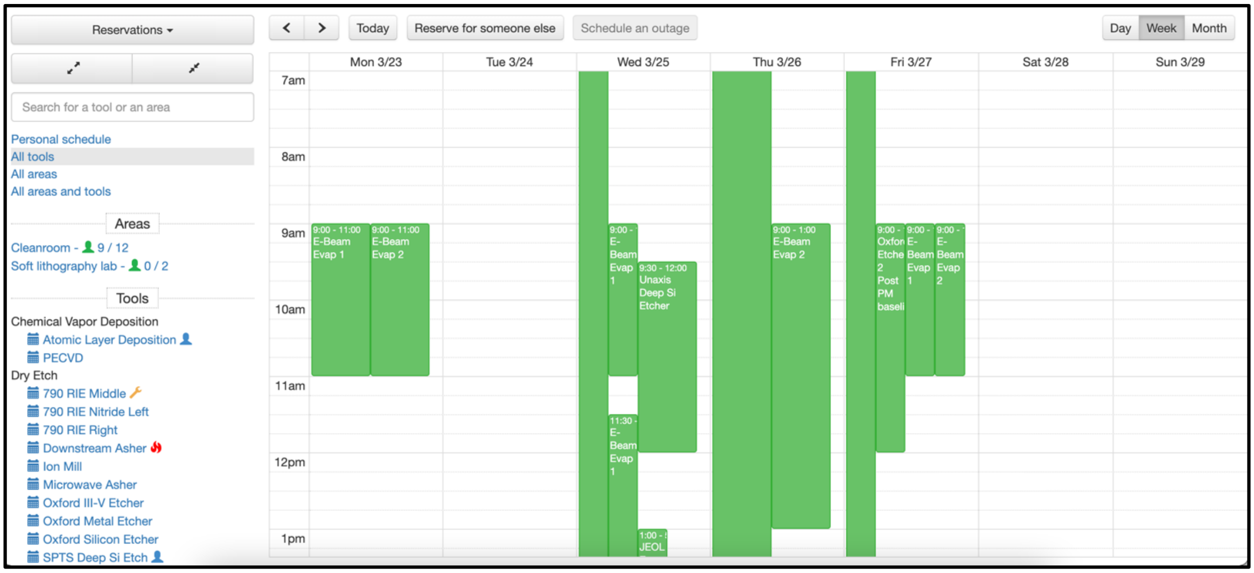


Figure 55 All tools calendar view

6.4.5 Reservation policy

Reservation policies fall into two categories. There are system reservation policies and area/tool specific reservation policies. The policies are intended to safeguard NEMO, ensure the integrity of the database, and provide a customizable profile to maximize tool availability to users. Staff are able to override many of the policies on behalf of a user to provide scheduling flexibility and promote staff awareness of special tool needs such as excessively long runs that might otherwise go undetected.

6.4.5.1 System reservation policies

The following system reservation policies must be met to allow a reservation to be created or modified. Staff **may not override** any of these policies.

- Reservations may not have a start time that is earlier than the end time.
- The user may not create, move, or resize a reservation to coincide with another reservation.
- The user may not create, move, or resize a reservation to coincide with a scheduled outage.
- Reservations that have been cancelled may not be changed.
- The user must belong to at least one active project to make a reservation. User project associations are discussed in Users on page 278.
- The user must associate their reservation with a project they belong to. If a user has only one project, this is automatic.

The following system reservation policies must be met to allow a reservation to be created or modified. Staff **may override** any of these policies on behalf of a user. If a staff member is making the reservation for themselves, these policies will not be checked.

- The user must complete NEMO training to create reservations.

- The user may not create or move a reservation to have a start time that is earlier than the current time.
- The user may not move or resize a reservation to have an end time that is earlier than the current time.
- The user must be qualified on the tool in question in order to create, move, or resize a reservation.
- If an area requires a reservation a tool reservation in that area may not be made without a corresponding area reservation where the tool start time is within the area reservation.
- An area reservation may not be moved or resized out of range of any tool reservations it originally contained.

6.4.5.2 Area and tool specific reservation policies

Area specific reservation policy setup is discussed in the Detailed administration → Areas section on page 379.

Tool specific reservation policy setup is discussed in the Detailed administration → Tools section on page 483.

Area and tool specific reservation policies can be configured to automatically override for all users based on the time of day and for weekends. This can help promote off hour and weekend usage for high demand tools that have restrictive policies to limit regular weekday hours monopoly of tools.

The following area and tool specific reservation policies must be met to allow a reservation to be created or modified. Staff **may override** any of these policies on behalf of a user. If a staff member is making the reservation for themselves, these policies will not be checked.

- The reservation may not be made more than the area or tool's reservation horizon number of days in advance.
- The reservation must be at least as long as the minimum block time for the area or tool.
- The reservation may not exceed the maximum block time for the area or tool.
- The user may not exceed the maximum number of reservations per user per day for the area or tool.
- The user may not make reservations without the minimum amount of time between reservations for the same user and same area or tool.
- The user may not make reservations exceeding the maximum amount of time they may reserve in the future for the area or tool.

6.4.6 Create a reservation

To create a reservation in NEMO:

- Navigate to the Calendar page
- Select the area or tool of interest from the tool list on the sidebar.
    - Note: when an area requires a reservation for access, tool reservations can only be made inside of an area reservation window, so make area reservations first.
- Navigate the calendar view to show the start day and time.
- Click the left mouse button and hold at the start day and time.

- While holding the left mouse button, drag to the end day and time.
- Release the left mouse button.
- The requested reservation will be tested against the reservations policies. If there is a policy conflict, the user will be prompted with a list of conflicts and the reservation will not be made (Figure 56). Click ‘Continue’ to close the dialog. Reservation policies are discussed on page 50.

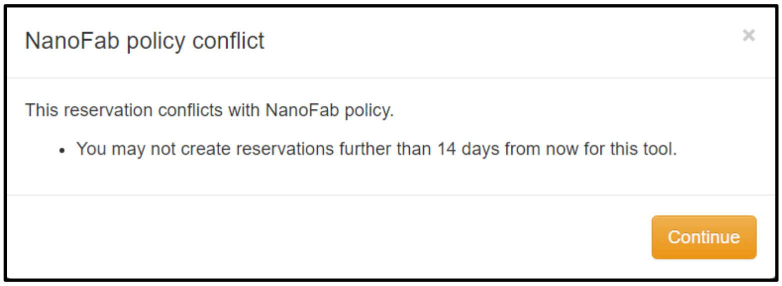


Figure 56 Reservation policy conflict dialog

- If a user has only one project, it will automatically be selected.
- If a user has multiple projects, they will be prompted to select a project from their list of projects (Figure 57). Details about projects can be found on the Accounts and projects page discussed on page 191.

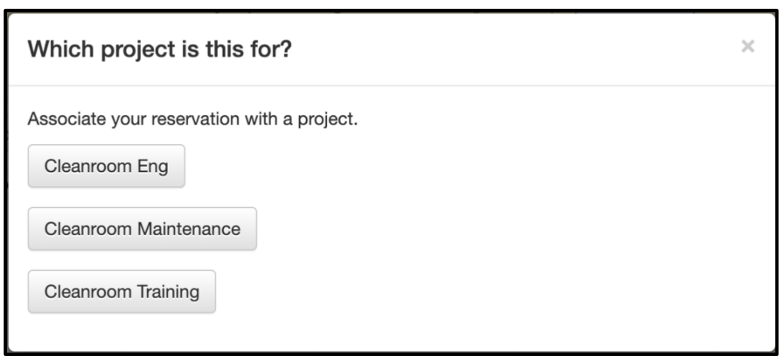


Figure 57 Reservation project selection

- If a tool/area has a “missed_reservation_threshold” set, a message will appear warning the user that a fee might be charged for missing the reservation (Figure 58):

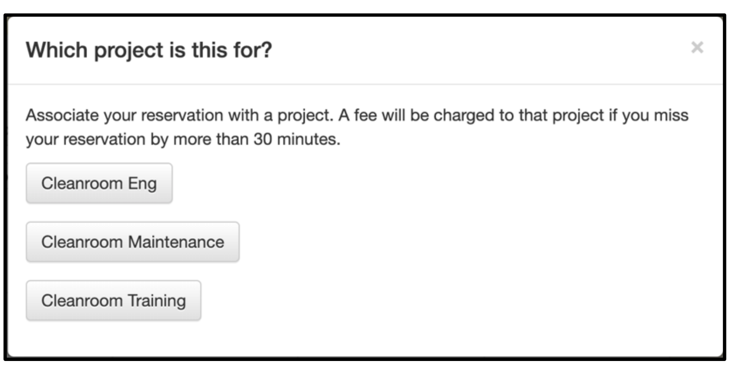


Figure 58 Reservation project selection with missed reservation message

- Project information is needed to implement missed reservation and tool configuration accounting. Staff are exempt and therefore will not be asked for a project when making reservations.
- If there are reservation questions, a form will appear asking the user to answer the questions. Reservation questions are discussed in the Reservation Questions section on page 446.
- If the tool is configurable, a configuration dialog will appear. Tool configurations collect information about how a tool will be run by the user and can be collected for informational purposes or to prompt staff to configure a tool for a user. Configuration history is saved in the database. Each tool configuration has a minimum advanced notice. If the reservation request is within the advance notice window, the user will be prompted in red at the top of the window that the staff may not be able to accommodate the request. Select the appropriate options and provide details as necessary (Figure 59). Configurations are discussed in the Configuration Agenda section on page 212.

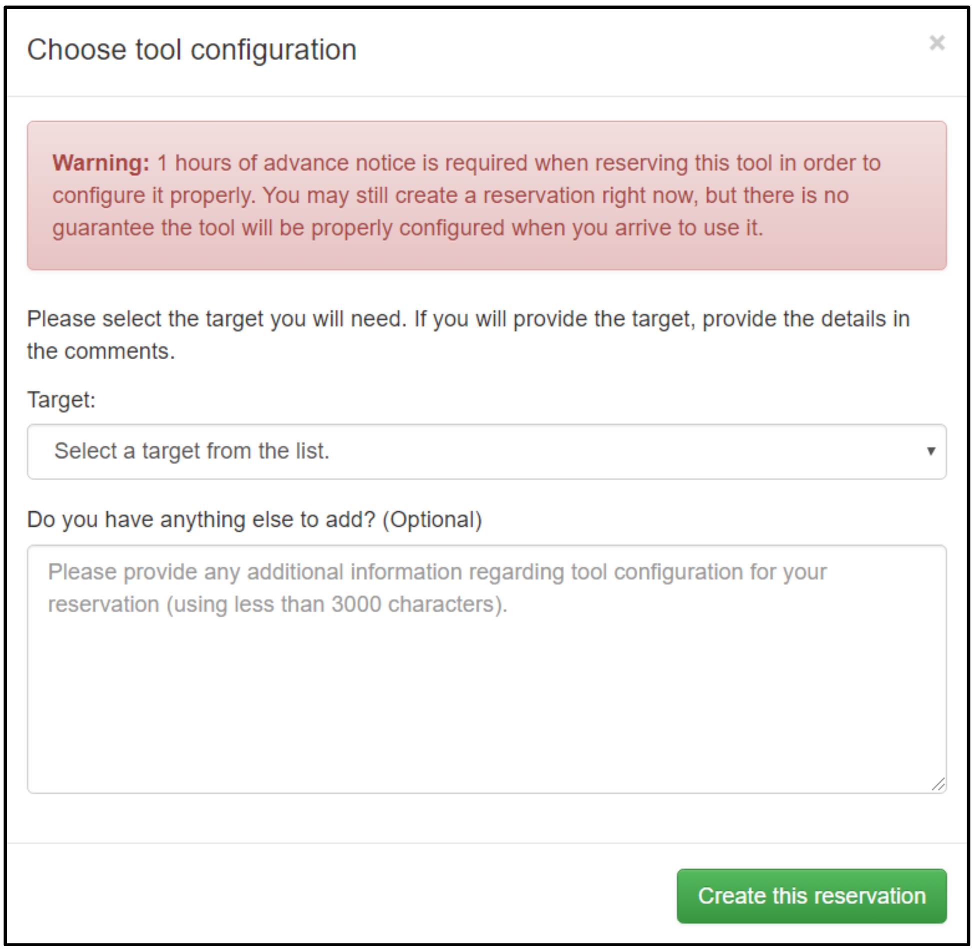


Figure 59 Reservation tool configuration

- For tool reservations, if the area has a reservation warning person limit configured, the user will be prompted with a message to inform them of the number of people expected in the area and to consider social distancing when making reservations (Figure 60). In addition, if multiple people are expected in the same location within an area that information is provided as well. Areas are defined in the area table of the database and discussed in the Detailed administration → Areas section on page 379. Locations are defined in the tool table of the data base and discussed in the Detailed administration → Tools section on page 483.

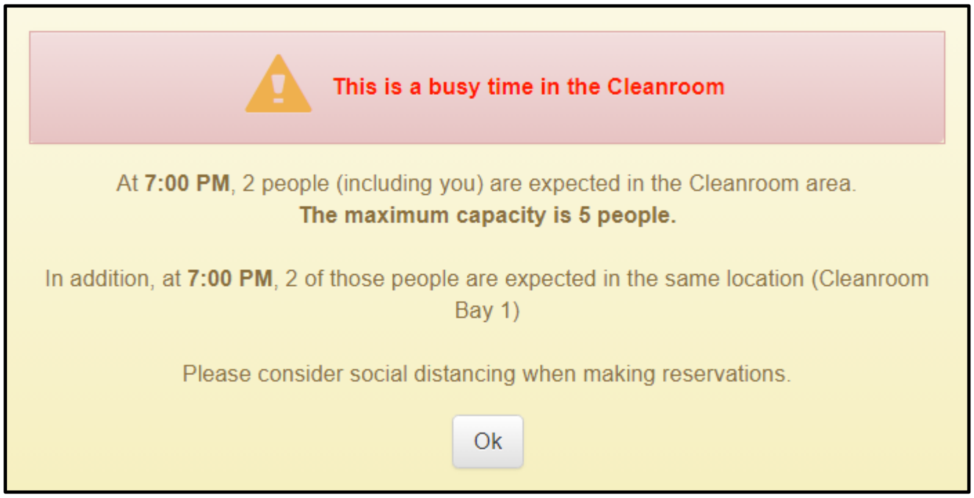


Figure 60 Reservation occupancy warning

- The reservation will be written to the Reservations table in the database which is discussed in the Detailed administration → Reservations section on page 436.
- The reservation will appear on the calendar.

6.4.7 Move a reservation

- Move the mouse pointer into the middle of the reservation to be moved. If you have permission to move the reservation, the mouse pointer will change from the arrow to a hand.
- Click the left mouse button and hold.
- While holding the left mouse button, drag the reservation to the new day and time.
- Release the left mouse button.
- The requested move will be tested against the reservations policies. If there is a policy conflict, the user will be prompted with a list of conflicts and the reservation move will not be made (Figure 61). Click 'x' to close the dialog. Reservation policies are discussed on page 50.
- NOTE: An area reservation may not be moved out of range of any tool reservations it originally contained.
- Any time a reservation is moved, the old reservation is cancelled and a new reservation with updated information takes its place. The descendant field links the old reservation to the new one, so the history of reservation moves, and changes can be easily tracked.

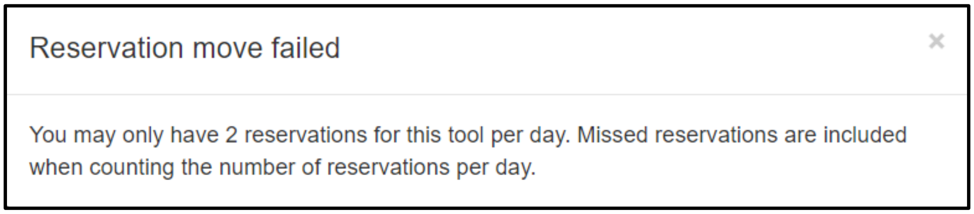


Figure 61 Reservation move failed dialog

6.4.8 Resize a reservation

- Reservations may only be resized to change the end time. If the reservation needs to start at an earlier time, move the reservation to the new start time, then resize it.
- Move the mouse pointer over the bottom of the reservation to be resized. If you have permission to resize the reservation, the mouse pointer will change from the arrow to a double arrow and two stacked lines will appear at the bottom middle of the reservation (Figure 62).
- Click the left mouse button and hold.
- While holding the left mouse button, drag the reservation end time to the new day and time.
- Release the left mouse button.
- The requested resize will be tested against the reservations policies. If there is a policy conflict, the user will be prompted with a list of conflicts and the reservation resize will not be made (Figure 63, Figure 56). Click ‘x’ to close the dialog. Reservation policies are discussed on page 50.
- NOTE: An area reservation may not be resized out of range of any tool reservations it originally contained.
- Any time a reservation is resized, the old reservation is cancelled and a new reservation with updated information takes its place. The descendant field links the old reservation to the new one, so the history of reservation changes can be easily tracked.

Figure 62 Reservation resizing bottom change

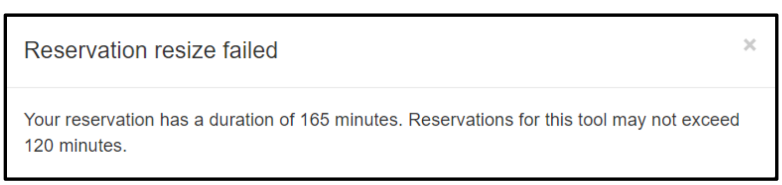


Figure 63 Reservation resize failed dialog

6.4.9 View details or delete a reservation

- Single click the center of the reservation.
- A reservation detail dialog will be displayed that provides additional information (Figure 67)
  - Who created the reservation, this is a link that once clicked will provide an email dialog through NEMO to contact the user.
  - When the reservation was created
  - The area or tool reserved, for tool reservations, the name is a link to the tool page.
  - The project
    - If the user has multiple projects the selected project can be changed.
      - Click the edit icon () on the right.
      - The project will change to the update dialog (Figure 64).

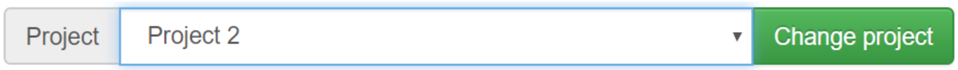


Figure 64 Reservation project change dialog

- Select the new project from the dropdown list (Figure 65).

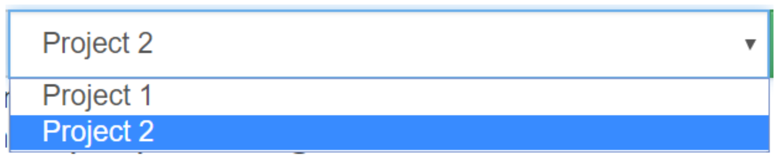


Figure 65 Reservation project change dropdown

- Click the change project button to complete (Figure 66).

Figure 66 Reservation project change button

  - The start time and end time

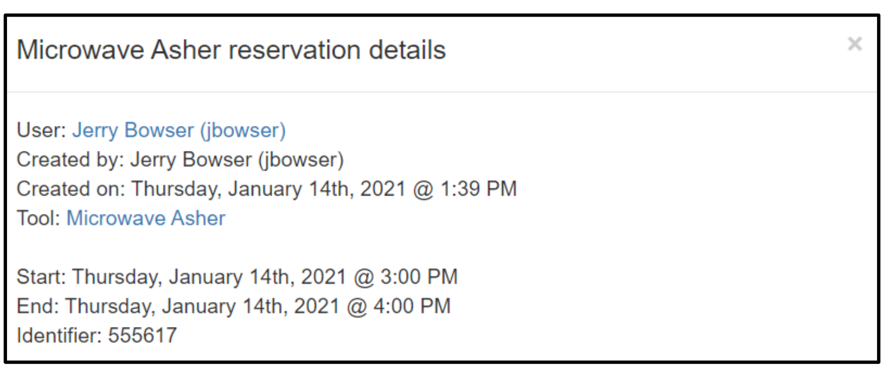


Figure 67 User reservation details dialog

  - Staff Only – two additional fields are provided for staff (Figure 68)

    - A title for the reservation can be set to users see a more descriptive reason for a staff reservation. This can be useful to indicate process qualifications or baselines. Type a title into the dialog box then click 'Set title'.
    - A cancelation reason box will appear next to the cancel if a staff member clicks on another user's reservation including another staff member. Staff can delete any reservation however they must give a reason that will be emailed to the impacted user. Type a reason for canceling the reservation into the dialog box then click 'Cancel this reservation'.

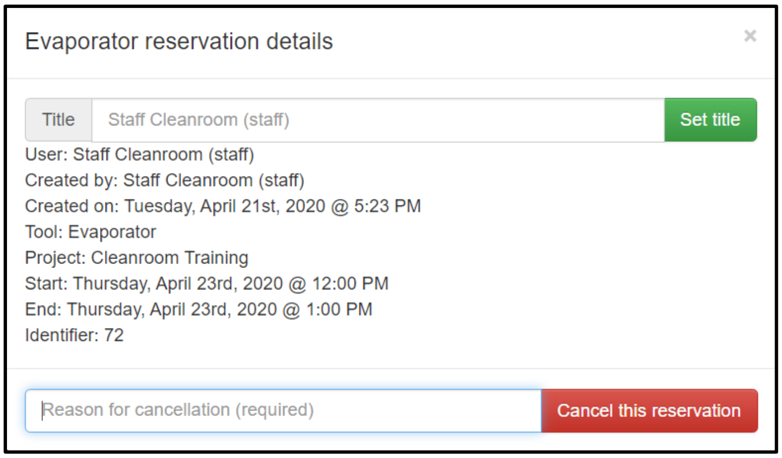


Figure 68 Staff reservation details dialog

- Click the 'x' to close the details without deleting the reservation
- Click the 'Cancel this reservation' button to cancel the reservation.
- Note: users may only cancel their own reservations that have not have not passed the end time.
- Any time a reservation is canceled, the canceled field in the reservation table is set.

6.4.10 Reservation email notifications

NEMO can send email notifications to staff and users

- There are user settable preferences to send reservation and cancelation emails with calendar invites. User preferences are discussed in the User preferences section on page 185.
- If staff cancels a user reservation, the user will receive an email notification regardless of user preference settings as described in Customization → Cancellation email detailed on page 319.
- Users are sent a reminder email approximately two hours prior to the start of a reservation. The email serves to not only remind user of upcoming reservations but also to alert them to any potential problems with the reserved tool as described in Customization → Reservation reminder email detailed on page 332 and Customization → Reservation warning email detailed on page 338.

6.4.11 Missed reservations

Each area and tool can be configured to automatically cancel a user's reservation if they are late logging in by more than the missed reservation threshold number of minutes. A missed reservation event requires three items to be setup.

1. A missed reservation threshold must be entered for any areas or tools that will trigger a missed reservation as discussed in the Detailed administration → Areas section on page 379 and in the Detailed administration → Tools section on page 483.
2. A missed reservation email can optionally be configured to notify the user and lab staff that a reservation was missed as described in Customization → Missed reservation email detailed on page 59.
3. A timed service app must be properly configured and running which is described in NEMO timed services on page 581.

If configured, once the missed reservation threshold is exceeded, the reservation will be canceled, marked as missed in the reservation table, and email notifications sent.

If an area or tool is shutdown, a missed reservation **will not** be triggered.

All staff reservations are exempt from this rule.

6.4.12 Reserve for someone else (staff only)

The reserve for someone else feature gives staff the ability to override reservation policies on behalf of a user. For example, reserving a tool for a user before they complete qualification on a tool or reserving further in advance due to special travel. The button is only visible if the user logged in is designated as staff.

Clicking the 'Reserve for someone else' button will display the selection dialog (Figure 69). Type the user's name in the search box. The return list updates automatically as typed, and a tool can be clicked from the list at any time (Figure 70). Once clicked, the button dialog changes to "Reserving as [user]". Proceed to make reservations.

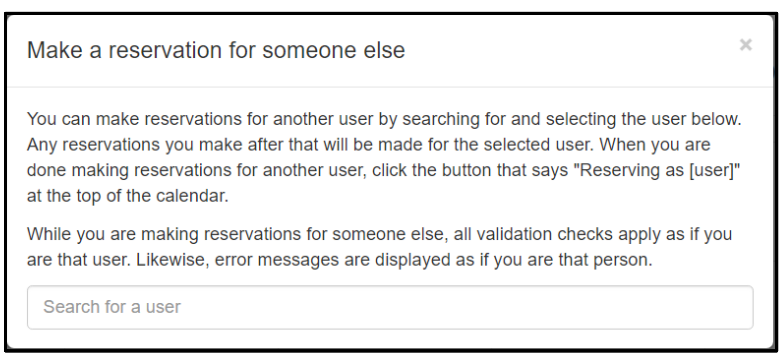


Figure 69 Make a reservation for someone else dialog

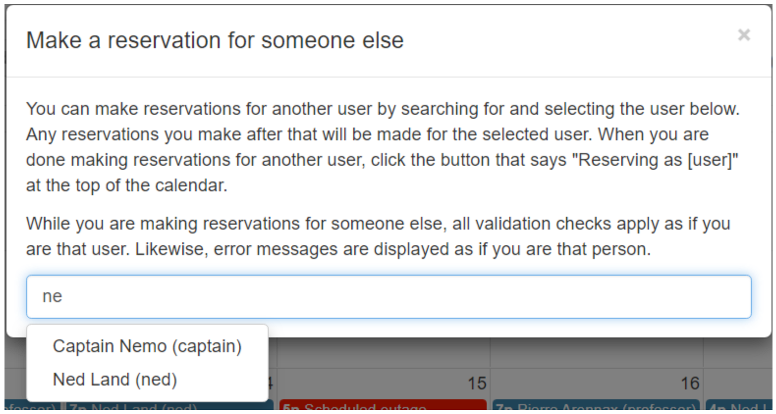


Figure 70 User search return list

If a reservation made on behalf of another user violates the user reservation policy a dialog will be shown to prompt the staff member with a list of policy conflicts and buttons to override the policy or not create the reservation (Figure 71). Clicking override will make the reservation for the user and override any policy violations. Reservation policies are discussed below on page 48.

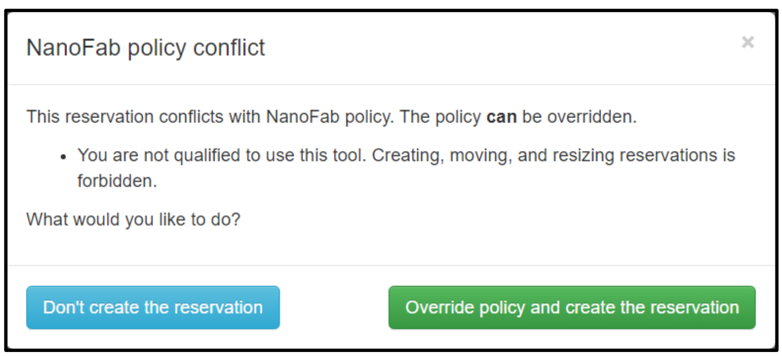


Figure 71 Reservation policy conflict

To end making reservations on behalf of the user, click the “Reserving as [user]” button on the calendar header. The button text will return to “Reserve for someone else”.

6.4.13 Schedule an outage (staff only)

The scheduled outage feature allows staff to make either single or recurring reservations that will automatically change an area or tools status to shut down. This prevents user login at automatic intervals which can be helpful for maintenance tasks such as changing tool configurations or executing pre-maintenance ‘behind the scenes’ tasks that could be impacted by users inadvertently operating a tool.

Clicking the ‘Schedule an outage’ button will remove the ‘Reserve for someone else’ button and change the ‘Schedule an outage’ button text to ‘I’ve finished creating scheduled outages’. After defining the start and end time as detailed on page 47, a dialog will appear (Figure 72).

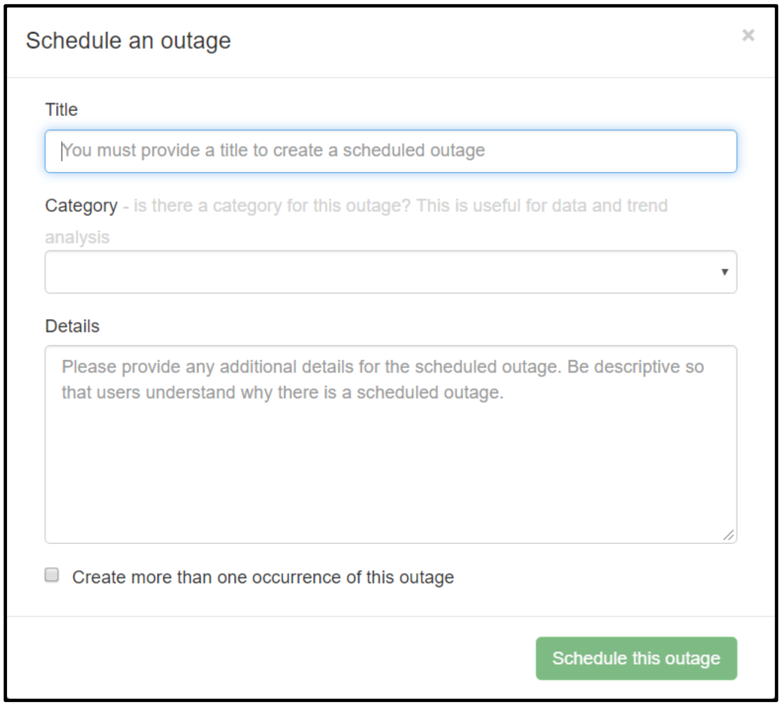


Figure 72 Scheduled outage dialog

A title is required and should provide a brief description of the why the area or tool is scheduled for an outage. An optional category will appear if any scheduled outage categories are defined. Categories can be useful for data analysis. An optional details box can be used to provide more in-depth information.

To create recurring outages, click the check box labeled 'Create more than one occurrence of this outage'. A new dialog will appear (Figure 73) under the check box to enter the frequency and end time. Recurring outages can only be scheduled up to 90 days in advance. It is important to note that recurring outages become standalone reservations once they are created and cannot be modified as a group. However, individual occurrences can be deleted in the calendar or bulk deleted in Detailed Administration.

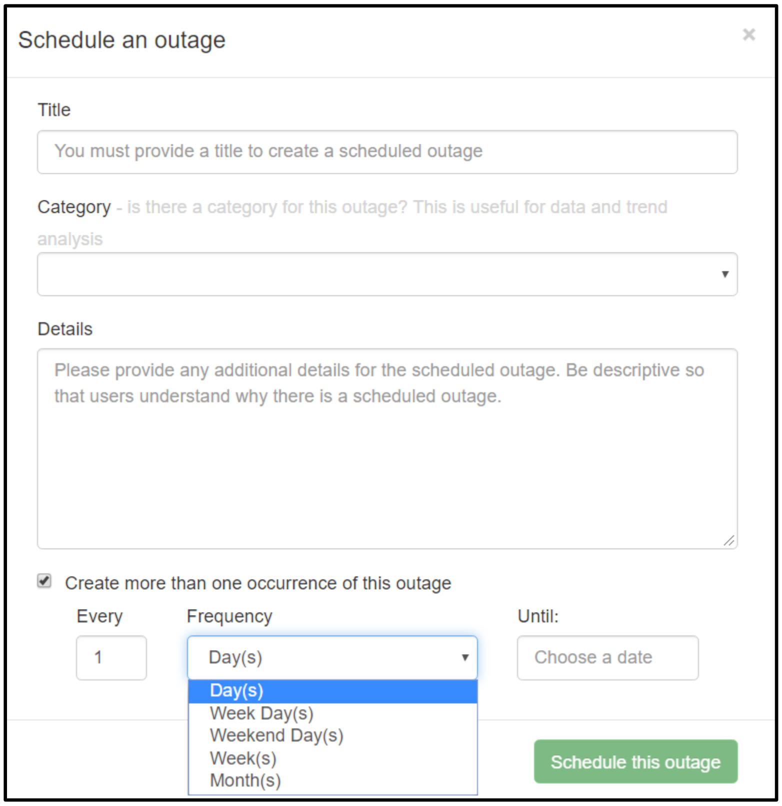


Figure 73 Scheduled outage recurrence

To complete the reservation, click the 'Schedule this outage' button. The scheduled outage will appear on the calendar in red listing the start and end time as well as the title provided. The example in (Figure 74) shows a scheduled shutdown that had a title of 'Monthly PM'. The details can be seen by clicking the reservation on the calendar.

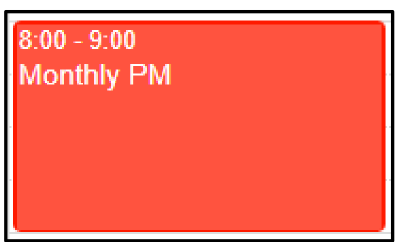


Figure 74 Example scheduled outage

6.5 *Showing NanoFab usage*

Selecting "NanoFab usage" mode from the calendar sidebar will display activity history on the calendar (Figure 75).

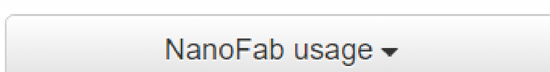


Figure 75 Calendar side bar in NanoFab usage mode

6.5.1 Calendar view

Area or tool activity and missed reservations for all users are viewable for the selected area or tool in the time window displayed (Figure 76). Tool usage displays in blue and shows the start time, end time, and user that used the tool. Area access displays in orange. Missed reservations display in red and show the user, start time, end time. NEMO automatically updates the view upon any navigation change for tool selection or time window. A scroll bar will appear on the right side of the calendar view to allow scrolling the time window. Clicking on any activity box will show additional details (Figure 77, Figure 78).

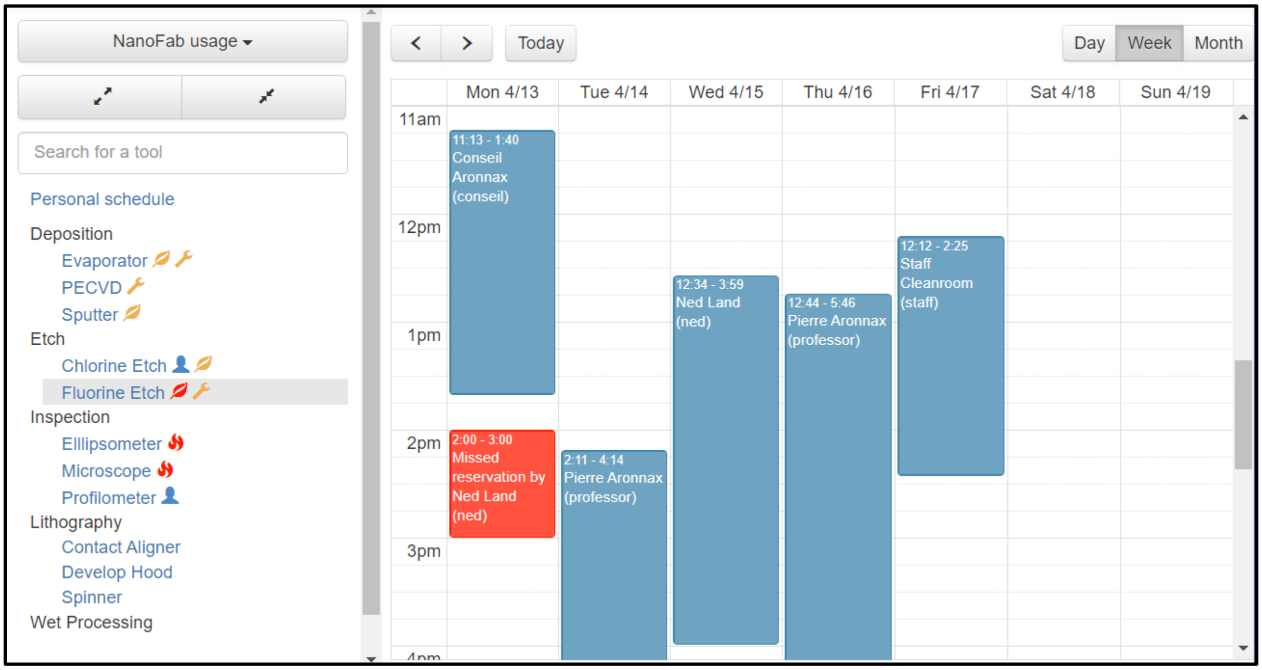


Figure 76 Calendar view usage of a tool

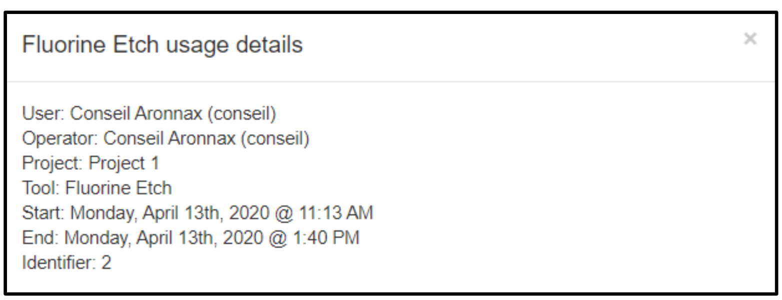


Figure 77 Tool usage details dialog

Figure 78 Missed reservation details dialog

6.5.2 Personal schedule view

The personal schedule view will display all activity for the user in the current time window (Figure 79). Tool usage displays in green and shows the start time, end time, and tool name. Missed reservations display in red and show start time, end time, and tool name. Area access displays in gold and shows start time, end time, and area name. Clicking on any activity box will show additional details (Figure 80, Figure 81, Figure 82).

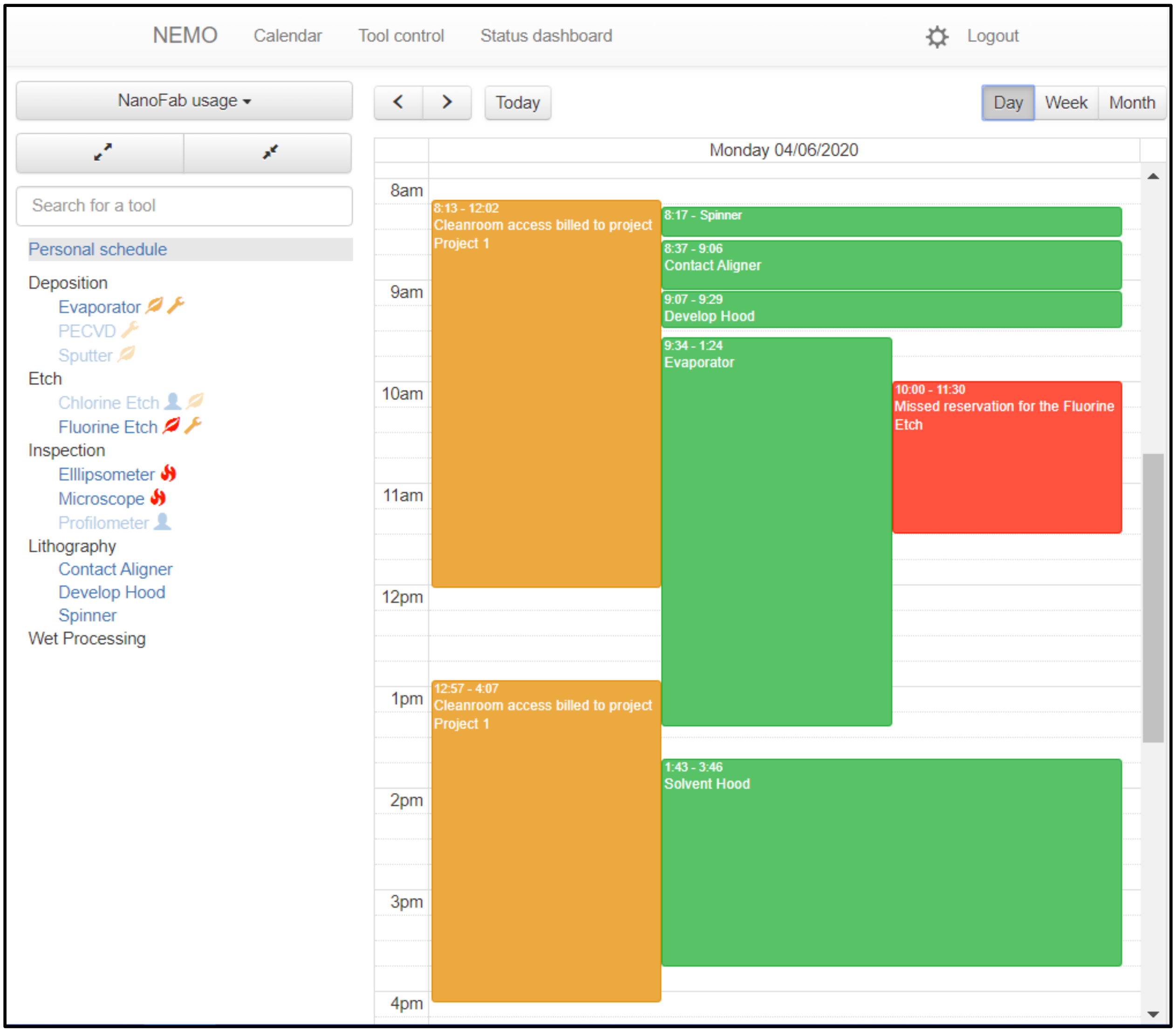


Figure 79 Personal schedule usage view

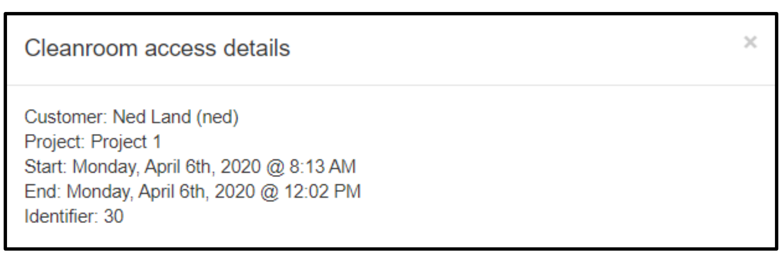


Figure 80 Area access details dialog

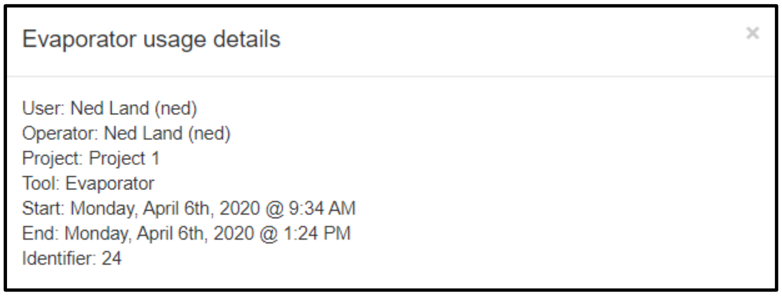


Figure 81 Tool usage details dialog

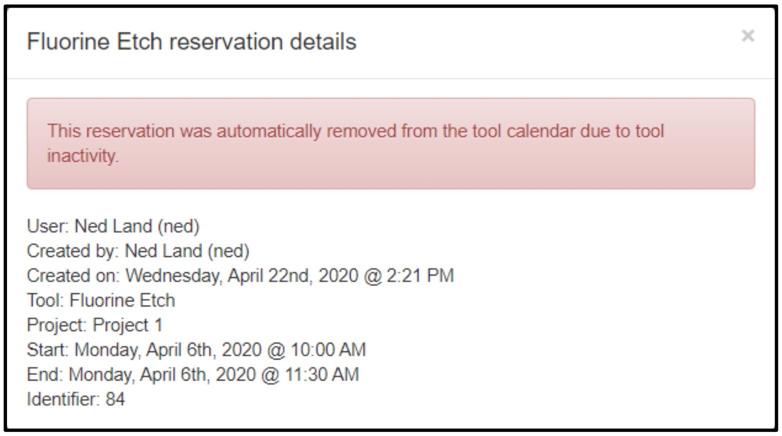


Figure 82 Missed reservation details dialog

6.5.3 All tools, All areas and All tools and areas views

Similar to the personal schedule, selecting "All tools" will allow the user to see all tool usages (Figure 83). The same goes for "All areas" and "All areas and tools".

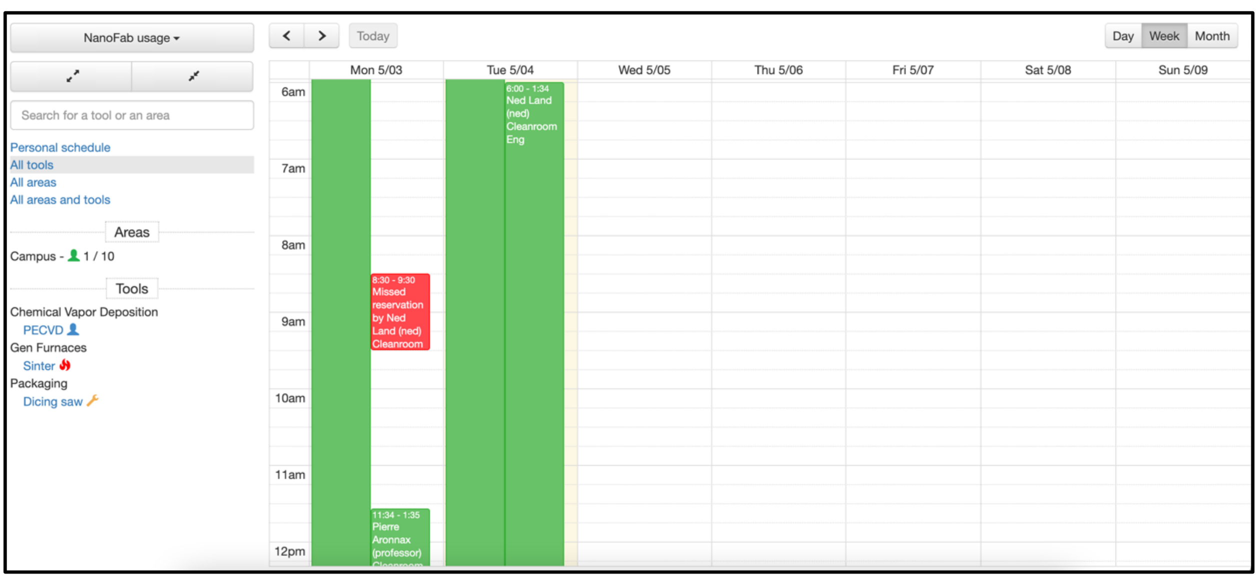


Figure 83 All tools usage view

6.6 Show specific user activity (staff only)

Selecting "Specific User" mode from the calendar sidebar will display activity and reservation history of the selected user on the calendar (Figure 84).

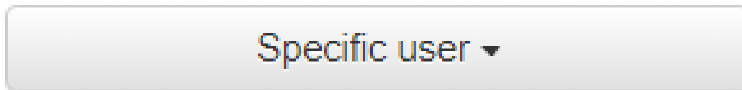


Figure 84 Calendar side bar in Specific user mode

To find a user, enter any character sequence of the username, first name, or last name in the search dialog on the side bar (Figure 85) then select the name of the list returned.

Figure 85 Specific user activity search dialog

The return list updates automatically as typed, and a user can be clicked from the list at any time (Figure 86).

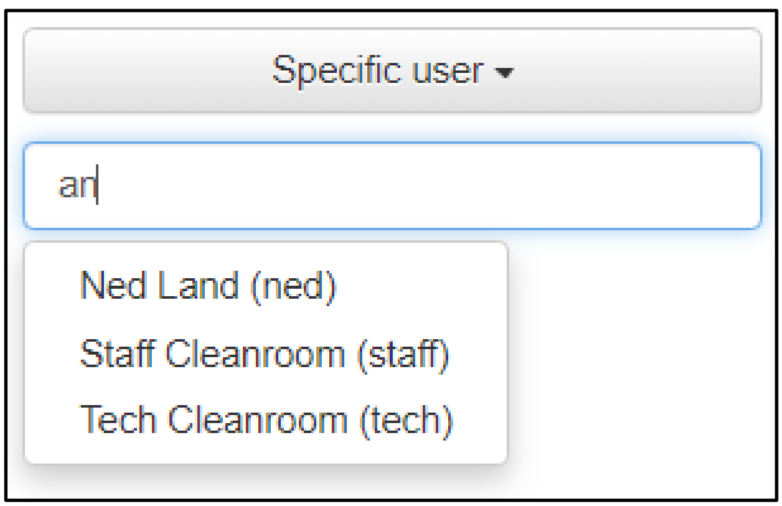


Figure 86 User search return list

Once clicked, the search box changes to a button with the selected users name (Figure 87) and the users information is displayed in the calendar view (Figure 88). To switch to another user, click the button showing the current users name and the dialog will switch back to the search box.

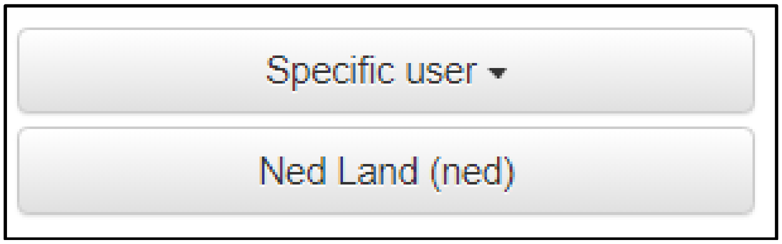


Figure 87 Search dialog now shows user

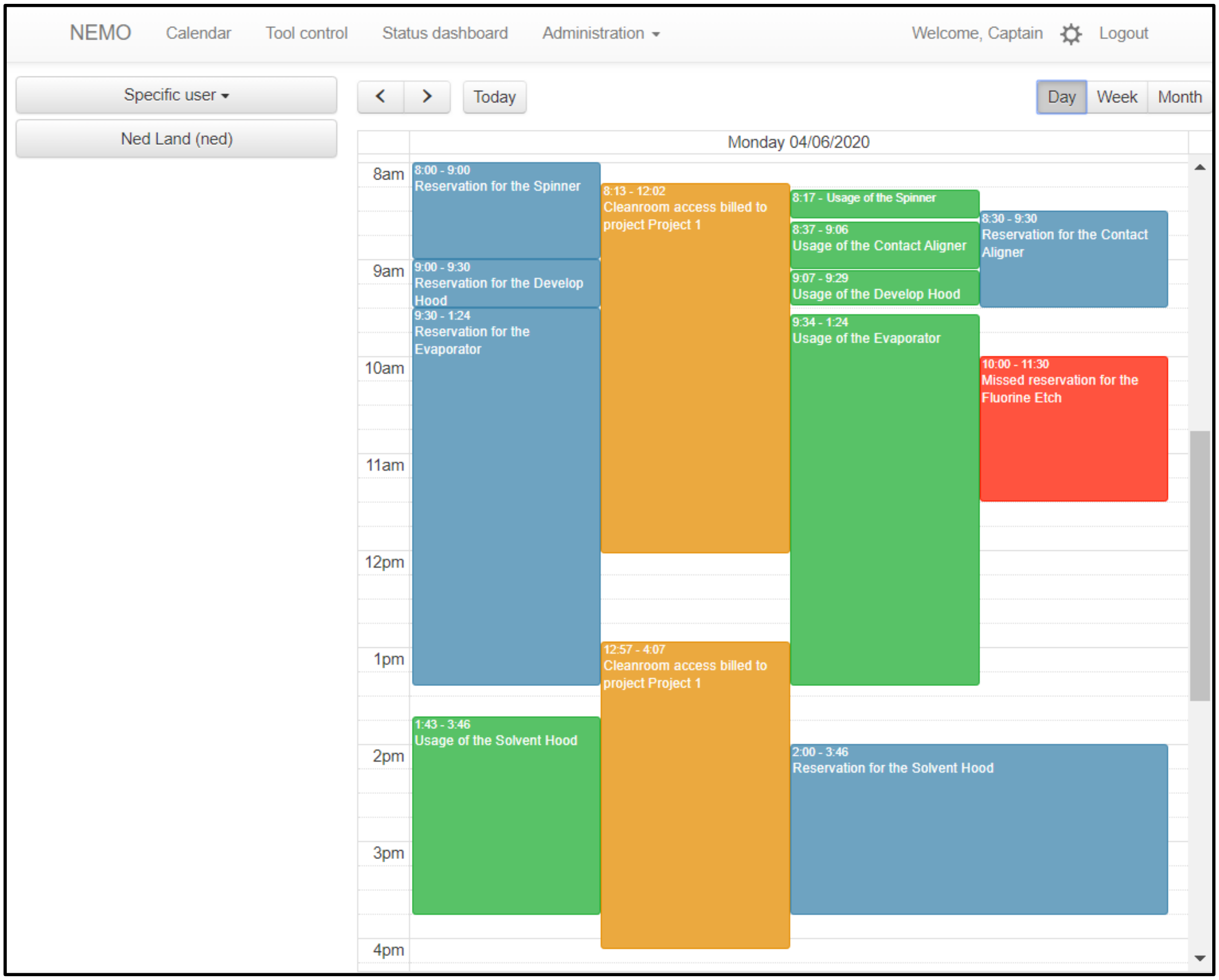


Figure 88 Specific user activity and reservation view

Tool usage displays in green and shows the start time, end time, and tool name. Missed reservations display in red and show start time, end time, and tool name. Area access displays in gold and shows start time, end time, and area name. Reservations displays in blue and shows start time, end time, and tool name. Clicking on any activity box will show additional details (Figure 89, Figure 90, Figure 91, Figure 92).

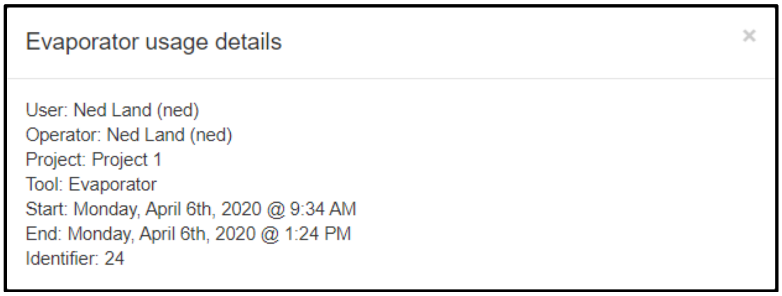


Figure 89 Tool usage details dialog

Figure 90 Missed reservation details dialog

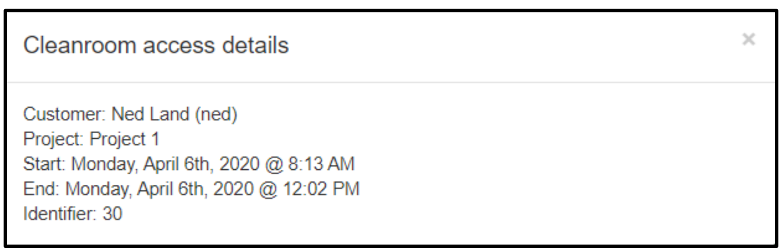


Figure 91 Area access details dialog

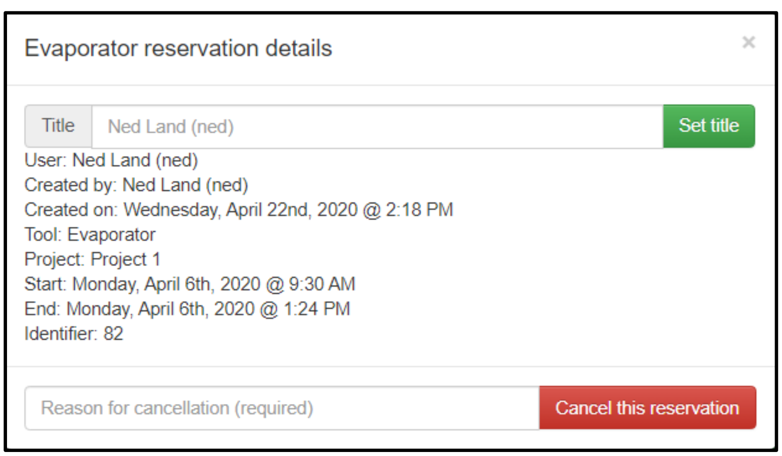


Figure 92 Reservation details dialog

6.7 *Mobile device calendar*

The calendar page will automatically change to a mobile display by stacking information into a single scrollable column (Figure 93). A subset of features is available while in mobile view. To start, directly enter the name of the area or tool in the search dialog or select a tool by category. All categories and sub-categories are listed.

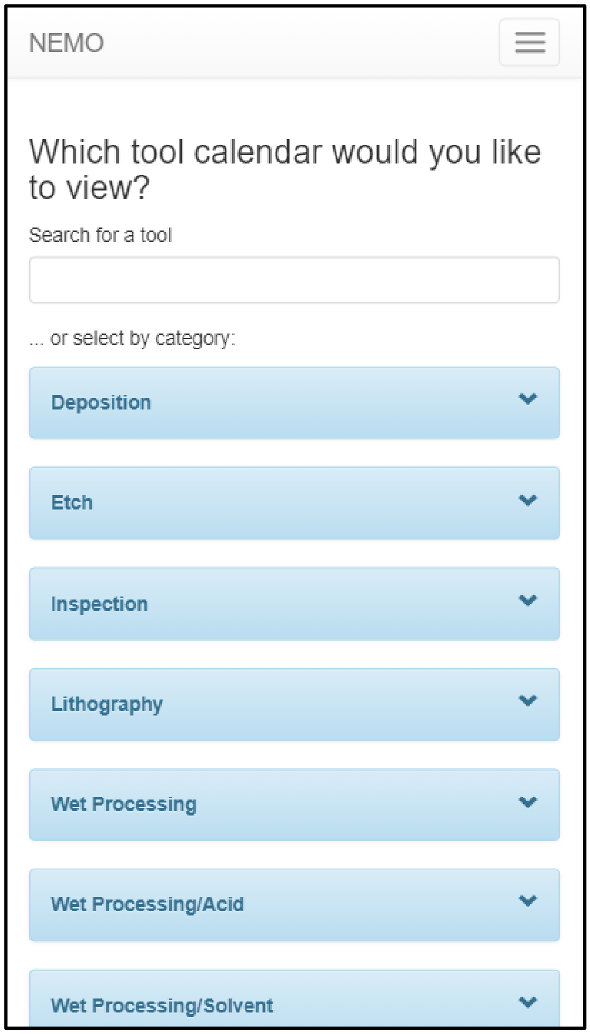


Figure 93 Mobile calendar page

6.7.1 Search for an area or tool

To search for an area or tool, start typing in the search dialog box. A button list will appear below the search dialog as characters are entered but at least two characters must be entered (Figure 94). Once the area or tool of interest appears, click the button of interest to go to the mobile reservation page detailed below on page 72.

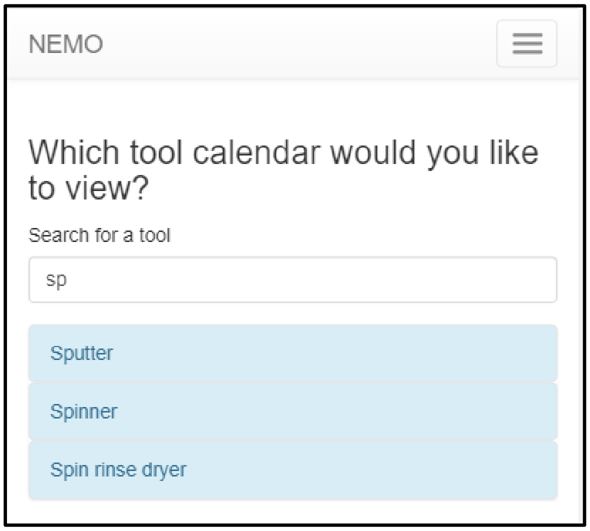


Figure 94 Mobile calendar search box and results

6.7.2 Select a tool by category

To select a tool by category, click the category button then click the tool link in the drop down. If the tool of interest is not on the list, click another category button (Figure 95). Note: it is possible to have more than one category at a time expanded. However, the page resets each time it is opened. Once the tool of interest appears, click the button of the tool of interest to go to the mobile tool reservation page detailed below on page 72.

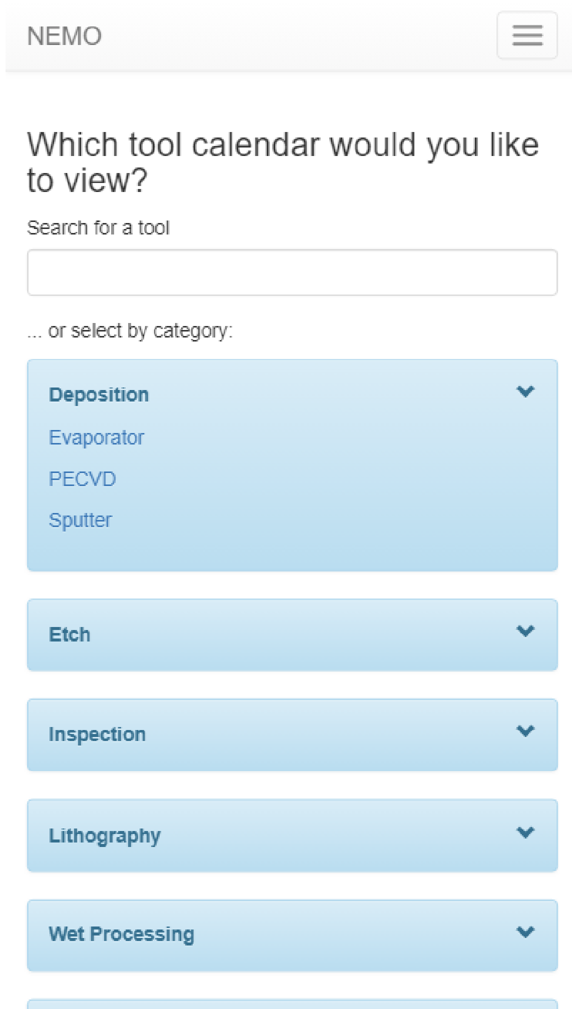


Figure 95 Mobile calendar category drop down

6.7.3 Mobile reservation page

The mobile reservation will show the current day reservations (Figure 96). Only a one-day view is available in mobile view.

Left () and right () arrows at the top of the page increment or decrement the day. Any reservations for the currently listed day are shown. An add reservation icon () is on the bottom right.

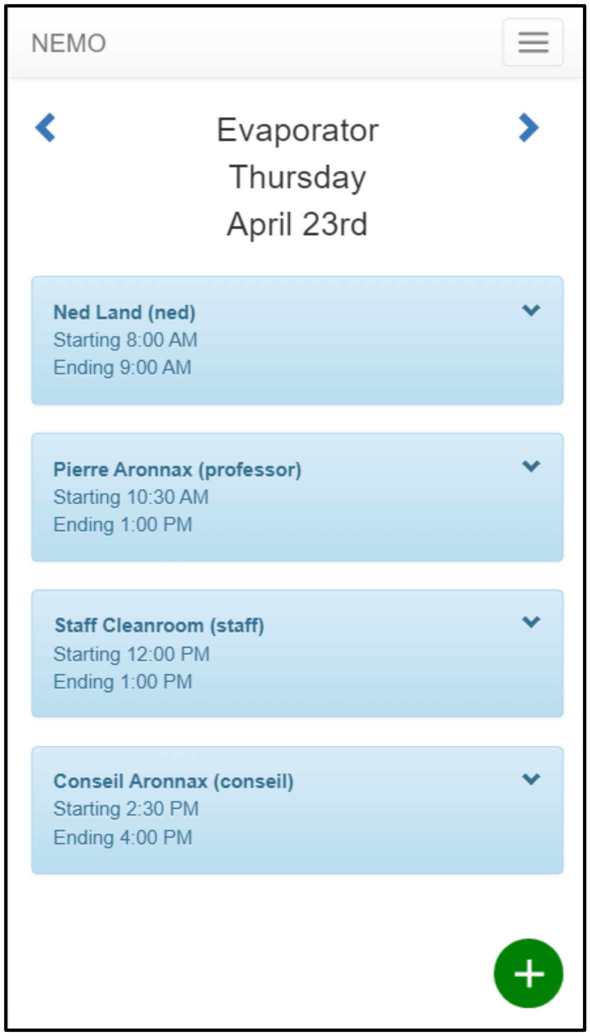


Figure 96 Mobile tool reservation page

6.7.4 View details or delete a reservation

Clicking the down arrow on a reservation shows details (Figure 97). A user may cancel their own reservation (Figure 98). Staff may cancel any reservation but must enter a reason for canceling another users reservation (Figure 99). A full discussion of viewing reservation details and canceling reservations can be found on page 57.

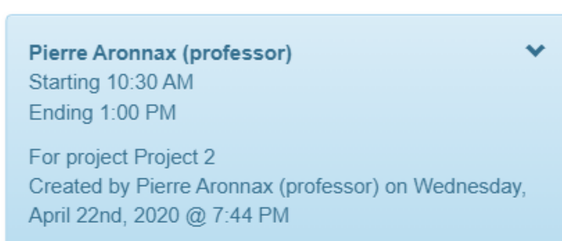


Figure 97 Mobile view another user's reservation

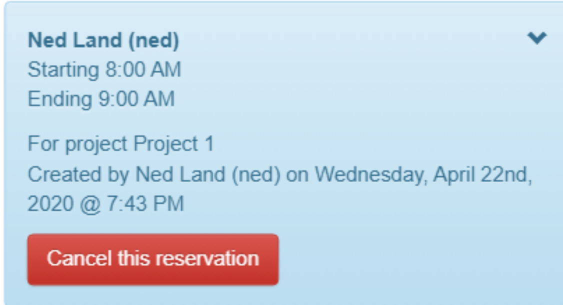


Figure 98 Mobile view a reservation you own

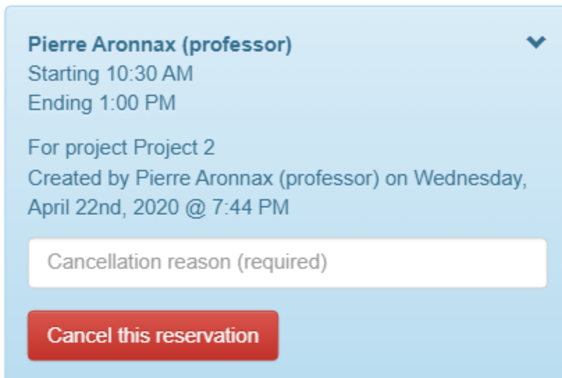


Figure 99 Mobile view another user's reservation (staff)

6.7.5 Creating a reservation

To create a reservation in NEMO through the mobile view:

- Navigate to the tool reservation page.
- Click the add reservation icon (+) on the bottom right of the screen to navigate to the top of the create a new reservation page (Figure 100).

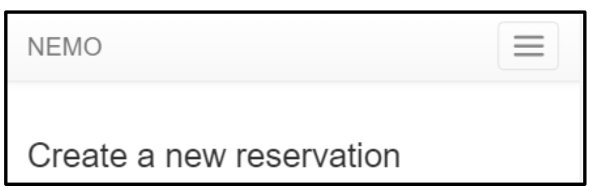


Figure 100 Mobile create new reservation dialog

- If the user has multiple projects, a project dialog will appear just below the title (Figure 101). However, if a staff member has multiple projects, they will not be prompted for a project because they are exempt from missed reservation and tool configuration accounting. Select the project to use for the reservation. Details about projects can be found on the Accounts and projects page discussed on page 191.

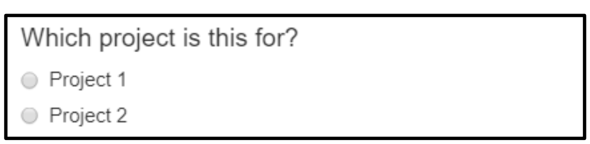


Figure 101 Mobile reservation multiple project dialog

- If the tool selected has a configuration that can be selected by the user, a configuration dialog will appear next. Each tool configuration has a minimum advanced notice. If the reservation request is within the advance notice window, the user will be prompted in red at the top of the window and the staff may not be able to accommodate the request. Select the appropriate options and provide details as necessary (Figure 102).

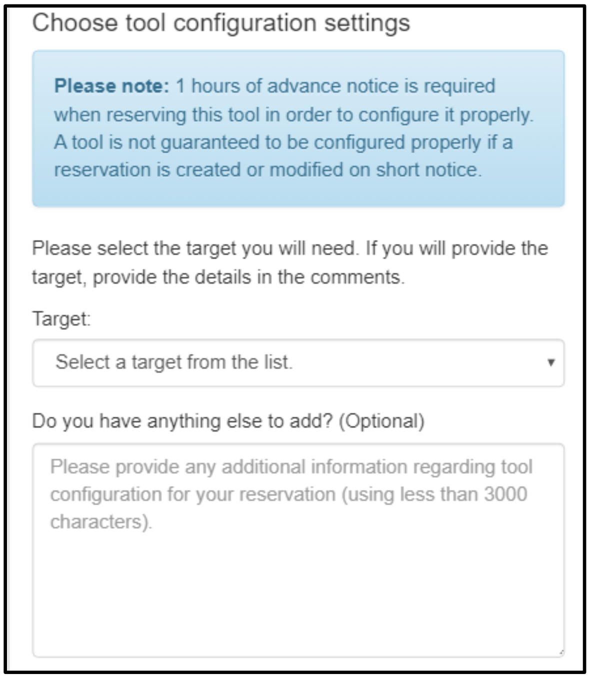


Figure 102 Mobile reservation tool configuration dialog

- Next, select the date and time for the reservation

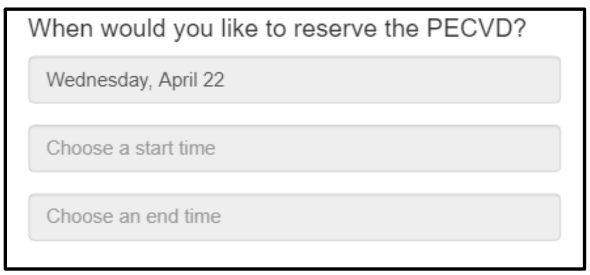


Figure 103 Mobile reservation date and time dialog

  - If the date needs to be changed, click inside of the date box and a calendar will pop up (Figure 104). Select the date of interest. Clicking on the date on the calendar will close the pop up and fill in the new date.

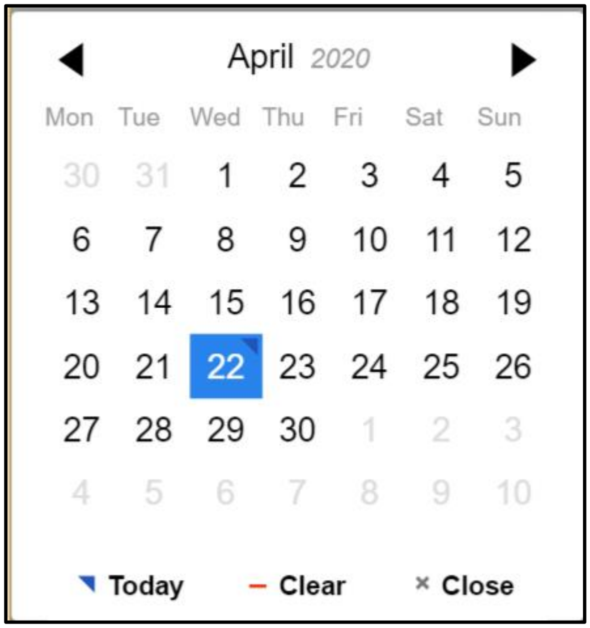


Figure 104 Mobile reservation date dialog

- Click the choose a start time box and a time wheel will pop up (Figure 105). Any times already reserved will be greyed out and noted with 'already reserved'. Click on the available start time of your choice. The pop up will automatically close and fill in the start time. Repeat for the end time.

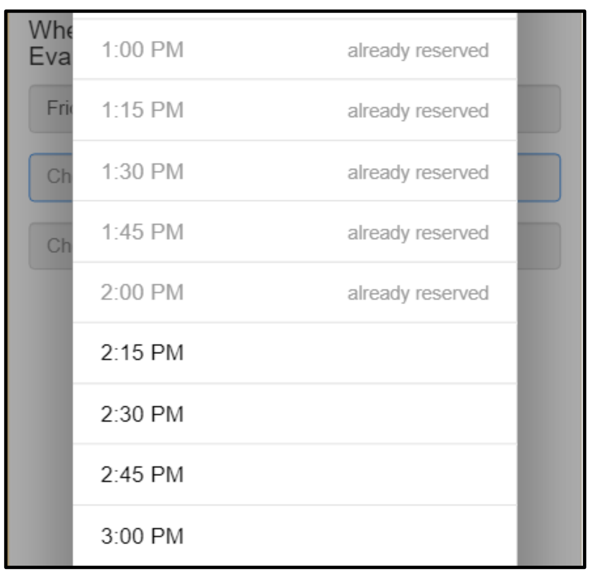


Figure 105 Mobile reservation start time and end time dialog

- Once all require information is entered, click the create this reservation button (Figure 106).

Figure 106 Mobile reservation create button

- The requested reservation will be tested against the reservations policies. If there is a policy conflict, the user will be prompted with a list of conflicts and the reservation will not be made (Figure 107). Reservation policies are discussed in detail starting on page 50. If an error is encountered click the back to previous page link or return to homepage link to continue.

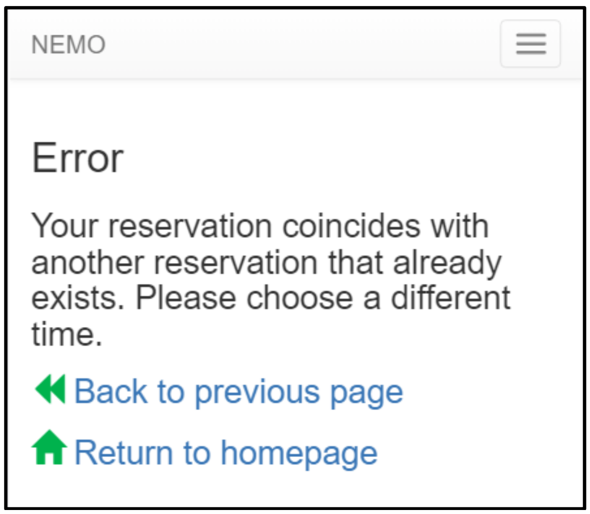


Figure 107 Mobile reservation policy conflict dialog

- Upon successful creation of the reservation, a confirmation dialog will appear (Figure 108). Click the return to homepage link or view the tool calendar link to continue.

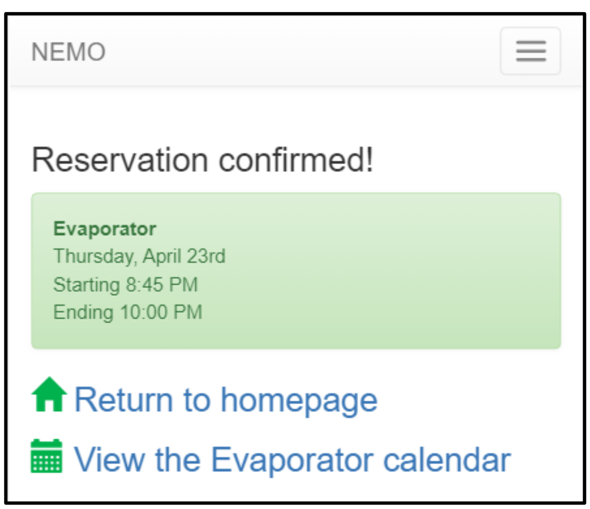


Figure 108 Mobile reservation confirmation dialog

- The reservation will appear on the calendar.

6.8 Calendar customizations

6.8.1 Notification emails

Several email notifications are possible associated with a reservation and must be configured to be functional.

- Missed reservations email template
- Reservation reminder email template
- Reservation warning email template
- Reservation cancelation email template
- User reservation creation email template
- User reservation cancel email template

All email templates are configured in the Customization page detailed starting on page 290.

6.8.2 Calendar view settings

The date format, default view, first day of week, calendar view start time, recurring outages days in advance and overview options can be configured in the Customization → Calendar settings page detailed starting on page 296.

6.8.3 Calendar view time grid resolution

The time grid resolution is 15 minutes. To change the value, edit the file calendar.html and change the constant in the slotDuration setting.

6.8.4 Reservation policies

The reservation policies are checked in the policy.py file. It is beyond the scope of this manual to discuss how to create a new policy however the policy.py file can be edited to turn off existing policies or change which policies can be bypassed by staff.

6.8.5 Calendar page refresh rate

The calendar page automatically refreshes every 30 seconds which updates the calendar and sidebar. To change the update interval, edit the calendar.html and change the setInterval constant (in milliseconds) in the on_load function.

7 Tool control

The tool control page is the main interface for finding information about a tool, using a tool, and commenting on or reporting problems with tools. The page features a side bar to quickly navigate between tools and visually determine each tools status; a summary tab to provide tool information, status, and login interface; a details tab to provide information about a tool such as the tool owner, its location, required resources, and task history; and tabs to report problems and post comments.

7.1 Web address

The tool control page is accessible at site-address/tool_control/. For example, www.nemo.com/tool_control/. The page can also be accessed from the navigation bar menu item “Tool control”.

7.2 Side bar

The side bar has a variety of features to help users visually identify tool and training status, as well as convenient navigation (Figure 109).

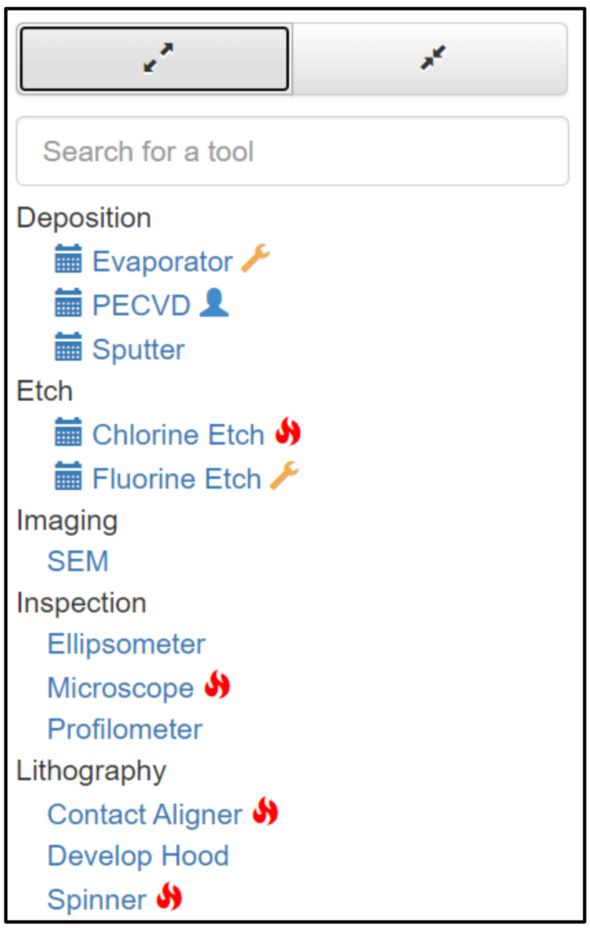


Figure 109 Tool control page side bar

7.2.1 Find the tool of interest

The expand and contract buttons (Figure 110) provide a shortcut to open or close the tool list.

Figure 110 Expand (left) and contract (right) buttons

Clicking expand will fully expand the tool list so all categories, sub-categories, and tools are listed (Figure 109).

Clicking contract will close the tool list so only top categories are listed (Figure 111).

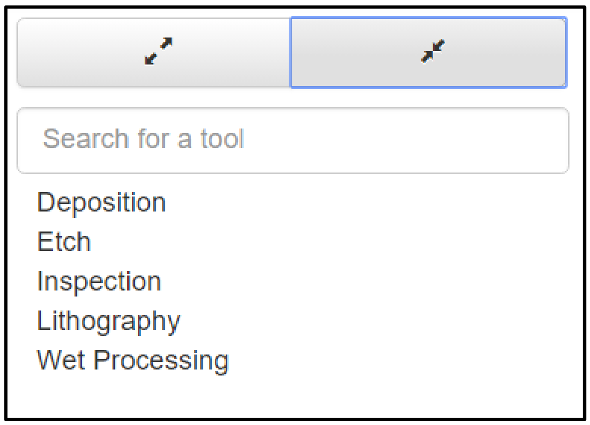


Figure 111 Tool list contracted

To find a tool directly, enter the name in the search dialog (Figure 112) then select the name of the list returned. The return list updates automatically as typed, and a tool can be clicked from the list at any time (Figure 113). Once clicked, the tool list is expanded to show the tool clicked and that tool is selected.

Figure 112 Tool search dialog

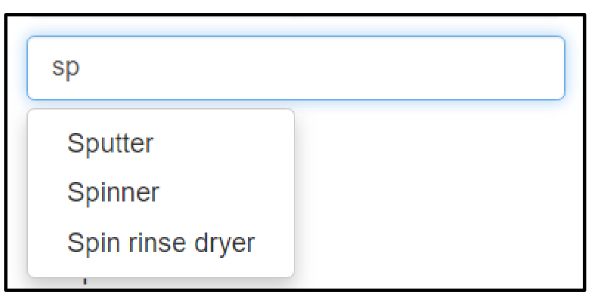


Figure 113 Tool search return list

7.2.2 Hierarchy of the tool list

The tool list is displayed in alphabetical order by top level category, then by second level category, etc. If both tools and sub-categories exist at any level, tools are listed first in alphabetical order, then sub-categories are listed in alphabetical order (Figure 114). All tools must have at least one top level category. Categories are set at the tool level and are discussed in the Detailed administration → Tools section on page 483.

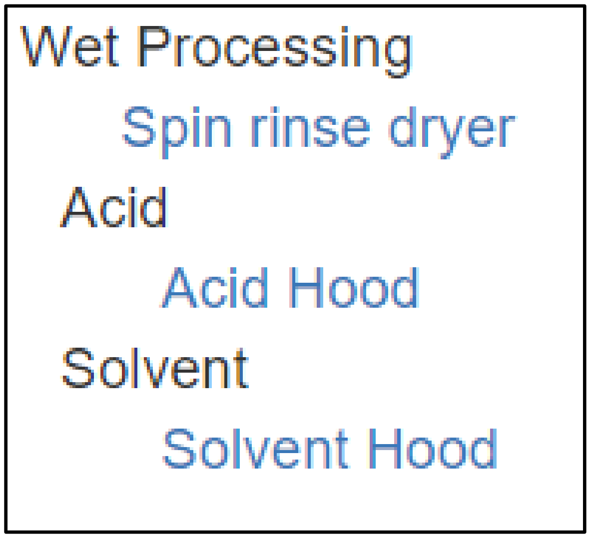


Figure 114 Example of category and tool mixed listing

7.2.3 Tool list icons

Each tool can list icons to give a quick reference to visually note the operating status. Hovering over an icon will give a description of its purpose in case the icons meaning isn't known.

The tool requires an area reservation. Before a user can make a reservation on the tool, they must first make an area reservation that will encompass the start time of the tool reservation. Area reservations are optional and configured in the area table discussed in the Detailed administration → Areas section on page 379.

A user is currently logged into the tool. Hovering over the icon will show the logged in user's name.

A delayed logoff is in effect. The tool is not available for users.

A scheduled outage is in effect for this tool. The tool is not available to users.

A scheduled outage of an option resource is in effect for this tool. The tool is available but may not be fully functional.

A required resource is unavailable. The tool is not available to users.

An optional resource is unavailable. The tool is available to users, but the tool may not be fully functional. The optional resource unavailable icon is only displayed if the required resource unavailable icon is not displayed.

The tool is shut down because of a serious problem. The tool is not available to users.

The tool has a problem that may impact usage or results. The tool is available to users, but the tool may not be fully functional. The tool problem icon is only displayed if the tool shut down icon is not displayed.

7.2.4 Tool qualification

Tools that users are trained and qualified on will appear dark on the list while tools that a user is not qualified on will appear greyed out (Figure 115). User tool qualifications are detailed in Qualifications on page 235.

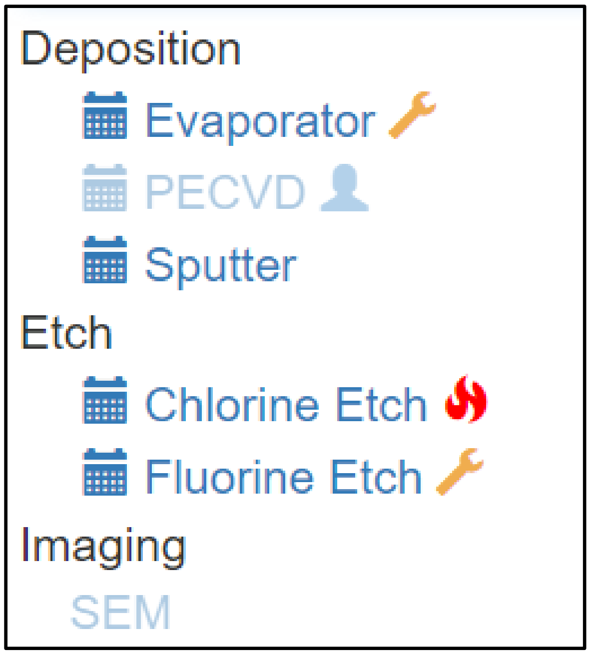


Figure 115 Tool list showing user qualifications

7.3 Tool page header bar

The tool page header bar shows the currently selected tool selectable tabs used to navigate the tool pages (Figure 116). The summary tab is selected by default each time the tool control page is loaded. The Config History tab is only visible on tools that are configurable.

Figure 116 Tool page header bar

7.4 Summary Tab

The summary tab provides users and staff with operational information such as tool serial number, tool status, rates, tool status details, comments, configuration details, log in options for idle tools, log out options for in use tools, tool description, and tool image (Figure 117, Figure 118).

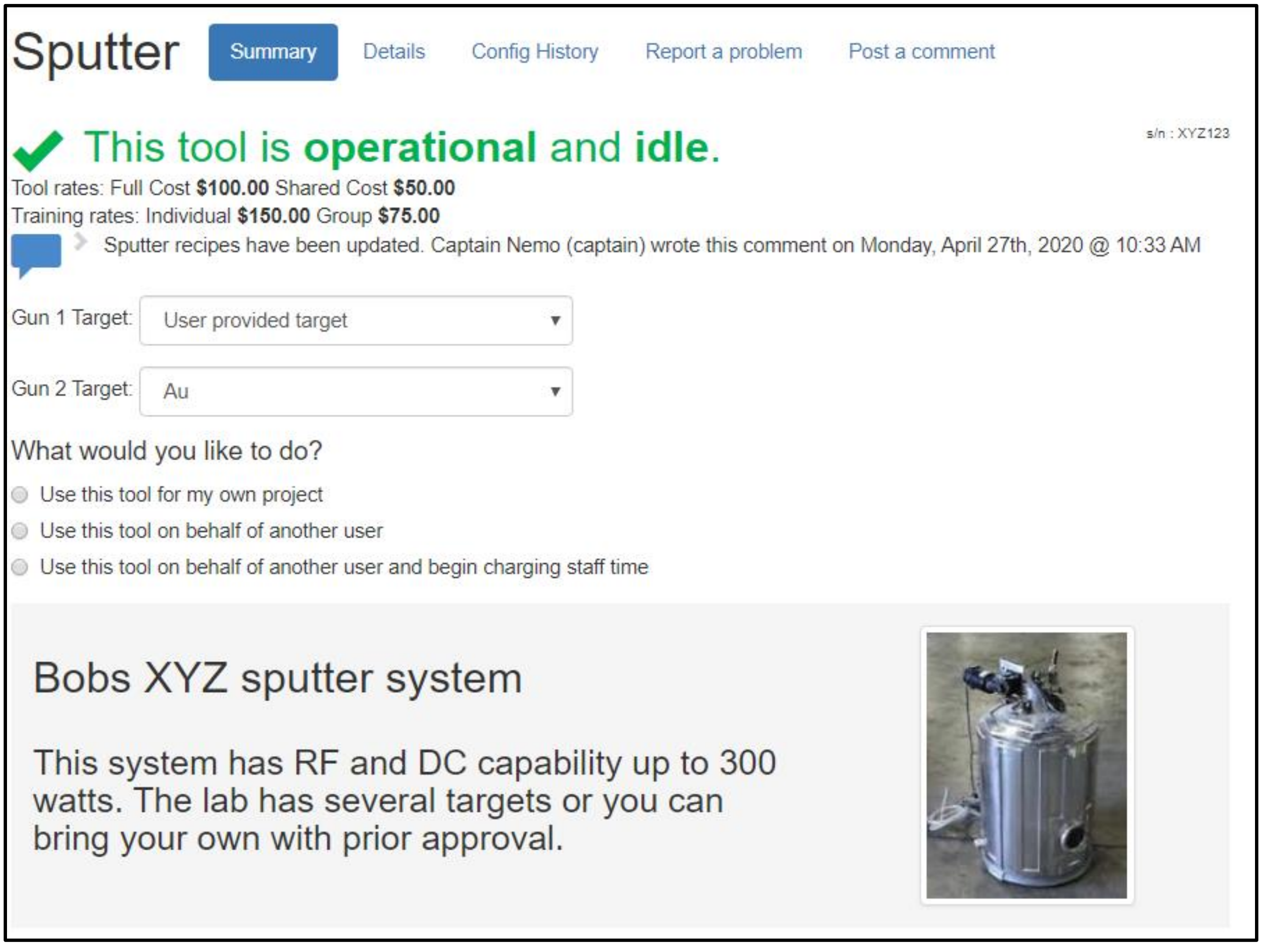


Figure 117 Tool control summary page of idle tool

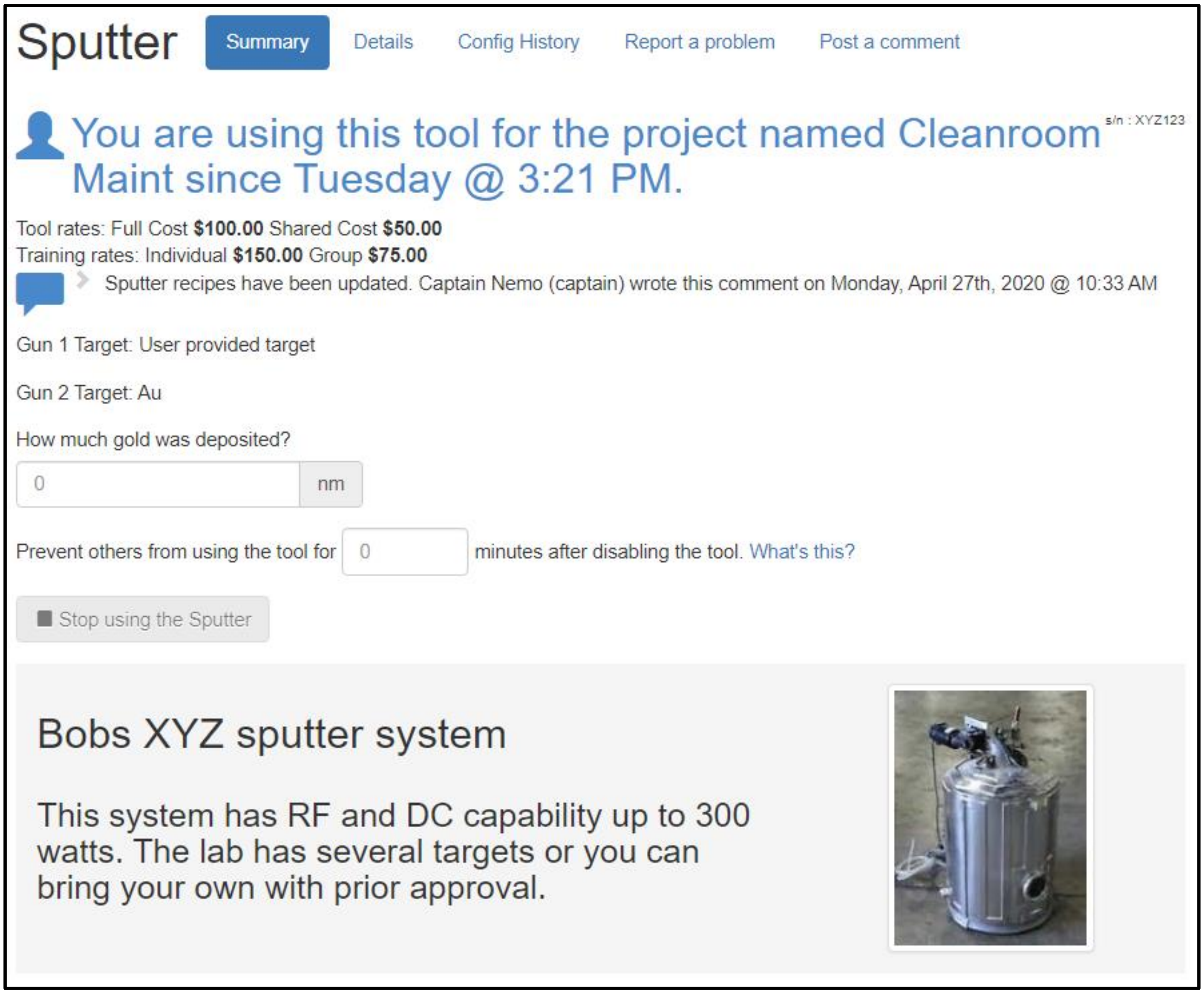


Figure 118 Tool control summary page of tool in use

7.4.1 Tool serial number

The tool serial number is optional and will only be displayed if a value exists in the tool table. It is displayed in the top right corner of the summary tab (Figure 119). Tool serial number configuration is discussed in the Detailed administration → Tools section on page 483.

Figure 119 Tool serial number

7.4.2 Tool status

The tool status is displayed at the top of the summary tab and informs users and staff of the current condition of the tool. There are several possible statuses, and they are displayed with precedence in the order listed below.

7.4.2.1 Tool in use

The highest priority status is that a tool is in use. The tool in use message will identify the user, project, and the time they started using the tool (Figure 120). The user name is a link that can be clicked to contact the user by email through NEMO.

> Captain Nemo (captain) is using this tool for the project named Cleanroom Maintenance since Monday @ 11:05 AM.

Figure 120 Tool status in use by user message

If the current user is also the user logged into the tool, the message will be more personalized (Figure 121).

> You are using this tool for the project named Cleanroom Maintenance since Monday @ 11:05 AM.

Figure 121 Tool status in use by current user message

If a staff member is using a tool on behalf of another user, both the staff member and user will be listed (Figure 122).

> Captain Nemo (captain) is using this tool on behalf of Ned Land (ned) for the project named Project 1 since Monday @ 12:39 PM.

Figure 122 Tool status in use by staff on behalf of a user

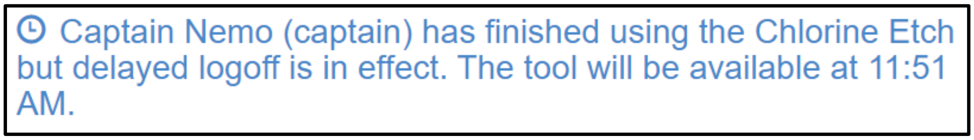
In addition, if the current user is using the tool with a reservation, the reservation end time will also be displayed (Figure 123).

> You are using this tool for the project named Cleanroom Staff since Monday @ 11:33 AM.
>
> Your reservation for this tool will end at 2:00 PM. The remainder of your reservation will be relinquished when you stop using this tool.

Figure 123 Tool status in use by current user with reservation message

7.4.2.2 Delayed logoff

The delayed logoff status indicates that the previous user initiated a delayed logoff to prevent usage for some amount of time. Users are not able to log in during this time however staff may override and log in. The feature is useful for tools that require post-process runs such as plasma cleans. It allows a user to run the post-process and leave without waiting for the completion. Tool usage time is accumulated during delayed logoff. Delayed logoff configuration is discussed in the Detailed administration → Tools section on page 483.



7.4.2.3 Scheduled outage

There are two types of scheduled outage: a scheduled tool outage and a scheduled resource outage. If there are multiple scheduled outages, all outages will be displayed sequentially. Both outage types display the reason for the shutdown, details, who initiated the shutdown, the start day and time, and the end day and time. Scheduled outages are planned shutdowns that take a predictable amount of time.

A scheduled tool outage allows staff to automatically shut down a tool on a set date and time which can be useful for scheduling tool configurations or preventative maintenance (Figure 124). Users are not able to log in during a scheduled tool outage however staff are. Details about scheduled tool outages can be found in the Calendar page → Reservations → Schedule an outage section on page 60.

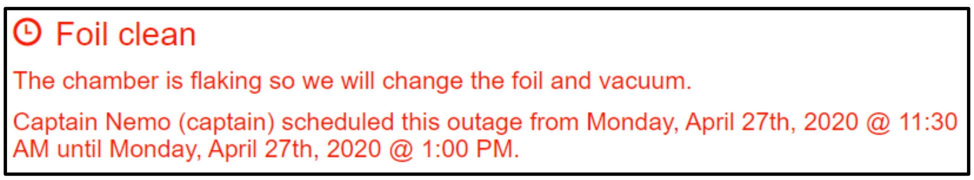


Figure 124 Tool status scheduled tool outage

A scheduled resource outage allows staff to automatically shut down a resource on a set date and time which can be useful for scheduling gas bottle changes or other facility related maintenance (Figure 125). Resource outages will automatically update tool status for each tool that relies on the resource. Users are not able to log in during a scheduled resource outage when the resource is required by the tool however staff are.

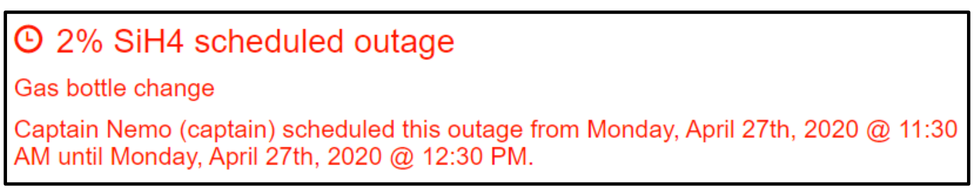


Figure 125 Tool status scheduled required resource outage

If a scheduled resource is optional on a tool, the scheduled outage will be indicated in yellow, and the tool will still be available to users (Figure 126).

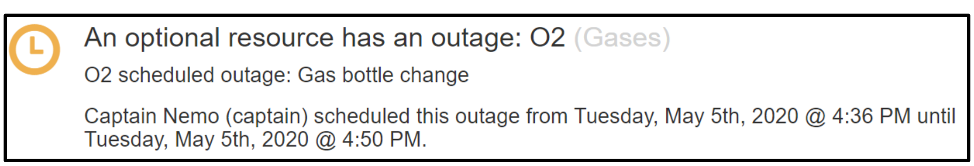


Figure 126 Tool status scheduled optional resource outage

Details about scheduled resource outages can be found in the Resources section on page 243.

7.4.2.4 Shutdown

The tool shutdown status is displayed if the tool has a problem that requires shut down or a required resource is not available (Figure 127). Users are not able to log in during this time however staff are. Details about tool shut downs can be found in the Tool control page → Report a problem tab section on page 113. Details about resources can be found in the Resources section on page 243.

Figure 127 Tool status shut down

7.4.2.5 Optional resource not available

The optional resource outage status is displayed if there are resources unavailable that a tool partially depends on (Figure 128). Users and staff are able to log in. For example, a fluorine reactive ion etch system with multiple types of fluorine gases, and one is not available. Details about resources can be found in the Resources section on page 243. Dependent and optional resource configuration is discussed in the Detailed administration → Tools section on page 483.

Figure 128 Tool status optional resource outage

7.4.2.6 Operational and idle

The operational and idle status is displayed if there are no issues preventing usage of the tool (Figure 129). However, there may be a problem listed in the tool status details below. Users and staff are able to log in.

Figure 129 Tool status operational and idle

7.4.3 Tool rates

The tool rates are optional and will only be displayed if they have been defined (Figure 130). Tool rates are discussed in the Customizations → Tool rates section on page 357.

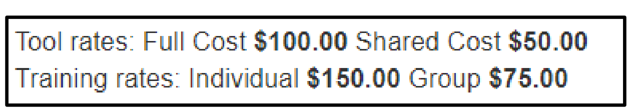


Figure 130 Tool rates

If a tool has child tools defined to allow multiple modes of operation with different charges, the parent and all child rates will be displayed (Figure 131). Parent and child tools are discussed in the Detailed administration → Tools section on page 483.

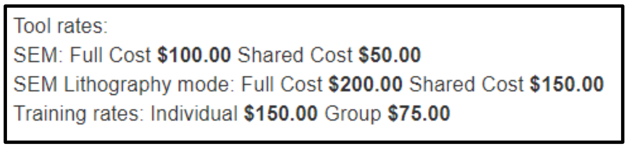


Figure 131 Tool rates with parent and child tools

7.4.4 Tool usage counters

Tool usage counters, if configured, are displayed below the rates (Figure 132). Tool usage counters are linked to numeric or float post usage questions and accumulate value with each tool logout based on the answer to the post usage question. This feature is useful for displaying how much a tool has been used, to track material usage, or to trigger preventative maintenance. Detailed information on how to setup tool usage counters is provided in the Detailed administration → Tool usage counters section starting on page 483.

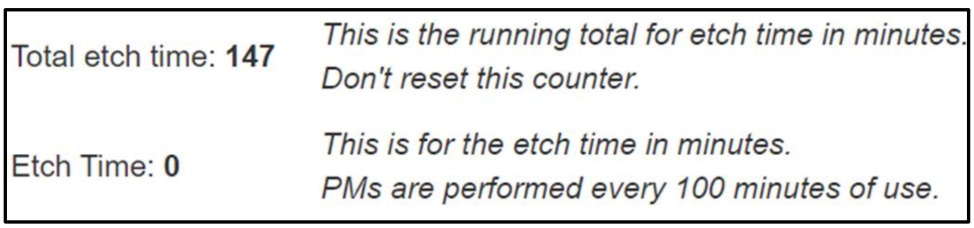


Figure 132 Tool usage counter, user view

Staff are able to reset the counter and will see a reset button next to the current value (Figure 133).

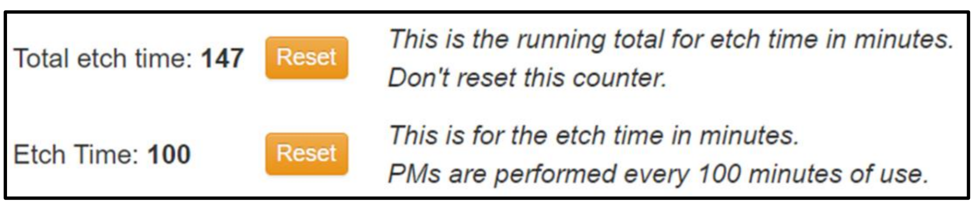


Figure 133 Tool usage counter, staff view

Clicking reset will open a confirmation dialog box, click ok to reset the counter or cancel to abort (Figure 134).

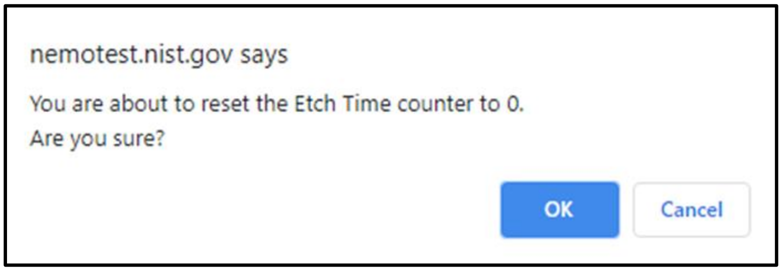


Figure 134 Tool usage counter reset confirmation dialog

Each time a counter is reset, a comment is posted for the tool that expires after seven days (Figure 135). In addition, if the Lab Manager role has been defined in settings.py, an email is sent. The comment and email will list the counter, its last value, who reset it, and when.

Figure 135 Tool usage counter reset comment

7.4.5 Tool status details

Tool status details provide additional information about a tool that may impact availability or results. If the information available for a particular dialog is lengthy, only the first two lines are displayed with an expansion icon ( ). Click the icon to see more information.

7.4.5.1 Unavailable required resources

When a required resource is not available, the status details will show a red leaf and identify which required resource is not available along with the description that was entered when the resource was shut down (Figure 136).

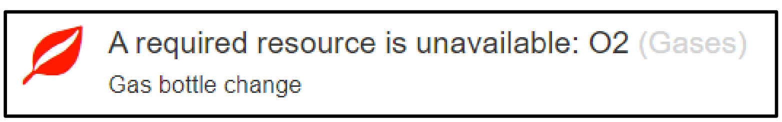


Figure 136 Unavailable required resource

7.4.5.2 Unavailable optional resources

When an optional resource is not available, the status details will show a yellow leaf and identify which required resource is not available along with the description that was entered when the resource was shut down (Figure 137).

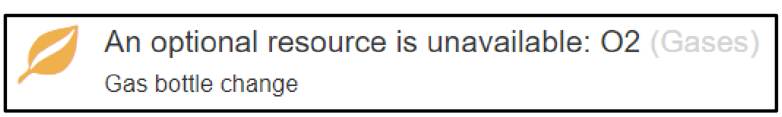


Figure 137 Unavailable optional resource

7.4.5.3 Shutdown and problem tasks

Shutdowns and problems are reported in the Tool control → Report a problem tab described on page 113. The status details functionality are identical for both except for the displayed icon. Shutdowns are displayed with a red fire icon (Figure 138) and problems are displayed with a yellow wrench icon (Figure 139). When a shutdown or problem is reported, the user can select a category that will be displayed as the heading (Figure 138). If no category is selected, the description is displayed as the heading (Figure 139).

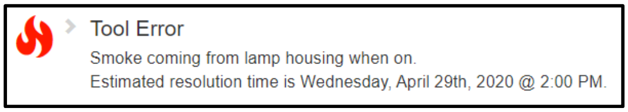


Figure 138 Tool shutdown

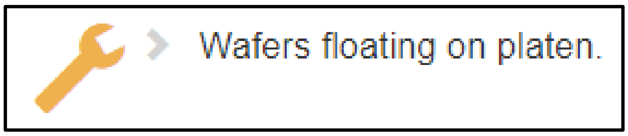


Figure 139 Tool problem

Clicking the ( ) will expand the shutdown and problem dialog (Figure 140, Figure 141).

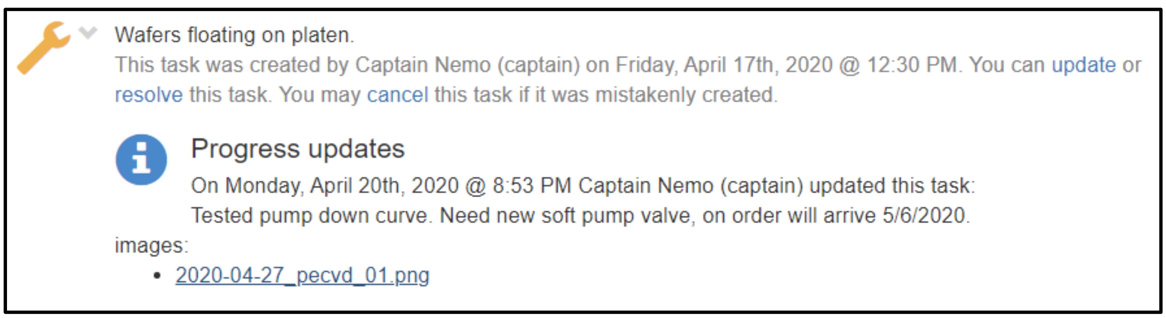


Figure 140 Tool status problem dialog expanded

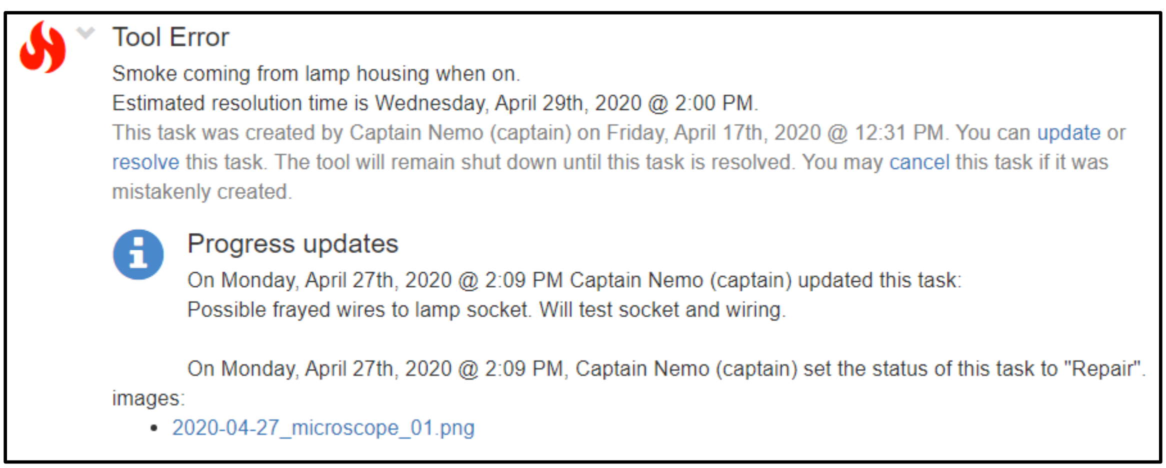


Figure 141 Tool status shutdown dialog expanded

Staff can update tasks and resolve tasks by following the update or resolve links provided (Figure 142).

Figure 142 Tool status update and resolve links

The user that created the task can cancel it by following the link provided (Figure 143).

Figure 143 Tool status cancel link

All updates, new information, and expected resolution times are listed. Links are provided to any images that have been uploaded. Clicking an image link will open the image in a new tab (Figure 144).

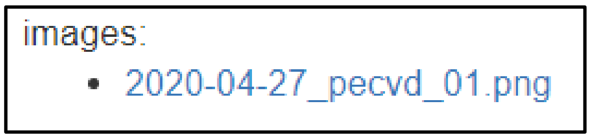


Figure 144 Tool status image link

Clicking the ( ) will collapse the shutdown or problem dialog.

7.4.5.4 Comments

Comments are created in the Tool control → Post a comment tab described on page 120. They are used to convey important information about a tool to users and can have an automatic expiration or display indefinitely.

Figure 145 Tool status comment

Clicking the ( ) will expand the comment dialog ().

Figure 146 Tool status comment dialog expanded

Staff or the user that created the comment may hide comments by clicking the hide this comment link (Figure 147).

Figure 147 Tool status hide comment link

Clicking the ( ) will collapse the comment dialog.

7.4.5.5 Update task (staff only)

Staff may update a task by clicking the update link on a problem or shutdown listed in the tool status details. Clicking the link will open the task update dialog (Figure 148). Many of the fields associated with the original task report are available to be edited. In addition, a summary of activity to date is listed on the right side of the page. However, if the page is too narrow or in mobile view, all information is listed in a single column. All fields are optional for updates. Only fields with changes are updated.

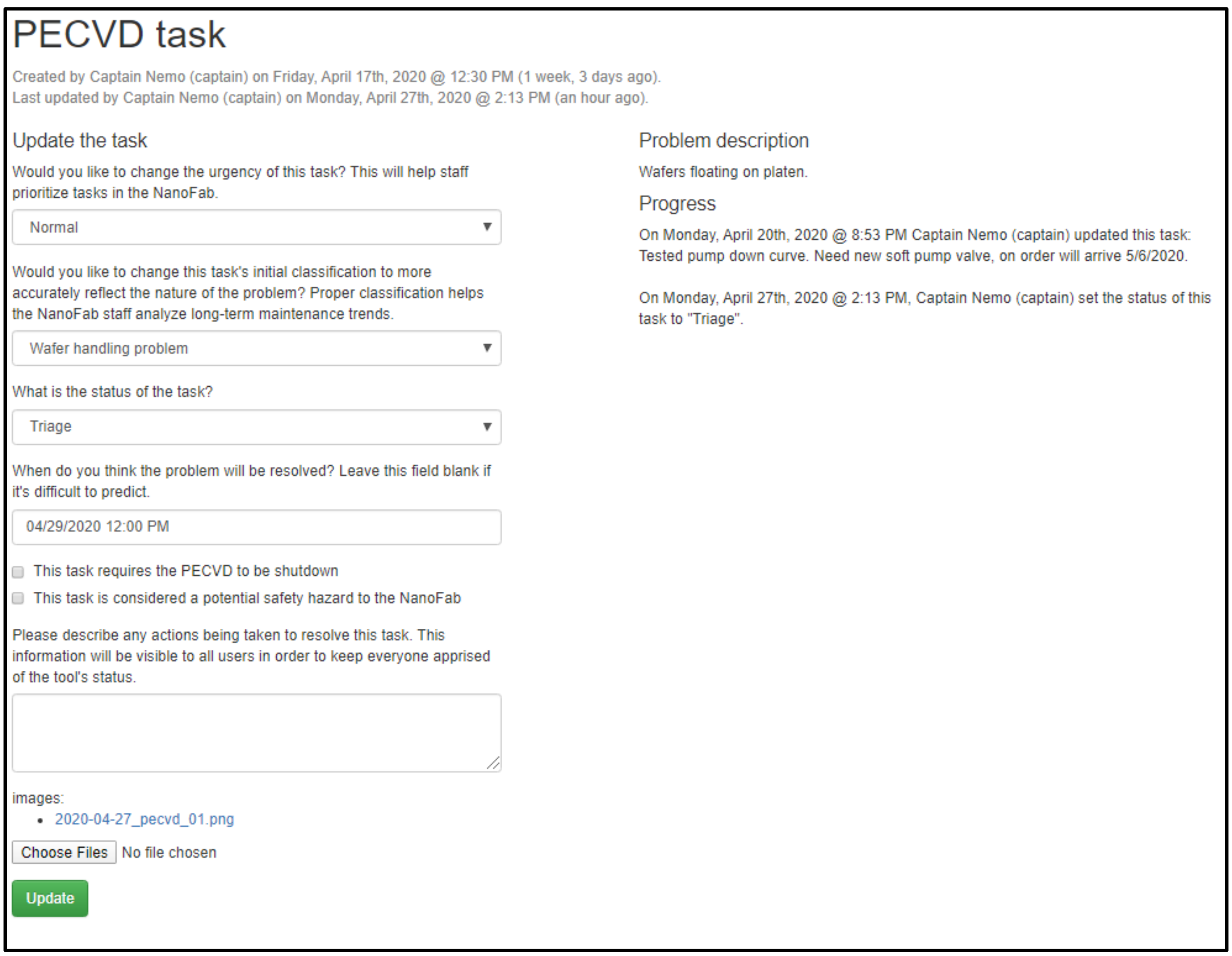


Figure 148 Tool control task update dialog

- The urgency of the task can be changed by selecting a new urgency from the drop down (Figure 149). The urgency is displayed on the maintenance screen detailed in the Maintenance section on page 223.

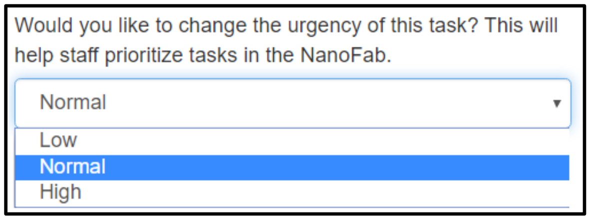


Figure 149 Tool control task update urgency

- If task categories have been defined, a dropdown and instruction will appear. Click the dropdown and select the problem category that best describes the problem (Figure 150). If no category describes the problem, leave this blank. Task categories can be used to bin problems making future problem analysis easier. Categories are configured on the Detailed administration → Task categories page described on page 462.

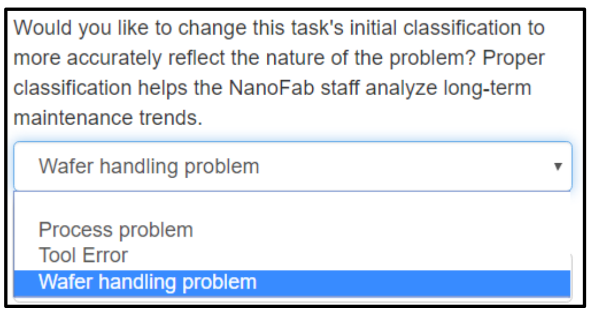


Figure 150 Tool control task update category

- If task statuses have been defined, a dropdown and instruction will appear (Figure 151). If the status is not known, the field can be left blank. Click the dropdown and select the new status for the problem. Task statuses are used to update various staff as a problem progresses to resolution. For example, once the maintenance team has finished a repair, they can change the status to qualification which notifies the process engineer that the tool is ready to requalify. Statuses are configured on the Detailed administration → Task statuses page described on page 477.

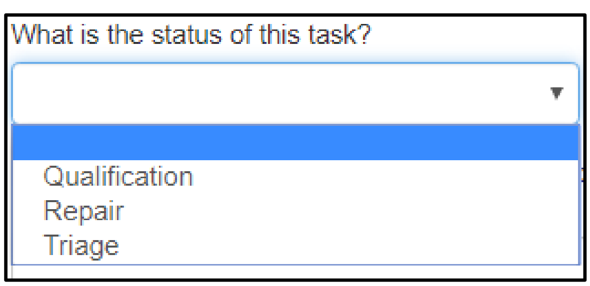


Figure 151 Tool control task update status

- Provide an estimate of when the problem will be resolved if known or leave blank. Clicking in the dialog will open a date and time dialog (Figure 152).

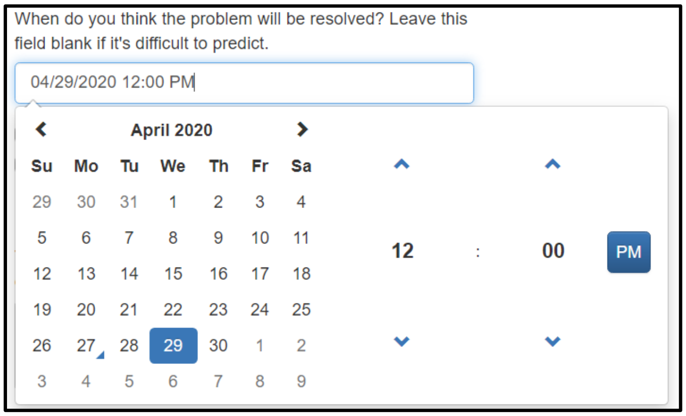


Figure 152 Tool control task update completion date

- Check if the shutdown check box if the tool is not able to be used by others and could potentially ruin samples (Figure 153).

Figure 153 Tool control task update safety hazard

- Check the safety hazard check box if the problem is a safety hazard to people or equipment (Figure 154).

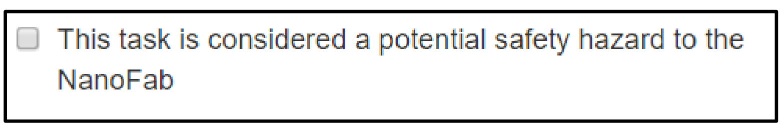


Figure 154 Tool control task update shut down

- Provide a detailed update in the dialog box (Figure 155).

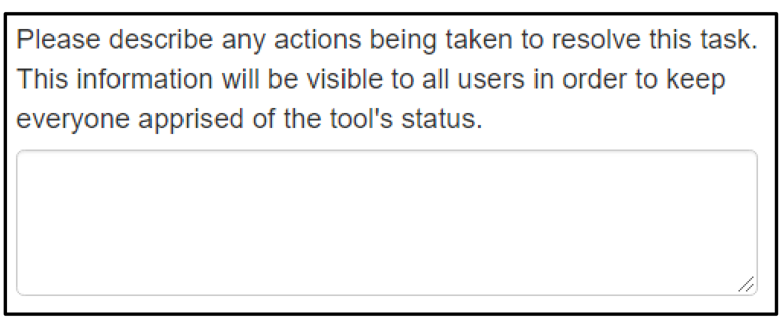


Figure 155 Tool control task update detailed description

- The choose files dialog may be used to upload any relevant pictures to show details that support the description (Figure 156). Clicking the button activates a standard file selection dialog. Multiple files can be uploaded. Note: it is good practice to make note of the files in the description to link the file to the text.

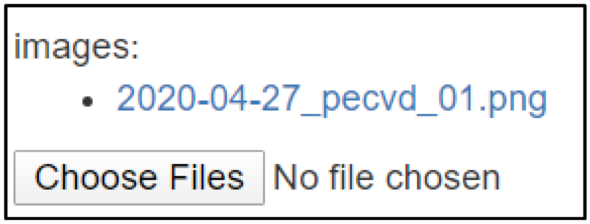


Figure 156 Tool control task update upload files

- Click the update button to finish (Figure 157). To cancel an update, navigate to another page prior to clicking the update button.

Figure 157 Tool control task update button

7.4.5.6 Resolve task (staff only)

Staff may resolve a task by clicking the resolve link on a problem or shutdown listed in the tool status details. Clicking the link will open the task resolution dialog (Figure 158). A resolution description and resolution category can be entered. In addition, a summary of activity to date is listed on the right side of the page. However, if the page is too narrow or in mobile view, all information is listed in a single column. All fields are optional.

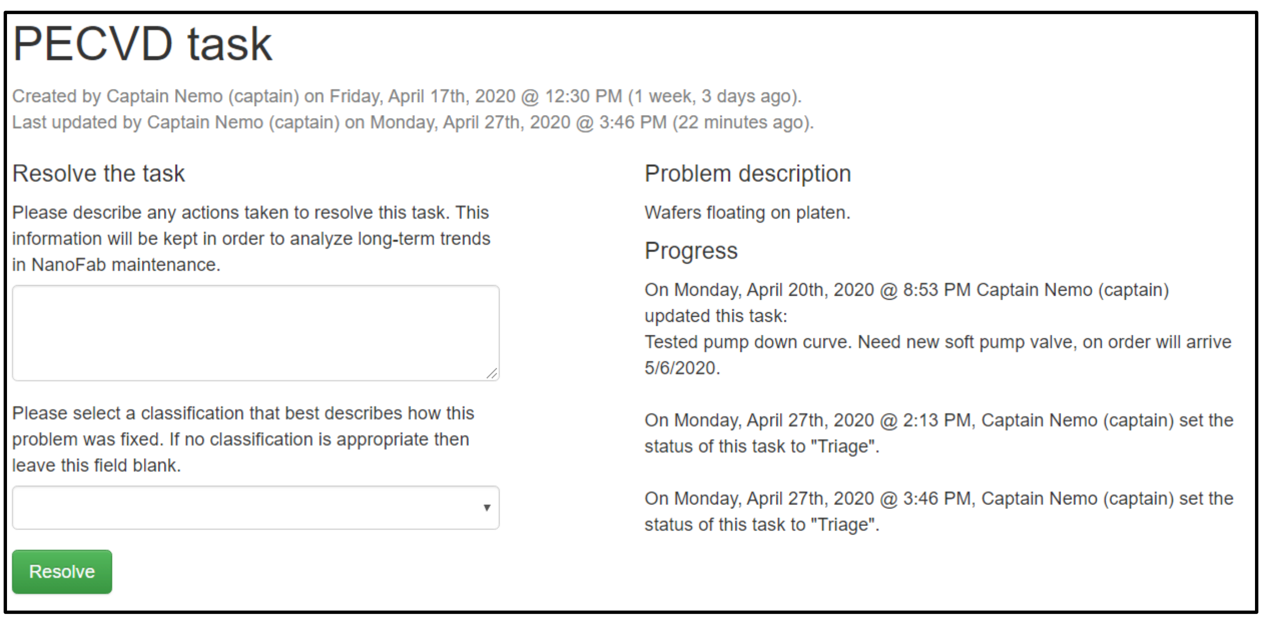


Figure 158 Tool control task resolution dialog

- Provide a detailed resolution description in the dialog box (Figure 159).

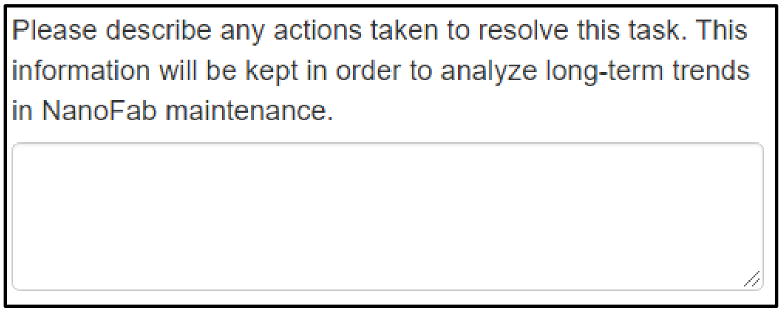


Figure 159 Tool control task resolution description

- If task categories have been defined, a dropdown and instruction will appear. Click the dropdown and select the problem category that best describes the problem (Figure 160). If no category describes the problem, leave this blank. Task categories can be used to bin problems making future problem analysis easier. Categories are configured on the Detailed administration → Task categories page described on page 462.

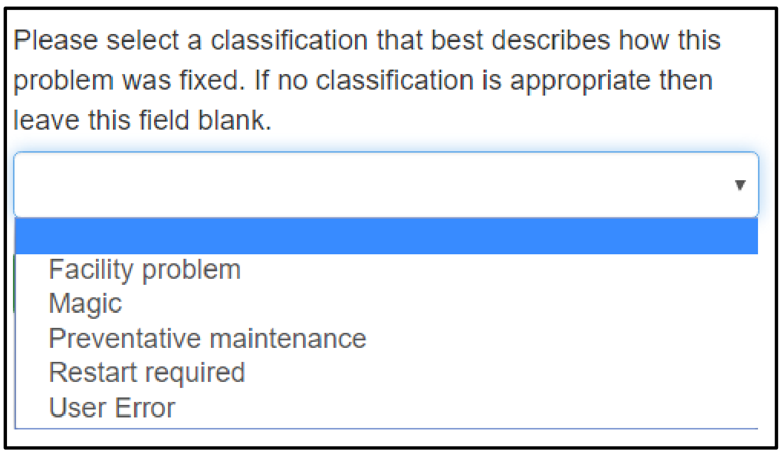


Figure 160 Tool control task resolution category

- Click the resolve button to finish (Figure 161). To cancel an update, navigate to another page prior to clicking the update button.

Figure 161 Tool control task resolution button

7.4.5.7 Cancel task

The user who created a problem or shutdown may cancel the task by clicking the cancel link in the tool status details (Figure 162).

Figure 162 Tool control task cancel task link

There are no additional prompts, clicking the link immediately cancels the task and returns the user to the tool control summary page.

7.4.5.8 Hide comments

Staff or the user who created a comment may hide the comment by clicking the 'hide this comment' link in the comment details (Figure 163).

Figure 163 Tool control task hide comment link

There are no additional prompts, clicking the link immediately hides the comment and returns the user to the tool control summary page.

7.4.6 Tool configuration

Tool configurations are created in the Configurations table of the database detailed in the [Detailed administration → Configurations] section on page 400. If a tool is configurable, its current configuration will be shown (Figure 164).

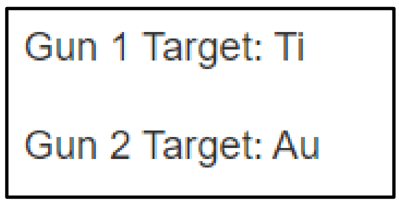


Figure 164 Tool control tool configuration

If the tool is not in use and the current user is a staff member or has permission to change a tool configuration, a drop down with all possible configurations will be shown (Figure 165). Select the desired configuration from the drop down.

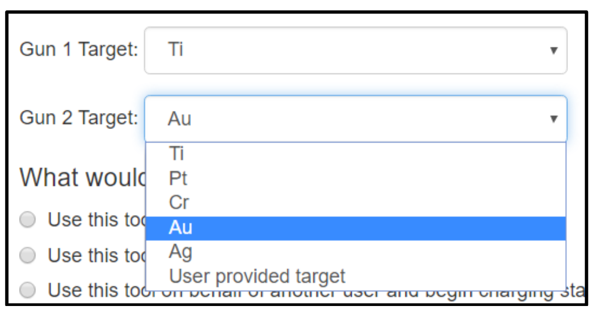


Figure 165 Tool control tool configuration dialog

Configuration history is saved in the database and is discussed in [Detailed administration → Configuration histories] on page 398. Configurations are discussed in the [Configuration Agenda] section on page 212.

7.4.7 Tool log in

The tool log in dialogs will vary depending on the user type (staff or not) and number of projects the user has.

7.4.7.1 User tool login

Users must be explicitly qualified to use tools. In addition, the tool must be in a usable tool status. Users with multiple projects will be prompted to select a project from their list of active projects (Figure 166). User qualifications are detailed in the Qualifications section on page 235.

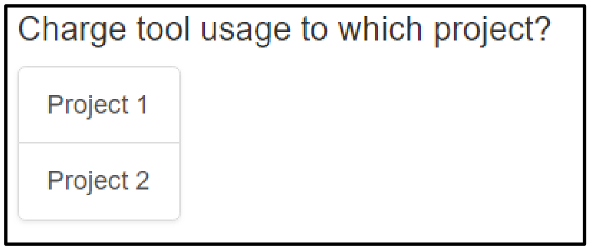


Figure 166 Tool control login project selection

Clicking the project will enable the start button (Figure 167).

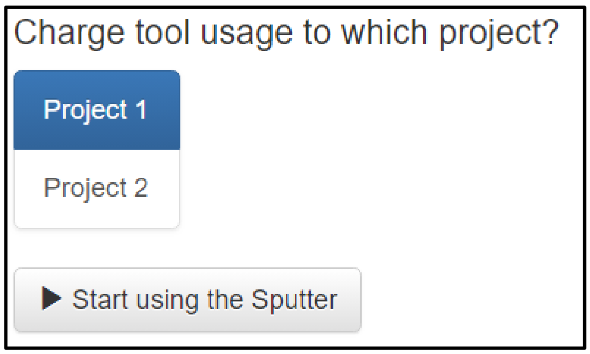


Figure 167 Tool control login multiple project start button

If a user only has one project, a message with the name of their project will appear and the start button will be displayed (Figure 168).

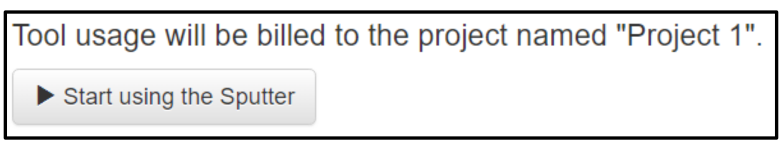


Figure 168 Tool control login single project start button

Click the 'Start using the tool' button to begin usage. NEMO will check user permissions before enabling the tool. If interlocks have been configured, NEMO will enable the interlock. Tool interlocks are discussed in the Detailed administration → Tools section on page 483.
A start record will be recorded in the usage events table listing the users, project, tool, and start time. Usage events are found on the Detailed administration → Usage events page detailed on page 514.

If a tool requires a user to be logged into an area and they are not, an error message will appear (Figure 169). Lab areas are configured through the Detailed administration → Areas page detailed on page 366. Tools can be configured to require a user to be logged into an area and are discussed in the Detailed administration → Tools section on page 483. If a tool requires a user to be logged into an area to use a tool and they attempt to enable the tool without being logged into the area, an unauthorized tool access email will be sent to the abuse email if configured. Both are configured in the Customization page detailed starting on page 290.

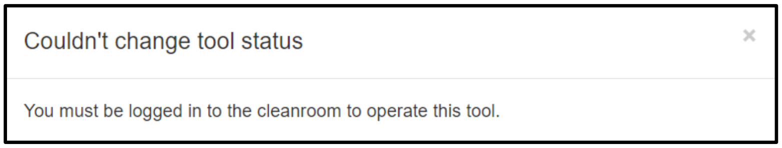


Figure 169 Tool control log in area error message

If the user isn't qualified to use the tool, an error message will appear (Figure 170).

Figure 170 Tool control log in qualification error message

If interlocks are enabled and the interlock command fails, an error message will appear (Figure 171). You can choose to Enable the tool anyway (if that option is checked), try again or cancel. More information on the interlock settings customization detailed on page 296.

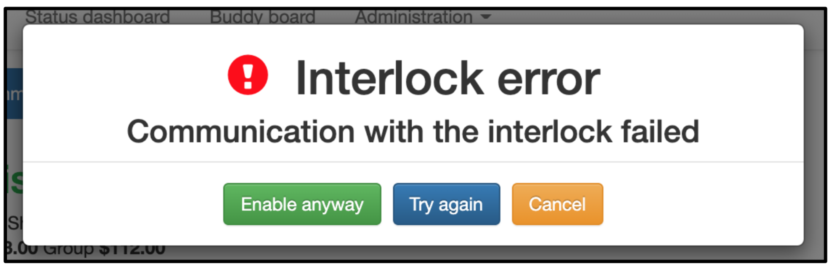


Figure 171 Tool control interlock error

7.4.7.2 Multiple use tool login

If a tool has been configured for multiple uses as a parent tool with child tools then multiple start buttons will be displayed (Figure 172). The parent/child tool configuration is useful in cases where a single tool can be used multiple ways and either the usage of each way needs to be tracked or needs to be charged different rates.

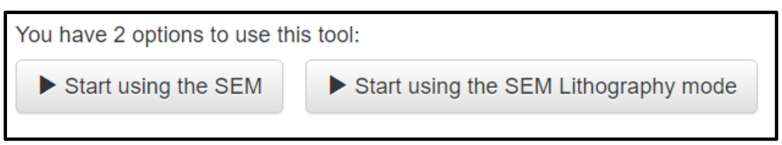


Figure 172 Tool control multiple use tool log in buttons

Parent and child tools are discussed in the Detailed administration → Tools section on page 483.

7.4.7.3 Staff tool login

Staff have the option to use tools for their own projects or to perform work for other users (Figure 173). Select the appropriate usage type to continue.

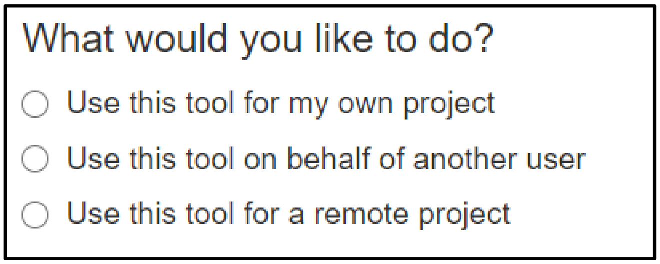


Figure 173 Tool control login staff

Selecting 'Use this tool for my own project' will proceed the same as a user tool login detailed above. Staff can enable any tool regardless of qualifications and therefore do not need to be explicitly qualified on a tool. If a staff member is already charging staff time to a user, that option will be greyed out.

7.4.7.4 Staff tool login on behalf of another user

If Staff select to use a tool on behalf of another user, a search dialog will appear (Figure 174). Enter the users name. As the name is typed, a list of possible users will appear under the dialog. Select the user from the list at any time.

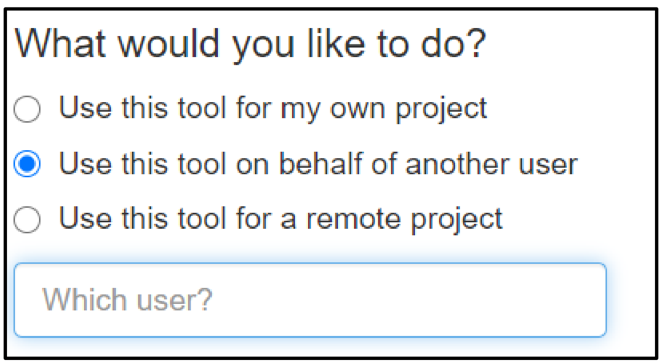


Figure 174 Tool control login on behalf of user

Once a user is selected, a list of the user's projects will appear if they have more than one (Figure 175).

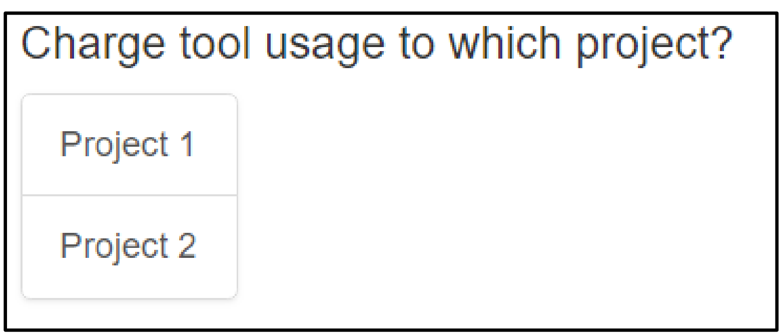


Figure 175 Tool control staff login select project

Clicking the project will enable the start button (Figure 176).

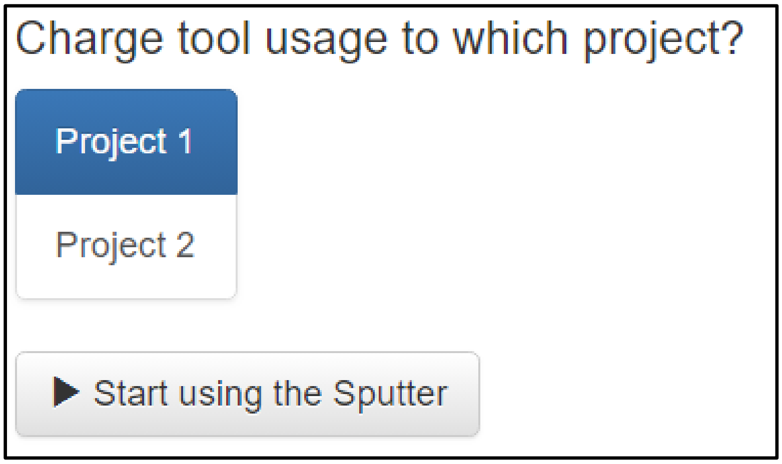


Figure 176 Tool control staff login multiple project start button

If a user only has one project, a message with the name of their project will appear and the start button will be displayed (Figure 177).

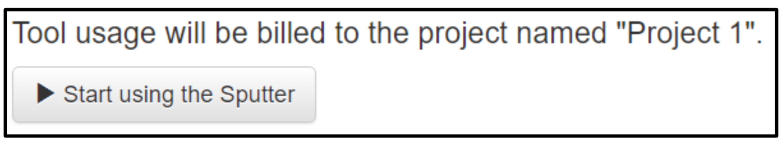


Figure 177 Tool control staff login single project start button

Click the ‘Start using the tool’ button to begin usage.

NEMO will enable the tool and record usage for the selected user regardless of user qualifications on the tool.

If interlocks have been configured, NEMO will enable the interlock. Tool interlocks are discussed in the Detailed administration → Tools section on page 483.

If using the tool for a remote project, the charging staff time indicator will appear on the navigation bar (Figure 178). If the tool in use is in an area, area access time will also be recorded. Staff charges are discussed in the Staff charges section on page 254.

Figure 178 Tool control staff charging time

7.4.8 Tool log out

The tool log out dialogs will vary depending on the options configured.

7.4.8.1 Post usage questions

If post usage questions are configured and set as required, they must be answered before tool log out will be allowed (Figure 179). Questions can be multiple choice, text, or numeric input. They can be used to collect information about a run, create charges for consumables used, and record important tool parameters. Post usage questions can be configured so responses are either required or optional. In addition, questions can be grouped and repeated a configurable number of times to capture multiple processes in a single tool usage. Post usage questions are discussed in the Detailed administration → Tools section on page 483.

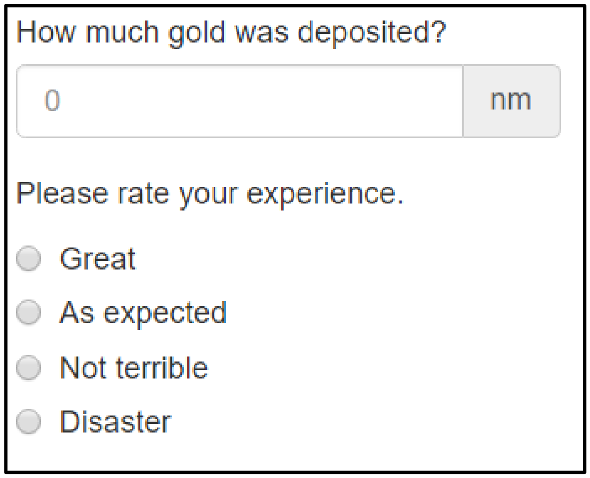


Figure 179 Tool control log out post usage questions

All post usage question responses are saved in the database usage events table described in the Detailed administration → Usage events section on page 514. Post usage question responses can also be reviewed on the usage data history tab of the tool control page detailed on page 113. The ability to review the post usage question responses provides an electronic logbook that can be viewed by users and staff.

7.4.8.2 Delayed log out

If delayed log out has been enable for the tool, the user has the option to log out while preventing usage until the delayed log out time has elapsed (Figure 180). Enter the number of minutes to delay or leave blank to skip the delay. This feature is useful for tools that require timed conditioning runs such as etch systems. It allows the user to start the post conditioning run, log out, and leave the area while the run completes.

Figure 180 Tool control log out delayed log out

Delayed log out configuration is discussed in the Detailed administration → Tools section on page 483.

7.4.8.3 Stop using a tool

If a required post usage question has not been answered, the ‘Stop using the tool’ button will be disabled (Figure 181).

Figure 181 Tool control log out button disabled

Once all required post usage questions have been answered, the ‘Stop using the tool’ button will be enabled (Figure 182).

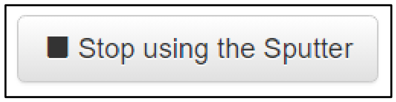


Figure 182 Tool control log out button enabled

Click the button to stop using the tool.

NEMO will disable the tool and stop recording usage. The usage record in the database will be updated with the end time. Usage events are found on the Detailed administration → Usage events page detailed on page 514.

If interlocks have been configured, NEMO will disable the interlock immediately even if delayed log out have been selected. Tool interlocks are discussed in the Detailed administration → Tools section on page 483.

Staff only – If using the tool on behalf of another user and charging staff time, a dialog will pop up asking if staff time charges should continue (Figure 183). Click the appropriate button to continue or stop charging staff time. Staff charges are discussed in the Staff charges section on page 254.

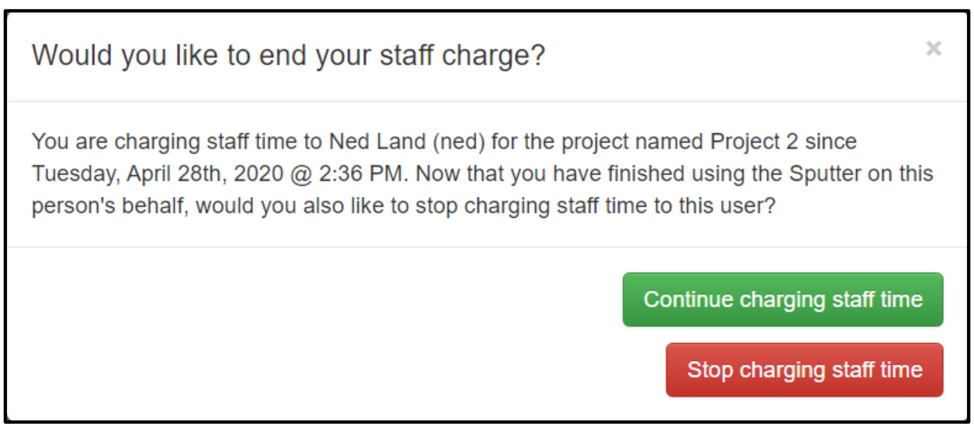


Figure 183 Tool control log out staff charges

7.4.9 Tool description

The bottom of the tool summary page can be configured to display a description (Figure 184).

Bobs XYZ sputter system

This system has RF and DC capability up to 300 watts. The lab has several targets or you can bring your own with prior approval.

Figure 184 Tool control example tool description

The description is optional and html coding can be used to control appearance. Tool descriptions are discussed in the Detailed administration → Tools section on page 483.

7.4.10 Tool image

A tool image can be configured to display at the bottom of the tool summary page (Figure 185). If a tool description is configured, the image will be displayed next to the tool description.

Figure 185 Tool control example tool image

The image is optional. Tool images are discussed in the Detailed administration → Tools section on page 483.

7.4.11 Tool Documents

Tool documents can be added and displayed at the bottom of the summary page (Figure 186).

Figure 186 Tool control example tool documents

The documents are optional. Tool documents are discussed in the [Detailed administration → Tools] section on page 483.

7.5 Details Tab

The details tab provides users and staff with information about the selected tool including the responsible staff, tool location, qualified users, required and optional resources, and task and comment history (Figure 187).

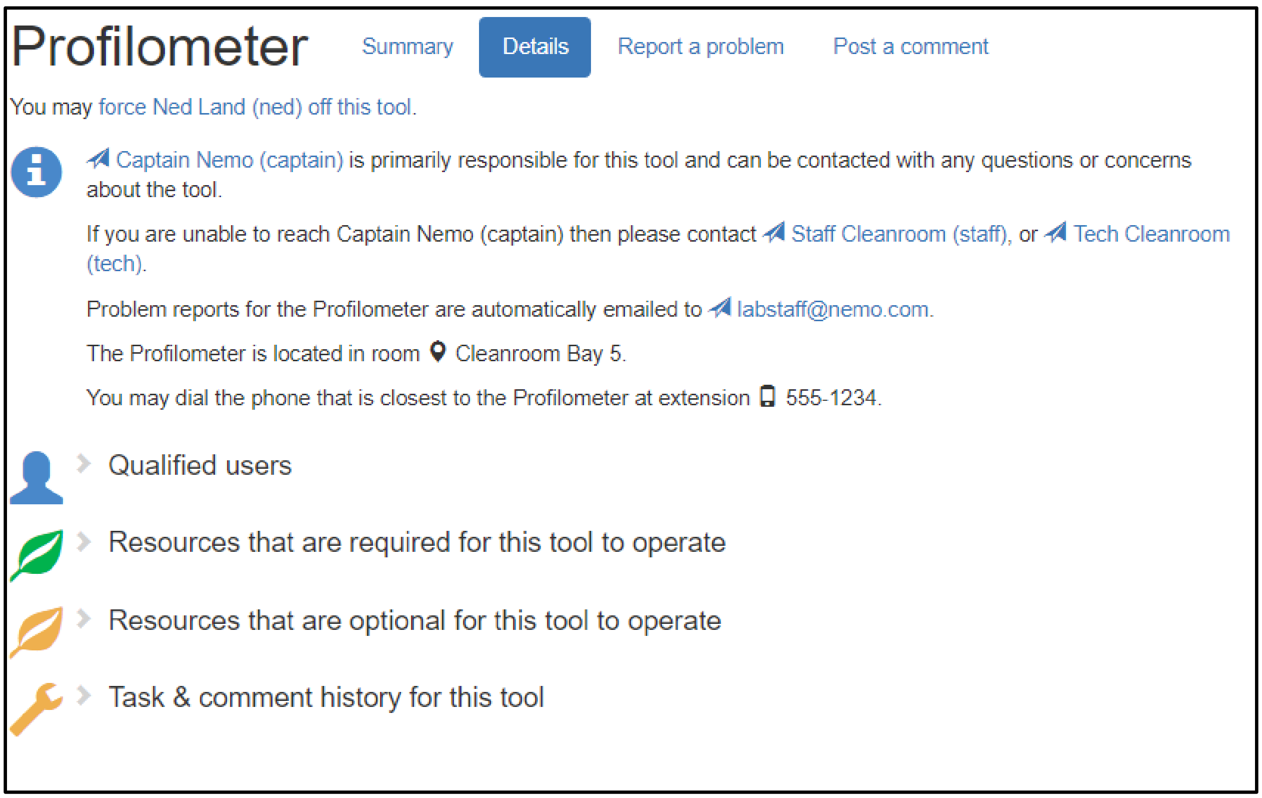


Figure 187 Tool control details page

7.5.1 Force user off of tool (staff only)

At the top of the page, staff are provided a quick link to for the currently logged in user off of the currently selected tool (Figure 188). Clicking the link will log the current user out of the tool and return the view to the summary tab.

If there are required post usage questions, an email will be sent to the user, the staff member who forced him off, the tool owner and backup owners, as well as the lab managers. The email will contain the required questions and the tool usage data entry will be blank for usage.

Figure 188 Tool details force user off of tool

7.5.2 Tool information

The tool information section of the details tab provides primary and back up staff contacts, problem report email, tool location, and tool location phone number (Figure 189).

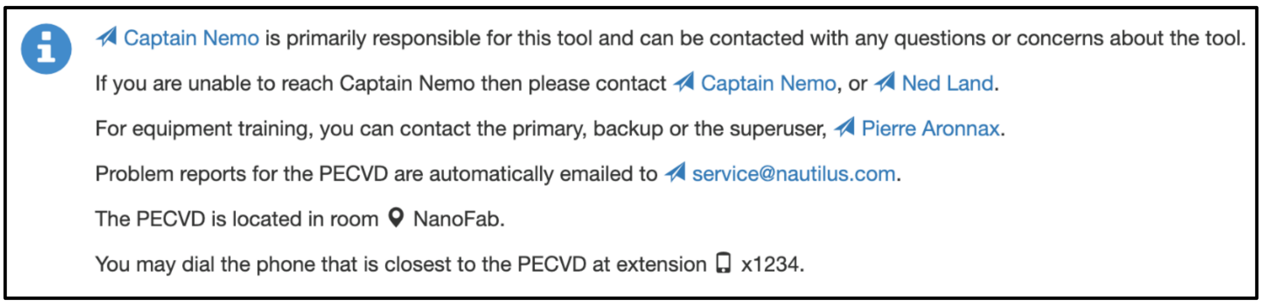


Figure 189 Tool details tool information

- Primary tool owners are required. If the primary tool owner is associated with a contact, clicking on the arrow next to the primary tool owners name will display additional contact information (Figure 190).

Figure 190 Tool details additional information

- Backup tool owners are optional and will only display if configured. If the backup tool owners are associated with a contact, clicking on the arrow next to the backup tool owners name will display additional contact information in the same manner for primary tool owners.
- Tool superusers are optional and will only display if configured. If the superusers are associated with a contact, clicking on the arrow next to the superuser name will display additional contact information in the same manner for primary tool owners.
- Associating primary, backup tool owners and superusers with contacts is discussed in the Detailed administration → Contact information section starting on page 411.
- Problem reporting emails are optional and will only display if configured.
- Tool location is required.

- Tool phone number is required.

All tool information fields are set at the tool level and are discussed in the Detailed administration → Tools section on page 483.

7.5.2.1 Emailing tool contacts through NEMO

Clicking on a tool contact link will open the email dialog (Figure 191).

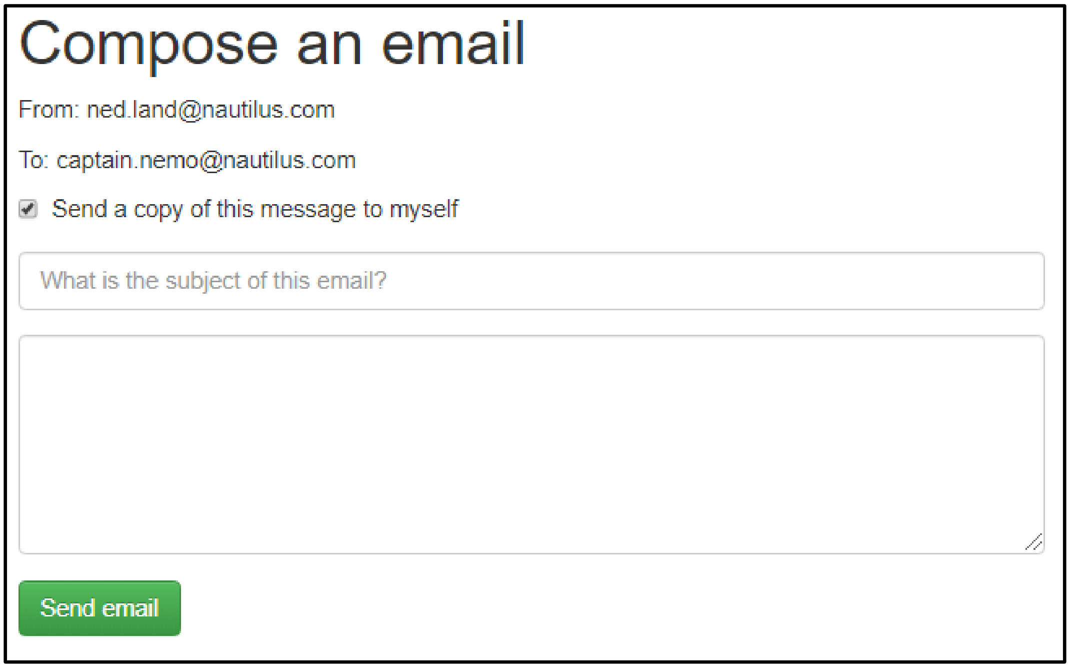


Figure 191 Tool control detail email dialog

To send an email

- The from and to fields are automatically set and cannot be changed (Figure 192).

Figure 192 Tool control detail email address

- Set the send a copy checkbox (Figure 193). By default, the user will be copied however, the checkbox can be unchecked if desired.

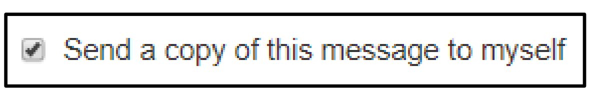


Figure 193 Tool control detail email copy

- Enter a subject line in the subject dialog box (Figure 194).

Figure 194 Tool control email subject

- Enter the message in the message dialog box (Figure 195).

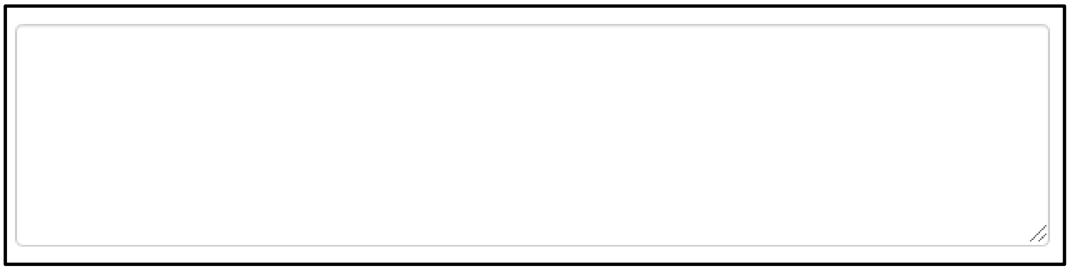


Figure 195 Tool control email message

- Click ‘Send email’ button to send the message (Figure 196).

Figure 196 Tool control email send button

7.5.3 Qualified users (staff only)

Staff are able to see all qualified users on a tool (Figure 197).

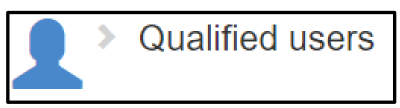


Figure 197 Tool control details qualified users

Clicking the ( ) will expand the qualified users’ dialog (Figure 198). All qualified users are listed and there are dialogs to add qualified users and email all qualified users. If qualifying a user will automatically grant them access to the lab, it will be indicated in red. Active users are displayed boldly, and inactive users are greyed out. NEMO user creation and user status is discussed in the Users section on page 278.

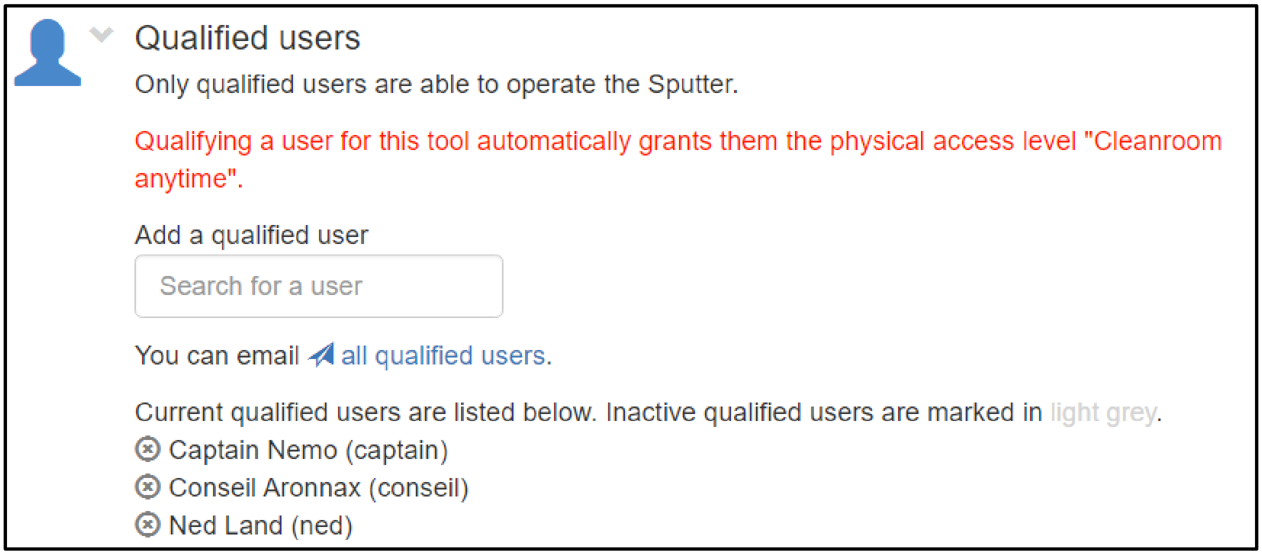


Figure 198 Tool control details qualified users expanded

Clicking the ( ) will collapse the qualified user dialog.

7.5.3.1 Qualify a user

Users can be qualified directly using the Add a qualified user search dialog (Figure 199). User tool qualifications are detailed in Qualifications on page 235.

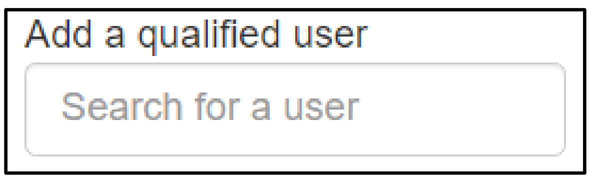


Figure 199 Tool control details qualify a user

Start typing the user's name in the search dialog then select the name of the list returned. The return list updates automatically as typed, and a user can be clicked from the list at any time (Figure 200). Once clicked, the user is added to the current qualified users list.

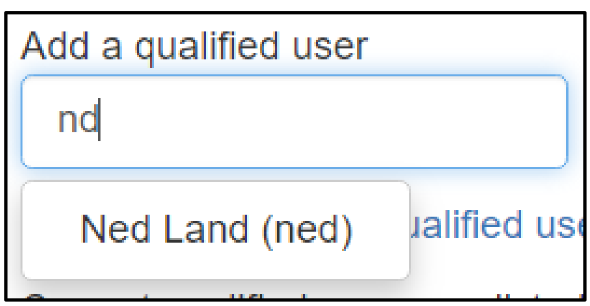


Figure 200 Tool control details qualify a user search list

7.5.3.2 Email all tool users

If there are any qualified users, an email link will appear below the add a qualified user dialog (Figure 201).

Figure 201 Tool control details email all users

Clicking the link will open the user email page which is described in the Email section on page 216.

7.5.4 Required resources

The required resources are optional and only display if configured (Figure 202). Resources are discussed in the Resources section on page 243. Associating resources with tools is discussed in the Detailed administration → Tools section on page 483.

Figure 202 Tool control details required resources

Clicking the ( ) will expand the required resource list (Figure 203).

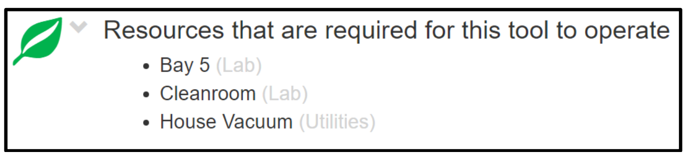


Figure 203 Tool control details require resources expanded

Clicking the ( ) will collapse the required resource list.

7.5.5 Optional resources

The optional resources are optional and only display if configured (Figure 204). Resources are discussed in the Resources section on page 243. Associating resources with tools is discussed in the Detailed administration → Tools section on page 483.

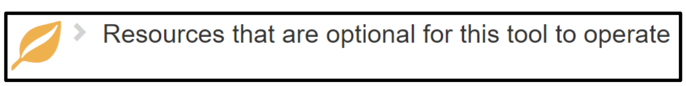


Figure 204 Tool control details optional resources

Clicking the ( ) will expand the optional resource list (Figure 205).

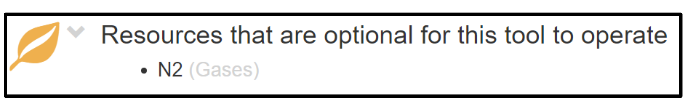


Figure 205 Tool control details optional resources expanded

Clicking the ( ) will collapse the required resource list.

7.5.6 Task and comment history

The task and comment history provides a way to look at problems, shutdowns, and comments that are currently open or have been previously closed (Figure 206).

Figure 206 Tool control details task and comment history

Clicking the ( ) will expand the optional resource list (Figure 207).

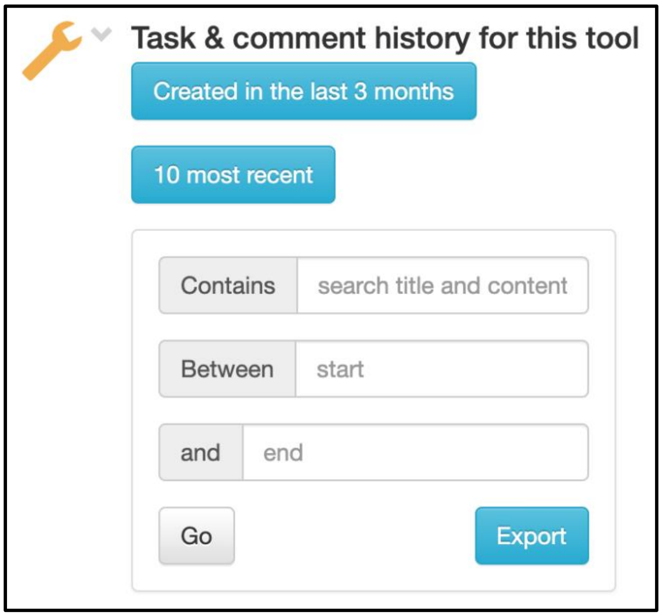


Figure 207 Tool control details task and comment history expanded

Clicking the ( ) will collapse the required resource list.

The expanded task and comment history provides quick buttons to display all items created in the last three months (Figure 208) or the ten most recent events (Figure 209). Clicking either will show a list of tasks and comments below the search dialog (Figure 210).

Figure 208 Tool control details task 3-month button

Figure 209 Tool control details task 10 most recent button

A search dialog is also provided to allow a keyword search or any date range to be displayed (Figure 210).

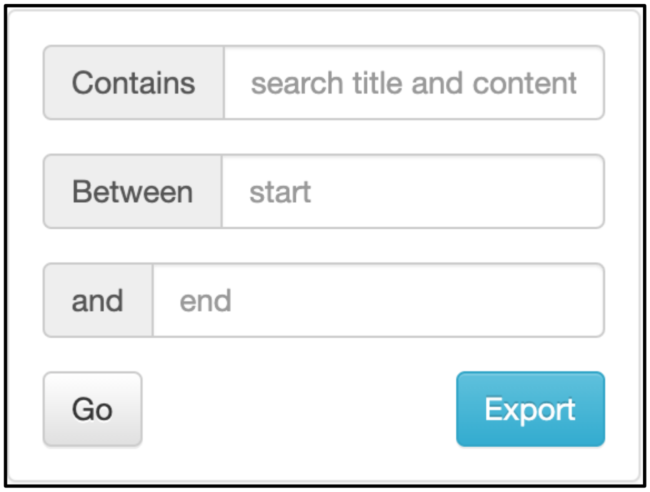


Figure 210 Tool control details task search dialog

For a key word search, enter the search text in the contains field (Figure 211).

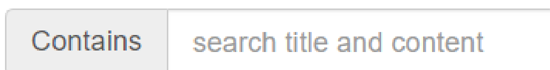


Figure 211 Tool control details task search text

For a date range search, click the start and end dialogs to enter dates. A calendar dialog will appear that can be used to navigate to the date of interest (Figure 212). However, a date can be typed directly into each box.

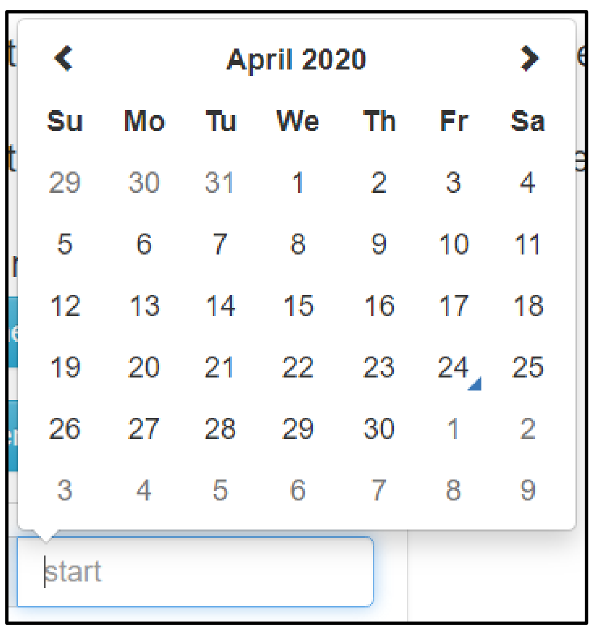


Figure 212 Tool control details task calendar dialog

The search can also combine text search and date ranges. To make open ended, leave fields blank. For example, to show all tasks, leave the contains field and start date blank and enter today’s date into the end date, all task records will be returned.

Click the Go button to display results below the dialog (Figure 213).

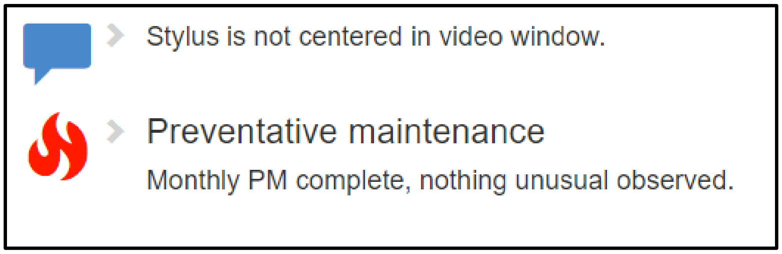


Figure 213 Tool control details task display results

Clicking the ( ) will expand task or comment details (Figure 214).

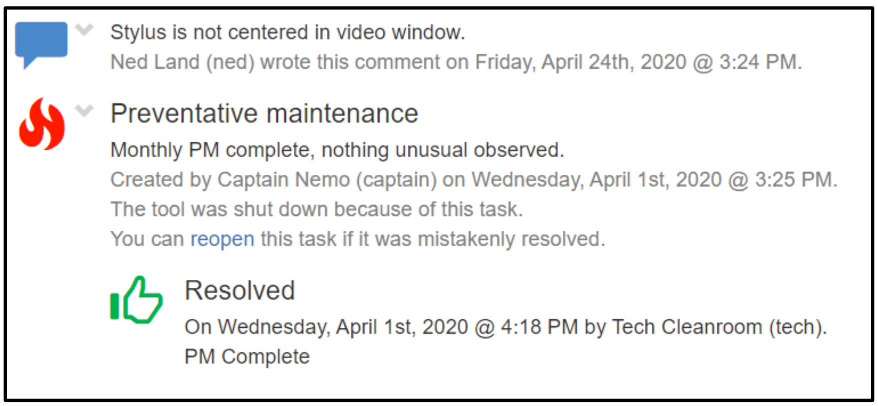


Figure 214 Tool control details task results expanded

Clicking the ( ) will collapse the details.

Clicking the Export button will export current shown tasks and comments into a text file.

7.5.6.1 Reopen closed task (staff only)

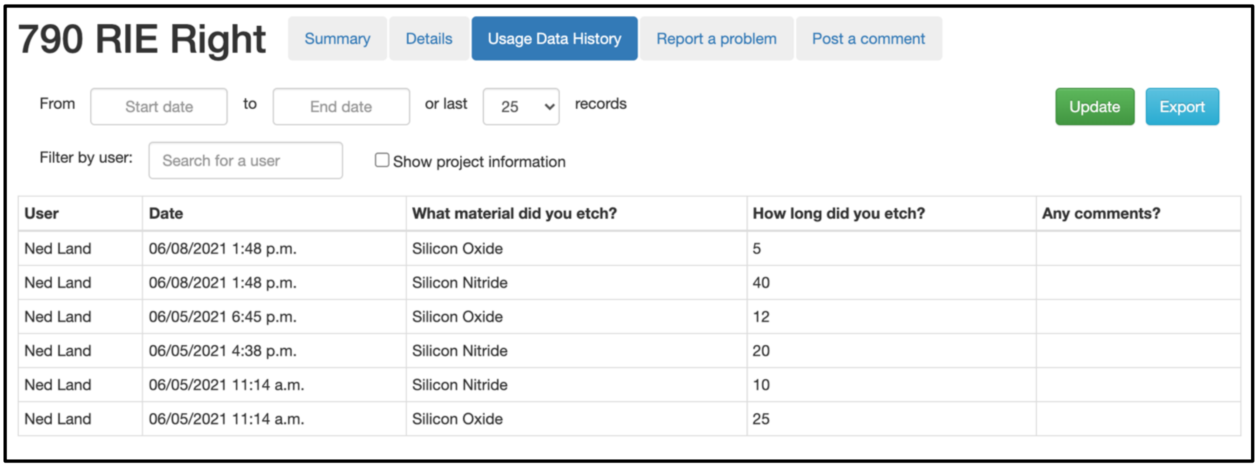
If a staff member is viewing task history, a line will be displayed giving the option to reopen the task (Figure 215).

Figure 215 Tool control details task results reopen task link

Clicking on the reopen link will open the task update page which is detailed on page 92. Click update to reopen the task.

7.6 Usage Data History

The usage data history tab provides users and staff with the ability to see how a tool was used based on answers to post usage questions. This feature is useful to replace handwritten logbooks and gives easy access to post usage question data. The tab will only be visible on tools that have post usage questions configured. The usage data history is searchable by date, last records, and can be filtered by user. The selected data can be exported in a comma separated text file.



User	Date	What material did you etch?	How long did you etch?	Any comments?
Ned Land	06/08/2021 1:48 p.m.	Silicon Oxide	5	
Ned Land	06/08/2021 1:48 p.m.	Silicon Nitride	40	
Ned Land	06/05/2021 6:45 p.m.	Silicon Oxide	12	
Ned Land	06/05/2021 4:38 p.m.	Silicon Nitride	20	
Ned Land	06/05/2021 11:14 a.m.	Silicon Nitride	10	
Ned Land	06/05/2021 11:14 a.m.	Silicon Oxide	25	

Figure 216 Tool control usage data history

7.6.1 Feature setup

- The usage data history page is automatically displayed once post usage questions have been setup for a tool.
- Post usage question setup is discussed in detail in the Detailed administration → Tools section on page 483.
- Post usage questions can be configured so responses are either required or optional. In addition, questions can be grouped and repeated a configurable number of times to capture multiple processes in a single tool usage. If a combination of grouped and ungrouped questions are configured, the ungrouped question responses only appear with the first group response.

7.6.2 Review usage data history for a tool

- Navigate to the tool control page.
- Select the tool of interest from the tool list on the sidebar.
- Click the usage data history tab.
- The default view lists the last 25 records

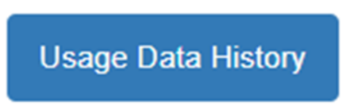


Figure 217 Tool control usage data history tab

- Select the date range or the last number of records:
    - Enter a start and end date if desired.
    - Or select the last number or records.
    - Click update to refresh the view.

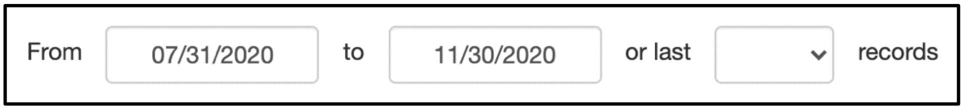


Figure 218 Tool control usage data history date range or last records

- Filter by user:
    - Enter a user name in the search box if desired.
    - Click on the user you want to filter by.
    - Click update to refresh the view.

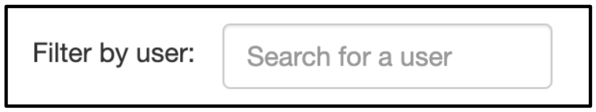


Figure 219 Tool control usage data history filter by user

- Show project information:
    - Check the box if you want to see project information in the table
    - Click update to refresh the view

Figure 220 Tool control usage data history show project info

- The resulting data will include project information:

User	Project	Date	What material did you etch?	How long did you etch?	Any comments?
Ned Land	Project 3	06/08/2021 1:48 p.m.	Silicon Oxide	5	
Ned Land	Project 3	06/08/2021 1:48 p.m.	Silicon Nitride	40	
Ned Land	Project 3	06/05/2021 6:45 p.m.	Silicon Oxide	12	
Ned Land	Project 3	06/05/2021 4:38 p.m.	Silicon Nitride	20	
Ned Land	Project 3	06/05/2021 11:14 a.m.	Silicon Nitride	10	
Ned Land	Project 3	06/05/2021 11:14 a.m.	Silicon Oxide	25	

Figure 221 Tool control usage data history with project information

- Scroll through the returned data to review.
- To export the selected data, click the export button.

Figure 222 Tool control usage data history export button

7.7 Config History

The config history tab provides users and staff with the ability to see how a tool was configured previously (Figure 223). The tab will only be visible on tools that are configurable.

Configuration history is saved in the database and is discussed in Detailed administration → Configuration histories on page 398. Configurations are discussed in the Configuration Agenda section on page 212.

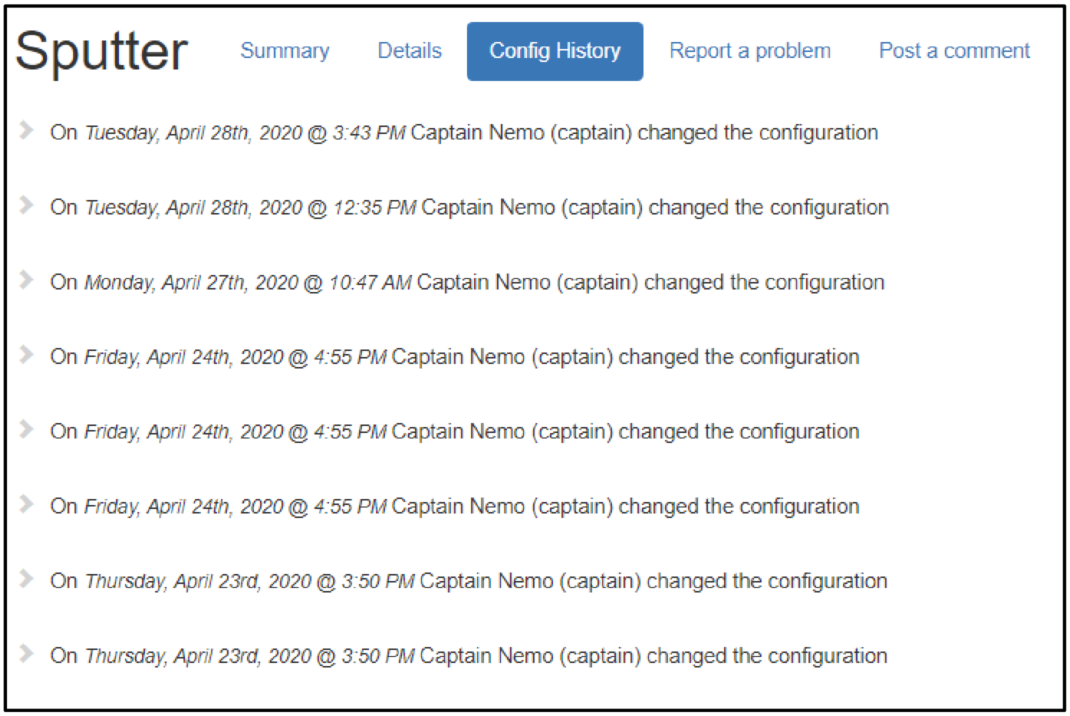


Figure 223 Tool control config history page

Click the ( ) icon to expand the details of a particular configuration (Figure 224).

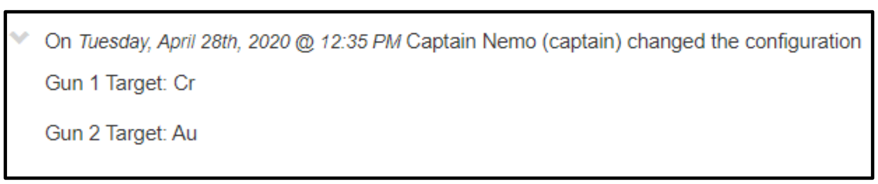
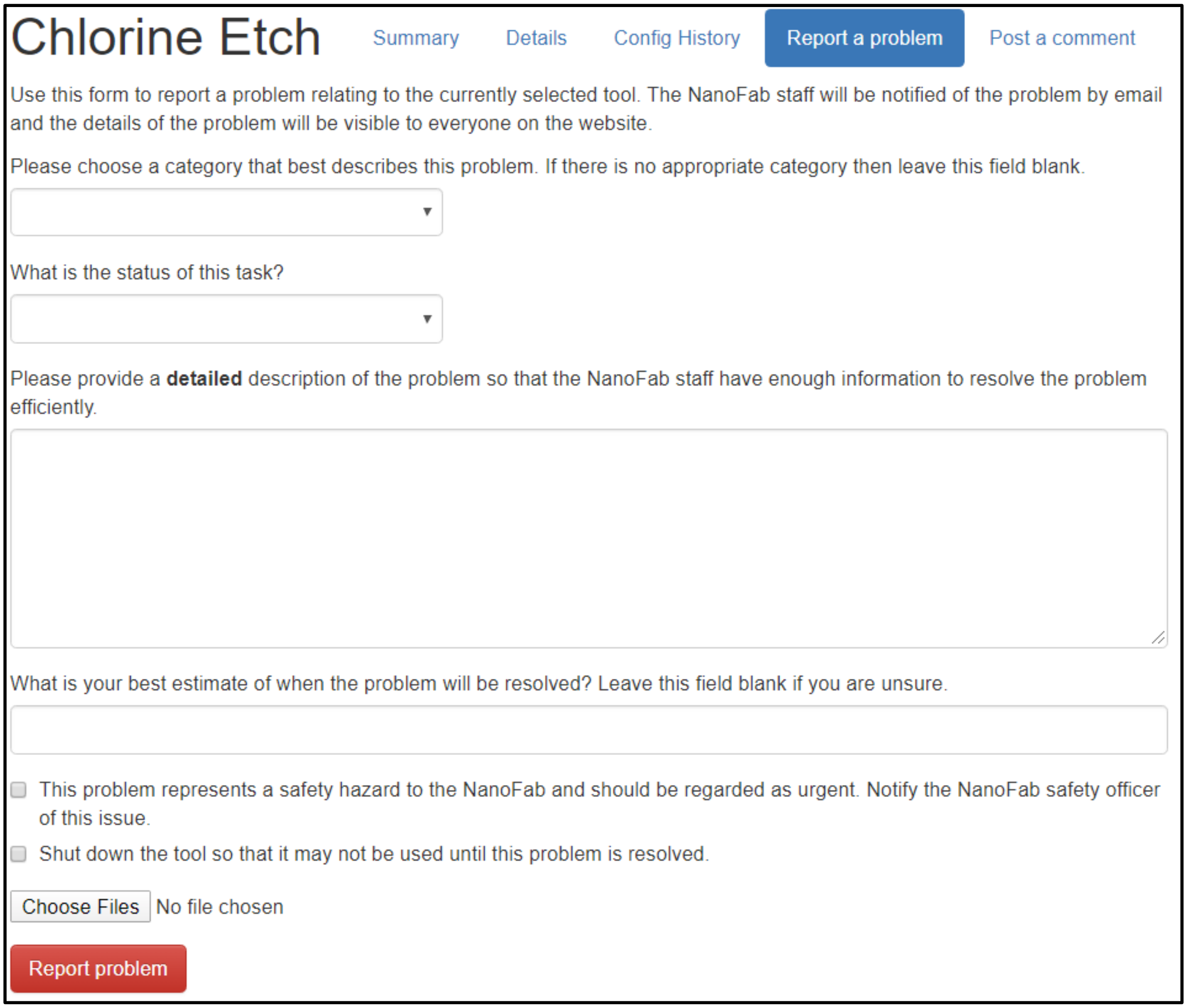


Figure 224 Tool control configuration details

Click the ( ) icon to collapse the details.

7.8 Report a problem Tab

The report a problem tab provides users and staff with the ability to alert others to problems with a tool (Figure 225). If a tool is unusable, it can be shut down and the tool owner notified. If it poses a safety hazard, more staff can be alerted.


Chlorine Etch

Summary | Details | Config History | Report a problem | Post a comment

Use this form to report a problem relating to the currently selected tool. The NanoFab staff will be notified of the problem by email and the details of the problem will be visible to everyone on the website.

Please choose a category that best describes this problem. If there is no appropriate category then leave this field blank.

What is the status of this task?

Please provide a **detailed** description of the problem so that the NanoFab staff have enough information to resolve the problem efficiently.

What is your best estimate of when the problem will be resolved? Leave this field blank if you are unsure.

- [ ] This problem represents a safety hazard to the NanoFab and should be regarded as urgent. Notify the NanoFab safety officer of this issue.
- [ ] Shut down the tool so that it may not be used until this problem is resolved.

Choose Files No file chosen

Report problem

Figure 225 Tool control report a problem page

7.8.1 To report a problem:

- Navigate to the tool control page.
- Select the tool of interest from the tool list on the sidebar.
- Click the report a problem tab.
- If task categories have been defined, a dropdown and instruction will appear. Click the dropdown and select the problem category that best describes the problem (Figure 226). If no category describes the problem, leave this blank. Task categories can be used to bin problems making future problem analysis easier. Categories are configured on the Detailed administration → Task categories page described on page 462.

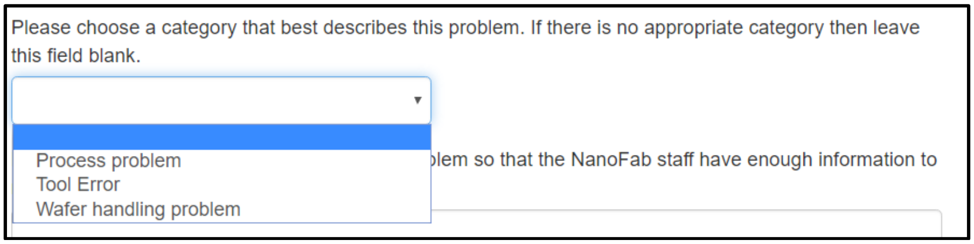


Figure 226 Tool problem category selection

- (Staff Only) If task statuses have been defined, a dropdown and instruction will appear (Figure 227). If the status is not known, the field can be left blank. Click the dropdown and select the initial status for the problem. Task statuses are used to update various staff as a problem progresses to resolution. For example, once the maintenance team has finished a repair, they can change the status to qualification which notifies the process engineer that the tool is ready to requalify. Statuses are configured on the [Detailed administration → Task statuses page]() described on page 477.

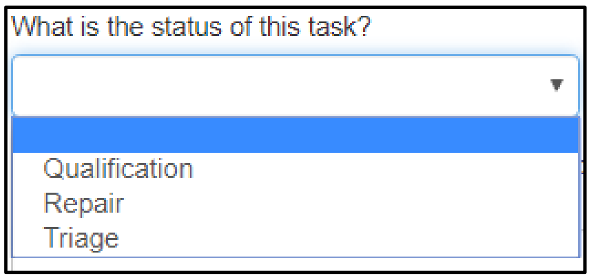


Figure 227 Tool problem task status selection

- Provide a detailed description of the problem in the dialog box (Figure 228).

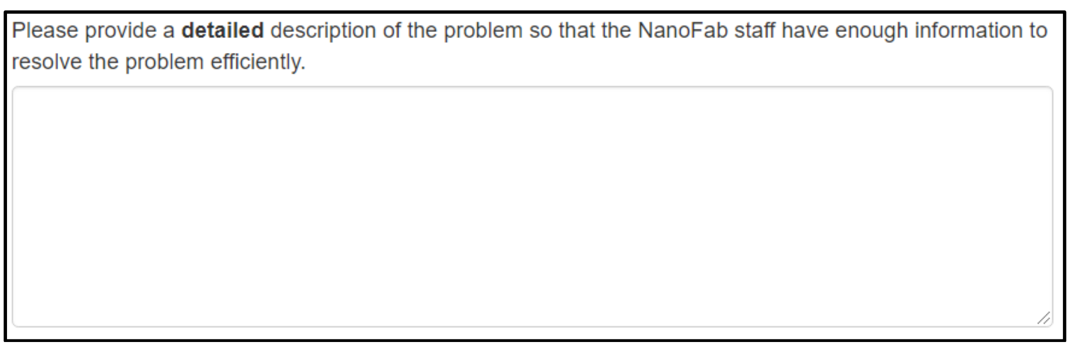


Figure 228 Tool problem detailed description

- (Staff only) Provide an estimate of when the problem will be resolved if known or leave blank (Figure 229). Clicking in the dialog will open a date and time dialog (Figure 230).

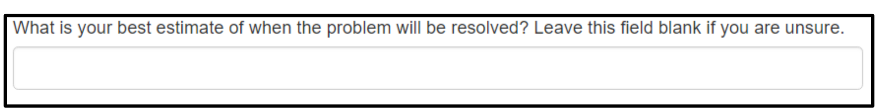


Figure 229 Tool problem estimated repair time

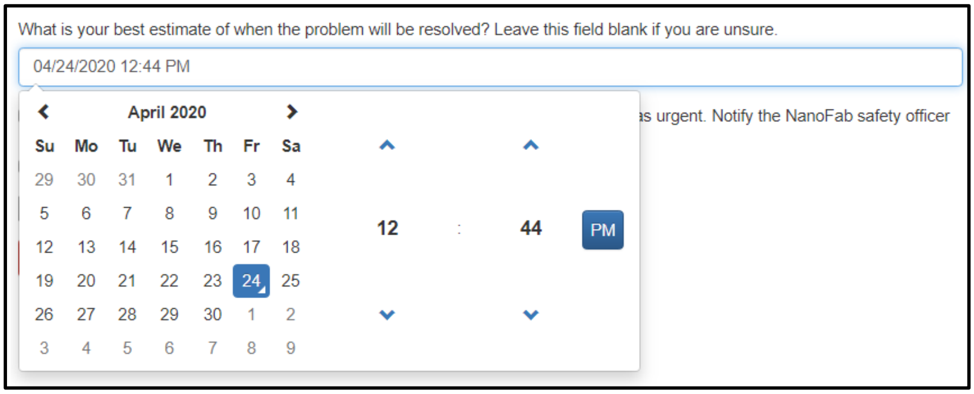


Figure 230 Tool problem estimated repair date and time dialog

- Check the safety hazard check box if the problem is a safety hazard to people or equipment (Figure 231).

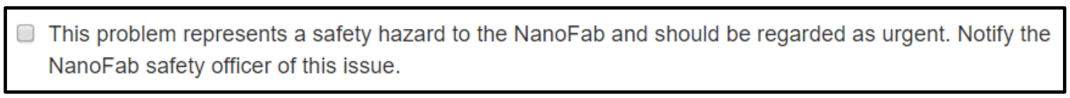


Figure 231 Tool problem safety hazard

- Check if the shutdown check box if the tool is not able to be used by others and could potentially ruin samples (Figure 232).

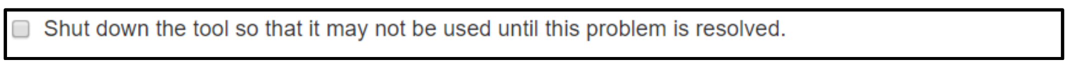


Figure 232 Tool problem shut down

- The choose files dialog may be used to upload any relevant pictures or data to show details that support the description (Figure 233). Clicking the button activate a standard file selection dialog. Multiple files can be uploaded. Note: it is good practice to make note of the files in the description to link the file to the text.

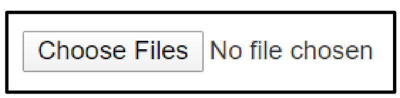


Figure 233 Tool problem upload files

- Click the report button to finish (Figure 234).

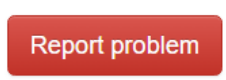


Figure 234 Tool problem report button

7.8.2 Problem posting

Once the Report problem button is clicked, a task is created and saved in the Tasks table of the database which is discussed in the Detailed administration → Tasks section on page 477.

Tasks are displayed as problems and shutdowns in the summary tab of the tool control page.

Email notifications are triggered.

- Email notifications are only sent if the New task email has been configured in Customization which is discussed on page 330.
- Recipients set at the tool level as discussed in the Detailed administration → Tools section on page 483.
  - Primary tool owner
  - Backup tool owners if any are defined
  - Notification email if defined
- Recipients set in settings.py LAB_MANAGERS as discussed in the Configuring NEMO settings → Lab Managers section on page 581.
- Recipients any non-staff user with a future reservation.

If the task is marked as a safety hazard

- In addition to the standard email notifications, a safety issue is automatically created, and a safety email is sent. Safety issues are discussed in the Safety page section on page 141.

7.9 Post a comment Tab

The post a comment tab provides users and staff with the ability to record information about a tool without changing the tool status (Figure 235). It is useful for highlighting tool usage information, process results, and general comments. Unlike reporting a problem, staff are not notified when a comment is posted therefore, comments should not be used to report problems or shutdowns.

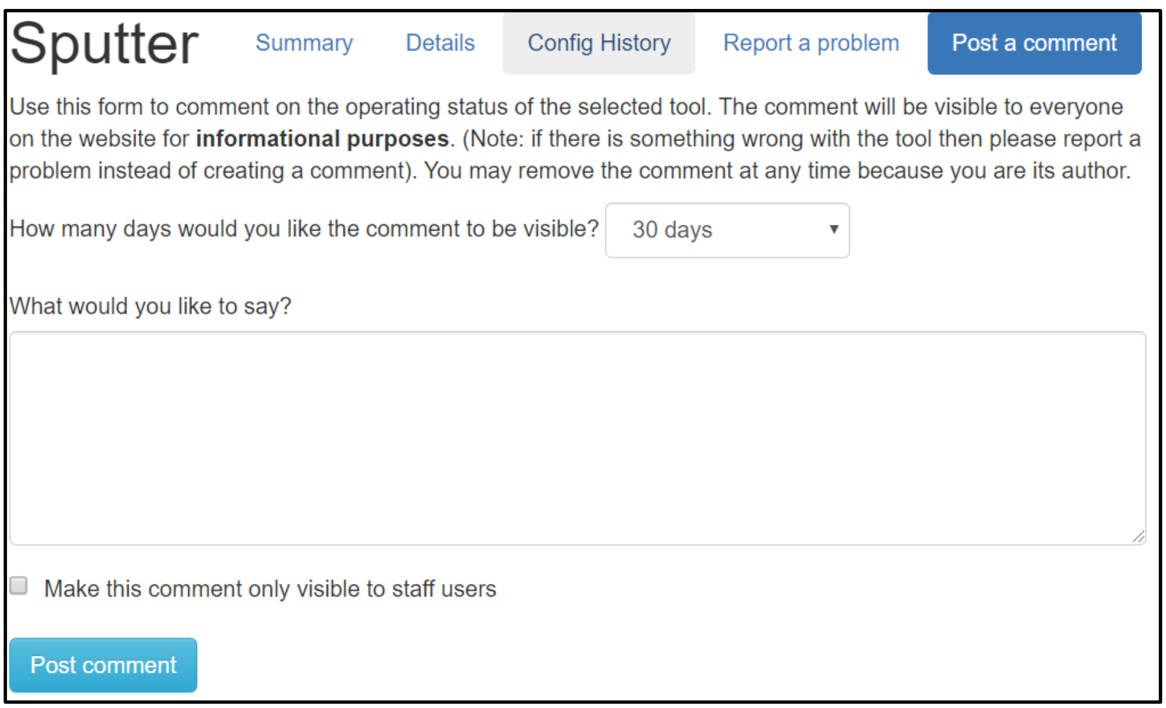


Figure 235 Tool control post a comment page

7.9.1 To post a comment:

- Navigate to the tool control page.

- Select the tool of interest from the tool list on the sidebar.
- Click the Post a comment tab.
- Click the drop down and select the amount of time to keep the comment visible (Figure 236).

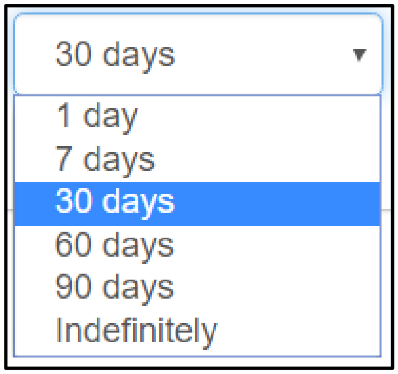


Figure 236 Comment visible time dropdown

- Enter any relevant information in the dialog box (Figure 237).

Figure 237 Comment dialog box

- Check to make comment visible only to staff (staff only) (Figure 238). This feature is useful to post special tool information.

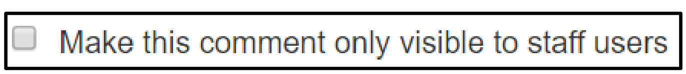


Figure 238 Comment dialog staff visible checkbox

- Click the post comment button (Figure 239).

Figure 239 Comment post button

7.9.2 Comment posting

Once the Post comment button is clicked, the comment is saved in the Comments table of the database which is discussed in the Detailed administration → Comments section on page 384.
Comments are displayed in the summary tab of the tool control page.
No email notifications are triggered.

7.10 Mobile device tool control

The tool control page will automatically change to a mobile display by stacking information into a single scrollable column (Figure 240). All of the features are available while in mobile view. To start, directly enter the name of the tool in the search dialog or select a tool by category. All categories and sub-categories are listed.

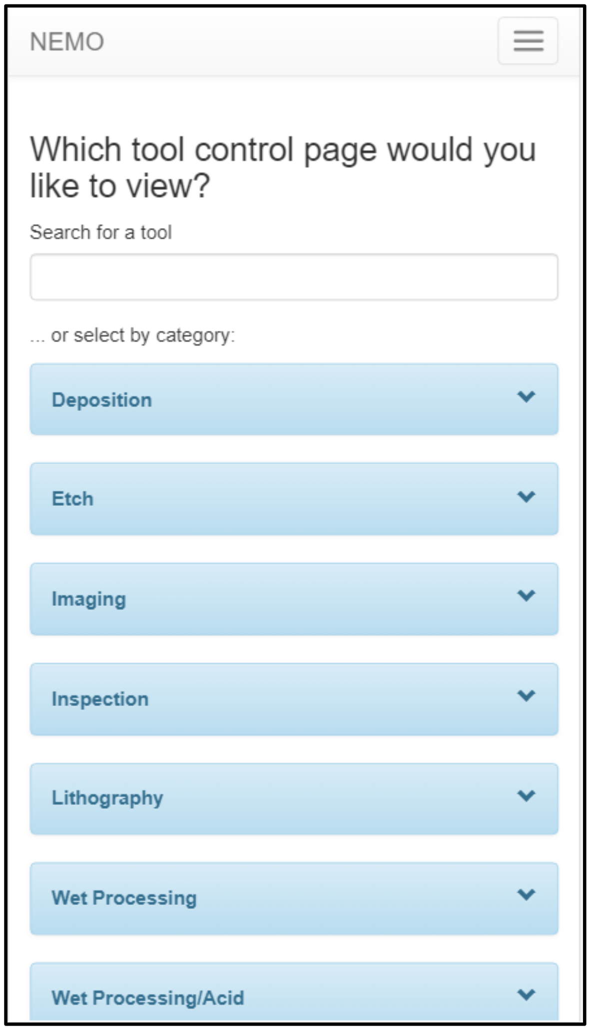


Figure 240 Mobile tool control page

7.10.1 Search for a tool

To search for a tool, start typing in the search dialog box. A tool button list will appear below the search dialog as characters are entered but at least two characters must be entered (Figure 241). Once the tool of interest appears, click the button of the tool of interest to go to the tool control page detailed below on page 124.

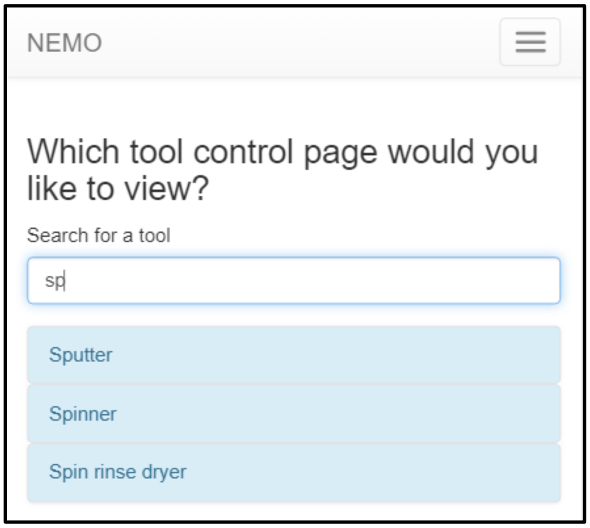


Figure 241 Mobile tool control search box and results

7.10.2 Select a tool by category

To select a tool by category, click the category button then click the tool link in the drop down. If the tool of interest is not on the list, click another category button (Figure 242). Note: it is possible to have more than one category at a time expanded. However, the page resets each time it is opened. Once the tool of interest appears, click the button of the tool of interest to go to the mobile tool reservation page detailed below on page 124.

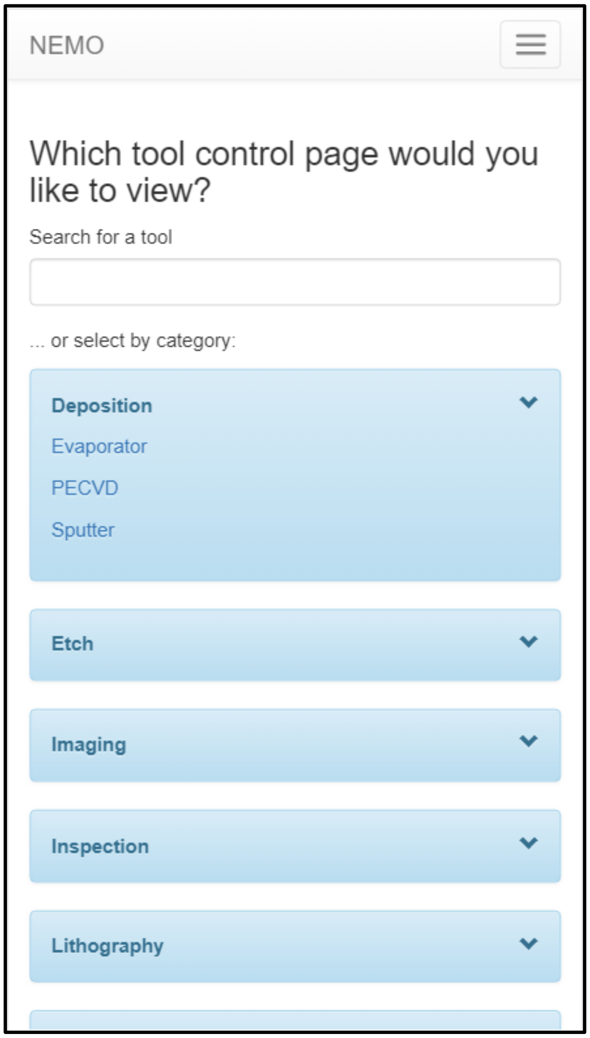


Figure 242 Mobile tool control category drop down

7.10.3 Mobile tool control page

The mobile tool control page lands on the summary tab (Figure 243). The summary tab, details tab, report a problem tab, and post a comment tab do not have any specializations to render on a mobile device. To select each tab, click or press near the tab title. Functionality is identical to the previously described tab features. If a tab renders larger than a screen, drag the screen to scroll.

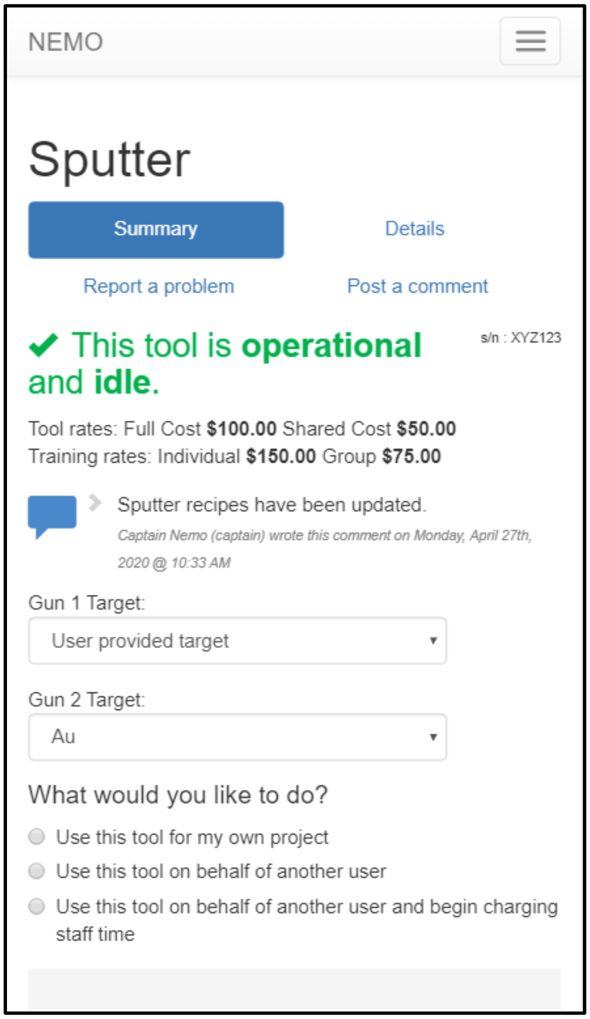


Figure 243 Mobile tool control landing page

7.11 Tool control customizations

7.11.1 Notification emails

Email notifications are possible when a task is created, updated, or resolved or a user tries to use a tool they are not qualified for and must be configured to be functional. Email templates are configured in the Customization page detailed starting on page 290.

7.11.2 Tool usage reminders

Tool usage reminder emails can be sent periodically. A timed service app must be properly configured and running which is described in NEMO timed services on page 581. The usage reminder email template must be configured and is described in the Customization pages detailed starting on page 290.

7.11.3 Tool rates

Tool rates can be customized and are discussed in the Customizations → Tool rates section on page 357.

7.11.4 Tool control page refresh rate

The tool control page automatically refreshes every 30 seconds which updates the current tool information and sidebar. To change the update interval, edit the tool_control.html and change the setInterval constant (in milliseconds) in the on_load function.

7.11.5 Optional tool features

The tool control pages were implemented such that if a feature was not used, its corresponding content would not be displayed. This helps eliminate the need for special setups to view features and easily enables many features to be optional. All of the optional features are detailed in the tool control pages.

8 Status dashboard

The status dashboard page provides a convenient overview of all users and staff currently logged into any areas or tools. In addition, there are views for problematic tools, idle tools, and an all-tool view. The status dashboard lands on the area occupancy tab by default.

8.1 *Web address*

The status dashboard page is accessible at site-address/status_dashboard/. For example, www.nemo.com/status_dashboard/. The page can also be accessed from the navigation bar menu item “Status dashboard”.

8.2 *Area occupancy tab*

The status dashboard lands on the area occupancy tab by default and the area occupancy tab will be highlighted with a blue background (Figure 244). This view shows all users that are currently logged into all areas. Staff members are highlighted in green and service personnel are highlighted in orange, so they stand out. Each area will list the number of people in the area if it is greater than 1. Staff and service personnel are listed separately if the area is configured not to include them in the occupancy count. Lab areas are configured through the [Detailed administration → Areas]() page detailed on page 379.

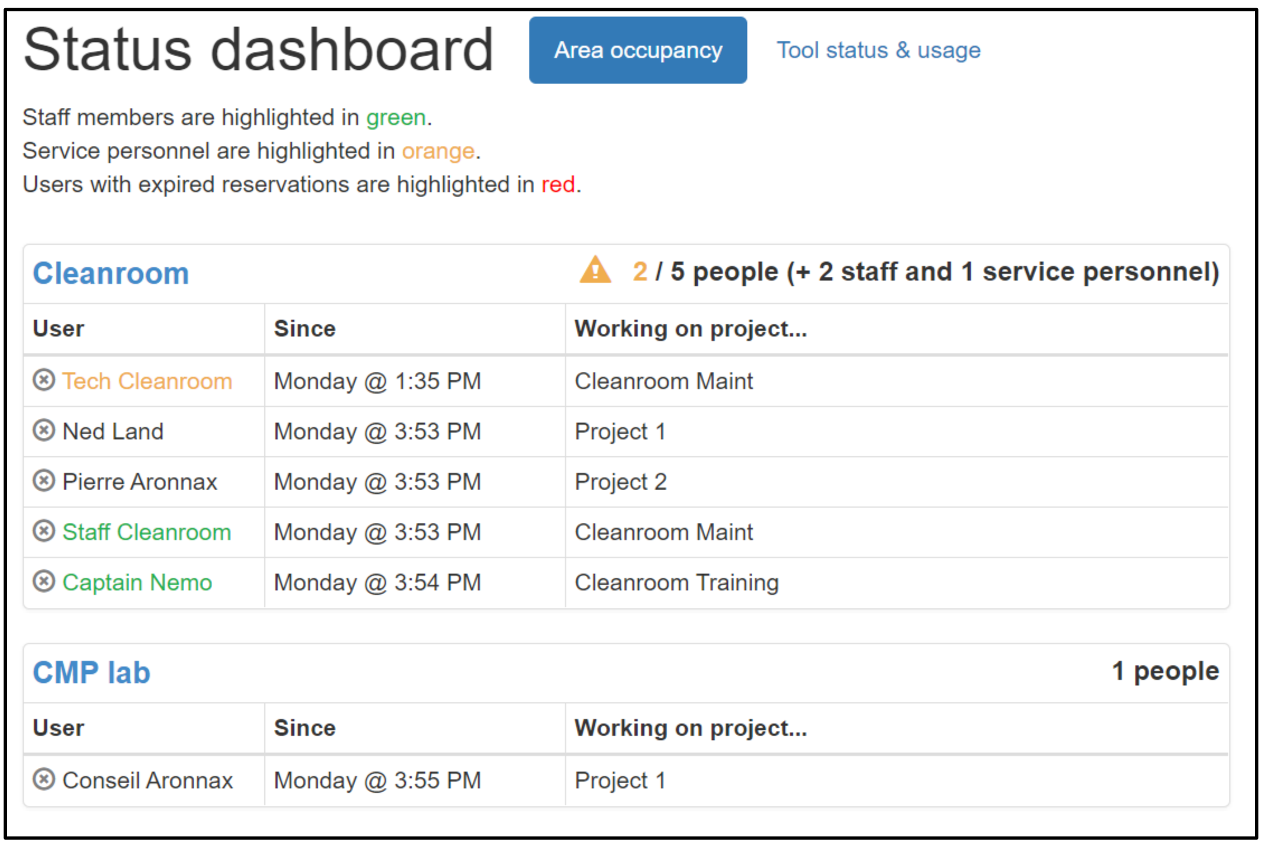


Figure 244 Status dashboard area occupancy

8.2.1 Maximum occupancy

If an area has a maximum occupancy set, the number of people will be listed as total of the maximum (Figure 245).

Figure 245 Status dashboard below maximum occupancy

If the occupancy is within one person, a yellow warning will be displayed with the occupancy (Figure 246).

Figure 246 Status dashboard near maximum occupancy

If the occupancy is at or above the limit, a red warning will be displayed with the occupancy (Figure 247).

Figure 247 Status dashboard at or above maximum occupancy

8.2.2 Force user out of area (staff only)

Staff will see a (⊗) icon next to each user's name. Clicking the icon will log the user out of the area. There is no prompt for confirmation, the logout is immediate.

8.3 Tool status & usage tab

Clicking the 'Tool status & usage' tab will switch the view and highlight the tab with a blue background. The default view is the 'tools in use' filter. To change the filter, click the dropdown and click the filter of interest (Figure 248). All filter views show the tool name, user name, and when they started using the tool. The tool names are followed by status icons which are identical to those describe in Tool control → Side bar Tool list icons on page 81.

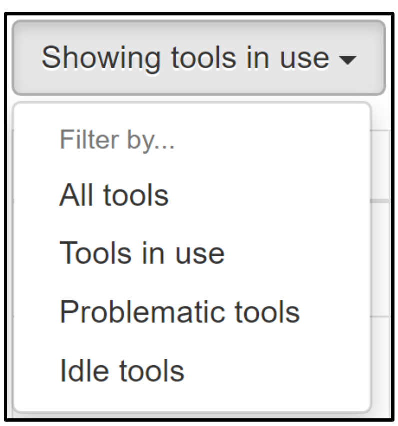


Figure 248 Status dashboard tool filter

8.3.1 Force user off of tool (staff only)

Staff will see a ( ) icon next to each user’s name on all tool status views except for idle tools. Clicking the icon will log the user out of the tool. There is no prompt for confirmation, the logout is immediate. All normal logout procedures are skipped and if interlocks are defined, the interlock is turned off immediately.

If there are required post usage questions, an email will be sent to the user, the staff member who forced him off, the tool owner and backup owners, as well as the lab managers. The email will contain the required questions and the tool usage data entry will be blank for usage.

Tool logout procedures are discussed in the Tool control → Summary tab → Tool log out section on page 101.

8.3.2 Tools in use

The ‘tools in use’ filter will only show tools that currently have someone logged in (Figure 249).

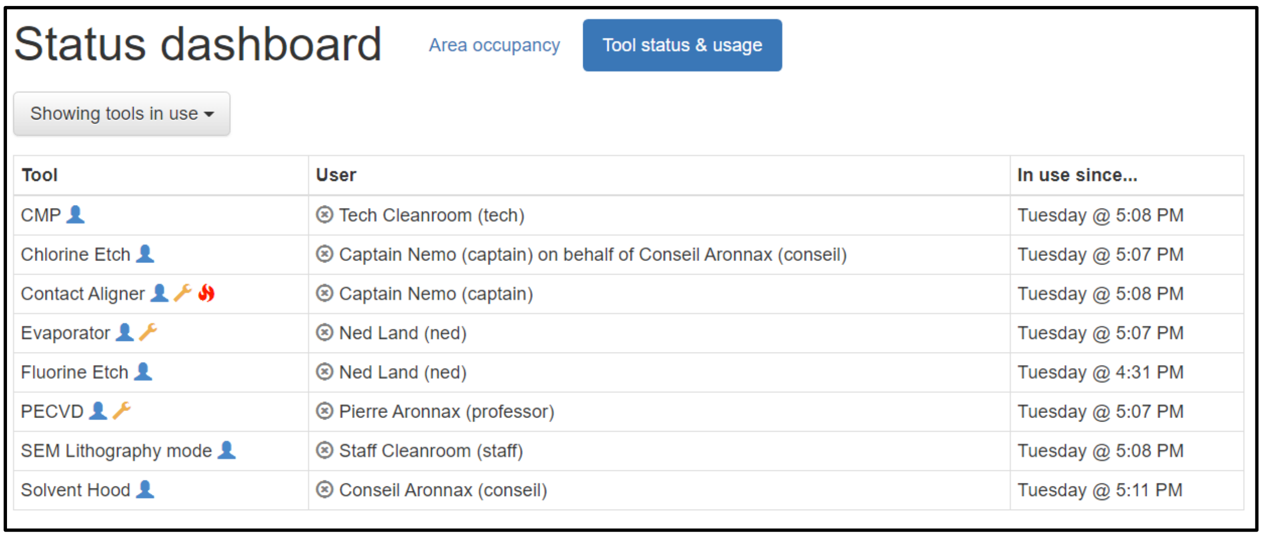
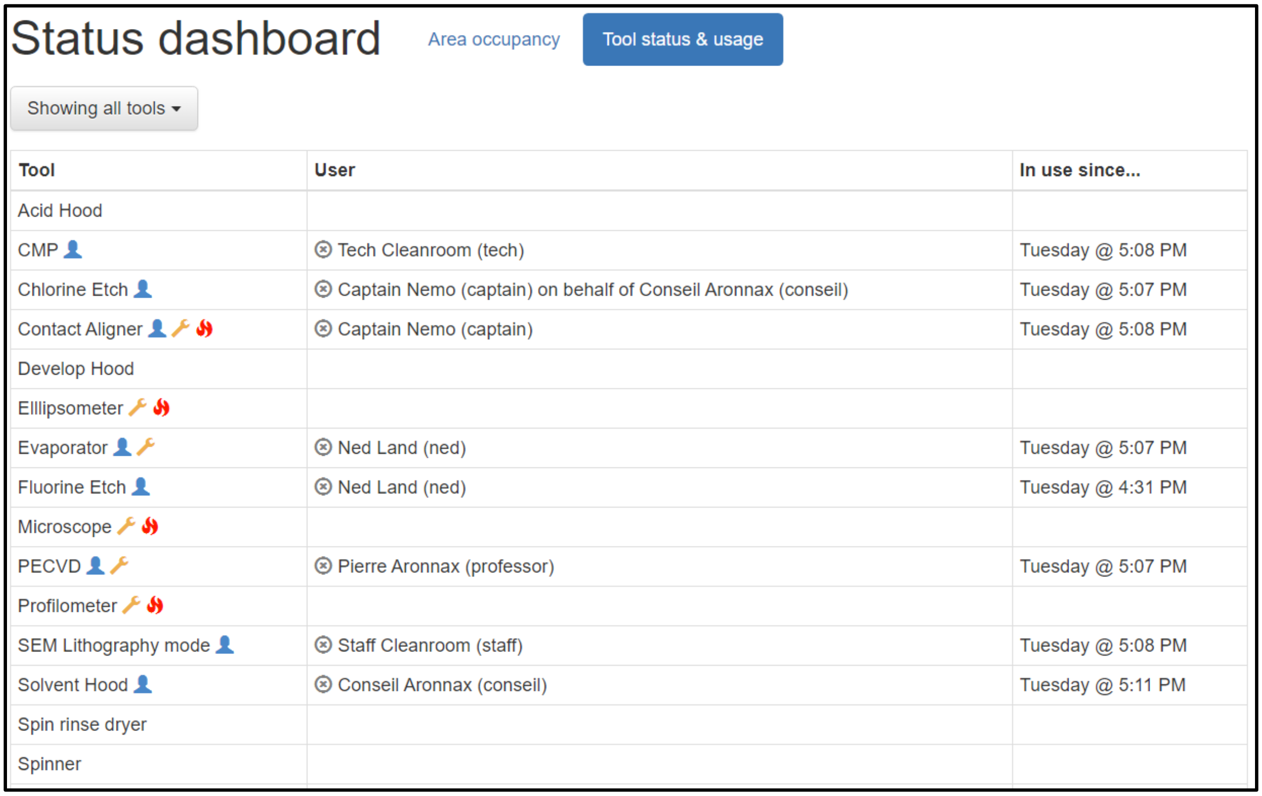


Figure 249 Status dashboard tools in use

8.3.3 All tools

The ‘all tools’ filter displays all tools regardless of log in or problem status (Figure 250).


Status dashboard

Area occupancy | Tool status & usage

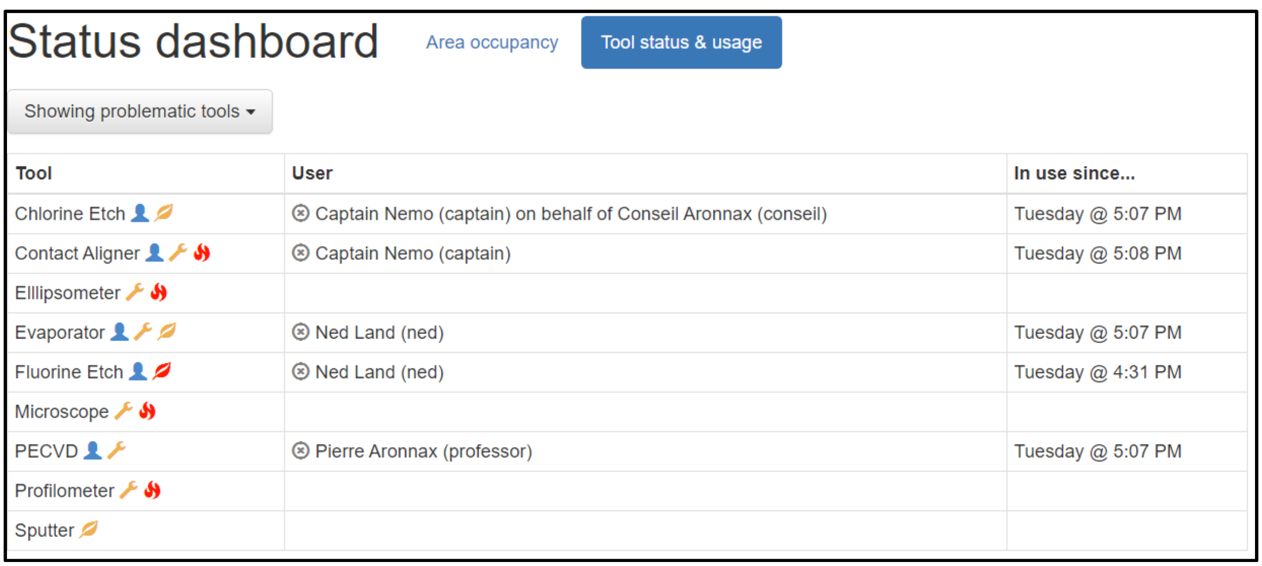
Showing all tools

Tool	User	In use since...
Acid Hood		
CMP	Tech Cleanroom (tech)	Tuesday @ 5:08 PM
Chlorine Etch	Captain Nemo (captain) on behalf of Conseil Aronnax (conseil)	Tuesday @ 5:07 PM
Contact Aligner	Captain Nemo (captain)	Tuesday @ 5:08 PM
Develop Hood		
Ellipsometer		
Evaporator	Ned Land (ned)	Tuesday @ 5:07 PM
Fluorine Etch	Ned Land (ned)	Tuesday @ 4:31 PM
Microscope		
PECVD	Pierre Aronnax (professor)	Tuesday @ 5:07 PM
Profilometer		
SEM Lithography mode	Staff Cleanroom (staff)	Tuesday @ 5:08 PM
Solvent Hood	Conseil Aronnax (conseil)	Tuesday @ 5:11 PM
Spin rinse dryer		
Spinner		

Figure 250 Status dashboard all tools

8.3.4 Problematic tools

The 'problematic tools' filter displays all tools with a shutdown, problem, required resource outage or optional resource outage (Figure 251).


Status dashboard

Area occupancy | Tool status & usage

Showing problematic tools

Tool	User	In use since...
Chlorine Etch	Captain Nemo (captain) on behalf of Conseil Aronnax (conseil)	Tuesday @ 5:07 PM
Contact Aligner	Captain Nemo (captain)	Tuesday @ 5:08 PM
Ellipsometer		
Evaporator	Ned Land (ned)	Tuesday @ 5:07 PM
Fluorine Etch	Ned Land (ned)	Tuesday @ 4:31 PM
Microscope		
PECVD	Pierre Aronnax (professor)	Tuesday @ 5:07 PM
Profilometer		
Sputter		

Figure 251 Status dashboard problematic tools

8.3.5 Idle tools

The ‘idle tools’ filter displays all tools that are currently not in use regardless of problematic status (Figure 252).

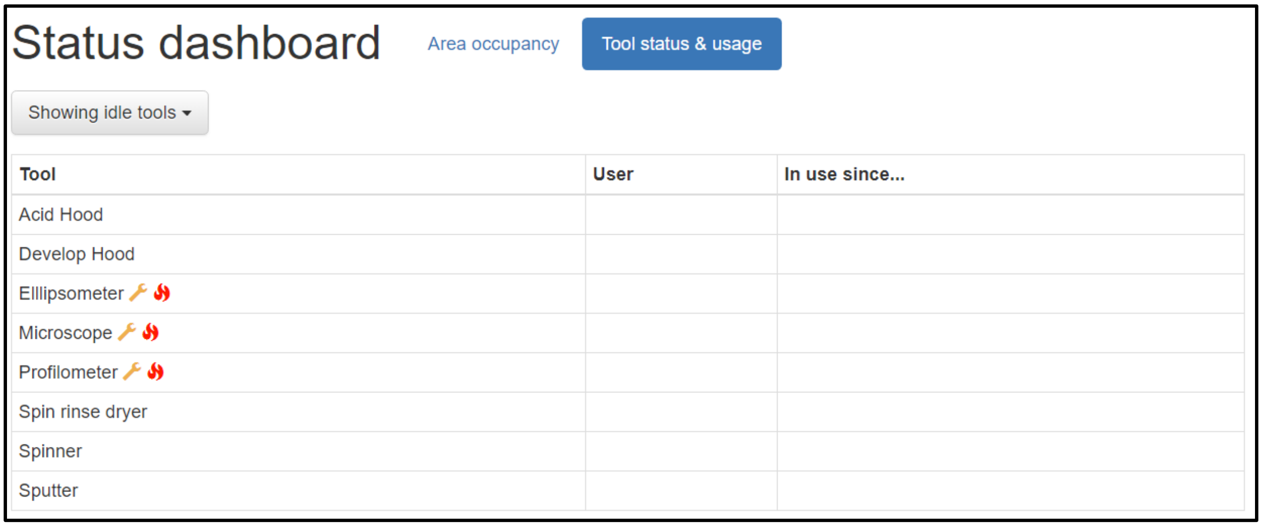


Figure 252 Status dashboard idle tools

8.4 Staff status tab

Clicking the “Staff status” tab will switch the view to the staff status page, showing staff availability (Figure 253). The Staff availability is configurable and explained in detail in Detailed administration -> Staff availability.
The current day is highlighted in blue.
Customizations are available for this feature. See Status dashboard settings.

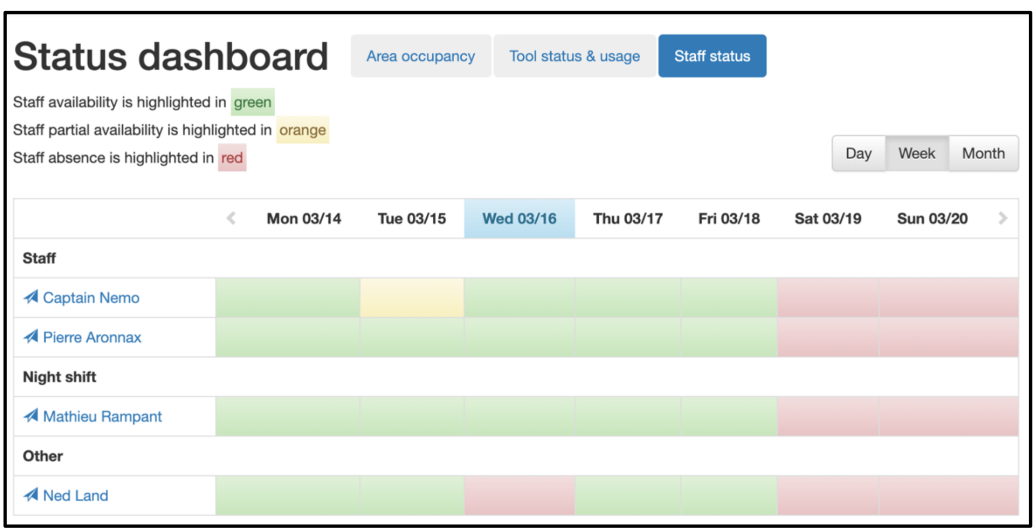


Figure 253 Status dashboard staff status

Clicking on a staff member's name will display a popup showing contact information. This contact information is pulled directly from Detailed administration -> Contact information (Figure 254).

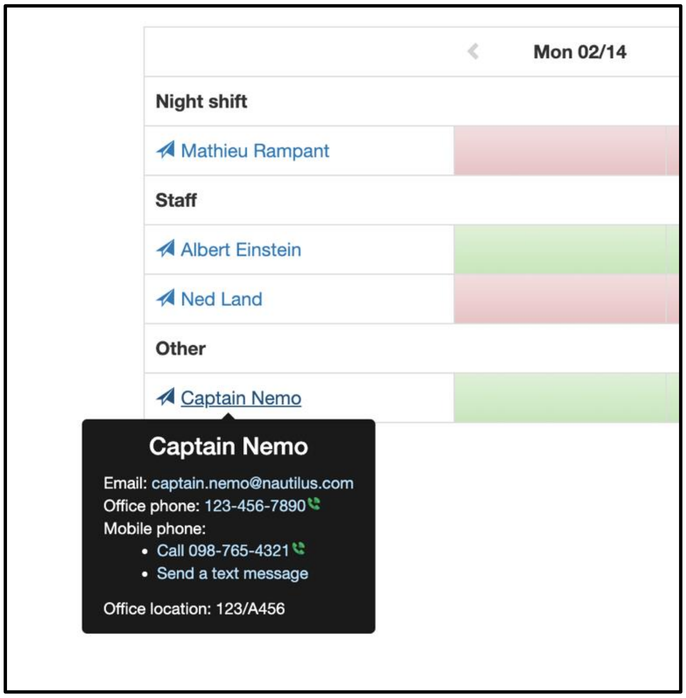


Figure 254 Status dashboard staff contact information

8.4.1 Changing the view mode

- Clicking on the "day/week/month" button will switch to the desired view (Figure 255).

Figure 255 Status dashboard staff switch view mode

- The default view is the day view (Figure 256).

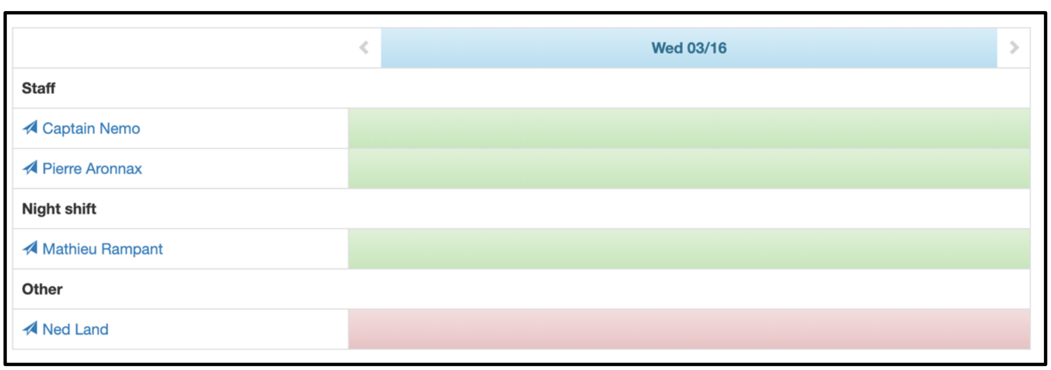


Figure 256 Status dashboard staff day view

- The week view shows the availability one week at a time (Figure 257).

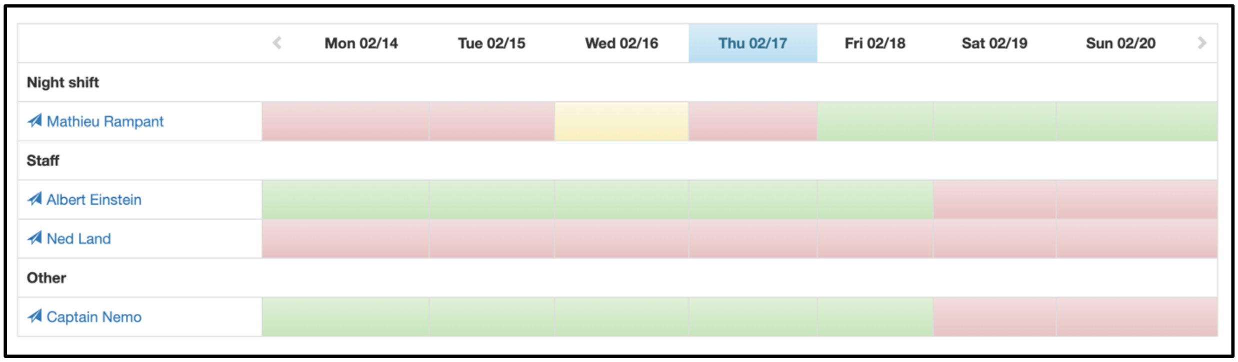


Figure 257 Status dashboard staff week view

- The month view is scrollable horizontally and will show a much larger timeframe (Figure 258).

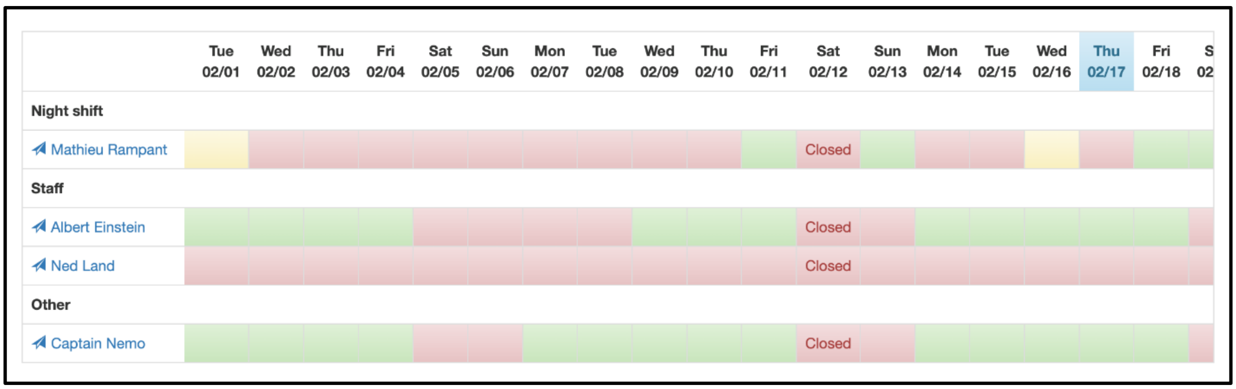


Figure 258 Status dashboard staff month view

- By default, the current day/week/month is displayed. Clicking on the left or right arrows will take you to the previous/next day, week, or month, respectively (Figure 259, Figure 260).

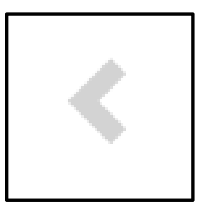


Figure 259 Status dashboard staff previous day/week/month

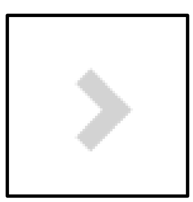


Figure 260 Status dashboard staff next day/week/month

8.4.2 User and staff view

Regular and staff users can only see staff names, their availability, and any potential facility closure that was set to make all staff absent.
There are 3 colors: green if the staff member is available that day, orange is the staff member is available for part of the day only, and red if the staff member is unavailable.

- When a staff member is only available part of the day, a tooltip will show more information if available (Figure 261).

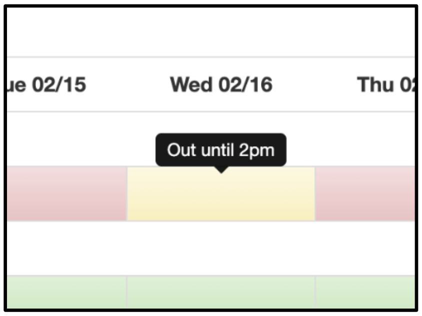


Figure 261 Status dashboard staff partial availability details

- If the staff member's working hours have been set, a tooltip will show them when hovering over a day when the staff is available (Figure 262).

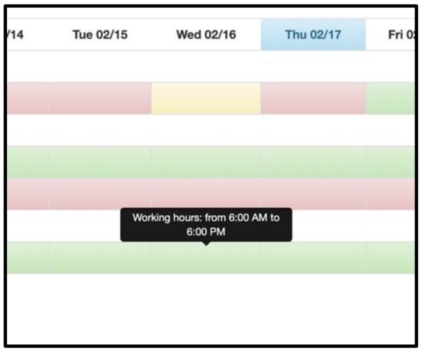


Figure 262 Status dashboard staff availability details

- If there is a facility closure and the closure was set to make all staff absent, it will say "Closed" and the tooltip will show the closure details (Figure 263).

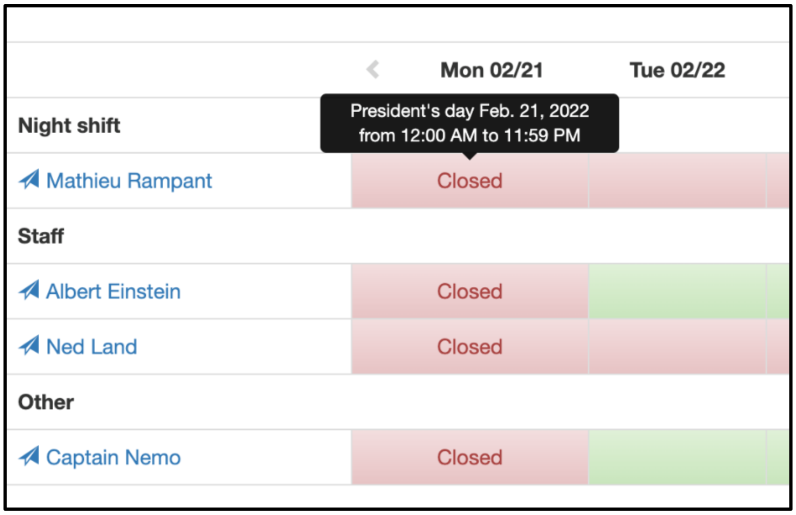


Figure 263 Status dashboard staff closure details

8.4.3 Facility manager view

- Facility managers' view of the staff status page is more detailed and provide more functionality (Figure 264).

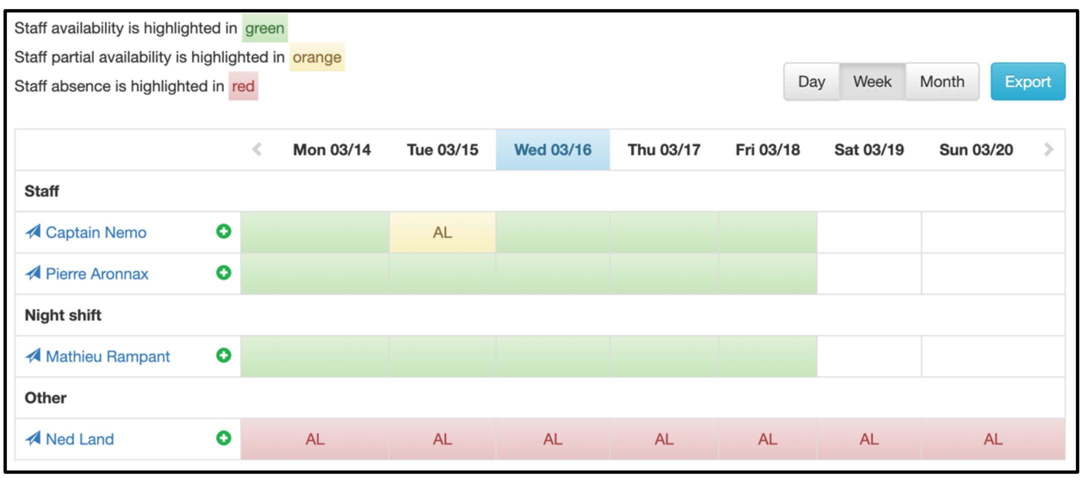


Figure 264 Status dashboard staff status facility managers' view

- In addition to the red, orange, and green colors for staff availability, facility managers see a white block when the staff member doesn't work on a specific day. In the following example, Captain Nemo doesn't work on Saturdays and Sundays (Figure 265).

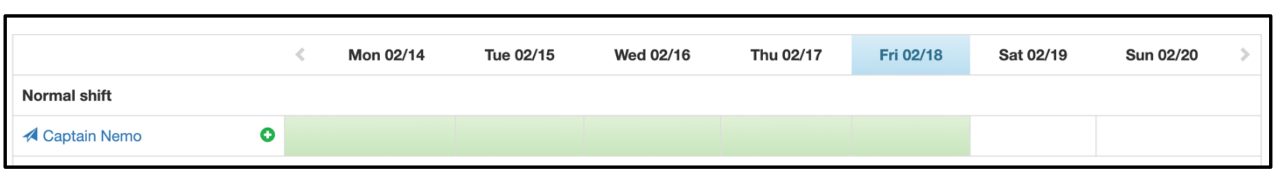


Figure 265 Status dashboard staff non workdays

- Facility managers can see the absence type and the details by hovering over the absence (Figure 266).

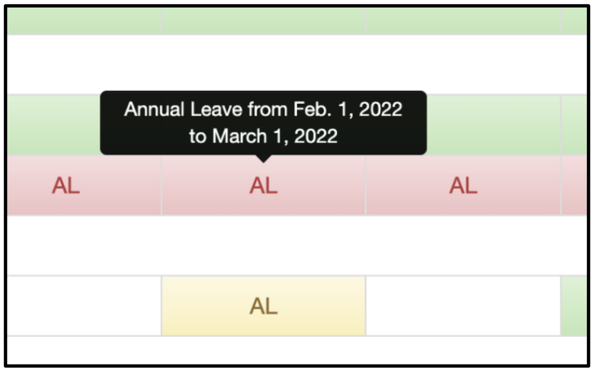


Figure 266 Status dashboard staff absence details

8.4.4 Create a new absence (facility managers only)

- Facility manager can add new staff absences by clicking on the green plus button next to a staff member's name. The staff absence popup will show up (Figure 267).

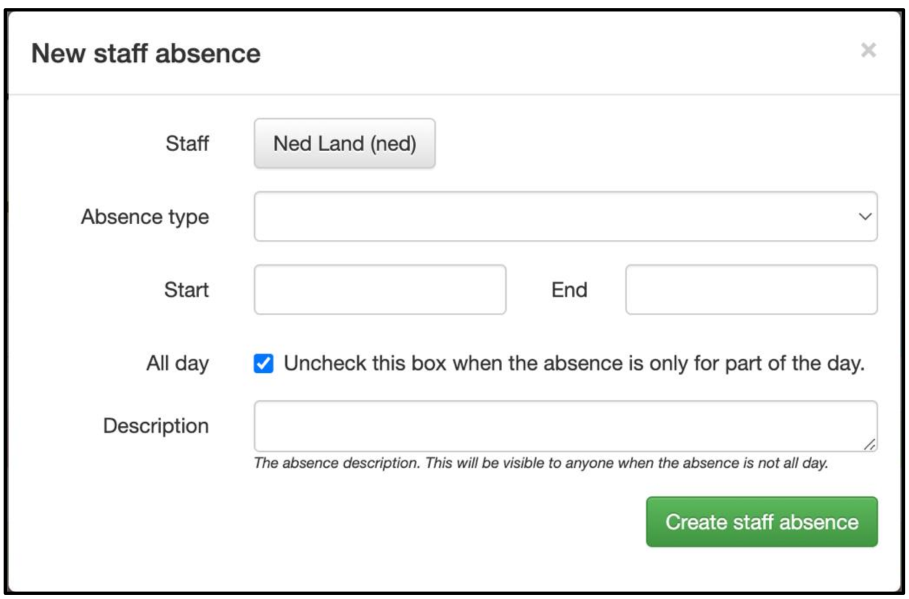


Figure 267 Status dashboard staff create absence popup

- The staff field is **not** a direct reference to a user, but to a Staff availability defined in [Staff availability].
- The description field will be shown to all users when the absence is not for the whole day ("All day" unchecked).
- Absence type, start and end dates are **required**.

- After filling out the information, clicking on the “Create staff absence” button will create the absence and refresh the staff status page (Figure 268).

Figure 268 Status dashboard create staff absence button

8.4.5 Edit/Delete an absence (facility mangers only)

- Facility manager can click on the name of an absence in the view (Figure 269).

Figure 269 Status dashboard staff absence name

- This will bring up the edit popup (Figure 270).

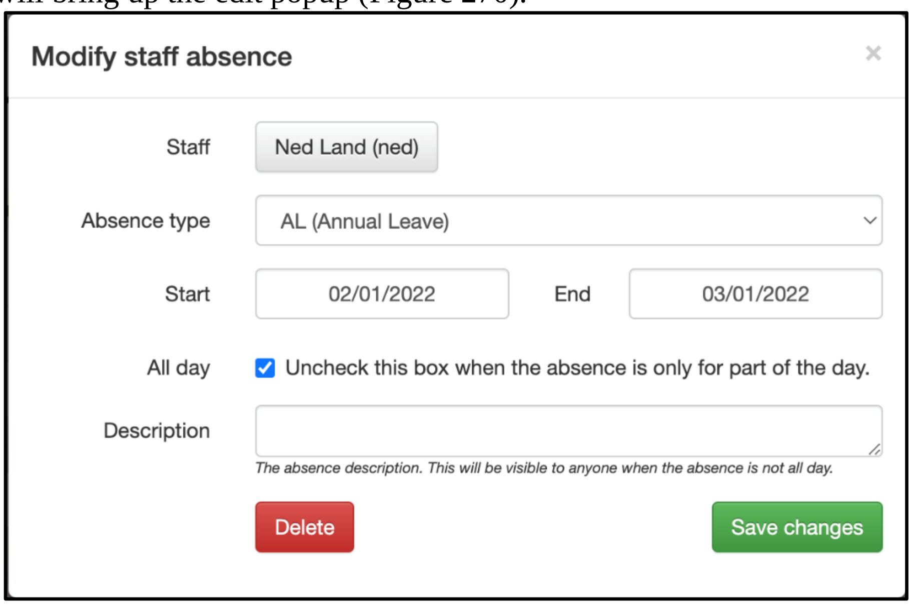


Figure 270 Status dashboard edit absence popup

- After changing the details, clicking on the “Save changes” button will update the absence and refresh the staff status page (Figure 271).

Figure 271 Status dashboard staff save changes button

- Clicking on the “Delete” button will delete the absence and refresh the staff status page (Figure 272).

Figure 272 Status dashboard staff delete changes button

8.4.6 Export staff status (facility managers only)

- Facility managers can export the current view of the staff status by clicking on the “Export” button (Figure 273). This will produce a CSV file of the staff status.

Figure 273 Status dashboard staff export button

8.5 Mobile device status dashboard

The mobile device view organizes the data to fit the width of the screen without reduction of functionality (Figure 274, Figure 275).

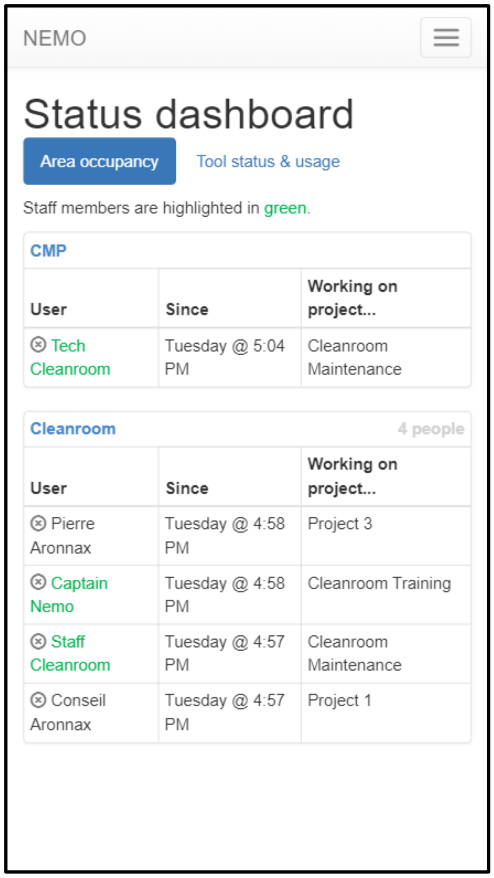


Figure 274 Status dashboard mobile area occupancy view

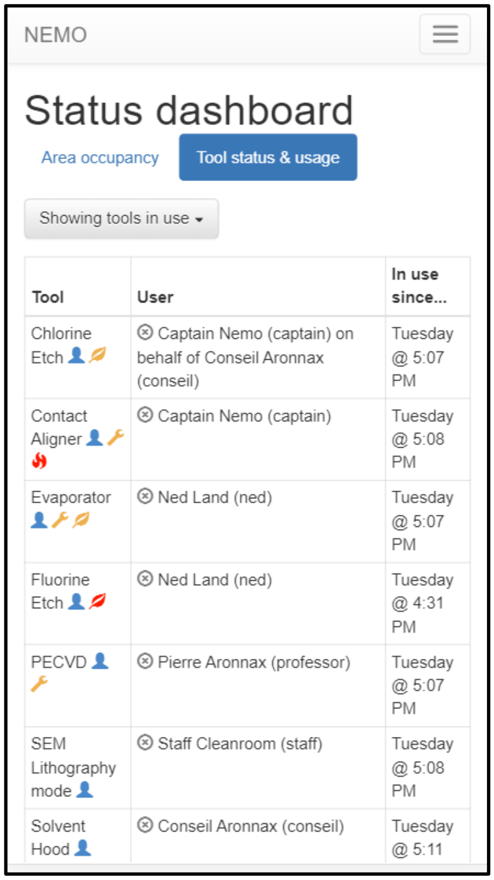


Figure 275 Status dashboard tool status view

8.6 Status dashboard customizations

8.6.1 Status dashboard refresh rate

The status dashboard page automatically refreshes every 10 seconds which updates the current area occupancy and tool usage information. To change the update interval, edit the status_dashboard.html and change the setInterval constant (in milliseconds) in the on_load function.

9 Requests

The Requests page is meant to be a common place for user requests. It includes the buddy board and the access requests. At least one of the 2 features needs to be enabled for the Requests menu item to show up (Figure 276).

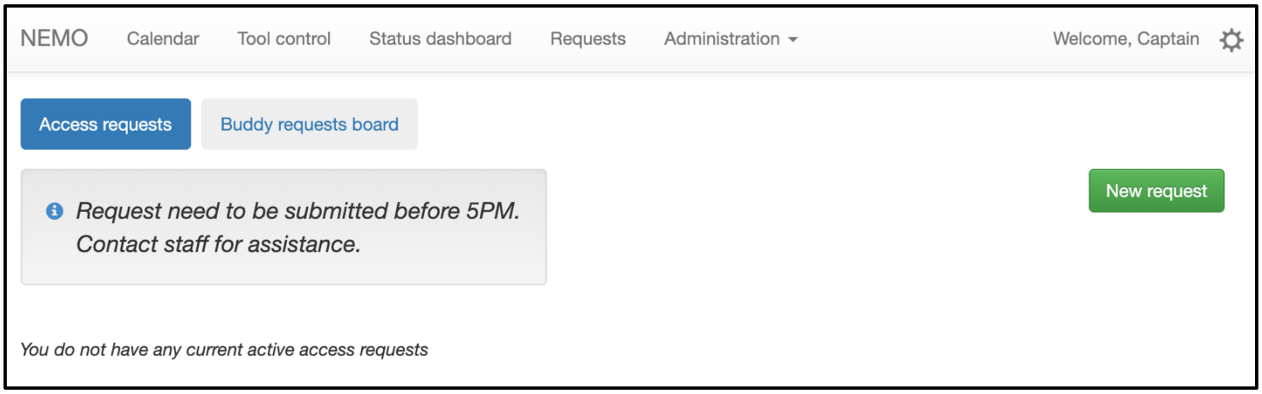


Figure 276 Requests page

9.1 Buddy Board

The buddy board is a simple message system that enables facility users to pair up or form working groups required in many facilities for out of hours access.

To enable the buddy board, you must first enable it on an area. See Detailed administration - Areas on page 379.

9.1.1 Web address

The buddy board page is accessible at site-address/user_requests/buddy/. For example, www.nemo.com/user_requests/buddy/. The page can also be accessed from the navigation bar menu item "Requests".

9.1.2 Usage

9.1.2.1 Open the buddy board

Click the Requests then on the Buddy board to access the buddy board. The page shows a new request button in the right upper corner, instructions, and the current list of buddy requests and replies (Figure 277).

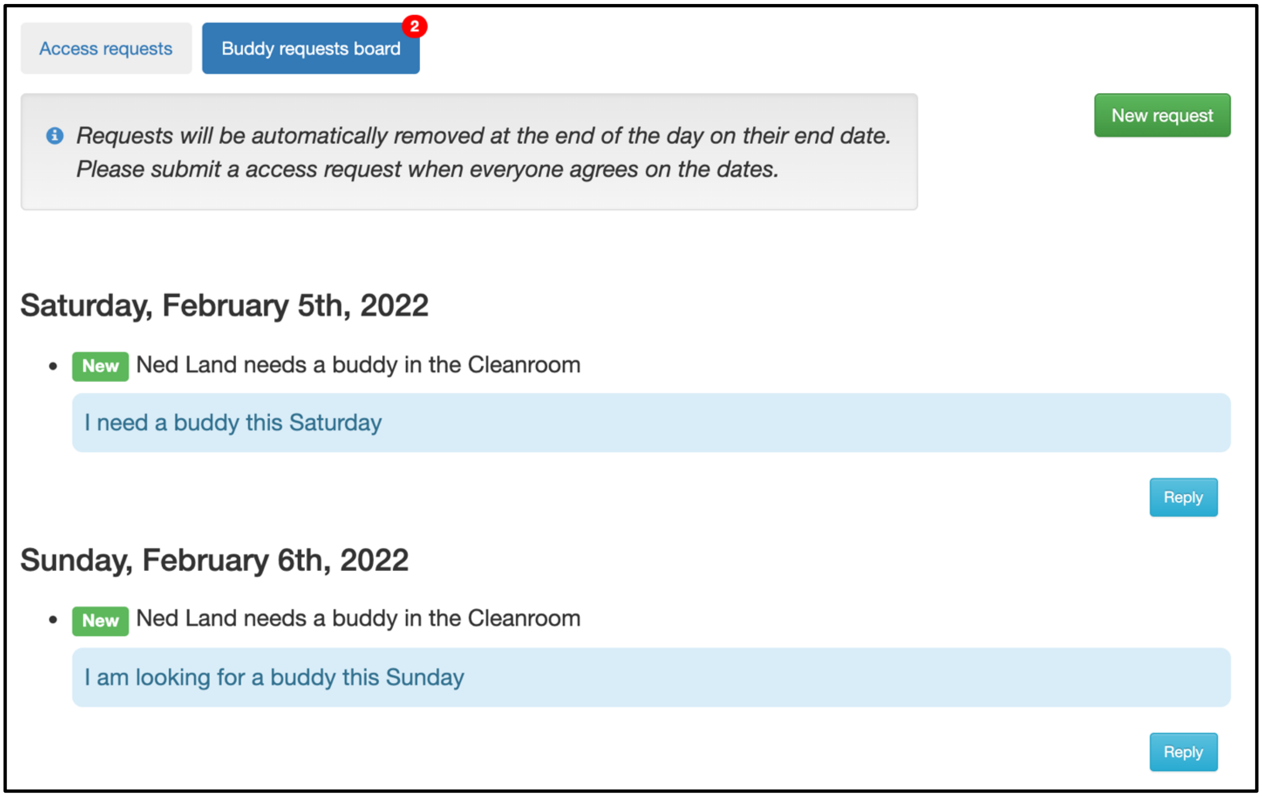


Figure 277 Buddy board display

9.1.2.2 Create a new request

To create a new buddy request:

- Click the New request button (Figure 278).

Figure 278 Buddy board new request button

- The new request page will open (Figure 279).

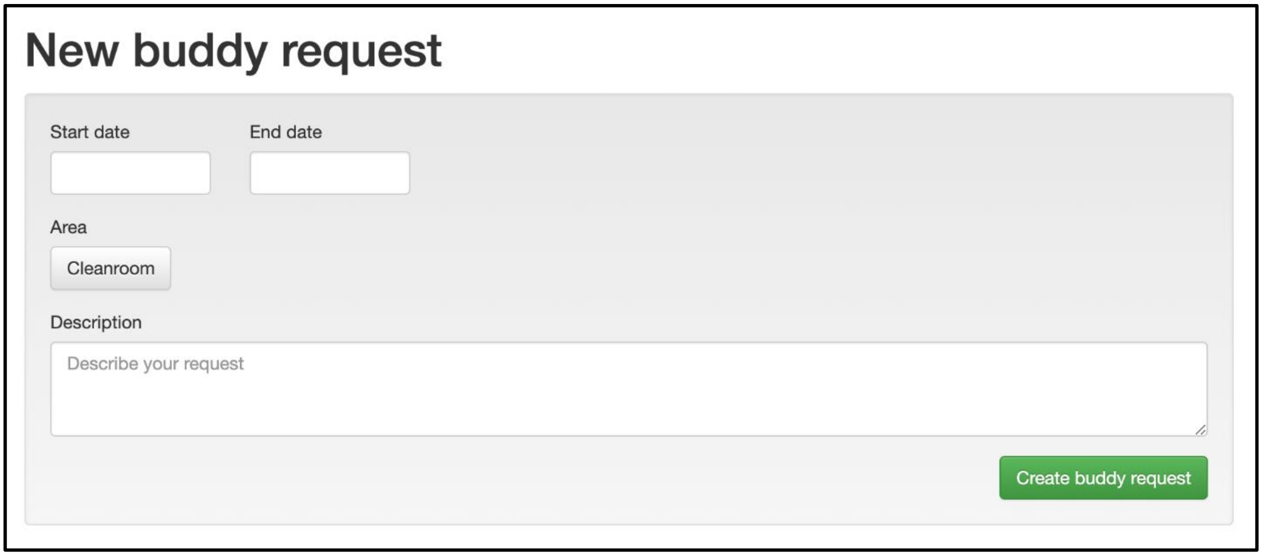


Figure 279 Buddy board new request dialog

- Click in the Start date dialog and click the start date on the calendar pop-up (Figure 280).

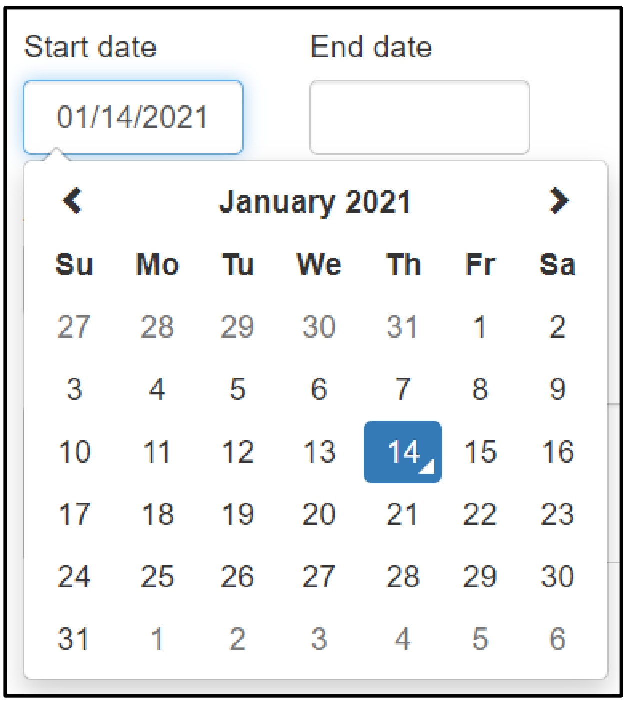


Figure 280 Buddy board start date

- Click in the End date dialog and click the end date on the calendar pop-up (Figure 281).

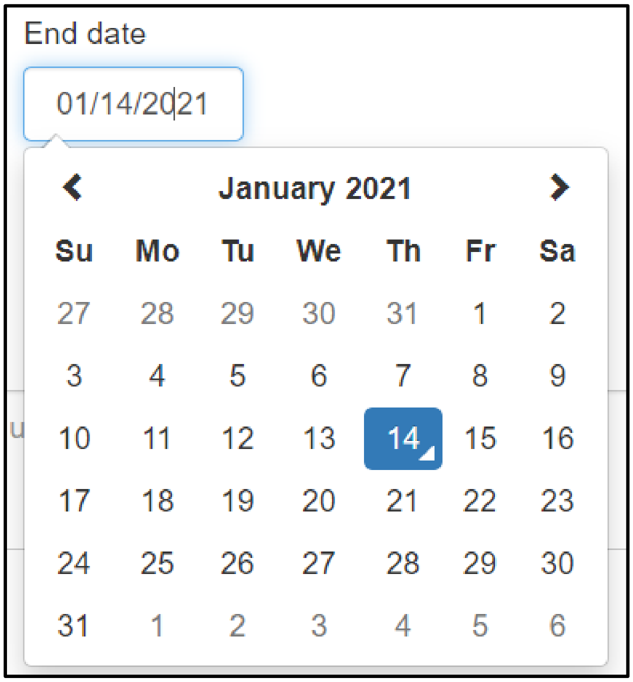


Figure 281 Buddy board end date

- If you have access to multiple areas that use the buddy system, click the area you are looking for a buddy. Otherwise, your area is automatically selected (Figure 282).

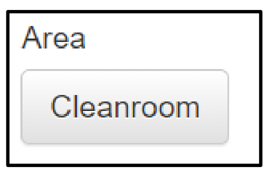


Figure 282 Buddy board area button

- Enter a description that includes details another user would need to determine if they want to join your buddy group (Figure 283).

Figure 283 Buddy board description

- Click create buddy request button (Figure 284).

Figure 284 Buddy board create request button

- Your request will be created, and the page will return to the buddy board.
- All users with preferences set to see new buddy requests will see a notification icon next to requests menu on the navigation bar (Figure 285).

Figure 285 Requests navigation bar notification

9.1.2.3 Edit or delete your request

- Only the owner of a request can edit or delete the request.
- Once there is a reply, the request can't be edited or deleted.
- Click the edit button to edit the request (Figure 286).

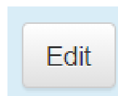


Figure 286 buddy board edit request button

  - All of the fields entered to create the request can be edited.
  - Click save changes when finished (Figure 287).

Figure 287 Buddy board save changes button

- Click the delete button to delete the request (Figure 288).

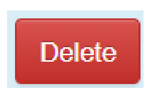


Figure 288 Buddy board delete request button

  - The request will be deleted without further input.

9.1.2.4 Reply to a request

- Find a request in the time frame of interest (Figure 289).

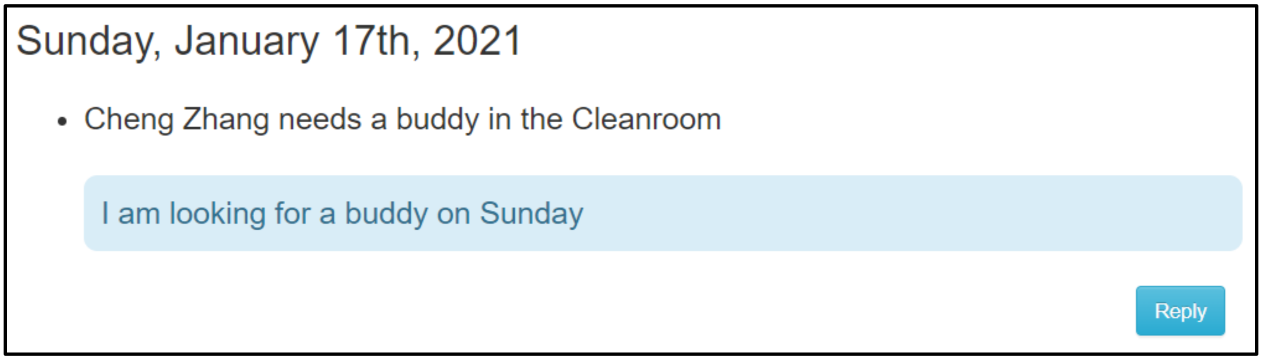


Figure 289 Buddy board request

- Click the reply button (Figure 290).

Figure 290 Buddy board reply button

- Enter a message in the dialog to respond to the initiator (Figure 291).

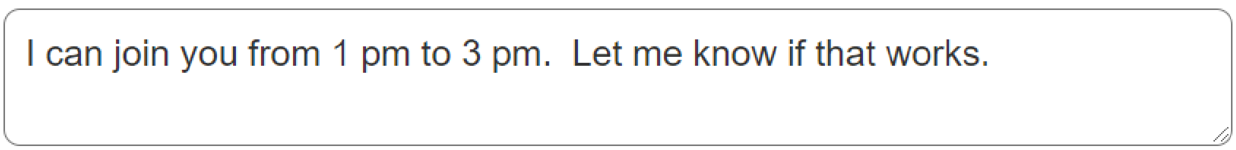


Figure 291 Buddy board reply dialog

- Click send to post your reply (Figure 292).

Figure 292 Buddy board send reply button

- All users with preferences set to see buddy request replies that they replied to will see a notification icon next to the buddy board menu on the navigation bar (Figure 293).

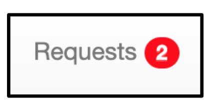


Figure 293 Requests navigation bar notification

- All users with preferences set to receive emails for buddy request replies that they replied to will receive an email notification

9.1.3 Mobile device buddy board page

There are no mobile device views for the buddy board page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

9.1.4 Buddy board page customizations

9.1.4.1 Tab title

A title can be set for the buddy board tab in Customization - User requests settings. See more details on page 294.

9.1.4.2 Description

A disclaimer/information text can be set for the buddy board in Customization - User requests settings. See more details on page 294.

9.2 Access requests

The access requests feature is a system that enables facility users to temporarily request access to an area they don't typically have access to at certain times. Most often this would be used to request after-hours access to a lab/cleanroom.

To enable the access requests, you must first enable it on a physical access level. See Detailed administration - Physical access level on page 438 and by setting at least one facility manager in Detailed administration - Users on page 521.

9.2.1 Web address

The access requests page is accessible at site-address/user_requests/access/. For example, www.nemo.com/user_requests/access/. The page can also be accessed from the navigation bar menu item "Requests".

9.2.2 Usage

9.2.2.1 Open the access requests

Click the Requests then on the Access requests tab to access the access requests (by default when clicking on Requests it will display the access requests tab). The page shows a new request button in the right upper corner, instructions, and the current list of access requests grouped by status. Possible statuses are: Pending, Approved, Denied and Expired (Figure 294).

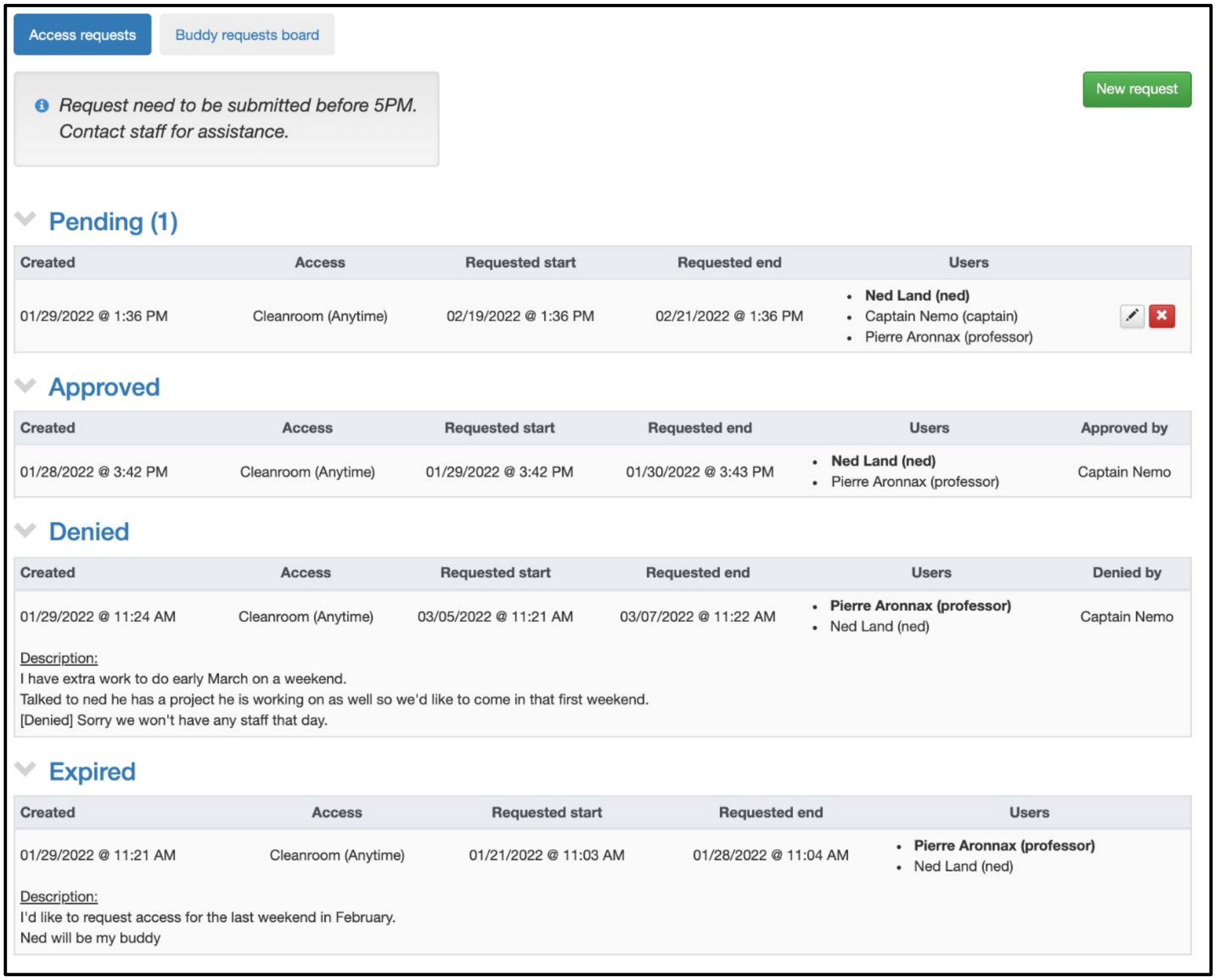


Figure 294 Access requests display

9.2.2.2 Create a new request

To create a new access request:

- Click the New request button (Figure 295).

Figure 295 Access request new request button

- The new request page will open (Figure 296).

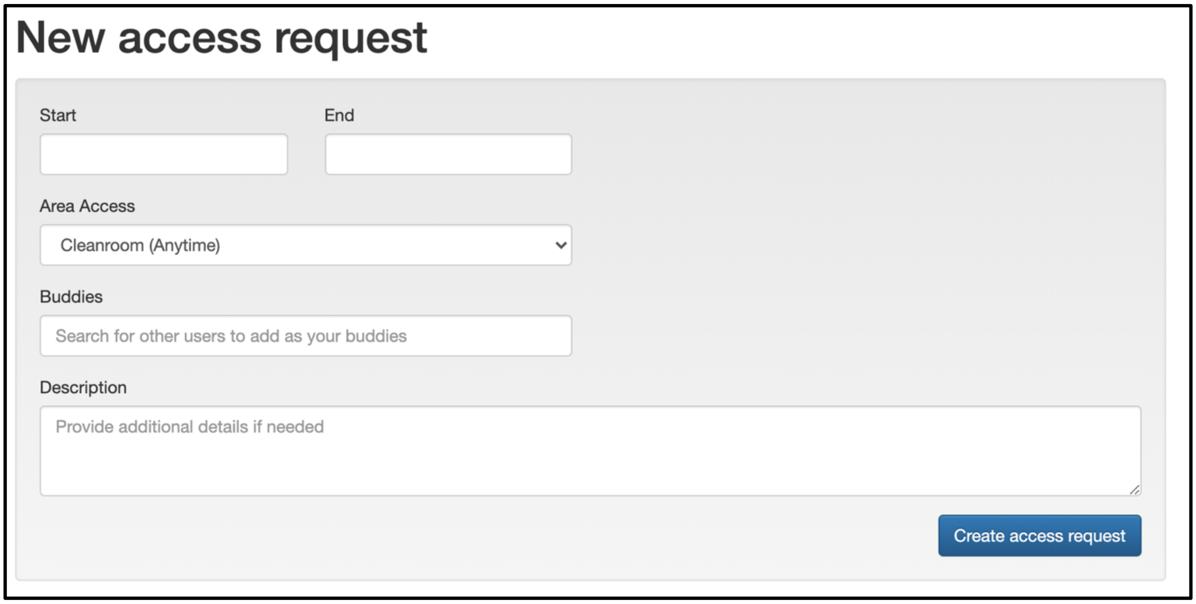


Figure 296 Access request new request dialog

- Click in the Start text field and pick the start date and time on the calendar pop-up (Figure 297).

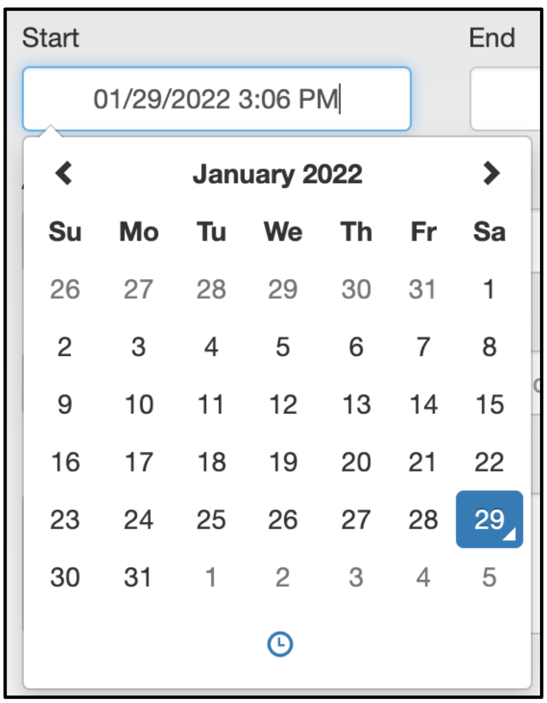


Figure 297 Access request start date and time

- Click in the End text field and pick the end date and time on the calendar pop-up (Figure 298).

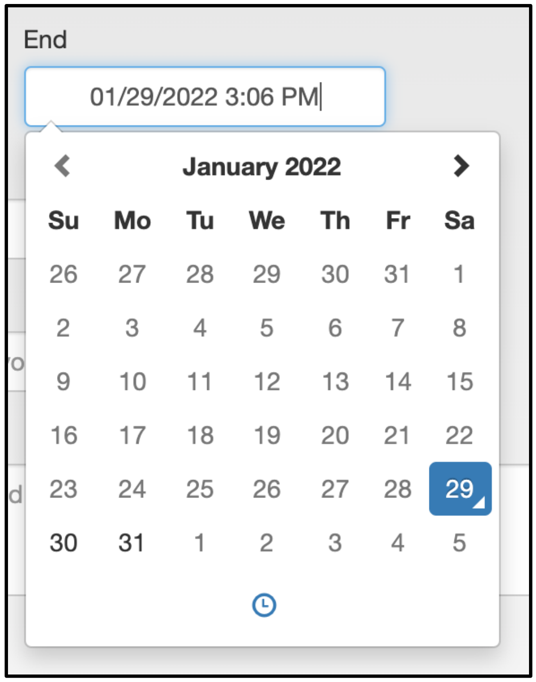


Figure 298 Access request end date and time

- If you have set multiple physical access levels that users can request, click the Area Access drop down you are looking to request access for. Otherwise, your area access is automatically selected (Figure 299).

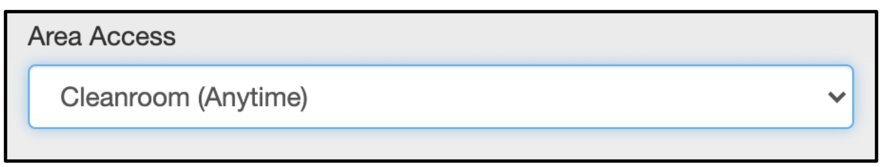


Figure 299 Access request area access dropdown

- Click on the Buddies text field and start typing the name of the buddy you would like to add to your request. Click on the name to add the buddy (Figure 300).

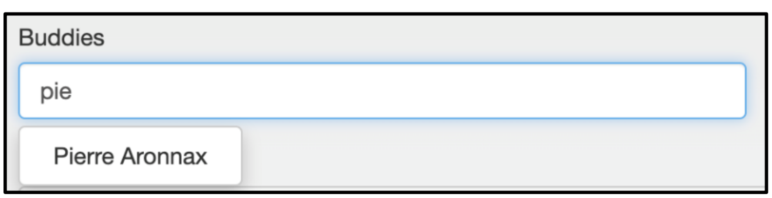


Figure 300 Access request add buddies

- The buddy's name will appear in the field next to the search field. Click on the cross next to the buddy's name to remove the buddy (Figure 301).

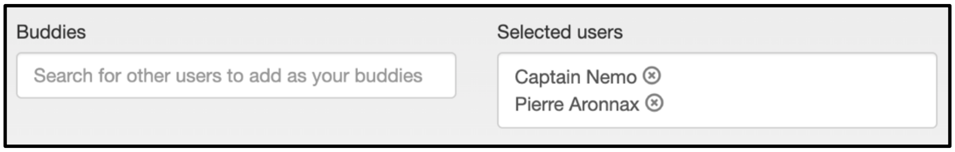


Figure 301 Access request remove buddies

- Optionally you can enter a description that includes details the facility manager would need to know about your request (Figure 302).

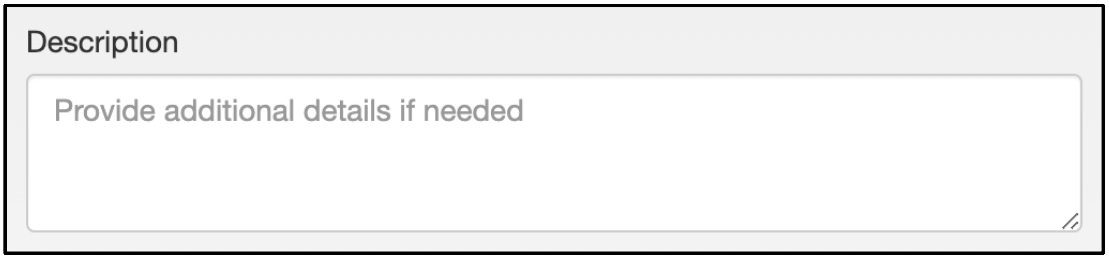


Figure 302 Access request description

- Click create access request button (Figure 284).

Figure 303 Access request create request button

- Your request will be created, and the page will return to the access requests page.
- All users included in the request and facility managers will receive an email confirmation that the request was received. Additionally, they will see a notification icon next to requests menu on the navigation bar (Figure 304).

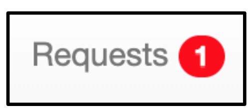


Figure 304 Requests navigation bar notification

9.2.2.3 Edit or delete your request

- Only the owner of a request can edit or delete the request.
- Once the status is approved, denied, or expired, the request can’t be edited or deleted.
- Click the edit button to edit the request (Figure 305).

Figure 305 Access request edit request button

  - All the fields entered to create the request can be edited.
  - Click save changes when finished (Figure 306).

Figure 306 Access request save changes button

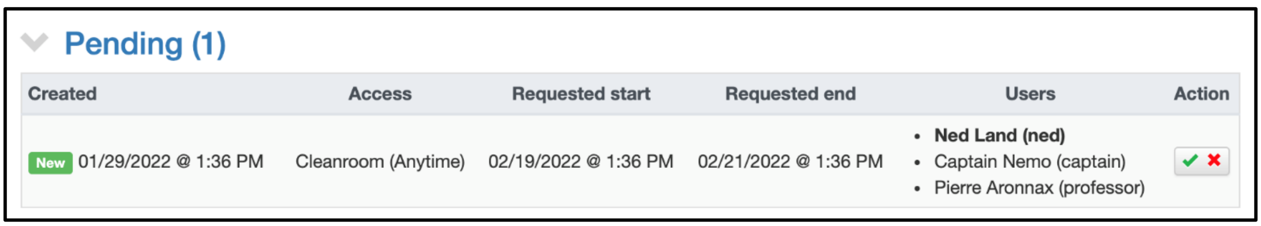
- All users and facility managers will receive an email notification that the request was updated as well as a notification icon.
- Click the delete button to delete the request (Figure 307).

Figure 307 Access request delete request button

- A confirmation message will popup asking you to confirm the action before the request will be deleted.

9.2.2.4 Approve/deny requests (Facility managers only)

- Find a pending request (Figure 308).



Pending (1)

Created	Access	Requested start	Requested end	Users	Action
New 01/29/2022 @ 1:36 PM	Cleanroom (Anytime)	02/19/2022 @ 1:36 PM	02/21/2022 @ 1:36 PM	• **Ned Land (ned)** • Captain Nemo (captain) • Pierre Aronnax (professor)	

Figure 308 Access requests pending

- Click the approve/deny button (Figure 309).

Figure 309 Access requests approve deny button

- Edit any field of the access request. It is recommended to add a message to the request description to explain the changes (Figure 310).

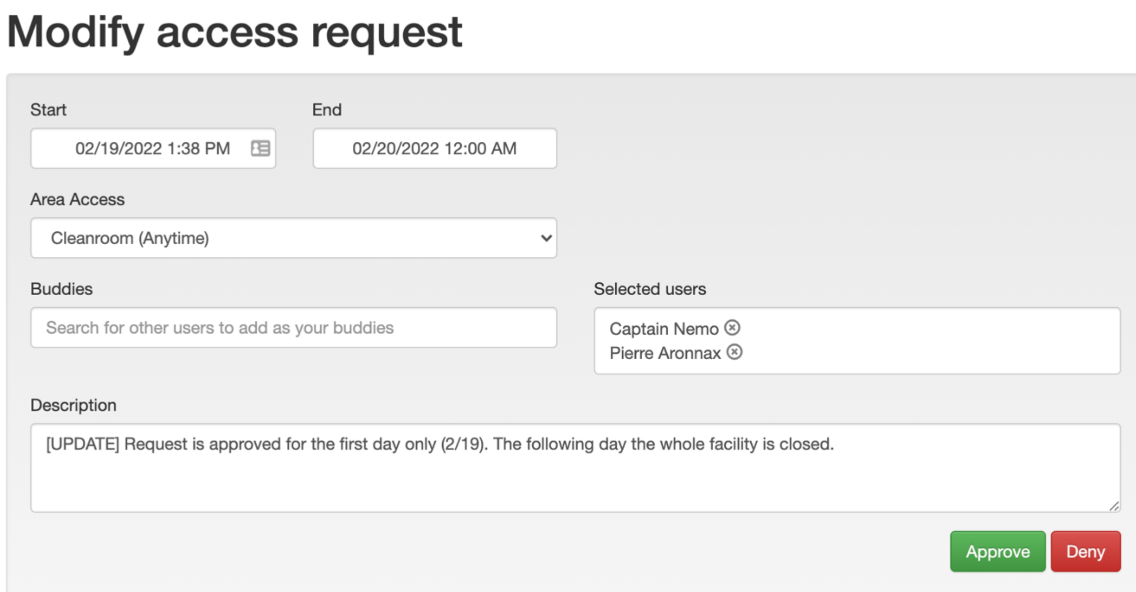


Figure 310 Access request approve/deny dialog

- Click approve or deny (Figure 311).

Figure 311 Access request approve/deny buttons

- A confirmation dialog will ask to confirm the choice. Upon confirmation, the user will be redirected to the access requests page.
- All users included in the request and facility managers will receive an email confirmation of the changes and new status of the request.
- Upon approval, a temporary physical access record giving access to the area to all the users included in the request, starting at the start time of the request, and ending at the end time of the request. Temporary physical accesses are discussed in [Detailed administration - Temporary physical access](#).

9.2.2.5 Weekend access

The access requests feature comes with a weekend access optional feature. An email can be sent to a customizable list of emails when users are expected to be (or not be) in the facility during weekends. To enable the feature, the weekend access emails setting needs to be set in Customization - User requests settings as well as the user office email address and the weekend email access template in Customization - Weekend access notification email. This feature also needs to be set through a timed service job as described in the NEMO Timed Services section.

There are 2 cases when the email will be sent:

1. When an approved request's time is overlapping the current weekend time, an email will be sent to inform the emails set in Customization - User requests settings as well as

facility managers that there will be users in the facility this coming weekend.
For example, if the cutoff date and time is set to Friday 5pm and a request is approved before that (or anytime if the cutoff date and time are not set), then the email will be sent with a weekend_access variable set to “true”.

2. When no requests overlapping the current weekend time are approved before the cutoff day and time set in Customization - User requests settings, an email will be sent at the cutoff date and time to inform the emails set in Customization - User requests settings as well as the facility managers that no users will be in the facility this coming weekend.
For example, if the cutoff date and time is set to Friday 5pm and by that day and time there are no approved requests with time overlapping the current weekend, then the email will be sent with a weekend_access variable set to “false”.
If the cutoff day and time are not sent, the email will not be sent.

9.2.3 Mobile device access requests page

There are no mobile device views for the access requests page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

9.2.4 Access requests page customizations

9.2.4.1 Tab title

A title can be set for the access requests tab in Customization - User requests settings. See more details on page 304.

9.2.4.2 Description

A disclaimer/information text can be set for the access requests in Customization - User requests settings. See more details on page 304.

9.2.4.3 Access requests minimum number of users in a request

A minimum number of users in a request can be set in Customization - User requests settings. See more details on page 304.

9.2.4.4 Access requests maximum number of requests to display

To limit the number of requests displayed in the access requests page, the maximum number of requests can be set in Customization - User requests settings. See more details on page 304.

9.2.4.5 Weekend access emails

A list of emails can be set to send the weekend access email to, in Customization - User requests settings. See more details on page 304. If this is not set, no weekend access emails will be sent.

9.2.4.6 Weekend access cutoff day and time

A day and time can be set in Customization - User requests settings after which the weekend access email will be sent if there are no approved requests by that time. If the date and time is not set, the email informing that no users will be in the facility will not be sent.

10 Jumbotron

The jumbotron is similar to the status dashboard but provides an integrated page to display user occupancy, tools in use, and any alerts or outages (Figure 312).

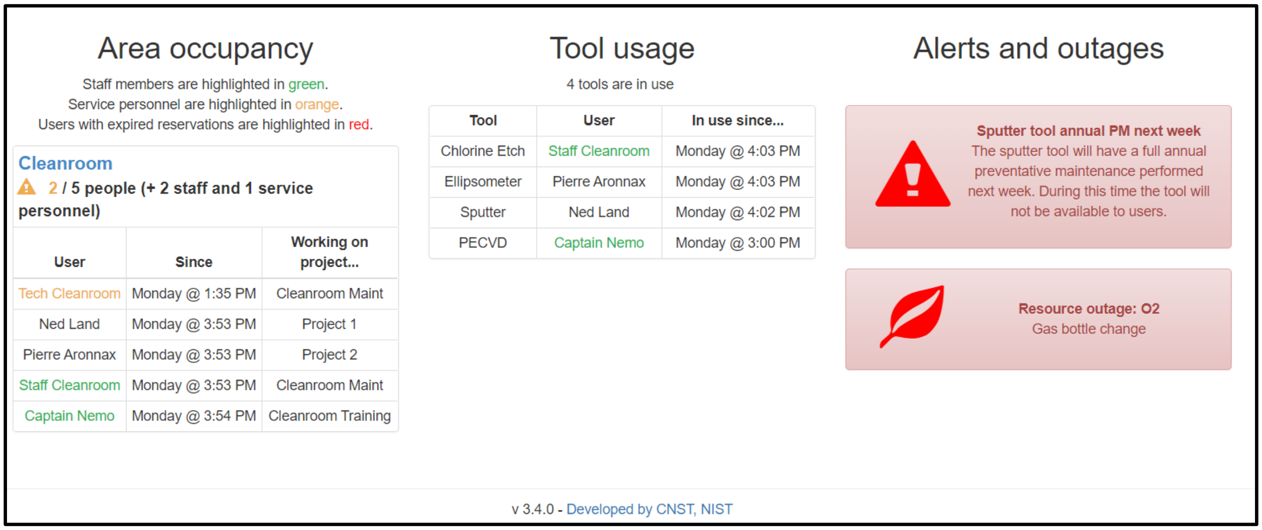


Figure 312 Jumbotron display

10.1 Web address

The jumbotron page is accessible at site-address/jumbotron/. For example, www.nemo.com/jumbotron/. The page is not accessible from the navigation bar and must be either directly addressed or have a quick link created in the landing page.

10.2 Usage

The intent of this page is to run continuously on a monitor.

- Area occupancy information will only be displayed if areas have been defined.
  - This section shows all users that are currently logged into all areas. Staff members are highlighted in green and service personnel are highlighted in orange, so they stand out. Each area will list the number of people in the area if it is greater than 1. Staff and service personnel are listed separately if the area is configured not to include them in the occupancy count.
  - When area reservations are in use, users with expired reservations are highlighted in red.
- Tool usage information will only be displayed if tools have been defined.
- Alerts and outages are only displayed if any are present (Figure 313).
- An optional watermark can be used on the page to highlight the lab.

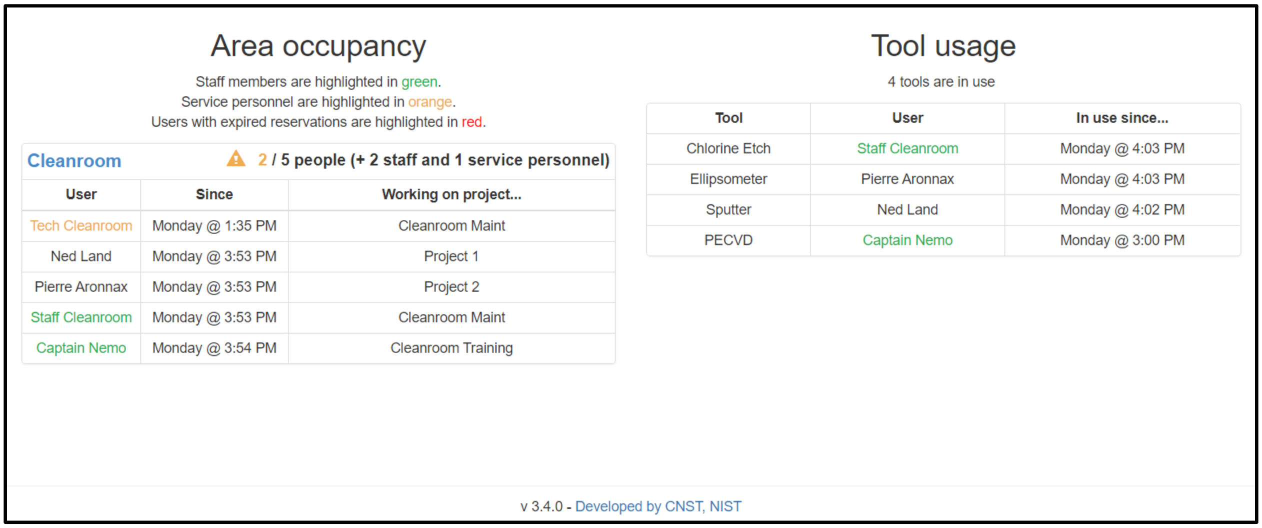


Figure 313 Jumbotron with no alerts or outages

If there is no area occupancy or tool usage, then not-in-use messages are displayed (Figure 314).

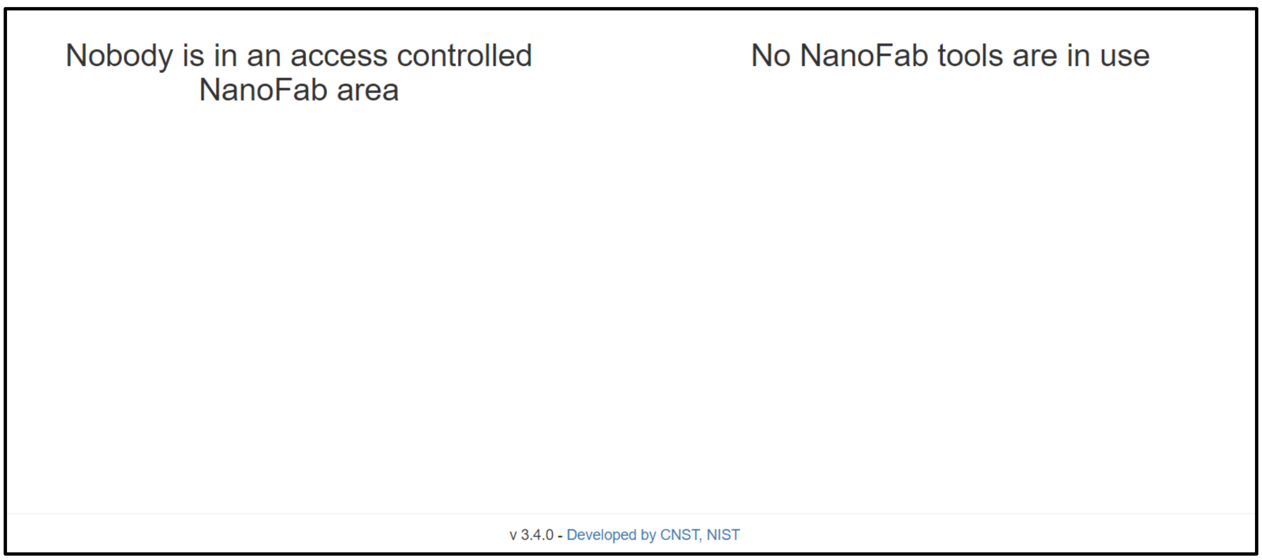


Figure 314 Jumbotron not in use messages

The page automatically refreshes periodically to keep the information current. If NEMO has gone offline and does not respond to a refresh request, the page will display "NEMO is offline" (Figure 315).

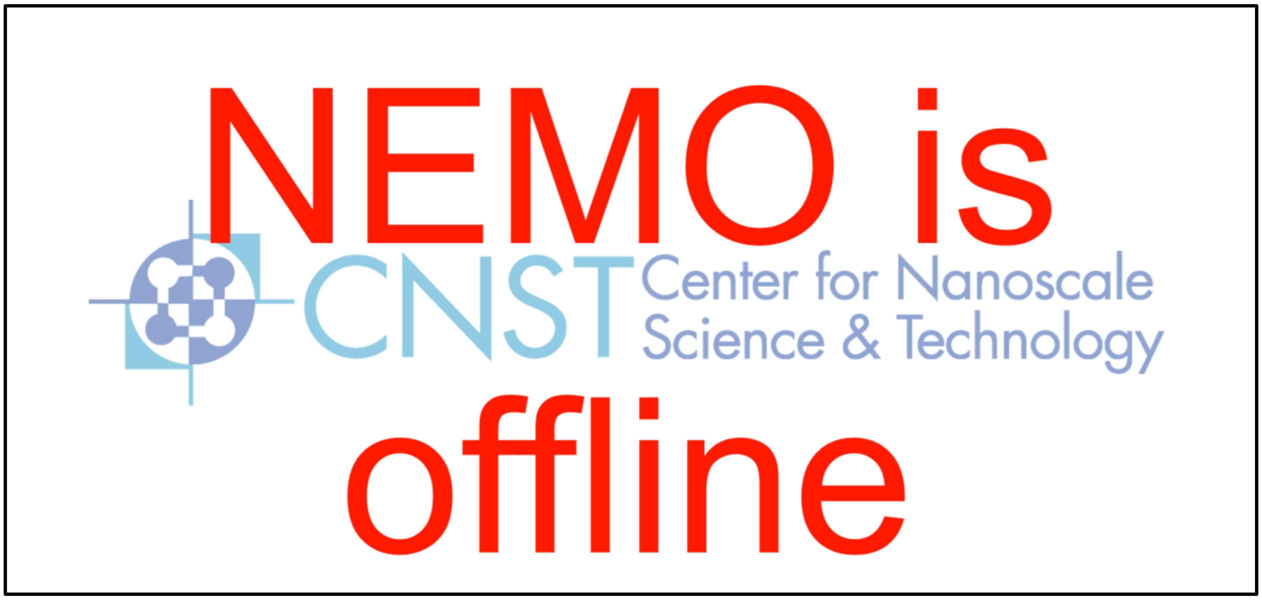


Figure 315 Jumbotron NEMO offline

10.3 Mobile device jumbotron

There are no mobile device views for the jumbotron page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

10.4 Jumbotron customizations

10.4.1 Background watermark

The jumbotron can display a background watermark image. The jumbotron watermark is configured through the Customizations → Jumbotron watermark page detailed on page 317.

10.4.2 Jumbotron refresh rate

The jumbotron page automatically refreshes every 10 seconds which updates the current area occupancy, tool usage information, alerts, and outages. To change the update interval, edit the jumbotrol.html and change the setInterval constant (in milliseconds) in the on_load function.

11 Safety

The safety page provides users a method to report and view non-emergency issues in the lab and gives staff a method to document progress and resolutions (Figure 316). If a user reports a problem with a tool and checks that the problem is also a safety hazard, as described in the Tool control → Report a problem section on page 113, a new safety issue will automatically be created here. Users and staff can see current issues and look at closed issues.

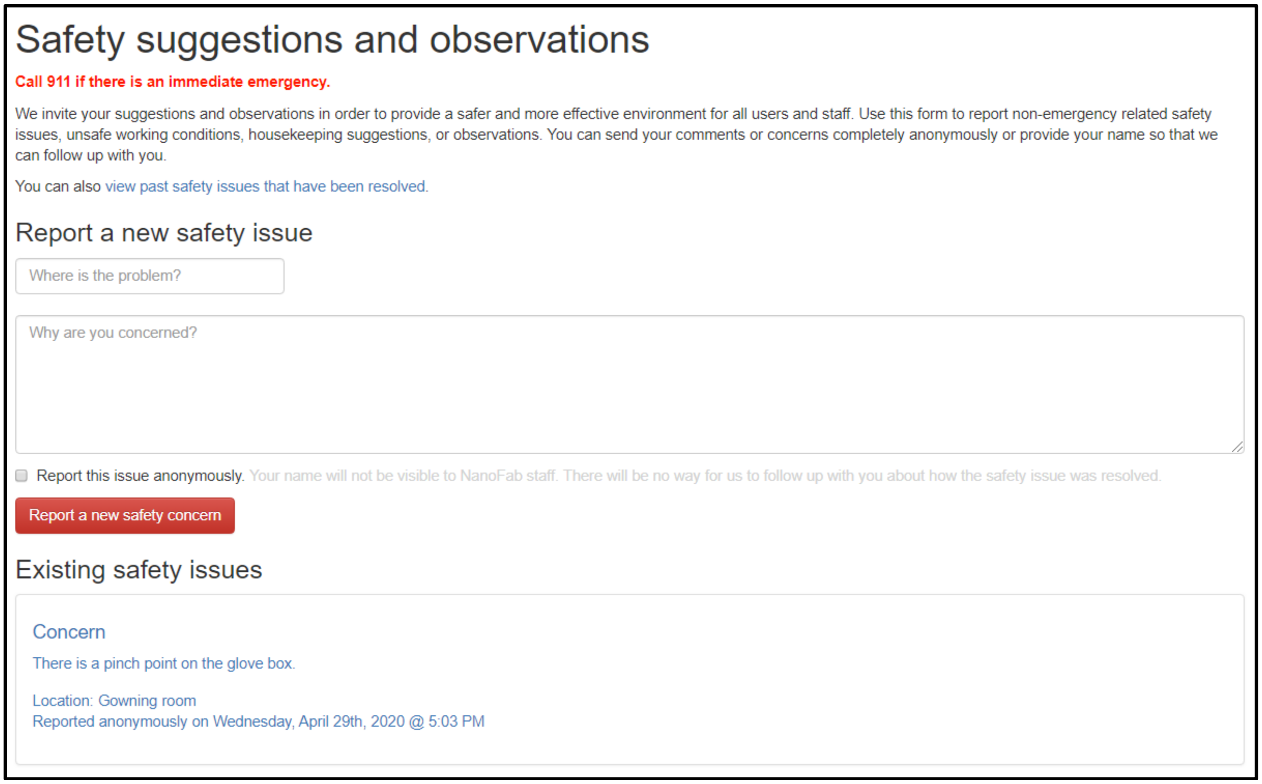


Figure 316 Safety page

11.1 Safety message

NEMO has a default safety message displayed at the top of the safety page. It can be customized to specific lab requirements (Figure 317). A customized html safety message can be loaded into NEMO through the Customizations → Safety introduction message detailed on page 309.

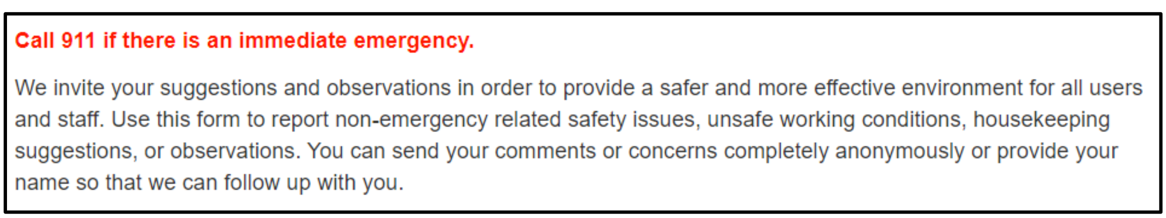


Figure 317 Safety page default safety message

11.2 View resolved safety issues

Safety issues that have been closed can be accessed by clicking the view past safety issues link (Figure 318).

Figure 318 Safety past issues link

Clicking the link will open the resolved safety issues page (Figure 319).

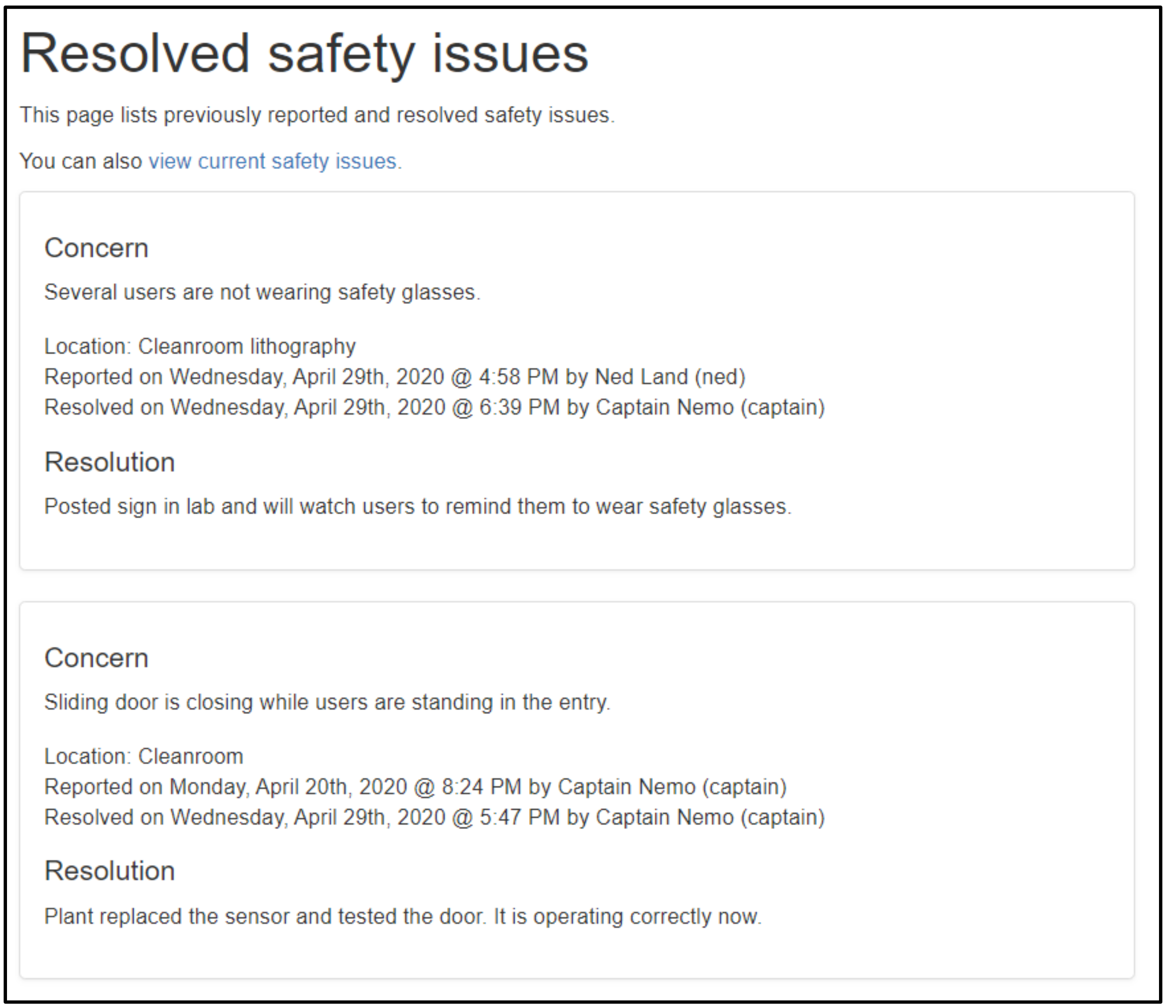


Figure 319 Safety resolved issues page

All resolved issues will be listed with the most recent resolution listed first. If there are not any resolved safety issues to list, the user will be notified with “There are no past issues.”

Clicking the view current safety issues link will return to the main safety page (Figure 320).

Figure 320 Safety return to main page

11.3 Report a new safety issue

New safety issues can be created by any user or staff member. To report a new safety issue, provide a location and a description of your concern (Figure 321).

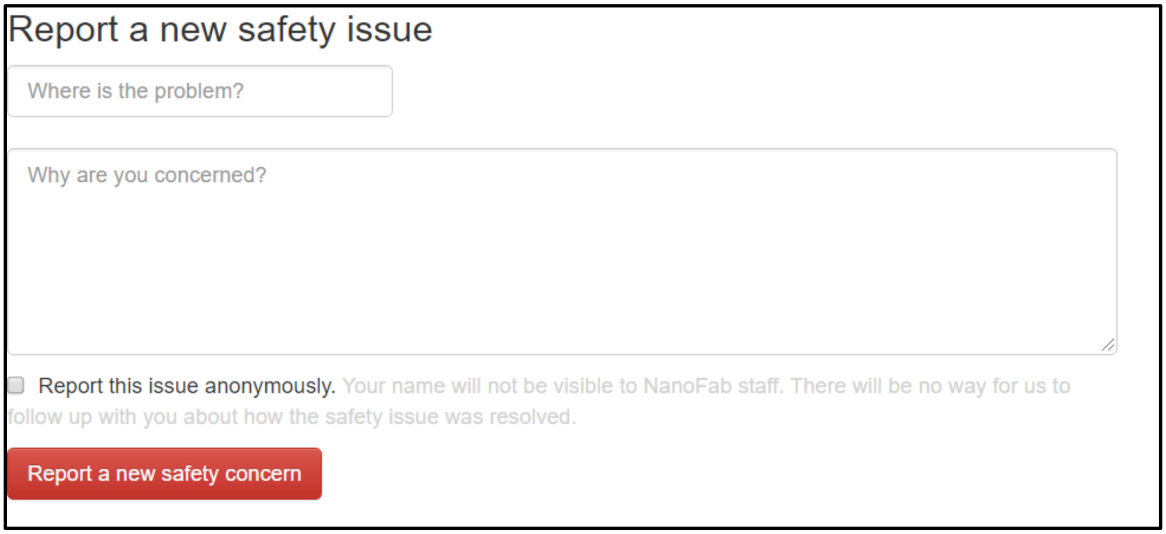


Figure 321 Safety report new issue

Users can select to report issues anonymously if desired and their name will not be recorded with the report (Figure 322). However, the staff will not be able to follow up directly with the user about the problem or how it was resolved.

Figure 322 Safety report new issue anonymously

Once all information is correct, click the report button (Figure 323).

Figure 323 Safety issue report button

Upon clicking the report button NEMO will:

- Create a new safety issue in the safety issues table of the database as discussed in [Detailed administration → Safety Issues](#) on page 455.
- Send an email to the safety email address using the safety email template. If either are missing, no email will be sent. Safety email address and email template are detailed in the [Customization](#) section starting on page 290.
- Upon success, a confirmation screen will appear to verify that the safety issue was received and recorded (Figure 324).

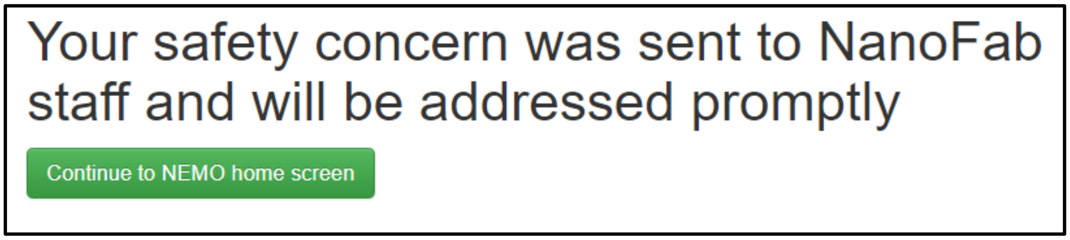


Figure 324 Safety report confirmation

Click the continue button to return to the NEMO landing page (Figure 325).

Figure 325 Safety continue button

11.4 View open safety issues

All open safety issues are listed at the bottom of the page (Figure 326).

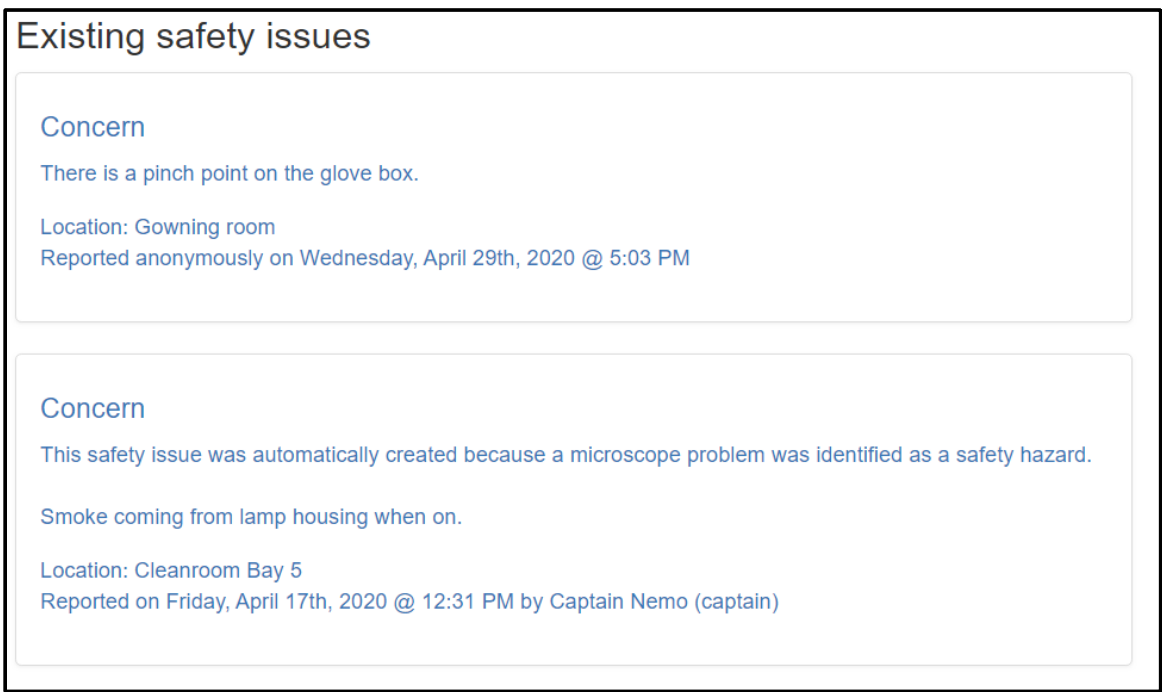


Figure 326 Safety open issues

11.4.1 User view

Each concern will list a description, location, the time and date (Figure 327).

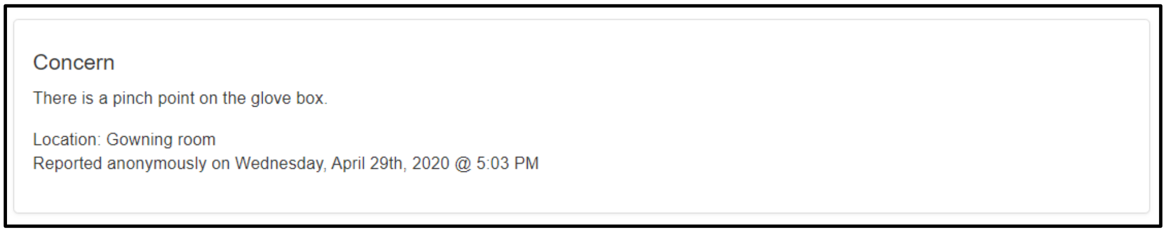


Figure 327 Safety open issue user view

11.4.2 Staff view

The staff view will list a description, location, the time and date, and the user who reported the concern (Figure 328). In addition, staff can update a concern by clicking anywhere in the listing box.

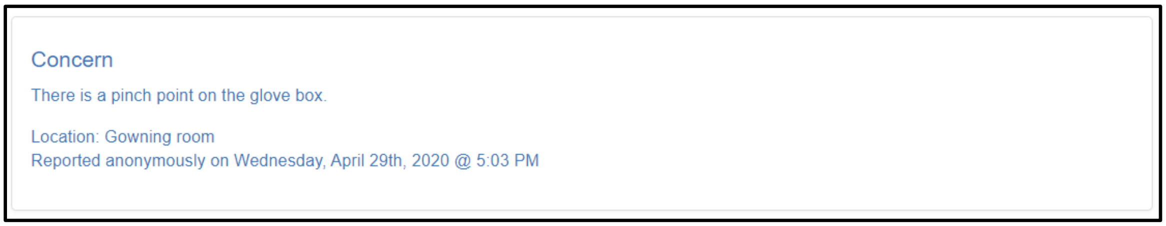


Figure 328 Safety open issue staff view

11.4.3 Hidden issues

Some issues may be hidden from users however staff will still be able to view them (Figure 329). Issues hidden from users are notated.

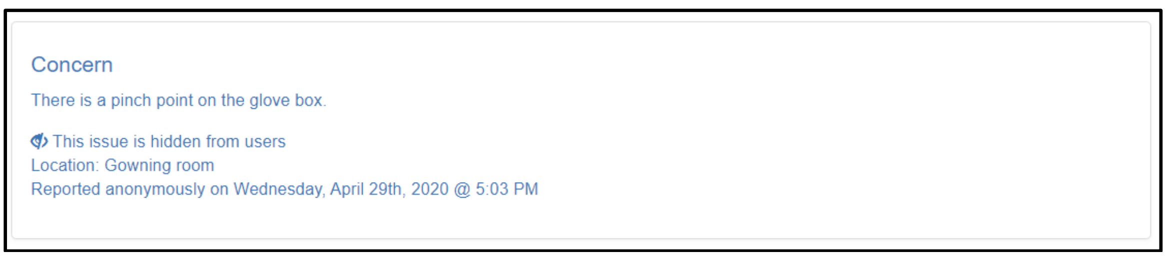


Figure 329 Safety issue hidden from user view

11.4.4 Automatic safety issues

If a safety issues was created automatically with a tool problem report, it will say so (Figure 330).

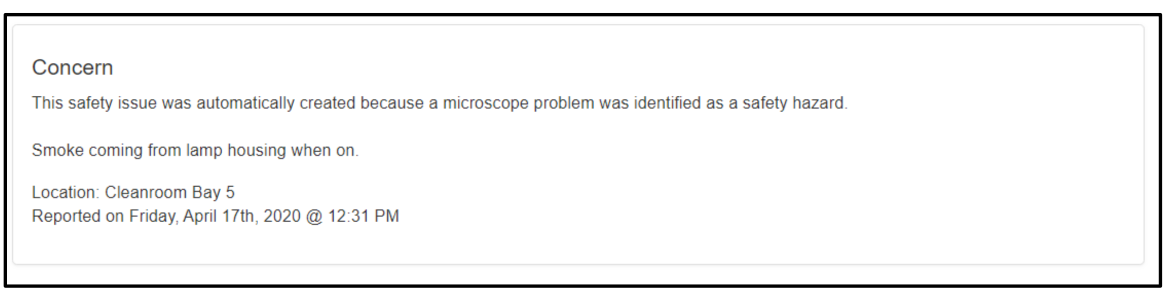


Figure 330 Safety report created by tool problem report

11.4.5 Progress

If a safety has an update but has not been resolved, it will have a progress section that lists the progress made so far (Figure 331).

Figure 331 Safety issue showing progress

11.5 Resolve or update a safety issue (staff only)

Staff can resolve an open issue or make progress updates. Clicking anywhere in a concern box will open the update page (Figure 332). The update page has check boxes to resolve an issue and hide an issue, a dialog box to enter information, save and abandon update buttons, and a listing of all information to date.

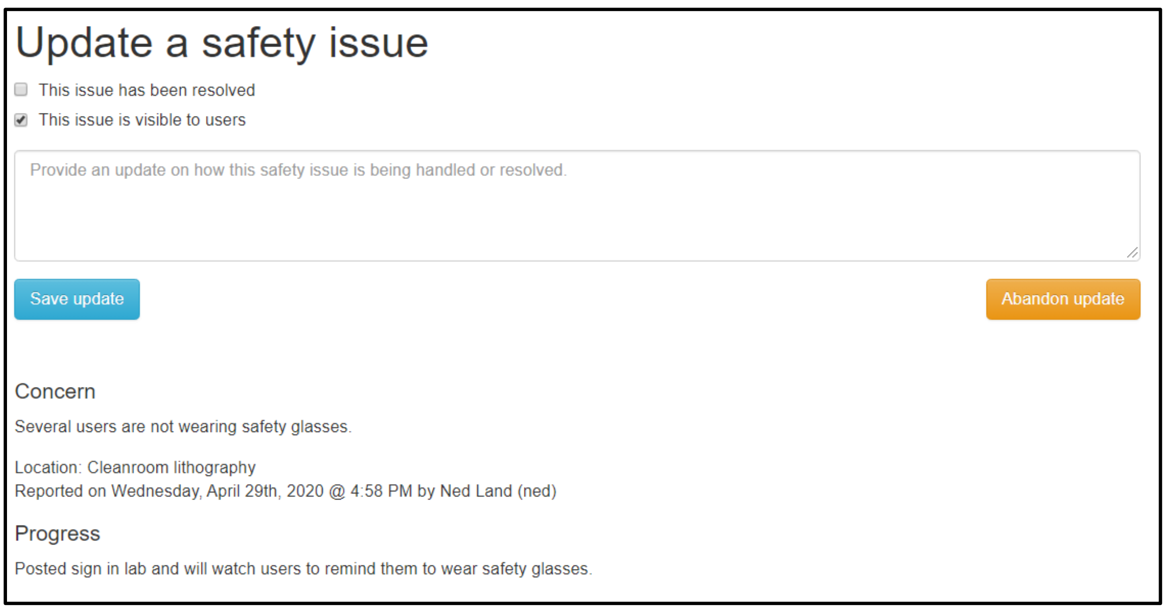


Figure 332 Safety issue update page

If this is the final update and the issue will be closed, check the issue resolved checkbox (Figure 333).

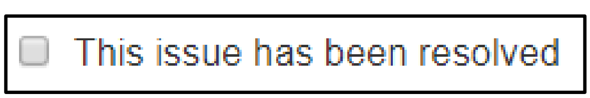


Figure 333 Safety update issue resolved checkbox

All issues are visible to users by default, if an issue needs to be hidden from users, uncheck the visible to users' checkbox (Figure 334).

Figure 334 Safety update issue visible checkbox

Enter a detailed narrative or the progress to date or the final resolution (Figure 335).

Figure 335 Safety update narrative dialog box

To save, click the save update button (Figure 336). After clicking save, the main safety page is opened.

Figure 336 Safety update save button

To leave without recording any changes, click the abandon changes button (Figure 337). After clicking abandon, the main safety page is opened.

Figure 337 Safety update abandon button

11.6 Notifications (staff only)

When safety alerts are created, the notification status is set for staff members. It automatically expires after one month. If a user accesses a page with a notification within that time, there will be a notification indicating new content since their last visit. The safety notifications are reset upon visiting the safety page. Notifications are detailed in Detailed administration → Notifications on page 436.

If the safety page has a link on the landing page, a red number that represents the number of new safety issues reported since the user last visited the safety page will appear to the right of the link name (Figure 338). Setup details can be found under Detailed administration → Landing page choices on page 414.

Figure 338 Landing page safety notification

The next time the safety page is visited, any new issues that have been created since the user last visited the safety page will have a special "new" icon to highlight the concern (Figure 339).

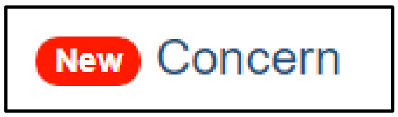


Figure 339 Safety page new issues

11.7 Web address

The safety page is accessible at site-address/safety/. For example, www.nemo.com/safety/. The page is not accessible from the navigation bar and must be either directly addressed or have a quick link created in the landing page.

11.8 Mobile device safety page

There are no mobile device views for the safety page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

11.9 Safety page customizations

11.9.1 Safety email address and email template

Safety email address and email template are detailed in the Customization section starting on page 290.

11.9.2 Safety introduction message

A customized html safety message can be loaded into NEMO through the Customizations → Safety introduction message detailed on page 309.

12 Send feedback

The send feedback provides users a dialog to send general comments and suggestions to staff that are not safety related (Figure 340).

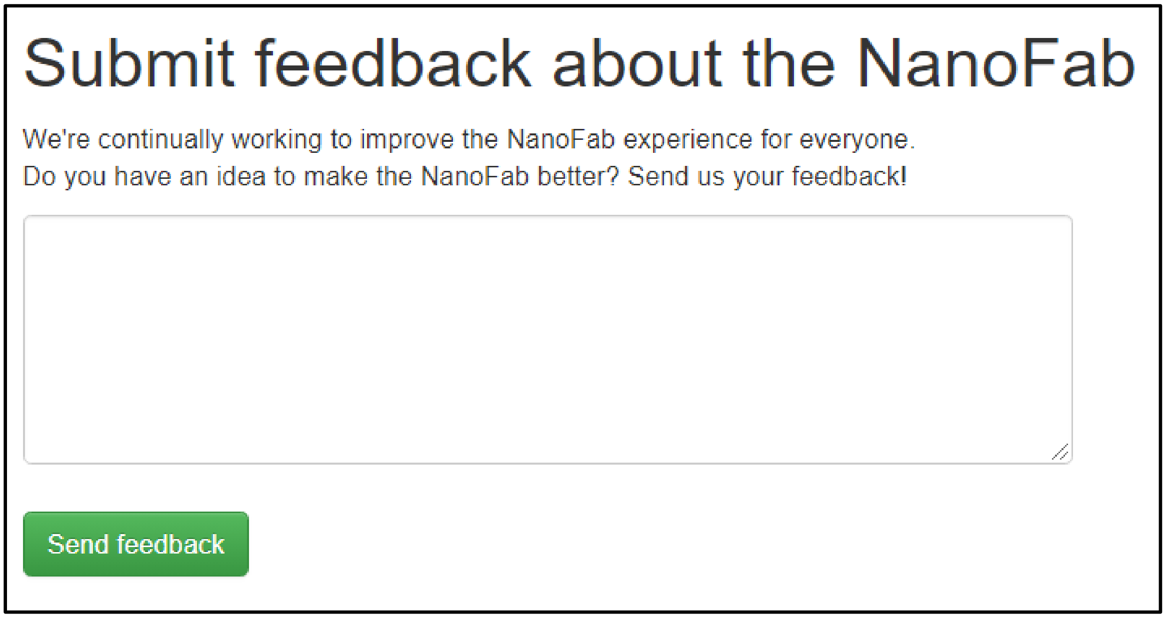


Figure 340 Send feedback page

If either the email address or email template have not been configured, a warning message the feature has not been customized will be displayed instead of the feedback page (Figure 341). Configuration is detailed in the [Customization](#) section starting on page 290.

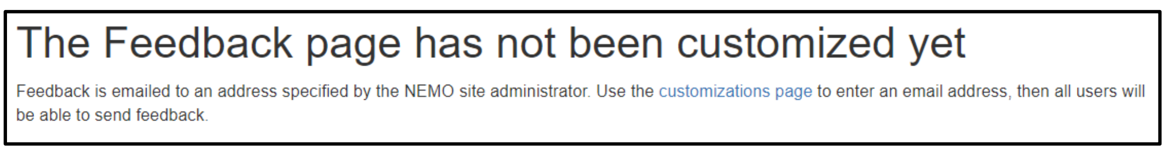


Figure 341 Send feedback not configured

12.1 Web address

The send feedback page is accessible at site-address/feedback/. For example, www.nemo.com/feedback/. The page is not accessible from the navigation bar and must be either directly addressed or have a quick link created in the landing page.

12.2 Usage

To send user feedback:

- Provide a detailed narrative in the dialog box (Figure 342).

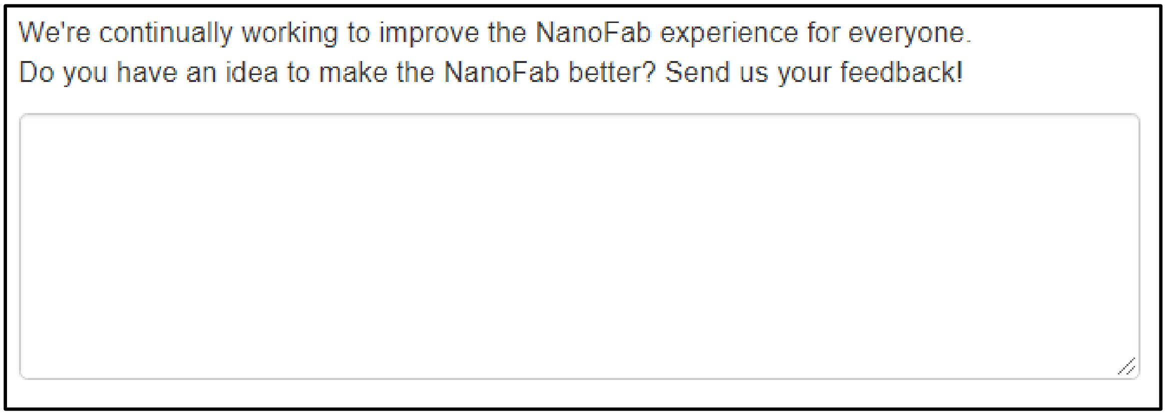


Figure 342 Feedback dialog box

- Click the send feedback button (Figure 343).

Figure 343 Feedback send button

- The dialog is checked for size. If the dialog is empty, the user is prompted to add information (Figure 344).

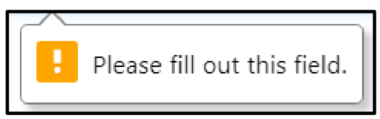


Figure 344 Feedback empty dialog prompt

- If the dialog is too long, it is truncated without warning.
- Feedback is sent to the configured feedback email address using the configured email template.

12.3 Mobile device send feedback page

There are no mobile device views for the send feedback page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

12.4 Send feedback page customizations

12.4.1 Feedback email address and email template

Safety email address and email template are detailed in the Customization section starting on page 290.

12.4.2 Feedback message length

The maximum length of the feedback message is 5000 characters and can be changed in the constants.py file.

13 Contact staff

The contact staff page can be used to provide information to help users get in touch with staff members (Figure 345). Contact information can be grouped into categories and the displayed in any order. Contacts are managed in the Detailed administration → Contact information section described on page 411.

13.1 Fields

Each contact can have the following information. Any optional fields that are left blank will not be displayed.

- Picture (optional) – pictures are automatically resized to 266 pixels high by 200 pixels wide and can be any common picture format such as png, tiff, jpg, etc.
- Name (required) – contact first and last name
- Email (optional) – any valid email address. The email address is displayed as a link to send email.
- Office phone (optional) – any valid phone number. The phone number is displayed as a link to make a call on a mobile device.
- Mobile phone (optional) – any valid phone number. The phone number is displayed as a link to make a call on a mobile device. In addition, a link to send a text message from a mobile device can be enabled.
- Office location (required) – description to find the contact, limited to 200 characters.

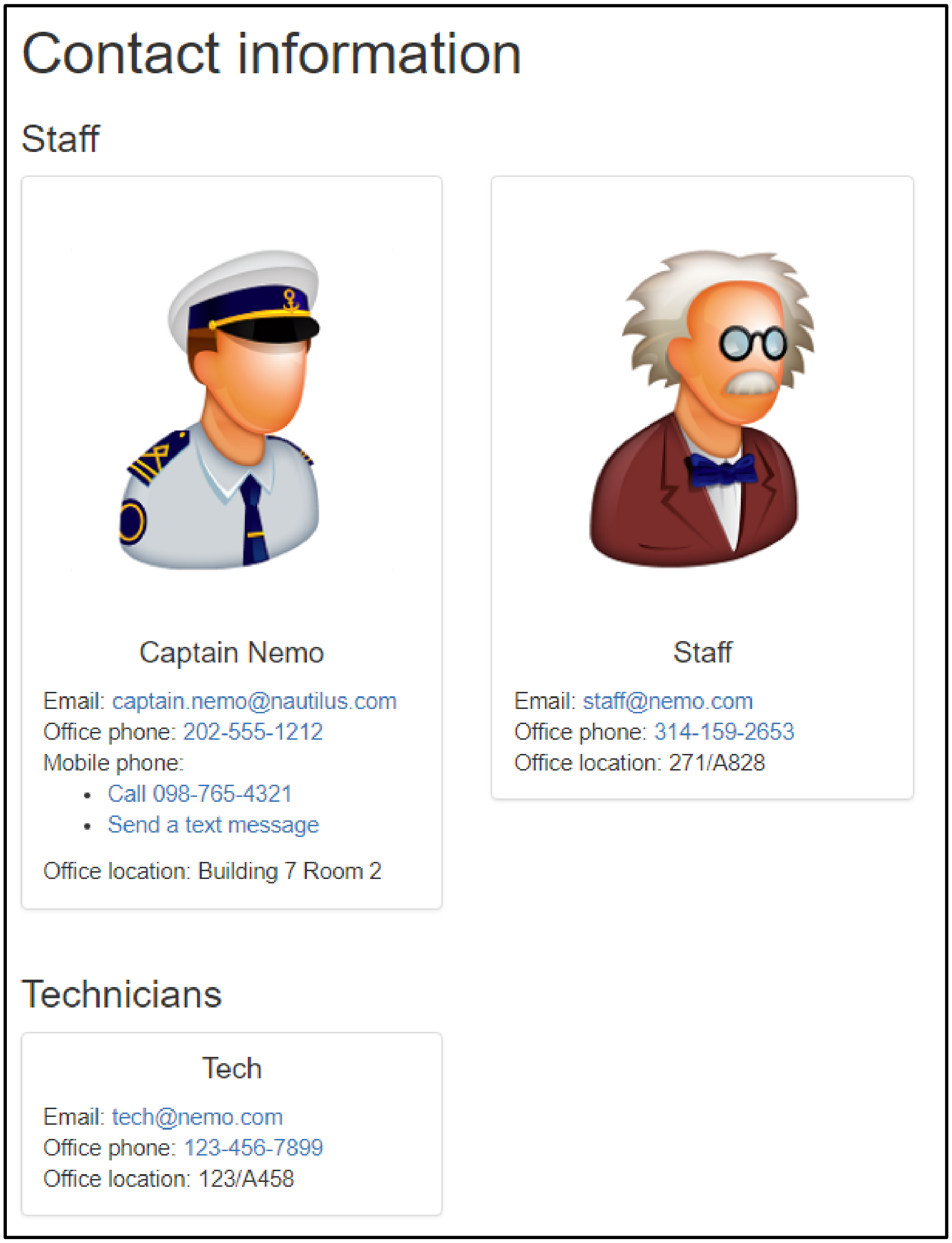


Figure 345 Contact staff page

13.2 Web address

The contact staff page is accessible at site-address/contact_staff/. For example, www.nemo.com/contact_staff/. The page is not accessible from the navigation bar and must be either directly addressed or have a quick link created in the landing page.

13.3 Mobile device contact staff page

There are no mobile device views for the contact staff page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

13.4 Contact staff page customizations

There are no contact staff page customizations

14 View usage

The view usage page allows a user to review all records for a selectable period (Figure 346). When the page is first opened, it displays any records for the current month.

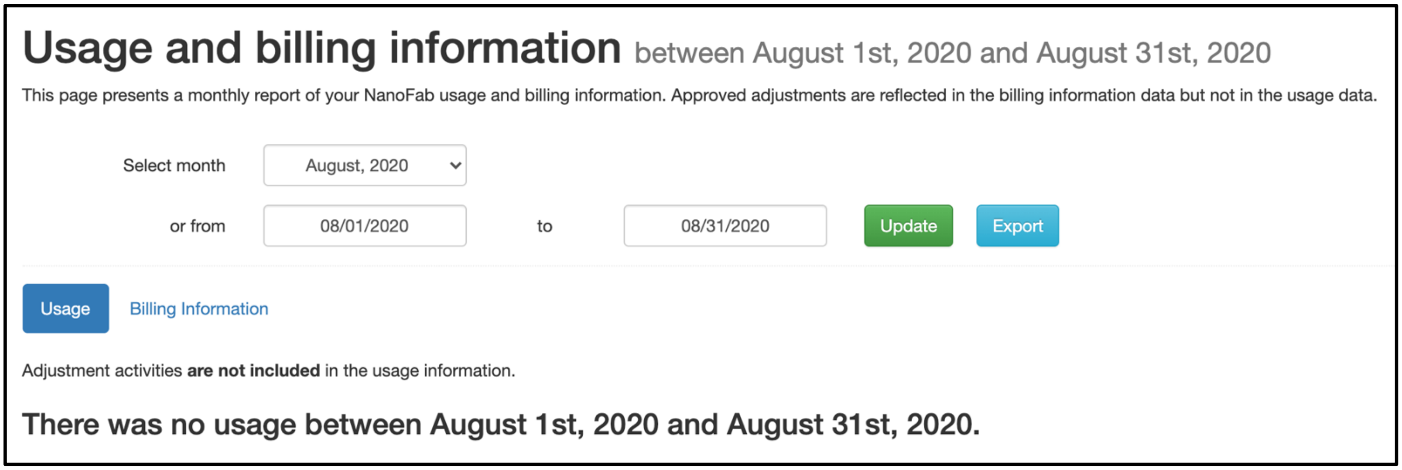


Figure 346 View usage and billing

14.1 Select date range

The date range may be selected from either the select month dropdown (Figure 347) or entered in the from and to dialogs. Clicking the from or to dialog will open a calendar view to select the dates (Figure 348).

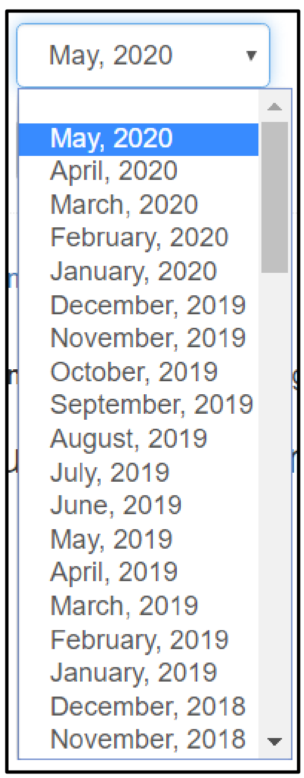


Figure 347 Usage month dropdown

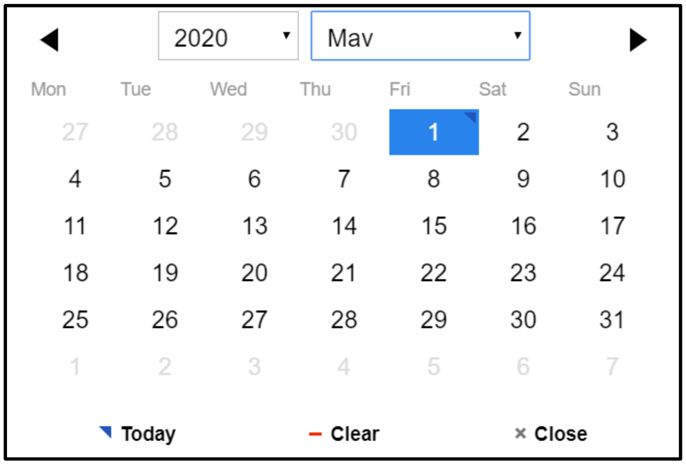


Figure 348 Usage date selection

Click update to search for records in the selected date range (Figure 349).

Figure 349 Usage date update

14.2 Usage select project (for Principal Investigators only)

Principal Investigators can select a project they managed in the dropdown (Figure 350). Upon clicking update, all the activities for that project will be displayed, regardless of the user being billed. This allows PIs to check their project's users activities for example.

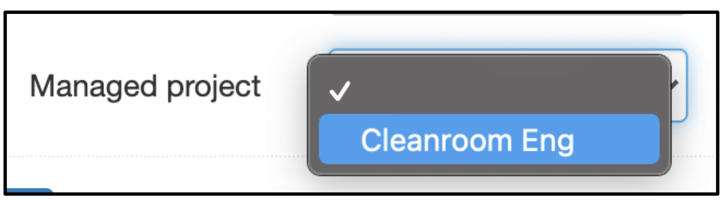


Figure 350 View usage select project

14.3 Usage

The usage tab will display usage data for the selected period (Figure 351). Clicking 'Usage' will highlight and activate the tab.

Figure 351 View usage, usage tab

If no usage records exist for a given period, it is indicated. If usage records exist, they are categorized in the following order:

- Missed reservations – the tool, date, time, and project information are provided (Figure 352).

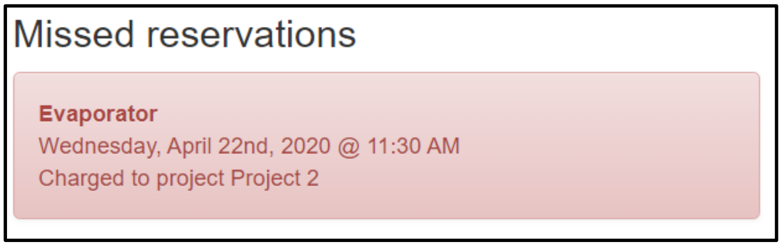


Figure 352 View usage missed reservations

- Supplies and consumables – the supply, quantity, seller, date, time, and project are provided (Figure 353). If the supply is related to a tool usage charge, the user will also be the seller.

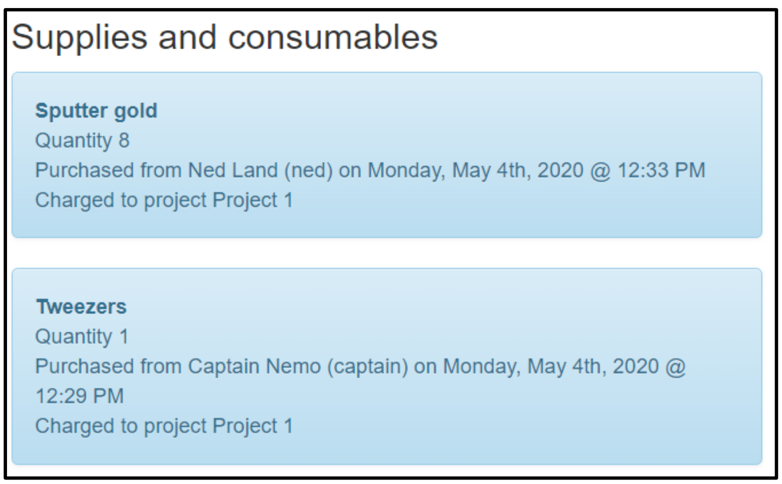


Figure 353 View usage supplies and consumables

- Staff charges – any work performed by a staff member for a user will be listed. The staff member, start date and time, end date and time, and project are listed (Figure 354).

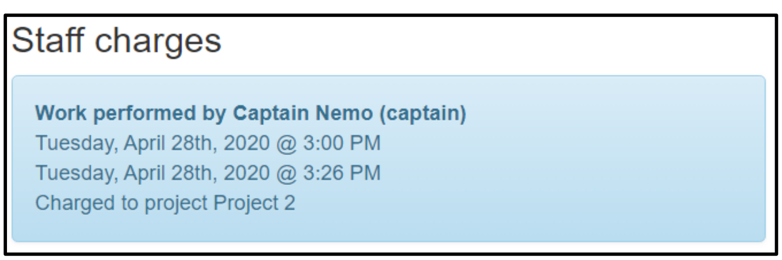


Figure 354 View usage staff charges

- Training sessions – the type of training, duration, staff member trainer, tool, project, date, and time are listed (Figure 355).

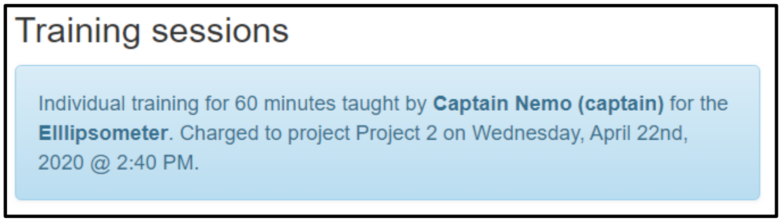


Figure 355 View usage training sessions

- Area access – the area accessed, start date and time, end date and time, and project are listed. If the area was accessed by a staff member on behalf of the user, it is highlighted in yellow, and the staff members name is also listed (Figure 356).

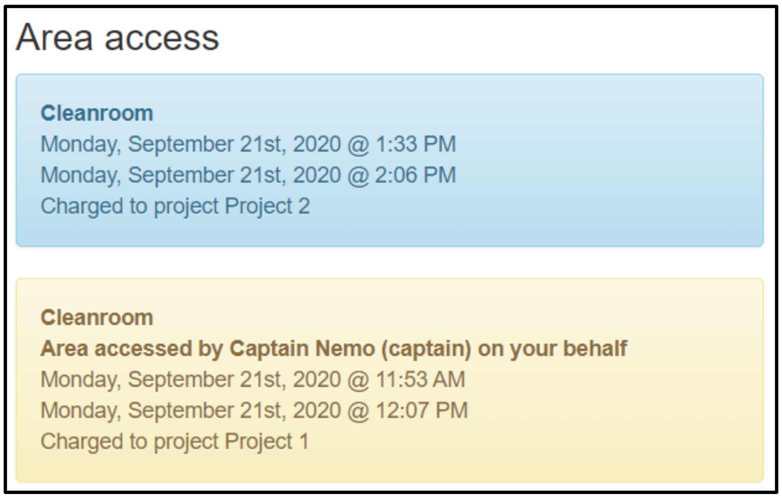


Figure 356 View usage area access

- Tool usage – tool name, start date and time, end date and time, and project are listed. If the tool was operated by a staff member on behalf of the user, it is highlighted in yellow, and the staff members name is also listed (Figure 357).

Figure 357 View usage tool time

Only categories with usage are displayed.

- Export: usage data can be exported in CSV format by clicking on the "Export" button (Figure 358).

Figure 358 Usage data export

14.4 Billing Information

The billing information tab will display charge data for the selected period (Figure 359). Clicking 'Billing information' will highlight and activate the tab.

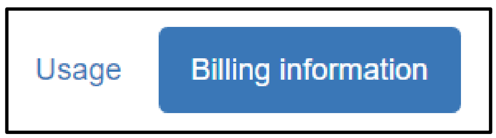


Figure 359 View usage, billing information tab

The billing information tab can be used to display actual charges for a user through a customized interface to your institutions billing and project data. An example is shown in the views/usage.py file under the billing_dict function. It is beyond the scope of this manual to describe how to customize this feature for your institution. If the feature has not been configured a message will appear (Figure 360).

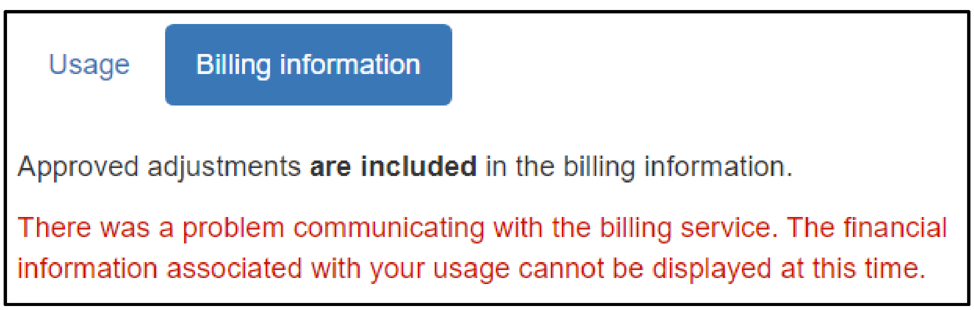


Figure 360 View usage billing information error

14.5 Web address

The view usage page is accessible at site-address/usage/ and the view billing at site-address/billing/. For example, www.nemo.com/usage/ or www.nemo.com/billing/. The page is not accessible from the navigation bar and must be either directly addressed or have a quick link created in the landing page.

14.6 Mobile device view usage page

There are no mobile device views for the view usage page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

14.7 View usage page customizations

14.7.1 Billing information

Billing information data access must be customized for each institution. An example is shown in the views/usage.py file under the billing_dict function. It is beyond the scope of this manual to describe how to customize this feature for your institution.

15 News and events

The news and events page provides a convenient way for the lab staff to communicate with users about non-emergency topics. For example, new equipment on order, tool installation progress, future plans, etc. Each time NEMO is updated, news articles are automatically generated and describe the new features, improvements, and bug fixes implemented in the new release.

15.1 Recent news

The news and events page shows recent news articles by default (Figure 361).

Figure 361 News and events recent news

Staff can create new news articles by clicking the Publish new news button (Figure 362). The button will not be visible to non-staff users.

Figure 362 News and events publish new news button

Users can view archived news articles by clicking the link (Figure 363).

Figure 363 News and events archived news link

If the article was recently created or updated, the new update icon will appear next to the article title (Figure 364).

Figure 364 New and events new update icon

Staff can update a news article by clicking the title (Figure 365). The title will not appear as a link for non-staff users.

New ICP etch system coming soon

Figure 365 News and events update article title link

If a story has more than 2 updates, only the first and last are shown (Figure 366).

Originally published on Monday, May 4th, 2020 @ 2:02 PM by Captain Nemo (captain):
A new ICP fluorine etch system has been ordered and will be sited next to the existing system. We expect delivery in six months and plan another two months for installation and startup.

... show full story ...

Updated on Monday, May 4th, 2020 @ 2:05 PM by Captain Nemo (captain):
The new tool has arrived and will be brought into the cleanroom next week.

Figure 366 News and events story collapsed

Clicking the show full story link (Figure 367) will expand the article to include all updates (Figure 368).

... show full story ...

Figure 367 News and events show full story link

New update New ICP etch system coming soon

Originally published on Monday, May 4th, 2020 @ 2:02 PM by Captain Nemo (captain):
A new ICP fluorine etch system has been ordered and will be sited next to the existing system. We expect delivery in six months and plan another two months for installation and startup.

Updated on Monday, May 4th, 2020 @ 2:03 PM by Captain Nemo (captain):
The vendor has informed us that the system will be delayed by a month.

Updated on Monday, May 4th, 2020 @ 2:03 PM by Captain Nemo (captain):
While we have been waiting for delivery of the new system the gas lines have been installed and the electric has been pre-wired.

Updated on Monday, May 4th, 2020 @ 2:05 PM by Captain Nemo (captain):
The new tool has arrived and will be brought into the cleanroom next week.

Figure 368 News and events story expanded

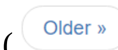
15.2 Archived news

The archived news page displays older articles in order of creation date from most recent to oldest (Figure 369).

Figure 369 News and events archived articles

Clicking the view recent news link will return to the recent news page (Figure 370).

Figure 370 News and events view recent news link

Up to 20 articles are displayed per page fully expanded. If more than 20 archived articles are available, buttons will appear below the recent news link to go to the older articles (

) or newer articles (

).

15.3 Publish new news (staff only)

Staff may publish new news articles by clicking the publish new news button from the recent news page (Figure 371).

Figure 371 News and events recent news with publish new news button

The publish new news page provides dialogs for the new story title and story body (Figure 372).

Figure 372 News and events publish new news page

To publish a new news article:

- Enter a story title in the top dialog box (Figure 373). This title will be displayed at the top of the article.

Figure 373 New and events publish new news story title dialog

- Enter the body of the story in the what's happening dialog (Figure 374).

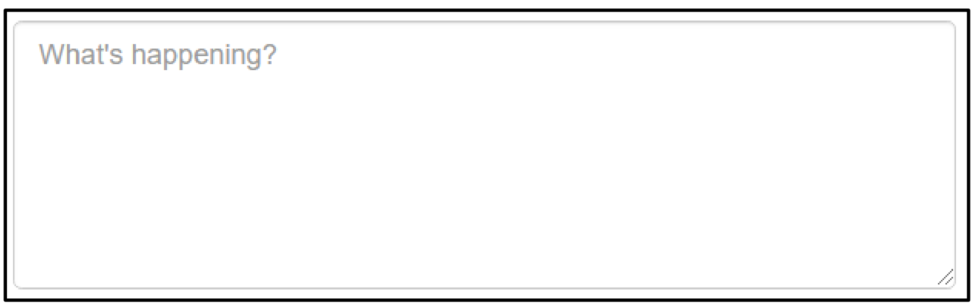


Figure 374 News and events publish new news story body dialog

- Check the box if you'd like the story to stay atop the news feed (Figure 375).

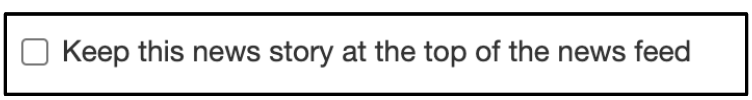


Figure 375 News and events publish new news story pinned checkbox

- Click the publish button (Figure 376).

Figure 376 News and events publish new news story button

- The news story is automatically created in the database with author and time and date stamp added as discussed in Detailed administration → News on page 430.
- Notifications for all active users are set which are detailed in Detailed administration → Notifications on page 436.

15.4 Update news article (staff only)

Staff may update news articles by clicking the article title link from the recent news page (Figure 377).

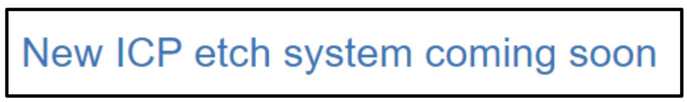


Figure 377 News and events article title update link

The update a news story page will show the original posting, all updates, an archive button, an update dialog, and publish button (Figure 378).

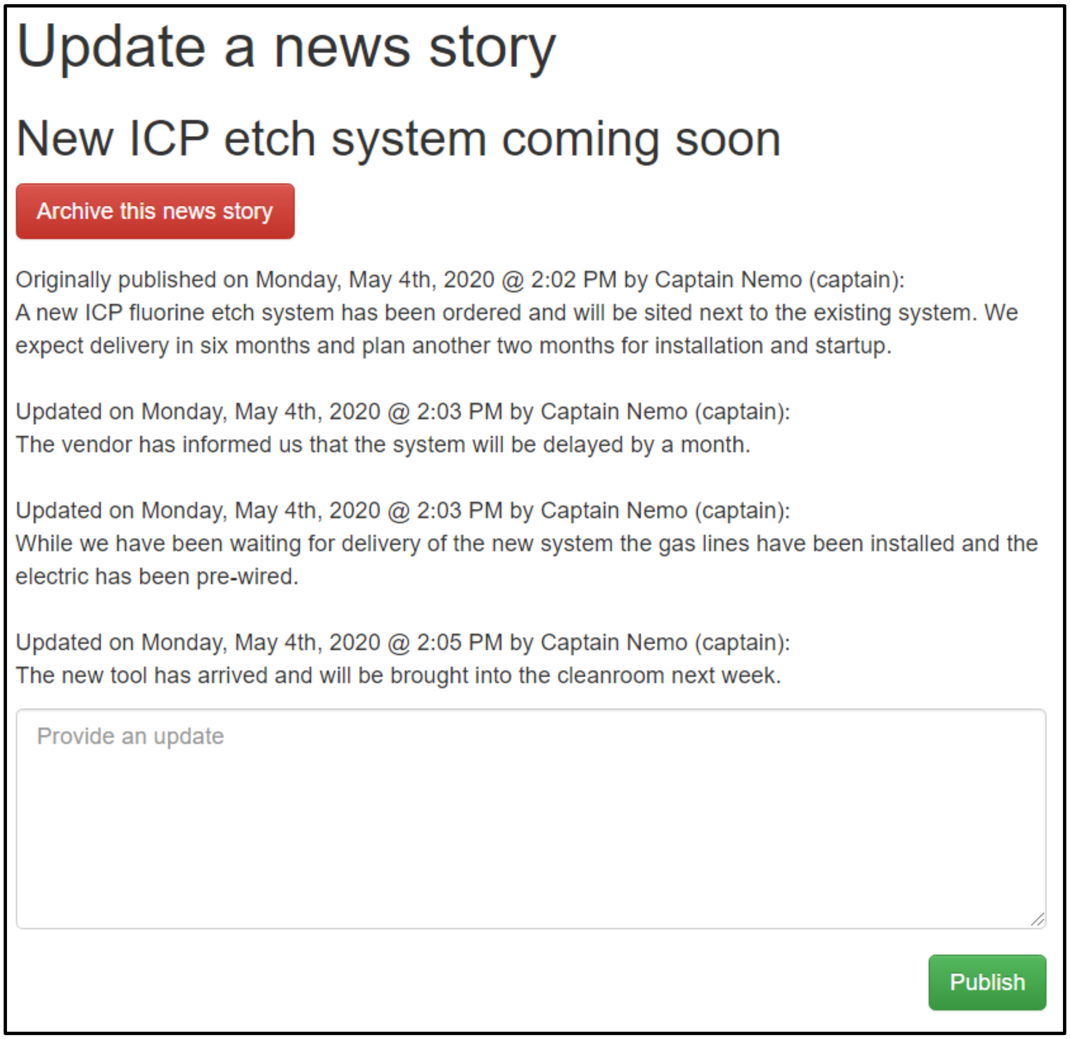


Figure 378 News and events update page

Clicking the ‘Archive this news story’ button will set the archive flag immediately without confirmation (Figure 379). Archived news stories are removed from the recent news page and displayed on the archived news page.

Figure 379 News and events update page archive button

To publish an update:

- Enter the update in the dialog box (Figure 380)

Figure 380 News and events update dialog box

- Check/uncheck the box if you'd like to change the pinned status of the story (Figure 381).

Figure 381 News and events update pinned checkbox

- Click the publish button (Figure 382)

Figure 382 News and events update publish button

- The news story is automatically updated in the database with author and time and date stamp added as discussed in Detailed administration → News on page 430.
- Notifications for all active users are set which are detailed in Detailed administration → Notifications on page 436.

15.5 Notifications

When news and events are created or updated, the notification status is set for all users. It automatically expires after one month. If a user accesses a page with a notification within that time, there will be a notification indicating new content since their last visit. The notifications are reset upon visiting the news and events page. Notifications are detailed in Detailed administration → Notifications on page 436.

If the news and events page has a link on the landing page, a red number that represents the number of articles created or updated since the user last visited the news and events page will appear to the right of the link name (Figure 383). Setup details can be found under Detailed administration → Landing page choices on page 414.

Figure 383 Landing page news notification

The next time the news and events page is visited, any new or updated articles will have a special “new update” icon to highlight the update (Figure 384).

Figure 384 News update icon

15.6 Web address

The news and events page is accessible at site-address/news/. For example, www.nemo.com/news/. The page is not accessible from the navigation bar and must be either directly addressed or have a quick link created in the landing page.

15.7 Mobile device news and events page

There are no mobile device views for the news and events page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

15.8 News and events customizations

A news story is published when a new NEMO release is installed with links to the release notes and the feature manual. This feature can be disabled by setting `NEW_VERSION_NEWS = False` in settings.py.

16 User Preferences

The user preferences page provides a dialog to enable user specific reservation notifications with meeting invites, buddy system preferences and staff status view preferences (Figure 385).

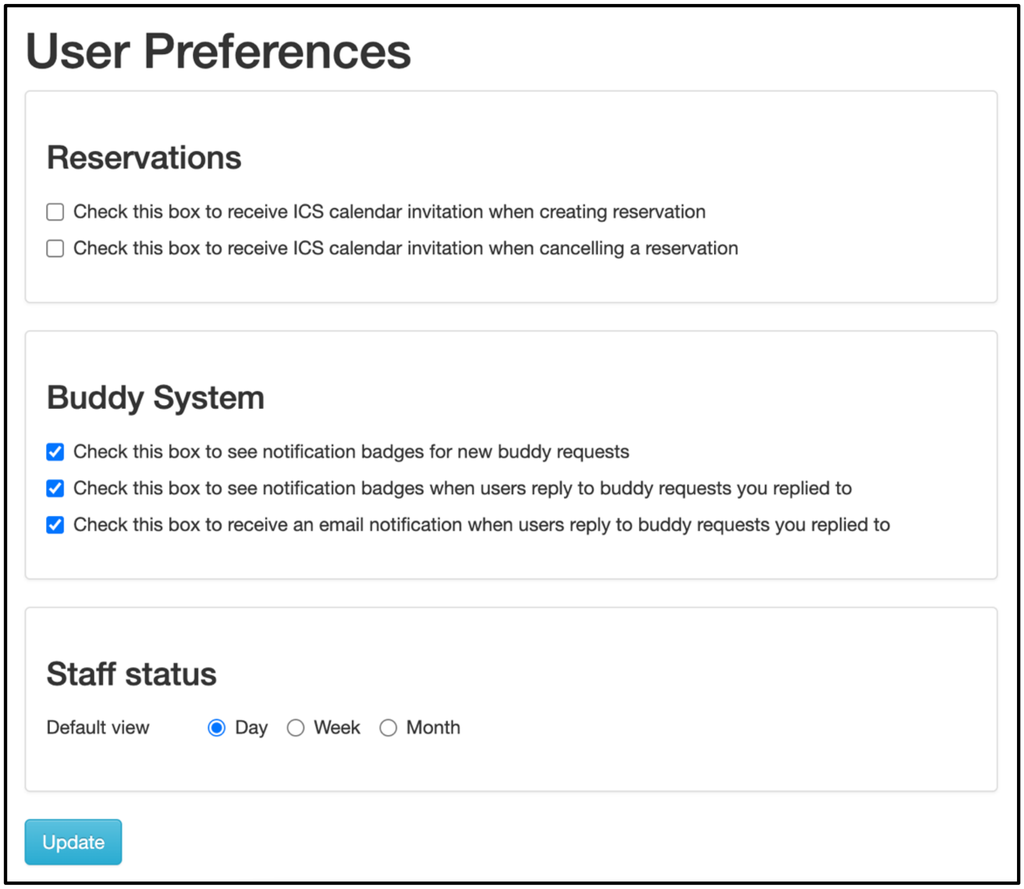


Figure 385 User preferences page

16.1 Usage

To update reservation user preferences:

- Check the top box to receive a calendar invite when creating a reservation (Figure 386)

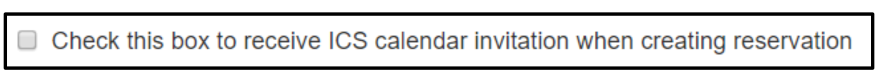


Figure 386 User preferences creation email checkbox

- Check the bottom box to receive a calendar cancelation when cancelling a reservation (Figure 387)

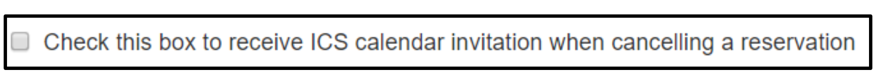


Figure 387 User preferences cancellation email checkbox

To update buddy board user preferences:

- Check the top box to see notifications for new buddy requests (Figure 388). They will appear as a number next to the buddy board heading on the navigation bar (Figure 389).

Figure 388 User preferences new buddy request notification checkbox

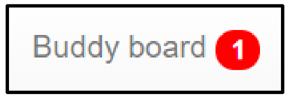


Figure 389 User preferences buddy navigation bar notification

- Check the middle box to see notifications when users reply to buddy requests you replied to (Figure 390).

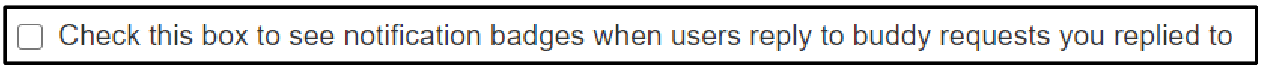


Figure 390 User preferences buddy response notification checkbox

- Check the bottom box to receive email notifications when users reply to buddy requests you replied to (Figure 391).

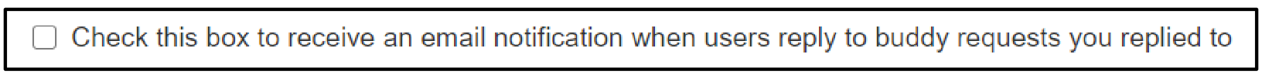


Figure 391 User preferences buddy response email checkbox

To update Staff status default view preferences:

- Check the radio button corresponding to the default view you would like to use when looking at the staff status (Figure 392). Note that the option won't be displayed if the user isn't authorized to see the staff status or if he can only use the day view.

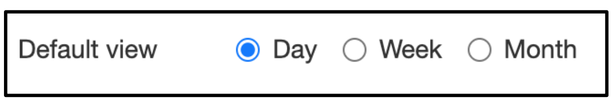


Figure 392 User preferences staff status default view

To save user preferences:

- Click the update button (Figure 393)

Figure 393 User preferences update button

- Selections will be updated in the database as discussed in Detailed administration → User preferences on page 517.
- Email templates must be created for User reservation created email and User reservation cancelled email for this feature to work. Details are provided in the Customization →User reservation email sections starting on page 347.

16.2 Web address

The user preferences page is accessible at site-address/user_preferences/. For example, www.nemo.com/user_preferences/. The page is accessible from the navigation bar by clicking the  link or in mobile view selecting preferences.

16.3 Mobile device user preferences page

There are no mobile device views for the safety page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

16.4 User preferences page customizations

16.4.1 Email templates

Email templates must be created for the User reservation created email and the User reservation cancelled email for this feature to work. Details are provided in the Customization →User reservation email sections starting on page 347.

17 Administration menu (staff only)

The administration menu provides the interfaces to manage accounts, projects, users, tools, areas, training, and maintenance as well as customize NEMO setups and access the NEMO database (Figure 394). Only staff have access to the administration menu and pages. Some administration pages also require super-user privilege (API, Customization, Impersonate).

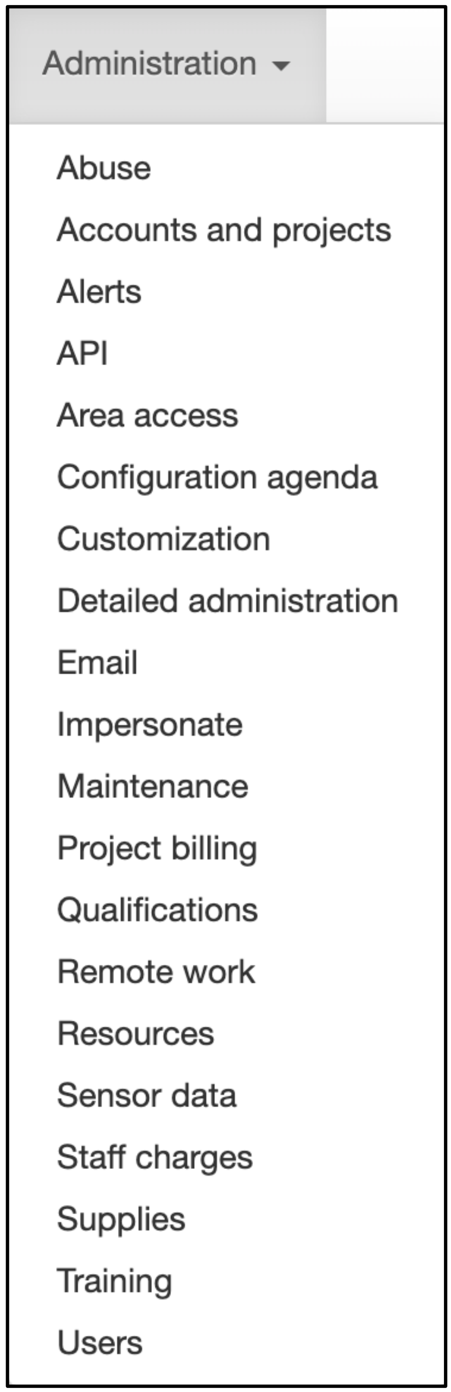


Figure 394 Administration menu

18 Abuse (staff only)

The abuse page can take various inputs to score users on their missed reservations and last-minute cancelations (Figure 395).

Figure 395 Reservation abuse page

18.1 Web address

The abuse page is accessible at site-address/abuse/. For example, www.nemo.com/abuse/. The page is also accessible from the navigation bar by clicking Administration then clicking Abuse.

18.2 Mobile device abuse page

There are no mobile device views for the abuse page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

18.3 Abuse page customizations

There are no customizations for the abuse page.

19 Accounts and projects (staff only)

The accounts and projects page provides the interface to administer accounts, projects, and user permissions on projects.

An account is at the top of the hierarchy. This is where you send the bill. An account can have many projects.

Projects are used to identify different efforts by the same account. This is what department or group is charging the account. Each project can have many users.

A user can be active on any number of projects under any number of accounts.

Many accounts will have one project with one or more users, but NEMO has the flexibility to accommodate any mode of operation.

Upon entering the page, there are buttons to add accounts, add projects, search for accounts or projects, and a list of all accounts and projects (Figure 396). The accounts and projects

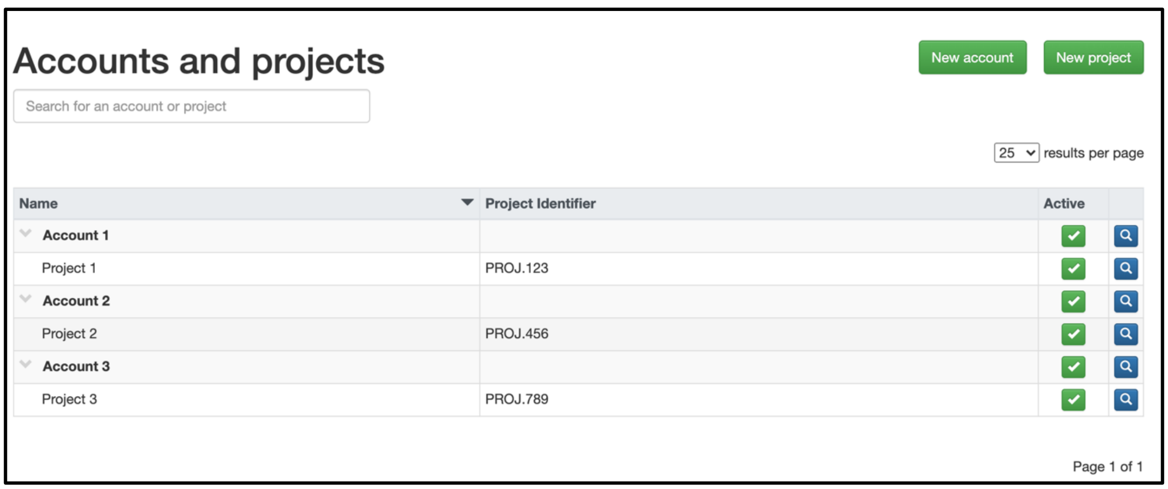


Figure 396 Accounts and projects page

19.1 Search for existing accounts or projects

To search for an existing account or project, start typing in the search dialog (Figure 397).

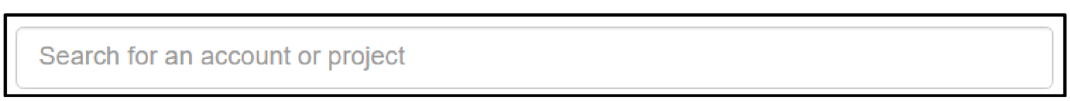


Figure 397 Accounts and projects search dialog

Results are returned as characters are typed and the account or project of interest can be selected at any time by clicking the name (Figure 398).

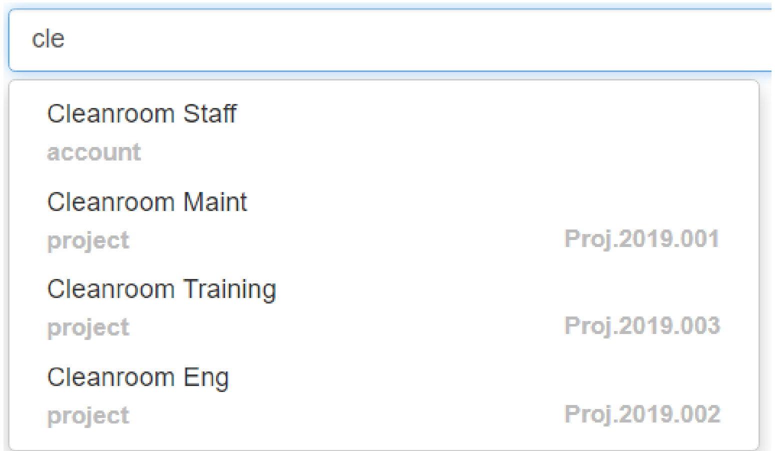


Figure 398 Accounts and projects search return list

Upon selecting an account, the base account and all associated projects are displayed (Figure 399).

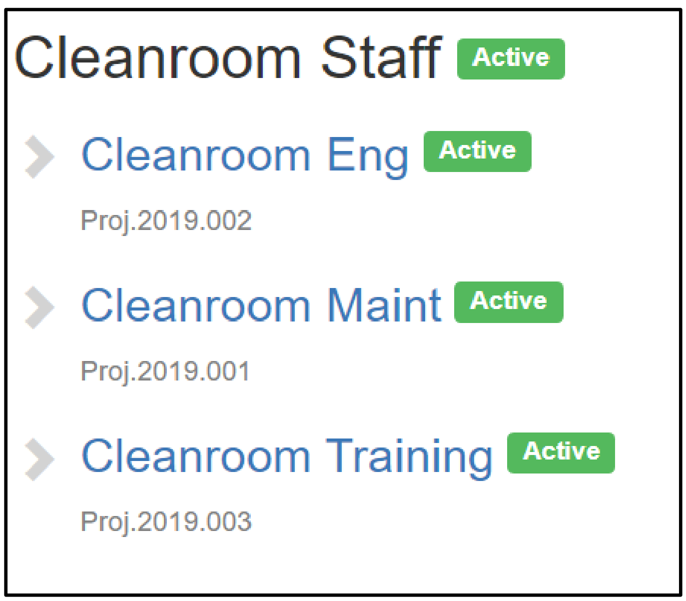


Figure 399 Accounts and projects list view

The top of the list is the account name (Figure 400).

Figure 400 Accounts and projects view account

Each project title is listed (Figure 401).

Figure 401 Accounts and projects view project

The application identifier is listed below the project title (Figure 402).

Figure 402 Accounts and projects project application identifier

Upon selecting a project, the project name, account, project identifier and start date (if defined) are displayed (Figure 403). Clicking on the account name will link back to the account view (Figure 399)

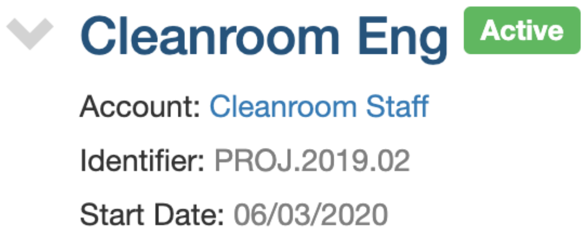


Figure 403 Accounts and projects project view

19.2 Account and project status

Accounts and projects can be either active or inactive and their status is indicated by an icon. Changing an account to inactive will cause all of its associated projects to inherit the inactive state regardless of individual project statuses. Although a project will inherit its account inactive status, the individual project statuses are not changed. Projects that are inactive, either directly or inherited from account, cannot be selected on any lab use activity.

Clicking the icon will toggle the status.

Account or project is active

Account or project is inactive

On the list view, account or project status can be toggled by clicking on the green icon to deactivate, or the red icon to reactive an account/project.

Any change in account or project status is recorded in the activity histories table of the database detailed in the Detailed administration → Activity histories section on page 370.

19.3 Manage users on a project

Users can be added and removed to any project regardless of associated accounts through the Accounts and project page or the Users page which is detailed on page 278.

To manage users on a project:

- Search for a project or select one from the list view using the details icon ( )

- Click the ( ) on a project listing to expand the project dialog and include qualified users (Figure 404).

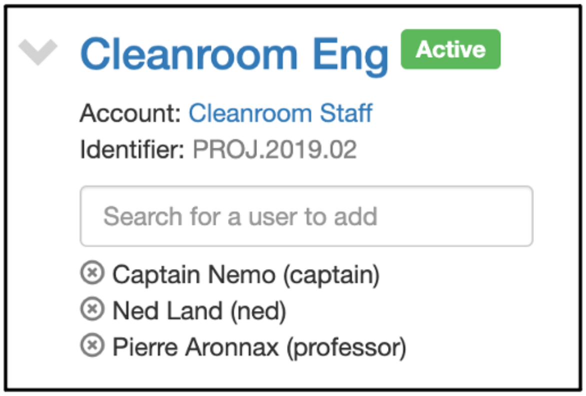


Figure 404 Accounts and projects expanded dialog

- To add a user, click in the search dialog box (Figure 405).

Figure 405 Accounts and projects search for user

- Results are returned as characters are typed and the name of interest can be selected at any time by clicking the name on the list (Figure 406).

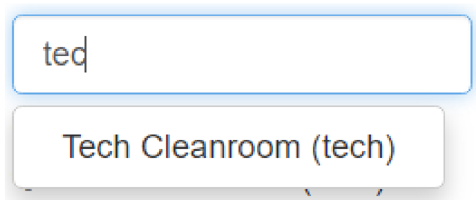


Figure 406 Accounts and projects add user

- The selected user is added immediately without confirmation and the list of users displayed is updated.
- Click the ( ) to remove a user from a project. The removal is immediate without confirmation and the list of users displayed is updated.
- Adding or removing a user on a project is recorded in the membership history table of the database detailed in the Detailed administration → Membership histories section on page 430.
- Clicking the ( ) will collapse the project dialog.

19.4 Create an account

To create an account:

- Click the new account button on the accounts and projects page (Figure 407).

Figure 407 Accounts and projects new account button

- The new account dialog will open (Figure 408).

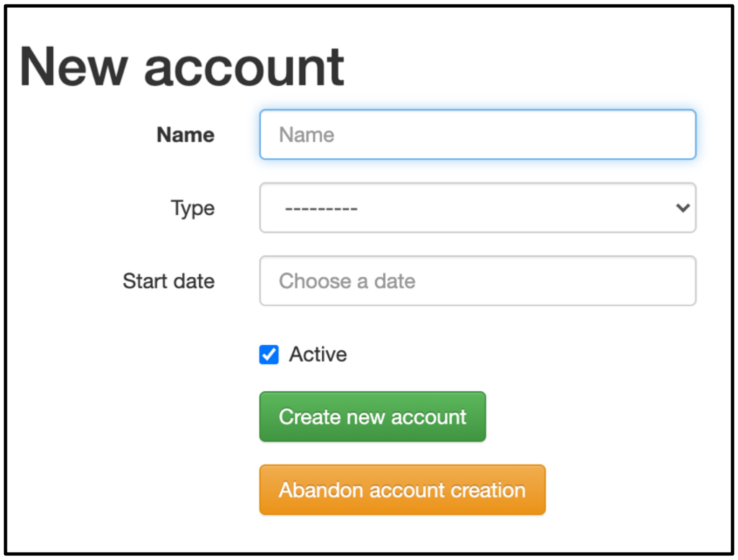


Figure 408 Accounts and projects new account dialog

- Enter the account name in the dialog box (Figure 409).

Figure 409 Accounts and projects new account name dialog box

- If account types are defined, you have the option to select the type (Figure 410).

Figure 410 Accounts and projects new account type selector

- Enter the start date of the account (optional) (Figure 411).

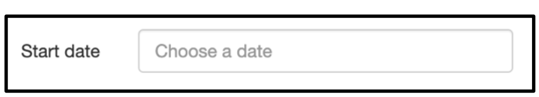


Figure 411 Accounts and projects new account start date

- The active checkbox is checked by default. It can be unchecked for inactive status (Figure 412).

Figure 412 Accounts and projects new account active checkbox

- Click the create new account button (Figure 413).

Figure 413 Accounts and projects new account create button

- The new account is recorded in the accounts table of the database detailed in the Detailed administration → Accounts section on page 366.
- The page will return to the accounts and projects page with the new account selected (Figure 414).

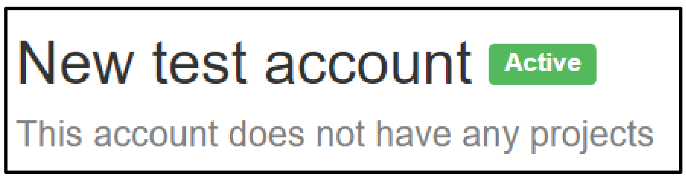


Figure 414 Accounts and projects new account finished

- If a duplicate account name is entered, an error will appear (Figure 415).

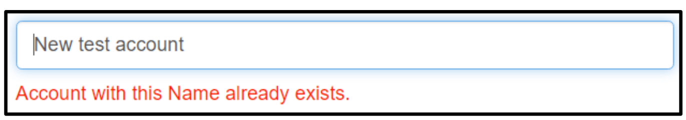


Figure 415 Accounts and projects new account error

- To cancel without saving, click the cancel button instead of the create new account button (Figure 416).

Figure 416 Accounts and projects new account cancel button

19.5 Create a project

To create a project:

- Click the new project button on the accounts and projects page (Figure 417).

Figure 417 Accounts and projects new project button

- The new project dialog will open (Figure 418).

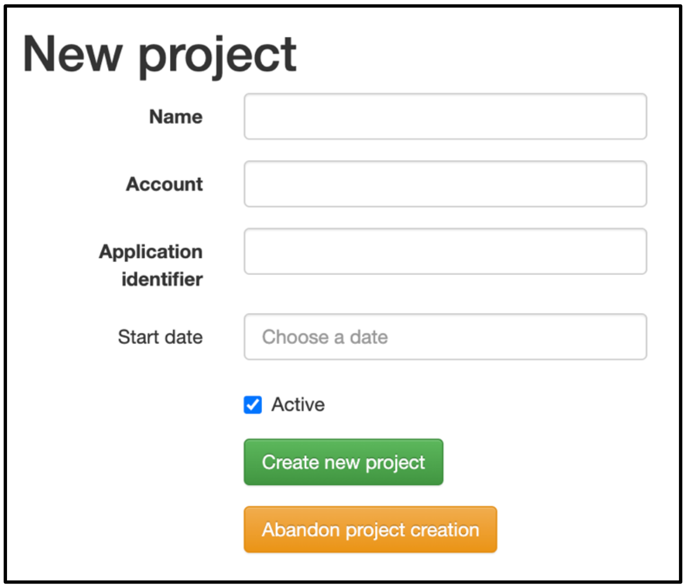


Figure 418 Accounts and projects new project dialog

- Enter the project name in the name dialog box (Figure 419).

Figure 419 Accounts and projects new project name

- Enter the account name in the account dialog box (Figure 420).

Figure 420 Accounts and projects new project account search

- Results are returned as characters are typed and the name of interest can be selected at any time by clicking the name on the list (Figure 421).

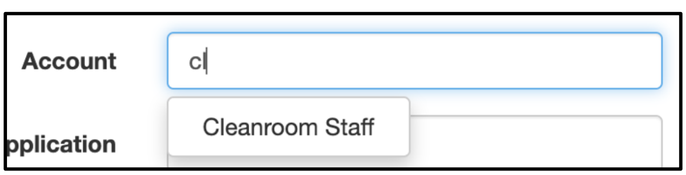


Figure 421 Accounts and projects new project account list

- Enter the application identifier in the application dialog box (Figure 422).

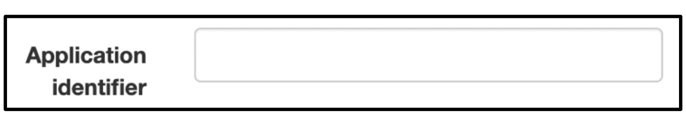


Figure 422 Accounts and projects new project application identifier

- Enter the start date of the project (optional) (Figure 423).

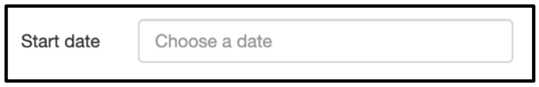


Figure 423 Accounts and projects new project start date

- The active checkbox is checked by default. It can be unchecked for inactive status (Figure 424).

Figure 424 Accounts and projects new project active checkbox

- Click the create new project button (Figure 425).

Figure 425 Accounts and projects new project create button

- The new project is recorded in the projects table of the database detailed in the [Detailed administration → Projects] section on page 436.
- The page will redirect to the project details page (Figure 426).

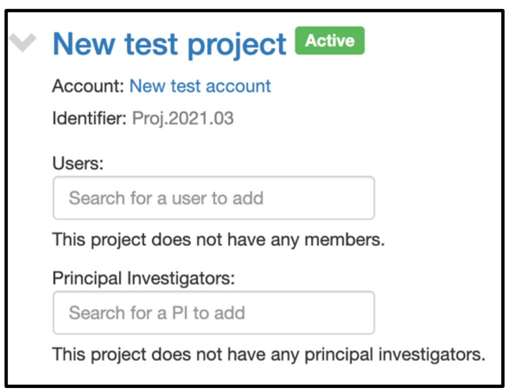


Figure 426 Accounts and projects new project finished

- If the project name already exists, an error will be created (Figure 427).

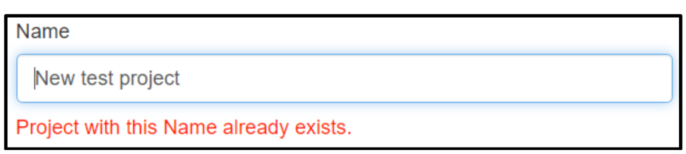


Figure 427 Accounts and projects new project error

- To cancel without saving, click the cancel button instead of the create new account button (Figure 428).

Figure 428 Accounts and projects new project cancel button

19.6 Web address

The accounts and projects page is accessible at site-address/accounts_and_projects/. For example, www.nemo.com/accounts_and_projects/. The page is also accessible from the navigation bar by clicking Administration then clicking Accounts and projects.

19.7 Mobile device accounts and projects page

There are no mobile device views for the accounts and projects page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

19.8 Accounts and projects page customizations

There are no customizations for the accounts and projects page.

20 Alerts (staff only)

The alerts page creates notifications to all users and can have a scheduled start date and time as well as a scheduled end date and time. Any existing alerts are displayed at the bottom of the page and can be edited or deleted. (Figure 429). Existing alerts display the title, details, start date/time and end date/time.

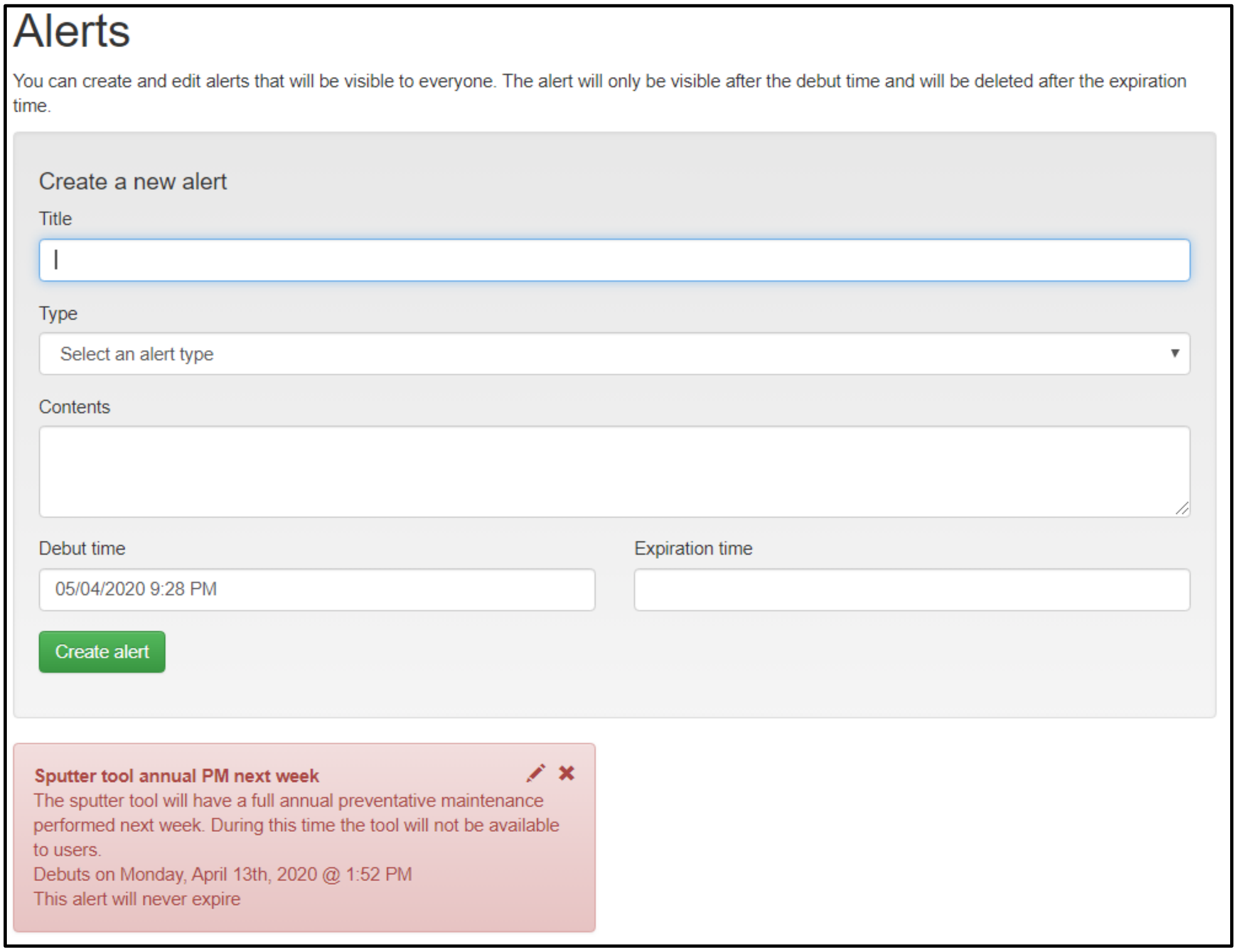


Figure 429 Alerts page

20.1 Create an alert

To create an alert:

- Enter an alert title (Figure 430). The title is displayed in bold at the top of the alert message.

Figure 430 Alerts title dialog box

- Select an alert type (Figure 431). The alert type will only display if alert types have been defined in the alert categories table of the database detailed in the Detailed administration → Alert categories section on page 372. Categorizing alerts can be useful for binning alerts aiding in future analysis and trending.

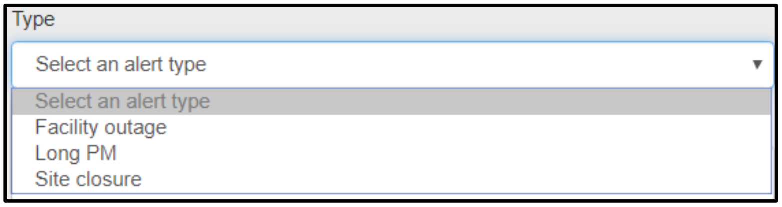


Figure 431 Alerts type dropdown

- Provide details to share with users (Figure 432).

Figure 432 Alerts details dialog box

- Select a start date and time (Figure 433). The default is now.

Figure 433 Alerts start date and time

- Select an end date and time (Figure 434). To prevent alert expiration, leave this blank.

Figure 434 Alerts end date and time

- Clicking in the start or end date/time area will bring up the calendar/clock selection dialog (Figure 435). Click to the appropriate date and time. The date/time dialog will update as you click.

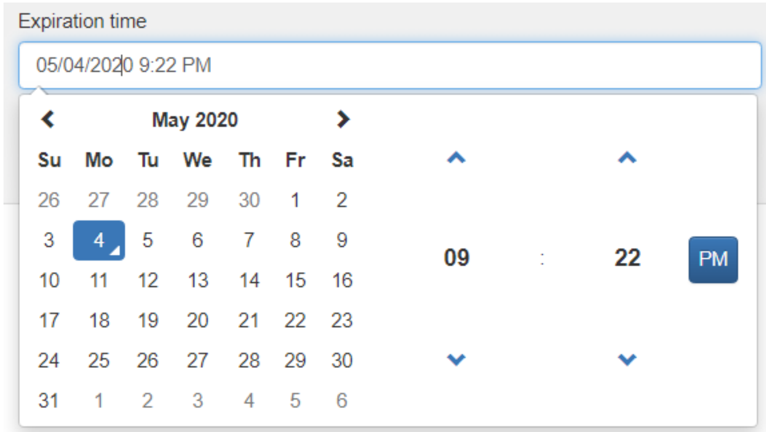


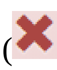
Figure 435 Alerts calendar/clock dialog

- Click the create alert button (Figure 436).

Figure 436 Alerts create button

- Upon creation, the alert will be saved in the database and is detailed in the [Detailed administration → Alerts]() section on page 374.
- The new alert will be displayed at the bottom of the alerts page and on the [landing page]() described on page 29.

20.2 Delete an alert

An alert can be deleted by clicking the () icon in the alert of interest at the bottom of the alerts page (Figure 437). The deletion is immediate without confirmation. The alert is still saved in the database but marked as deleted and will no longer be displayed.

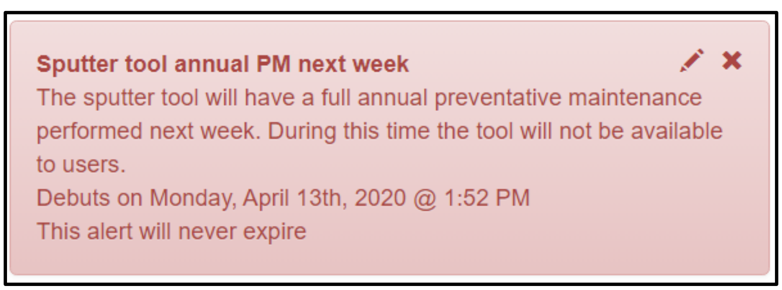


Figure 437 Alerts existing alert dialog

20.3 Edit an alert

To edit an alert:

- Click the () icon in the alert dialog of interest.
- The alert edit page will open (Figure 438).

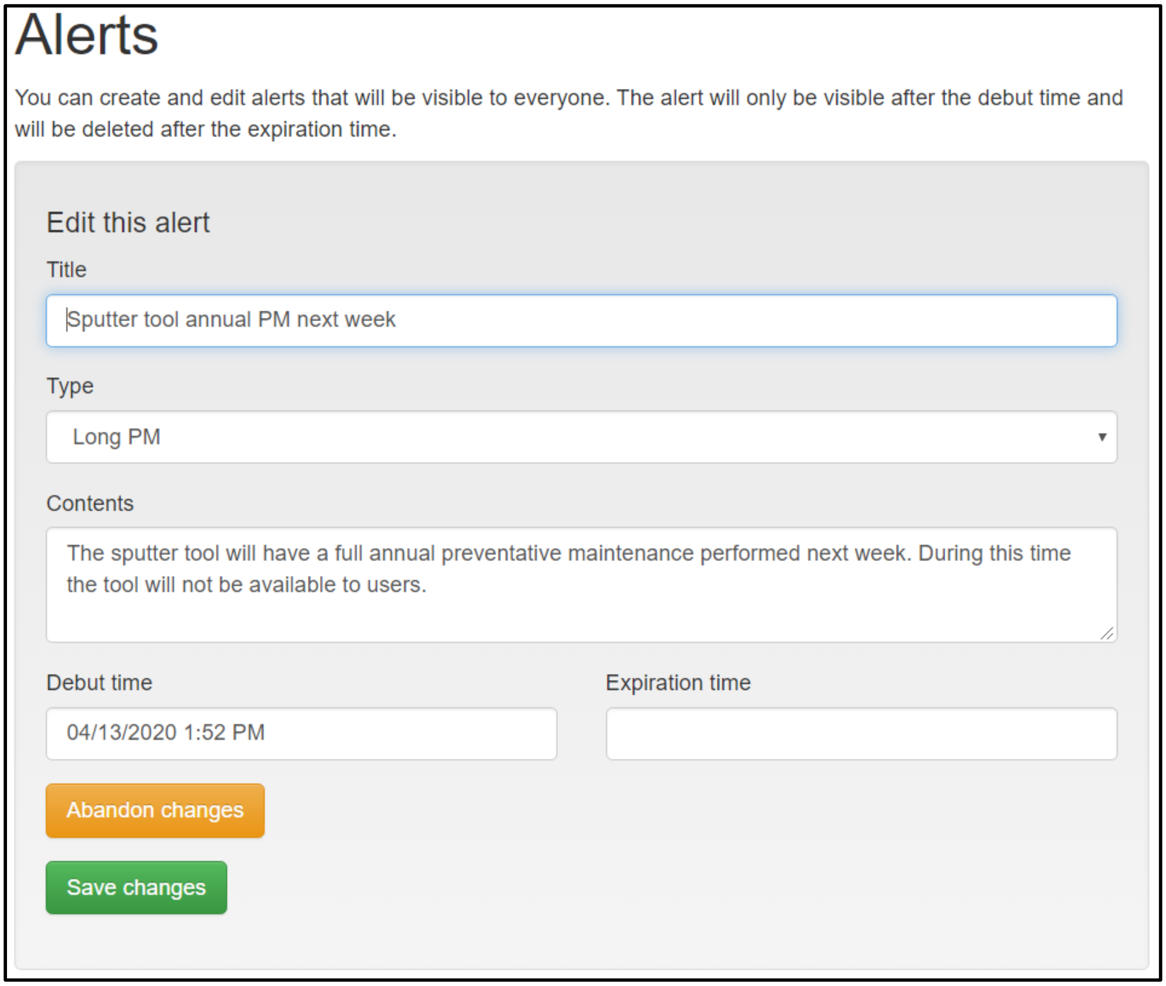


Figure 438 Alerts edit existing alert page

- Edit any fields that need updating. The process is identical to creating an alert above.
- To cancel click the abandon changes button (Figure 439).

Figure 439 Alerts edit abandon changes button

- To save the update click the save changes button (Figure 440).

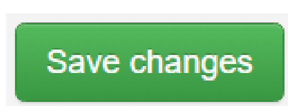


Figure 440 Alerts edit save changes button

20.4 Web address

The alerts page is accessible at site-address/alerts/. For example, www.nemo.com/alerts/. The page is also accessible from the navigation bar by clicking Administration then clicking Alerts.

20.5 Mobile device alerts page

There are no mobile device views for the alerts page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

20.6 Alerts page customizations

20.6.1 Alert categories

The alert type will only display if alert types have been defined in the alert categories table of the database detailed in the Detailed administration → Alert categories section on page 372.

21 API (admin only)

This topic is discussed in more details in the API access section on page 528.

22 Area Access (staff only)

The area access page can be used to manually create an area access record and view area access (Figure 441).

Figure 441 Area access page

22.1 Create an access record

An area access record can be manually created due to a door access hardware or network failure. However, the preferred method to bypass area access requirements is to enable users to log themselves in and out of areas from the landing page which is setup in Customizations → Application settings section described on page 294.

To create an area access record:

- Click the manually create an access record link (Figure 442).

Figure 442 Area access new record link

- The new area access record page will open (Figure 443).

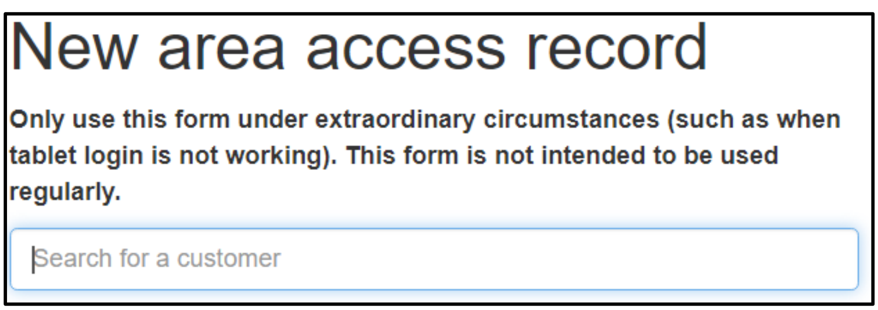


Figure 443 Area access new record page

- Enter the user name in the dialog box (Figure 444).

Figure 444 Area access new record search dialog

- Results are returned as characters are typed and the name of interest can be selected at any time by clicking the name on the list (Figure 445).

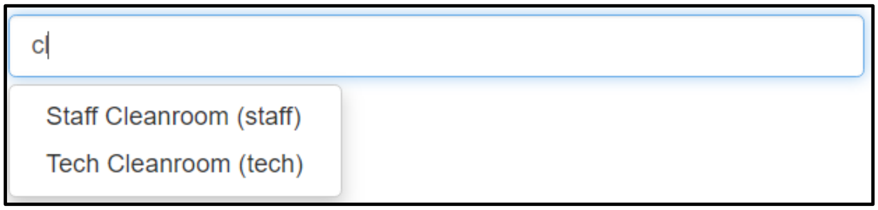


Figure 445 Area access new record search list

- If the user has multiple projects, select which project to bill time against (Figure 446).

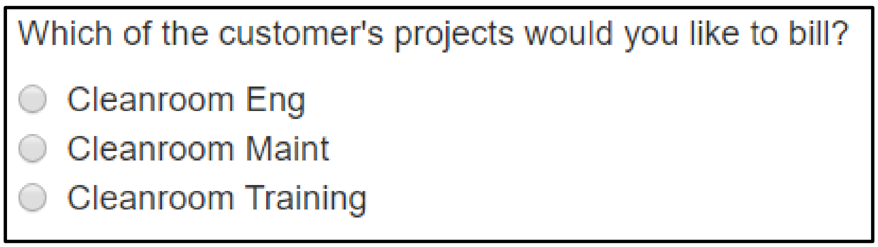


Figure 446 Area access new record multiple projects

- If the user has only one project, it will be selected automatically (Figure 447).

Figure 447 Area access new record one project

- If the user has access to multiple areas, select which area to log the user into (Figure 448).

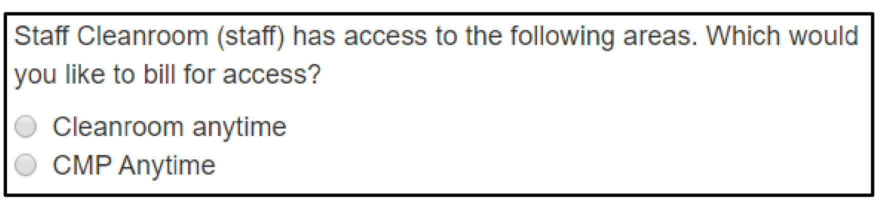


Figure 448 Area access new record multiple areas

- If the user has access to only one area, it will be selected by default (Figure 449).

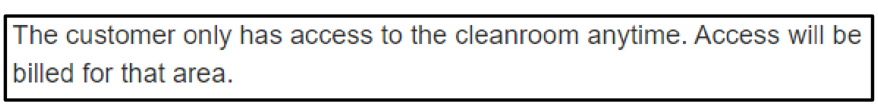


Figure 449 Area access new record single area

- Click the create area access record (Figure 450).

Figure 450 Area access new record create button

- The area access policy will be checked to determine if the user may access the selected area. If there is a failure, the user will be prompted with the problem (Figure 451).
    - The user must be active
    - The user must be associated with an active project
    - The user must have access to the area
    - The user must have current unexpired physical access to the lab
    - The user must not be currently logged into an area
    - The user must have a physical access level that permits access at the login time
    - The area must not be shut down as a resource
    - The area must not be over its occupancy limit
    - If the area requires a reservation, the user must have a reservation that encompasses the area access start time.

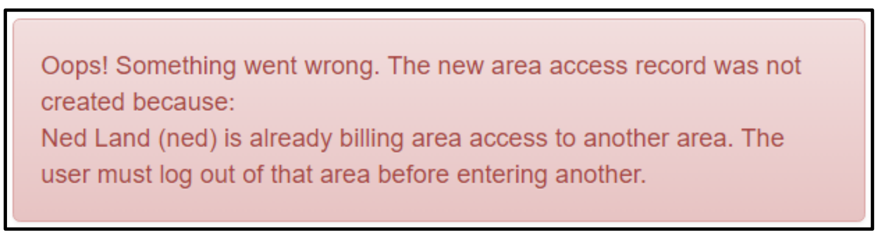


Figure 451 Area access new record error dialog

- Upon success, a new area access record will be created in the area access table of the database and a success message will be displayed (Figure 452).

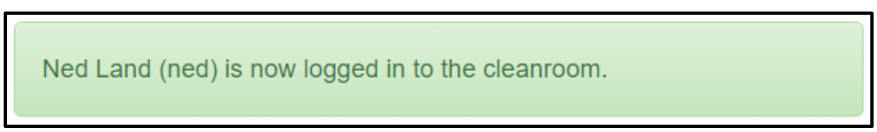


Figure 452 Area access new record success message

22.2 View access records

Area access records can be viewed for any custom date range however, two shortcuts for today and yesterday are provided (Figure 453).

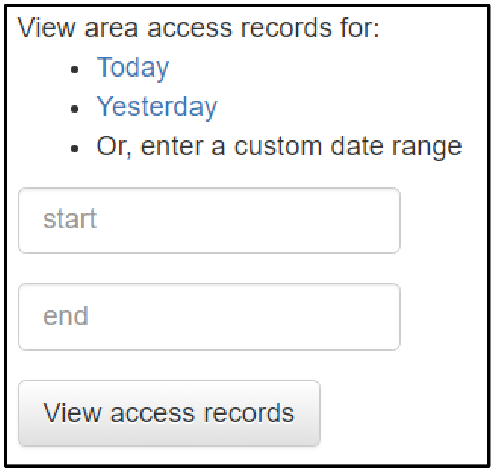


Figure 453 Area access view access records

To view area access records:

- Set a date range.
    - Click the ‘Today’ quick link to populate the start and end date with the current date (Figure 454). The view will automatically update with any records.

Figure 454 Area access view record today link

    - Click the ‘Yesterday’ quick link to populate the start and end date with the previous days date (Figure 455). The view will automatically update with any records.

Figure 455 Area access view record yesterday link

    - Manually enter a start and end date (Figure 456).

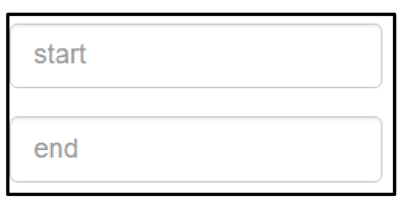


Figure 456 Area access view record manual date range

        - Click in the start and end date dialog boxes directly to bring up the calendar dialog and navigate to the desired start and end date (Figure 457).

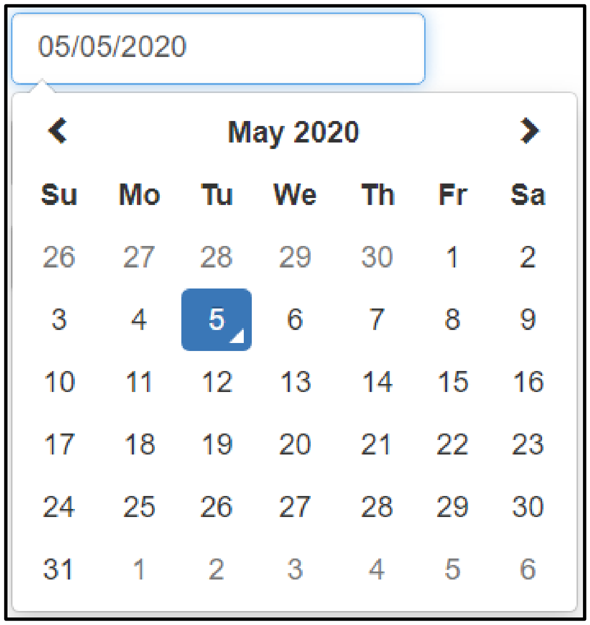


Figure 457 Area access view record calendar dialog

- Click view access records button (Figure 458).

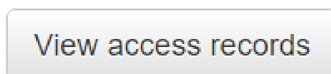


Figure 458 Area access view record button

- The page will update with access records from the selected date range (Figure 459). Fields returned are the record identifier, user name, project, start date/time and end date/time. If a user is currently logged into an area, the end will be indicated as "In progress".

Identifier	User	Project	Start	End
54	Ned Land (ned)	Project 2	Tuesday, May 5th, 2020 @ 12:18 PM	In progress
53	Ned Land (ned)	Project 2	Tuesday, May 5th, 2020 @ 12:17 PM	Tuesday, May 5th, 2020 @ 12:17 PM
52	Captain Nemo (captain)	Cleanroom Eng	Tuesday, May 5th, 2020 @ 12:10 PM	Tuesday, May 5th, 2020 @ 12:10 PM

Figure 459 Area access view record data

22.3 Web address

The area access page is accessible at site-address/area_access/. For example, www.nemo.com/area_access/. The page is also accessible from the navigation bar by clicking Administration then clicking Area access.

22.4 Mobile device area access page

There are no mobile device views for the area access page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

22.5 Area access page customizations

There are no customizations for the area access page.

23 Configuration agenda (staff only)

The configuration agenda is an organizational tool for staff to view all required configurations for each configurable tool on the same page and allows the configuration steps to be accomplished without navigating to other pages (Figure 460). Two views are available, the default current day and a near future that shows the next business day. Each tool requiring configuration is displayed and if the current day is a Friday, the near future view will show Saturday, Sunday, and Monday.

Tools that require staff to configure a tool for a user or when the type of usage needs to be tracked can have configurations created. Configurations are created in the configurations table of the database discussed in the Detailed administration → Configurations section starting on page 400. A history of configurations can be found in the configuration history table of the database discussed in the Detailed administration → Configuration histories section starting on page 398.

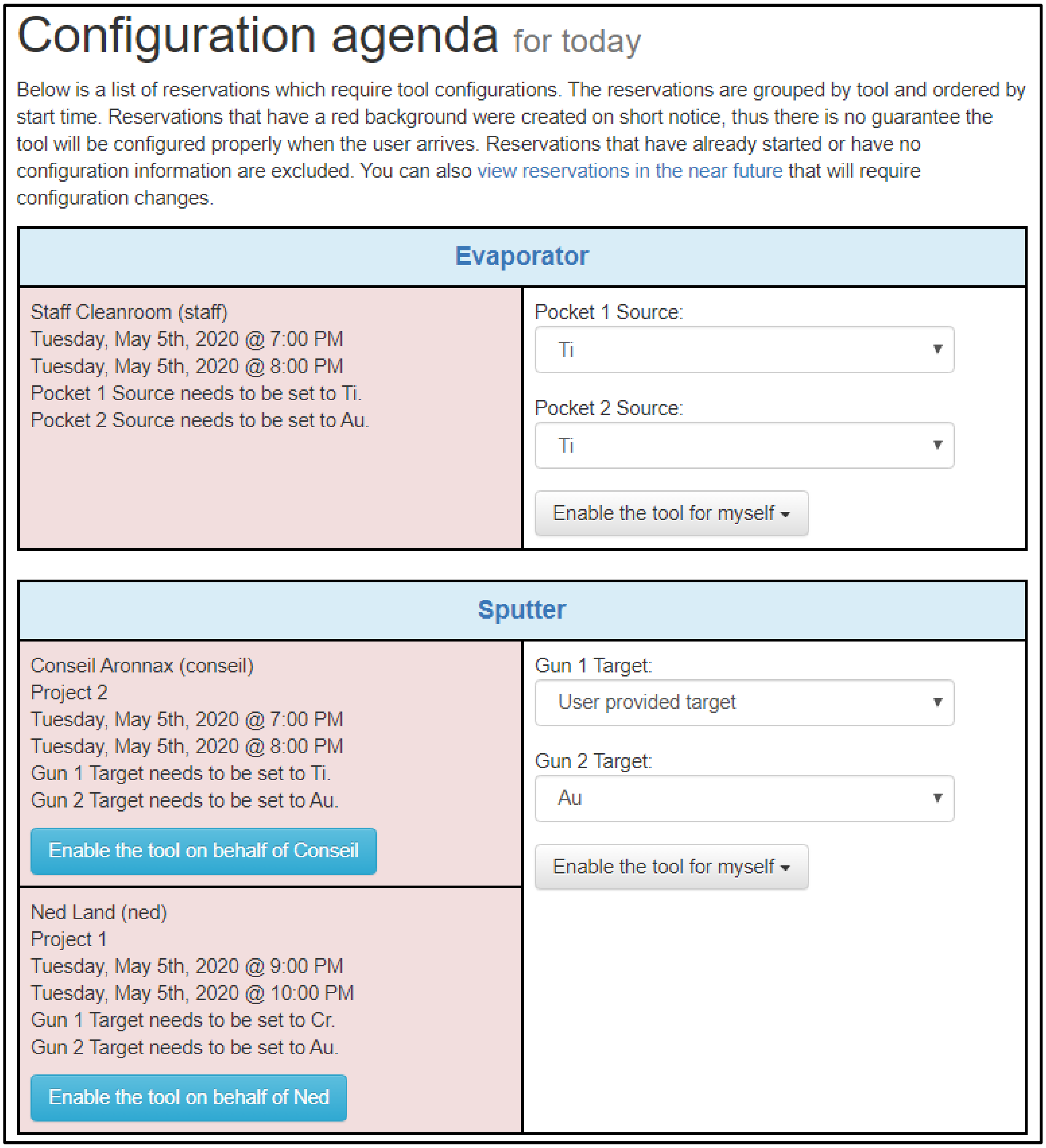


Figure 460 Configuration agenda page with today view

23.1 Usage

All configurations required in a day are displayed for each tool in order of nearest to latest. This allows planning without the need to closely monitor the reservation calendar of each tool that requires configuration. To switch to the near future view, click the link in the dialog at the top of the page (Figure 461).

Figure 461 Configuration agenda future view link

From the near future view, you can switch to the today view by clicking the link in the dialog at the top of the page (Figure 462 Configuration agenda today view link).

Figure 462 Configuration agenda today view link

Each tool displays the reservations on the left and the current tool configuration on the right. The tool name heading is a link to that tools calendar page.

Configurations can only be changed will the tool is idle. The configurations will be listed with a drop down and a tool enable button will be provided to facilitate quick access (Figure 463). Select the new configuration as needed from the drop downs. Updates are automatic and immediate.

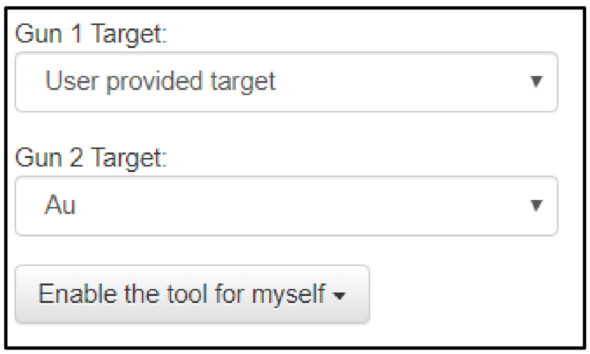


Figure 463 Configuration agenda idle tool

If a tool is enabled, the configuration will be locked, and a disable tool button will be displayed (Figure 464). The tool must be disabled to change the configuration however caution should be used to not impair a tool that may be currently running a process.

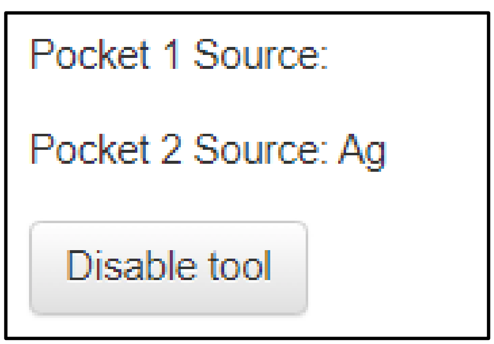


Figure 464 Configuration agenda tool in use

In some cases, it might be desirable to charge users for tool configuration changes. The user reservation dialog provides a short cut button to enable the tool on behalf of a user while the configuration is in progress (Figure 465).

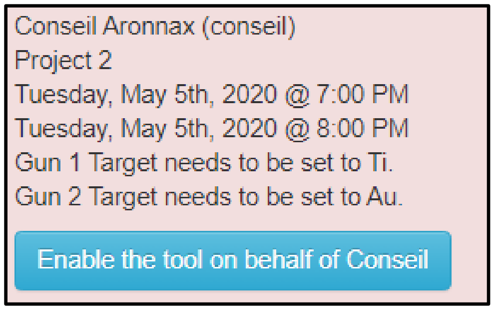


Figure 465 Configuration agenda user reservation info

23.2 Web address

The configuration agenda page is accessible at site-address/configuration_agenda/. For example, www.nemo.com/configuration_agenda/. The page is accessible from the navigation bar by clicking Administration then clicking Configuration agenda.

23.3 Mobile device configuration agenda page

There are no mobile device views for the configuration agenda page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

23.4 Configuration agenda page customizations

There are no customizations for the configuration agenda page.

24 Email (staff only)

The email page provides staff with an interface to send emails to users. The user groups available are all users qualified on a tool, all users working on a project, or all users working under an account (Figure 466).

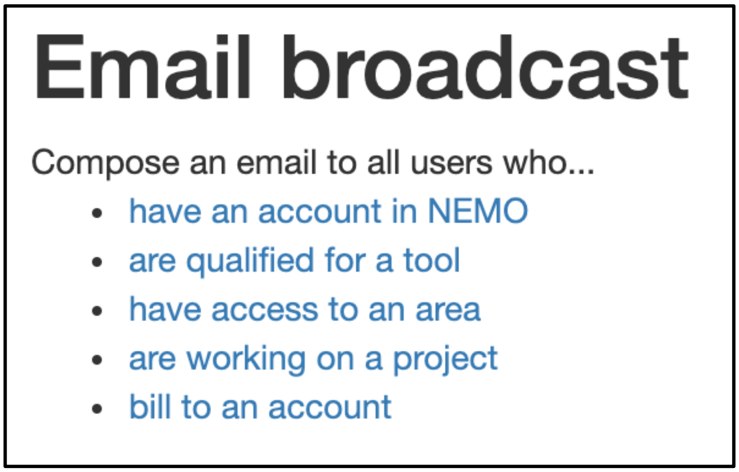


Figure 466 Email page

24.1 Usage

The email broadcast process starts with selecting the group of users to email, making some recipient selections, adding email content, then sending as detailed in the sections below.

24.1.1 Group selection

Click one of the user group links (Figure 467).

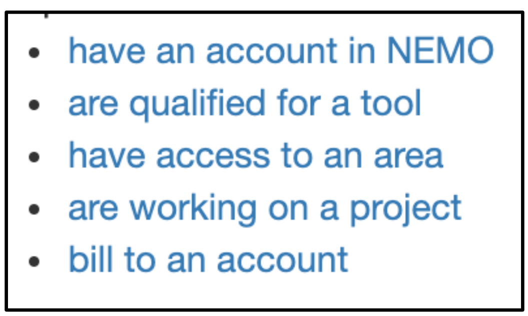


Figure 467 Email groups

A search dialog will open below the group list. Enter the tool, area, project, or account depending on the link selected (Figure 468).

Figure 468 Email selection

Results are returned as characters are typed and the item of interest can be selected at any time by clicking on the list (Figure 469).

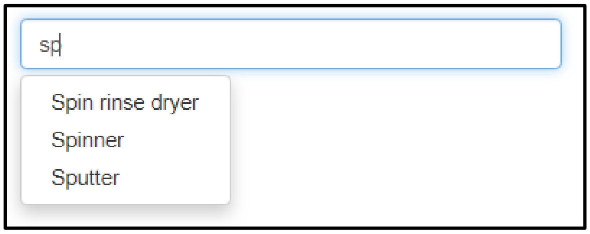


Figure 469 Email selection list

Upon selecting the item of interest, the compose email page will be opened (Figure 470).

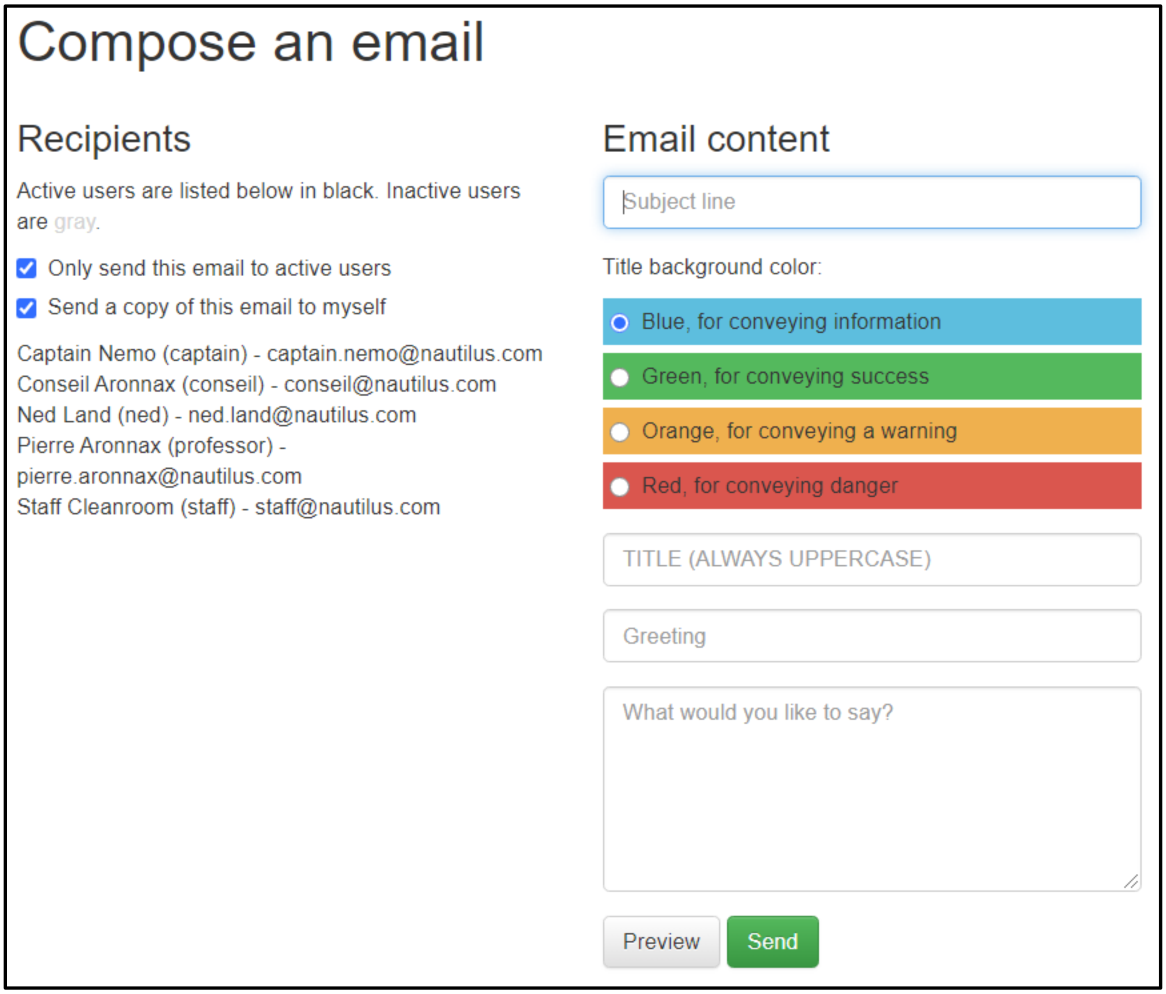


Figure 470 Email compose email page

If an email template has not been loaded yet, an error message will be displayed preventing the process from continuing (Figure 471).

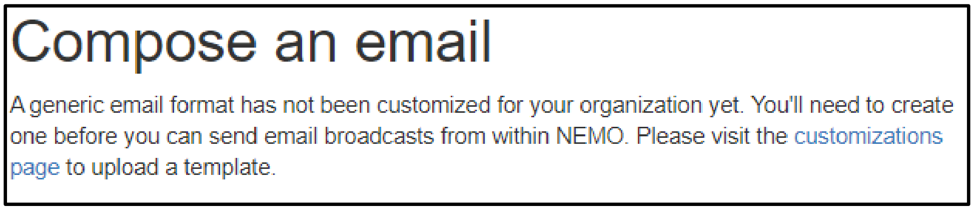


Figure 471 Email compose error page

24.1.2 Recipients

The recipients section shows all users in the group chosen and provides options to only include active users and to copy the sender (Figure 472).

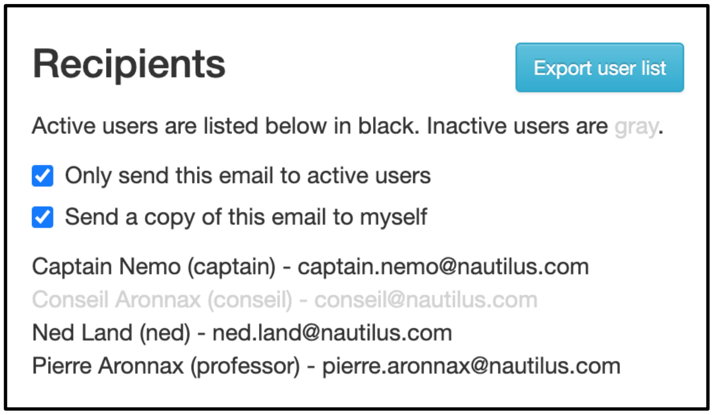


Figure 472 Email recipients dialog

By default, only active users will receive the email. Uncheck the checkbox to include all users (Figure 473).

Figure 473 Email recipients active user checkbox

By default, the staff member sending the message will be copied. Uncheck the checkbox to not be copied (Figure 474).

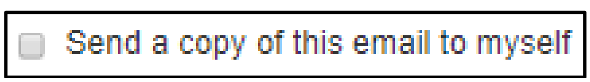


Figure 474 Email recipients copy sender checkbox

The list of recipients can be exported to use outside of NEMO, for example to load into your preferred email client. Click on the “export user list” button to get a CSV file with first name, last name, username, and email for each recipient (Figure 475).

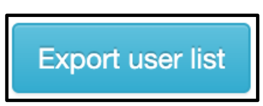


Figure 475 Email recipients export user list

24.1.3 Email content

The mail content section provides options for subject, title, title color, greeting, and body (Figure 476).

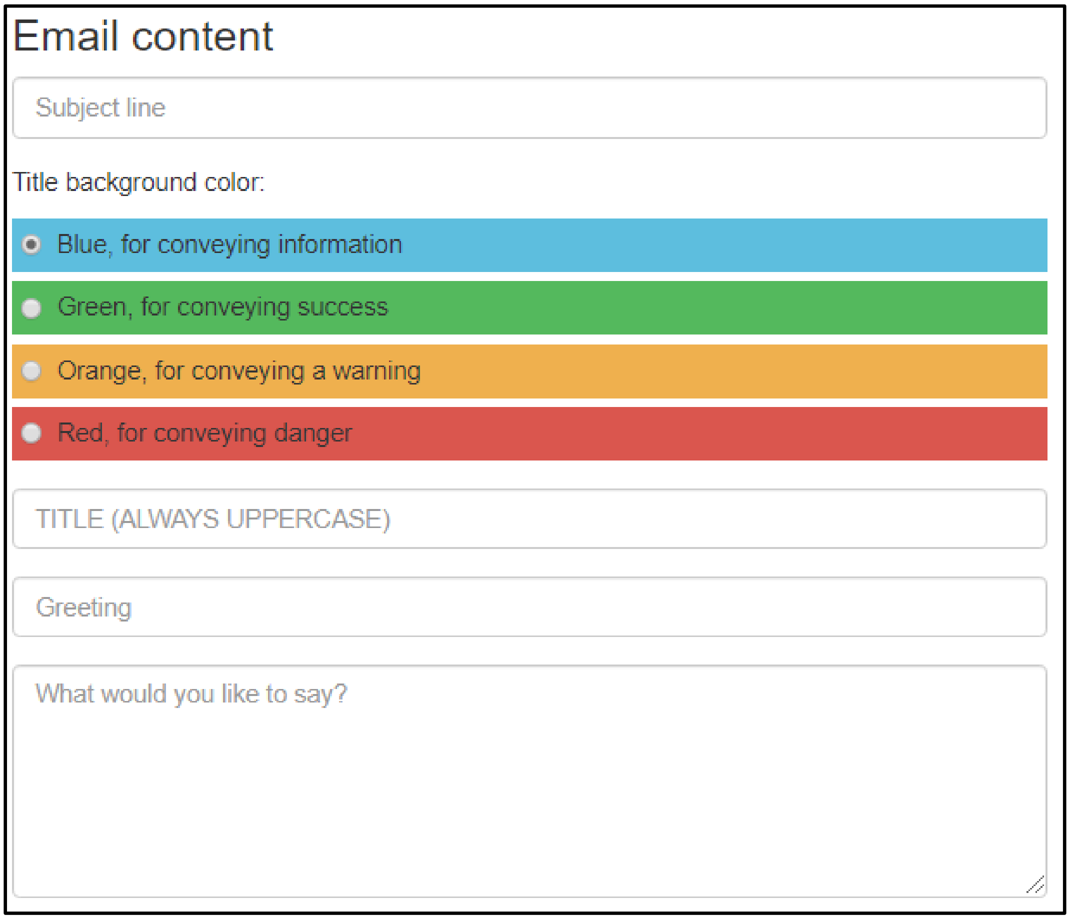


Figure 476 Email content dialog

The subject line will appear as the subject in the email (Figure 477).

Figure 477 Email content subject dialog box

The title background color can be selected to emphasize the importance of the email (Figure 478).

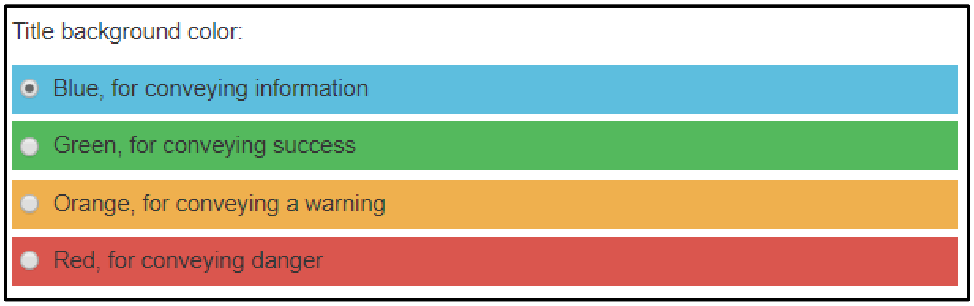


Figure 478 Email content title background checklist

The title text is entered in the title dialog box (Figure 479).

Figure 479 Email content title dialog box

The greeting is entered in the greeting dialog box (Figure 480).

Figure 480 Email content greeting dialog box

The email body is entered in the "what would you like to say?" dialog box (Figure 481).

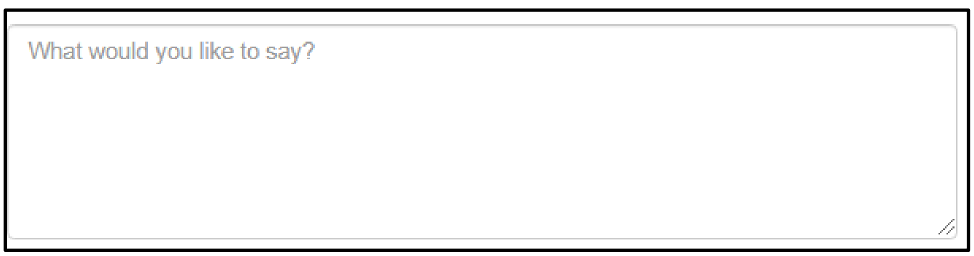


Figure 481 Email content body dialog box

24.1.4 Preview Email

Clicking the preview button will render the email (Figure 482). Changes can be made in the email form above and the preview will be updated each time the preview button is clicked.

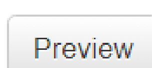


Figure 482 Email preview button

The email preview will render below the preview button (Figure 483).

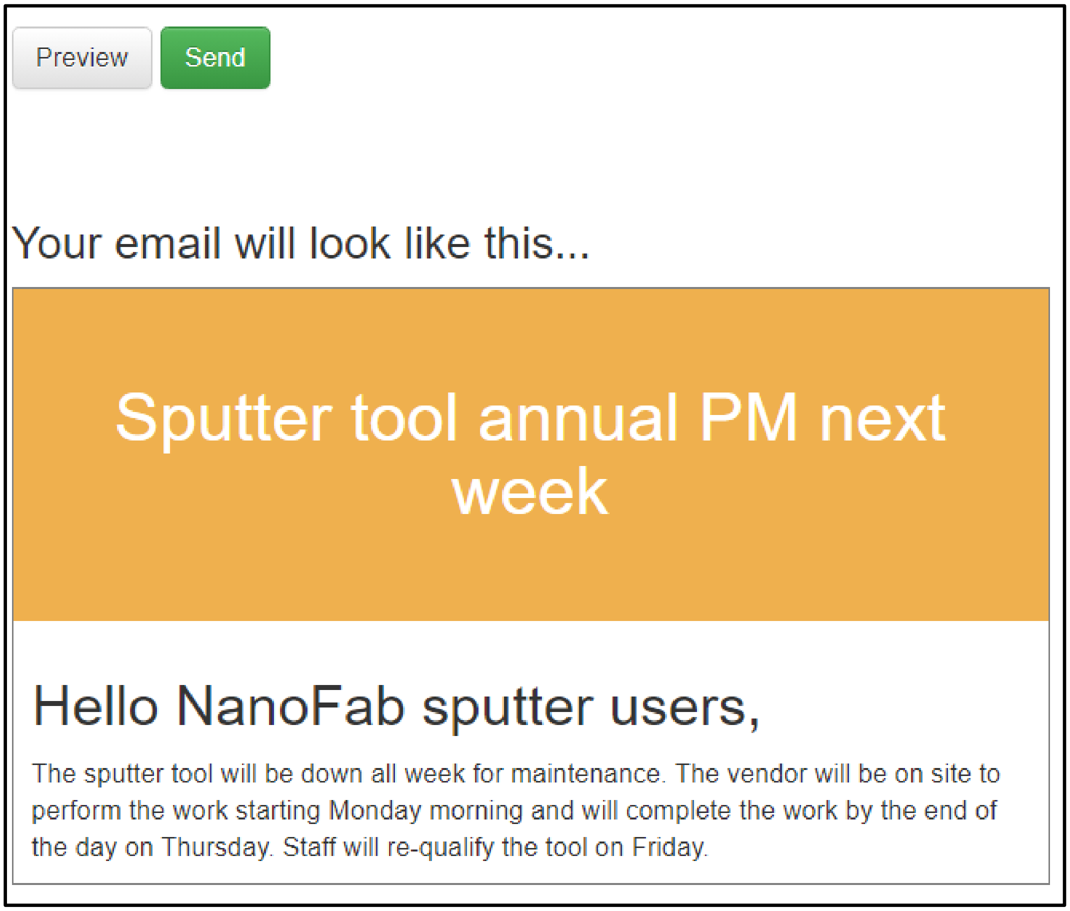


Figure 483 Email rendered preview

24.1.5 Send Email

Clicking the send button will send the message to all recipients selected (Figure 484).

Figure 484 Email send button

Upon successful completion, a message will be displayed (Figure 485). Click the continue button to return to the landing page.

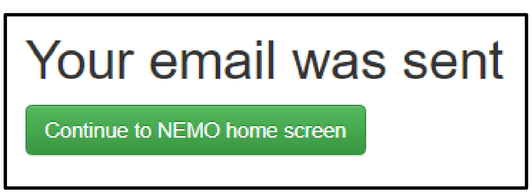


Figure 485 Email send success

24.1.6 Send using default email client

Clicking the use default email client button will open the default email application set up on your computer and load up the recipients as bcc and the subject, title, greeting and message (Figure 486).

Figure 486 Email use default email client button

This feature only works if the total characters for all email addresses is less than 2000 characters. This is a limitation of the MAILTO browser functionality. The button will be disabled if that limit is reached (Figure 487).

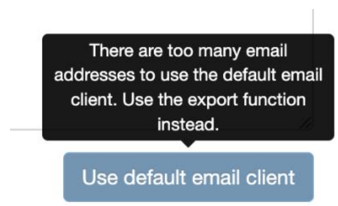


Figure 487 Email use default email client button disabled

24.2 Web address

The configuration agenda page is accessible at site-address/email_broadcast/. For example, www.nemo.com/email_broadcast/. The page is accessible from the navigation bar by clicking Administration then clicking Email.

24.3 Mobile device email page

There are no mobile device views for the email page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

24.4 Email page customizations

24.4.1 Generic email template

Emails require a generic email template that is used to format messages. The email template is configured in the Customization → Generic email page detailed starting on page 326.

25 Impersonate (admin only)

The impersonate feature allows an admin user to impersonate any active user (Figure 488). This feature is useful to replicate problems a user may be having accessing different features of NEMO.

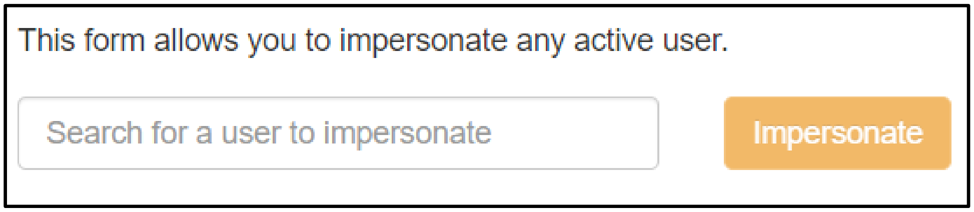


Figure 488 Impersonate page

25.1 Usage

To impersonate a user:

- Enter the users name in the search dialog box (Figure 489).

Figure 489 Impersonate search dialog

- A list of users is returned as characters are typed (Figure 490). The user can be selected from the return list at any time by clicking the users name.

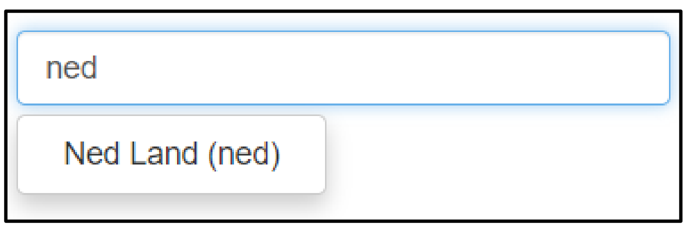


Figure 490 Impersonate search dialog return list

- If the incorrect user is selected, use the backspace to delete characters and names will be returned with each character deleted.
- Click the impersonate button to begin impersonating the selected user (Figure 491).

Figure 491 Training record button

- NEMO will return to the landing page and a header will appear at the top of each page indicating that you are currently impersonating another user (Figure 492). NEMO will act as if the selected user is currently logged in.

Figure 492 Impersonate page header

- Click the switch back button on the impersonate page header to return to normal operation (Figure 493).

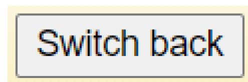


Figure 493 Impersonate header switch back button

25.2 Web address

The impersonate page is accessible at site-address/impersonate/. For example, www.nemo.com/impersonate/. The page is accessible from the navigation bar by clicking Administration then clicking Impersonate.

25.3 Mobile device impersonate page

There are no mobile device views for the impersonate page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

25.4 Impersonate page customizations

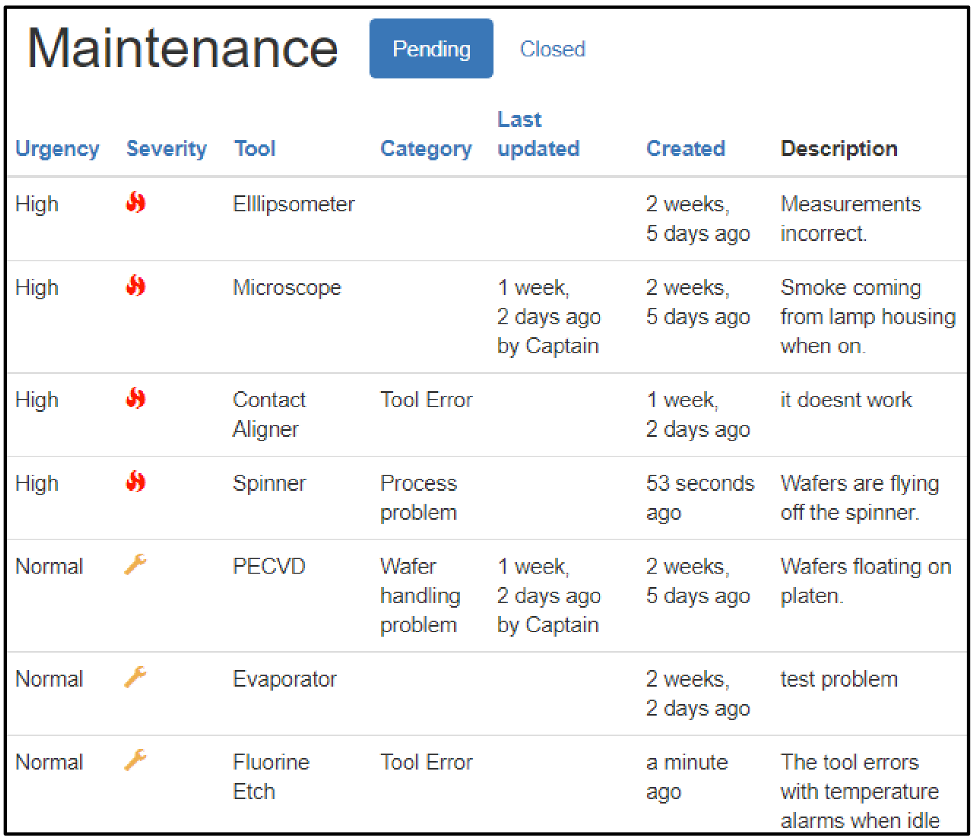
There are no customizations for the impersonate page.

26 Maintenance (staff only)

The maintenance page provides staff with a list of all pending and recently closed tasks on a single page which is useful for determining priorities across the lab. When first opening the page, it defaults to the pending tasks tab.

26.1 Pending tasks

The pending tasks tab displays urgency, severity, tool name, problem category, the last update, date created, and description for each pending task (Figure 494). The listing is ordered by urgency then by date created, oldest first. The list can be sorted by any heading except description by clicking the heading name.



Maintenance Pending Closed

Urgency	Severity	Tool	Category	Last updated	Created	Description
High		Elllipsometer			2 weeks, 5 days ago	Measurements incorrect.
High		Microscope		1 week, 2 days ago by Captain	2 weeks, 5 days ago	Smoke coming from lamp housing when on.
High		Contact Aligner	Tool Error		1 week, 2 days ago	it doesnt work
High		Spinner	Process problem		53 seconds ago	Wafers are flying off the spinner.
Normal		PECVD	Wafer handling problem	1 week, 2 days ago by Captain	2 weeks, 5 days ago	Wafers floating on platen.
Normal		Evaporator			2 weeks, 2 days ago	test problem
Normal		Fluorine Etch	Tool Error		a minute ago	The tool errors with temperature alarms when idle

Figure 494 Maintenance pending tasks

Clicking on the row of any pending task will display the task details on the right side of the screen (Figure 495). The task details view provides important links and information about the current task to streamline access for updates.

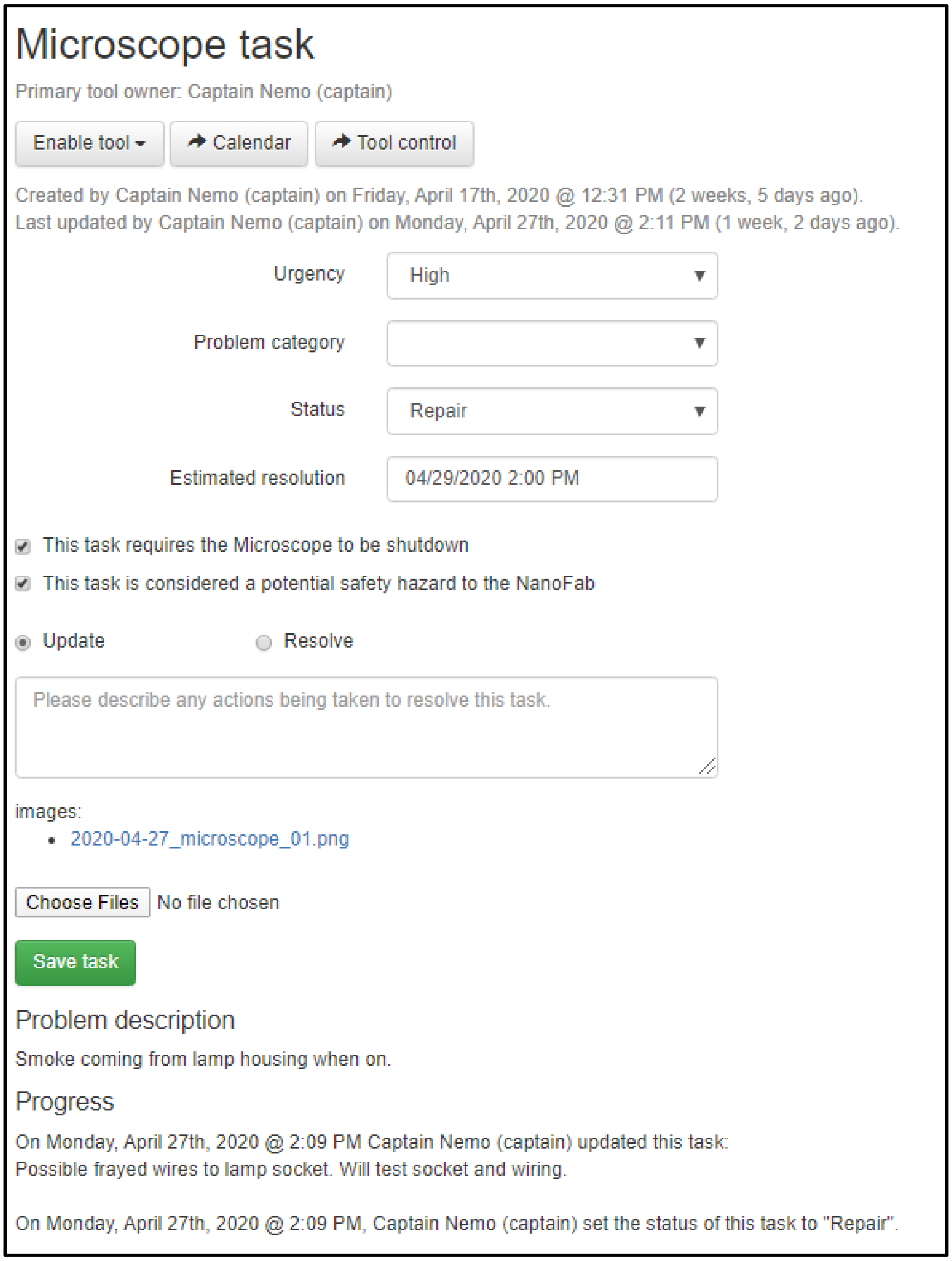


Figure 495 Maintenance pending task details

The pending task details contains the following information:

- Tool name (Figure 496)

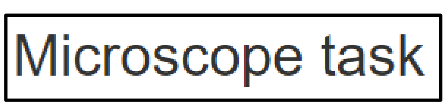


Figure 496 Maintenance pending task tool name

- Primary tool owner (Figure 497)

Figure 497 Maintenance pending task primary tool owner

- Quick link buttons – quick link buttons are provided to streamline common operations while performing maintenance to resolve tasks.
    - Enable/disable the tool
        - Enable tool, single project – click enable tool to start logging time (Figure 498).

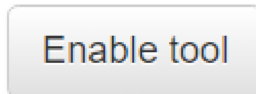


Figure 498 Maintenance pending task enable tool button

        - Enable tool, multiple projects – click enable button to reveal dropdown list of projects (Figure 499). Select a project from the list to start logging time (Figure 500).

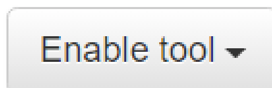


Figure 499 Maintenance pending task enable tool button multiple projects

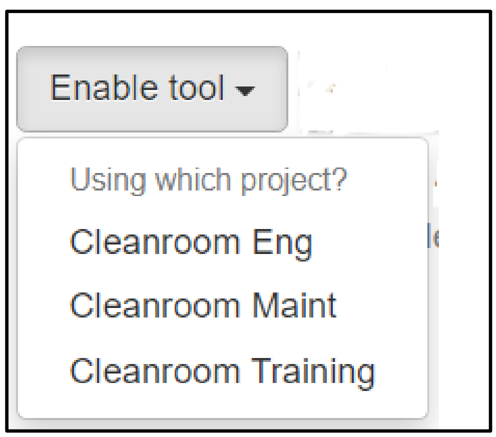


Figure 500 Maintenance pending task multiple projects list

        - Disable tool – click to stop logging time on a tool (Figure 501). In the maintenance mode of operation, the disable tool is immediate, and the user is not prompted for logout questions.

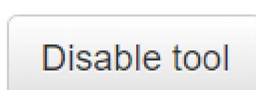


Figure 501 Maintenance pending task disable tool button

    - Navigate to the calendar page for the tool – this link will open the calendar page in a new tab and select the task subject tool (Figure 502).

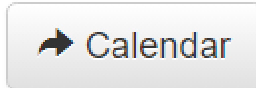


Figure 502 Maintenance pending task calendar page link

- Navigate to the tool control page for the tool – this link will open the tool control page in a new tab and select the task subject tool (Figure 503).

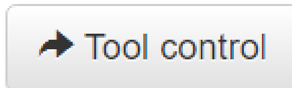


Figure 503 Maintenance pending task tool control page link

- Who created the task and when (Figure 504)

Figure 504 Maintenance pending task creation info

- Who last updated the task and when (Figure 505)

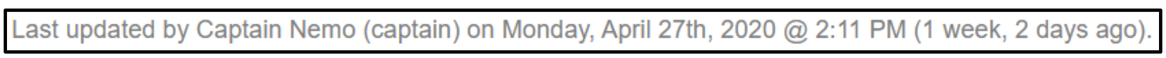


Figure 505 Maintenance pending task update info

- Update the task
  - The current urgency is displayed (Figure 506). Shutdowns and safety problems default to high urgency while problems default to normal urgency. To update, use the dropdown to change the task urgency to high, normal, or low (Figure 507).

Figure 506 Maintenance pending task urgency

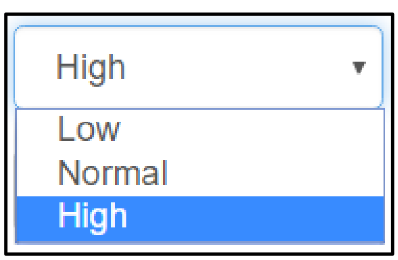


Figure 507 Maintenance pending task urgency dropdown

  - The current problem category is displayed only if task categories have been defined in the task categories table of the database (Figure 508). Task categories are discussed in the [Detailed administration → Task categories](#) section on page 462. To update, use the dropdown to change the problem category (Figure 509).

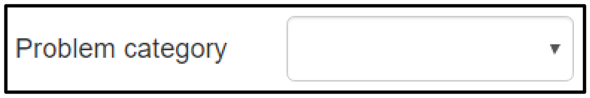


Figure 508 Maintenance pending task problem category

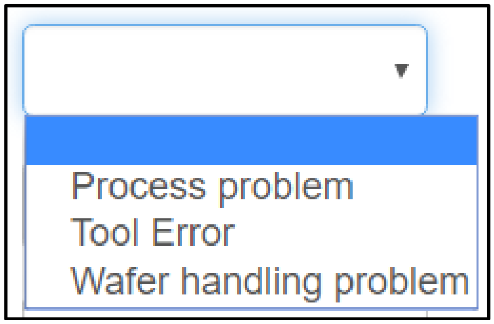


Figure 509 Maintenance pending task problem category dropdown

- The current status is displayed only if task statuses have been defined in the task statuses table of the database (Figure 510). Task statuses are discussed in the Detailed administration → Task statuses section on page 477. To update, use the dropdown to change the task status (Figure 511).

Figure 510 Maintenance pending task status

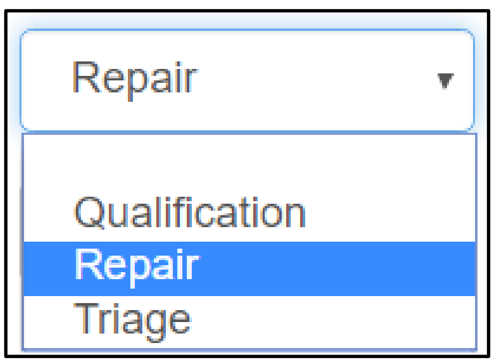


Figure 511 Maintenance pending task status dropdown

- The current estimated resolution time is displayed (Figure 512). To update, click the dialog box to open the clock-calendar dialog (Figure 513). Select the new date and time estimate. The dialog box is updated as the calendar and clock are clicked.

Figure 512 Maintenance pending task estimated resolution

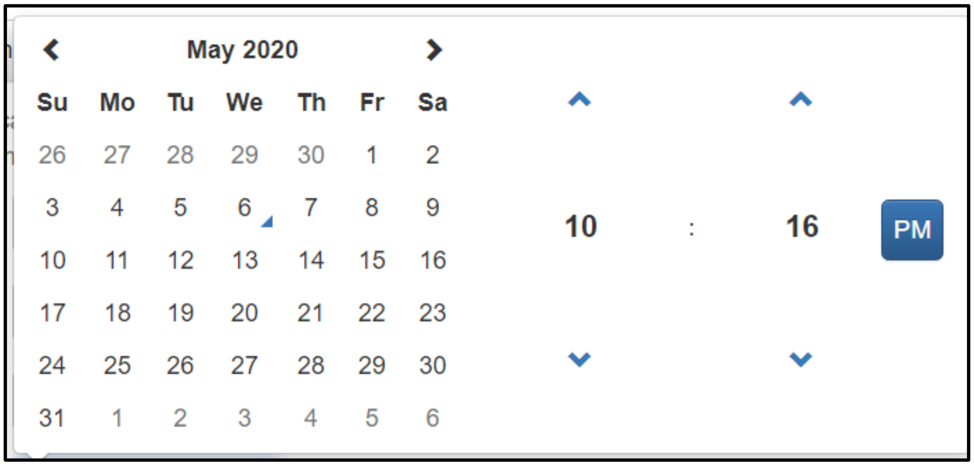


Figure 513 Maintenance pending task estimated resolution clock/calendar

- The current shutdown status is displayed (Figure 514). To update click the checkbox to select or deselect as needed.

Figure 514 Maintenance pending task shutdown status

- The current safety hazard status is displayed (Figure 515). To update click the checkbox to select or deselect as needed.

Figure 515 Maintenance pending task safety hazard status

- Use the radio button to select update or resolve for the task (Figure 516). Selecting resolve will show the resolution category below the details dialog if resolution categories have been defined.

Figure 516 Maintenance pending task update or resolve radio

- Provide update or resolution details that describe any actions taken (Figure 517).

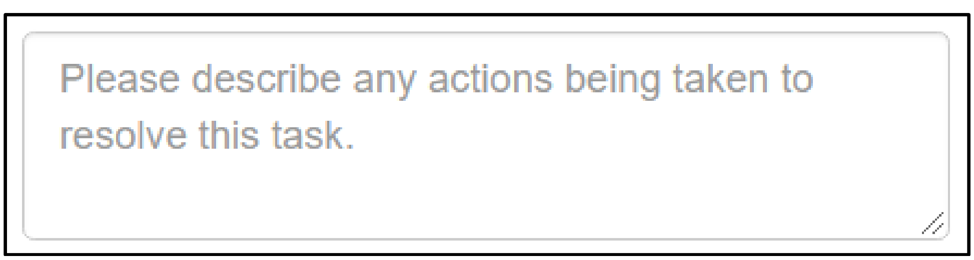


Figure 517 Maintenance pending task update details

- The resolution category is displayed only if the resolve radio button is selected, and task categories have been defined in the task categories table of the database (Figure 518). Task categories are discussed in the Detailed administration → Task categories section on page 462. To update, use the dropdown to change the resolution category (Figure 519).

Figure 518 Maintenance pending task resolution category

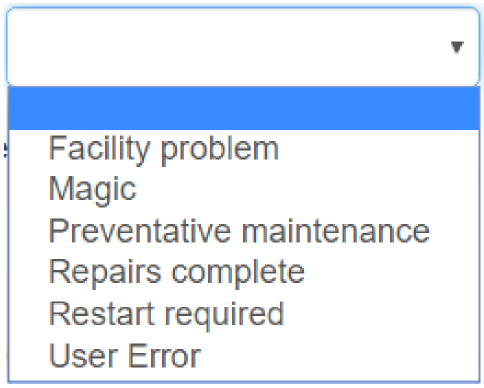


Figure 519 Maintenance pending task resolution category dropdown

- The image listing is only displayed if images have been uploaded previously (Figure 520). Clicking on an image will open it in a new tab.

Figure 520 Maintenance pending task uploaded images

- The choose files dialog may be used to upload any relevant pictures to show details that support the description (Figure 521). Clicking the button activates a standard file selection dialog. Multiple files can be uploaded. Note: it is good practice to make note of the files in the description to link the file to the text.

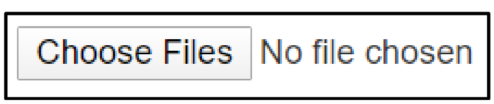


Figure 521 Maintenance pending task upload new images

- Click the save button to commit the update/resolution (Figure 522).

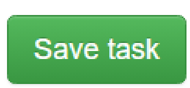


Figure 522 Maintenance pending task save button

- The problem description is displayed for information (Figure 523).

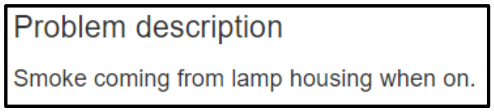


Figure 523 Maintenance pending task problem description

- The progress to date is displayed for information (Figure 524).

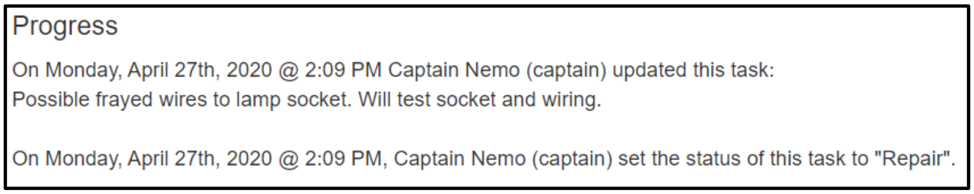


Figure 524 Maintenance pending task progress

- Tool configuration
    - Disabled tool – tool configurations are changeable (Figure 525). Use the dropdown to select a different configuration from the list. Changes take effect immediately on selection.

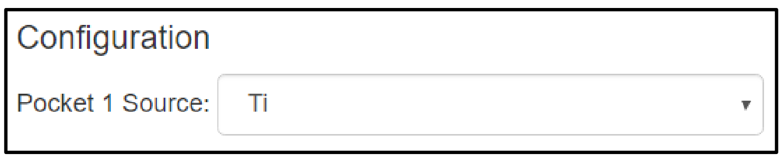


Figure 525 Maintenance pending task configuration update

-
    - Enabled tool – the current tool configuration is displayed for information (Figure 526).

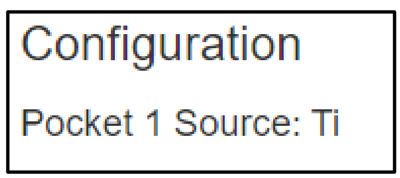
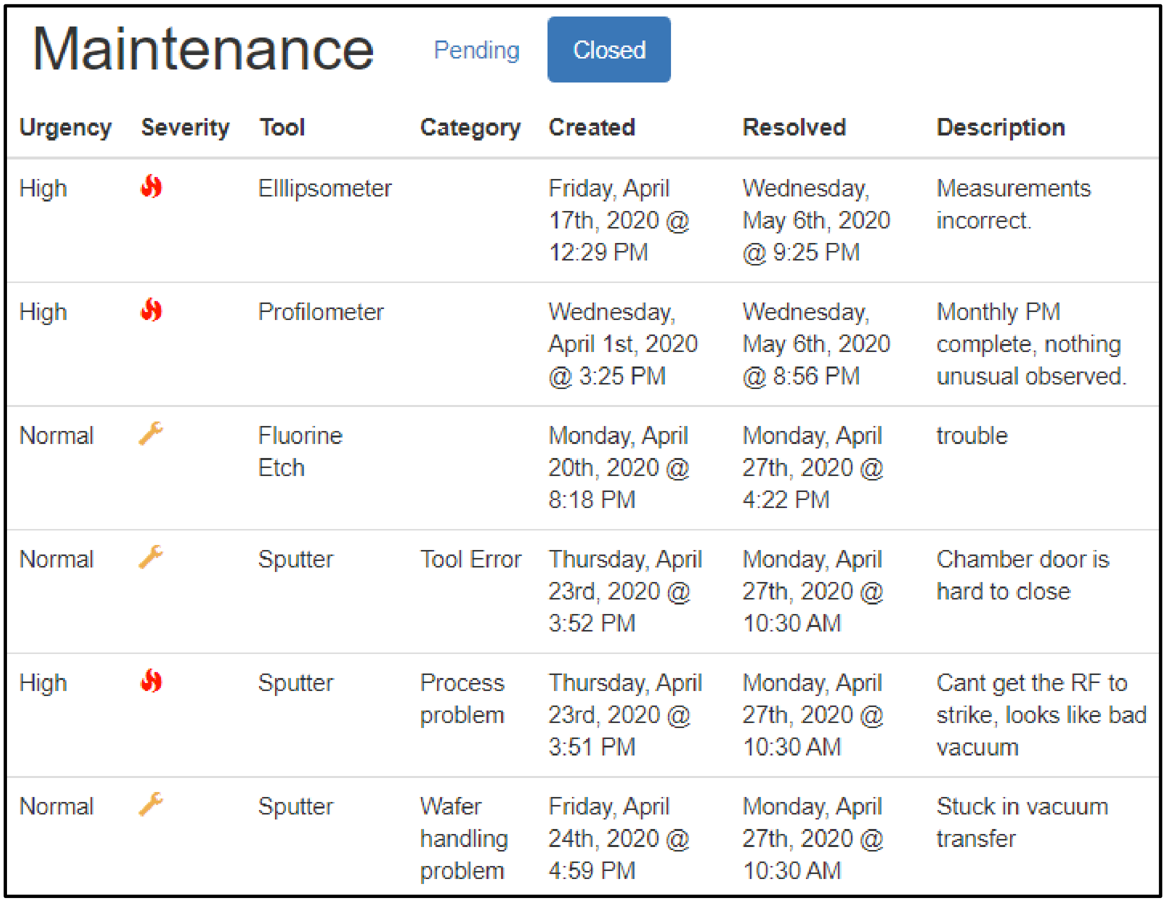


Figure 526 Maintenance pending task configuration

26.2 Closed tasks

The closed tasks tab displays urgency, severity, tool name, problem category, date created, date resolved, and description for up to 20 closed tasks (Figure 527). The listing is ordered by date closed, more recent closure first. The list can be sorted by any heading except description by clicking the heading name.



Maintenance

Pending Closed

Urgency	Severity	Tool	Category	Created	Resolved	Description
High		Elllipsometer		Friday, April 17th, 2020 @ 12:29 PM	Wednesday, May 6th, 2020 @ 9:25 PM	Measurements incorrect.
High		Profilometer		Wednesday, April 1st, 2020 @ 3:25 PM	Wednesday, May 6th, 2020 @ 8:56 PM	Monthly PM complete, nothing unusual observed.
Normal		Fluorine Etch		Monday, April 20th, 2020 @ 8:18 PM	Monday, April 27th, 2020 @ 4:22 PM	trouble
Normal		Sputter	Tool Error	Thursday, April 23rd, 2020 @ 3:52 PM	Monday, April 27th, 2020 @ 10:30 AM	Chamber door is hard to close
High		Sputter	Process problem	Thursday, April 23rd, 2020 @ 3:51 PM	Monday, April 27th, 2020 @ 10:30 AM	Cant get the RF to strike, looks like bad vacuum
Normal		Sputter	Wafer handling problem	Friday, April 24th, 2020 @ 4:59 PM	Monday, April 27th, 2020 @ 10:30 AM	Stuck in vacuum transfer

Figure 527 Maintenance closed tasks

Clicking on the row of any closed task will display the task details on the right side of the screen (Figure 528).

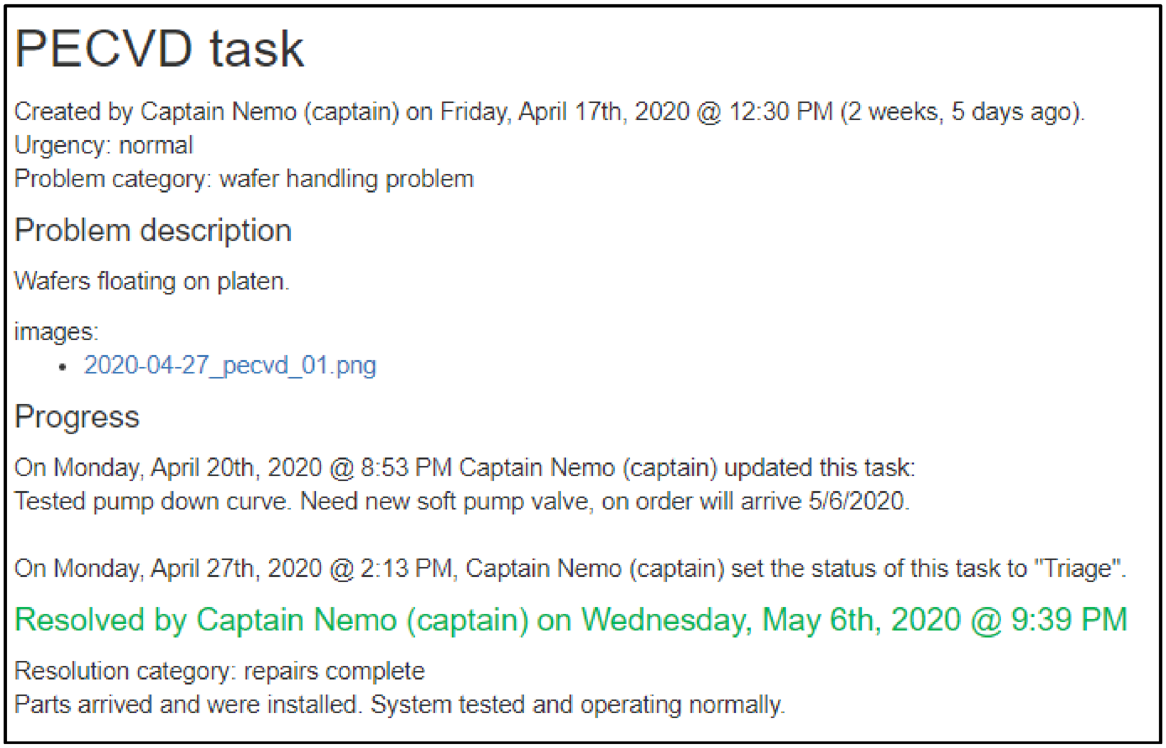


Figure 528 Maintenance closed task details

All details and updates are listed including the initial task information, problem description, progress updates, and resolution information. Any images associated with the task are linked and can be open by clicking the links.

26.3 Web address

The maintenance page is accessible at site-address/maintenance/. For example, www.nemo.com/maintenance/. The page is accessible from the navigation bar by clicking Administration then clicking Maintenance.

26.4 Mobile device maintenance page

There are no mobile device views for the maintenance page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

26.5 Maintenance page customizations

26.5.1 Number of closed tasks to return

The number of closed tasks returned is set in the maintenance.py file, maintenance function, closed_tasks = statement. Change `[:20]` to the number of closed tasks to return.

27 Qualifications (staff only)

The qualifications page provides a convenient interface for performing batch qualification or disqualification for one or more users on one or more tools (Figure 529).

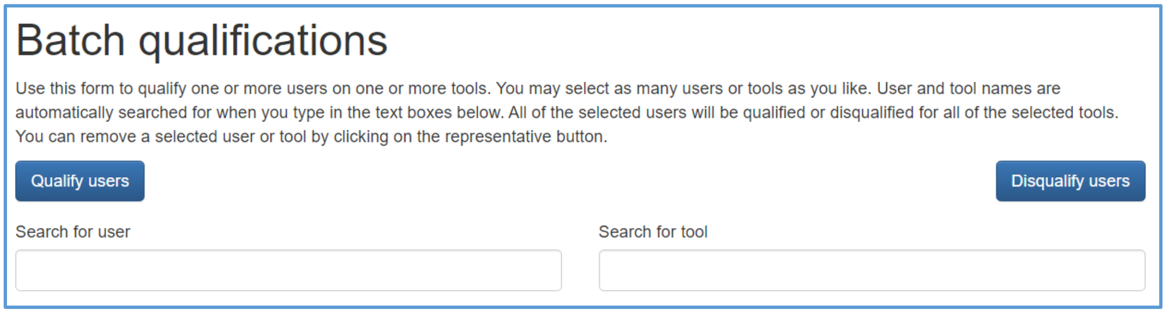


Figure 529 Qualifications page

27.1 Tool qualifications

Users can be qualified on tools through several interfaces within NEMO. Each has its particular value.

- Tool control page discussed on page 108 – users may be qualified or disqualified one at a time on the tool displayed. If the selected tool is configured to grant a physical access level to the user upon qualification, the users access level will be updated.
- Qualifications page discussed on page 235 – many users may be qualified or disqualified on many tools at the same time. If a selected tool is configured to grant a physical access level to the user upon qualification, the users access level will be updated.
- Training page discussed on page 274 – many users may be qualified on many tools at the same time. In addition, training type and time will be recorded. If a selected tool is configured to grant a physical access level to the user upon qualification, the users access level will be updated.
- Users page discussed on page 278 – the selected user may be qualified or disqualified on one tool at a time. The users physical access level is not updated.
- Tool table in the database discussed on page 483 – many users may be qualified or disqualified on a single tool. The users physical access level is not updated.

27.2 Usage

27.2.1 Select users

- Select one or more users by typing the first users name in the search for user dialog (Figure 530).

Figure 530 Qualifications user search dialog

- Results are returned as characters are typed and the name of interest can be selected at any time by clicking on the list (Figure 531).

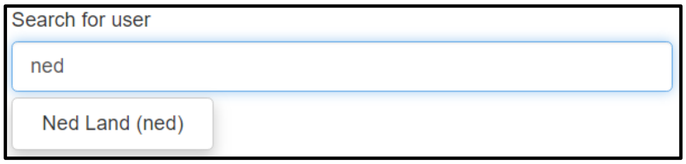


Figure 531 Qualifications user search dialog return list

- After clicking the user will be listed below the search dialog (Figure 532).

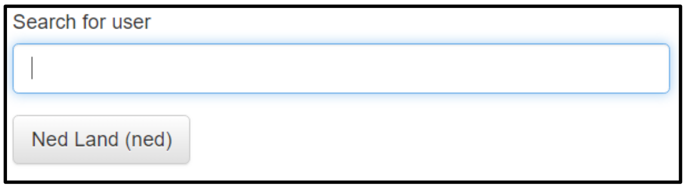


Figure 532 Qualifications user search name added

- If a user is selected by mistake, click the users name below the search dialog to remove them from the list (Figure 533).

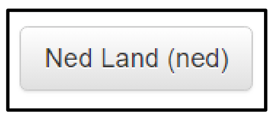


Figure 533 Qualifications user search name button

- Repeat for each user to be qualified or disqualified.

27.2.2 Select tools

- Select one or more tools by typing the tool name in the search for tool dialog (Figure 534).

Figure 534 Qualifications tool search dialog

- Results are returned as characters are typed and the tool of interest can be selected at any time by clicking on the list (Figure 535).

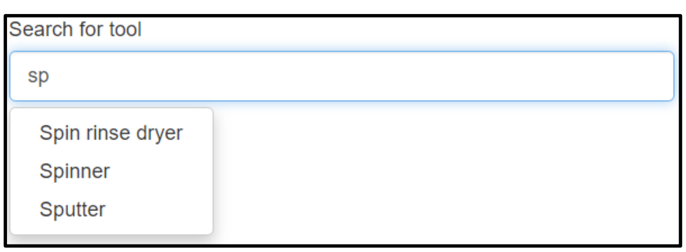


Figure 535 Qualifications tool search return list

- After clicking the tool will be listed below the search dialog (Figure 536).

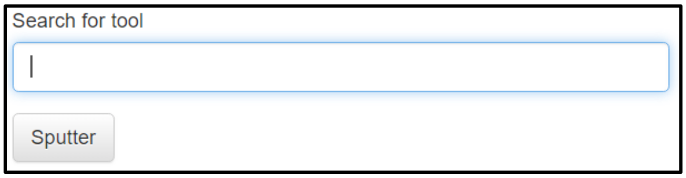


Figure 536 Qualifications tool search tool added

- If a tool is selected by mistake, click the tool name below the search dialog to remove it from the list (Figure 537).

Figure 537 Qualifications tool search name button

- Repeat for each tool to be qualified or disqualified.

27.2.3 Qualify or disqualify users

- Qualify users – click the qualify users button to qualify the selected users on the selected tools (Figure 538). If a tool is configured to grant a physical access level to the user upon qualification, the users access level will be updated. Granting access levels for tools is discussed in the Detailed administration → Tools section on page 483.

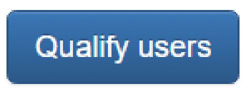


Figure 538 Qualifications qualify button

- Disqualify users – click the disqualify users button to disqualify the selected users on the selected tools (Figure 539).

Figure 539 Qualifications disqualify button

- Change status – upon selection of either qualify or disqualify, the selected updates will be made. A success message will be shown (Figure 540). Click the continue button to return to the NEMO home page. Note: to be successful, at least one user and one tool must be selected. If not, the user will be prompted to correct the problem.

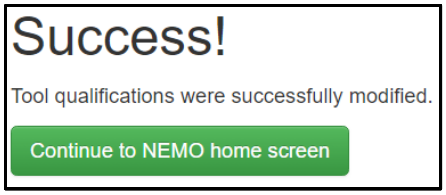


Figure 540 Qualifications success message

27.3 Web address

The qualifications page is accessible at site-address/qualifications/. For example, www.nemo.com/qualifications/. The page is accessible from the navigation bar by clicking Administration then clicking Qualifications.

27.4 Mobile device qualifications page

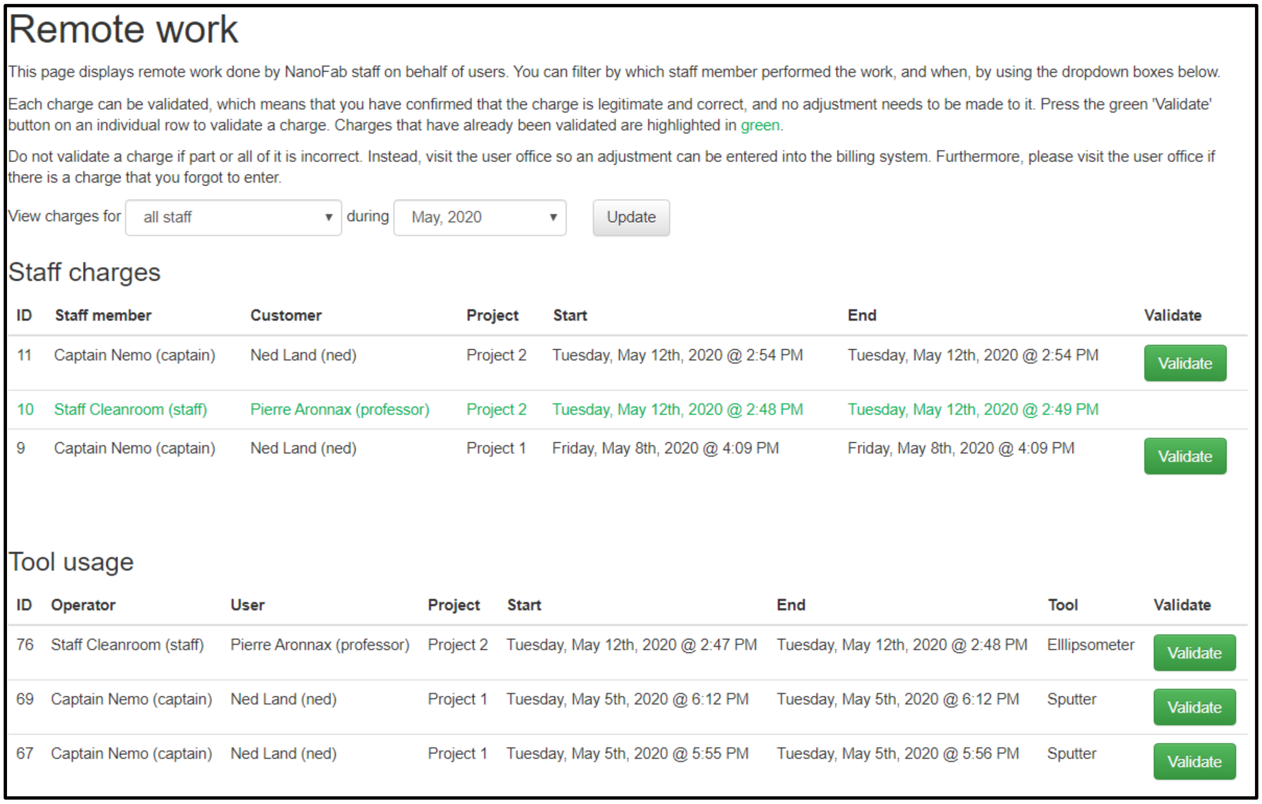
There are no mobile device views for the qualifications page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

27.5 Qualifications page customizations

There are no customizations for the configuration agenda page.

28 Remote work (staff only)

The remote work page allows staff to review and validate any work performed by staff on behalf of a user (Figure 541). Work can be reviewed for any staff member or all staff members and the month/year is selectable. Staff can validate work performed to confirm charges before billing.



Remote work

This page displays remote work done by NanoFab staff on behalf of users. You can filter by which staff member performed the work, and when, by using the dropdown boxes below.

Each charge can be validated, which means that you have confirmed that the charge is legitimate and correct, and no adjustment needs to be made to it. Press the green 'Validate' button on an individual row to validate a charge. Charges that have already been validated are highlighted in green.

Do not validate a charge if part or all of it is incorrect. Instead, visit the user office so an adjustment can be entered into the billing system. Furthermore, please visit the user office if there is a charge that you forgot to enter.

View charges for all staff during May, 2020 Update

Staff charges

ID	Staff member	Customer	Project	Start	End	Validate
11	Captain Nemo (captain)	Ned Land (ned)	Project 2	Tuesday, May 12th, 2020 @ 2:54 PM	Tuesday, May 12th, 2020 @ 2:54 PM	Validate
10	Staff Cleanroom (staff)	Pierre Aronnax (professor)	Project 2	Tuesday, May 12th, 2020 @ 2:48 PM	Tuesday, May 12th, 2020 @ 2:49 PM	
9	Captain Nemo (captain)	Ned Land (ned)	Project 1	Friday, May 8th, 2020 @ 4:09 PM	Friday, May 8th, 2020 @ 4:09 PM	Validate

Tool usage

ID	Operator	User	Project	Start	End	Tool	Validate
76	Staff Cleanroom (staff)	Pierre Aronnax (professor)	Project 2	Tuesday, May 12th, 2020 @ 2:47 PM	Tuesday, May 12th, 2020 @ 2:48 PM	Ellipsometer	Validate
69	Captain Nemo (captain)	Ned Land (ned)	Project 1	Tuesday, May 5th, 2020 @ 6:12 PM	Tuesday, May 5th, 2020 @ 6:12 PM	Sputter	Validate
67	Captain Nemo (captain)	Ned Land (ned)	Project 1	Tuesday, May 5th, 2020 @ 5:55 PM	Tuesday, May 5th, 2020 @ 5:56 PM	Sputter	Validate

Figure 541 Remote work page

28.1 Usage

28.1.1 Staff and date

By default, records for the current staff member and the current month are displayed (Figure 542).

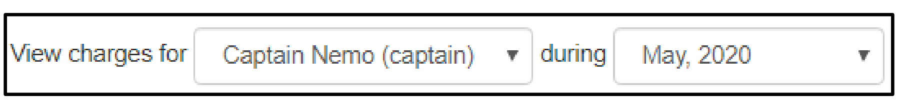


Figure 542 Remote work staff and date dialog

To change the user, click the dropdown and select from the list (Figure 543). An option for all staff is listed first and will display remote work by any staff member for the selected time period. This can be useful for user office staff to confirm remote work validation before creating bills.

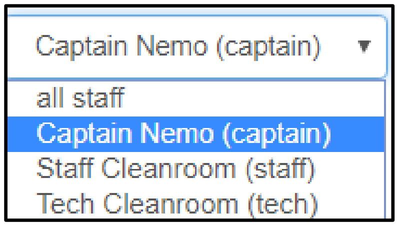


Figure 543 Remote work staff dropdown

To change the month, click the dropdown and select from the list (Figure 544).

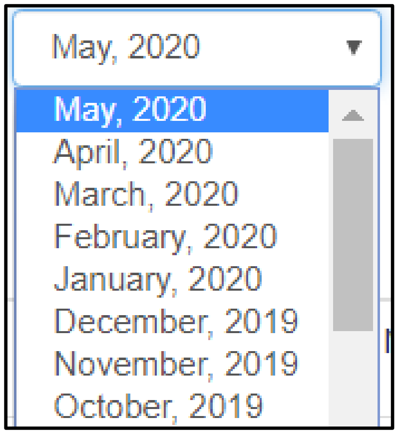


Figure 544 Remote work date dropdown

After changing the user and/or month, click the update button to refresh the records displayed (Figure 545).

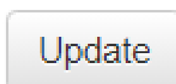


Figure 545 Remote work update button

28.1.2 Staff charges

Staff charges display the staff member, user, project, start date/time, and end date/time (Figure 546). If the staff member entered a billable area that access will be displayed as well.

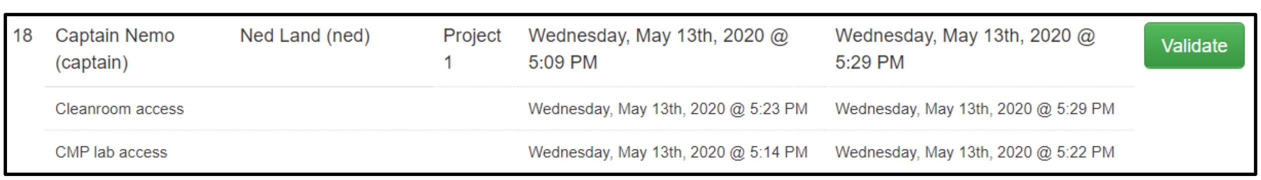


Figure 546 Remote work staff charges

At the end of each record is a validate button that staff can use to confirm the work performed (Figure 547).

Figure 547 Remote work staff charge validate button

Validated records are displayed in green and do not show the validate button (Figure 548).

Staff charges

ID	Staff member	Customer	Project	Start	End	Validate
11	Captain Nemo (captain)	Ned Land (ned)	Project 2	Tuesday, May 12th, 2020 @ 2:54 PM	Tuesday, May 12th, 2020 @ 2:54 PM	

Figure 548 Remote work staff charge validated

28.1.3 Tool usage

Tool usage displays the staff member, user, project, start date/time, and end date/time (Figure 549).

Tool usage

ID	Operator	User	Project	Start	End	Tool	Validate
69	Captain Nemo (captain)	Ned Land (ned)	Project 1	Tuesday, May 5th, 2020 @ 6:12 PM	Tuesday, May 5th, 2020 @ 6:12 PM	Sputter	Validate

Figure 549 Remote work tool usage

At the end of each record is a validate button that staff can use to confirm the work performed (Figure 550).

Figure 550 Remote work tool usage validate button

Validated records are displayed in green and do not show the validate button (Figure 551).

Tool usage

ID	Operator	User	Project	Start	End	Tool	Validate
69	Captain Nemo (captain)	Ned Land (ned)	Project 1	Tuesday, May 5th, 2020 @ 6:12 PM	Tuesday, May 5th, 2020 @ 6:12 PM	Sputter	

Figure 551 Remote work tool usage validated

28.2 Web address

The remote work page is accessible at site-address/remote_work/. For example, www.nemo.com/remote_work/. The page is accessible from the navigation bar by clicking Administration then clicking Remote work.

28.3 Mobile device remote work page

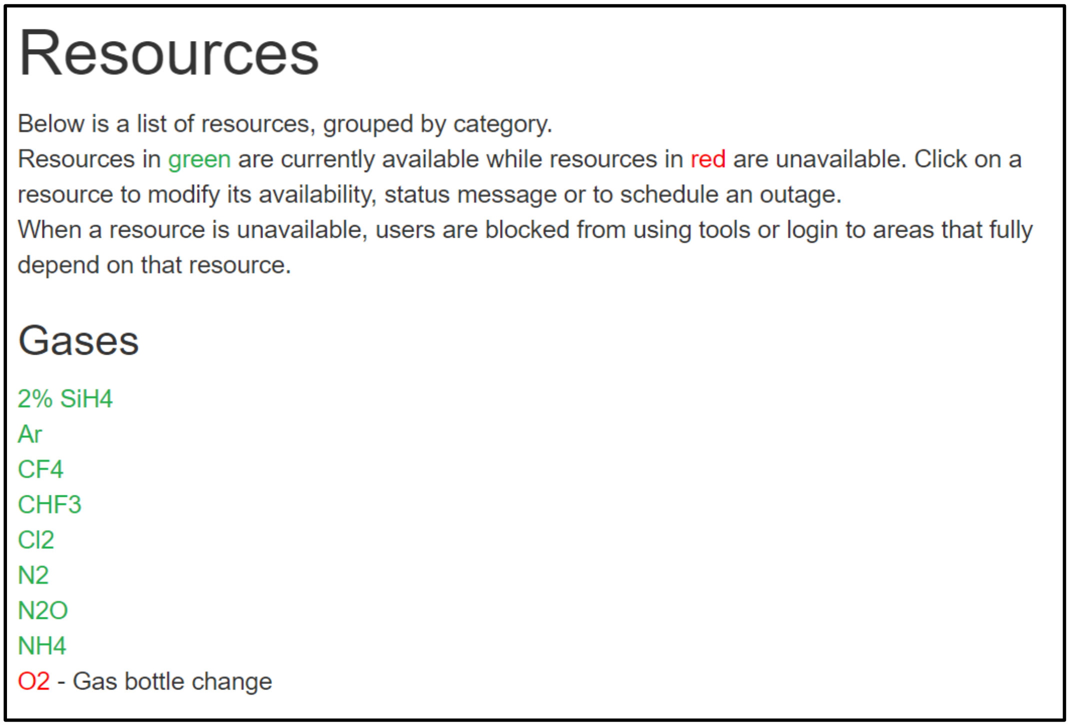
There are no mobile device views for the remote work page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

28.4 Remote work page customizations

There are no customizations for the remote work page.

29 Resources (staff only)

The resources page lists all resources, grouped by category. Resources in green are currently available while resources in red are unavailable (Figure 552).



Resources

Below is a list of resources, grouped by category.
Resources in green are currently available while resources in red are unavailable. Click on a resource to modify its availability, status message or to schedule an outage.
When a resource is unavailable, users are blocked from using tools or login to areas that fully depend on that resource.

Gases

2% SiH4
Ar
CF4
CHF3
Cl2
N2
N2O
NH4
O2 - Gas bottle change

Figure 552 Resources page

29.1 Resource discussion

Resources provide a method to define tool dependencies such as gases, facility spaces, and utilities that can be associated with tools are either required or non-required resources. When a resource is unavailable, users are blocked from using tools or areas that require the resource and notified on tools that with a non-required association.

Example 1, if ‘oxygen’ is defined as a resource and shutdown, all tools that have ‘oxygen’ as a required dependency will also be shutdown. All tools that have ‘oxygen’ as a non-required dependency will be noted. This can be useful for gas bottle changes.

Example 2, if ‘cleanroom’ is defined as a resource and all tools require ‘cleanroom’ then shutting down the ‘cleanroom’ resource will shut down every tool. This can be useful for weather closures or lab wide closures.

Example 3, if ‘cleanroom’ is defined as a resource and the area ‘lab’ requires the ‘cleanroom’ resource, then shutting down the ‘cleanroom’ resource will prevent users logging in to the area ‘lab’. If the area also has physical access defined, the doors for the area will not open for non-staff.

Resources can optionally be grouped by category to visually organize common resources. Resource categories are defined in the Detailed administration → Resource categories section discussed on page (453).

Resources are defined in the Detailed administration → Resources section discussed on page (455). Areas are associated with resources here.

Tools may optionally have required resources and/or non-required resources assigned. Tools are defined in the Detailed administration → Tools section discussed on page (483).

29.2 Resource Detail

To access the details of a resource, click the resource name (Figure 553).

Figure 553 Resources example of resource name

The resource details page will open and list tools and areas that fully or partially depend on the resource (Figure 554). In addition, there are buttons to modify resource availability and to schedule resource outages.

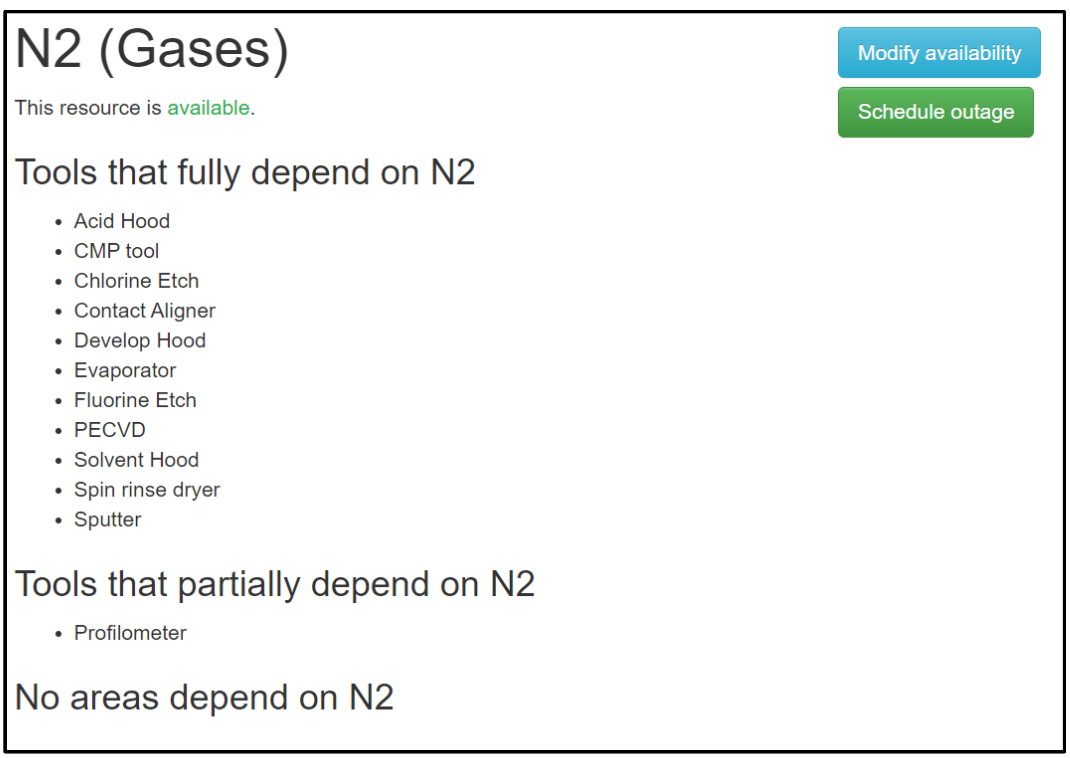


Figure 554 Resources detail page

Information provided includes all fully dependent tools, all partially dependent tools, and all dependent areas. Any tools currently in use indicates the user information. If no dependency exists, it will be noted.

- Tools that fully depend on a resource (Figure 555).

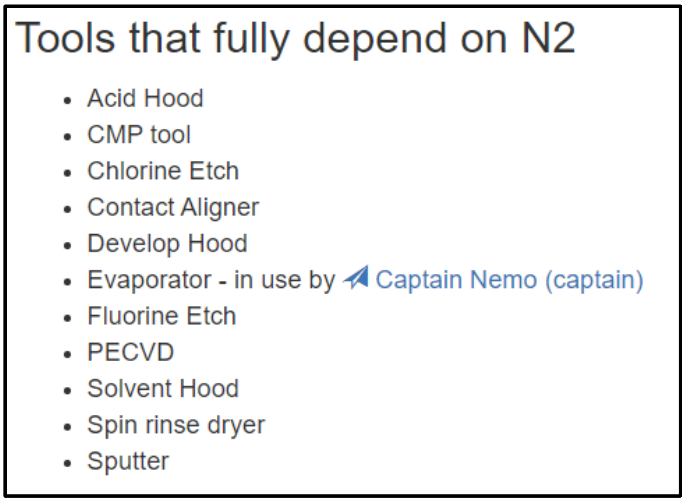


Figure 555 Resource fully dependent tool list

- Tools that partially depend on a resource (Figure 556).

Figure 556 Resource partially dependent tool list

- Areas that depend on a resource (Figure 557).

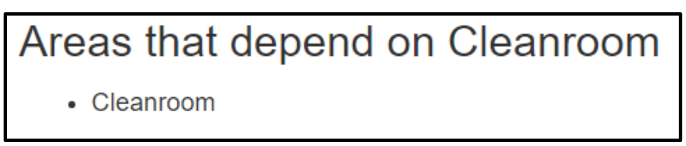


Figure 557 Resource dependent area list

29.2.1 Modify a resource

Resource status and status messages can be managed through the modify resource dialogs. A resource can be shut down and details provided to users, and a resource can be brought back to available. Information about impacted tools and areas is also provided.

29.2.1.1 Shut down an available resource

- From the resource page, click the resource name (Figure 558).

Figure 558 Resources item name

- Click the modify availability button (Figure 559).

Figure 559 Resources modify availability button

- The modify a resource dialog will open (Figure 560).

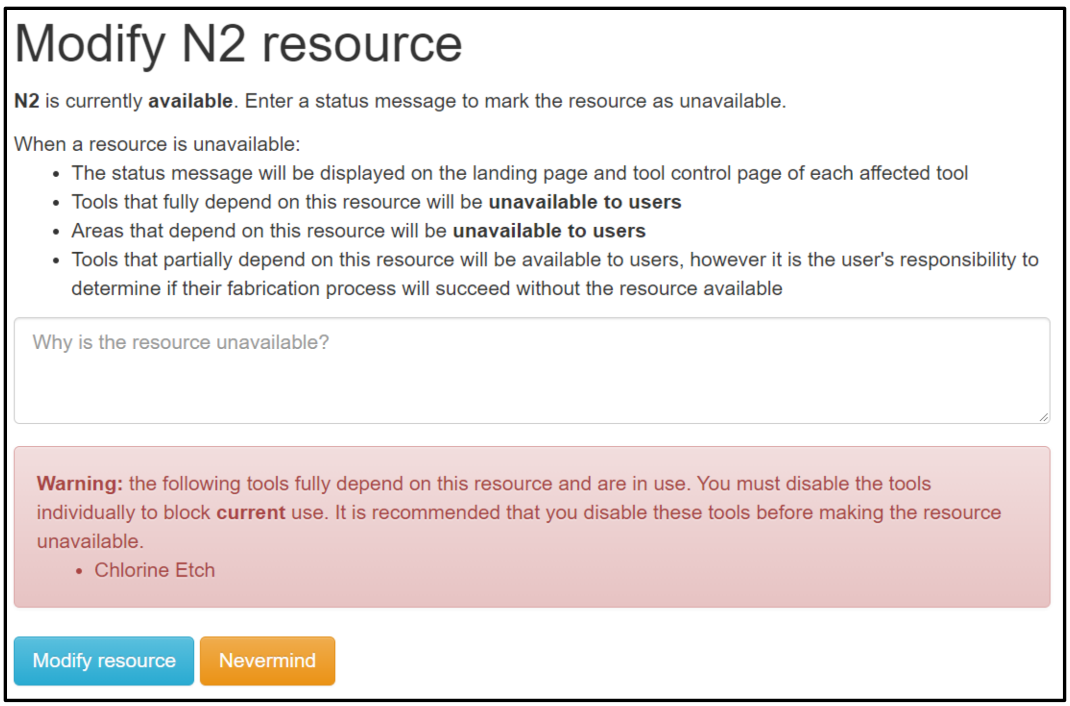


Figure 560 Resources modify resource dialog shutdown

- Provide a reason the resource will be unavailable (Figure 561).

Figure 561 Resources shutdown reason

- If any tools that require the resource are currently in use, a warning will be displayed (Figure 562).

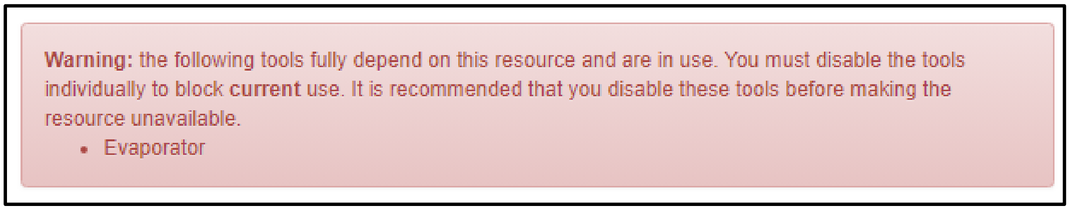


Figure 562 Resources shutdown tool in use warning

- Click the modify button to shut down the resource or, click the never mind button to return to the resource page (Figure 563).

Figure 563 Resource shutdown buttons

- Return to the resources page, if the resource was shutdown, it will now be red with the outage reason listed (Figure 564).

Figure 564 Resource shutdown listing

- The outage will be listed in the alerts and outages section of the landing page (Figure 565).

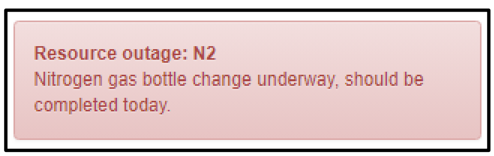


Figure 565 Resource shutdown landing page message

- The outage will be listed in the tool control summary tab of each impacted tool
  - Required resource outage will cause the tool to be shut down (Figure 566).

Figure 566 Resource shutdown tool shutdown message

  - Non-required resource outage will list a warning (Figure 567).

Figure 567 Resource outage tool problem message

29.2.1.2 Enable a previously shutdown resource

- Click the red resource name (Figure 568). Note: only the red text is a link.

Figure 568 Resource example of red shutdown resource listing

- Click the modify availability button (Figure 569).

Figure 569 Resources modify availability button

- The modify a resource dialog will open (Figure 570).

Figure 570 Resources modify resource dialog enable

- Select make available or change message radio button (Figure 571). The make resource available button is checked by default.

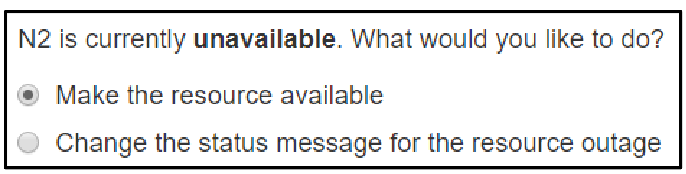


Figure 571 Resources enable selection

- If change message selected, update dialog box (Figure 572).

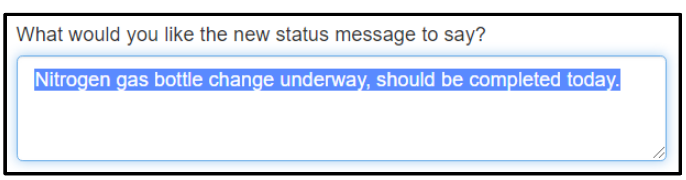


Figure 572 Resources update status message dialog box

- Click modify button to finish or click never mind to return to the resource page (Figure 573).

Figure 573 Resource enable buttons

- Return to the resources page, if the resource was enabled, it will now be green (Figure 574).

Figure 574 Resource enabled listing

- All alerts and tool restrictions are removed.

29.2.2 Scheduled resource outages

Resource outages can be scheduled when the start and end time is known. Examples include gas bottle changes or facility maintenance that will happen in a predictable manner. Outages automatically start and end. Once the end time is past, the outage will be hidden. A history of scheduled outages is maintained in the scheduled outages table of the database as discussed on page 462.

29.2.2.1 Create a scheduled resource outage

- From the resource page, select the resource of interest (Figure 575).

Figure 575 Resource item name link

- Click the Schedule outage button on the resource detail page (Figure 576).

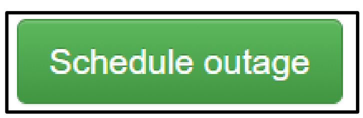


Figure 576 Resource scheduled outage button

- The scheduled resource outage dialog page will open (Figure 577).

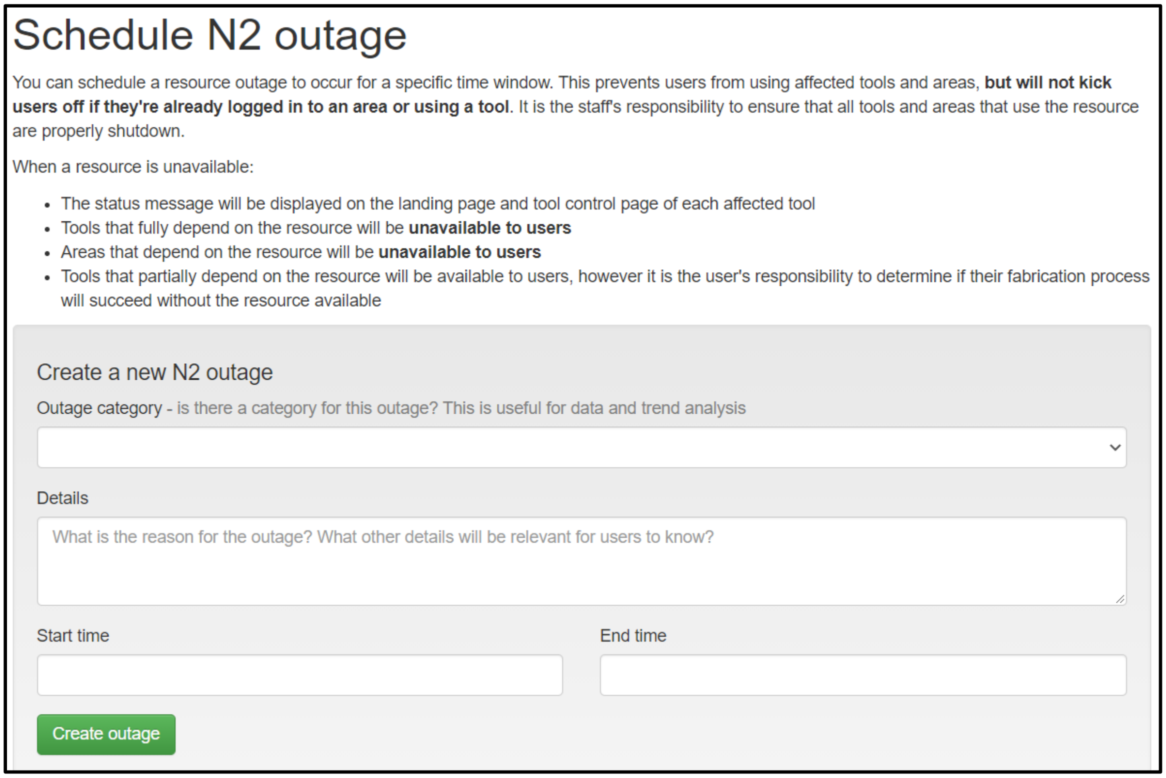


Figure 577 Resource scheduled outage page

- Select the optional outage category if scheduled outage categories have been defined (Figure 578). If scheduled outage categories have not been defined, this dialog will not appear. Scheduled outage categories are defined in the [Detailed administration → Scheduled outage categories]() section discussed on page (455).

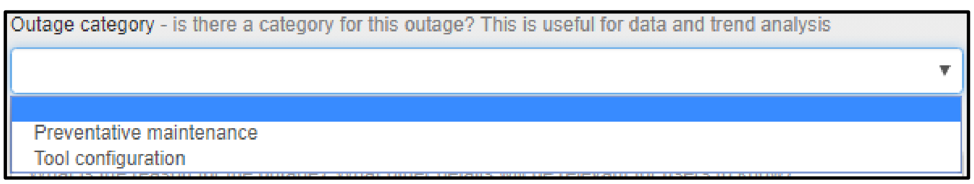


Figure 578 Resource scheduled outage category dropdown

- Provide details about the outage (Figure 579).

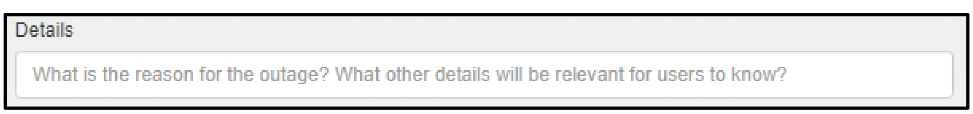


Figure 579 Resource scheduled outage details

- Select a start time and end time (Figure 580). Clicking in the start time or end time dialog will open the clock/calendar dialog (Figure 581). The date and time will update automatically as the clock/calendar is clicked.

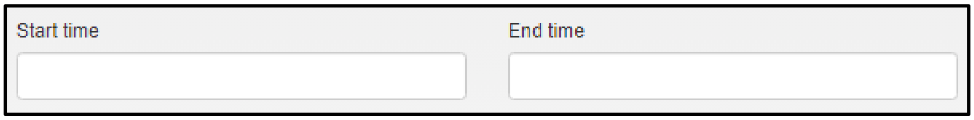


Figure 580 Resource start and end dialog

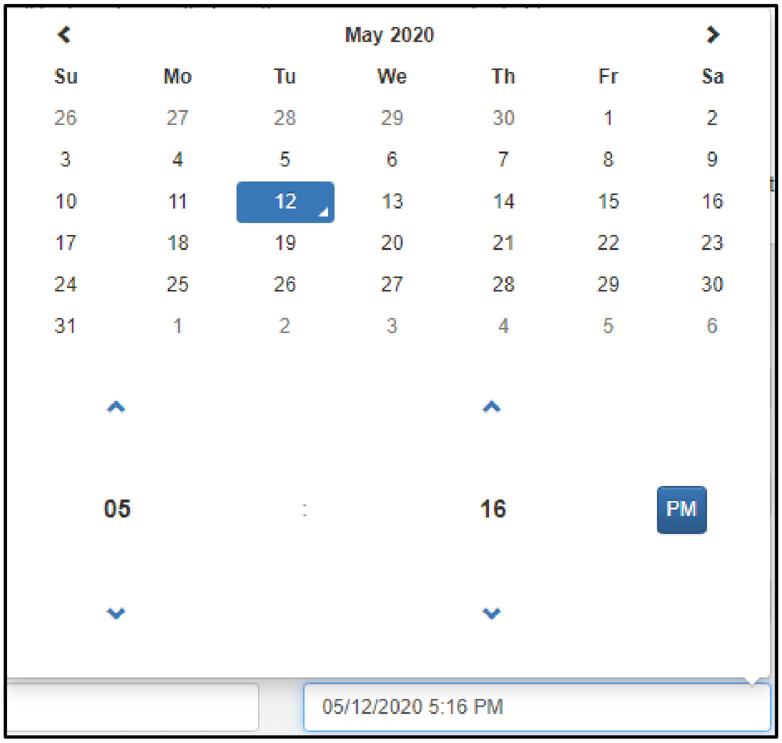


Figure 581 Resource clock/calendar dialog

- Click the create outage button (Figure 582).

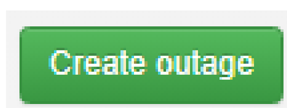


Figure 582 Resource scheduled outage button

- Scheduled outages are saved in the scheduled outage table of the database which is described in the Detailed administration → Scheduled outages section on page (462).
- The details of the scheduled outage will be displayed at the top of the resource detail page (Figure 583).

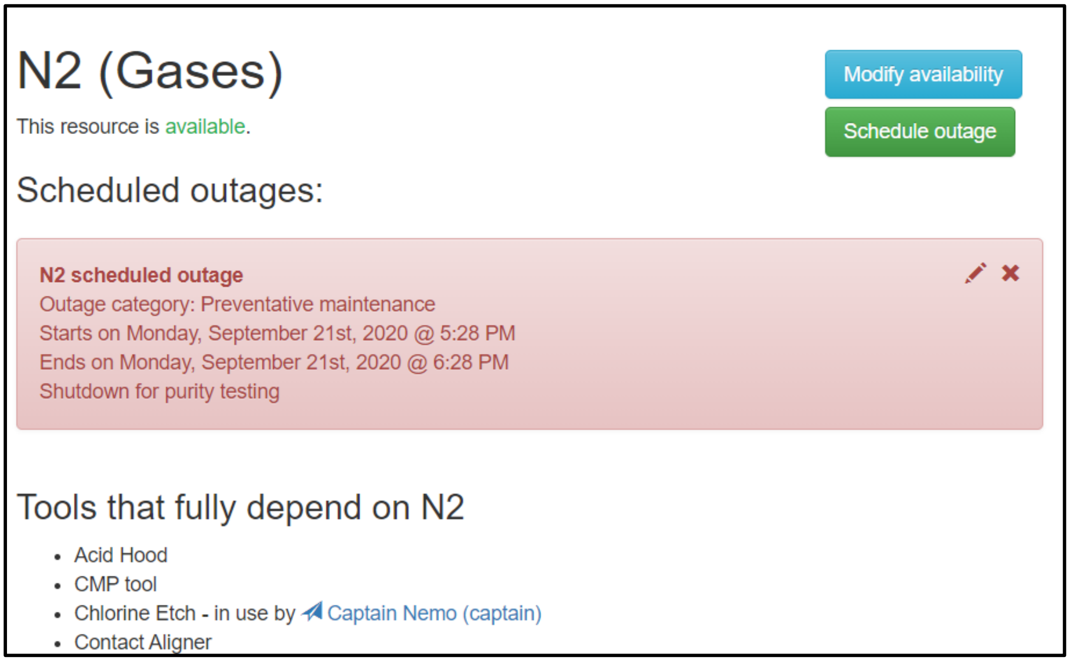


Figure 583 Resource detail page scheduled outage details

29.2.2.2 Delete a scheduled resource outage

A scheduled resource outage can be deleted by clicking the ( ) icon in the outage of interest at the top of the resource detail page (Figure 584). The deletion is immediate without confirmation. The outage is still saved in the database but marked as deleted and will no longer be displayed.

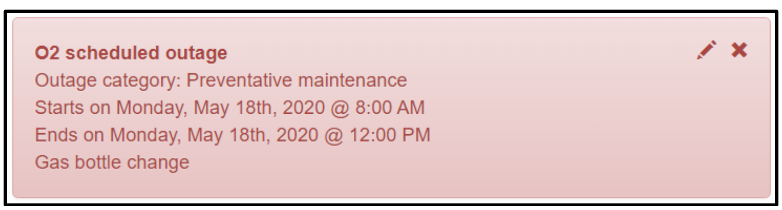


Figure 584 Resource existing scheduled outage dialog

29.2.2.3 Edit a scheduled resource outage

To edit a scheduled outage:

- Click the ( ) icon in the alert dialog of interest at the top of the resource detail page.
- The scheduled outage page will populate the details of the selected outage (Figure 585).

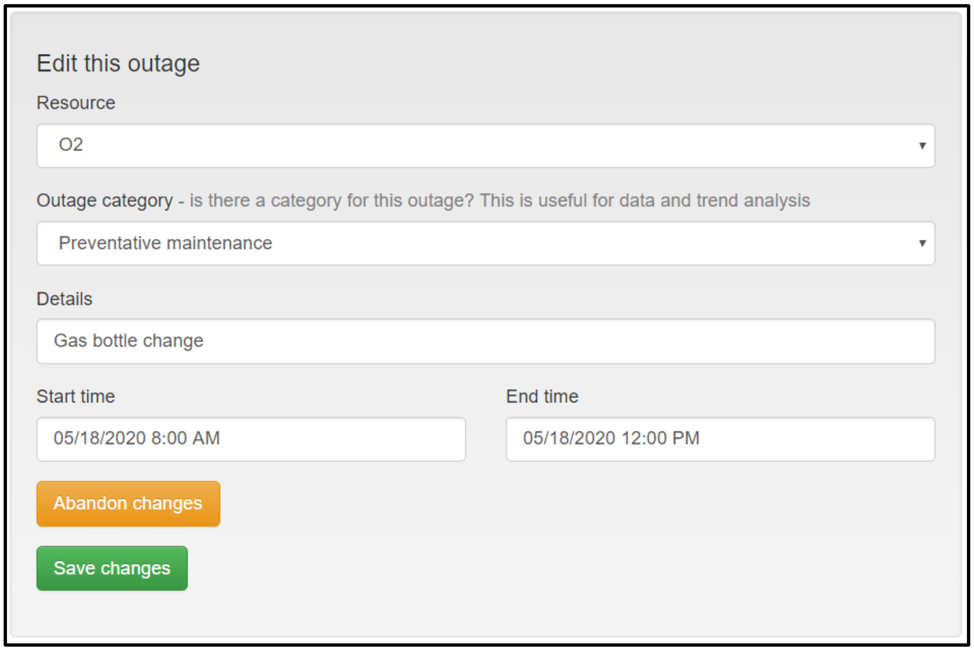


Figure 585 Resource edit existing scheduled outage

- Edit any fields that need updating. The process is identical to creating a scheduled outage above.
- To cancel click the abandon changes button (Figure 586).

Figure 586 Resource scheduled outage edit abandon changes button

- To save the update click the save changes button (Figure 587).

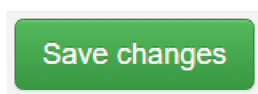


Figure 587 Resource scheduled outage edit save changes button

29.3 Web address

The resources page is accessible at site-address/resources/. For example, www.nemo.com/resources/. The page is accessible from the navigation bar by clicking Administration then clicking Resources.

29.4 Mobile device resources page

There are no mobile device views for the resources page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

29.5 Resources page customizations

There are no customizations for the resources page.

30 Sensor data

The sensor data page provides a dashboard to navigate through sensors and sensor categories, display or export sensor data and alert logs.

30.1 Setup

To enable this feature, you need to have ‘NEMO.apps.sensors’ in INSTALLED_APPS in your settings.py.
In addition, a timed service app must be properly configured and running which is described in NEMO timed services on page 581.
Setting up sensor categories is discussed in Detailed administration -> Sensor categories.
Setting up sensors is discussed in Detailed administration -> Sensors.
Setting up email alerts is discussed in Detailed administration -> Sensor alert emails.

30.2 Usage

- Select a category or sensor from the dashboard (Figure 588) until reaching the desired sensor data.

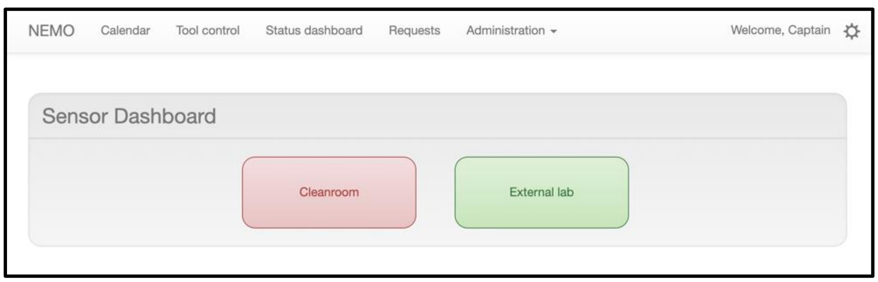


Figure 588 Sensor data dashboard

- The sensors square will display the latest value and time read (Figure 589).

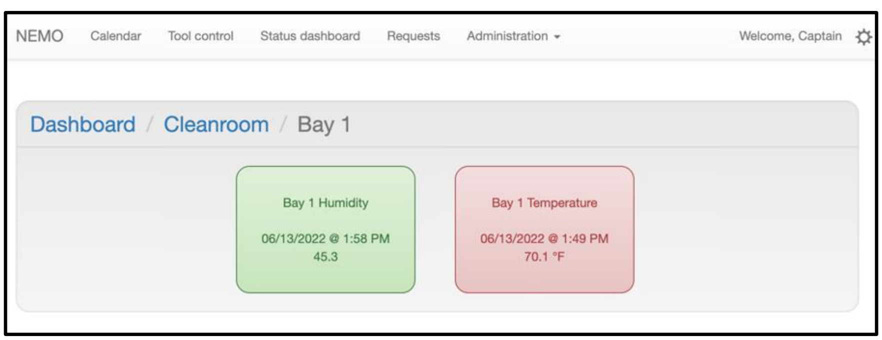


Figure 589 Sensor data dashboard sensors

- The date range can be changed by clicking on the calendar icon next to either the start or the end date (Figure 590). You can select a preset range or a custom date range.

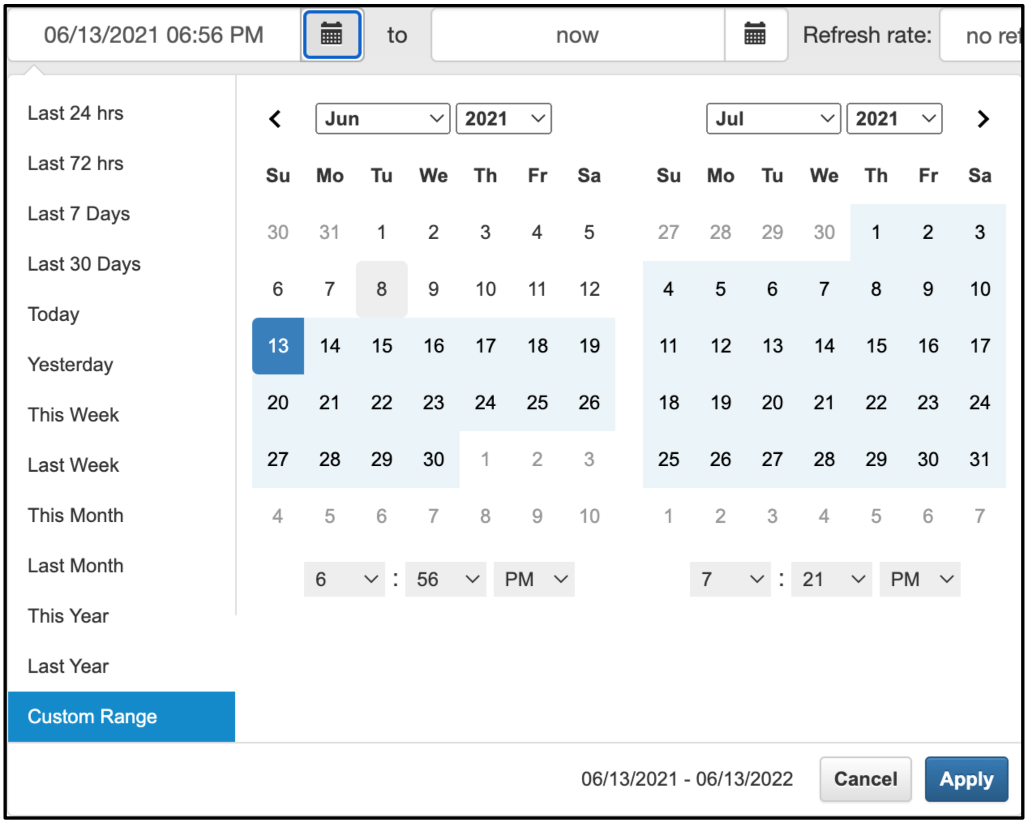


Figure 590 Sensor data date range

- To change the refresh rate, click on the drop down (Figure 591).

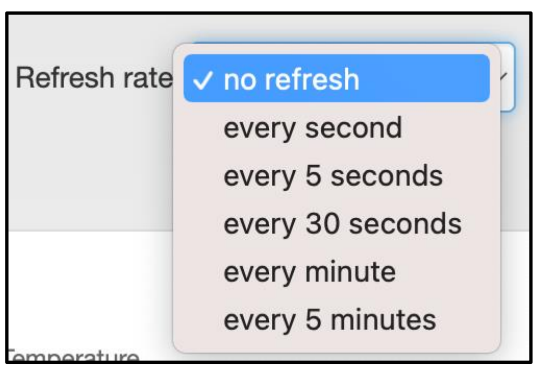


Figure 591 Sensor data refresh rate dropdown

30.2.1 Graph data

- A graph will show the data based on the default date range (Figure 592). See Sensor page customizations to change the default range.

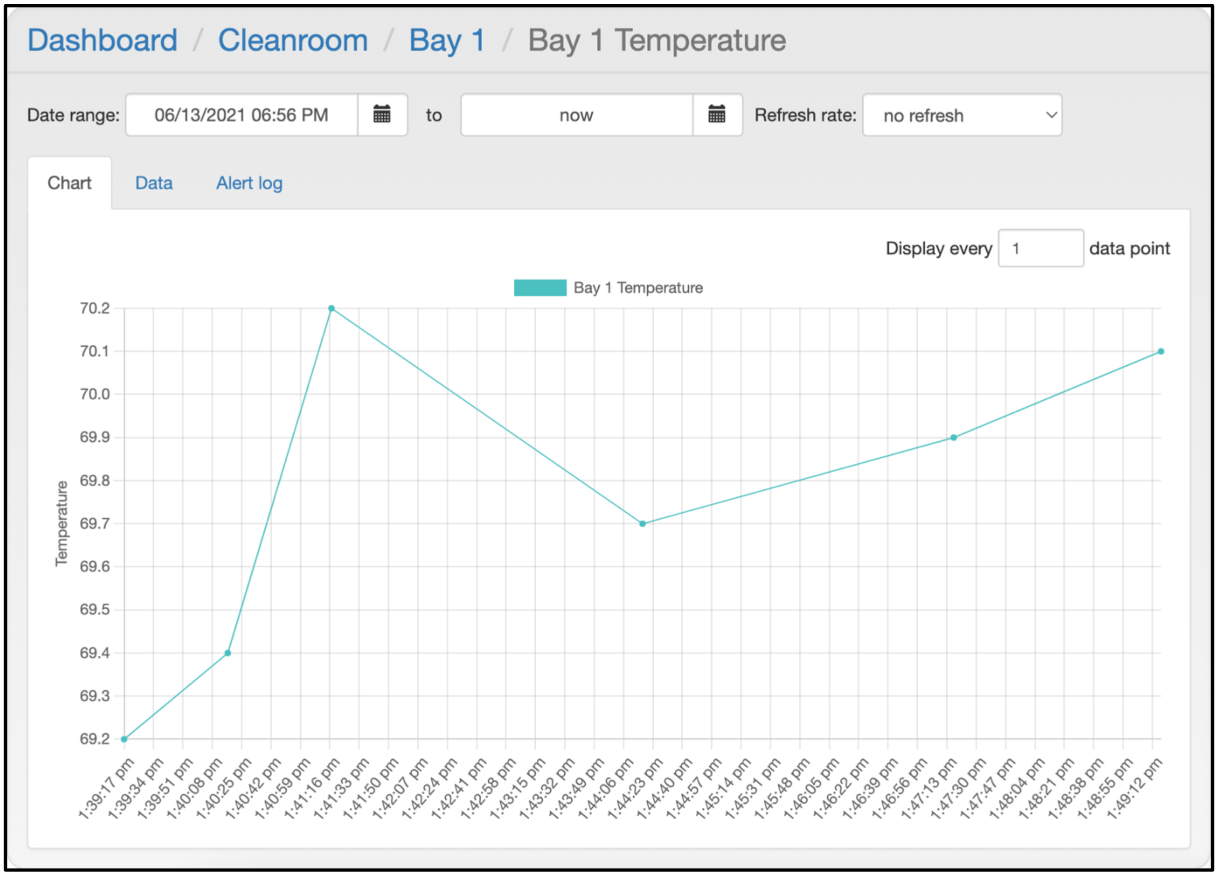


Figure 592 Sensor data graph

- Hovering over a single data point will display its detailed information (Figure 593).

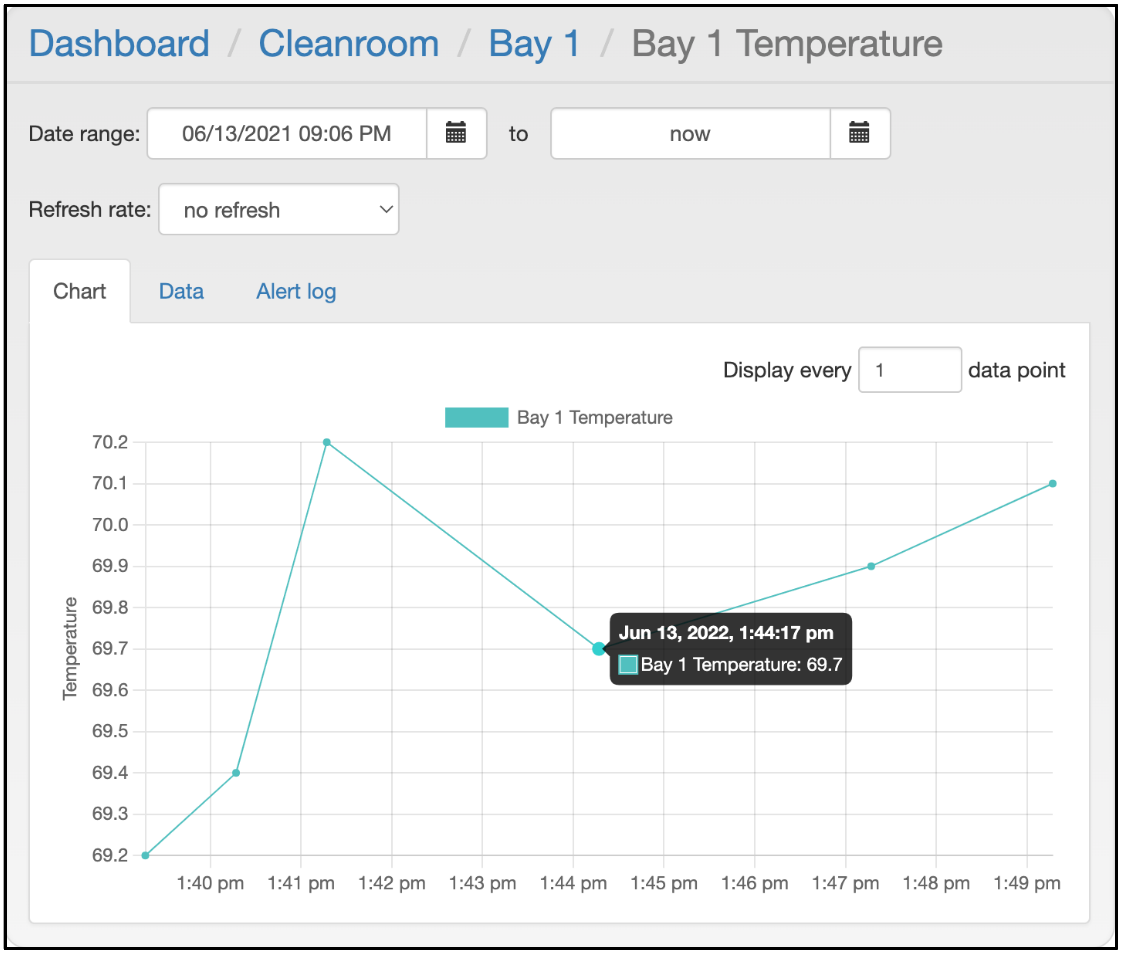


Figure 593 Sensor data graph data point details

- Less data points can be displayed by changing the input for every x data point (Figure 594).

Figure 594 Sensor data graph change data points

30.2.2 Data

- The data tab will show the time and raw values (Figure 595).

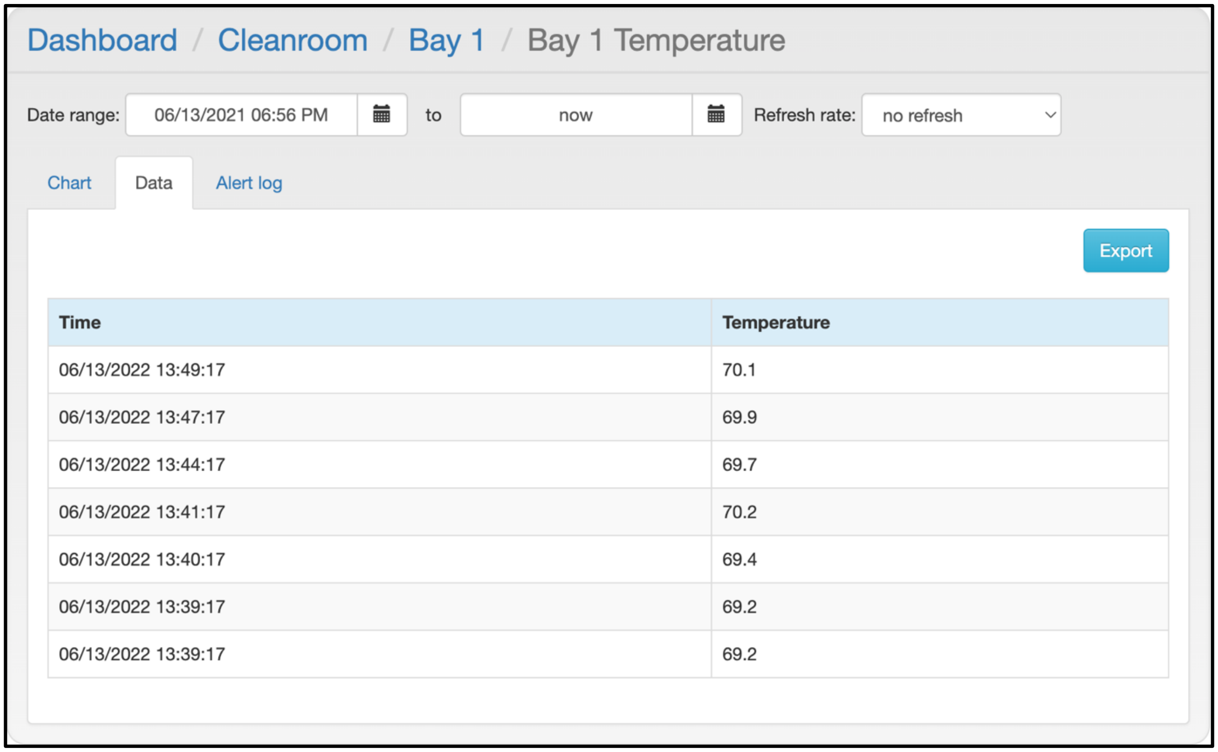


Figure 595 Sensor data tab

- You can click on the export button to get a CSV file (Figure 596).

Figure 596 Sensor data export

30.2.3 Alerts

- When an alert is triggered, the sensor and all its parent categories will be displayed in red color (Figure 597, Figure 598, Figure 599).

Figure 597 Sensor data alert dashboard

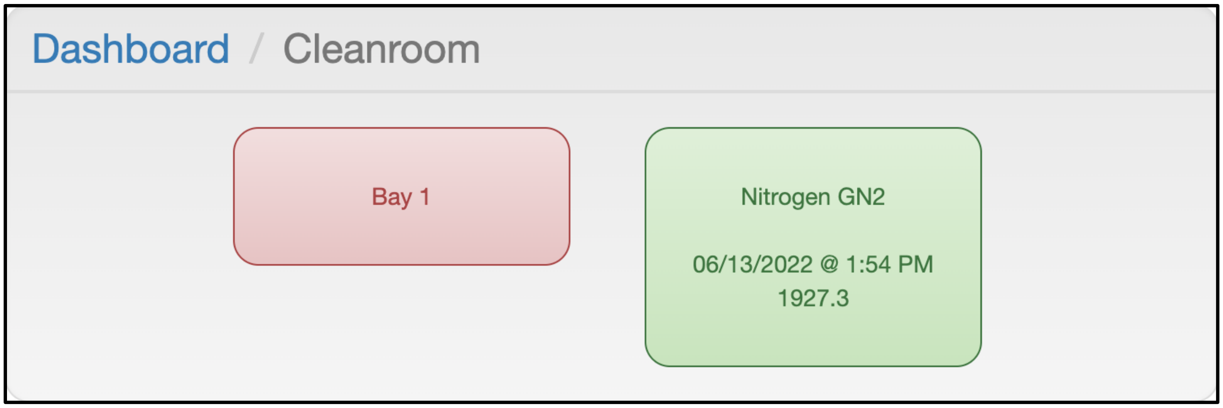


Figure 598 Sensor data alert dashboard category

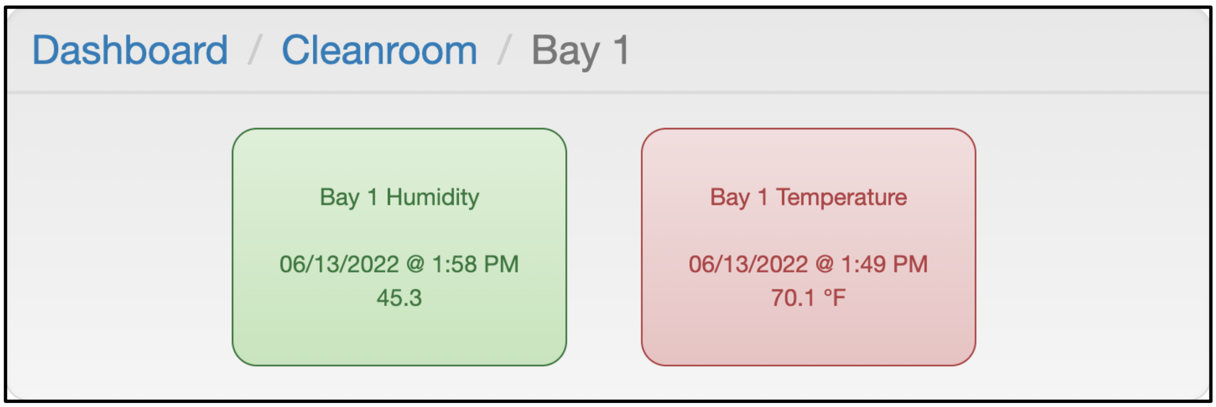


Figure 599 Sensor data alert dashboard sensor

- On a sensor page, the alert log tab will show when alerts were triggered and/or reset (Figure 600).

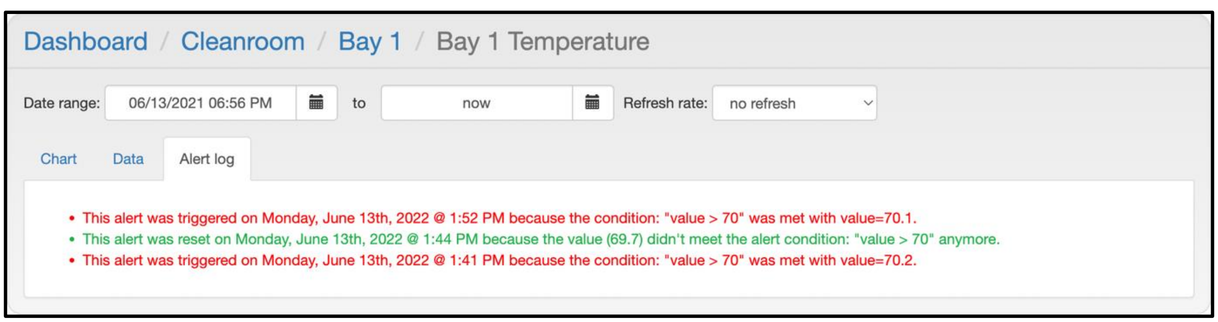


Figure 600 Sensor data alert log

30.3 Web address

The sensor data page is accessible at site-address/sensors/. For example, www.nemo.com/sensors/. The page is accessible from the navigation bar by clicking Administration then clicking Sensor data.

30.4 Mobile device sensor data page

There are no mobile device views for the sensor data page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling. To visualize and interact with the graph data, it is recommended to use a tablet or desktop computer.

30.5 Sensor page customizations

Some sensor parameters can be customized in Sensor settings.

31 Staff charges (staff only)

The staff charges page provides an interface to manage work performed by staff on behalf of users. The page can take several forms depending on what a staff member is currently doing on behalf of a user.

31.1 Usage

- If a staff member is not performing any work on behalf of a user, a dialog will be displayed to select a user (Figure 601).

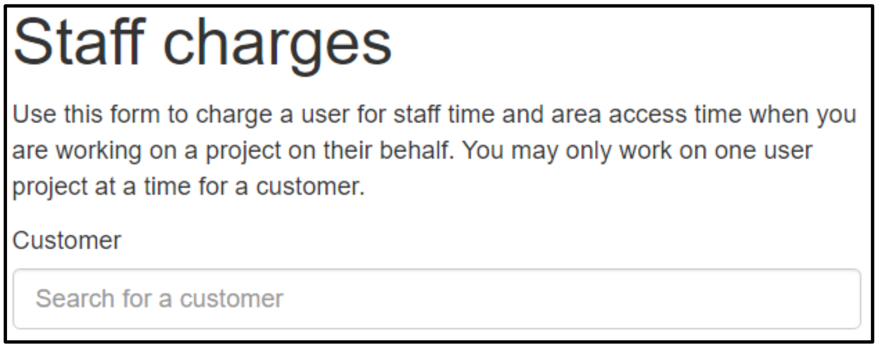


Figure 601 Staff charge page, staff not currently working on behalf of user

- Enter a user name in the search dialog (Figure 602).

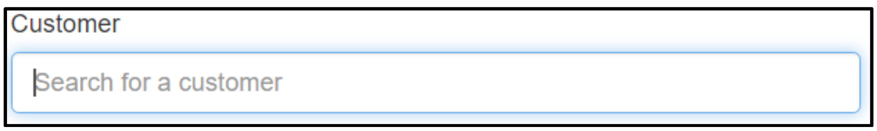


Figure 602 Staff charge user search dialog

- A list of users is returned as characters are typed (Figure 603). The user can be selected from the return list at any time by clicking the name.

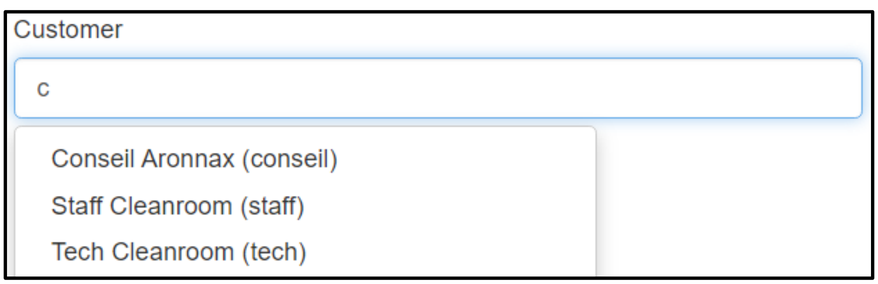


Figure 603 Staff charge user search return list

- If the user has only one project, it will be listed and automatically selected (Figure 604).

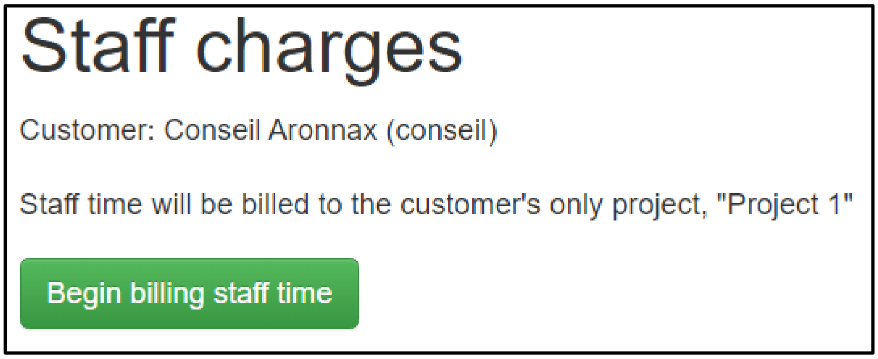


Figure 604 Staff charge user with one project

- If the user has multiple projects, a list of projects will be returned to select from (Figure 605). Click one of the available projects to select it (Figure 606).

Figure 605 Staff charge user with multiple projects

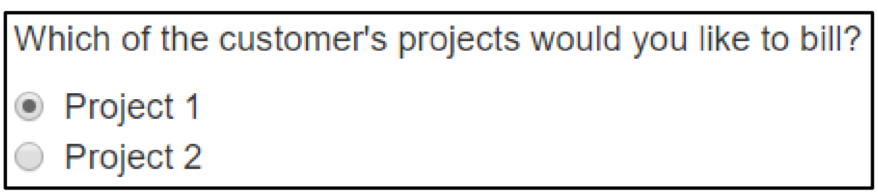


Figure 606 Staff charge user project selection

- Click the begin billing button to start charging staff time (Figure 607). The user, project, and start time will be recorded in the staff charges table of the database which is discussed in the Detailed administration → Staff charges section on page 465.

Figure 607 Staff charge begin billing button

- The navigation bar will display the charging staff time indicator in red (Figure 608).

Figure 608 Staff charge navigation bar indicator

- Hovering over the charging staff time indicator will provide user and project details (Figure 609).

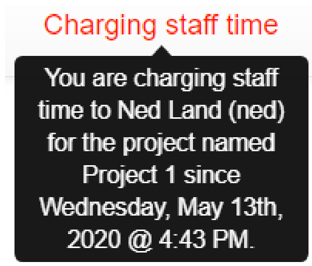


Figure 609 Staff charge navigation bar indicator details

- The staff member is now working on a project on behalf of a user. The staff charges page will provide dialog to stop working on the project and, if areas have been defined, provide a dialog to also begin charges for area access. In addition, if the staff member is logged into a tool on behalf of a user, it will be listed as well (Figure 610).

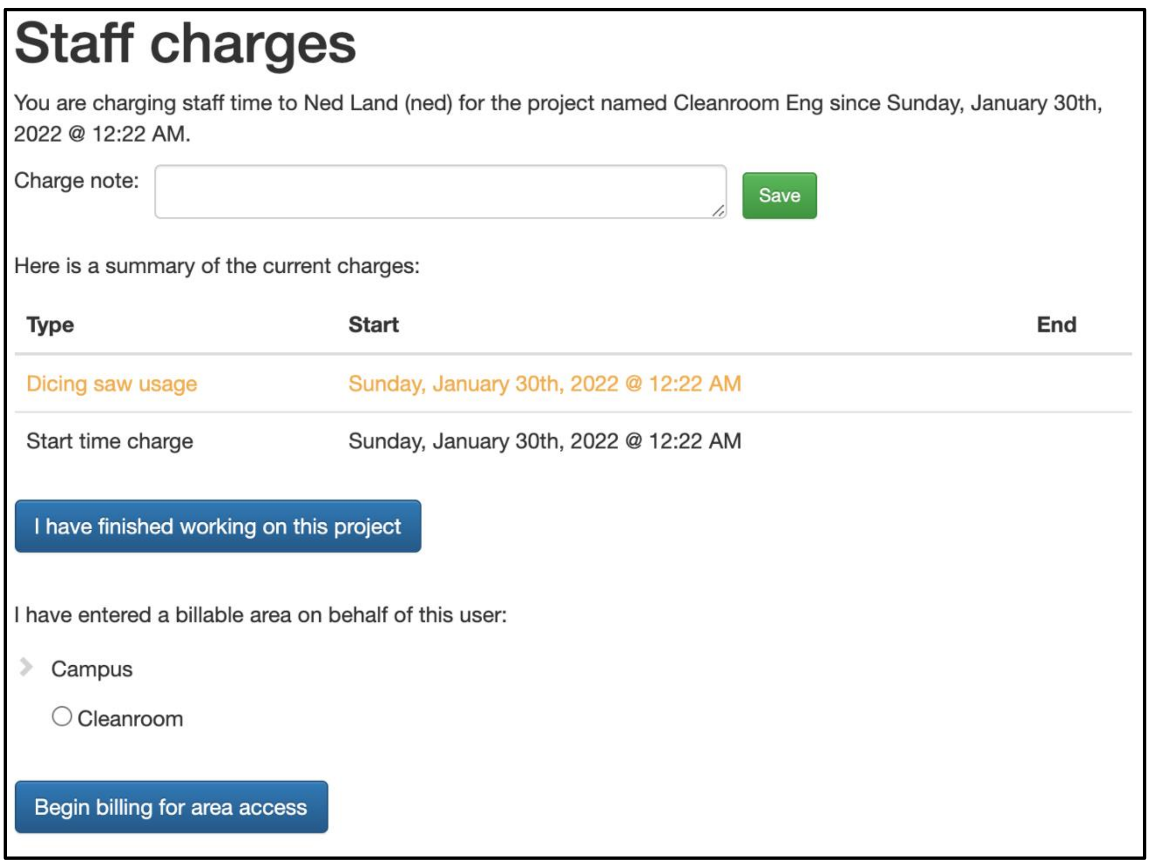


Figure 610 Staff charge page, staff working on project, not billing area access

- To add a charge not, simply click on the text area and enter the note (Figure 611), then click on the save button (Figure 612).

Figure 611 Staff charge note text area

Figure 612 Staff charge text area save button

- To stop working on a project, click the finished working button (Figure 613). This will write the end time to the staff charges table of the database, turn off the charging staff time indicator, and return to the initial customer search dialog.

Figure 613 Staff charge finished working button

- To begin billing for area access, click the area to work in (Figure 614) then click the area access button (Figure 615). The area, user, project, and start time will be recorded in the area access records table of the database which is discussed in the Detailed administration → Area access records section on page 377.

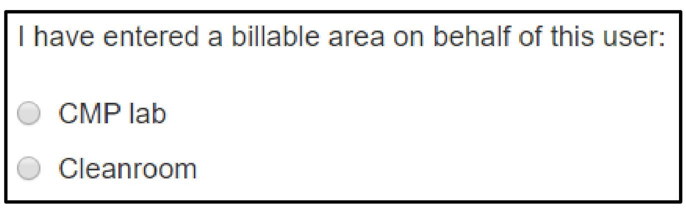


Figure 614 Staff charge area selection

Figure 615 Staff charge area access button

- The staff member is now working on a project on behalf of a user and charging area access time. The staff charges page will provide a dialog to stop working in the area (Figure 616).

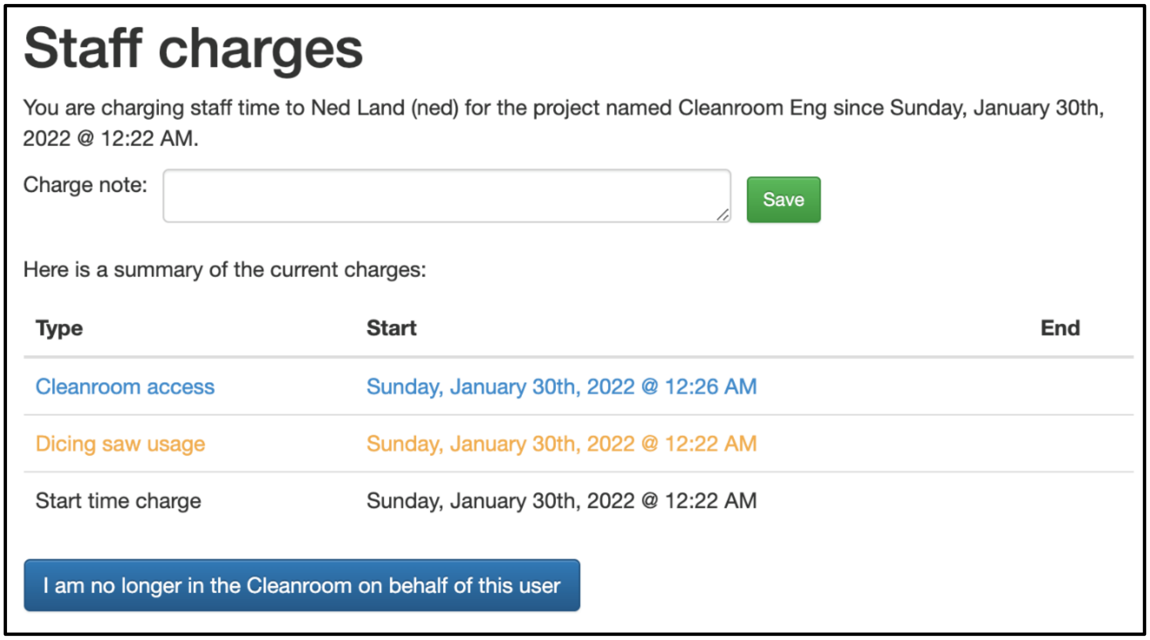


Figure 616 Staff charge page, staff working on project and billing area access

- To stop charging area access, click the no longer in area button (Figure 617). This will write the end time to the area access records table of the database and return to the staff member is now working on a project on behalf of a user dialog.

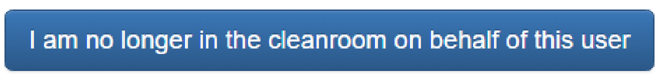


Figure 617 Staff charge no longer in area button

- The dialog will return to the staff charge dialog however will include the area access billed (Figure 618). At this time another area can be entered, or staff charges can be ended.

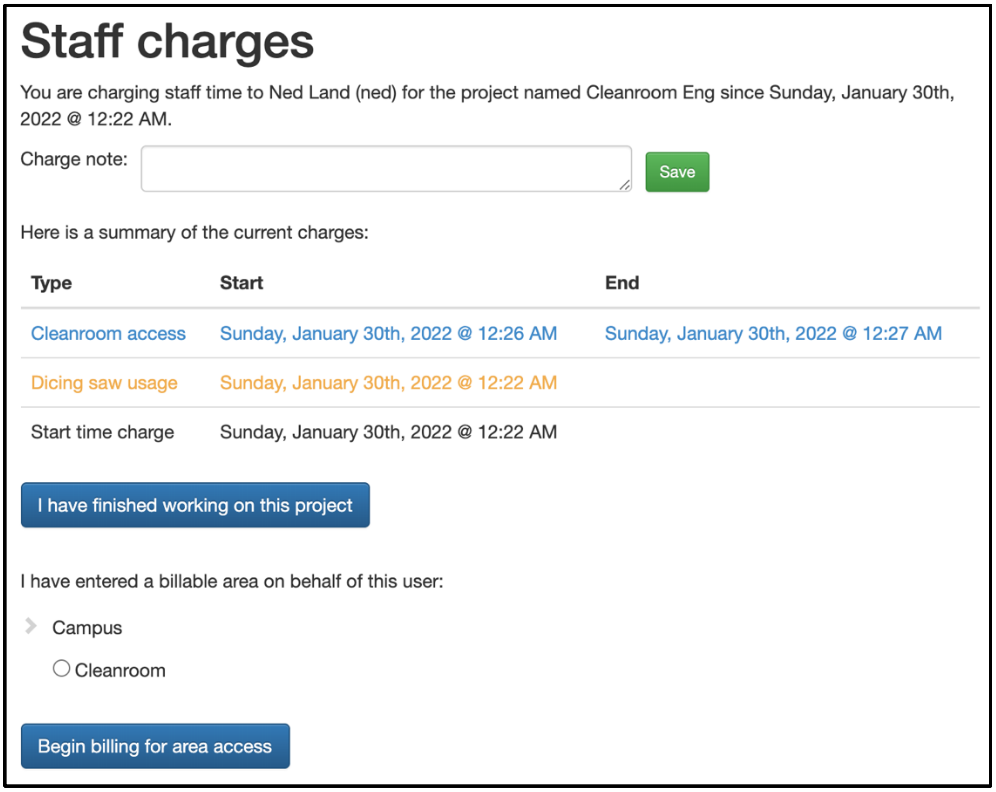


Figure 618 Staff charge with area usage summary

31.2 Web address

The staff charge page is accessible at site-address/staff_charges/. For example, www.nemo.com/staff_charges/. The page is accessible from the navigation bar by clicking Administration then clicking Staff charges.

31.3 Mobile device staff charges page

There are no mobile device views for the staff charges page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

31.4 Staff charges page customizations

31.4.1 Staff charge reminders

Email reminders that staff charges are underway can be sent periodically and require an email template that is used to format messages. The email template is configured in the Customization → Staff charge reminder email page detailed starting on page 341.
In addition, a timed service app must be properly configured and running which is described in NEMO timed services on page 581.

32 Project billing (staff only)

The project billing page provides staff with an interface to search for usage by account, application, or project (Figure 619).
If the billing service is not set or unavailable, this page will redirect to the project usage page.

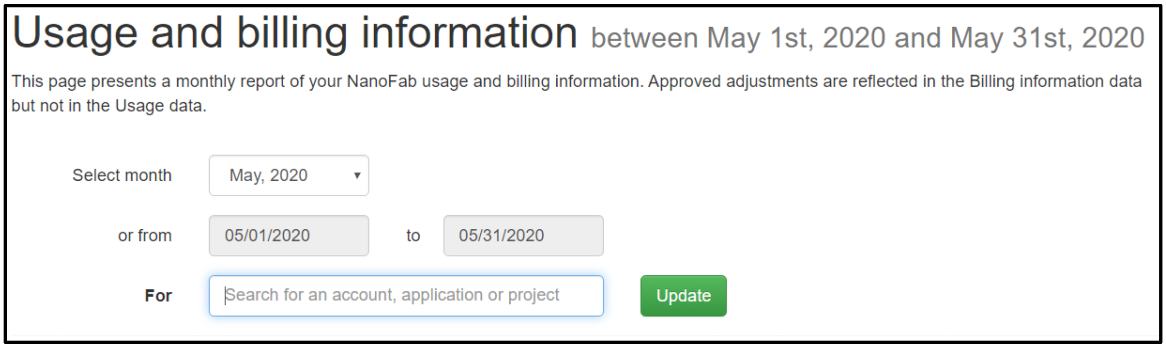


Figure 619 Project billing page

32.1 Usage

The project billing page offers an additional search dialog to display all records for an account, application, or project (Figure 620).

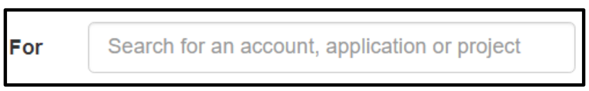


Figure 620 Project billing search dialog

A list of items is returned as characters are typed (Figure 621). The item of interest can be selected from the return list at any time by clicking the name.

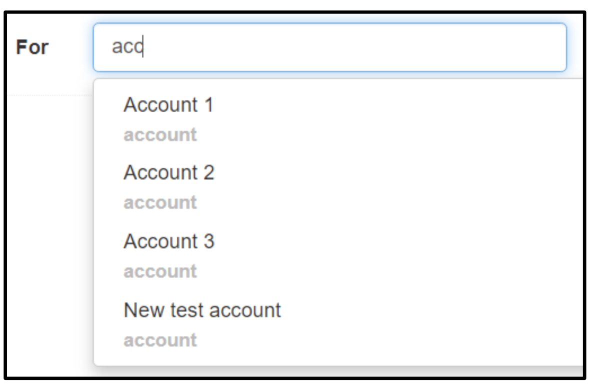


Figure 621 Project billing search dialog return list

The rest of the project billing page usage and return information is identical to the view usage page detailed on page 172.

32.2 Web address

The project billing page is accessible at site-address/project_billing/. For example, www.nemo.com/project_billing/. The page is accessible from the navigation bar by clicking Administration then clicking Project billing.

32.3 Mobile device project billing page

There are no mobile device views for the project billing page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

32.4 Project billing page customizations

There are no customizations for the project billing page.

33 Supplies (staff only)

The supplies page provides staff with an interface to record distribution of consumable items and supplies to users (Figure 622). Supplies are setup in the consumables table of the database detailed in the Detailed administration → Consumables section on page 408. The consumables table facilitates tracking of quantities in stock and can trigger a notification if the stock is low.

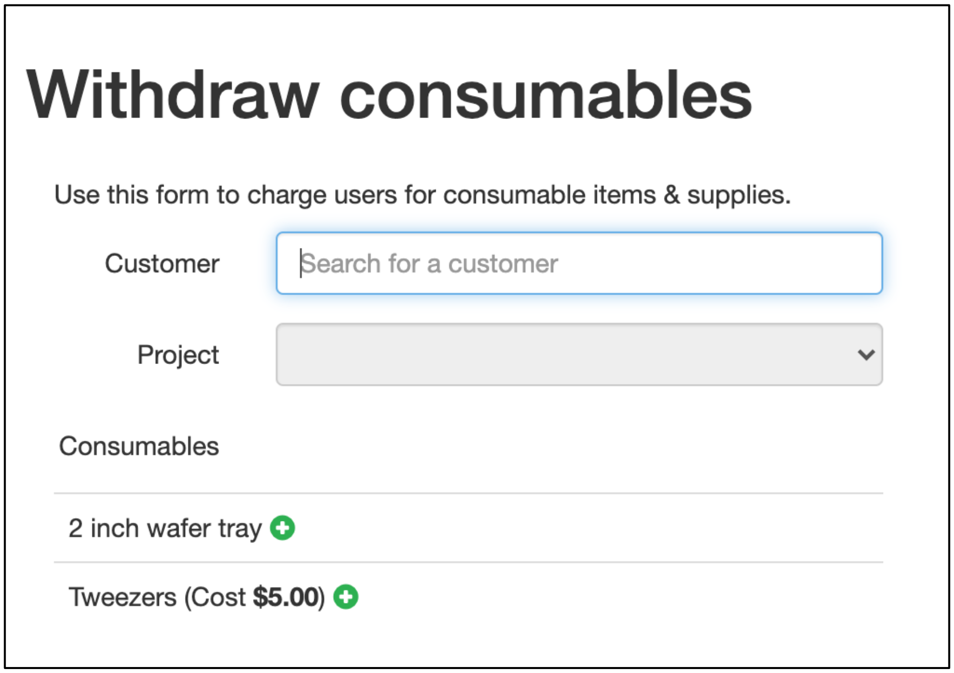


Figure 622 Supply page

33.1 Usage

To withdraw a consumable item or supply:

- Enter a user name in the customer dialog (Figure 623).

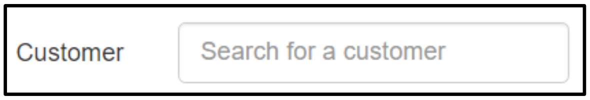


Figure 623 Supply customer dialog

- A list of users is returned as characters are typed (Figure 624). The user can be selected from the return list at any time by clicking the name.

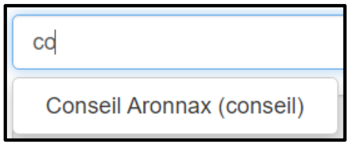


Figure 624 Supply customer dialog return list

- If the wrong name is selected, clicking the selected users name will reset the form.

- If the selected user does not have an active project, an error is displayed and the withdraw will not be allowed (Figure 625).

Figure 625 Supply no active project

- If the selected user has one project, it is automatically selected (Figure 626).

Figure 626 Supply single project

- If the selected user has multiple projects, click the dropdown and choose a project to bill (Figure 627).

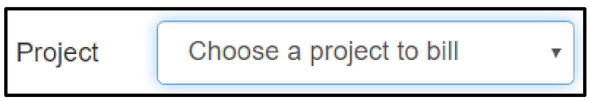


Figure 627 Supply multiple projects

- Click on the consumable item or the + icon ( ) in the list to bring up the quantity popup (Figure 628).

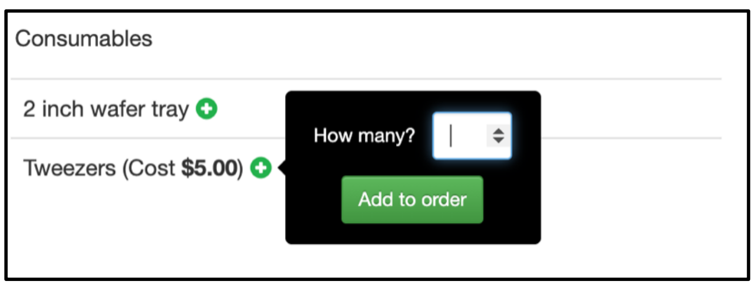


Figure 628 Supply select consumable

    - The consumable item list can be organized by categories which are described in the [Detailed administration → Consumable categories]() section on page 404.
    - The cost of each consumable can be optionally listed by uploading rate information as discussed in the [Customizations → Tool rates]() section on page 357.

- Enter an integer quantity in the quantity dialog (Figure 629).

Figure 629 Supply quantity

- Click the “Add to order” button or simply press <Enter> (Figure 630)

Figure 630 Supply add to order

- The item is added to the “current order” on the right side of the screen (Figure 631)

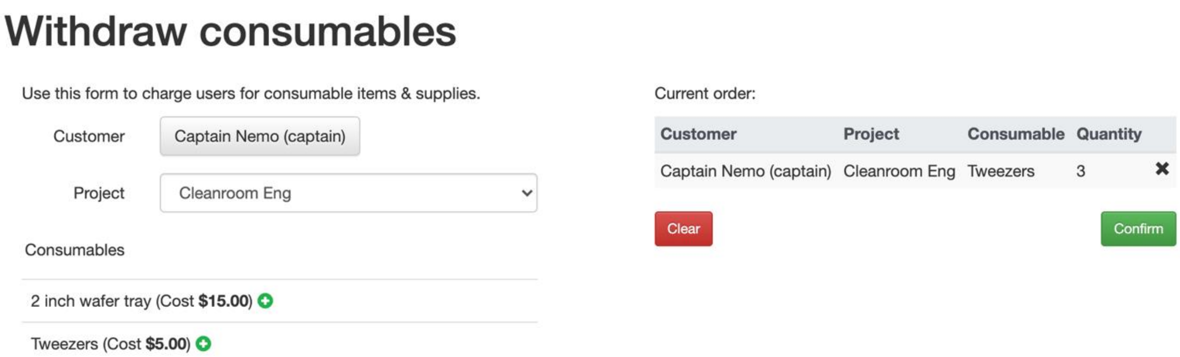


Figure 631 Supply current order

- You can keep adding more items to the current order, for the same or for a different customer (Figure 632)

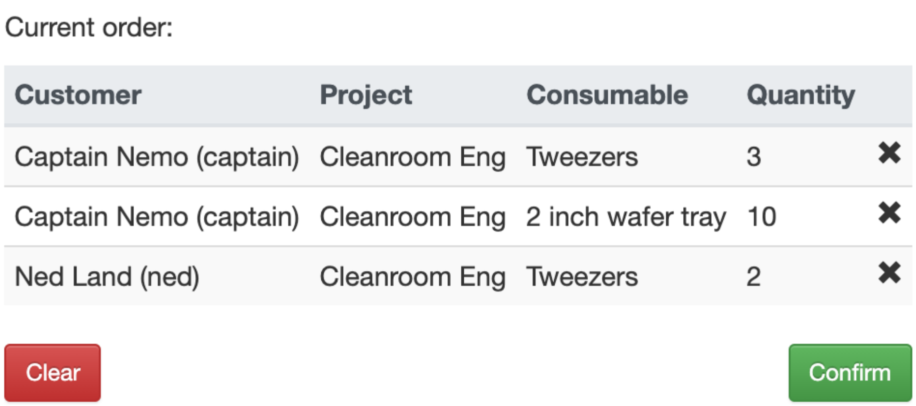


Figure 632 Supply multiple items order

- You can click the clear button (Figure 633) to clear the current order.

Figure 633 Supply clear button

- Click the confirm button (Figure 634).

Figure 634 Supply confirm button

- If the withdraw was successful
    - The transaction is recorded in the consumable withdraws table of the database described in the [Detailed administration → Consumable withdraws] section on page 406.
    - The total quantity in stock is updated in the consumables table of the database.
    - A success message is displayed at the top of the page (Figure 635).

Figure 635 Supply success message

- If the withdraw was not successful
    - A failure reason is provided at the top of the page (Figure 636).

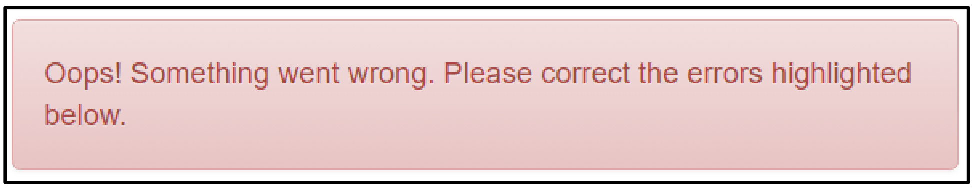


Figure 636 Supply fail message

    - Any missing information is highlighted next to the dialog box (Figure 637).

Figure 637 Supply missing information

    - If a non-integer is entered for the quantity, it is noted at the quantity dialog (Figure 638).

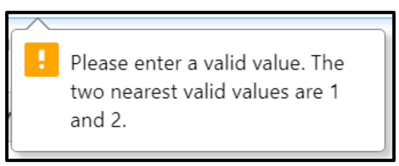


Figure 638 Supply integer error

    - Correct any errors and try again.

33.2 Web address

The supplies page is accessible at site-address/consumables/. For example, www.nemo.com/consumables/. The page is accessible from the navigation bar by clicking Administration then clicking Supplies.

33.3 Mobile device supplies page

There are no mobile device views for the supplies page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

33.4 Supplies page customizations

33.4.1 Supply rates

Supply rates can be displayed next to each supply in the consumable list and are discussed in the Customizations → Tool rates section on page 357.

34 Training (staff and tool superusers only)

The training page provides staff and tool superusers with an interface to record user training and qualify users (Figure 639).

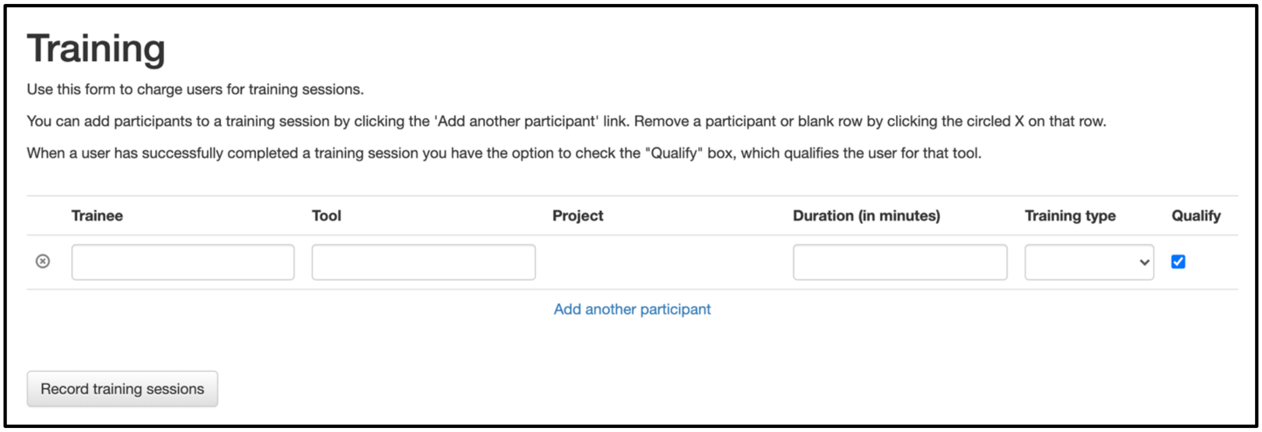


Figure 639 Training page

34.1 Usage

To record user training:

- Enter the user name in the trainee dialog box (Figure 640).

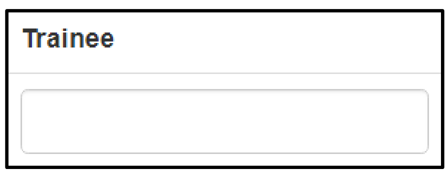


Figure 640 Training trainee dialog

- A list of users is returned as characters are typed (Figure 641). The user can be selected from the return list at any time by clicking the user name.

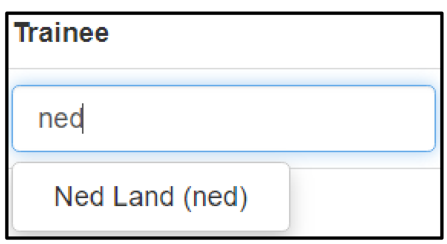


Figure 641 Training trainee dialog return list

- If the incorrect user is selected, click the users name in the trainee dialog box to clear the entry and retry.
- Enter the tool in the tool dialog box (Figure 642).

Figure 642 Training tool dialog

- A list of tools is returned as characters are typed (Figure 643). The tool can be selected from the return list at any time by clicking the tool name. Staff can select any tool, superusers can only select the tools they are superusers for.

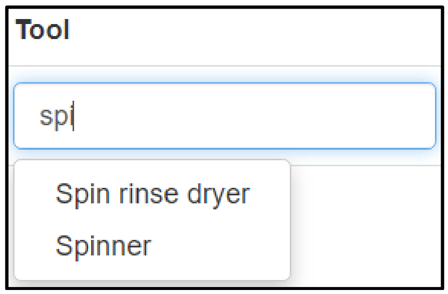


Figure 643 Training tool dialog return list

- If the incorrect tool is selected, click the tool name in the tool dialog box to clear the entry and retry.
- If the user has only one project, it will be selected automatically (Figure 644).

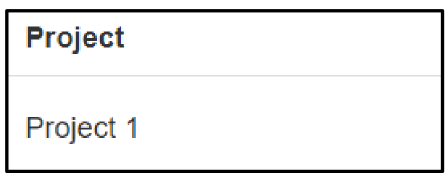


Figure 644 Training single project

- If the user has multiple projects, click the dropdown and choose a project to bill (Figure 645).

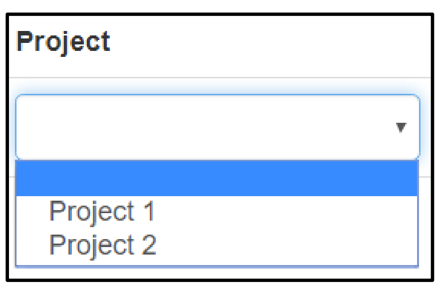


Figure 645 Training multiple projects

- Enter the training time in the duration dialog box in minutes (Figure 646).

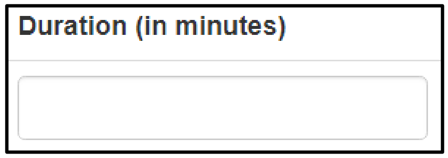


Figure 646 Training duration

- Select the training type from the dropdown (Figure 647).

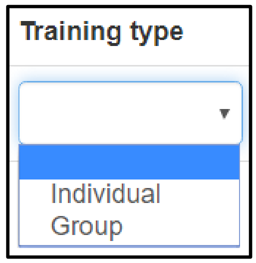


Figure 647 Training type

- If the user should not be qualified on the tool at this time, uncheck the qualify checkbox (Figure 648).

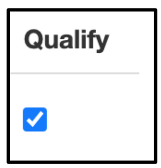


Figure 648 Training qualify

- More training sessions can be added by clicking the add participant link (Figure 649). Each training row is independent so multiple training sessions do not need to be related in any way.

Figure 649 Training add participant

- If a training session row needs to be removed, click the next to the trainee name.
- Click the record button to complete the training (Figure 650).

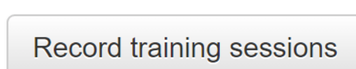


Figure 650 Training record button

- If the training was recorded successfully
  - A training record will be written in the training sessions table of the database described on the Detailed administration → Training sessions page detailed on page 510.
  - If the qualify box was checked, the membership histories table in the database is updated. The membership history table is described on the Detailed

administration → Membership histories page detailed on page 430. If the selected tool is configured to grant a physical access level to the user upon qualification, the users access level will be updated.

- A success dialog will be displayed (Figure 651). Click continue to return to the NEMO landing page.

Figure 651 Training success message

- If the training was not recorded successfully, an error message is displayed (Figure 652). Correct any missing information and retry.

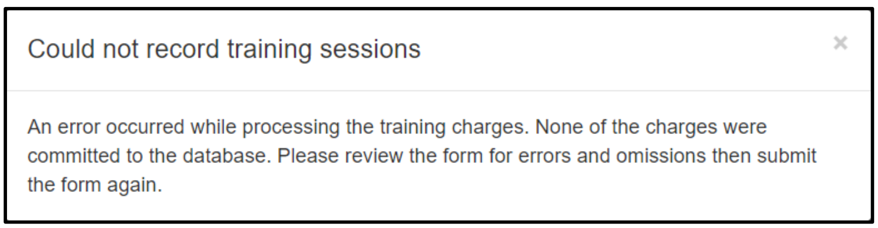


Figure 652 Training error message

34.2 Web address

The training page is accessible at site-address/training/. For example, www.nemo.com/training/. The page is accessible from the navigation bar by clicking Administration then clicking Training.

34.3 Mobile device training page

There are no mobile device views for the training page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

34.4 Training page customizations

There are no customizations for the training page.

35 Users (staff only)

The users page provides an interface to add new users and update existing users (Figure 653). Users can be associated with projects, tools, and physical access areas from this dialog. However, this feature exposes a limited number of parameters of the user table that are necessary to create users. A role beyond user must be defined in the users table of the database discussed in the Detailed administration → Users section on page 519.

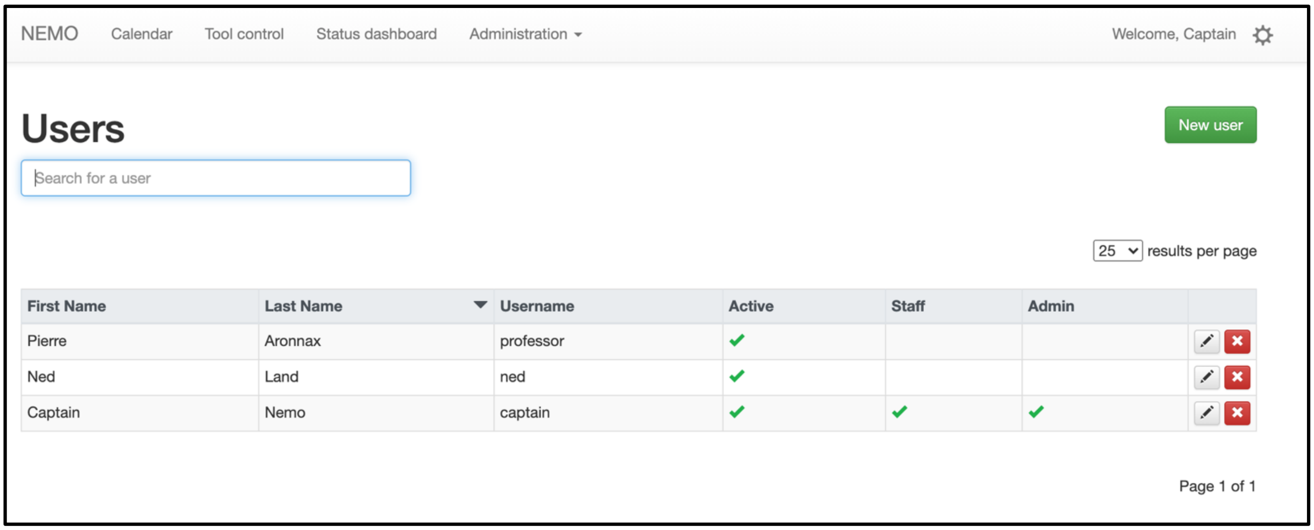


Figure 653 Users page

35.1 Create new user

To create a new user:

- Click the new user button (Figure 654).

Figure 654 Users new user button

- The new user form will open (Figure 655). The items displayed on the form depend on the functionality that has been defined in NEMO.

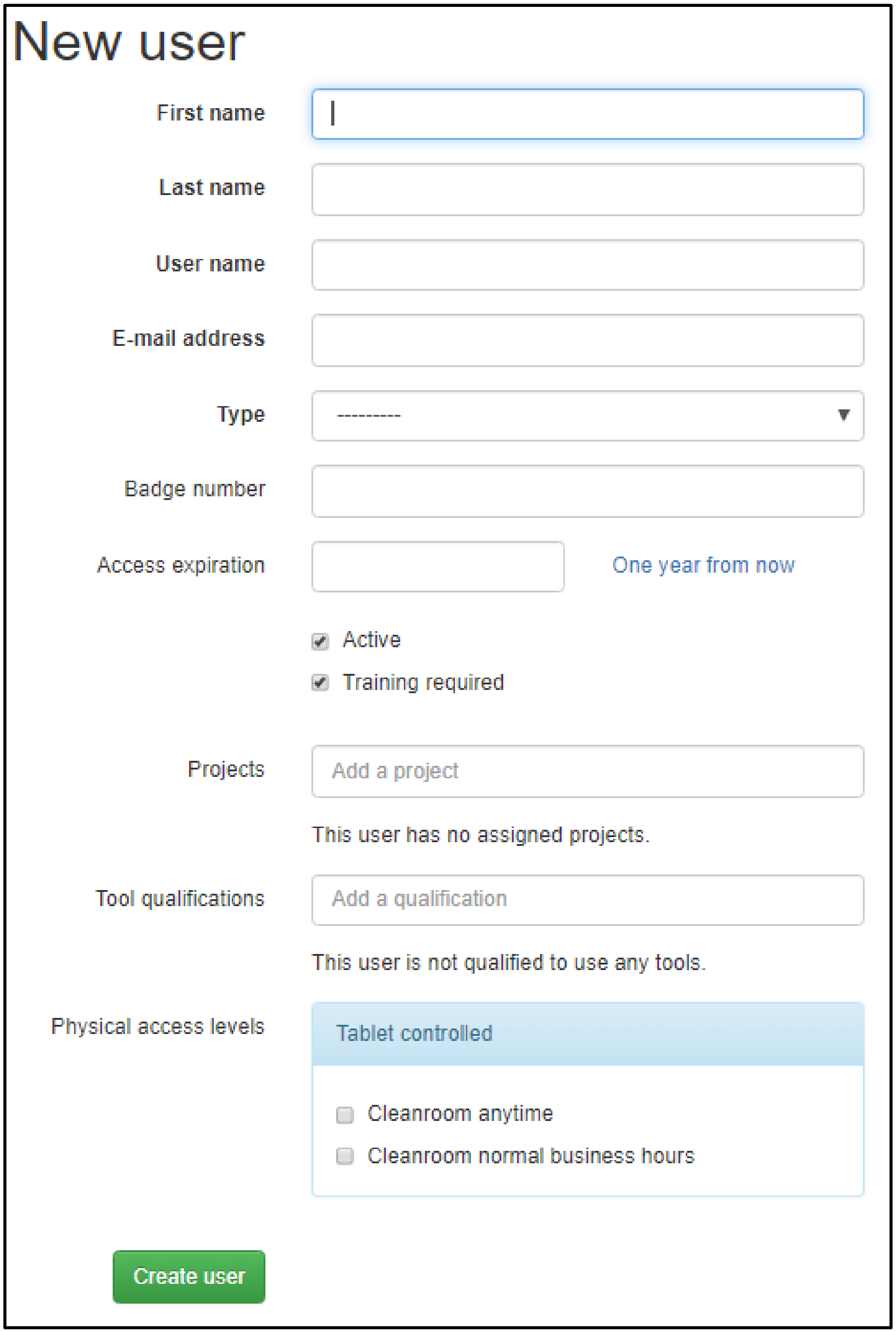


Figure 655 Users new user form

- Required: enter first name in dialog box (Figure 656).

Figure 656 New user first name dialog box

- Required: enter last name in dialog box (Figure 657).

Figure 657 New user last name dialog box

- Required: enter user name in dialog box (Figure 658).

Figure 658 New user user name dialog box

- Required: enter email address in dialog box (Figure 659).

Figure 659 New user email address dialog box

- Select user type from dropdown (Figure 660). User types are defined in the user types table of the database on the Detailed administration → User types page detailed on page 517.

Figure 660 New user user type dialog box

- Enter a badge number that is associated with the user for accessing doors and kiosks (Figure 661). This is easily accomplished by having a badge reader on a computer where user profiles are created. Click inside of the dialog box then scan the badge.

Figure 661 New user badge number dialog box

- Enter an access expiration date (Figure 662). This can be useful to track safety training end dates or project expiration dates and will automatically turn off the users access on the designated date. Leave blank for no expiration.

Figure 662 New user access expiration dialog box

    - Clicking the one year from now will automatically set the date (Figure 663).

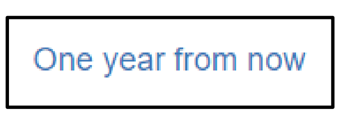


Figure 663 New user access expiration one-year quick link

- Clicking in the date dialog box will display the calendar dialog (Figure 664).

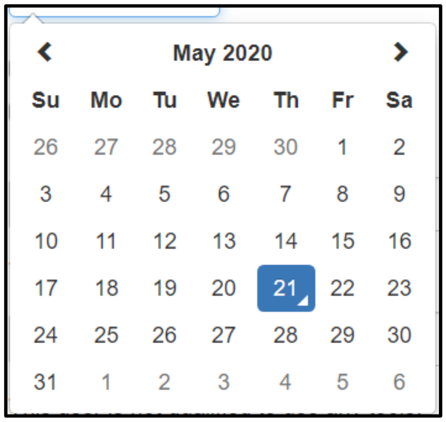


Figure 664 New user access expiration calendar dialog

  - Navigate the calendar and click the date to update the dialog box.
- Make user active or not active by checking the checkbox (Figure 665). By default, a new user is active. A user that is not active cannot access NEMO or have reservations or tool usage performed on their behalf. Any change in a user status is recorded in the activity histories table of the database detailed in the Detailed administration → Activity histories section on page 370.

Figure 665 New user active checkbox

- Select training required or not required by checking the checkbox (Figure 666). By default, training is required for new users. This will display the lab tutorial described on page 33 and block user tool reservations and tool login.

Figure 666 New user training required checkbox

- If the identity service is in use, select the domain the user belongs to (Figure 667). If only one domain has been defined, it will be selected automatically (Figure 668). The identity service is discussed in the Configuring NEMO settings → Identity service section on page 581.

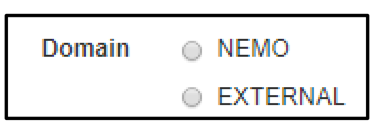


Figure 667 New user domain selection

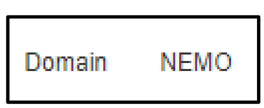


Figure 668 New user single domain

- Enter projects to associate the user with (Figure 669).

Figure 669 New user project dialog box

- A list of projects is returned as characters are typed (Figure 670). The project can be selected from the return list at any time by clicking the project name. Repeat for all projects.

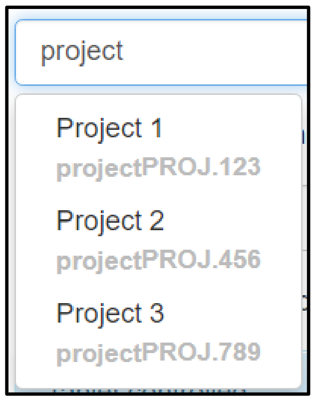


Figure 670 New user projects return list

- The selected project will appear under the dialog (Figure 671). Click the () to remove the user from the project.

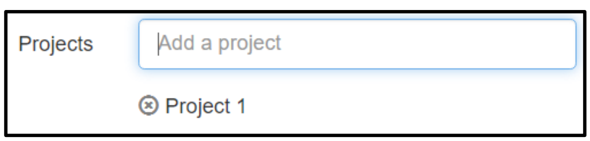


Figure 671 New user project added

- Enter tools the user is qualified on (Figure 672).

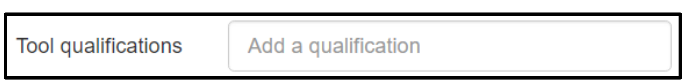


Figure 672 New user tool qualification dialog box

- A list of tools is returned as characters are typed (Figure 673). The tool can be selected from the return list at any time by clicking the tool name. Repeat for all tools.

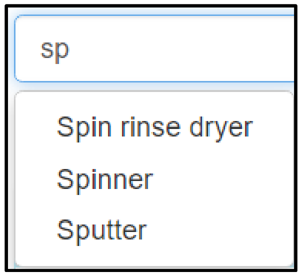


Figure 673 New user tool qualification return list

- The selected tool will appear under the dialog (Figure 674). Click the (⊗) to remove a tool qualification.

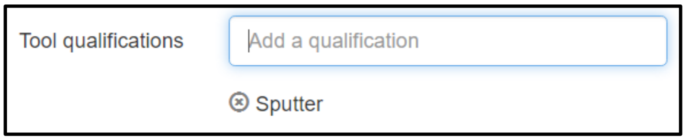


Figure 674 New user tool qualification added

- If NEMO will control area access permissions, a dialog for physical access levels will be displayed (Figure 675).

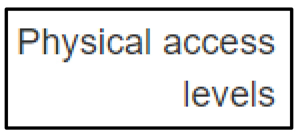


Figure 675 New user physical access levels

  - Check the box for the access levels for the user (Figure 676). The physical access levels are a combination of physical areas and access schedules which are defined in the Detailed administration → Physical access levels table detailed on page 436. Areas may also have doors associated with them that are accessed through entrance tablets which are detailed on page 566.

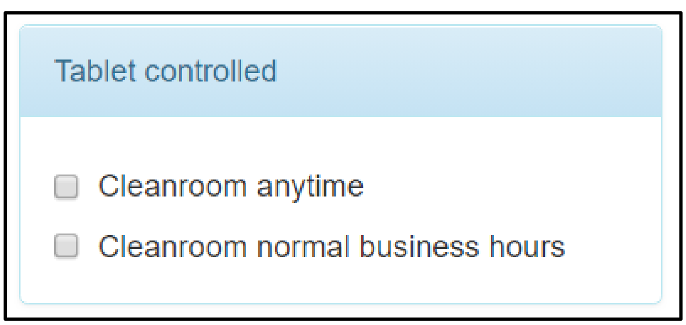


Figure 676 New user NEMO controlled doors

  - Doors and access periods that are controlled by an external access control system can be setup to communicate permissions through the identity service. Any physical access levels available for NEMO to set user permissions on will be listed as badge-reader controlled (Figure 677).

Figure 677 New user external access control

- Select physical access levels to assign to the user by checking the checkboxes.

- Click the create user button to save the user information (Figure 678).

Figure 678 New user create user button

- If the user was recorded successfully
  - Any externally controlled door accesses are updated through the identity service.
  - A record is written in the users table of the database creating the user.
  - Any tool qualifications selected are written to the membership table.
  - Any physical access levels granted are written to the membership table.
  - Any projects selected are written to the membership table.
- If the user was not recorded successfully
  - If required fields are left blank, a notice message will be displayed at the field (Figure 679).

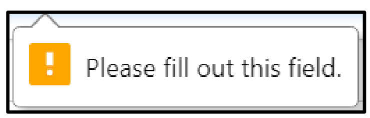


Figure 679 New user blank field error

  - If an invalid email address is entered, a warning message will appear at the top of the page (Figure 680) and an error message will be displayed at the email address dialog box (Figure 681).

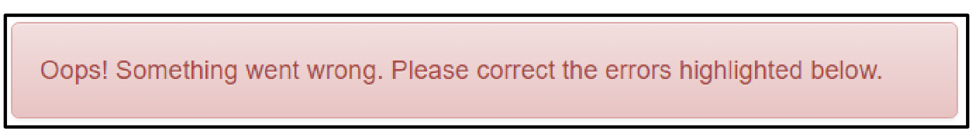


Figure 680 New user error message

Figure 681 New user bad email address message

35.2 Modify existing user

To modify an existing user:

- From the users page, enter a user name in the search dialog (Figure 682).

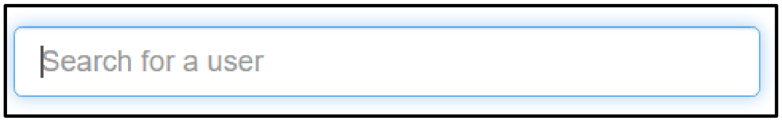


Figure 682 User page search dialog

- A list of users is returned as characters are typed (Figure 683). The user can be selected from the return list at any time by clicking the user name.

Figure 683 User page search return list

- You can also click on the edit icon ( ) of the users list (Figure 684).

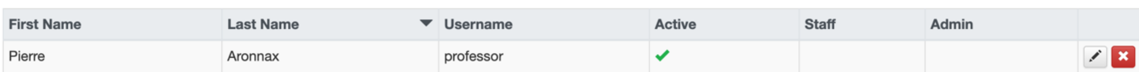


Figure 684 User list edit

- Upon selecting the user, the modify user page will be displayed (Figure 685).

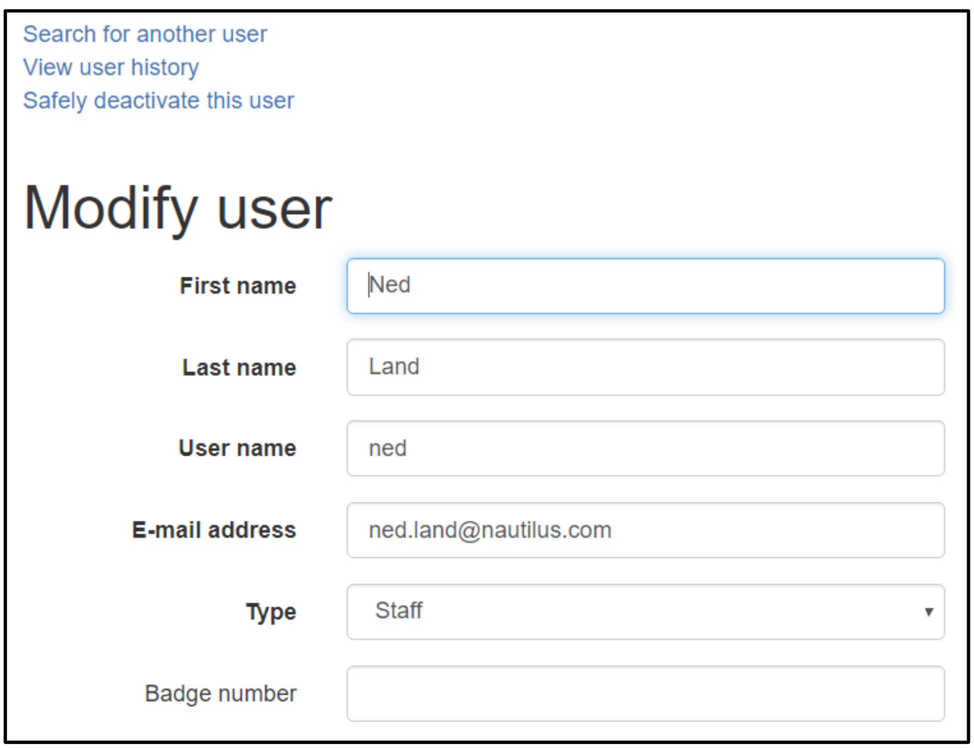


Figure 685 Modify user page

- Above the modify user header, there are three quick links.

- Search for another user (Figure 686). Clicking this link returns to the main users page.

Search for another user

Figure 686 Modify user search for another user link

- View user history (Figure 687).

View user history

Figure 687 Modify user view history link

  - Clicking the link opens the membership history page for this user (Figure 688).
  - The membership history tracks several user actions, who took them, and when. Records are stored in the membership histories table of the database detailed in the Detailed administration → Membership histories section on page 430.
    - Activated or deactivated user
    - Joined or removed from a project
    - Joined or removed from a tool qualification
    - Joined or removed from a physical access level.

History for Ned Land (ned)

Date & time	User	Action
Thursday, April 9th, 2020 @ 2:38 PM	Captain Nemo (captain)	This user now belongs to physical access level "Cleanroom anytime".
Monday, April 13th, 2020 @ 2:43 PM	Captain Nemo (captain)	This user no longer belongs to project "Project 2".
Monday, April 13th, 2020 @ 2:43 PM	Captain Nemo (captain)	This user no longer belongs to project "Project 3".
Tuesday, April 14th, 2020 @ 3:49 PM	Captain Nemo (captain)	User deactivated.
Tuesday, April 14th, 2020 @ 3:49 PM	Captain Nemo (captain)	This user no longer belongs to tool "PECVD".
Tuesday, April 14th, 2020 @ 3:49 PM	Captain Nemo (captain)	This user no longer belongs to physical access level "Cleanroom anytime".
Tuesday, April 14th, 2020 @ 3:49 PM	Captain Nemo (captain)	This user no longer belongs to project "Project 1".
Tuesday, April 14th, 2020 @ 3:49 PM	Captain Nemo (captain)	User activated.
Tuesday, April 14th, 2020 @ 11:01 PM	Captain Nemo (captain)	This user now belongs to physical access level "Cleanroom anytime".
Tuesday, April 14th, 2020 @ 11:03 PM	Captain Nemo (captain)	This user now belongs to project "Project 1".
Thursday, April 16th, 2020 @ 5:34 PM	Captain Nemo (captain)	This user now belongs to tool "PECVD".
Thursday, April 16th, 2020 @ 5:34 PM	Captain Nemo (captain)	This user now belongs to tool "Sputter".

Figure 688 Modify user history detail

- Safely deactivate this user (Figure 689). This is only displayed if an active user was selected. Safely deactivating a user will ensure no additional billable activity can be accumulated once the user is deactivated.

Figure 689 Modify user safe deactivation link

- Clicking the link checks to be sure it is safe to deactivate a user by checking for current billable tasks such as:
  - Future reservations
  - Tools currently in use
  - Currently in an access-controlled area
  - Staff charges currently in progress
- Any current activity is displayed by category (Figure 690).
- Checkboxes are selected by default to remove any current billable tasks. Uncheck them to skip removing a category of tasks.
- Clicking the deactivate user button will cancel any reservations and end any current charges for checked usage categories.

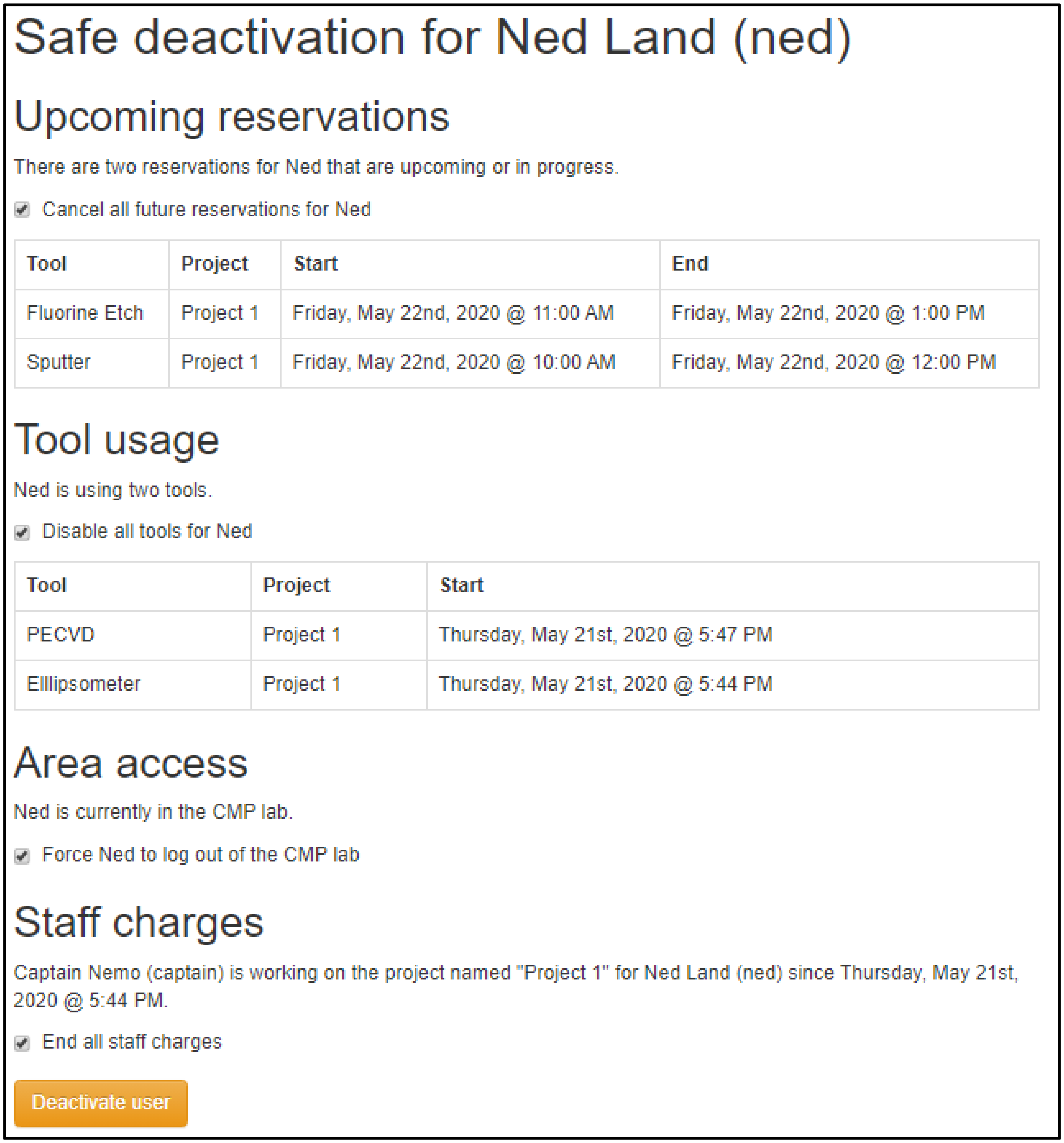


Figure 690 Modify user safe deactivate page

- Modify user
  - The modify user dialog reads the information currently saved user profile including project associations, tool qualifications, and physical access levels. They can be changed under the same process detailed in the create user section above. Once changes are complete, click the save changes button at the bottom of the page (Figure 691).

Figure 691 Modify user save button

35.3 Web address

The users page is accessible at site-address/users/. For example, www.nemo.com/users/. The page is accessible from the navigation bar by clicking Administration then clicking Users.

35.4 Mobile device configuration agenda page

There are no mobile device views for the users page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

35.5 Users page customizations

35.5.1 Identity service

The identity service requires custom programming to provide a bridge between NEMO and outside systems such as multiple LDAP servers for different types of users, and external access control systems to authorize users to access doors. It is beyond the scope of this manual to provide programming examples for bridge software, but details of the NEMO settings can be found in the Configuring NEMO settings → Identity service section on page 581.

36 Projects (PIs only)

36.1 Usage

This page simply displays the projects the user is a Principal Investigator on. Project Investigators can be set in the Projects Administration page.
It will display basic information about the project as well as users on the project (Figure 692).

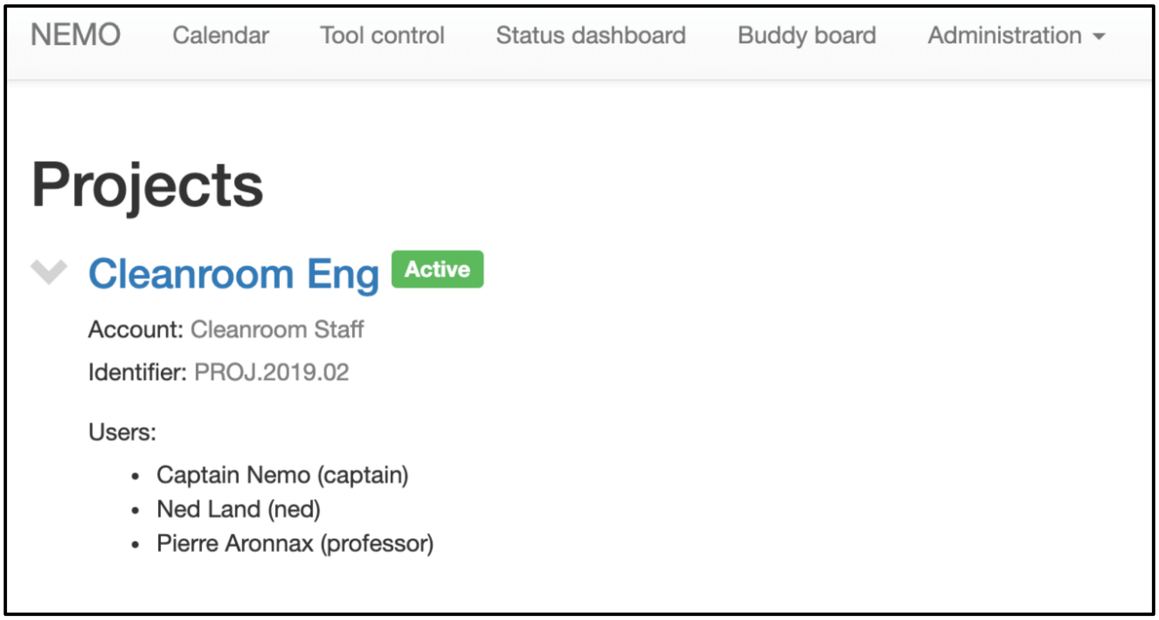


Figure 692 Projects view

36.2 Web address

The projects page is accessible at site-address/projects/. For example, www.nemo.com/projects/.
The page is accessible from the navigation bar by clicking Administration then clicking Projects (Figure 693).

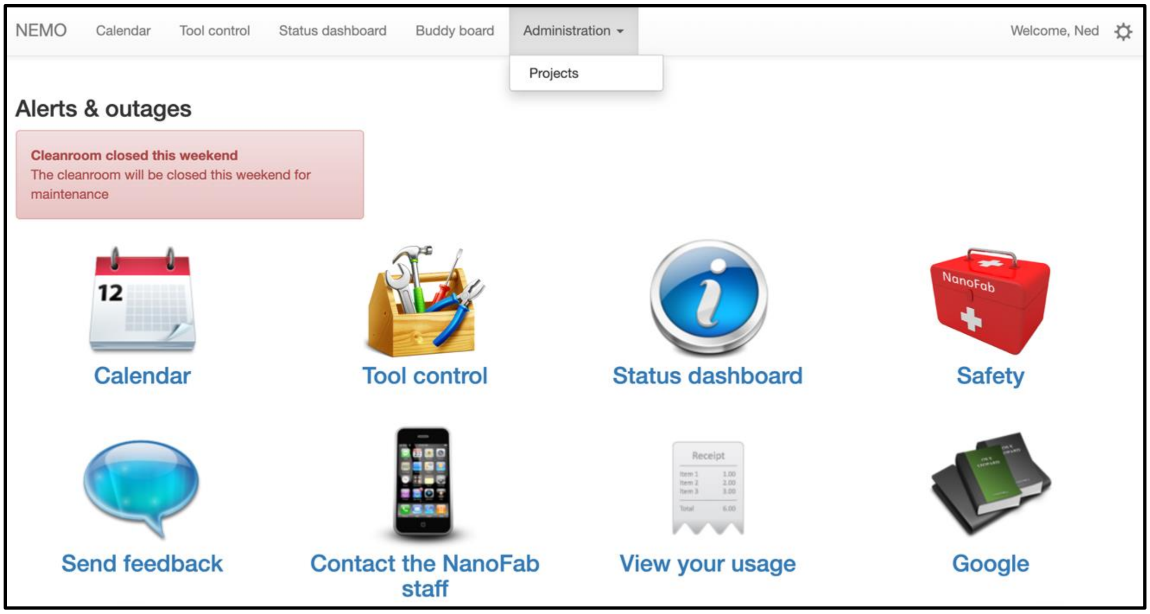


Figure 693 Projects view address

36.3 Mobile device

There are no mobile device views for the users page however, as the page size is reduced, the headings are stacked, and all information is viewable by scrolling.

36.4 Projects page customizations

There are no customizations for the impersonate page.

37 Customization (admin only)

The customization section can be used to tailor NEMO to the needs of a particular lab. Customizations include where NEMO will send emails, what the emails should look like, page customizations, and functional settings.
HTML content creation and formatting are beyond the scope of this manual. Many resources can be found online.
However, sample email templates can be found on the NEMO repository on GitHub at https://github.com/usnistgov/NEMO/tree/master/resources/emails

37.1 Email Addresses

NEMO can send email messages in support of a variety of features (Figure 694). The email address customization provides the capability to send different types of email messages to different people or departments in the organization.

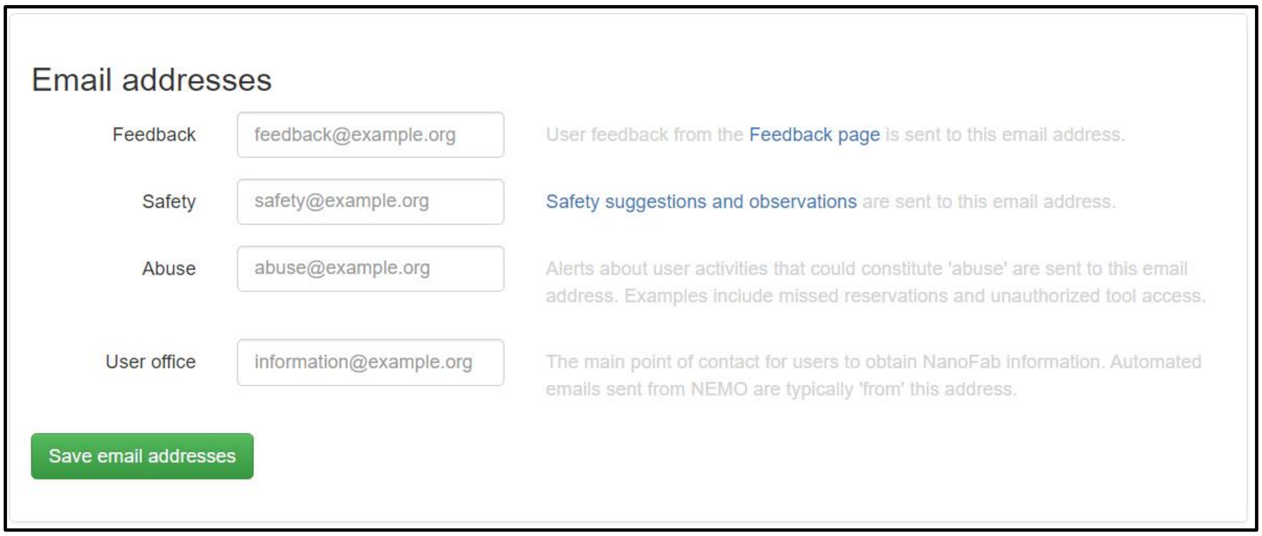


Figure 694 Customization email addresses

Feedback – emails generated by the send feedback page are sent to this email address. The send feedback feature is described in the send feedback section on page 166. The send feedback feature requires both the email address and email template to be configured in the customizations. The feedback email customization is described in the feedback email section below on page 323.

Safety – emails generated by the safety page are sent to this email address. The safety page is described in the safety section on page 158. Safety email notifications require both the email address and email template to be configured in the customizations. The safety email customization is described in the safety issue email section below on page 340.

Abuse – emails generated by either a missed reservation, unauthorized tool login attempt, or tutorial completion are sent to this email address. The missed reservation feature is described in the reservation section on page 59. The tool login feature is described on page 97. The rules tutorial feature is described on page 33. Both the email address and email template must be configured in the customizations. The missed reservation email customization is described in the missed reservation email section below on page 327. The unauthorized tool login email customization is described below on page 344. The tutorial completion email customization is described below on page 329.

User office – all emails initiated by NEMO will be from this email address. For example, reservation reminders, missed reservations, and tool in use reminders. Emails initiated by a user will be from the user that initiated the email. For example, feedback emails, staff canceling a user’s reservation, and safety.

37.2 Application settings

The application settings can be configured to allow users to manually log into and out of areas and to set the facility name, site title, and the project selection template (Figure 695). The log in and log out features are useful for labs that use NEMO for door control in the event of an outage and also for labs that do not use door control but want to track lab access. Tools can be configured to require a user to be logged into an area before they will be allowed to activate the tool. Customizing the facility name and site title can be used to tailor the application to your institution. Customizing the project selection template allows for custom project information to be displayed when users are selecting a project to associate a reservation/usage with.

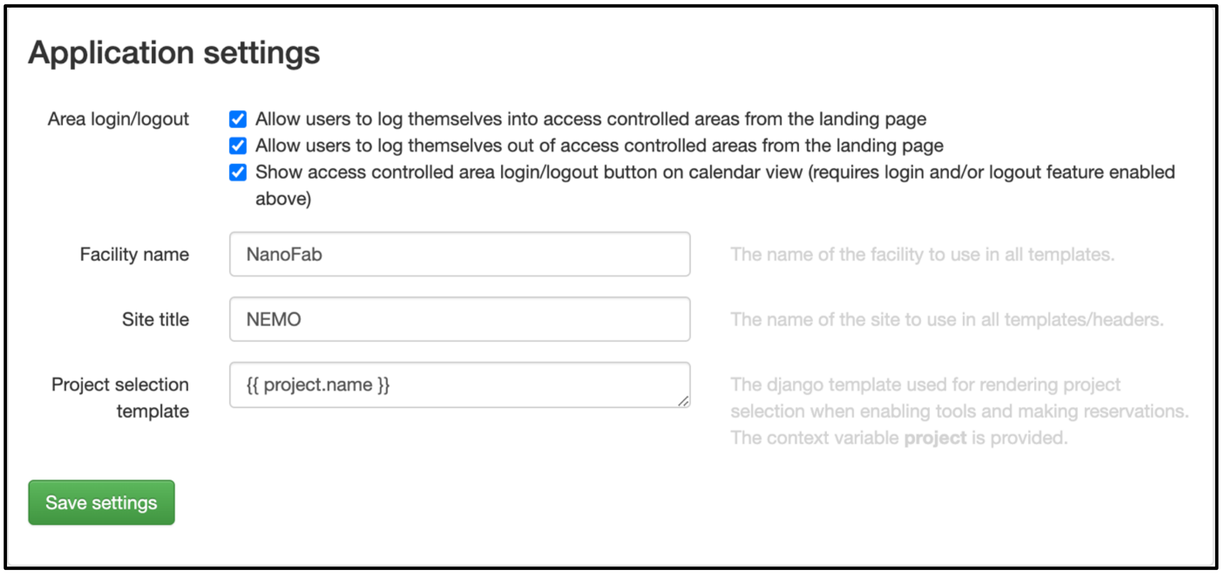


Figure 695 Customization application settings

- If the "allow users to log themselves into access controlled areas" checkbox is checked, the log in dialog is displayed (Figure 696) on the NEMO landing page as described on page 30.

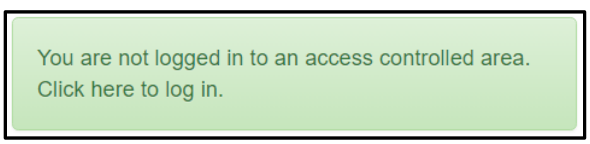


Figure 696 Landing page log in dialog box

- If the "allow users to log themselves out of access controlled areas" checkbox is checked, the log out dialog is displayed (Figure 697) on the NEMO landing page as described on page 32.

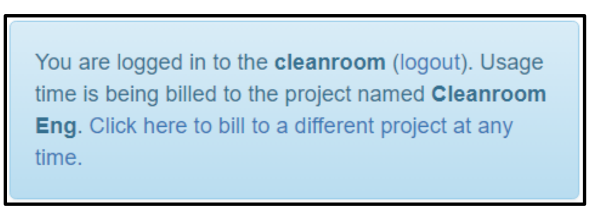


Figure 697 Landing page log out dialog box

- If the “allow login/logout in the calendar view checkbox” is checked, the area login/logout button is displayed (Figure 698) on the NEMO calendar page header when an area is selected as described on page 43. This feature requires that the allow area login and/or allow area logout features above are enabled.

Figure 698 Calendar page login button

- The default facility name is “NanoFab” and will be displayed in all templates (Figure 699). To edit, click in the dialog box and enter the desired facility name.

Figure 699 Customization application setting facility name

- The default site title is “NEMO” and will be displayed in all templates and headers (Figure 700). To edit, click in the dialog box and enter the desired site name.

Figure 700 Customization application setting site title

- The default project selection template is “{{ project.name }}”. To edit, click in the dialog box and enter the desired message (Figure 701). The syntax follows Django templating engine. Conditions and other tags can be used.
  For example, entering “{{ project.account.name }} – {{ project.name }}” will result in the account name followed by the project name to be displayed when users need to select a project to associate with a reservation, usage etc.
  Note that carriage returns will be displayed to ease visual organization of information.

Figure 701 Customization application setting project selection template

- When changes are complete, click the save button save the new application settings (Figure 702).

Figure 702 Customization application setting save button

37.3 Calendar settings

The calendar settings can be configured to set the default calendar view, first day of the week, default calendar start time, and to customize how dates are displayed for international support (Figure 703).

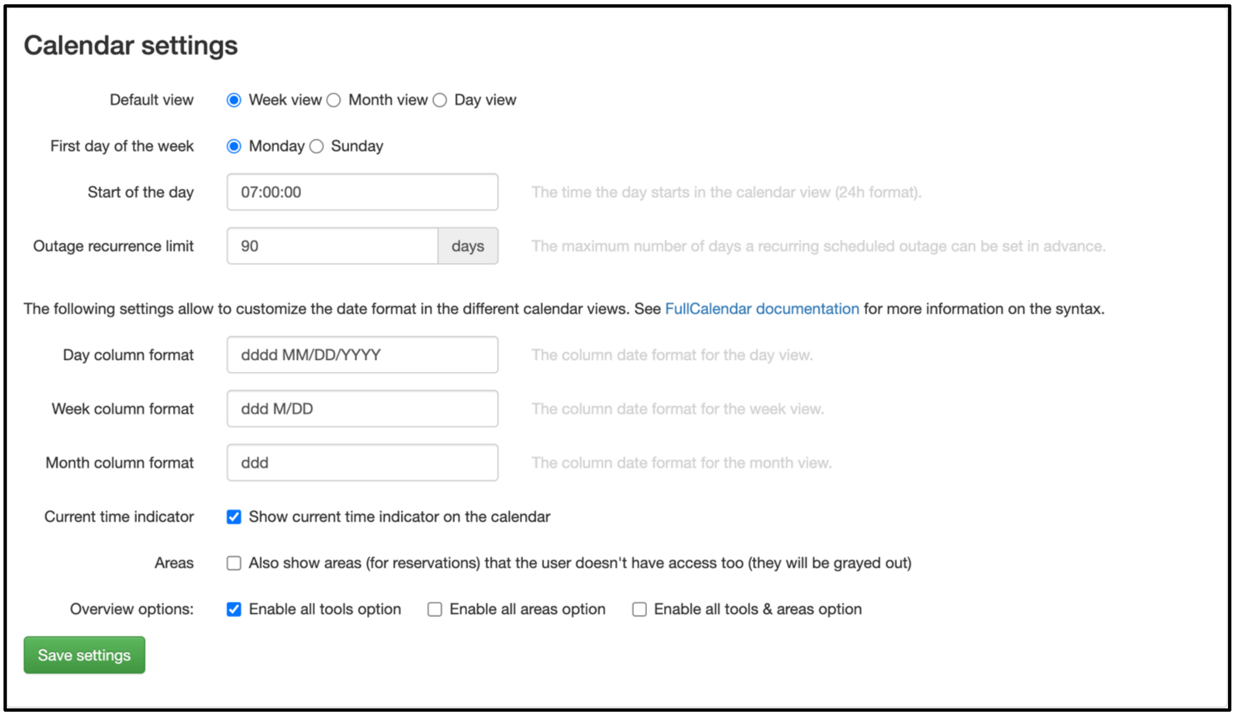


Figure 703 Customization calendar settings

The default view can be changed between week view, month view, or day view by checking the desired radio button (Figure 704).

Figure 704 Customization calendar default view

The first day of the week displayed on the week view and month view can be changed between Monday and Sunday by checking the desired radio button (Figure 705).

Figure 705 Customization calendar first day of week

The number of days in advance to create recurring outages can be set by entering an integer number (Figure 706).

Figure 706 Customization calendar recurring outage days in advance

The start time in the week view and day view can be set by entering a time in 24-hour format (Figure 707).

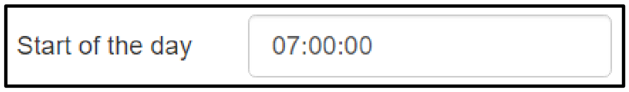


Figure 707 Customization calendar start time

The date format for the day column can be customized by entering the format string in the dialog box (Figure 708). See the [Full Calendar documentation] for more information on the syntax.

Figure 708 Customization calendar day column format

The date format for the week column can be customized by entering the format string in the dialog box (Figure 709). See the [Full Calendar documentation] for more information on the syntax.

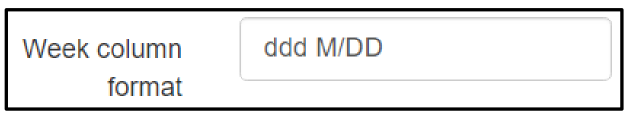


Figure 709 Customization calendar week column format

The date format for the month column can be customized by entering the format string in the dialog box (Figure 710). See the [Full Calendar documentation] for more information on the syntax.

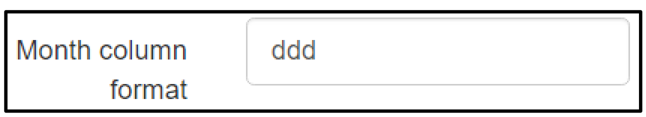


Figure 710 Customization calendar month column format

The calendar will highlight the current day and can optionally display a red pointer to indicate the current time on day and week calendar views. Display the red pointer to indicate the time by checking the show current time indicator checkbox (Figure 711).

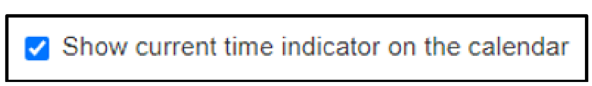


Figure 711 Customization calendar time indicator

The calendar will show a user the areas they specifically have permission to enter. However, a user can be given access to see the reservations for all areas by checking the Also show areas checkbox (Figure 712).

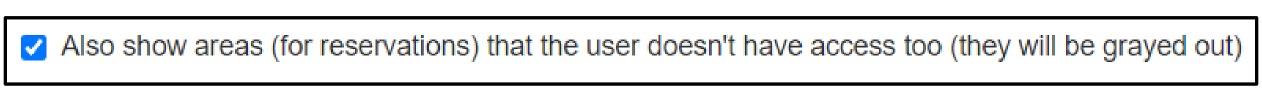


Figure 712 Customization calendar show all areas checkbox

The calendar can show options to display reservation/usage for all tools, all areas or all tools and areas (Figure 713).

Figure 713 Customization calendar show overview options

When changes are complete, click the save button save the new application settings (Figure 714).

Figure 714 Customization calendar settings save button

37.4 Status dashboard settings

The dashboard can be configured to with different parameters for the occupancy and the staff status page (Figure 715).

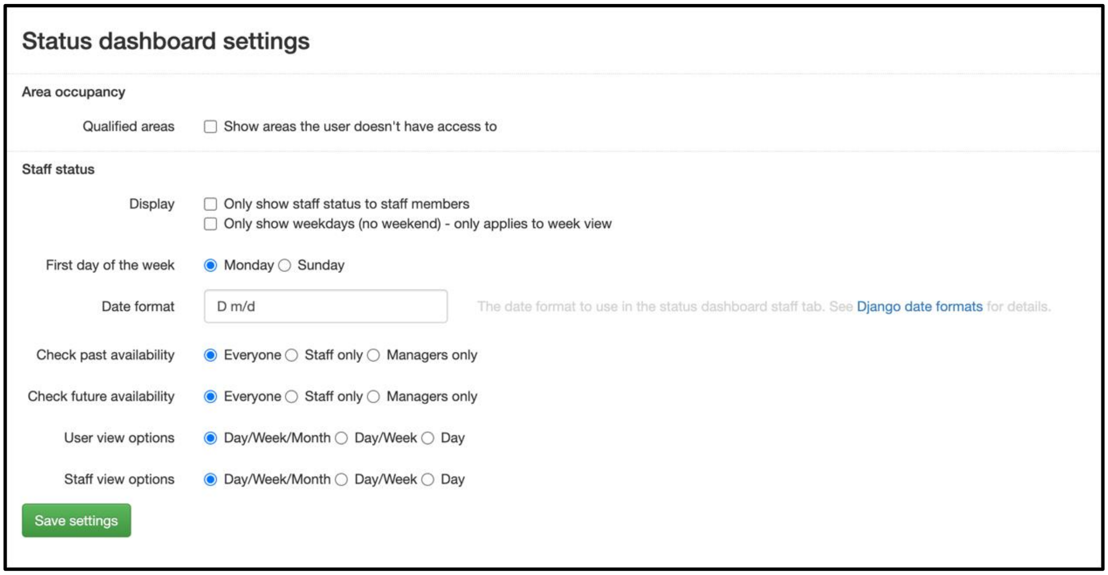


Figure 715 Customization status dashboard settings

- If the "Show areas the user doesn't have access to" box is checked, the status dashboard will display occupancy of all areas, even the ones the current user doesn't have access to (Figure 716).

Figure 716 Customization status dashboard show areas user doesn't have access to checkbox

- If the "Only show staff status to staff members" box is checked, only staff member will see the staff status page (Figure 717).

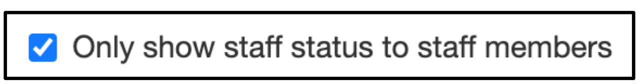


Figure 717 Customization status dashboard show staff status only to staff checkbox

- If the "Only show weekdays (no weekend)" box is checked, only weekdays will be shown in the staff status page (Figure 718).

Figure 718 Customization status dashboard staff status only show weekdays checkbox

- The first day of the week displayed on the staff status view can be changed between Monday and Sunday by checking the desired radio button (Figure 719).

Figure 719 Customization status dashboard staff status first day of week

- The date format used to display days in the staff status page can be customized (Figure 720).

Figure 720 Customization status dashboard staff status date format

- Whether users or staff member are allowing to check past staff availability can be customized (Figure 721).

Figure 721 Customization status dashboard staff status check past availability

- Whether users or staff member are allowing to check future staff availability can be customized (Figure 722).

Figure 722 Customization status dashboard staff status check future availability

- Whether users are allowed to see the week, month view or only day view can be customized (Figure 723).

Figure 723 Customization status dashboard staff status user view options

- Whether staff members are allowed to see the week, month view or only day view can be customized (Figure 724).

Figure 724 Customization status dashboard staff status staff view options

When changes are complete, click the save button to save the new status dashboard settings (Figure 725).

Figure 725 Customization status dashboard settings save button

37.5 Interlock settings

The Interlock settings can be configured to display a custom message when an interlock command fails. Interlocks can be used for both doors and tools, and you can customize the message for each (Figure 726).

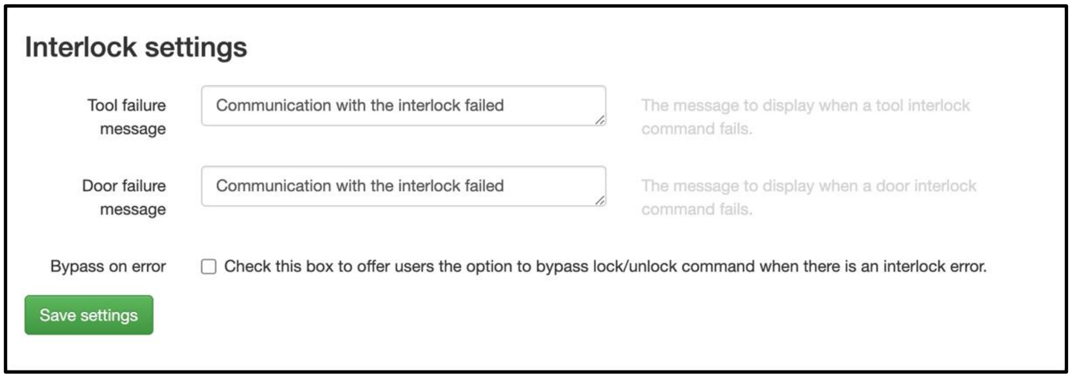


Figure 726 Interlock settings

- The default message for tool interlock failure is "Communication with the interlock failed". To edit, click in the dialog box and enter the desired message (Figure 727). Note that carriage returns will be displayed to ease visual organization of information.

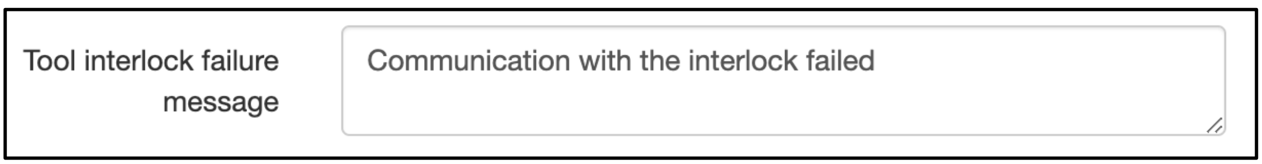


Figure 727 Interlock settings tool failure message

- The default message for door interlock failure is "Communication with the interlock failed". To edit, click in the dialog box and enter the desired message (Figure 728). Note that carriage returns will be displayed to ease visual organization of information.

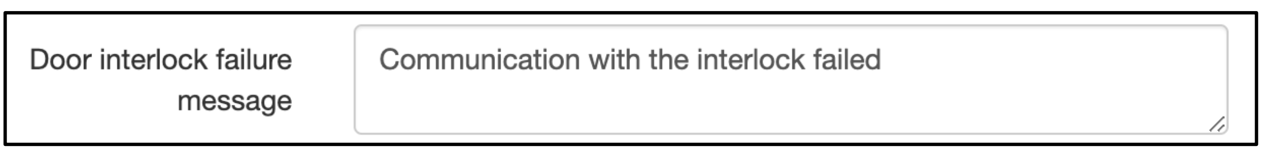


Figure 728 Interlock settings door failure message

- Additionally, you can enable an option for users to bypass the interlock error by clicking the checkbox (Figure 729), meaning they can still enable/disable a tool or enter a billable area in NEMO.
  In reality this means that if interlock commands fail but tools or doors can be manually enabled by staff, the user can select that option to have NEMO keep track of time as it otherwise would.

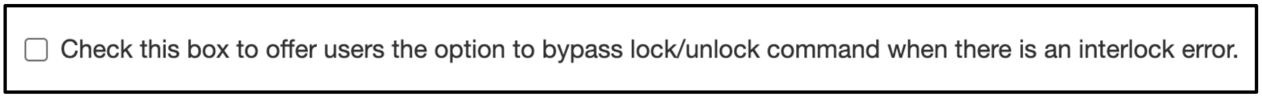


Figure 729 Interlock settings bypass

37.6 User requests settings

The User requests settings include the buddy requests and access requests features. The title of each tab can be set, as well as a description message for each of the features, to provide users with instructions particular to your facility.
The buddy board is detailed starting on page 141.
The access requests feature is detailed starting on page 147.

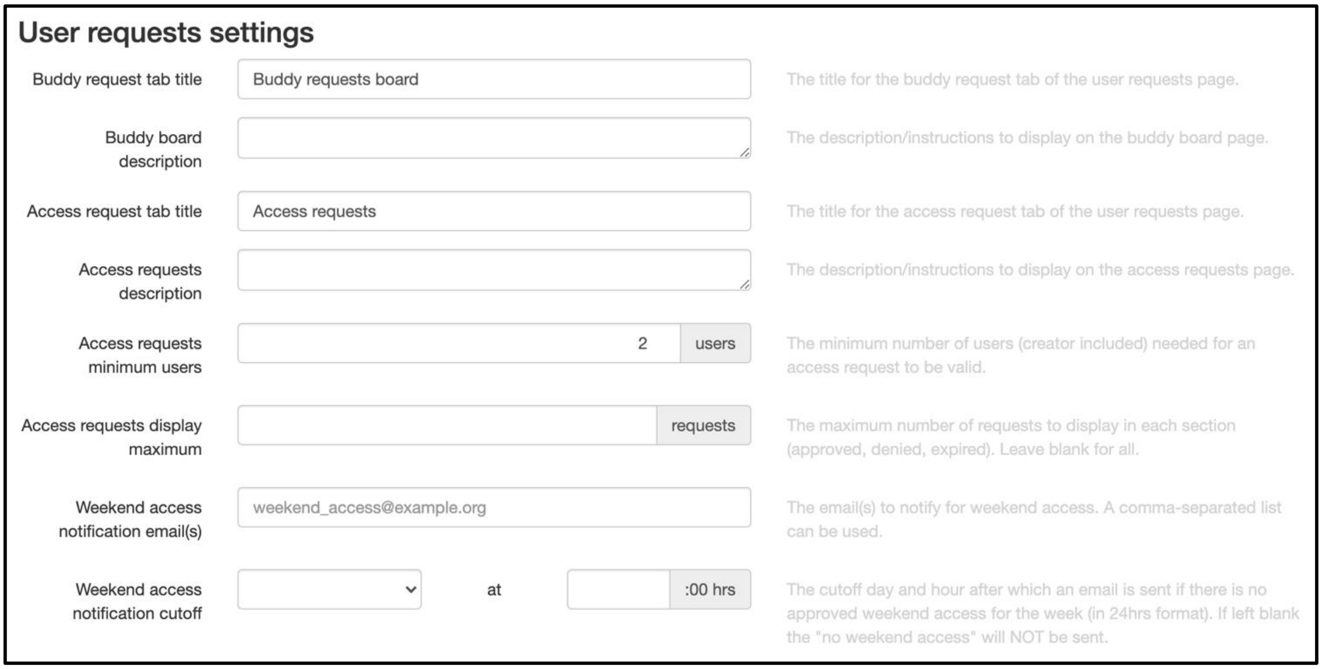


Figure 730 Customization user requests settings

- The default buddy request tab title is "Buddy requests board" and is displayed in the Request page, on the tab for the buddy board (Figure 732).
  To edit, click on the text field and enter the desired title (Figure 731).

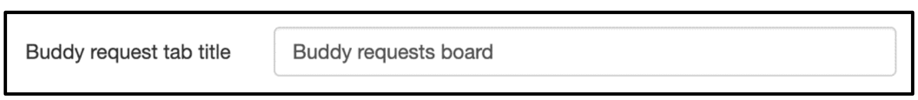


Figure 731 User request settings buddy request tab title

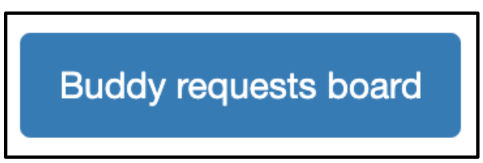


Figure 732 Requests buddy board tab

- The default message for Buddy board description is blank. To edit, click in the dialog box and enter the desired message (Figure 733). Note that carriage returns will be displayed to ease visual organization of information.

Figure 733 User requests settings buddy board description

- The default access request tab title is “Access requests” and is displayed in the Request page, on the tab for the access requests ().
To edit, click on the text field and enter the desired title ().

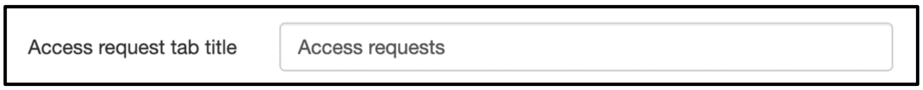


Figure 734 User request settings access request tab title

Figure 735 Requests access request tab

- The default message for Access requests description is blank. To edit, click in the dialog box and enter the desired message (Figure 734). Note that carriage returns will be displayed to ease visual organization of information.

Figure 736 User requests settings access requests description

- The default number of required users for an access request is 2 which means anyone submitting an access request needs to select at least 1 user/buddy. To edit, click in the dialog box and enter the desired number (Figure 737).

Figure 737 User requests settings access requests minimum users

- The default number of access requests to display is blank, which means all the requests will be displayed for users in Approved, Denied and Expired sections. The optional limit does not apply to pending requests. To edit, click in the dialog box and enter the desired number (Figure 738).

Figure 738 User requests settings access requests display maximum

- The default emails to send weekend access emails to is blank. A comma separated list can be used. To edit, click in the dialog box and enter the desired email address(es) (Figure 739).

Figure 739 User requests settings access requests weekend access emails

- The default cutoff day and time to send weekend access emails to is blank. To edit, click in the dropdown and select the day, then click in the dialog box and enter the desired number (Figure 740). Note that the time needs to be in 24hrs format.

Figure 740 User requests settings access requests weekend access notification cutoff

37.7 File & email templates

37.7.1 Login banner

The customization for the login banner can be configured using html to display information to users on the login page and is uploaded and viewed through this dialog (Figure 741). The login banner is optional, and no default value is displayed if not configured. More information about the login page can be found on page 17.

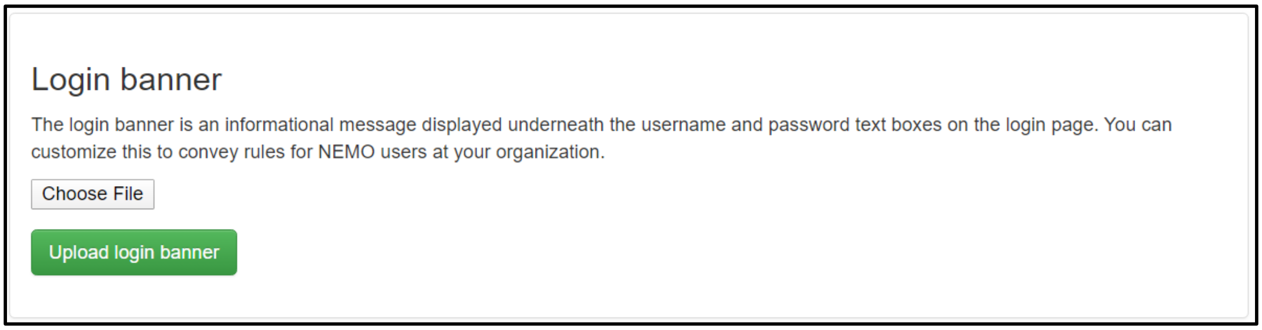


Figure 741 Customization login banner

To create a custom login banner

- Use any html editor to create the desired content
- Example
    - The html code in Figure 742

```
<H2><center>
Welcome to our lab!
</center></H2>
<H3><center>
If you are having trouble with your user name or password, please see a user office staff member.
</center></H3>
```

Figure 742 Customization login banner html

-
    - Will produce the banner in Figure 743 on the login page

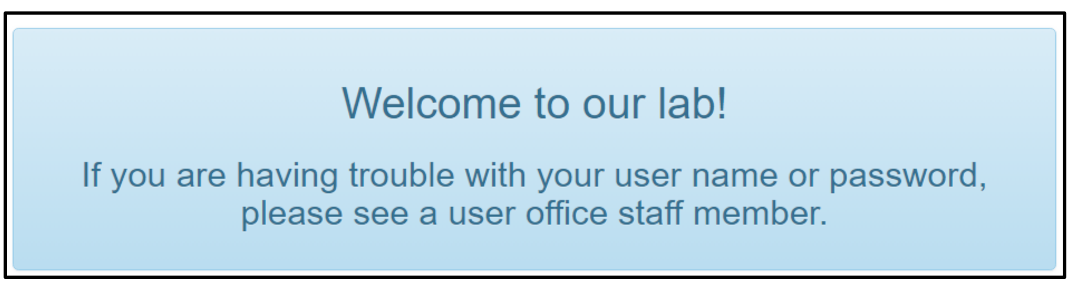


Figure 743 Customization login banner html rendered

To upload a login banner:

- Click the choose file button to open the file selection dialog (Figure 744).

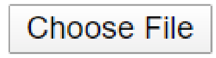


Figure 744 Customization login banner choose file button

- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button (Figure 745).

Figure 745 Customization login banner file selected

- Click the upload login banner button to load the file (Figure 746).

Figure 746 Customization login banner upload button

- The selected file will be renamed 'login_banner.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 747).

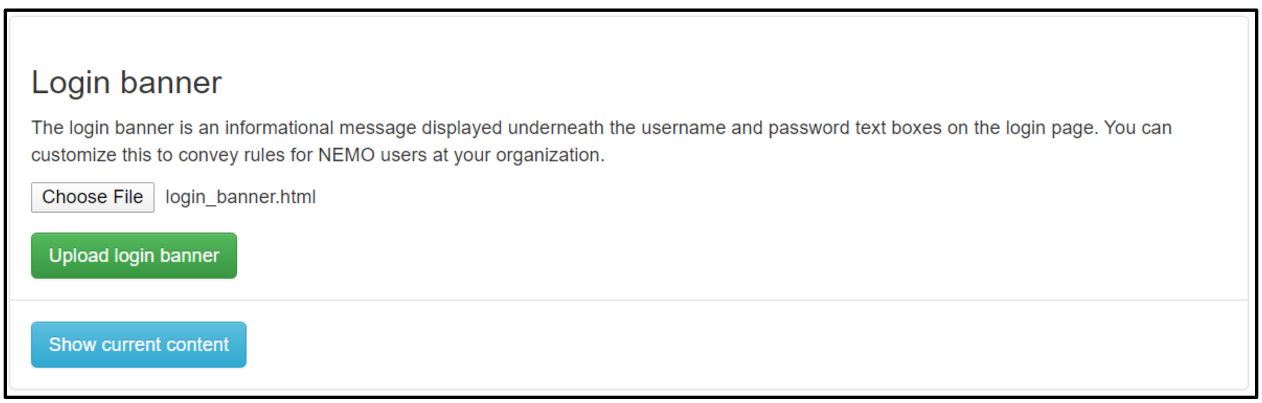


Figure 747 Customization login banner file loaded

To delete the currently loaded file:

- Click the upload banner button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear (Figure 748).

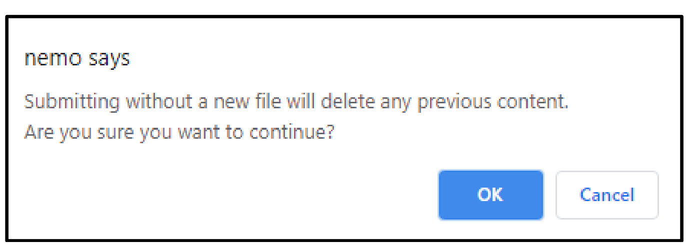


Figure 748 Customization file deletion confirmation

- Click OK to delete the file or Cancel to leave the file.

- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button (Figure 749).

Figure 749 Customization login banner show current content button

- The current file content will be displayed in a separate window.

37.7.2 Introduction for Safety suggestions and observations page

The customization for the introduction for safety suggestions and observations page can be configured using html to display lab specific safety information to users on the safety page and is uploaded and viewed through this dialog (Figure 750). The safety introduction is optional, and a default value will be displayed if not configured. More information about the safety page can be found on page 158.

Figure 750 Customization safety introduction

To create a custom safety introduction

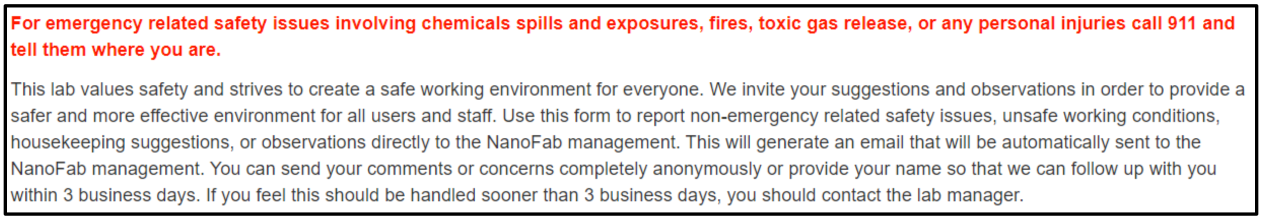
- Use any html editor to create the desired content
- Example
  - The html in Figure 751

```
<p style="font-weight:bold; color:red">For emergency related safety issues involving chemicals spills and exposures, fires, toxic gas
release, or any personal injuries call 911 and tell them where you are.</p>

<p>This lab values safety and strives to create a safe working environment for everyone. We invite your suggestions and observations
in order to provide a safer and more effective environment for all users and staff. Use this form to report non-emergency related
safety issues, unsafe working conditions, housekeeping suggestions, or observations directly to the NanoFab management. This will
generate an email that will be automatically sent to the NanoFab management. You can send your comments or concerns completely
anonymously or provide your name so that we can follow up with you within 3 business days. If you feel this should be handled sooner
than 3 business days, you should contact the lab manager.</p>
```

Figure 751 Customization safety introduction html

  - Will produce the introduction in Figure 752 on the safety page:


For emergency related safety issues involving chemicals spills and exposures, fires, toxic gas release, or any personal injuries call 911 and tell them where you are.

This lab values safety and strives to create a safe working environment for everyone. We invite your suggestions and observations in order to provide a safer and more effective environment for all users and staff. Use this form to report non-emergency related safety issues, unsafe working conditions, housekeeping suggestions, or observations directly to the NanoFab management. This will generate an email that will be automatically sent to the NanoFab management. You can send your comments or concerns completely anonymously or provide your name so that we can follow up with you within 3 business days. If you feel this should be handled sooner than 3 business days, you should contact the lab manager.

Figure 752 Customization safety introduction html rendered

To upload a login banner:

- Click the choose file button to open the file selection dialog (Figure 753).

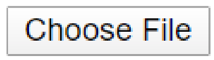


Figure 753 Customization safety introduction choose file button

- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button (Figure 754).

Figure 754 Customization safety introduction file selected

- Click the upload login banner button to load the file (Figure 755).

Figure 755 Customization safety introduction upload button

- The selected file will be renamed 'safety_introduction.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 756).

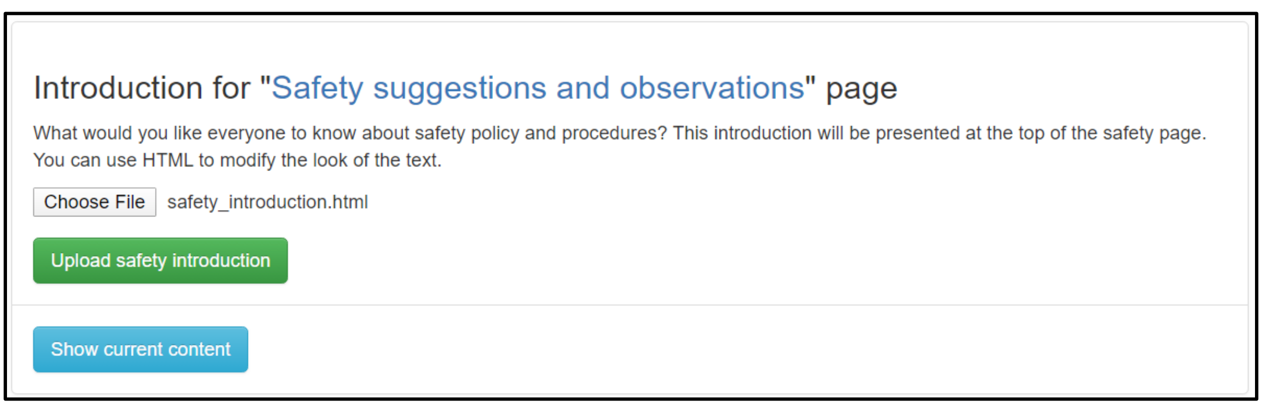


Figure 756 Customization safety introduction file loaded

- To view the uploaded content, navigate to the safety page by clicking the link provided (Figure 757).

Figure 757 Customization safety introduction page link

To delete the currently loaded file:

- Click the upload safety introduction button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear (Figure 758).

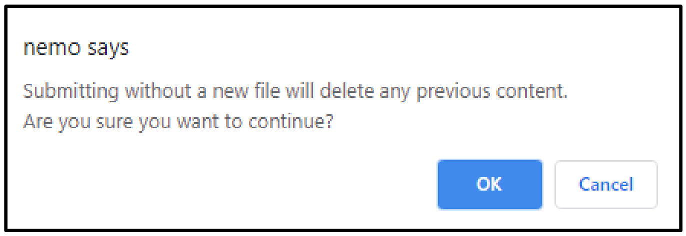


Figure 758 Customization file deletion confirmation

- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button (Figure 759).

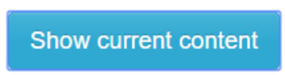


Figure 759 Customization safety introduction show current content button

- The current file content will be displayed in a separate window.

37.7.3 Facility rules tutorial page

The customization for the facility rules tutorial page can be configured using html to display lab specific tutorial information to users and is uploaded and viewed through this dialog (Figure 760). The rules tutorial is optional however there is no default content therefore users with training required while no rules tutorial has been configured will require staff to uncheck the users training required status. More information about the rules tutorial can be found in the landing page section on page 33.

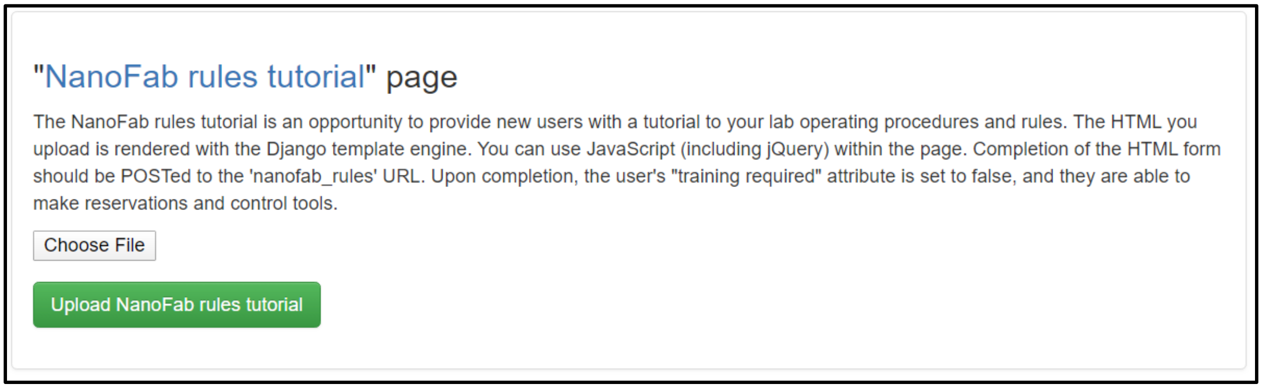


Figure 760 Customization rules tutorial

The tutorial is triggered by a flag in a user's profile and by default is set to require training upon user creation. NEMO user profiles are discussed in the Users section described on page 278. A notification is displayed on the landing page and is the user access point for completing the tutorial which is described in the landing page section on page 33.

To create a custom rules tutorial

- Use any html editor to create the desired content
- The HTML uploaded is rendered with the Django template engine.
- JavaScript (including jQuery) can be used within the page.
- To mark the training as complete, the form must be POSTed to the 'facility_rules' URL to enable the user to make reservations and control tools.
- Example
    - The html in Figure 761

```
<h1>NanoFab Rules</h1>

<form action="{% url 'facility_rules' %}" method="post">
        {% csrf_token %}

        <div id="introduction">
                <h4>Introduction</h4>
                <p>The NanoFab operates as a shared resource for both internal and exteral users. Please work with other
users to ensure everyone is as productive as possible.</p>
                <p>Don't over reserve tools and if you no longer need a reservation, cancel it as soon as possible.
Please be sure that you log in as soon as you begin using each tool and log out only after the tool is available for the
next user.</p>
                <p><strong>Most important, clean up after yourself</strong></p>
                <button type="button" class="btn btn-success" onclick="$('#introduction').hide();
$('#conclusion').show();window.scrollTo(0,0);">I understand and agree</button>
        </div>

        <div id="conclusion" style="display:none">
                <p>Ultimately, the staff want to make your NanoFab experience as productive and fun as possible. We hope
these rules will make everyone's life better.<br></p>
                <button type="submit" style="white-space: normal" class="btn btn-success">Click here to officially
complete your training</button>
        </div>
</form>
```

Figure 761 Customization rules tutorial html

- Will produce the tutorial pages shown in Figure 762 and Figure 763

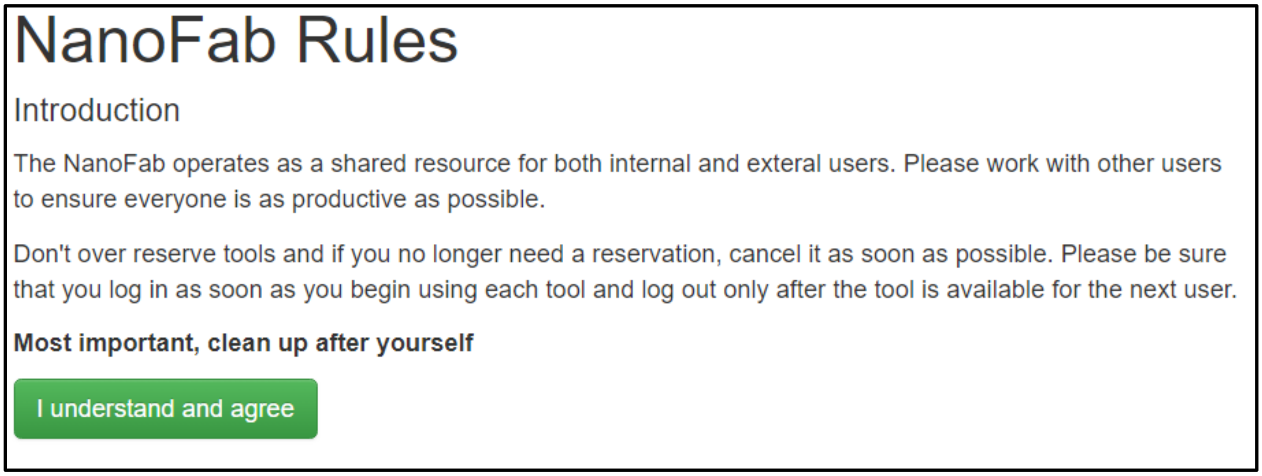


Figure 762 Customization rules tutorial html rendered page 1

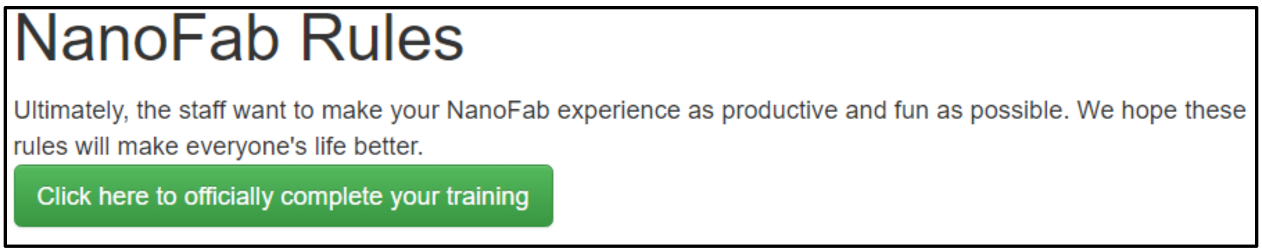


Figure 763 Customization rules tutorial html rendered page 2

To upload a rules tutorial:

- Click the choose file button to open the file selection dialog (Figure 764).

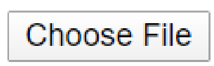


Figure 764 Customization rules tutorial choose file button

- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button (Figure 765).

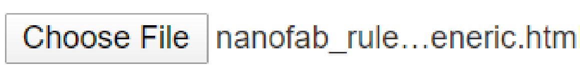


Figure 765 Customization rules tutorial file selected

- Click the upload rules tutorial button to load the file (Figure 766Figure 755).

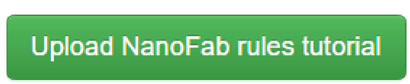


Figure 766 Customization rules tutorial upload button

- The selected file will be renamed ‘facility_rules_tutorial.html’ and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 767).

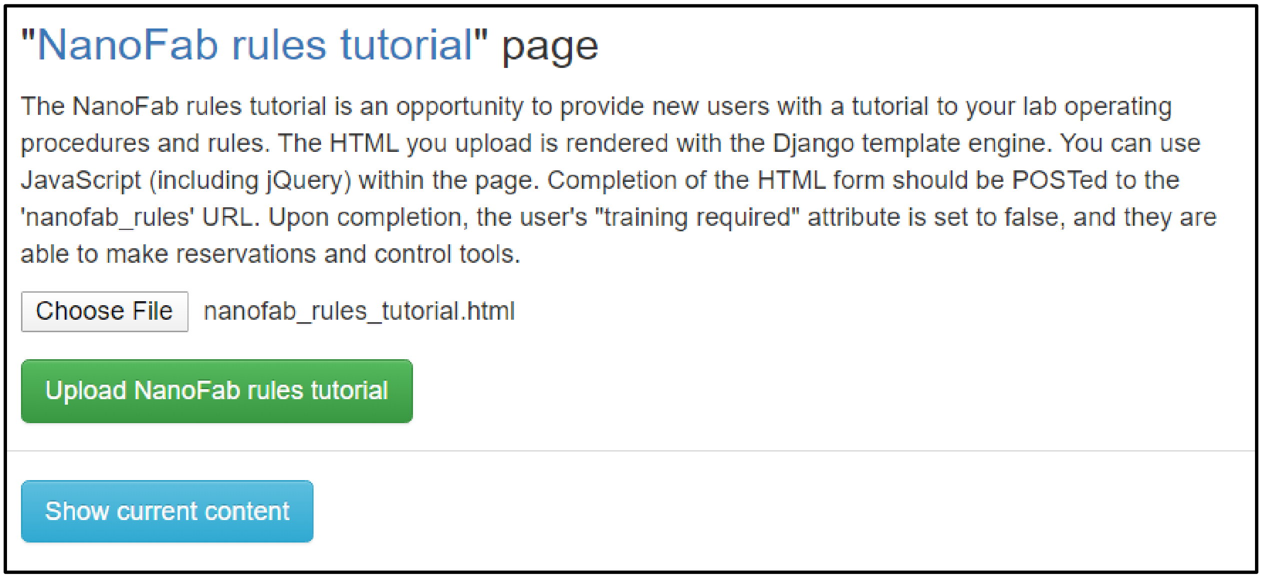


Figure 767 Customization rules tutorial file loaded

- To view the uploaded content, navigate to the safety page by clicking the link provided (Figure 768).

Figure 768 Customization rules tutorial page link

To delete the currently loaded file:

- Click the upload rules tutorial button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear (Figure 769).

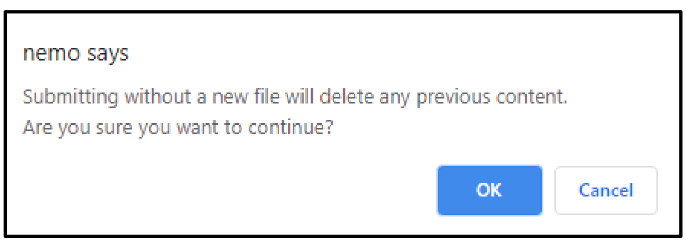


Figure 769 Customization file deletion confirmation

- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button (Figure 770).

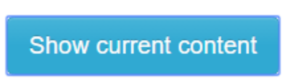


Figure 770 Customization rules tutorial show current content button

- The current file content will be displayed in a separate window.

37.7.4 Facility failed login page

The customization for the failed login page can be configured using html to display login trouble information to users and is uploaded and viewed through this dialog (Figure 771). The failed login configuration is optional, and a default value is displayed if not configured. More information about the login page can be found on page 17.

Figure 771 Customization failed login

To create a custom failed login page:

- Use any html editor to create the desired content
- Example
  - The html code in Figure 772

```
<H2><center>
There was a problem logging you in!
</center></H2>
<H3><center>
We cant find you on our list of active users.  If you have used the lab before, your username may
be deactivated for some reason.  Please see a user office staff member.
</center></H3>
```

Figure 772 Customization failed login html

  - Will produce the failed login page in Figure 773

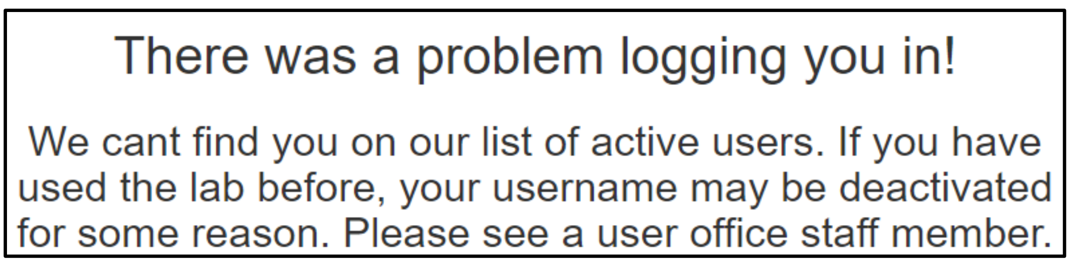


Figure 773 Customization failed login html rendered

To upload a login banner:

- Click the choose file button to open the file selection dialog (Figure 774).

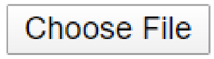


Figure 774 Customization failed login choose file button

- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button (Figure 775).

Figure 775 Customization failed login file selected

- Click the upload failed login page button to load the file (Figure 776).

Figure 776 Customization failed login upload button

- The selected file will be renamed ‘authorization_failed.html’ and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 777).

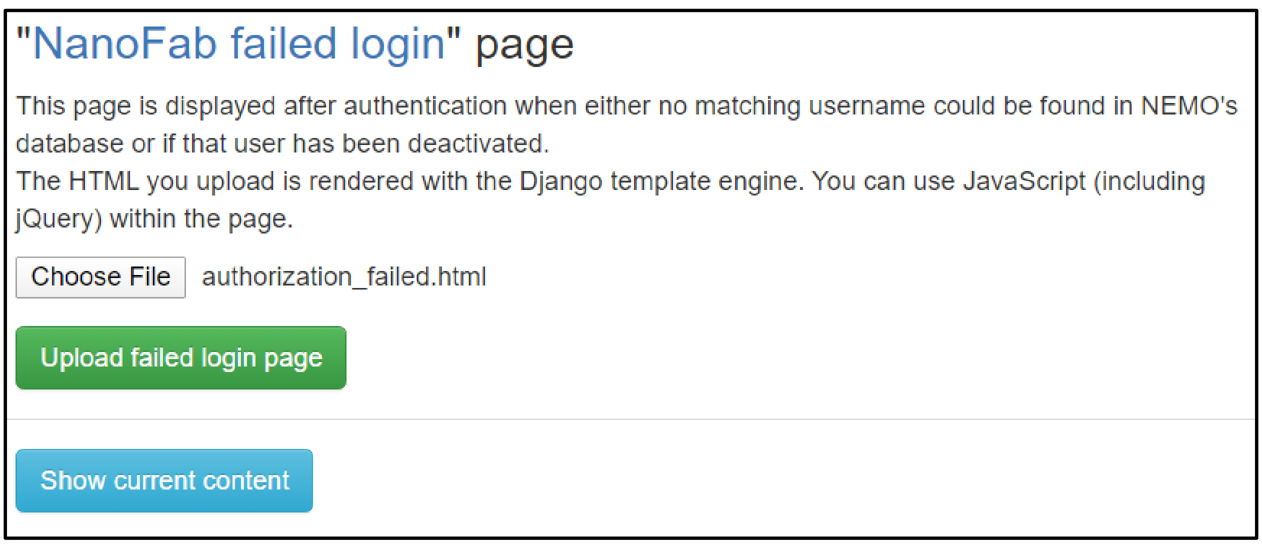


Figure 777 Customization failed login file loaded

To delete the currently loaded file:

- Click the upload failed login page button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear (Figure 778).

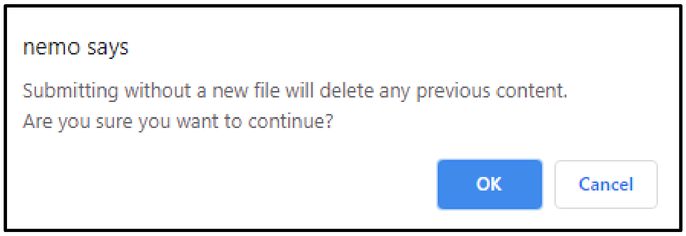


Figure 778 Customization file deletion confirmation

- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button (Figure 779).

Figure 779 Customization failed login show current content button

- The current file content will be displayed in a separate window.

37.7.5 Jumbotron watermark

The customization for the jumbotron watermark can be configured to display a background on the jumbotron page view (Figure 780). The jumbotron watermark configuration is optional and a white background is displayed if not configured. More information about the jumbotron page can be found on page 141.

Figure 780 Configuration jumbotron watermark

To upload a jumbotron watermark:

- Click the choose file button to open the file selection dialog (Figure 781).

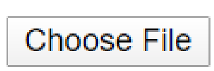


Figure 781 Customization watermark choose file button

- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button (Figure 782).

Figure 782 Customization watermark file selected

- Click the upload button to load the file (Figure 783).

Figure 783 Customization watermark upload button

- The selected file will be renamed 'jumbotron_watermark.png' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 784).

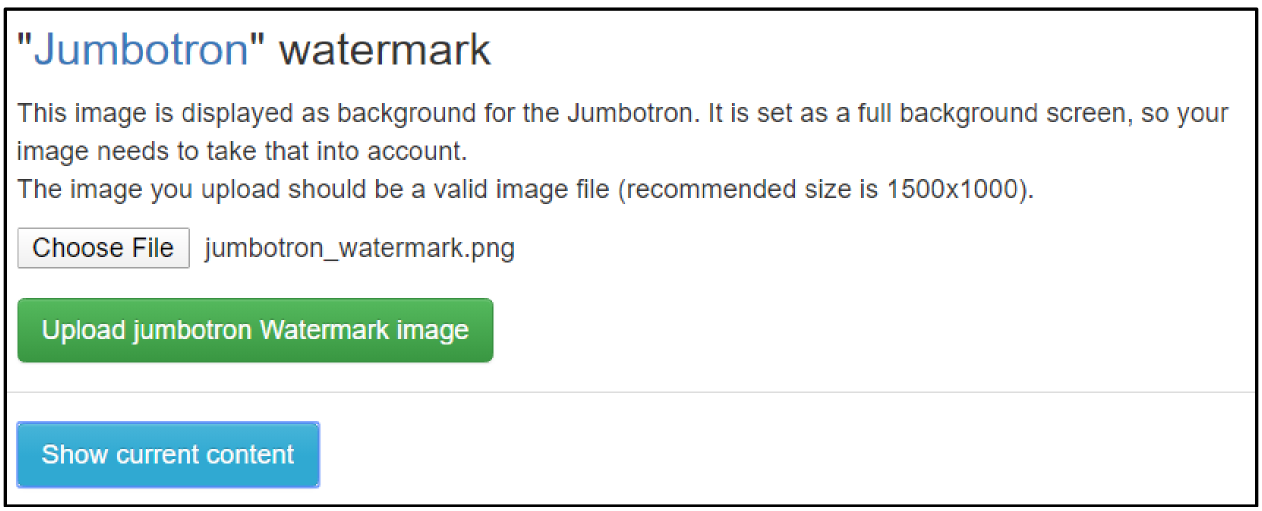


Figure 784 Customization watermark file loaded

To delete the currently loaded file:

- Click the upload watermark button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear (Figure 785).

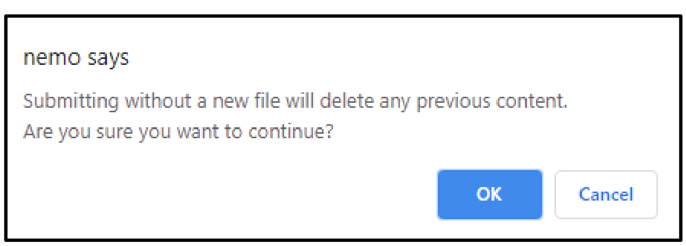


Figure 785 Customization file deletion confirmation

- Click OK to delete the file or Cancel to leave the file.

- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button (Figure 786).

Figure 786 Customization watermark show current content button

- The current file content will be displayed in a separate window.
- An example of the jumbotron with watermark background is displayed in Figure 787.

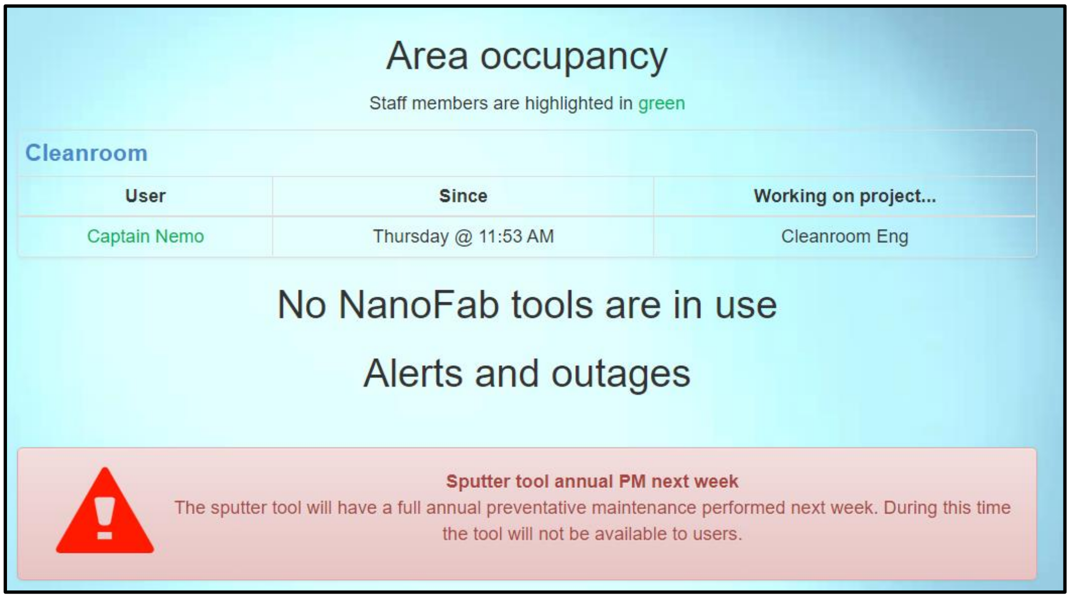


Figure 787 Customization watermark behind jumbotron

37.7.6 Access request notification email

The customization for the access request notification email template can be configured using html to render a specific message when a user creates or updates an access request, and when a facility manager approves or denies a request (Figure 788). Basically, any creation or updates of an access request will trigger this email to be sent. The access requests feature is described in the access requests section on page 147. The access request notification template is optional and if not defined email notifications will not be sent.

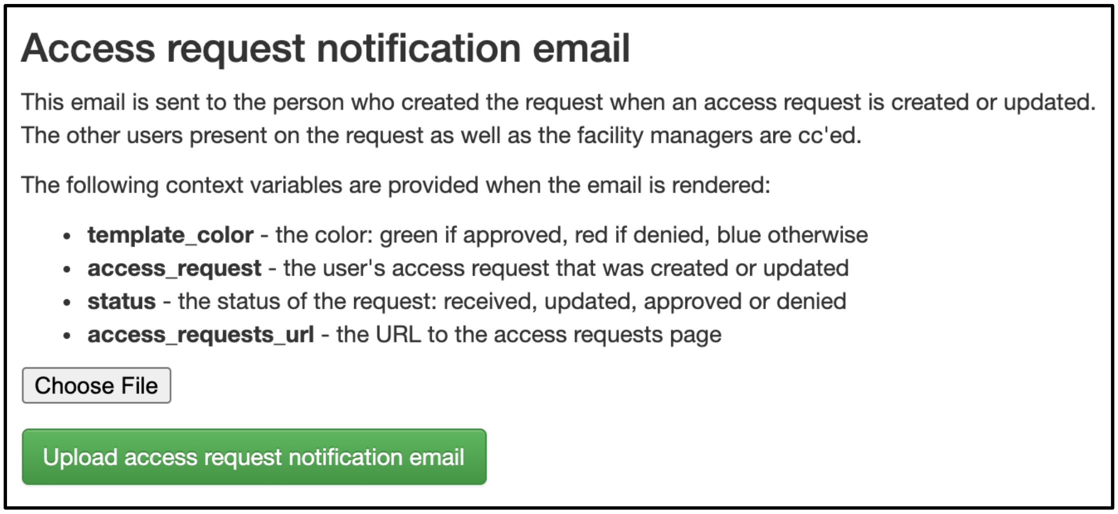


Figure 788 Customization access request notification email

To create a custom access request email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - template_color – the color to be used in the template, green for an approved request, red for a denied request, and blue otherwise
    - access_request – the access request that was created or updated
    - status – the request status: received, updated, approved, or denied
    - access_requests_url – the access requests URL
- The email subject is “Your access request for the <area> has been <received,updated,approved,denied>”. For example, “Your access request for the Cleanroom has been received”
- The email will be from the user office email.

To upload an access request notification email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed ‘access_request_notification_email.html’ and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 789).

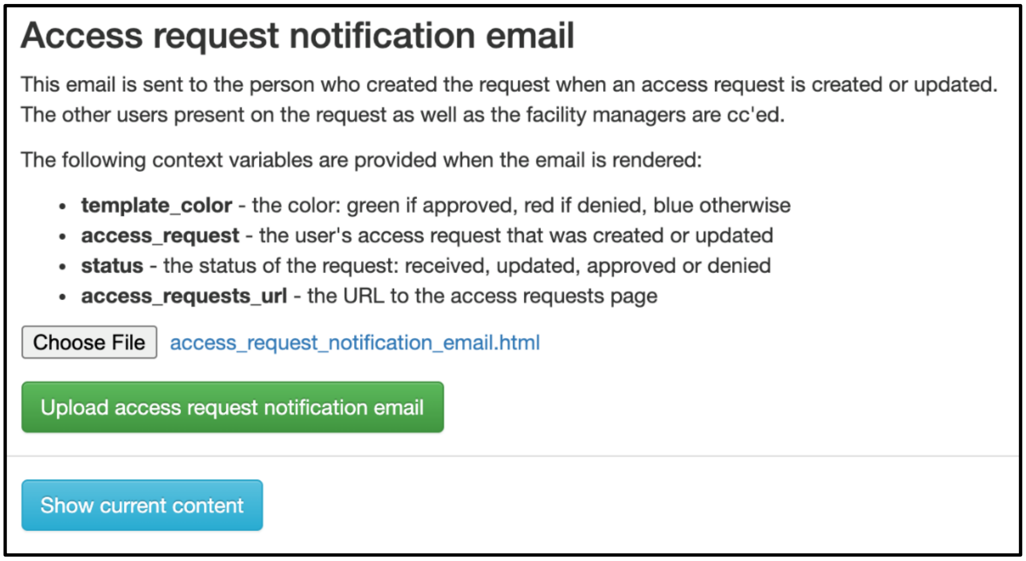


Figure 789 Customization access request notification email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.7 Cancellation email

The customization for the cancellation email template can be configured using html to render a specific message when a staff member cancels a user's reservation (Figure 790). The cancel user reservation feature is described in the reservations section on page 47. The cancellation email template is optional and if not defined cancellation emails will not be sent.

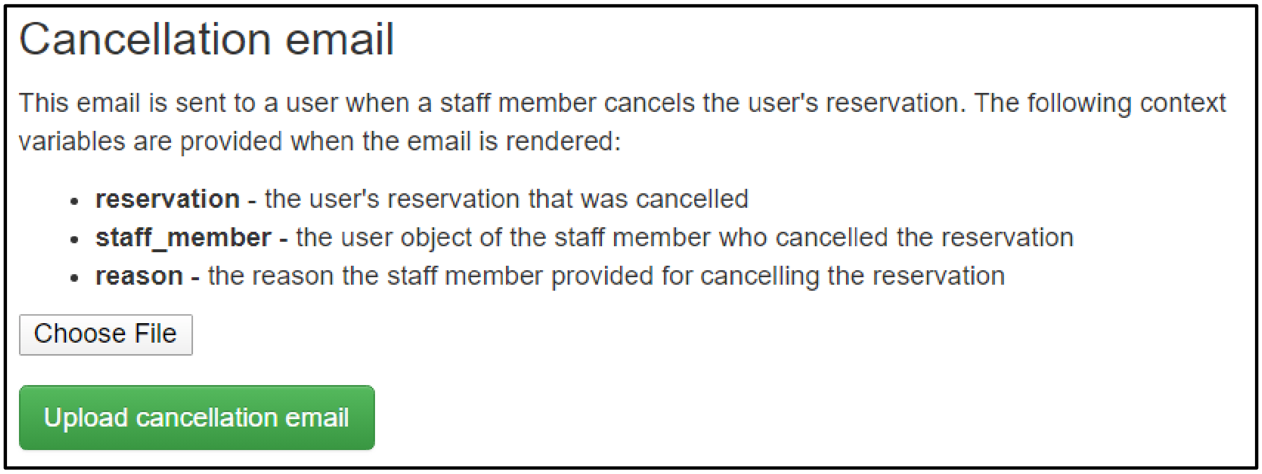


Figure 790 Customization cancellation email

To create a custom cancellation email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - reservation – the reservation object of the canceled reservation
    - staff_member – the user object of the staff member who canceled the reservation
    - reason – the reason the staff member provided for canceling the reservation
- The email subject is always, “Your reservation was canceled”.
- The email will be from the staff member that canceled the reservation

To upload a cancellation email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed ‘cancellation _email.html’ and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 791).

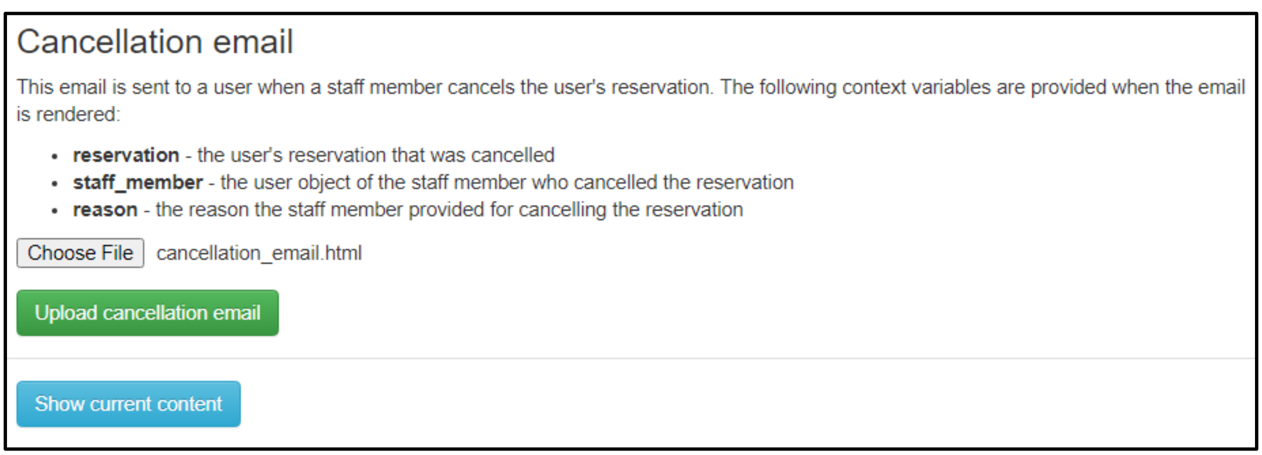


Figure 791 Customization cancellation email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.8 Counter threshold reached email

The customization for the counter threshold reached template can be configured using html to render a specific message when the warning threshold value for a tool usage counter is reached (Figure 792). The counter threshold reached email template is optional and if not defined the emails will not be sent.

Figure 792 Customization counter threshold reached email

To create a custom counter threshold reached email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - counter – the tool usage counter which value reached the warning threshold
- The email subject is always, "Warning threshold reached for {tool.name} {counter.name} counter".
- The email will be from the user office

To upload a counter threshold reached email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'counter_threshold_reached_email.html' and saved in the media folder of the NEMO website.

- Once a file has been uploaded, an option to view the file will be added (Figure 793).

Figure 793 Customization counter threshold reached email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.9 Feedback email

The customization for the feedback email template can be configured using html to render a specific message when a user fills out the feedback form (Figure 794). The send feedback feature is described in the send feedback section on page 166. The feedback feature requires both the feedback email template and feedback email address customizations or emails will not be sent. The feedback email address customization is described in the email addresses section above on page 292.

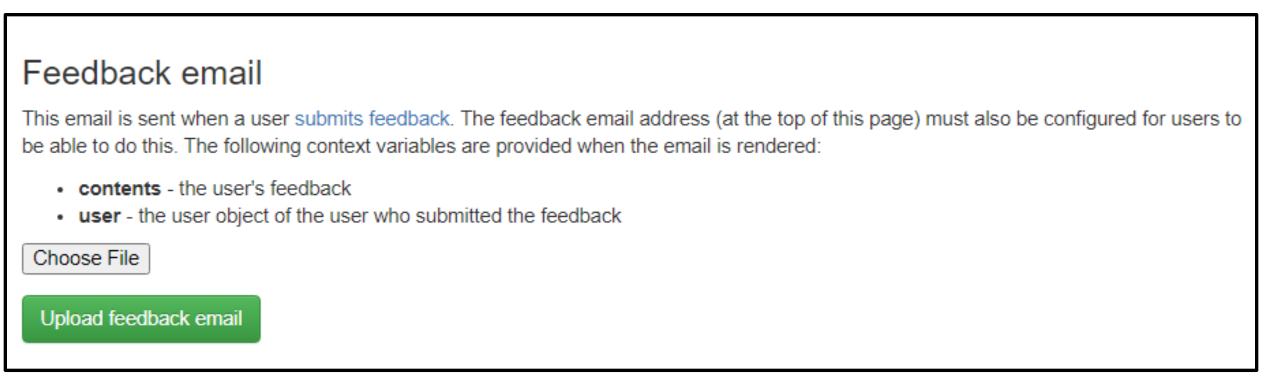


Figure 794 Customization feedback email

To create a custom feedback email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - contents – the user's feedback
    - user – the user object of the user who submitted feedback
- The email subject is always, "feedback from {username}".
- The email will be from the user leaving feedback.

To upload a custom feedback email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'feedback_email.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 795).

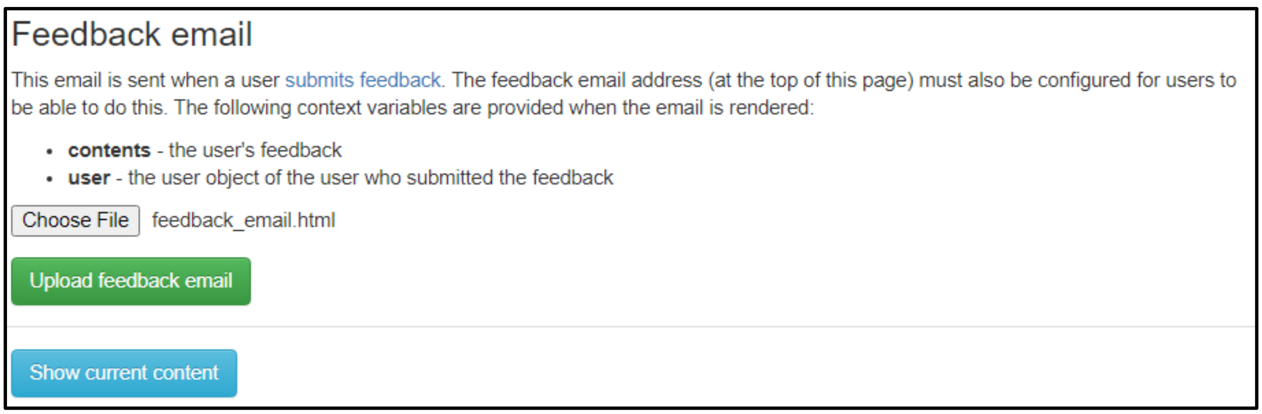


Figure 795 Customization feedback email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.10 Generic email

The customization for the generic email template can be configured using html to render a specific message when a staff member fills out the email form (Figure 796). The email feature is described in the email section on page 216. The email feature requires the generic email template or emails will not be sent.

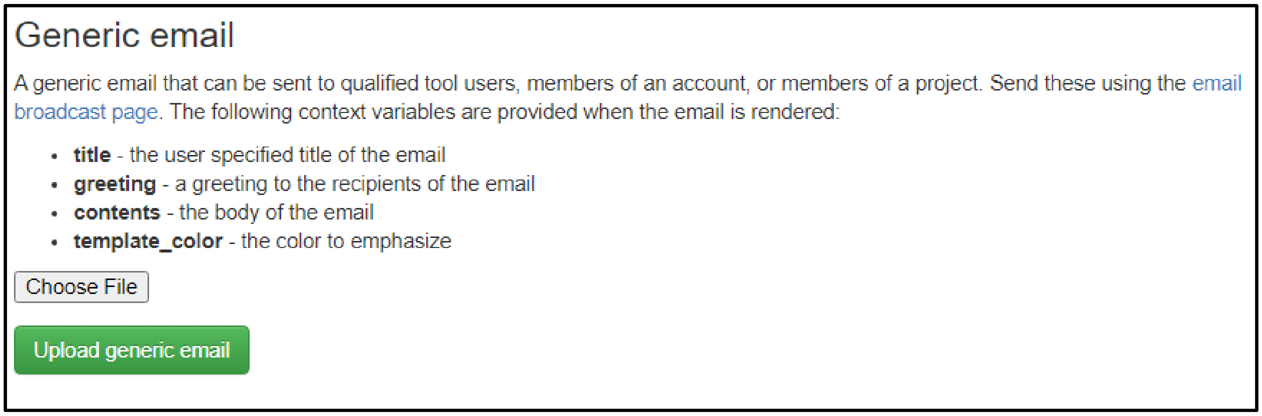


Figure 796 Customization generic email

To create a custom generic email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - title - the user specified title of the email
    - greeting - a greeting to the recipients of the email
    - contents - the body of the email
    - template_color - the title color to emphasize
- The email subject is the subject entered on the email feature page.
- The email will be from the user creating the email.

To upload a generic email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed ‘generic_email.html’ and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 797).

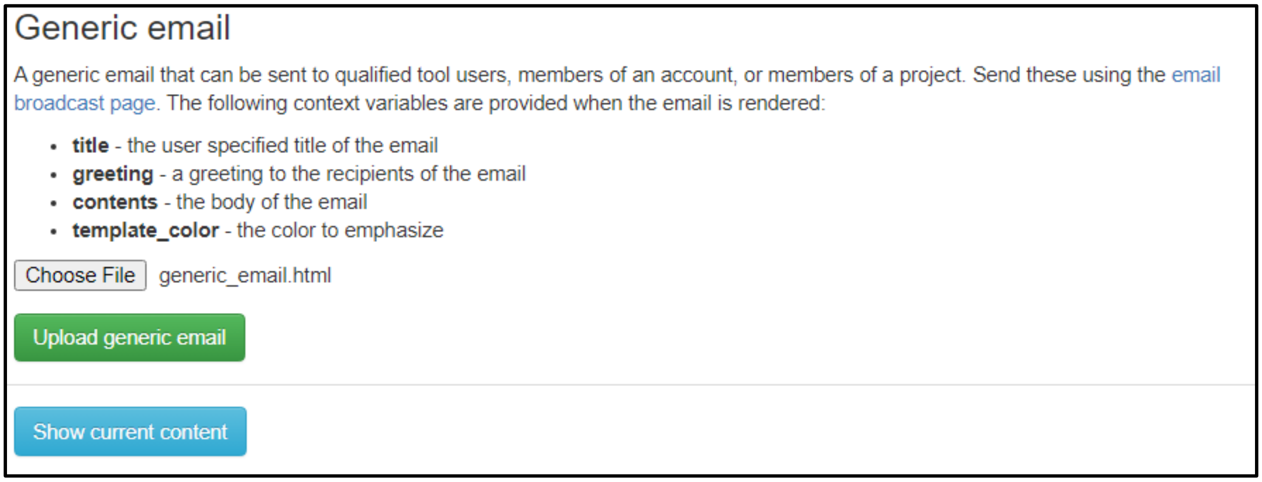


Figure 797 Customization generic email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.11 Missed reservation email

The customization for the missed reservation email template can be configured using html to render a specific message when a user misses a reservation (Figure 798). The missed reservation feature is described in the reservation section on page 59. The missed reservation feature requires the missed reservation email template and the abuse email address described on page 292 or the email will not be sent.

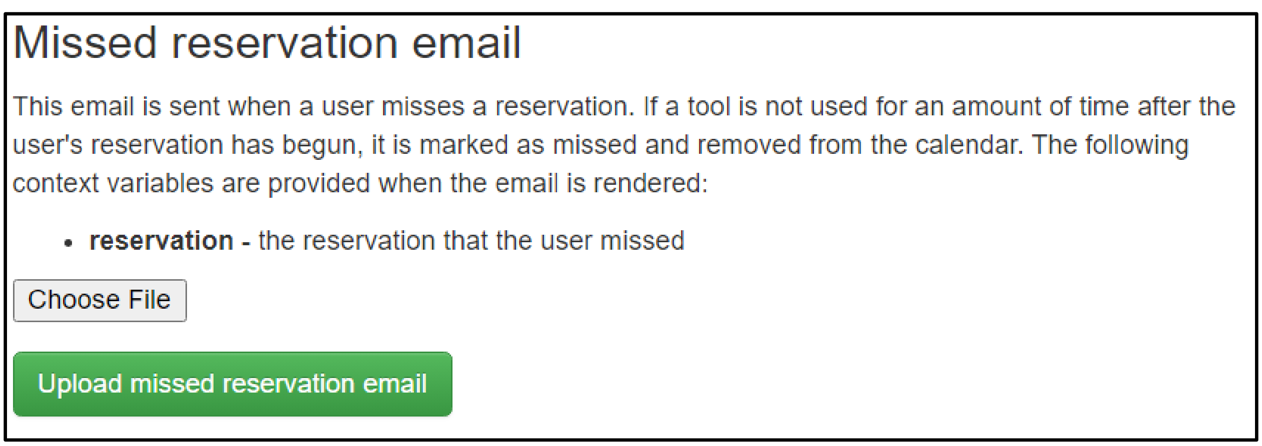


Figure 798 Customization missed reservation email

To create a custom missed reservation email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - reservation – the reservation object of the missed reservation
- The email subject is always "Missed reservation for the {reservation.tool}.
- The email will be from the user office email defined in the email addresses section above on page 292.
- The email will be addressed to the user that missed the reservation, the abuse email address, and the user office email address.

To upload a missed reservation email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'missed_reservation_email.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 799).

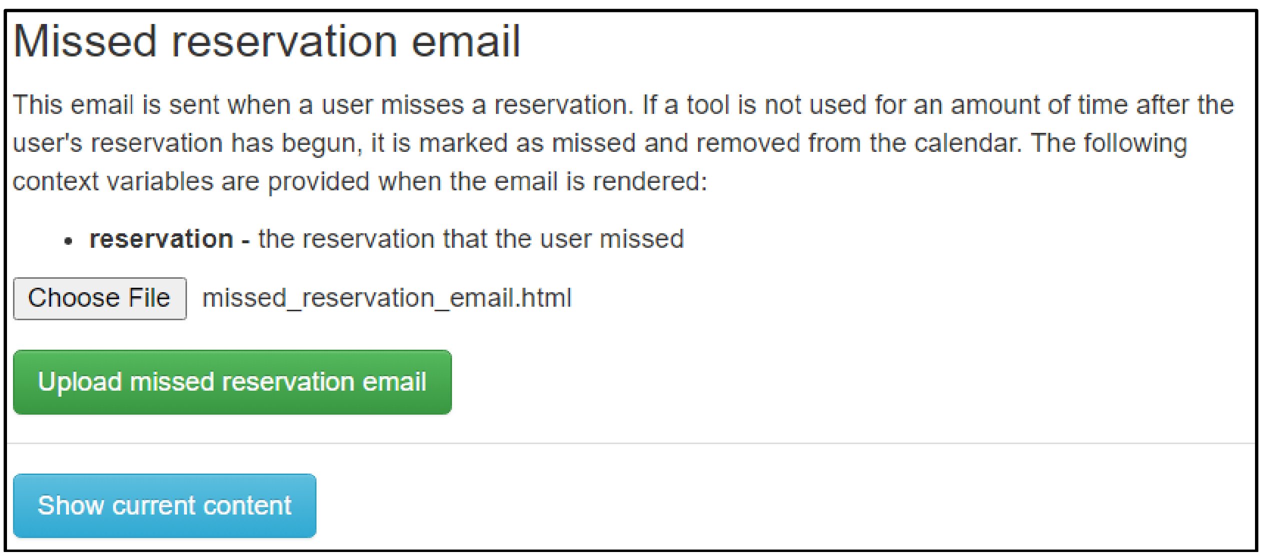


Figure 799 Customization missed reservation email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.12 Facility rules tutorial email

The customization for the Facility rules tutorial email template can be configured using html to render a specific message to staff when a user completes the tutorial (Figure 800). The rules tutorial feature is described in the landing page section on page 33. The rules tutorial email is optional and will only be sent if the email template is configured. The rules tutorial email requires the email template and the abuse email address described on page 292 or the email will not be sent.

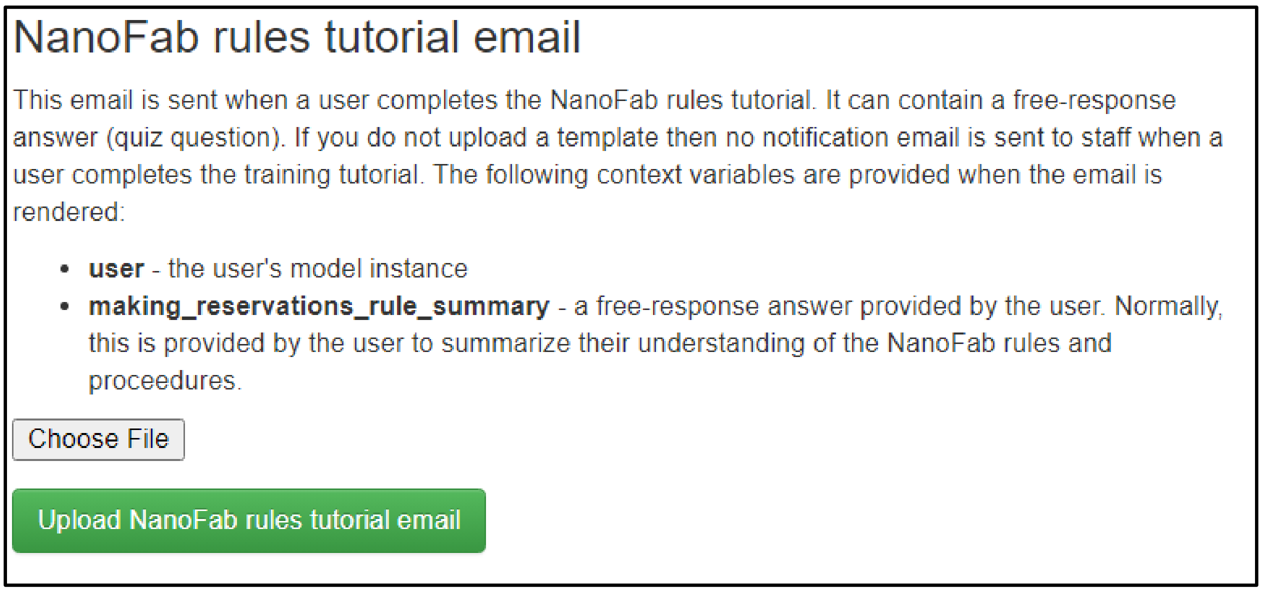


Figure 800 Customization rules tutorial email

To create a custom rules tutorial email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
  - user – the user object of the user who completed the tutorial
  - making_reservations_rule_summary – a free response answer that can be passed from the rules tutorial to the email.
- The email subject is always “<Facility Name> rules tutorial”.
- The email will be from the abuse email defined in the email addresses section above on page 292.
- The email will be addressed to the abuse email address.

To upload a rules tutorial email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.

- Click the upload button to load the file.
- The selected file will be renamed ‘facility_rules_tutorial_email.html’ and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 801).

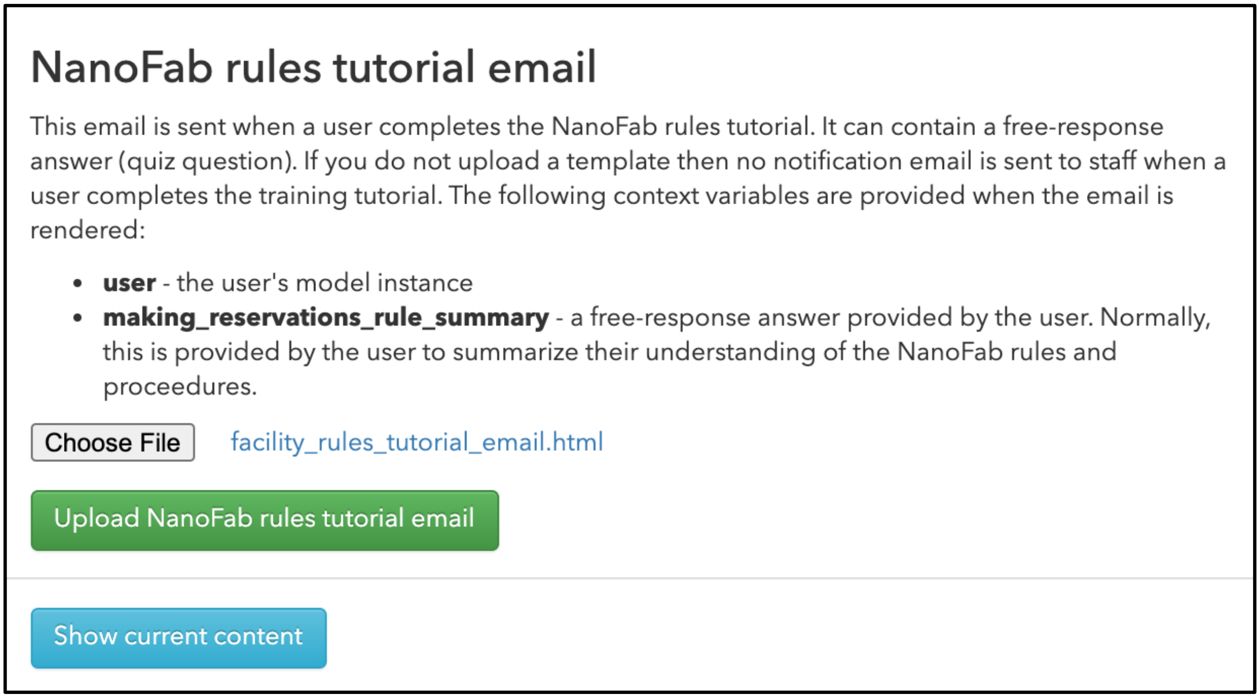


Figure 801 Customization rules tutorial email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.13 New task email

The customization for the new task email template can be configured using html to render a specific message to users and staff when a task is created (Figure 802). The task feature is described in the tool control section on page 33. The new task email is optional and will only be sent if the email template is configured.

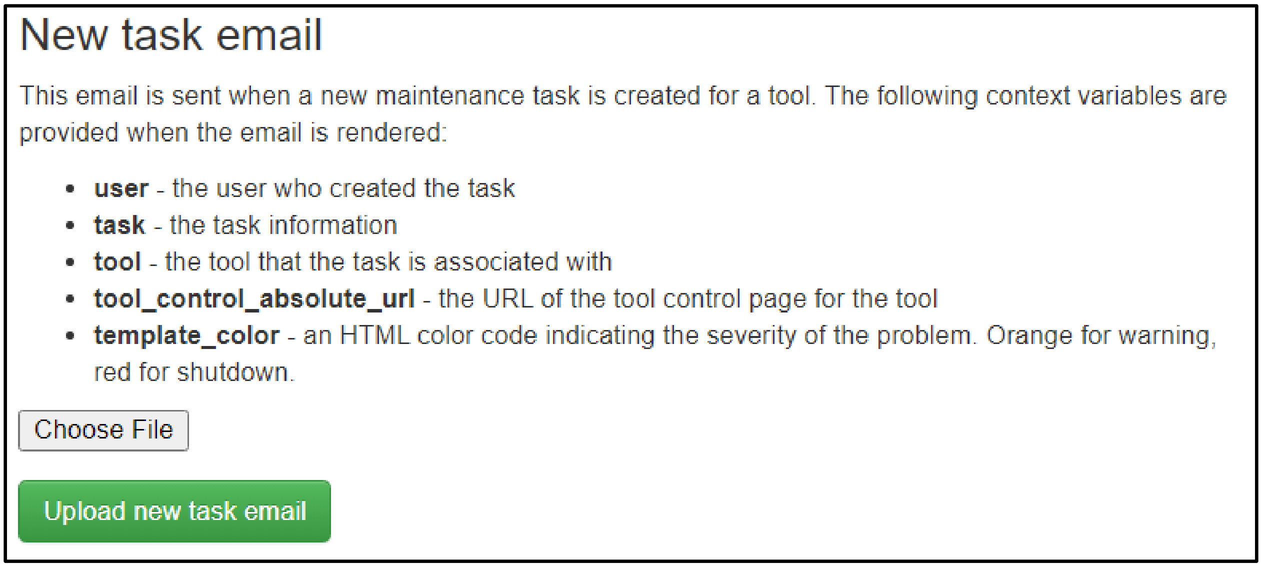


Figure 802 Customization new task email

To create a custom rules tutorial email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - user – the user object of the user who created the task
    - task – the task object information
    - tool – the tool object that the task is associated with
    - tool_control_absolute_url – the URL of the tool control page for the tool
    - template_color – an HTML color code indicating the severity of the problem. Orange for warning, red for shutdown.
- The email subject will identify the tool name, if the task is a safety hazard, and if the task is defined as a problem or shutdown.
- The email will be from the user reporting or updating the task
- The email will be addressed to the tool primary owner, backup owners, notification email defined in the tool table, and lab managers if defined in the settings.py file.

To upload a new task email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'new_task_email.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 803).

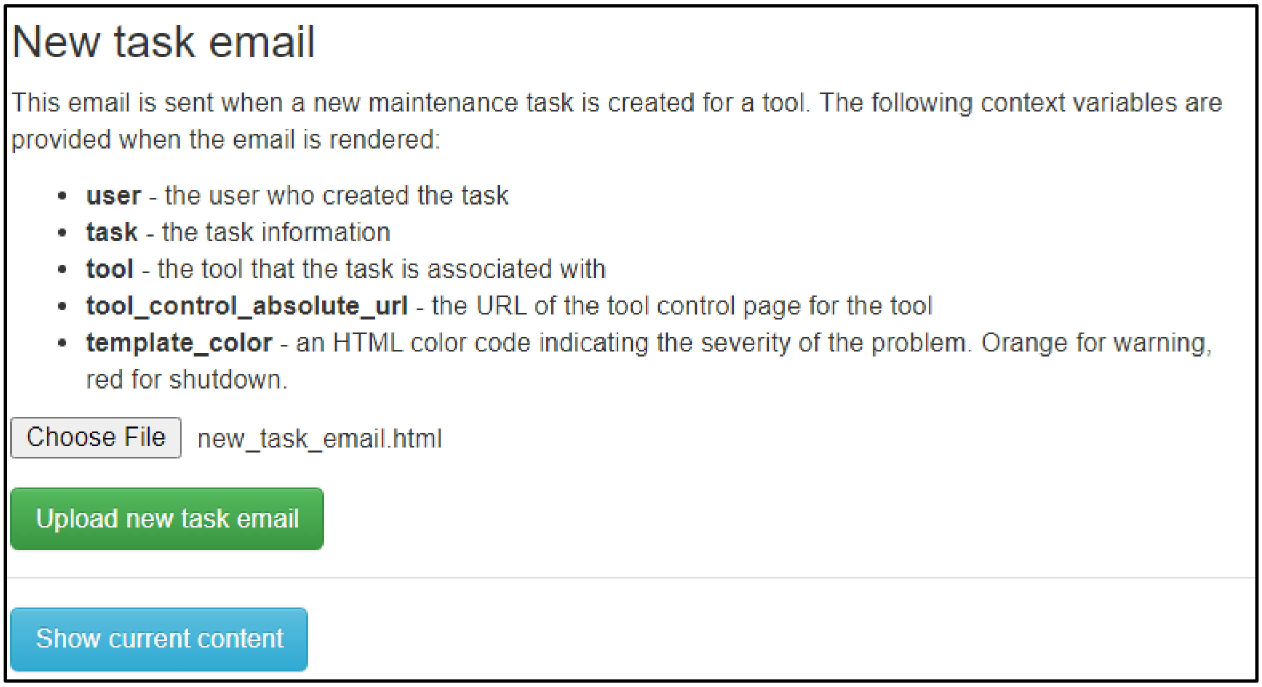


Figure 803 Customization new task email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.14 Out of time reservation email

The customization for the out of time reservation email template can be configured using html to render a specific message to users when a user is still logged in an area that requires reservations to access, but their reservation has expired (Figure 804). A grace period can be set when configuring the area that will delay the email.

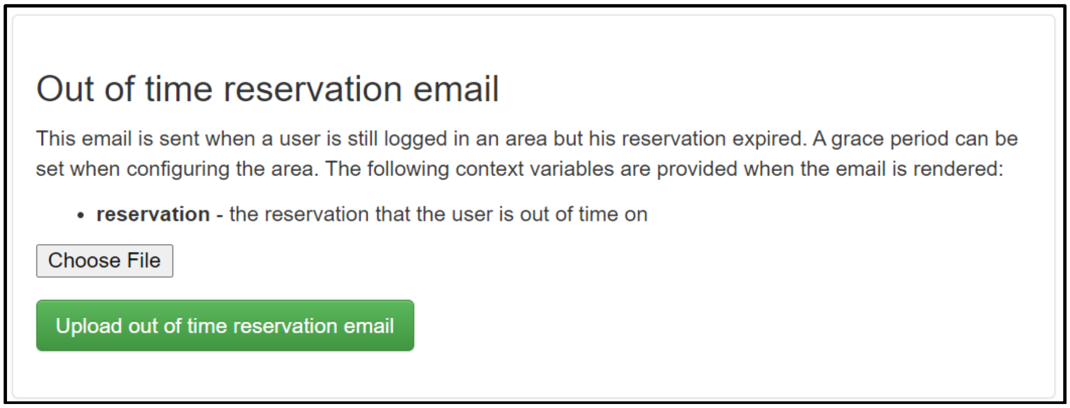


Figure 804 Customization out of time reservation email

To create a custom out of time reservation email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - reservation – the user's upcoming reservation object
- The email subject will always be "Out of time in the {area}".
- The email will be from the user office email defined in the email addresses section above on page 292.
- The email will be addressed to the user with the reservation and any users defined in the abuse email of the area table.

To upload an out of time email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'out_of_time_reservation_email.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 805).

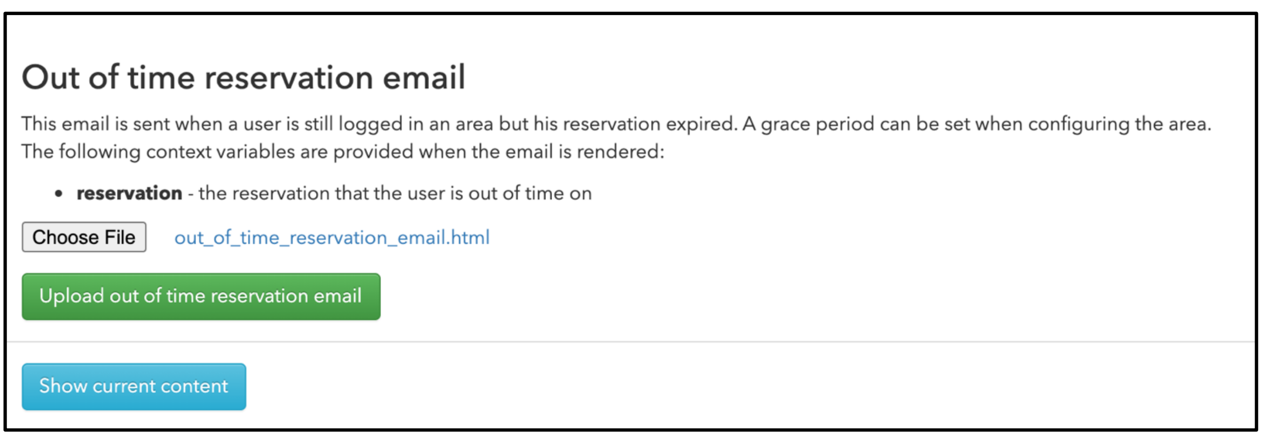


Figure 805 Customization out of time email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.15 Reorder supplies reminder email

The customization for the reorder supplies reminder email template can be configured using html to render a specific message to the supply owner when the supply stock drops below the minimum (Figure 806).

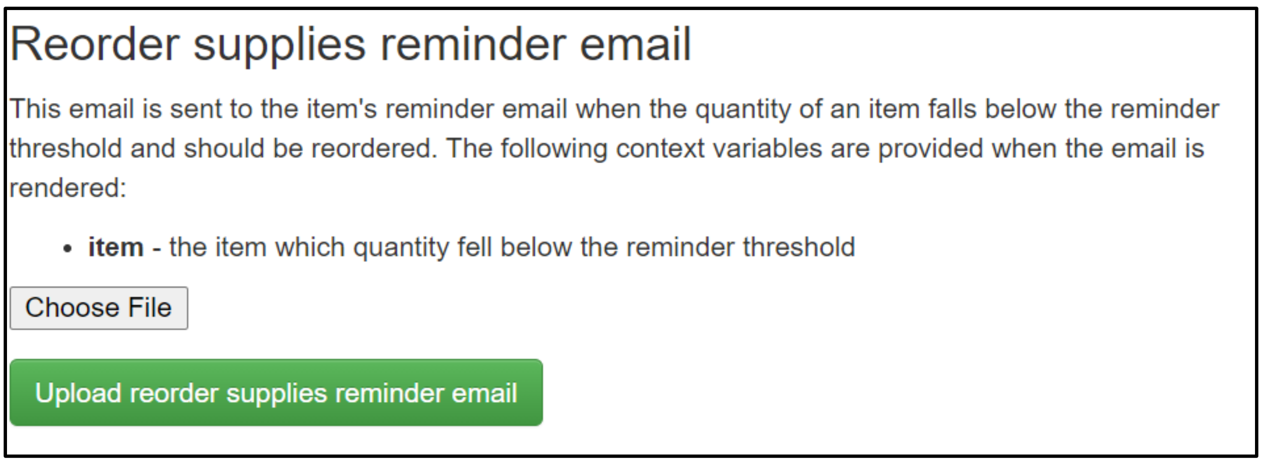


Figure 806 Customization reorder supplies reminder email

To create a custom reorder supplies reminder email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - item – the item (consumable) object which quantity fell below the reminder threshold
- The email subject will always be "Time to order more {consumable.name}".
- The email will be from the user office email defined in the email addresses section above on page 292.
- The email will be addressed to the email set on the Consumable table.

To upload a reorder supplies email reminder template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.

- Click the upload button to load the file.
- The selected file will be renamed ‘reorder_supplies_reminder_email.html’ and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 807).

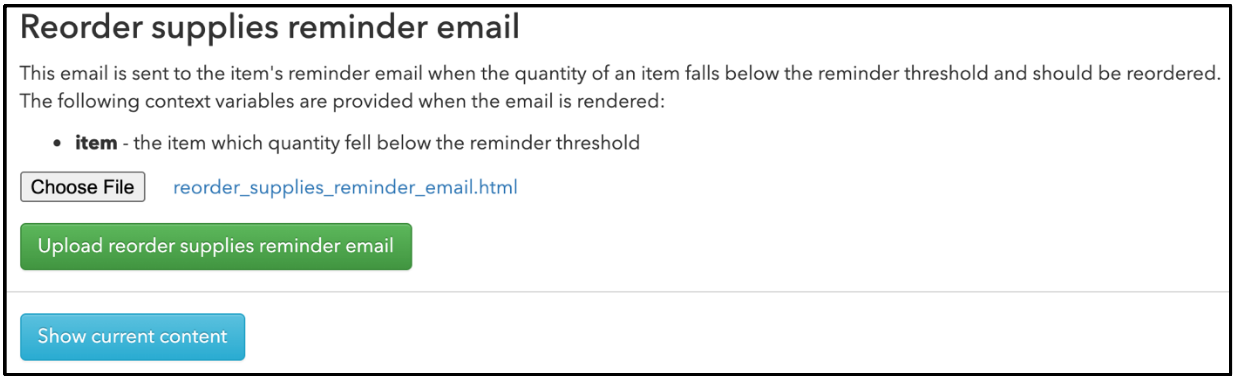


Figure 807 Customization reorder supplies reminder email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.16 Reservation ending reminder email

The customization for the reservation ending reminder email template can be configured using html to render a specific message to users when a user is logged in an area and their reservation in that area is about to end (Figure 808). The reservation ending reminder email is optional and will only be sent if the reservation ending reminder email template is configured.

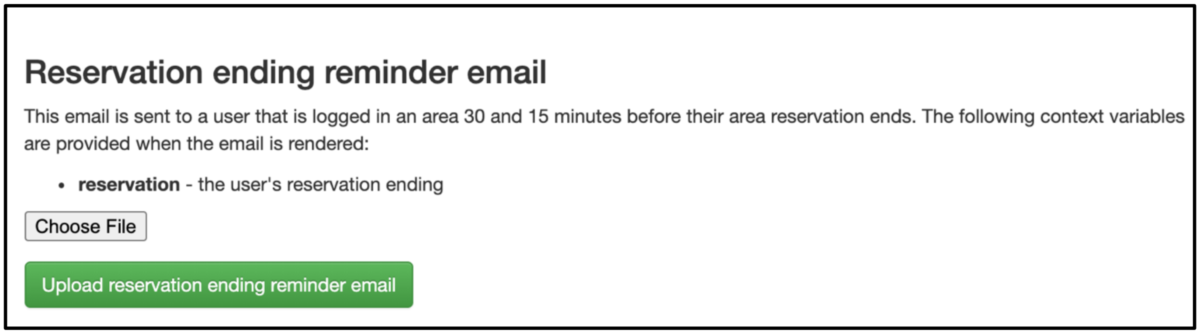


Figure 808 Customization reservation ending reminder email

To create a custom reservation ending reminder email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - reservation – the user's ending reservation object
- The email subject will always be "{area name} reservation ending soon".
- The email will be from the user office email defined in the email addresses section above on page 292.
- The email will be addressed to the user with the reservation.

To upload a reservation ending reminder email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'reservation_ending_reminder_email.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 809).

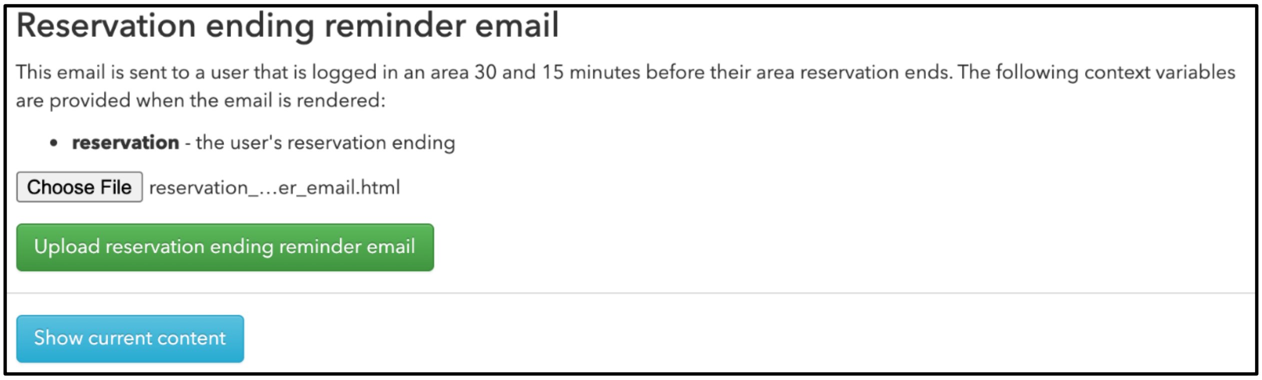


Figure 809 Customization reservation ending reminder email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.17 Reservation reminder email

The customization for the reservation reminder email template can be configured using html to render a specific message to users when a reservation is approaching (Figure 810). The reservation reminder feature is described in the reservation section on page 47. The reservation reminder email is optional and will only be sent if both the reservation reminder email template and the reservation warning email template are configured. The reservation warning email template is described below on page 338.

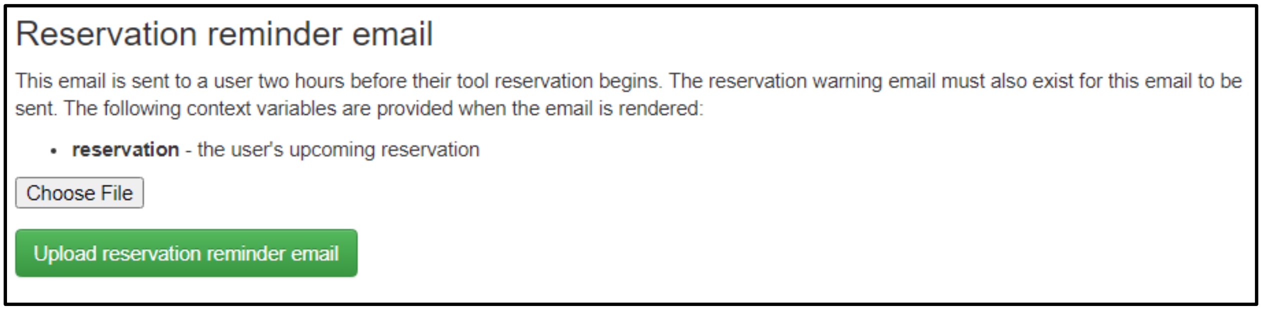


Figure 810 Customization reservation reminder email

To create a custom reservation reminder email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - reservation – the user's upcoming reservation object
- The email subject will always be "{tool name} reservation reminder".
- The email will be from the user office email defined in the email addresses section above on page 292.
- The email will be addressed to the user with the reservation.

To upload a reservation reminder email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'reservation_reminder_email.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 811).

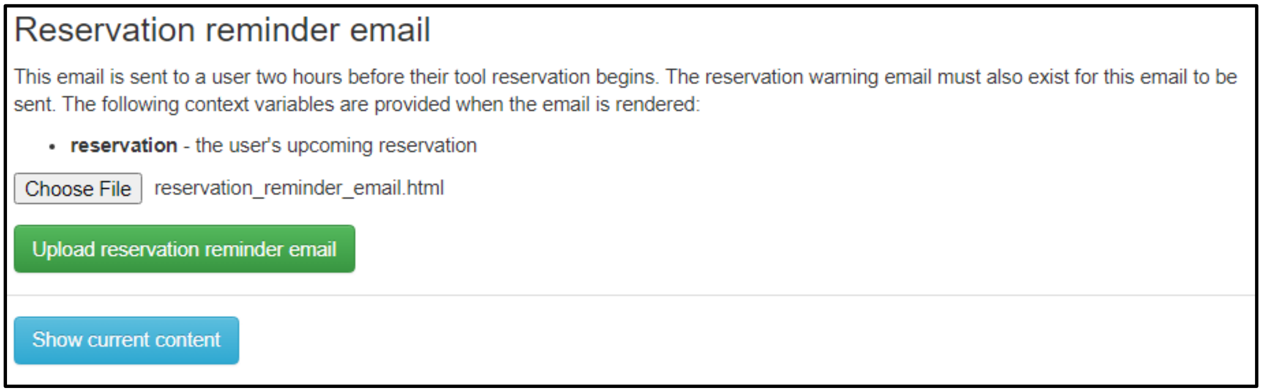


Figure 811 Customization reservation reminder email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.18 Reservation warning email

The customization for the reservation warning email template can be configured using html to render a specific message to users when a reservation is approaching and there is a problem with the tool they reserved (Figure 812). The reservation warning feature is described in the reservation section on page 47. The reservation warning email is optional and will only be sent if both the reservation reminder email template and the reservation warning email template are configured. The reservation reminder email template is described above on page 332.

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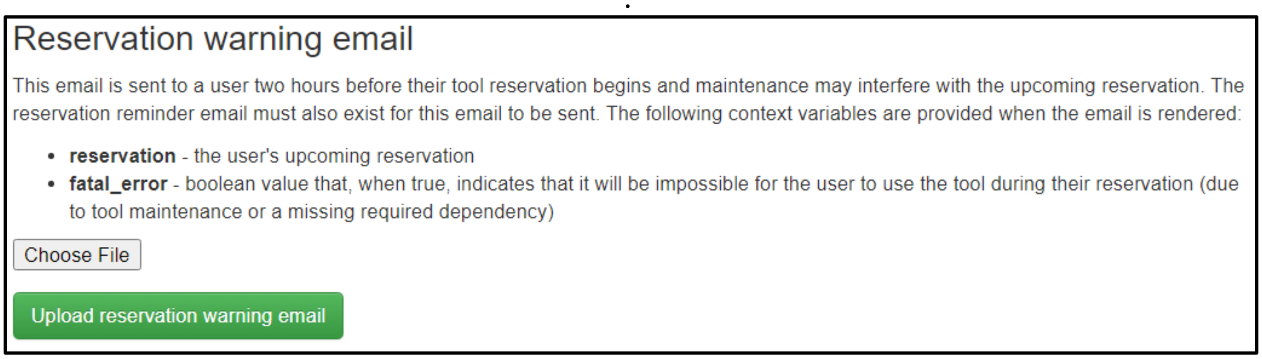


Figure 812 Customization reservation warning email

To create a custom reservation warning email template

- Use any html editor to create the desired content

- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - reservation – the user’s upcoming reservation object
    - fatal_error – when true, indicates that the tool is shutdown
- The email subject will always be “{tool name} reservation problem”.
- The email will be from the user office email defined in the email addresses section above on page 292.
- The email will be addressed to the user with the reservation.

To upload a reservation warning email template:
- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed ‘reservation_warning_email.html’ and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 813).

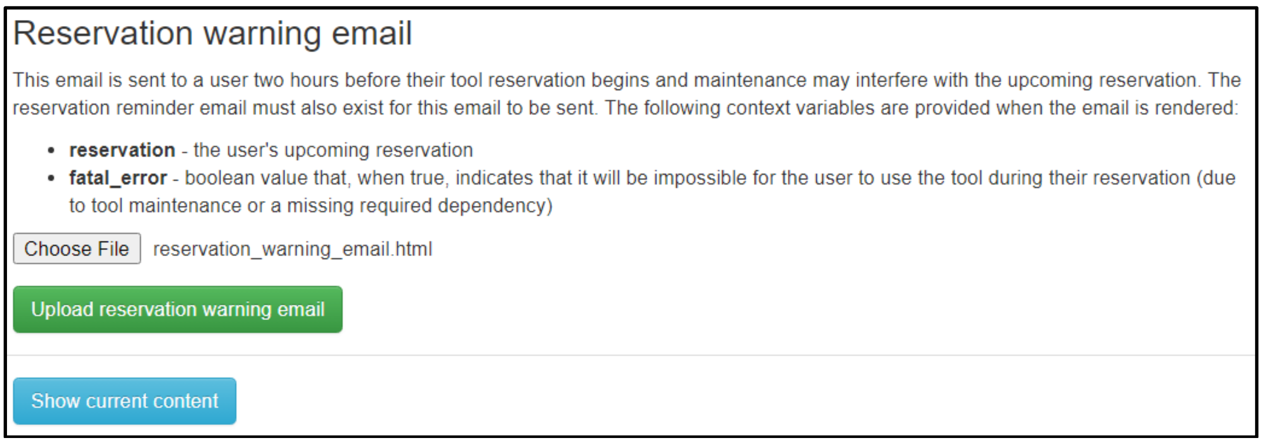


Figure 813 Customization reservation warning email file loaded

To delete the currently loaded file:
- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:
- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.19 Safety issue email

The customization for the safety email template can be configured using html to render a specific message to users when a safety issue has been created (Figure 814). The safety issue feature is described in the safety section on page 158. The safety email is optional and will only be sent if both the safety email template and the safety email address are configured. The safety email address is defined in the email addresses section above on page 292.

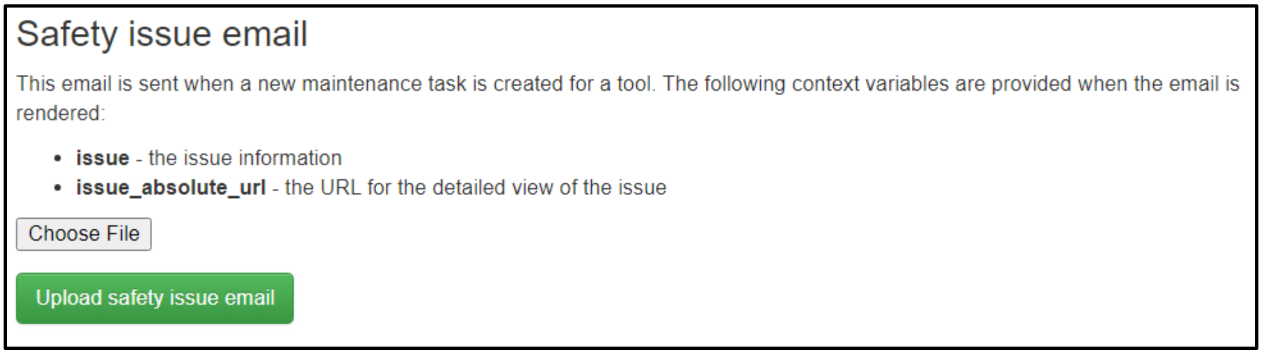


Figure 814 Customization safety email

To create a custom safety email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - issue – the issue object
    - issue_absolute_url – the URL to the detailed view of the issue
- The email subject will always be "Safety issue".
- The email will be from the user reporting the safety issue unless the report is anonymous then the email will be from the safety email address defined in the email addresses section above on page 292.
- The email will be addressed to the safety email address defined in the email addresses section above on page 292.

To upload a safety email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'safety_issue_email.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 815).

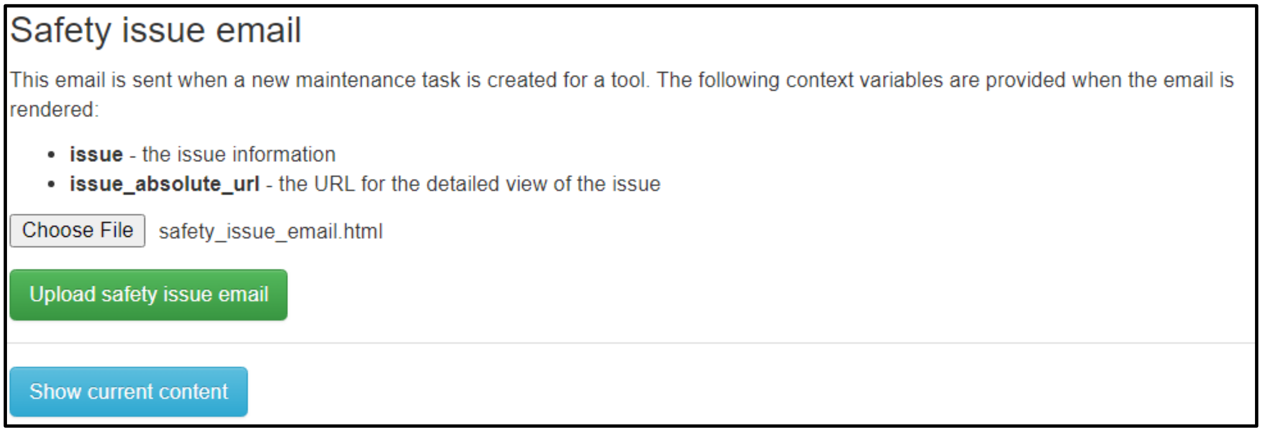


Figure 815 Customization safety email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.20 Staff charge reminder email

The customization for the staff charge email template can be configured using html to render a specific message to staff as a reminder they are currently charging a user (Figure 816). The staff charge feature is described in the staff charge section on page 254. The staff charge email is optional and will only be sent if the email template is configured.

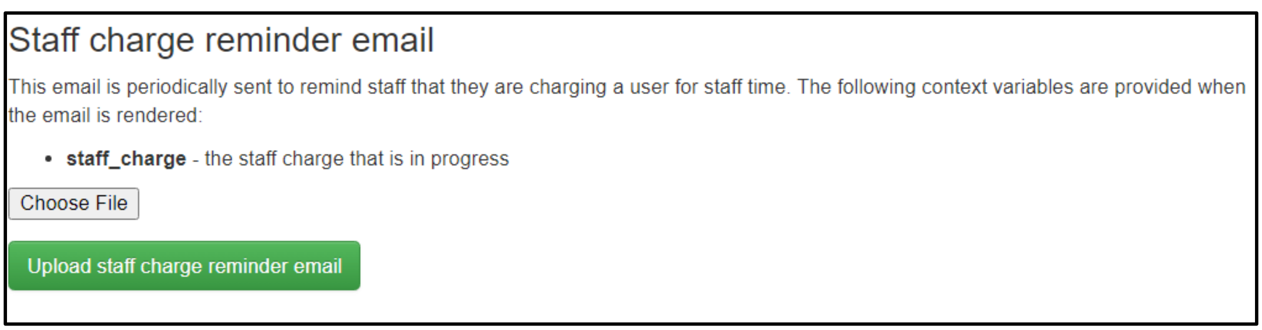


Figure 816 Customization staff charge email

To create a custom staff charge email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.

   - staff_charge – the staff charge object
- The email subject will always be "Active staff charge since {staff_charge.start}".
- The email will be from the user office email address defined in the email addresses section above on page 292.
- The email will be addressed to the staff member currently charging.

To upload a staff charge reminder email template:
- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'staff_charge_reminder_email.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 817).

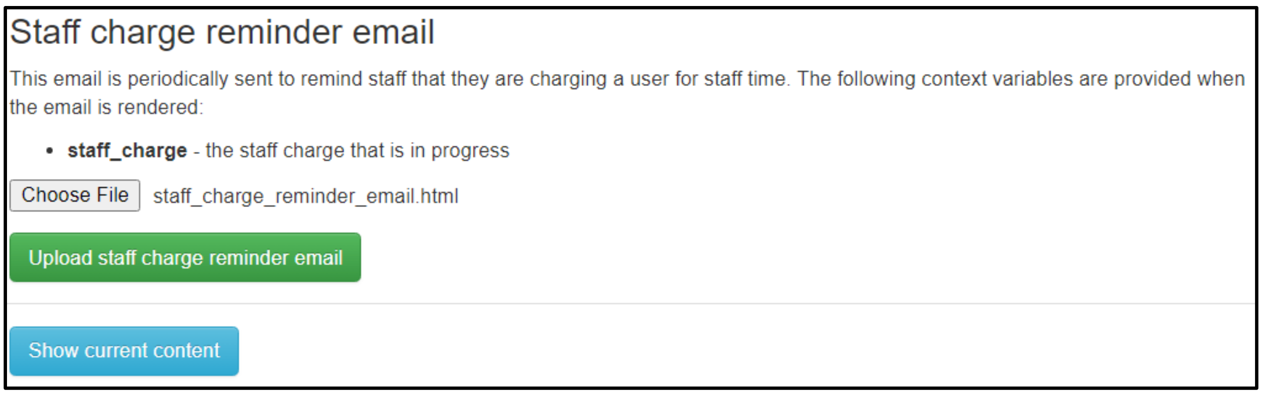


Figure 817 Customization staff charge email file loaded

To delete the currently loaded file:
- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:
- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.21 Task status notification email

The customization for the task status notification email template can be configured using html to render a specific message to staff when the status of a task is changed (Figure 818). The task status feature is described in the tool control section on page 92. The task status email is optional and will only be sent if the email template is configured.

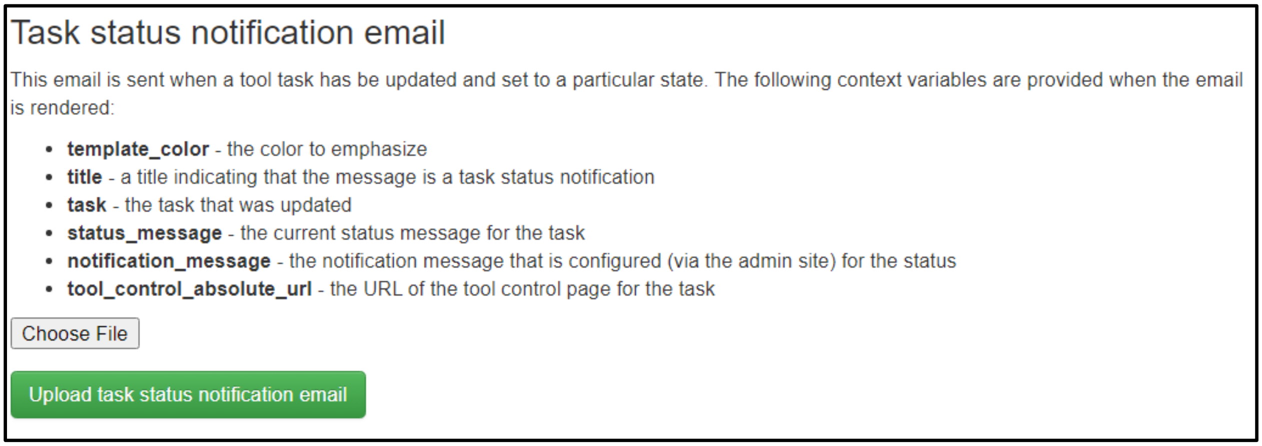


Figure 818 Customization new task email

To create a custom task status email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - template_color – an HTML color code indicating the title background color
    - title – a title indicating the message is a task status notification
    - task – the task object that was updated
    - status_message – the current status message for the task
    - notification_message – the notification message that is configured (via the admin site) for the status
    - tool_control_absolute_url – the URL of the tool control page for the task
- The email subject will always be "{tool.name} task notification".
- The email will be from the user updating the task status
- The email will be addressed to the tool primary owner, backup owners, and/or notification emails defined in the tool table, if selected in the task status table.

To upload a custom task status email template:

- Click the choose file button to open the file selection dialog
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'task_status_notification.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 819).

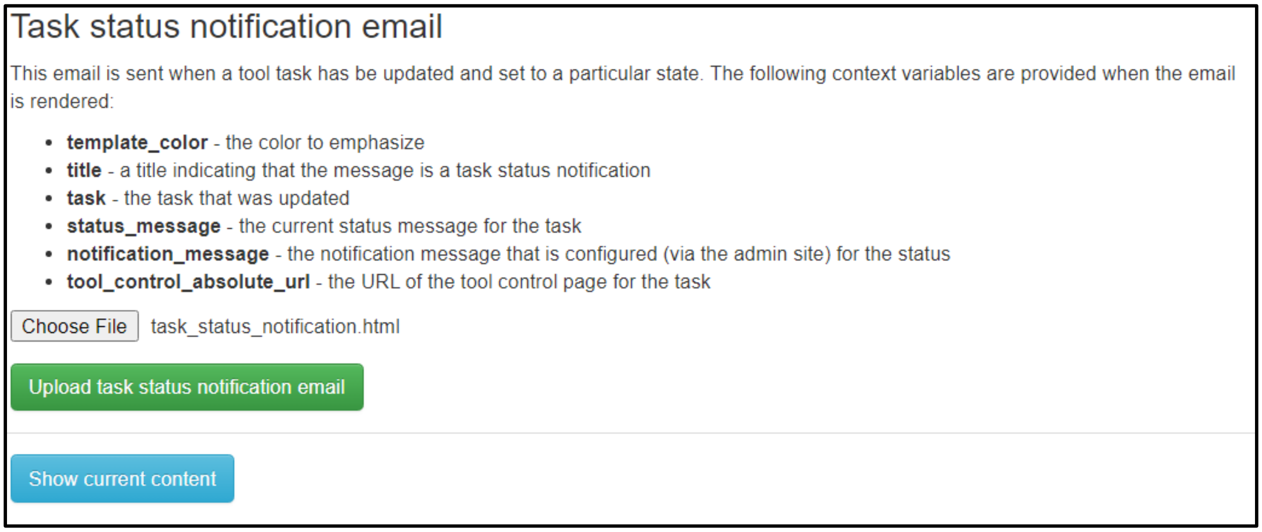


Figure 819 Customization new task email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.22 Unauthorized tool access email

The customization for the unauthorized tool access email template can be configured using html to render a specific message to staff when a user tries to log into a tool that is in an area the user is not currently logged into (Figure 820). The unauthorized tool access feature is described in the tool control section on page 97. The unauthorized tool access email is optional and will only be sent if the email template and the abuse email address described on page 292 is configured.

Figure 820 Customization unauthorized tool access email

To create a custom unauthorized tool access email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - operator – the person who attempted to enable the tool
    - tool – the tool object of the tool the user was denied access to
- The email subject will always be "Area access requirement".
- The email will be from the abuse email address
- The email will be addressed to the abuse email address

To upload an unauthorized tool access email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'task_status_notification.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 821).

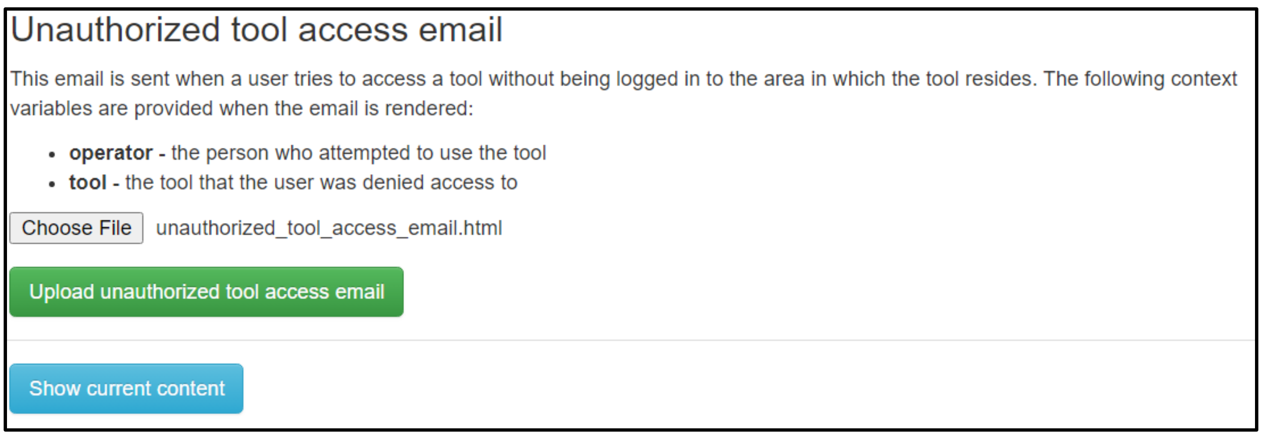


Figure 821 Customization unauthorized tool access email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.23 Usage reminder email

The customization for the usage reminder email template can be configured using html to render a specific message to users periodically when they are logged into areas or tools (Figure 822). The usage reminder feature is described in the tool control section on page 125. The usage reminder email is optional and will only be sent if the email template and the abuse email address described on page 292 is configured.

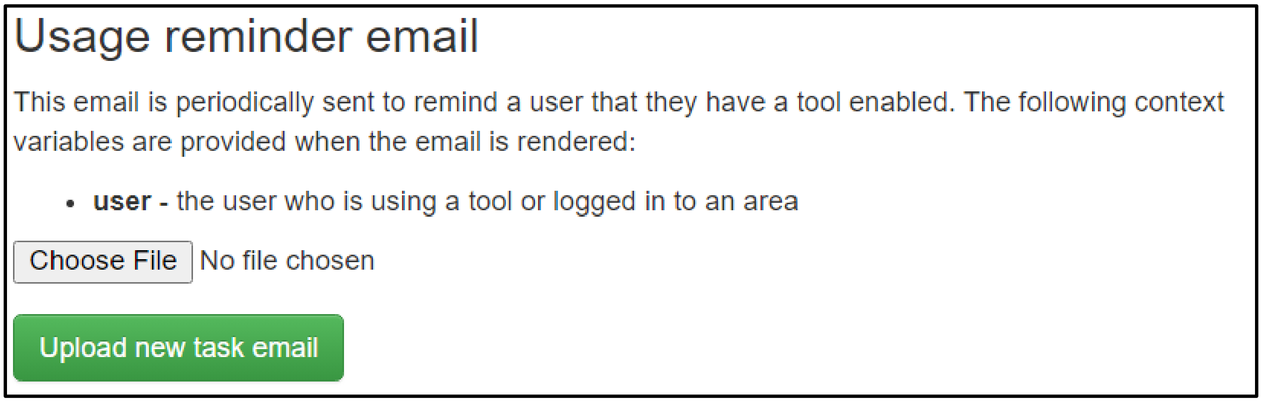


Figure 822 Customization usage reminder email

To create a custom usage reminder email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
  - user – the user object who is using a tool or logged in to an area
  - user.resources_in_use – a list of resources the user is currently using
- The email subject will always be "{facility name} usage".
- The email will be from the user office email address
- The email will be addressed to the user

To upload a usage reminder email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'usage_reminder_email.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 823).

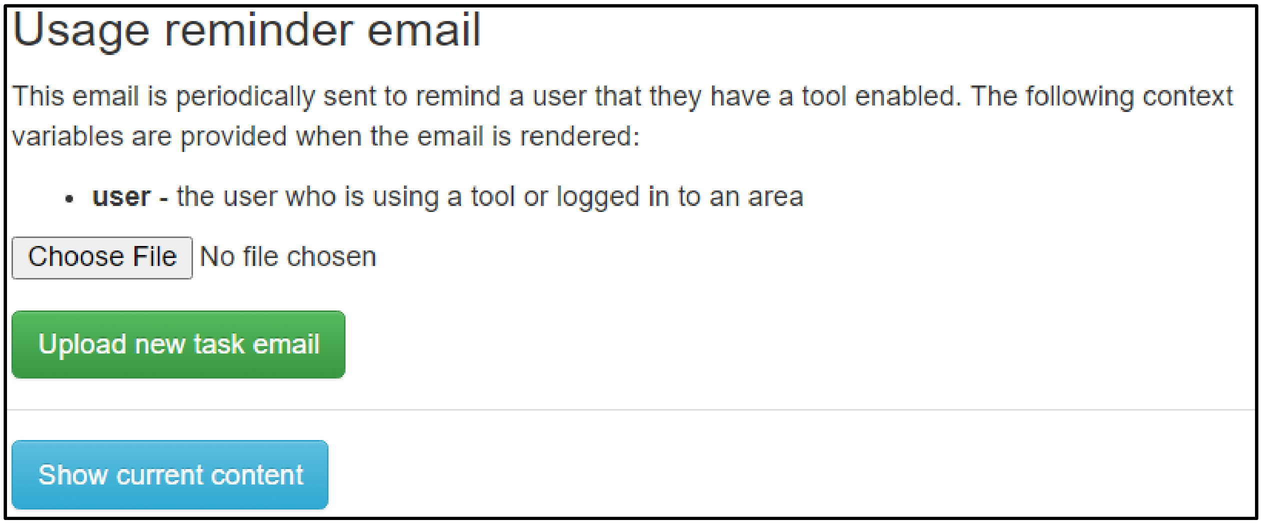


Figure 823 Customization usage reminder email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.24 User reservation created email

The customization for the user reservation created email template can be configured using html to render a specific message to users when they create a reservation that provides a calendar invite for common mail interfaces such as Outlook or Gmail as an attachment (Figure 824). The feature is described in the user preference section on page 185. The user reservation created email is optional and will only be sent if the email template and the user office email address described on page 292 are configured and the user has enabled the feature in their user preferences.

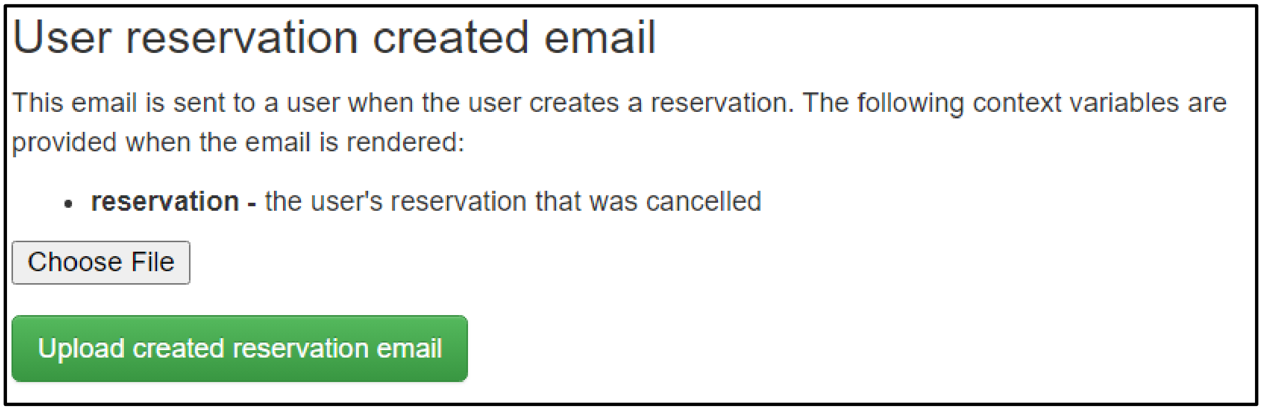


Figure 824 Customization user reservation created email

To create a custom user reservation created email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - reservation – the reservation object of the users reservation
- The email subject will always be “{facility_name} Reservation for the {tool_name}”.
- The email will be from the user office email address
- The email will be addressed to the user

To upload a user reservation created email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed ‘reservation_created_user_email.html’ and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 825).

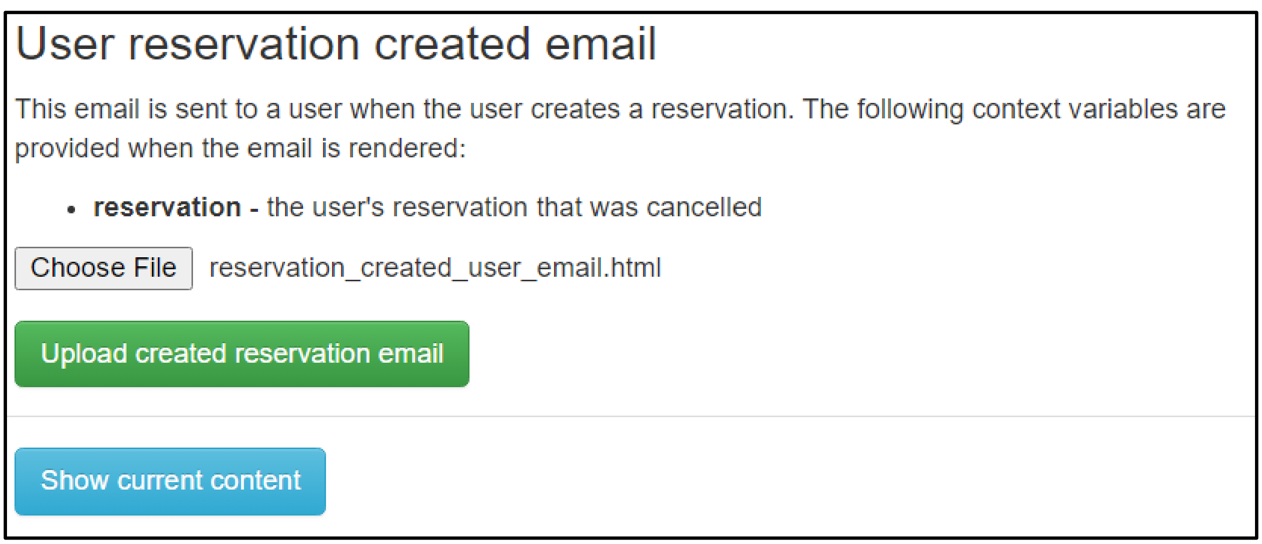


Figure 825 Customization user reservation created email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.25 User reservation cancelled email

The customization for the user reservation canceled email template can be configured using html to render a specific message to users when they cancel a reservation that provides a calendar invite for common mail interfaces such as Outlook or Gmail as an attachment (Figure 826). The feature is described in the user preference section on page 185. The user reservation canceled email is optional and will only be sent if the email template and the user office email address described on page 292 are configured and the user has enabled the feature in their user preferences.

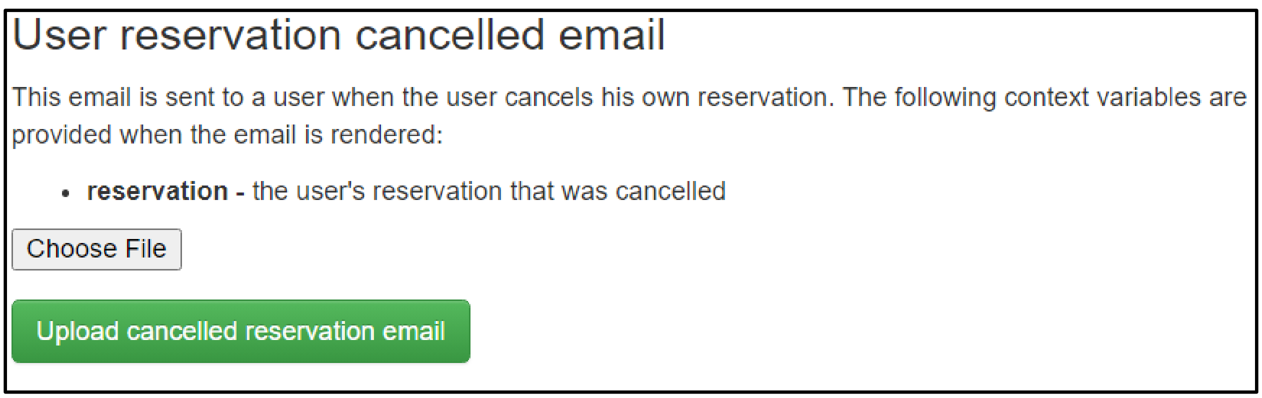


Figure 826 Customization user reservation canceled email

To create a custom user reservation cancelled email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - reservation – the reservation object of the user's reservation
- The email subject will always be "{facility_name} Reservation for the {tool_name}".
- The email will be from the user office email address
- The email will be addressed to the user

To upload a user reservation cancelled email template:

- Click the choose file button to open the file selection dialog.

- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'reservation_cancelled_user_email.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 827).

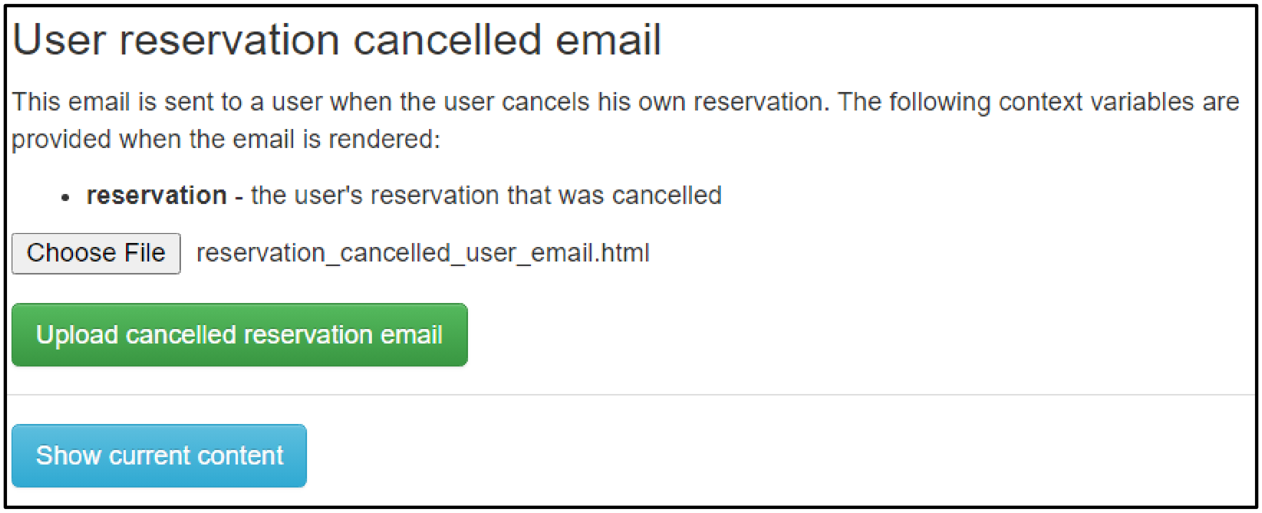


Figure 827 Customization user reservation canceled email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.7.26 Weekend access notification email

The customization for the weekend access notification email template can be configured using html to render a specific message to be sent to the weekend access emails provided in User request settings. The weekend access notification email is optional and will only be sent if the email template and the user office email address described on page 292 are configured.

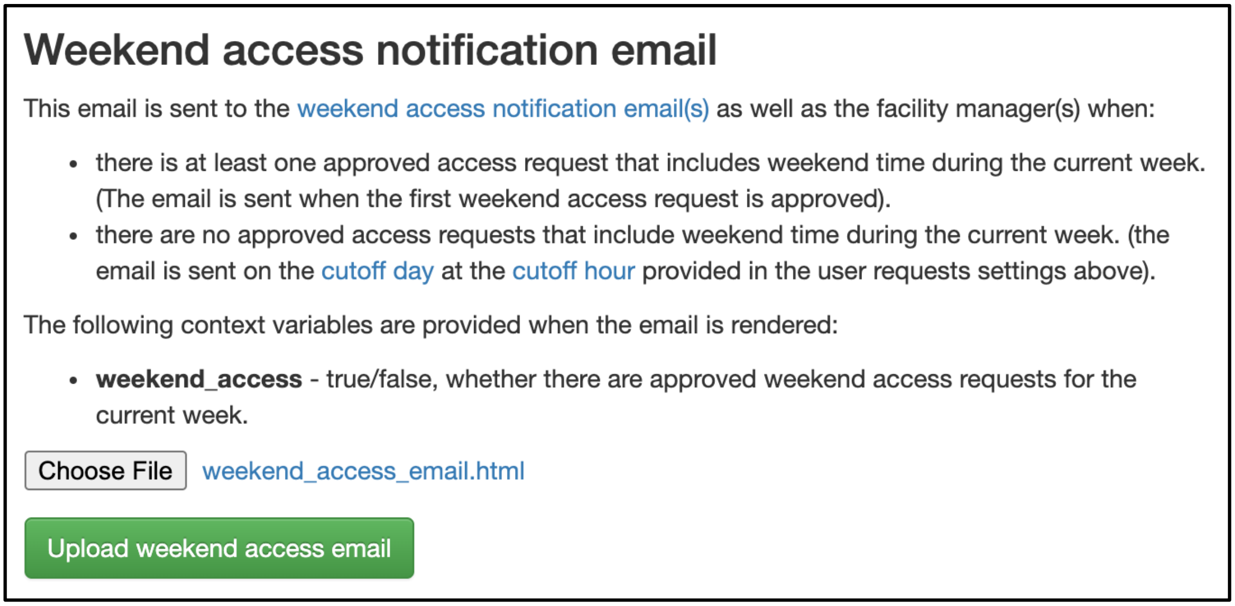


Figure 828 Customization user reservation canceled email

To create a custom weekend access email template

- Use any html editor to create the desired content
- Context variables available. The fields of an object can be found in the objects model in the models.py file.
    - weekend_access – a Boolean (true/false) value representing whether there will be weekend access.
- The email subject will always be either "Weekend access for the {facility_name} {saturday_date} – {sunday_date}"
- The email will be from the user office email address
- The email will be addressed to the email(s) set in User request settings as well and all facility managers.

To upload a weekend access email template:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'weekend_access.html' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 827).

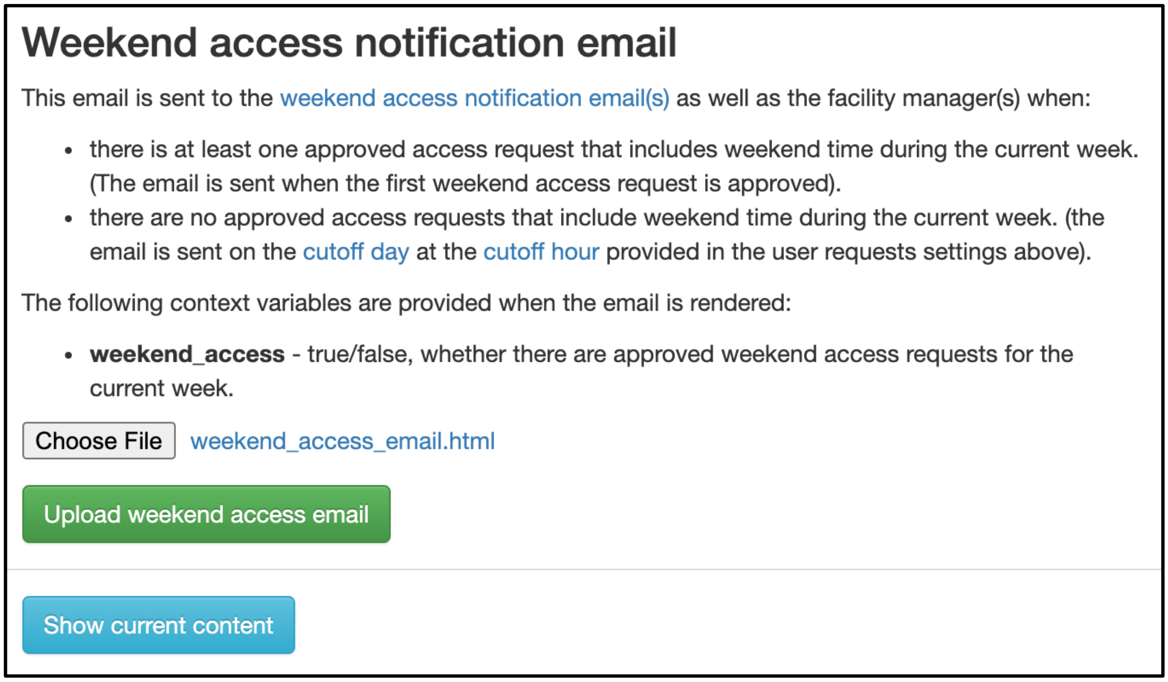


Figure 829 Customization user reservation canceled email file loaded

To delete the currently loaded file:

- Click the upload button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.8 Tool Rates

The customization for the tool rates can be configured to display rates for tools and supplies (Figure 830). The tool rate configuration is optional, and no rate information will be displayed if not configured. More information about how the tool rates are displayed can be found in the tool control section on page 87. More information about how supply rates are displayed can be found in the supply section on page 269. NEMO comes with a default rate class defined which can be edited to suit your institution by modifying the rates.py file to create a custom rate class. NOTE: It is beyond the scope of this manual to provide details of programming changes.

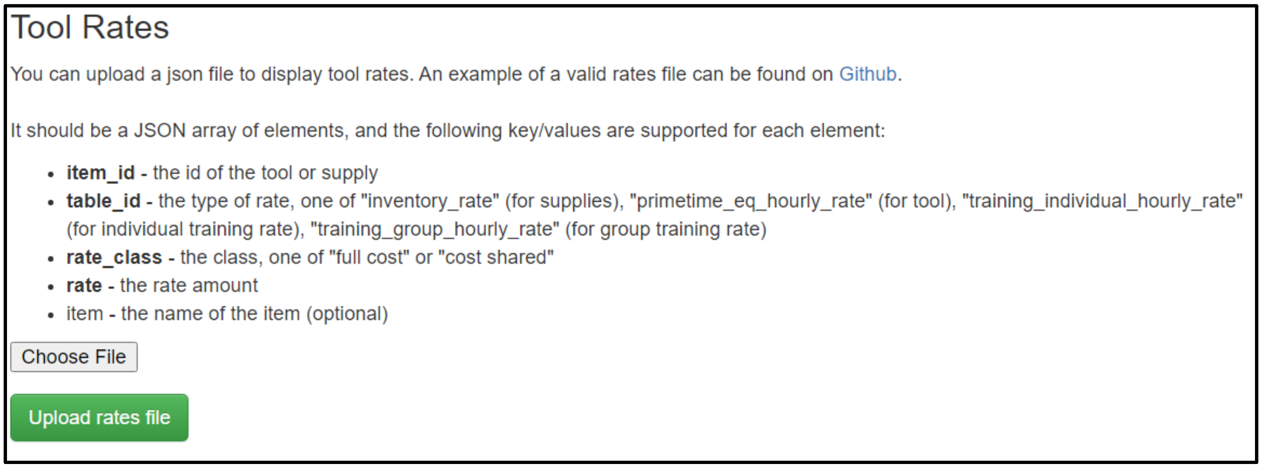


Figure 830 Configuration tool rates

To create a custom tool rate file for the default rate class

- Use any editor to create the desired json array of elements.
- The following key/values are supported for each element:
    - item_id - the id of the tool or supply that corresponds to the id value in the tool table or consumables table
    - item - the name of the item which is optional but useful to make the json file human readable.
    - table_id - the type of rate
        - "inventory_rate" (for consumables/supplies),
        - "primetime_eq_hourly_rate" (for tool),
        - "training_individual_hourly_rate" (for individual training rate),
        - "training_group_hourly_rate" (for group training rate)
    - rate_class - the class,
        - "full cost" (for tool, consumable/supply, individual and group training)
        - "cost shared" (for tool)
    - rate - the rate amount
- NOTE: only the rates defined will be displayed so every tool or supply does not need to be defined and every rate type and class do not need to be defined.
- Examples
    - Tool and training rates, full cost, cost shared tool rate and individual and group training.
        - The json code in Figure 831

```json
[
  {
    "item_id": 4,
    "item": "Sputter",
    "table_id": "primetime_eq_hourly_rate",
    "rate_class": "cost shared",
    "rate": 50.0
  },
  {
    "item_id": 4,
    "item": "Sputter",
    "table_id": "primetime_eq_hourly_rate",
    "rate_class": "full cost",
    "rate": 100.0
  },
  {
    "item_id": 4,
    "item": "Sputter",
    "table_id": "training_individual_hourly_rate",
    "rate_class": "full cost",
    "rate": 150.0
  },
  {
    "item_id": 4,
    "item": "Sputter",
    "table_id": "training_group_hourly_rate",
    "rate_class": "full cost",
    "rate": 75.0
  }
]
```


Figure 831 Configuration tool rates example 1 json

- Will provide the rate view on the tool control page in Figure 832

Tool rates: Full Cost **$100.00** Shared Cost **$50.00**
Training rates: Individual **$150.00** Group **$75.00**

Figure 832 Configuration tool rates example 1 view

- Tool and training rates; only full cost tool rate and individual training defined.
  - The json code in Figure 833

```json
[
  {
    "item_id": 2,
    "item": "PECVD",
    "table_id": "primetime_eq_hourly_rate",
    "rate_class": "full cost",
    "rate": 100.0
  },
  {
    "item_id": 2,
    "item": "PECVD",
    "table_id": "training_individual_hourly_rate",
    "rate_class": "full cost",
    "rate": 150.0
  }
]
```

Figure 833 Configuration tool rates example 2 json

  - Will provide the rate view on the tool control page in Figure 834

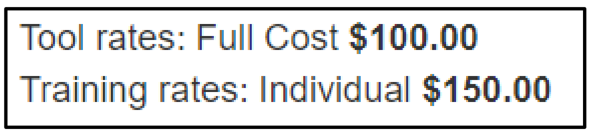


Figure 834 Configuration tool rates example 2 view

- Supply rates
  - The json code in Figure 835

```json
[
  {
    "item_id": 1,
    "item": "Tweezers",
    "table_id": "inventory_rate",
    "rate_class": "full cost",
    "rate": 10.0
  },
  {
    "item_id": 2,
    "item": "2 inch wafer tray",
    "table_id": "inventory_rate",
    "rate_class": "full cost",
    "rate": 42.0
  }
]
```

Figure 835 Configuration tool rates example 3 json

- Will provide the rate view on the supply page in Figure 836

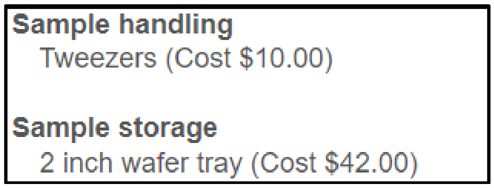


Figure 836 Configuration tool rates example 3 view

To upload a custom rate json file:

- Click the choose file button to open the file selection dialog.
- Select the desired file and click the open button. The selected file name will be displayed next to the choose file button.
- Click the upload button to load the file.
- The selected file will be renamed 'rates.json' and saved in the media folder of the NEMO website.
- Once a file has been uploaded, an option to view the file will be added (Figure 837).

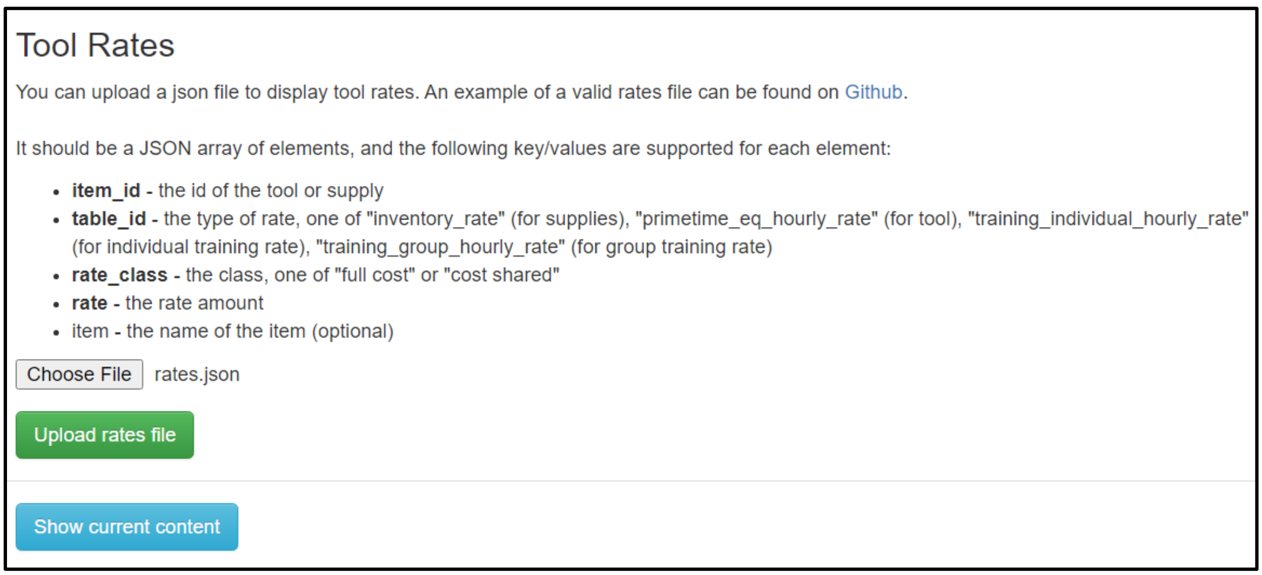


Figure 837 Customization tool rates file loaded

To delete the currently loaded file:

- Click the upload watermark button without selecting a file to remove the current file from the website media folder.
- A warning dialog will appear.
- Click OK to delete the file or Cancel to leave the file.
- If OK is selected, the filename next to the choose file button will disappear.

To display the contents of the currently loaded file:

- Click the show current content button.
- The current file content will be displayed in a separate window.

37.9 Sensor settings

The Sensor data is detailed starting on page 254.

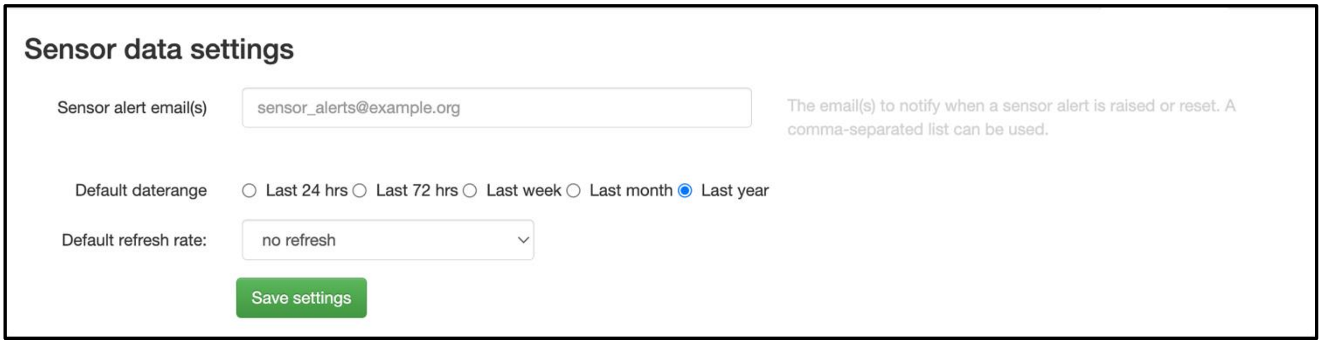


Figure 838 Customization sensor data settings

- The sensor alert global email(s) will be notified every time any sensor alert is triggered or reset. A comma separated list can be used (Figure 839).

Figure 839 Sensor data settings sensor alert emails

- The default date range can be selected here and will apply to all sensor data (Figure 840).

Figure 840 Sensor data settings default date range

- The default refresh rate for all tabs in the sensor data pages can be set here (Figure 841).

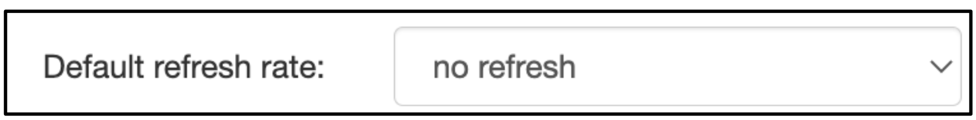


Figure 841 Sensor data settings default refresh rate

38 Detailed administration

The detailed administration page provides database table access to NEMO data where features can be configured, and usage data can be viewed (Figure 842).

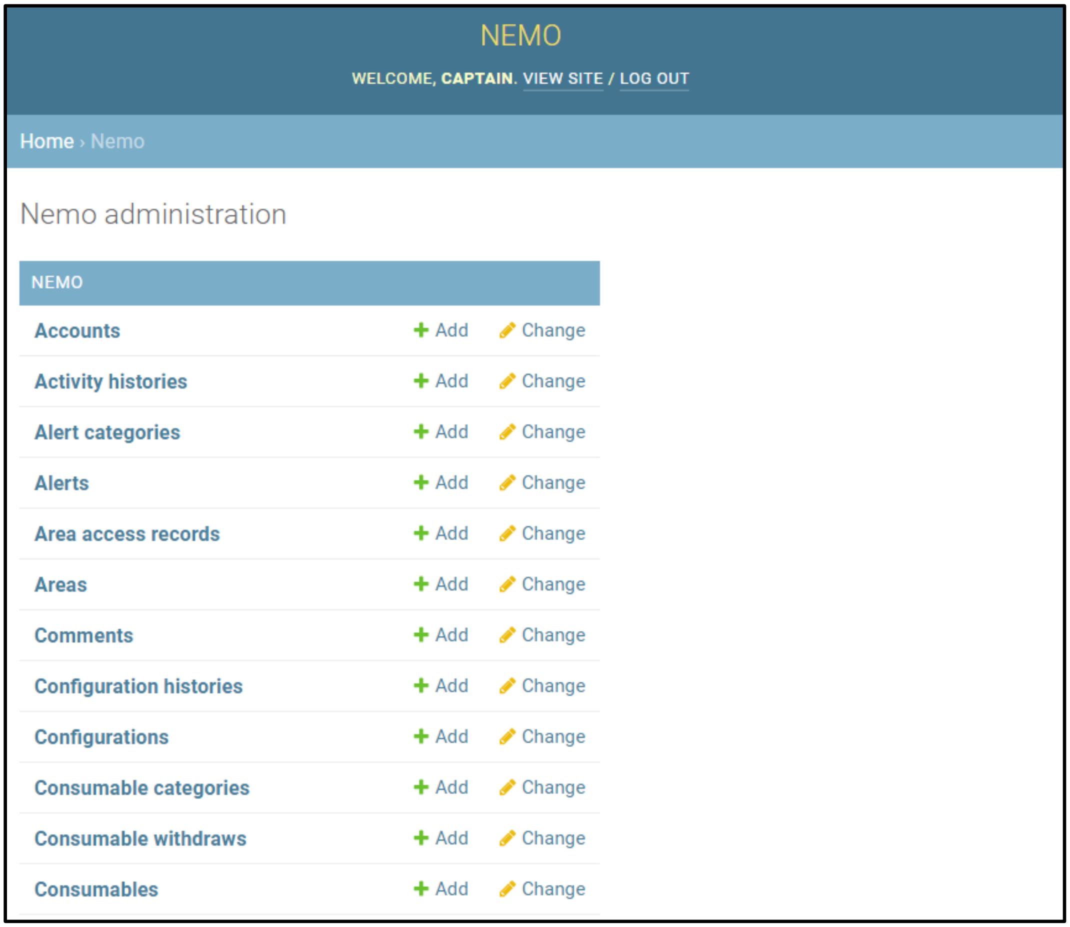


Figure 842 Detailed administration start of table list

Access to the detailed administration pages requires super-user status or special permissions. A super user can give access to non-super-users on a table-by-table basis from the users table of the database. The users table of the database discussed in the [Detailed administration → Users](#) section on page 519.

Users can return to the NEMO home page by clicking the "view site" link at the top of the page (Figure 843).

Figure 843 Detailed administration view site link

Users can log out of NEMO by clicking the "log out" link at the top of the page (Figure 844).

Figure 844 Detailed administration log out link

38.1 Common features

Each table can be accessed through the detailed administration page. There are several features that are common across all tables for adding and editing data. Features and details that are unique to a particular table will be discussed in the section specific to the table.

38.1.1 Adding data

Clicking the Add icon (Figure 845) on any table will open a dialog to input data that can be saved into the database.

Figure 845 Detailed administration add data icon

38.1.1.1 Common features when adding data

- The specific fields, their function, and usage will be detailed in each specific table section below. If the fields origin is data from another table in the database, the table name will be listed in italics. For example, *Accounts table*.
- Required fields are displayed in bold (Figure 846)

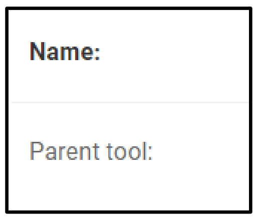


Figure 846 Detailed administration bold and non-bold fields

- Saving records can be accomplished in three ways (Figure 847)
  - Click “save and add another” to save the current record and create another blank record.
  - Click “save and continue editing” to save the current record and stay on the current record for additional changes.
  - Click “save” to save the current record and return to the summary page for the table.

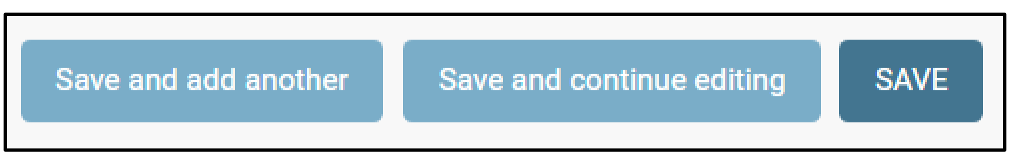
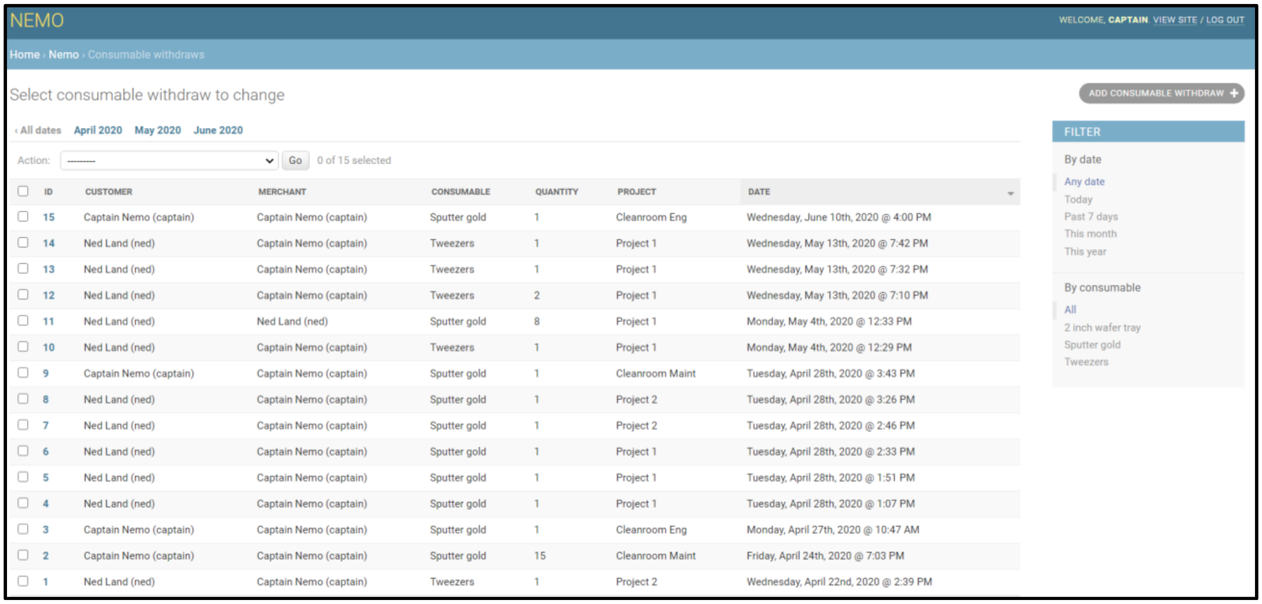


Figure 847 Detailed administration save buttons

38.1.2 Changing data

Clicking the Change icon (Figure 848) on any table will open a summary of the table rows that can be selected for editing (Figure 849). Clicking the table name will also open a summary.

Figure 848 Detailed administration change data icon

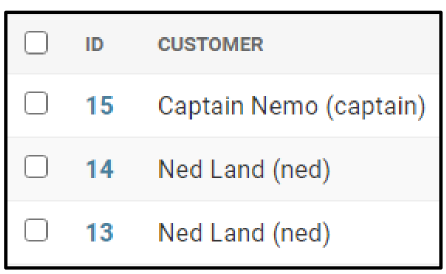


ID	CUSTOMER	MERCHANT	CONSUMABLE	QUANTITY	PROJECT	DATE
15	Captain Nemo (captain)	Captain Nemo (captain)	Sputter gold	1	Cleanroom Eng	Wednesday, June 10th, 2020 @ 4:00 PM
14	Ned Land (ned)	Captain Nemo (captain)	Tweezers	1	Project 1	Wednesday, May 13th, 2020 @ 7:42 PM
13	Ned Land (ned)	Captain Nemo (captain)	Tweezers	1	Project 1	Wednesday, May 13th, 2020 @ 7:32 PM
12	Ned Land (ned)	Captain Nemo (captain)	Tweezers	2	Project 1	Wednesday, May 13th, 2020 @ 7:10 PM
11	Ned Land (ned)	Ned Land (ned)	Sputter gold	8	Project 1	Monday, May 4th, 2020 @ 12:33 PM
10	Ned Land (ned)	Captain Nemo (captain)	Tweezers	1	Project 1	Monday, May 4th, 2020 @ 12:29 PM
9	Captain Nemo (captain)	Captain Nemo (captain)	Sputter gold	1	Cleanroom Maint	Tuesday, April 28th, 2020 @ 3:43 PM
8	Ned Land (ned)	Captain Nemo (captain)	Sputter gold	1	Project 2	Tuesday, April 28th, 2020 @ 3:26 PM
7	Ned Land (ned)	Captain Nemo (captain)	Sputter gold	1	Project 2	Tuesday, April 28th, 2020 @ 2:46 PM
6	Ned Land (ned)	Captain Nemo (captain)	Sputter gold	1	Project 1	Tuesday, April 28th, 2020 @ 2:33 PM
5	Ned Land (ned)	Captain Nemo (captain)	Sputter gold	1	Project 1	Tuesday, April 28th, 2020 @ 1:51 PM
4	Ned Land (ned)	Captain Nemo (captain)	Sputter gold	1	Project 1	Tuesday, April 28th, 2020 @ 1:07 PM
3	Captain Nemo (captain)	Captain Nemo (captain)	Sputter gold	1	Cleanroom Eng	Monday, April 27th, 2020 @ 10:47 AM
2	Captain Nemo (captain)	Captain Nemo (captain)	Sputter gold	15	Cleanroom Maint	Friday, April 24th, 2020 @ 7:03 PM
1	Ned Land (ned)	Captain Nemo (captain)	Tweezers	1	Project 2	Wednesday, April 22nd, 2020 @ 2:39 PM

Figure 849 Detailed administration example table summary

38.1.2.1 Common features when changing data

- Edit a record – to access a record for editing, the first column of the summary is a link to the data view (Figure 850). The ID field is often displayed in the summary page but is automatically assigned at record creation and is never editable.



ID	CUSTOMER
15	Captain Nemo (captain)
14	Ned Land (ned)
13	Ned Land (ned)

Figure 850 Detailed administration first column link to change data

  - Click the link to open the change record view (Figure 851). The specific view will be discussed in the section for each table.

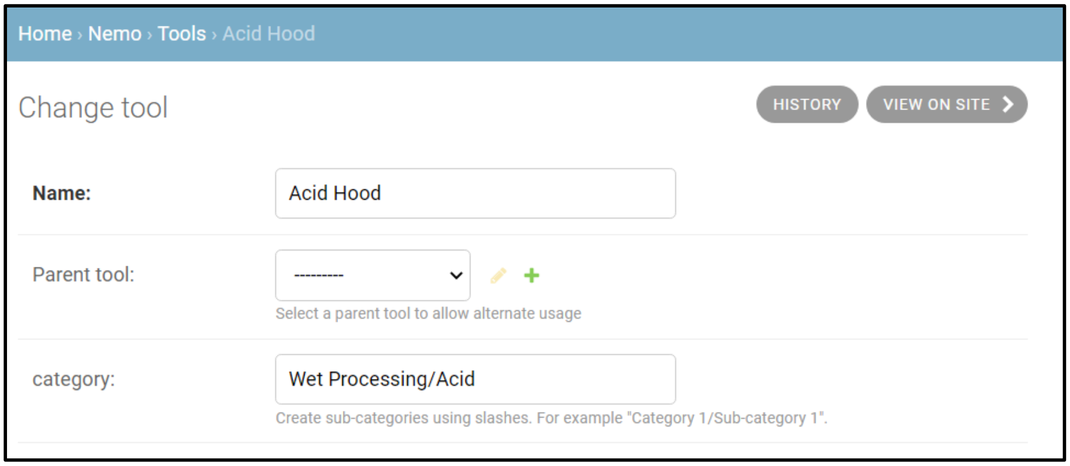


Figure 851 Detailed administration change record example

- The common features for editing a record are the same as those for adding a new record detailed above with the following exceptions
  - A history button may be displayed at the top right of the page (Figure 852). Clicking the history button will show a summary of the changes that have been made to the record (Figure 853).

Figure 852 Detailed administration record history button

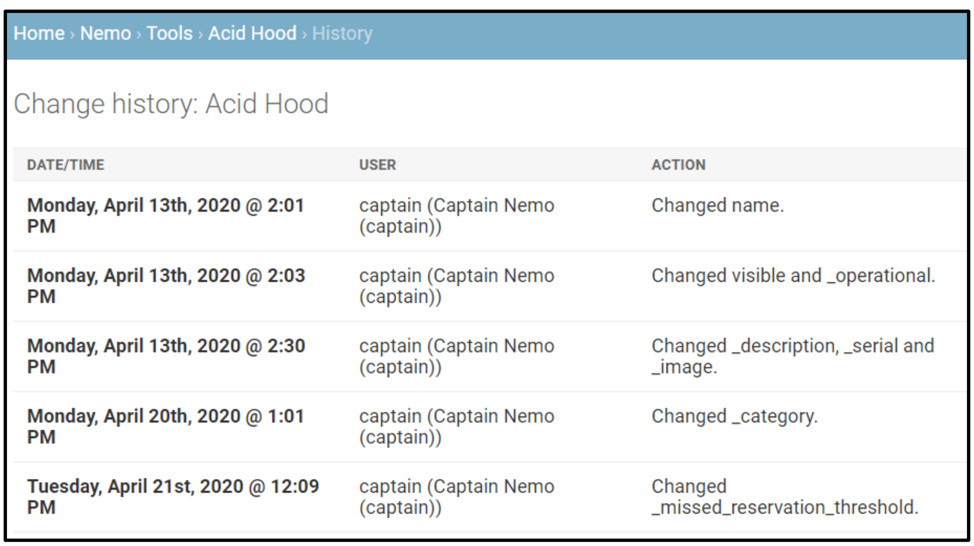


Figure 853 Detailed administration record history

  - A view on site button may be displayed at the top right of the page (Figure 854). Clicking the view on page button will redirect to the feature page defined for that table.

Figure 854 Detailed administration view on site button

        - A delete button will be displayed at the bottom of the page (Figure 855).

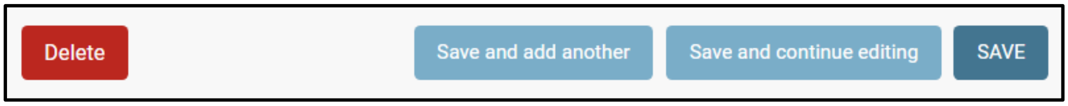


Figure 855 Detailed administration delete button

- Add record button – the top right side of the summary page will have a button to add new records (Figure 856).

Figure 856 Detailed administration add record button

- Search – some summary pages have a search dialog at the top of the page that can be used to quickly narrow results to records of interest (Figure 857). Enter a search term in the dialog box and click the search button. Partial names and wildcards can be used. Any matching results will be returned.

Figure 857 Detailed administration search dialog

- Filters can be used to narrow down the record list.
    - Filters may include a date range above the record list that can be clicked to filter results. A date range filter will start at a coarse range and continue to a narrower range. Anytime the date has been filtered, the first filter selection will be to unfilter to the previous filter level.
        - If there is multi-year data, the years with data will be displayed in the filter selection (Figure 858).

Figure 858 Detailed administration year filter

        - Clicking a year filter will show data from that year and change the filter selection to the months with data (Figure 859).

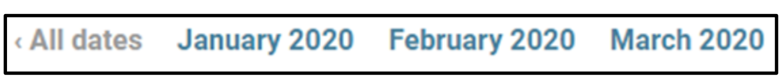


Figure 859 Detailed administration month filter

        - Clicking a month filter will show data from that month and change the filter selection to the days of the month with data (Figure 860).

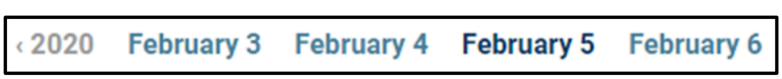


Figure 860 Detailed administration day filter

- Clicking a day filter will show data from the date selected (Figure 861).

Figure 861 Detailed administration date filter

- Other filters may be included on the right sidebar of the page and can change from page to page (Figure 862). However, their function is the same. Click on the filter level desired to narrow down the number of records displayed in the summary page until the records of interest are displayed.

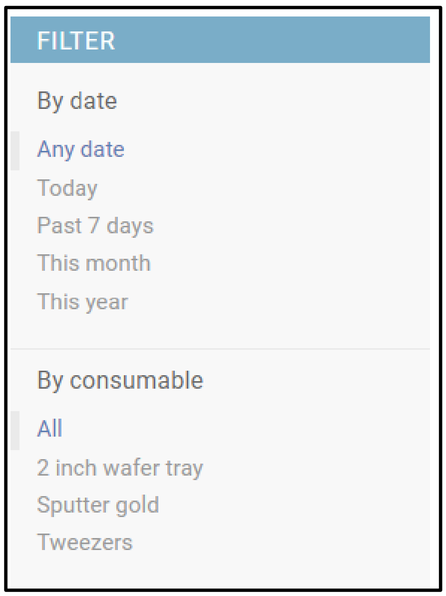


Figure 862 Detailed administration side bar filters

- Actions can be used to execute a function on one or more records (Figure 863).

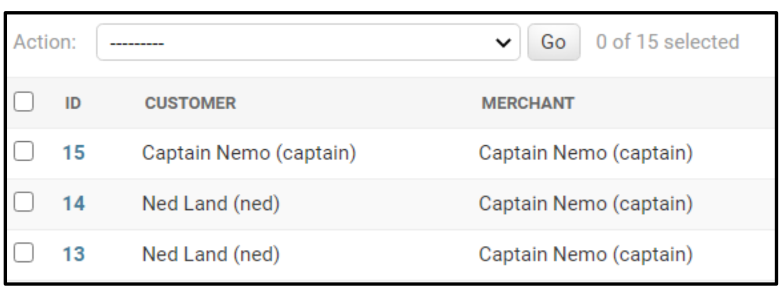


Figure 863 Detailed administration action menu

- Every table has a delete record action.
- To execute a function on one or more records
  - Select the records of interest by checking the checkbox on the left of the record. Checking the checkbox in the title bar will select all records (Figure 864).

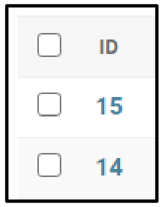


Figure 864 Detailed administration select records

- Select the action to execute from the drop-down list (Figure 865).

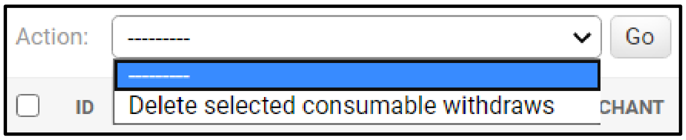


Figure 865 Detailed administration select action

- Click “go” (Figure 866).

Figure 866 Detailed administration action go button

- When deleting records, a list of impacts and related items will be displayed with a prompt to confirm or cancel the action (Figure 867).

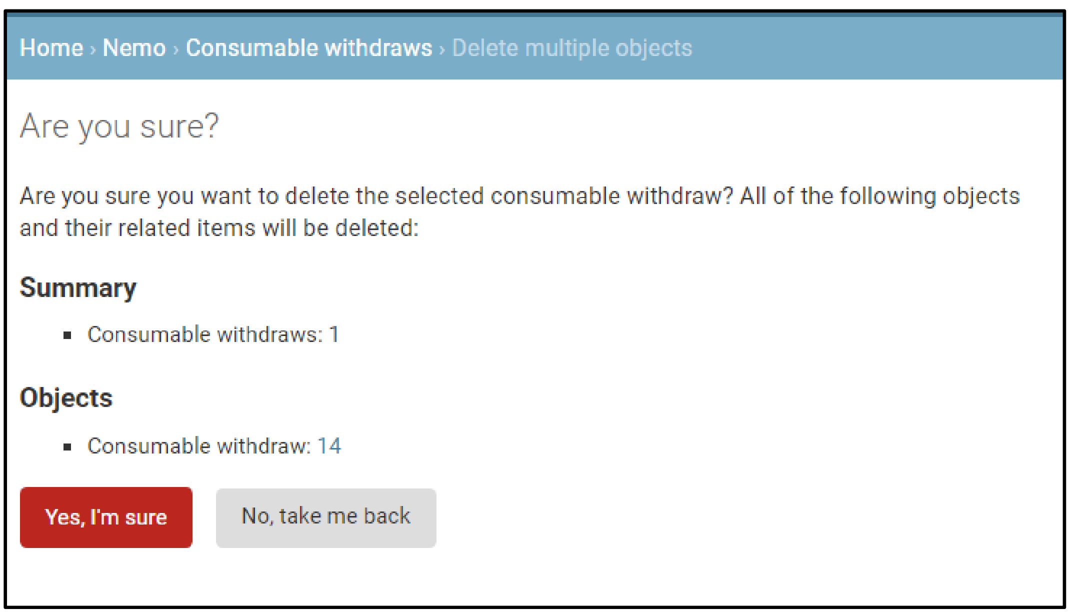


Figure 867 Detailed administration delete confirmation dialog

- Click the yes button to continue or the no button to cancel (Figure 868).

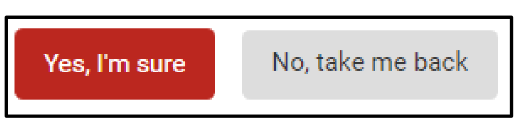


Figure 868 Detailed administration delete confirmation buttons

- Sort – the summary list of records can be sorted by clicking on the column title (Figure 869).

Figure 869 Detailed administration sort indicators

  - An arrow next to the column title indicates sort direction. Down arrow indicates descending and up arrow indicates ascending.
  - If multiple columns are clicked, then records are sorted in order of precedence with the last clicked column having the highest precedence. Lower numbers have higher precedence.
  - Hovering over a sorted field heading will show an icon ( ) to remove sorting from that column (Figure 870). Click the icon to remove sorting.

Figure 870 Detailed administration remove sorting

39 Detailed administration – NEMO (admin only)

39.1 Account types

39.1.1 Usage

Account types are optional but can be useful for binning accounts aiding in future analysis and trending. Account types, if used, must be created in this table view and can be any text name. Any number can be defined. If no account types are defined, they are not displayed on the account page. Account types are discussed in the account page detailed on page 191.

39.1.2 Summary page

The summary page provides a listing of account types (Figure 871). Click the name field in the row of interest to edit.

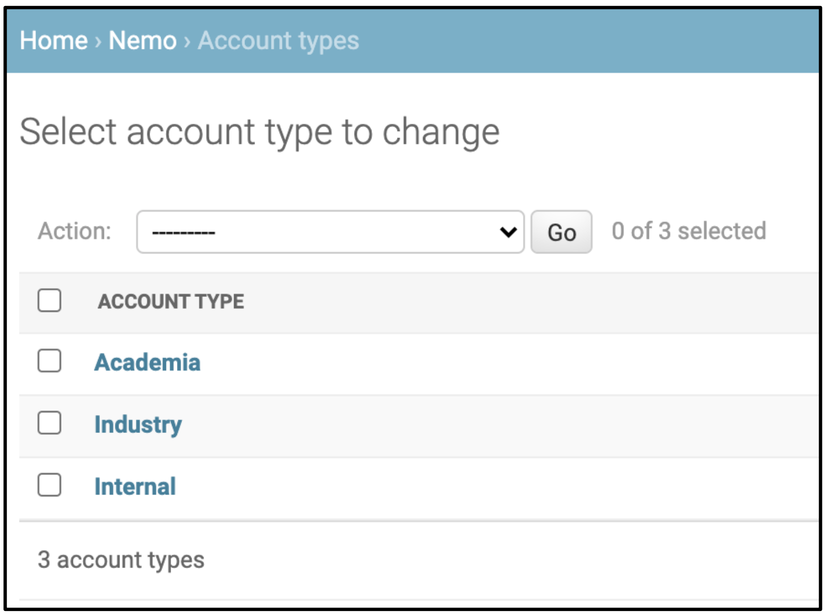


Figure 871 Account types summary page

39.1.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 872). Common features in detailed administration is detailed on page 359.

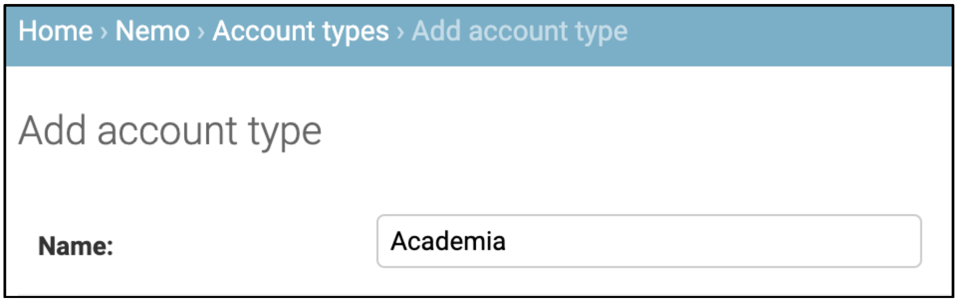


Figure 872 Account types add/edit page

- Name – the name can be up to 200 characters (required).

39.1.4 User access page

There is no user access page to create account types however, account types are discussed in the account page detailed on page 191.

39.2 Accounts

39.2.1 Usage

An account is at the top of the billing hierarchy. This is where you send the bill. An account can have many projects. Users make charges to projects which are carried to accounts. A detailed discussion of accounts can be found in the Accounts and projects section on page 191.

39.2.2 Summary page

The summary page provides a search dialog and filtering of the active field (Figure 873). Click the name field in the row of interest to edit.

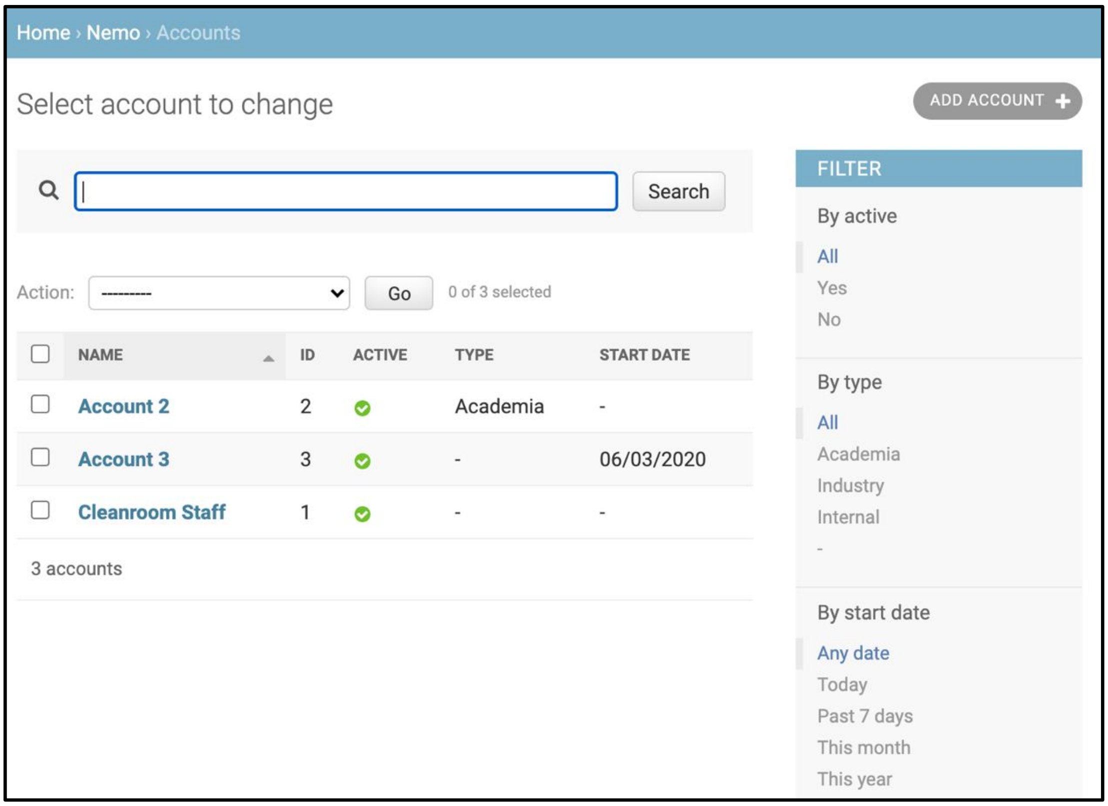


Figure 873 Accounts summary page

39.2.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 874). Common features in detailed administration is detailed on page 359.

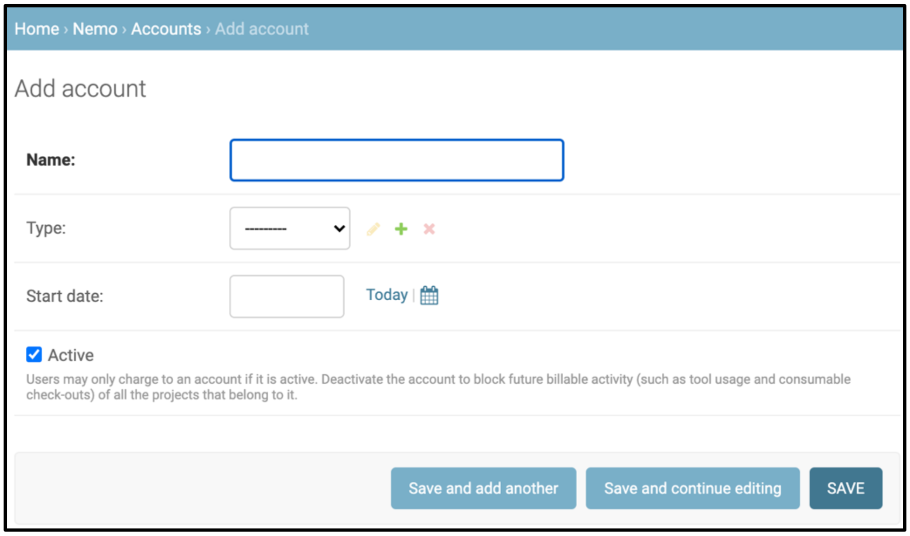


Figure 874 Accounts add/edit page

- Name – this is the name referred to for the account. It can be a maximum of 100 characters and must be unique (required).
- Type – this is the type for the account. Account types are discussed in Account types in page 366.
- Start date – the account start date.
- Active – this indicates if the account is available to be used. Users may only charge to an account if it is active. Deactivate the account to block future billable activity (such as tool usage, etc.) of all the projects that belong to it.

39.2.4 User access page

Accounts are created and managed on the accounts and projects page detailed in the Accounts and projects section on page 191.

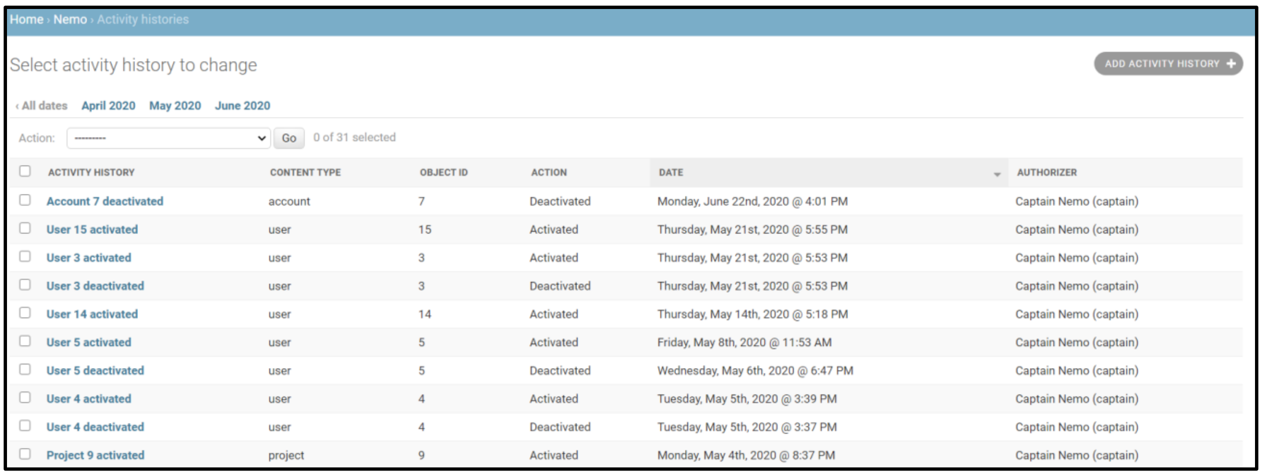
39.3 Activity histories

39.3.1 Usage

The activity histories table maintains a record of changes made to the active status of users, projects, and accounts. Records are written automatically, and manual entry or editing should not be necessary.

39.3.2 Summary page

The summary page provides date filtering (Figure 875). Click the activity history field in the row of interest to edit.



ACTIVITY HISTORY	CONTENT TYPE	OBJECT ID	ACTION	DATE	AUTHORIZER
Account 7 deactivated	account	7	Deactivated	Monday, June 22nd, 2020 @ 4:01 PM	Captain Nemo (captain)
User 15 activated	user	15	Activated	Thursday, May 21st, 2020 @ 5:55 PM	Captain Nemo (captain)
User 3 activated	user	3	Activated	Thursday, May 21st, 2020 @ 5:53 PM	Captain Nemo (captain)
User 3 deactivated	user	3	Deactivated	Thursday, May 21st, 2020 @ 5:53 PM	Captain Nemo (captain)
User 14 activated	user	14	Activated	Thursday, May 14th, 2020 @ 5:18 PM	Captain Nemo (captain)
User 5 activated	user	5	Activated	Friday, May 8th, 2020 @ 11:53 AM	Captain Nemo (captain)
User 5 deactivated	user	5	Deactivated	Wednesday, May 6th, 2020 @ 6:47 PM	Captain Nemo (captain)
User 4 activated	user	4	Activated	Tuesday, May 5th, 2020 @ 3:39 PM	Captain Nemo (captain)
User 4 deactivated	user	4	Deactivated	Tuesday, May 5th, 2020 @ 3:37 PM	Captain Nemo (captain)
Project 9 activated	project	9	Activated	Monday, May 4th, 2020 @ 8:37 PM	Captain Nemo (captain)

Figure 875 Activity histories summary page

39.3.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 876). [Common features in detailed administration](#) is detailed on page 359. In addition, the history button will show any manual changes that were made to the record.

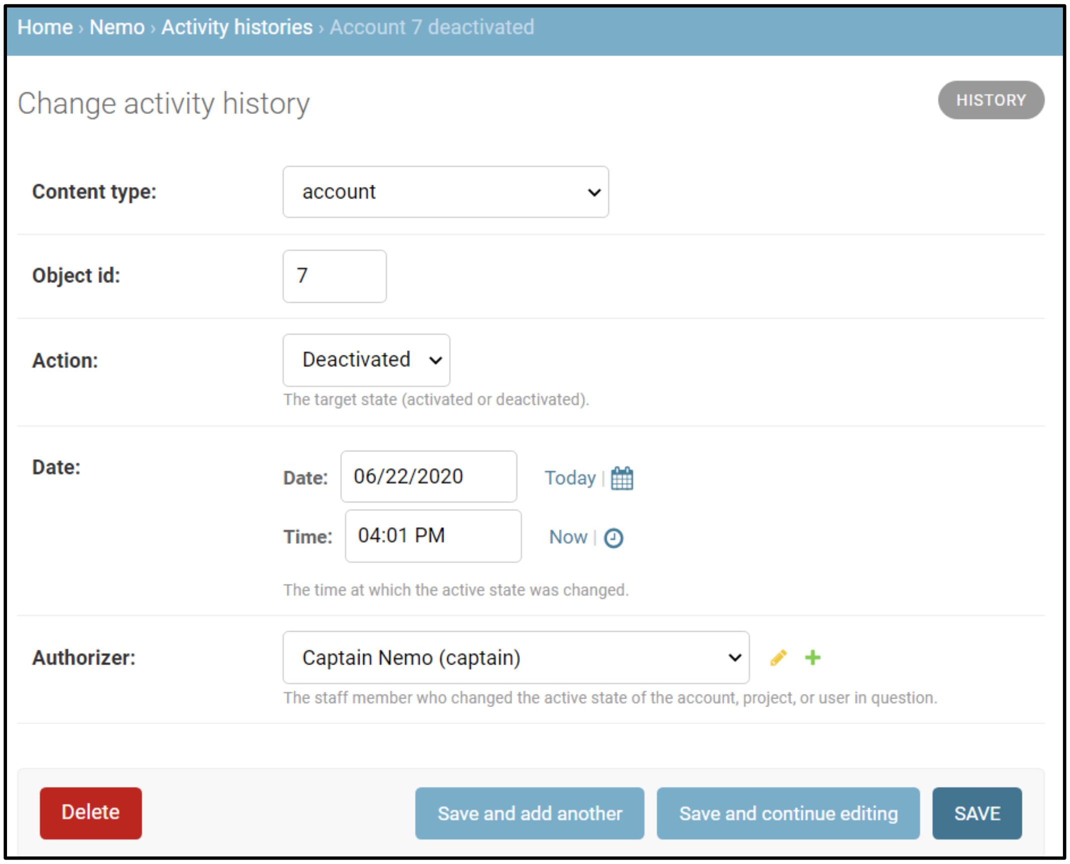


Figure 876 Activity histories add/edit page

- Content type – a large selection is available under the dropdown however, NEMO only uses accounts, projects, and users (required).
- Object id – this field is the id number of the account, project, or user (required).
- Action – this field is either activated or deactivated (required).
- Date – date and time the action was taken (required).
- Authorizer – user that initiated the action (required). *User table*

39.3.4 User access page

Activity histories are automatically recorded through actions initiated on accounts, projects, and users. Accounts and projects are detailed in the Accounts and projects section on page 191. Users are detailed in the users section on page 278.

39.4 Alert categories

39.4.1 Usage

Alert categories are optional but can be useful for binning alerts aiding in future analysis and trending. Alert categories, if used, must be created in this table view and can be any text name. Any number can be defined. If no alert categories are defined, they are not displayed on the alerts page. Alert categories are discussed in the Alerts section detailed on page 200.

39.4.2 Summary page

The summary page provides a listing of alert categories (Figure 877). Click the name field in the row of interest to edit.

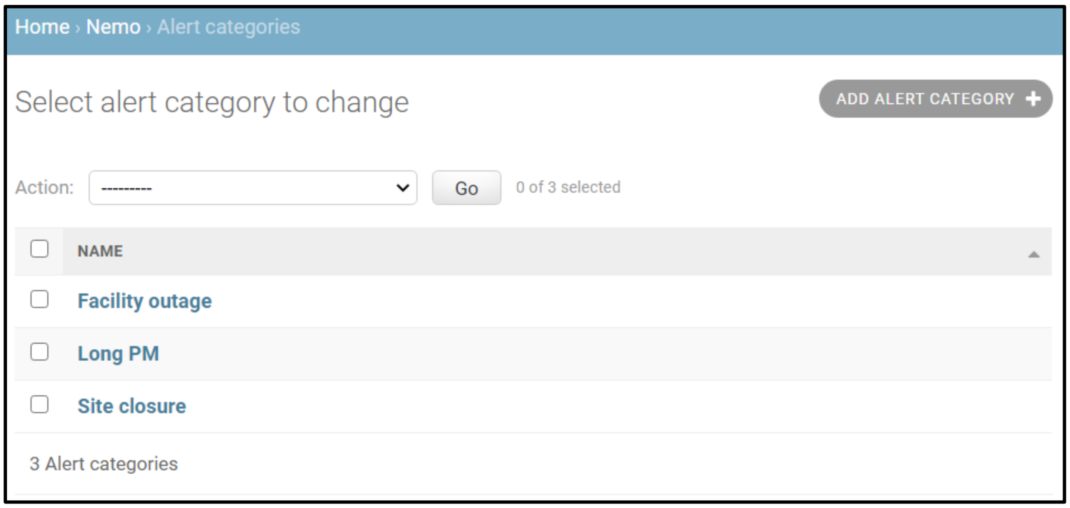


Figure 877 Alert category summary page

39.4.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 878). Common features in detailed administration is detailed on page 359.

Figure 878 Alert category add/edit page

- Name – the name can be up to 200 characters (required).

39.4.4 User access page

Alert categories are discussed in the Alerts section detailed on page 200.

39.5 Alerts

39.5.1 Usage

Alerts are used to notify users of upcoming events that can impact lab or equipment availability. Alerts are discussed in the [Alerts] section detailed on page 200. Alerts are created and edited through a NEMO page and manual editing of this table should not be necessary.

39.5.2 Summary page

The summary page provides a listing of alerts (Figure 879). Click the title field in the row of interest to edit.

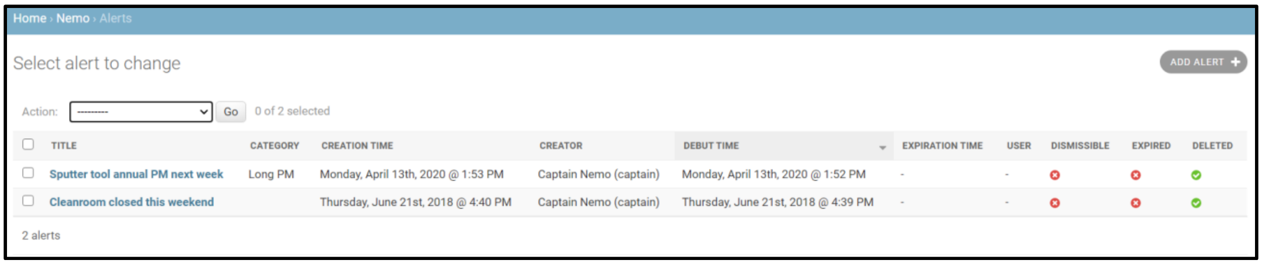


Figure 879 Alerts summary page

39.5.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 880). [Common features in detailed administration] is detailed on page 359.

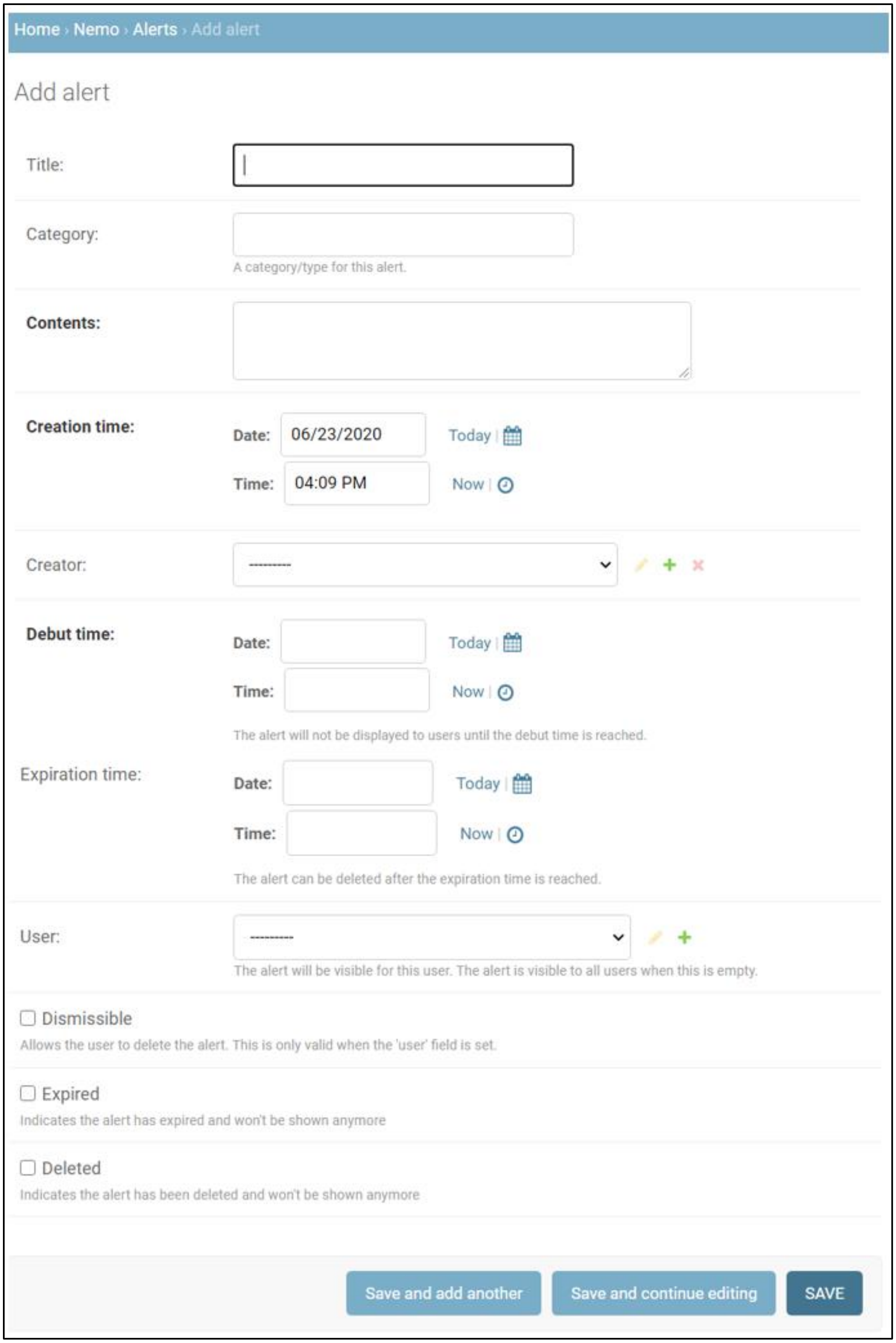


Figure 880 Alerts add/edit page

- Title – title to be displayed for the alert, maximum of 100 characters.
- Category – category of the alert selected from alert categories. *Alert categories table*
- Contents – message to describe the alert, maximum of 500 characters (required).
- Creation Time – the date/time the alert was created (required).
- Creator – the user that created the alert. *Users table*
- Debut time – the time the alert will start displaying on the landing page (required).
- Expiration time – the time the alert will expire and stop being displayed on the landing page.
- User – the user targeted for the alert, this will be blank for all users. *Users table*
- Dismissible – only valid when a user is selected, allows user to delete the alert.
- Expired – indicates the alert has expired and will not be displayed any longer.
- Deleted – indicates the alert was deleted and will not be displayed any longer.

39.5.4 User access page

Alerts are discussed in the Alerts section detailed on page 200.

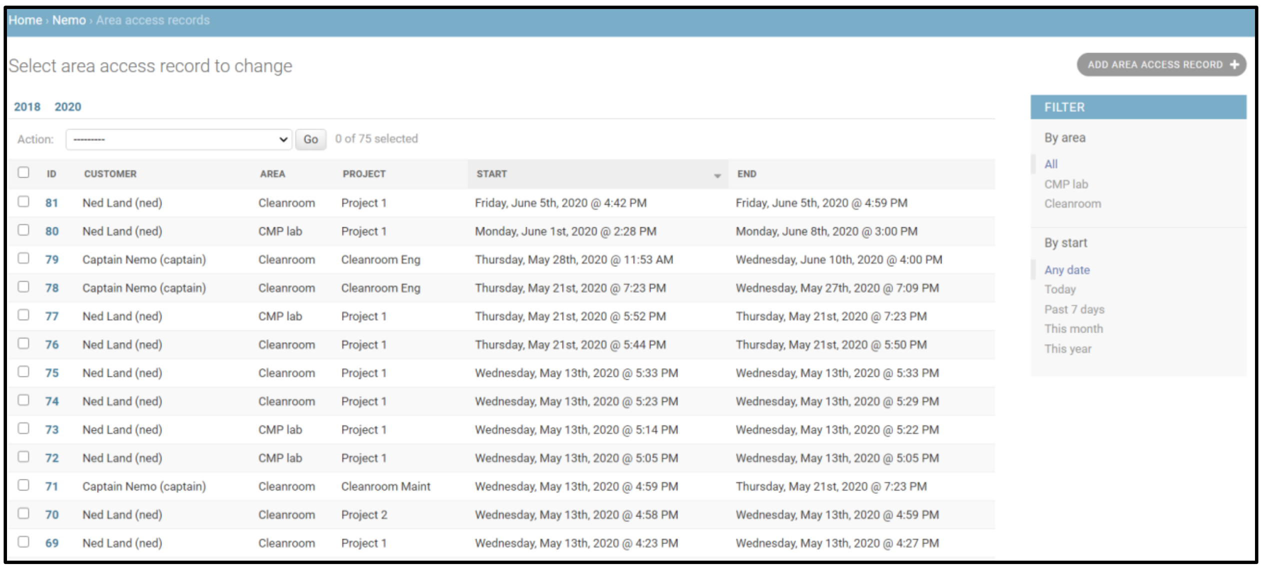
39.6 Area access records

39.6.1 Usage

The area access records table maintains the list of users that have accessed an area. Records are written automatically when a user enters/exits an area. Manual editing may be necessary to correct an access record if for example a user forgets to log out of an area.

39.6.2 Summary page

The summary page provides date filtering, filtering by area, and by start date (Figure 881). Click the id field in the row of interest to edit.



ID	CUSTOMER	AREA	PROJECT	START	END
81	Ned Land (ned)	Cleanroom	Project 1	Friday, June 5th, 2020 @ 4:42 PM	Friday, June 5th, 2020 @ 4:59 PM
80	Ned Land (ned)	CMP lab	Project 1	Monday, June 1st, 2020 @ 2:28 PM	Monday, June 8th, 2020 @ 3:00 PM
79	Captain Nemo (captain)	Cleanroom	Cleanroom Eng	Thursday, May 28th, 2020 @ 11:53 AM	Wednesday, June 10th, 2020 @ 4:00 PM
78	Captain Nemo (captain)	Cleanroom	Cleanroom Eng	Thursday, May 21st, 2020 @ 7:23 PM	Wednesday, May 27th, 2020 @ 7:09 PM
77	Ned Land (ned)	CMP lab	Project 1	Thursday, May 21st, 2020 @ 5:52 PM	Thursday, May 21st, 2020 @ 7:23 PM
76	Ned Land (ned)	Cleanroom	Project 1	Thursday, May 21st, 2020 @ 5:44 PM	Thursday, May 21st, 2020 @ 5:50 PM
75	Ned Land (ned)	Cleanroom	Project 1	Wednesday, May 13th, 2020 @ 5:33 PM	Wednesday, May 13th, 2020 @ 5:33 PM
74	Ned Land (ned)	Cleanroom	Project 1	Wednesday, May 13th, 2020 @ 5:23 PM	Wednesday, May 13th, 2020 @ 5:29 PM
73	Ned Land (ned)	CMP lab	Project 1	Wednesday, May 13th, 2020 @ 5:14 PM	Wednesday, May 13th, 2020 @ 5:22 PM
72	Ned Land (ned)	CMP lab	Project 1	Wednesday, May 13th, 2020 @ 5:05 PM	Wednesday, May 13th, 2020 @ 5:05 PM
71	Captain Nemo (captain)	Cleanroom	Cleanroom Maint	Wednesday, May 13th, 2020 @ 4:59 PM	Thursday, May 21st, 2020 @ 7:23 PM
70	Ned Land (ned)	Cleanroom	Project 2	Wednesday, May 13th, 2020 @ 4:58 PM	Wednesday, May 13th, 2020 @ 4:59 PM
69	Ned Land (ned)	Cleanroom	Project 1	Wednesday, May 13th, 2020 @ 4:23 PM	Wednesday, May 13th, 2020 @ 4:27 PM

Figure 881 Area access records summary page

39.6.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 882). Common features in detailed administration is detailed on page 359. In addition, the history button will show any manual changes that were made to the record.

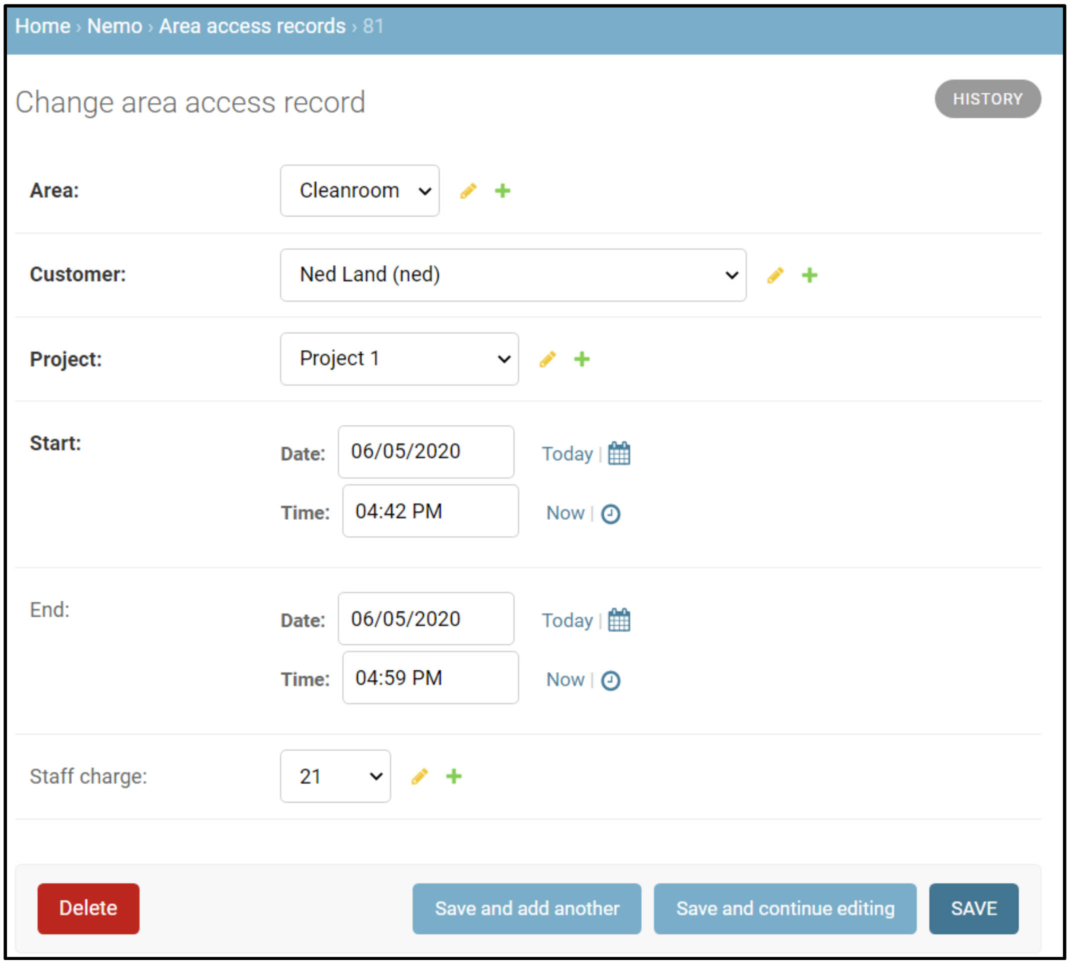


Figure 882 Area access records add/edit page

- Area – drop down list of all areas (required). *Areas table*
- Customer – drop down list of all users (required). *Users table*
- Project – drop down list of all projects (required). *Projects table*
- Start – the start date and time (required).
- End – the end date and time.
- Staff charge – the staff charge record id the area access record is associated with.

39.6.4 User access page

Area access records are automatically recorded when a user accesses a controlled area. Access is provided via the landing page by a user, the area access page by staff, or through a controlled door tablet. Areas are discussed in the next section.

39.7 Areas

39.7.1 Usage

The areas table contains the list of areas defined for a facility. Areas are optional and can be used to define spaces and group tools in common places. In addition, areas can optionally have occupancy limits set as well as require a reservation for access.

The times a user has access to an area are defined as physical access levels. Physical access levels are used to associate areas with time schedules and are discussed in the Detailed administration → Physical access level section on page 436.

An area can optionally have doors associated with it that NEMO controls through interlocks. Doors are discussed in the Detailed administration → Doors section on page 414.

User area access permissions are permissions to physical access levels and are discussed in the Users section on page 278.

Areas must be created and edited through accessing this table directly.

39.7.2 Summary page

The summary page provides a list of areas (Figure 883). Click the area field in the row of interest to edit. If parent/child areas are used, clicking the expand tree button will list all children under a parent and clicking collapse tree will hide all children under a parent.

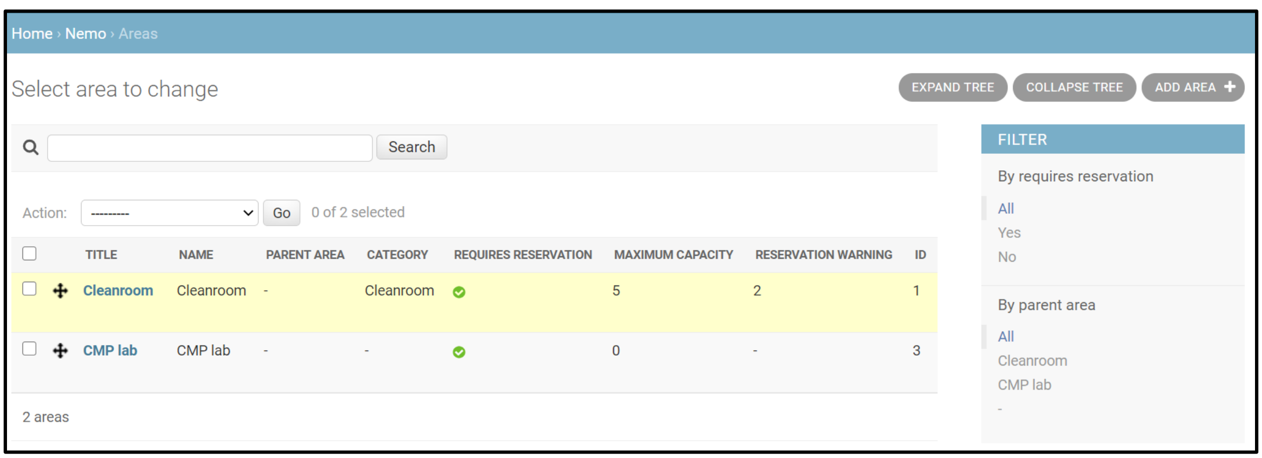


Figure 883 Areas summary page

39.7.3 Fields

The add/change page for this table lists the fields that can be edited. Common features in detailed administration is detailed on page 359. In addition, the history button will show any manual changes that were made to the record. The area table is listed in five sections that will be detailed below.

- General Information (Figure 884)
    - Name – the name of the area, maximum 200 characters (required)

- Parent area – if parent/child relationships are desired, select the parent area from the drop-down list. *Areas table*
- Category – to organize areas on the calendar sidebar, categories can be created to group by. Optional
- Reservation email – An email will be sent to this address when users create or cancel reservations in the area or in children areas. A comma-separated list can be used. Optional
- Abuse email – An email will be sent to this address when users overstay their reservation in the area or in children areas (logged in with expired reservation). A comma-separated list can be used. Optional

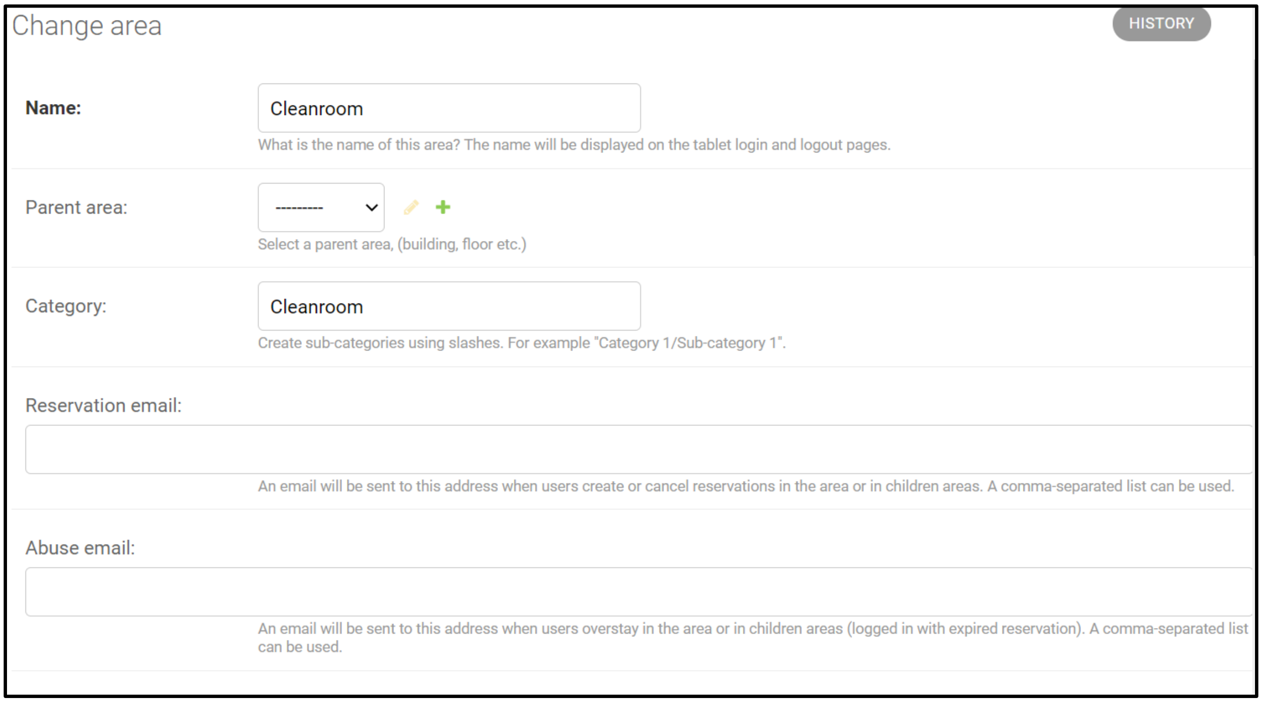


Figure 884 Area general information

- Area access (Figure 885)
  - Requires reservation – check this box to require a reservation for this area before a user can login. Checking this box will cause this area to display on the calendar sidebar so it is accessible for reservations.
  - Logout grace period – number of minutes users have to logout of this area after their reservation expired before being flagged and abuse email is sent.
  - Welcome message – the welcome message will be displayed on the tablet login page. You can use HTML and JavaScript. Only required for tablet door access control.
  - Buddy system allowed – this checkbox enables the buddy board for this area. The buddy board appears on the navigation bar and is described in the buddy board section starting on page 141.

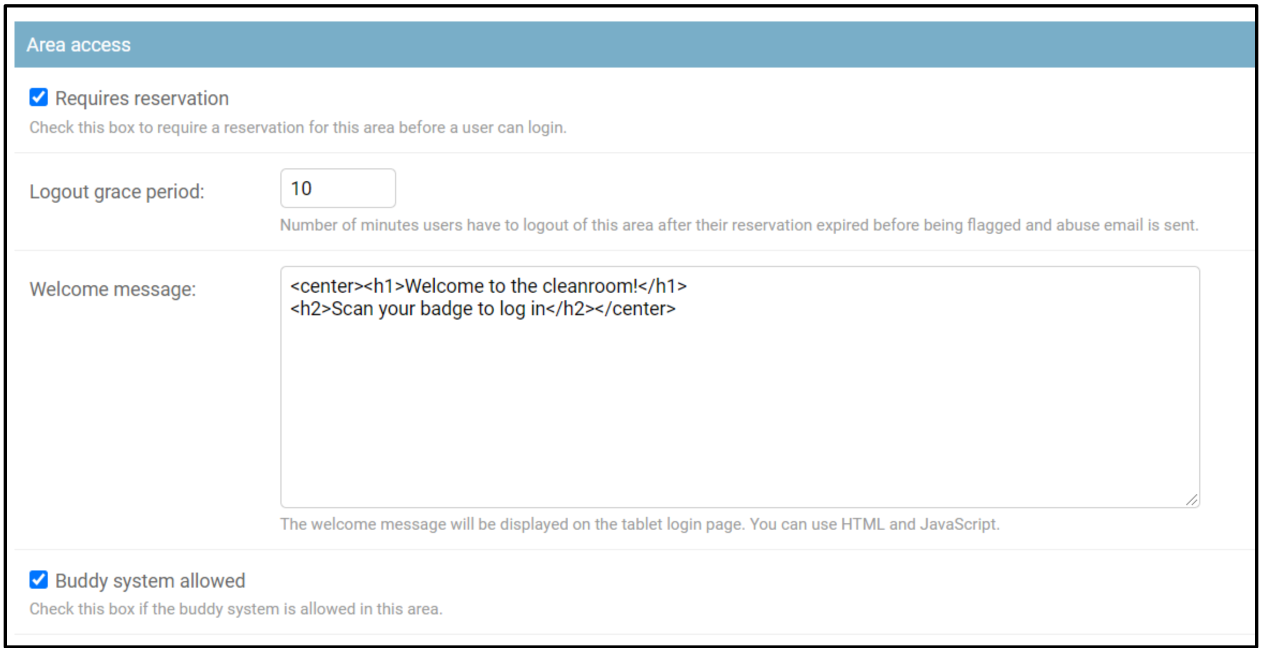


Figure 885 Area area access

- Occupancy (Figure 886)
  - Maximum capacity – The maximum number of people allowed in this area at any given time. Set to 0 for unlimited. (required)
  - Count staff in occupancy – Indicates that staff users will count towards maximum capacity. If not checked, staff occupancy will be listed separately on the status dashboard and jumbotron pages.
  - Count service personnel in occupancy – Indicates that service personnel will count towards maximum capacity. If not checked, service personnel occupancy will be listed separately on the status dashboard and jumbotron pages.
  - Reservation warning – The number of simultaneous users (with at least one reservation in this area) allowed before a warning is displayed when creating a reservation.

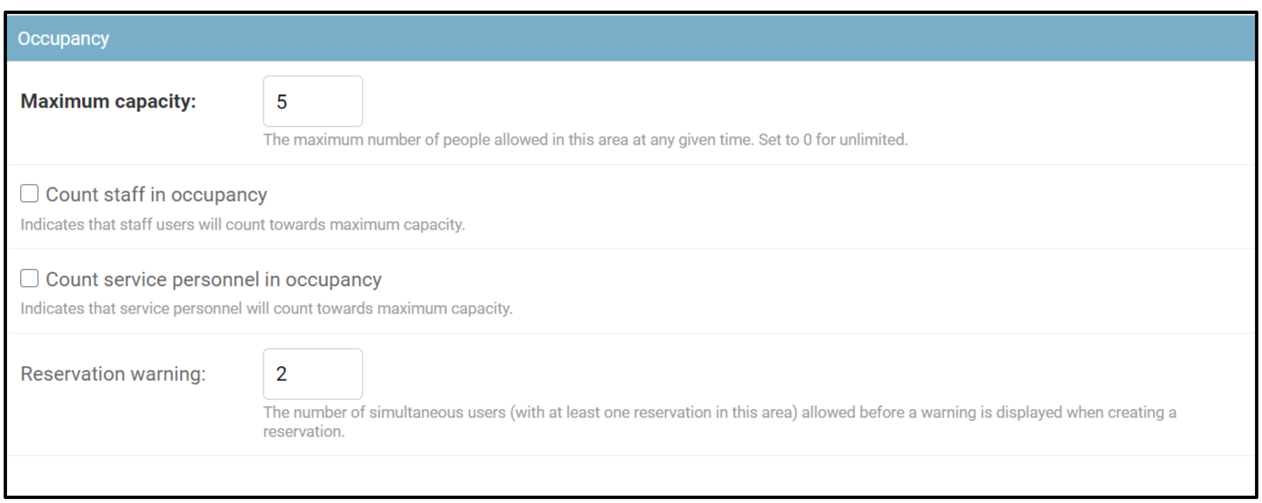


Figure 886 Area occupancy

- Reservation (Figure 887) – these parameters are only applicable if the ‘requires reservation’ check box is checked
    - Reservation horizon – Users may create reservations this many days in advance. Leave this field blank to indicate that no reservation horizon exists for this area.
    - Missed reservation threshold – The amount of time (in minutes) that an area reservation may go unused before it is automatically marked as "missed" and hidden from the calendar. The cancellation process is triggered by a timed job on the web server.

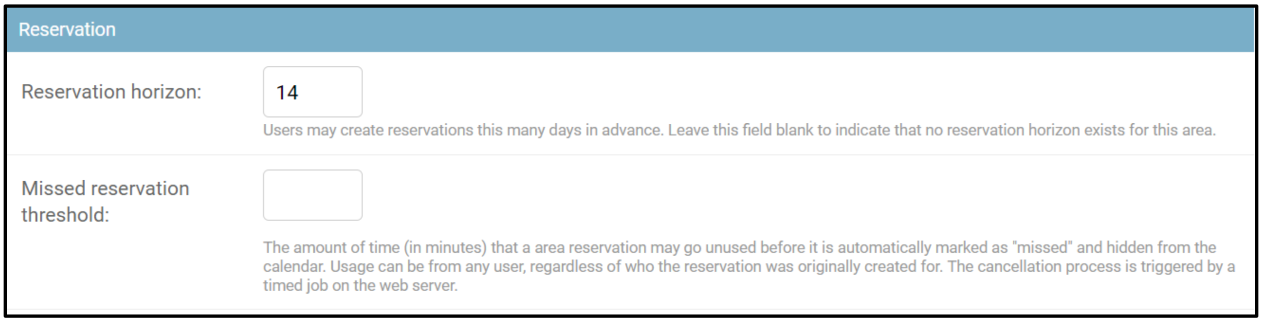


Figure 887 Area reservation

- Policy (Figure 888) – these parameters are only applicable if the ‘requires reservation’ check box is checked.
    - Policy off between times – Check this box to disable policy rules every day between the given times
    - Policy off start time – The start time when policy rules should NOT be enforced
    - Policy off end time – The end time when policy rules should NOT be enforced
    - Policy off weekend – Whether or not policy rules should be enforced on weekends
    - Minimum usage block time – The minimum amount of time (in minutes) that a user must reserve this area for a single reservation. Leave this field blank to indicate that no minimum usage block time exists for this area.
    - Maximum usage block time – The maximum amount of time (in minutes) that a user may reserve this area for a single reservation. Leave this field blank to indicate that no maximum usage block time exists for this area.
    - Maximum reservations per day – The maximum number of reservations a user may make per day for this area.
    - Minimum time between reservations – The minimum amount of time (in minutes) that the same user must have between any two reservations for this area.
    - Maximum future reservation time – The maximum amount of time (in minutes) that a user may reserve from the current time onwards.

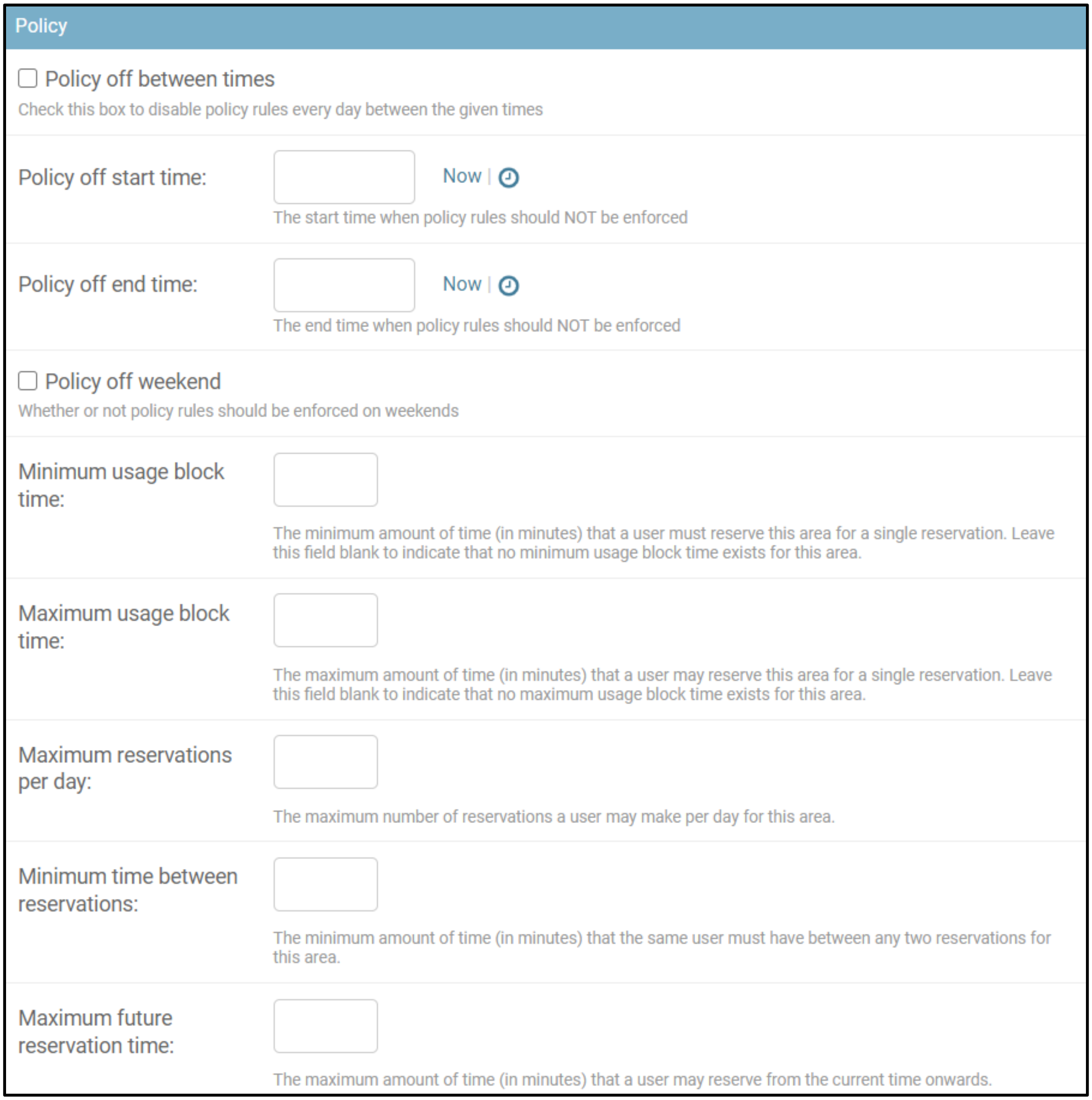


Figure 888 Area policy

39.7.4 User access page

There are no user pages for creating areas. Accessing areas can be performed from the landing page if enabled, the area access page by staff, and the entrance tablets if used.

39.8 Badge readers

39.8.1 Usage

The badge reader table can be used to create custom badge reader behavior. The default behavior of NEMO is to expect the F2 character as the send key and the record key. It does not need to be explicitly defined but has been here to provide an example of how to record a new badge reader. When using the Kiosk or Area Access, add ?reader_id=<reader_id> to the URL to select a badge reader configuration.

39.8.2 Summary page

The summary page provides a listing of badge readers (Figure 889). Click the id field in the row of interest to edit.

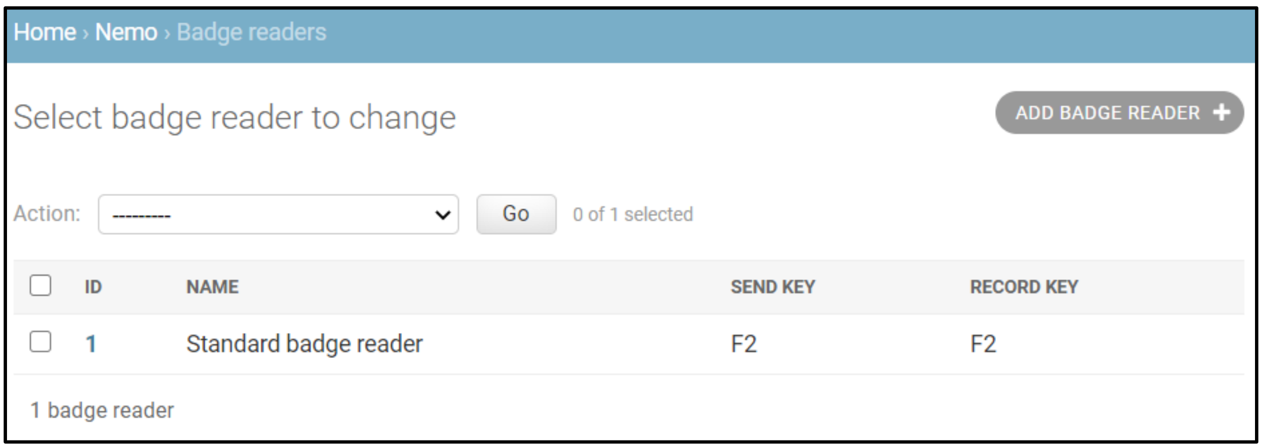


Figure 889 Badge reader summary page

39.8.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 890). [Common features in detailed administration](#) is detailed on page 359.

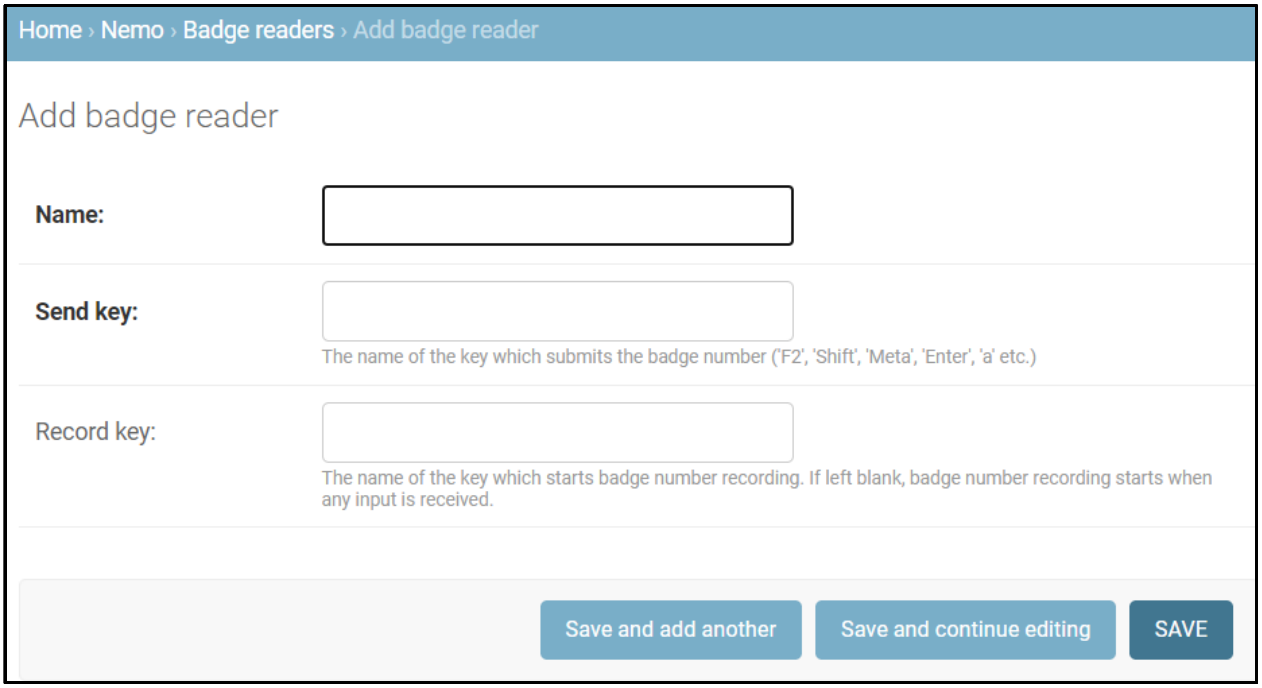


Figure 890 Badge reader add/edit page

- Name – the name can be up to 200 characters (required).
- Send key – The name of the key which submits the badge number ('F2', 'Shift', 'Meta', 'Enter', 'a' etc.) (required)
- Record key – The name of the key which starts badge number recording. If left blank, badge number recording starts when any input is received.

39.8.4 User access page

There are no user access pages associated with badge readers. When using the Kiosk or Area Access, add `?reader_id=<reader_id>` to the URL to select a badge reader configuration.

39.9 Buddy request messages

39.9.1 Usage

The buddy request messages table stores the responses entered on the buddy board feature described starting on page 141.

39.9.2 Summary page

The summary page provides a listing of buddy request messages (Figure 891). Click the ID field in the row of interest to edit. You can reach the parent buddy request by clicking the buddy request of interest.

Select buddy request message to change

ADD BUDDY REQUEST MESSAGE +

Action: --------- Go 0 of 7 selected

	ID	BUDDY REQUEST	AUTHOR	CREATION DATE
☐	1	BuddyRequest [1]	Samuel Stavis (sstavis)	Tuesday, December 29th, 2020 @ 11:54 AM
☐	2	BuddyRequest [1]	Mathieu Rampant (mrampant)	Tuesday, December 29th, 2020 @ 11:54 AM
☐	21	BuddyRequest [41]	Michael Stewart (stew)	Thursday, January 14th, 2021 @ 3:41 PM
☐	22	BuddyRequest [41]	Michael Stewart (stew)	Thursday, January 14th, 2021 @ 3:44 PM
☐	23	BuddyRequest [42]	Jerry Bowser (jbowser)	Thursday, January 14th, 2021 @ 4:05 PM
☐	24	BuddyRequest [42]	Jerry Bowser (jbowser)	Thursday, January 14th, 2021 @ 4:06 PM
☐	41	BuddyRequest [43]	Jerry Bowser (jbowser)	Thursday, January 14th, 2021 @ 4:22 PM

Figure 891 Buddy request messages summary page

39.9.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 892). Common features in detailed administration is detailed on page 359.

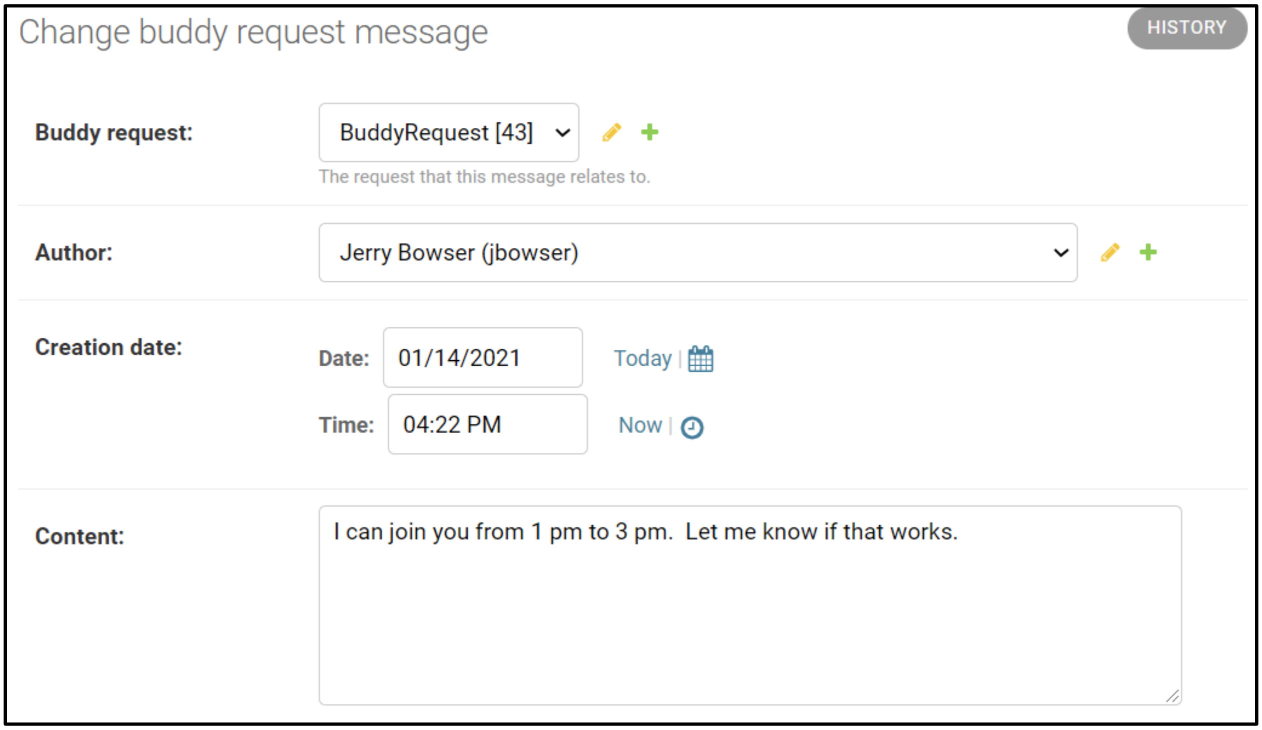


Figure 892 Buddy request messages add/edit page

- Buddy request – select the parent buddy request from the list (required) (Buddy requests)
- Author – select user submitting request from the drop-down box (required) (Users Table).
- Creation date – use the dialog box or calendar/clock to select the creation date/time (required).
- Content – dialog box to enter description of the buddy request (required).

39.9.4 User access page

Records are typically not edited or created directly in this view. There is a buddy board page for managing buddy requests and messages which is described starting on page 141.

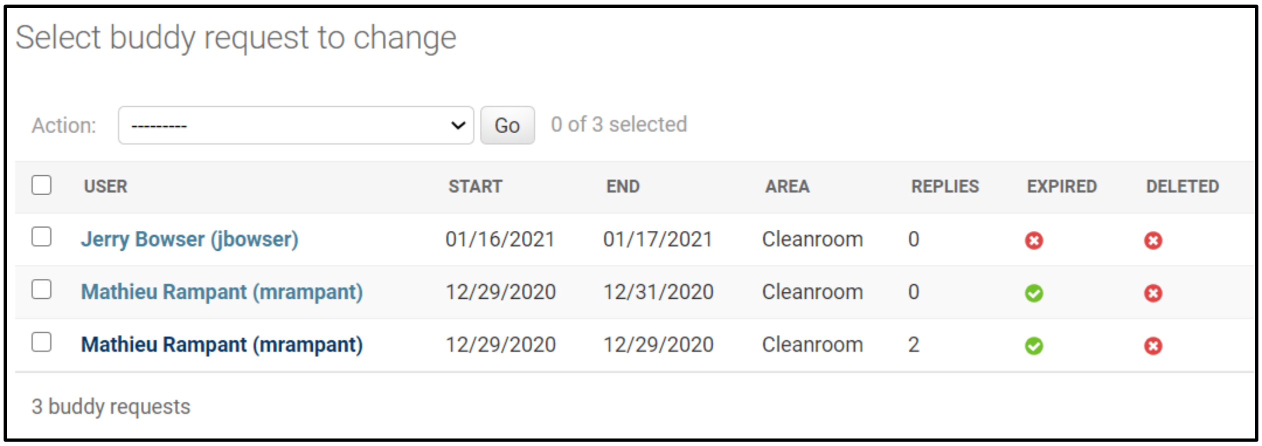
39.10 Buddy requests

39.10.1 Usage

The buddy requests table stores the requests entered on the buddy board feature described starting on page 141.

39.10.2 Summary page

The summary page provides a listing of buddy requests (Figure 893). Click the user field in the row of interest to edit.


Select buddy request to change

Action: --------- Go 0 of 3 selected

	USER	START	END	AREA	REPLIES	EXPIRED	DELETED
☐	Jerry Bowser (jbowser)	01/16/2021	01/17/2021	Cleanroom	0	✗	✗
☐	Mathieu Rampant (mrampant)	12/29/2020	12/31/2020	Cleanroom	0	✓	✗
☐	Mathieu Rampant (mrampant)	12/29/2020	12/29/2020	Cleanroom	2	✓	✗

3 buddy requests

Figure 893 Buddy request summary page

39.10.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 894). Common features in detailed administration is detailed on page 359.

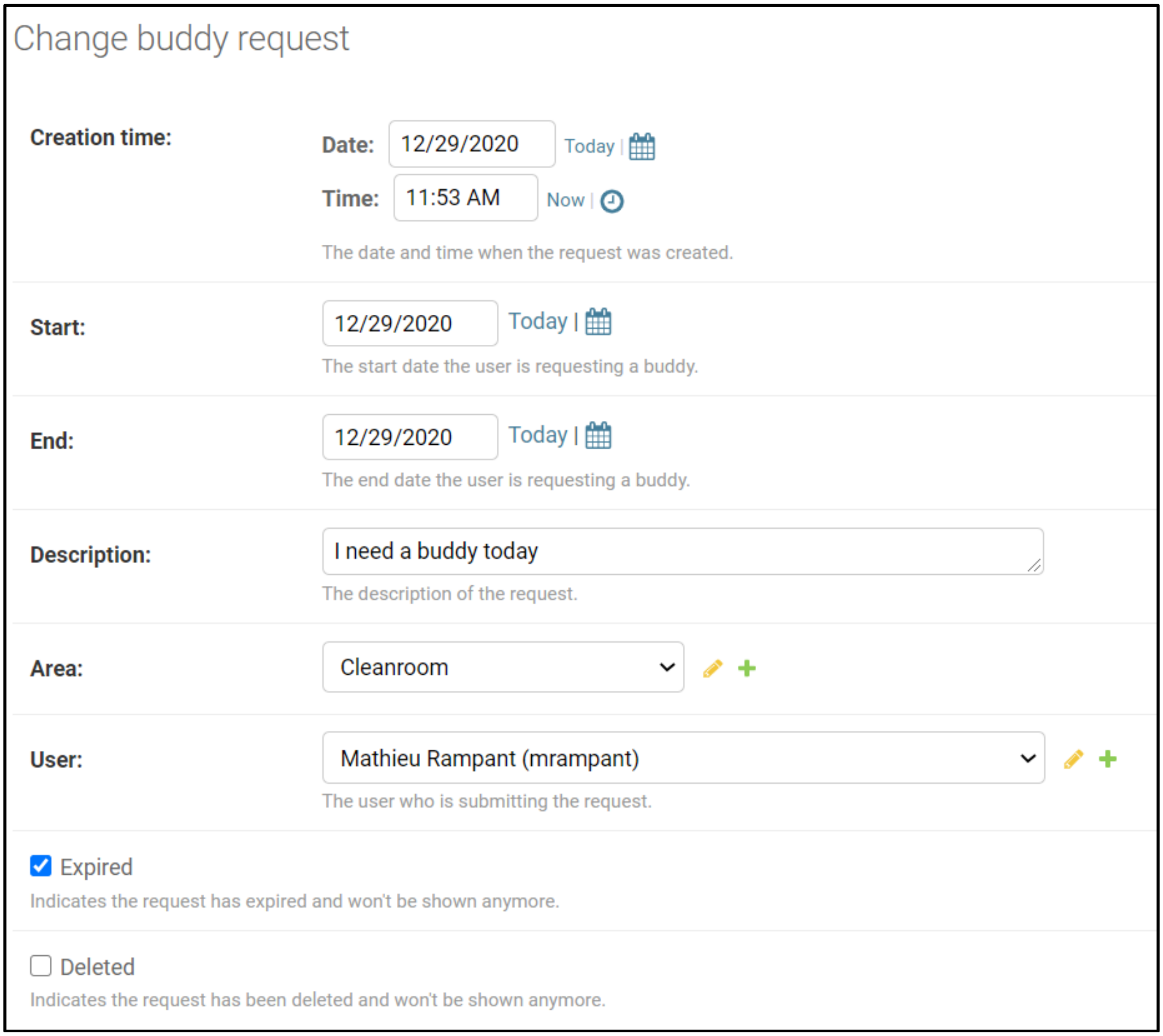


Figure 894 Buddy request add/edit page

- Creation time – use the dialog box or calendar/clock to select the creation date/time (required).
- Start – use the dialog box or calendar to select the start date (required).
- End – use the dialog box or calendar to select the end date (required).
- Description – dialog box to enter description of the buddy request (required).
- Area – select area from the drop down (required) (Areas Table).
- User – select user submitting request from the drop-down box (required) (Users Table).
- Expired – check box indicates if request has past end date and won't be displayed any longer.
- Deleted – check box indicates if request was deleted by user and won't be displayed any longer.

39.10.4 User access page

Records are typically not edited or created directly in this view. There is a buddy board page for managing buddy requests which is described starting on page 141.

39.11 Closures

39.11.1 Usage

The closures table is used to records facility closures and override physical access level schedules to prevent access during the times defined. This feature is useful for creating holiday schedules and planned closures. During a physical access exception period, the selected physical access levels are not accessible to users.

39.11.2 Summary page

The summary page provides a listing of closures (Figure 895). Click the name field in the row of interest to edit.

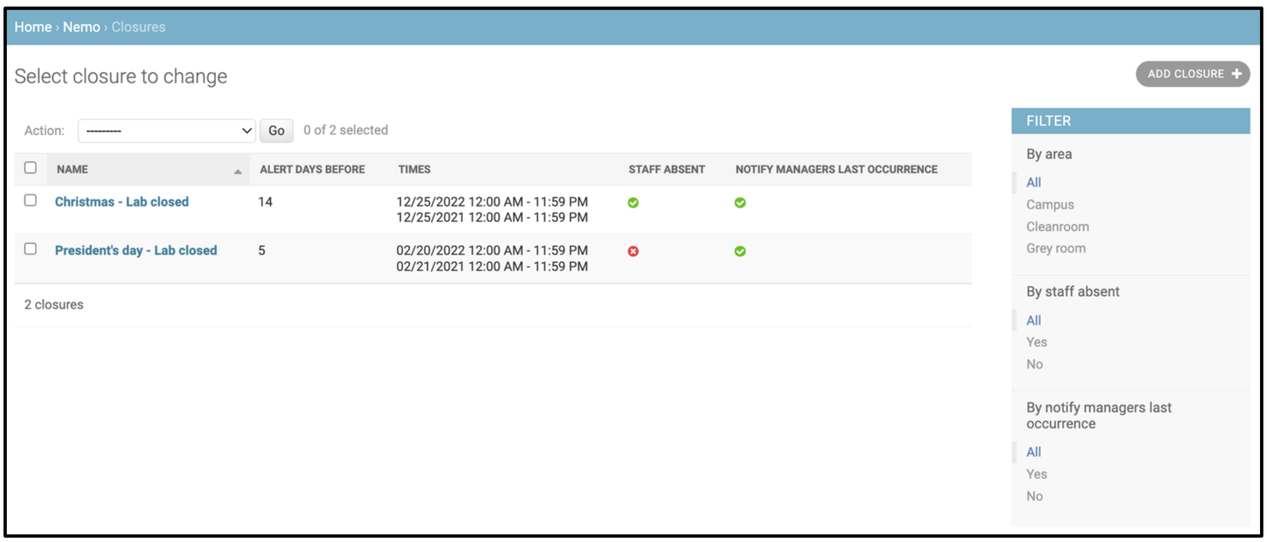


Figure 895 Closures summary page

39.11.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 896, Figure 898). Common features in detailed administration is detailed on page 359.

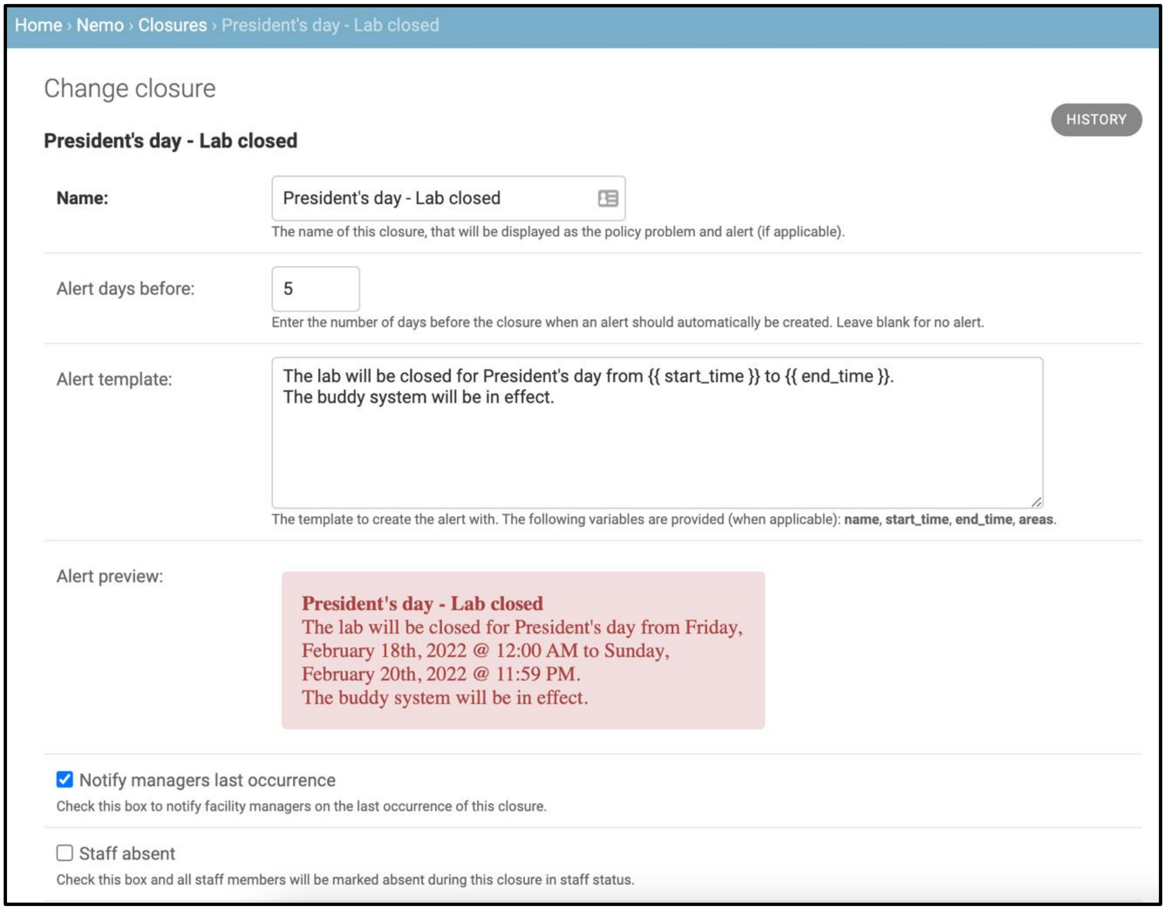


Figure 896 Closures add/edit page 1

- Name – descriptive name of the closure. This field is displayed in the message to users if someone tries to enter the area during the selected time (Figure 897) (required)

Figure 897 Closures message

- Alert days before – number of days before the closure that the automatic alert should be shown. Setting this field to any value other than blank will trigger the automatic alert creation, if the "Create closure alerts" timed service is set. See NEMO Timed Services for more information.
- Alert template – template message used for the alert. 4 variables can be used in the template: name, start_time, end_time and areas (unique areas from physical access levels). This field is required if "Alert days before" is set.
- Alert preview – preview of the alert if an alert template is provided. To display the preview, after providing an alert template click on "Save and continue editing".
- Notify managers last occurrence – check this box to make sure facility managers get a reminder email on the last occurrence of this closure. This feature is particularly useful when setting multiple dates in advance, for example Christmas dates for the next 5 years,

managers will be notified on the last one 5 years from now, so they can remember to go add more dates. The “Create closure alerts” timed service need to be set for this to work. See NEMO Timed Services for more information.

- Staff absent – check this box and all staff will be marked absent on the staff status page and the status will show “Closed”. See Staff status.

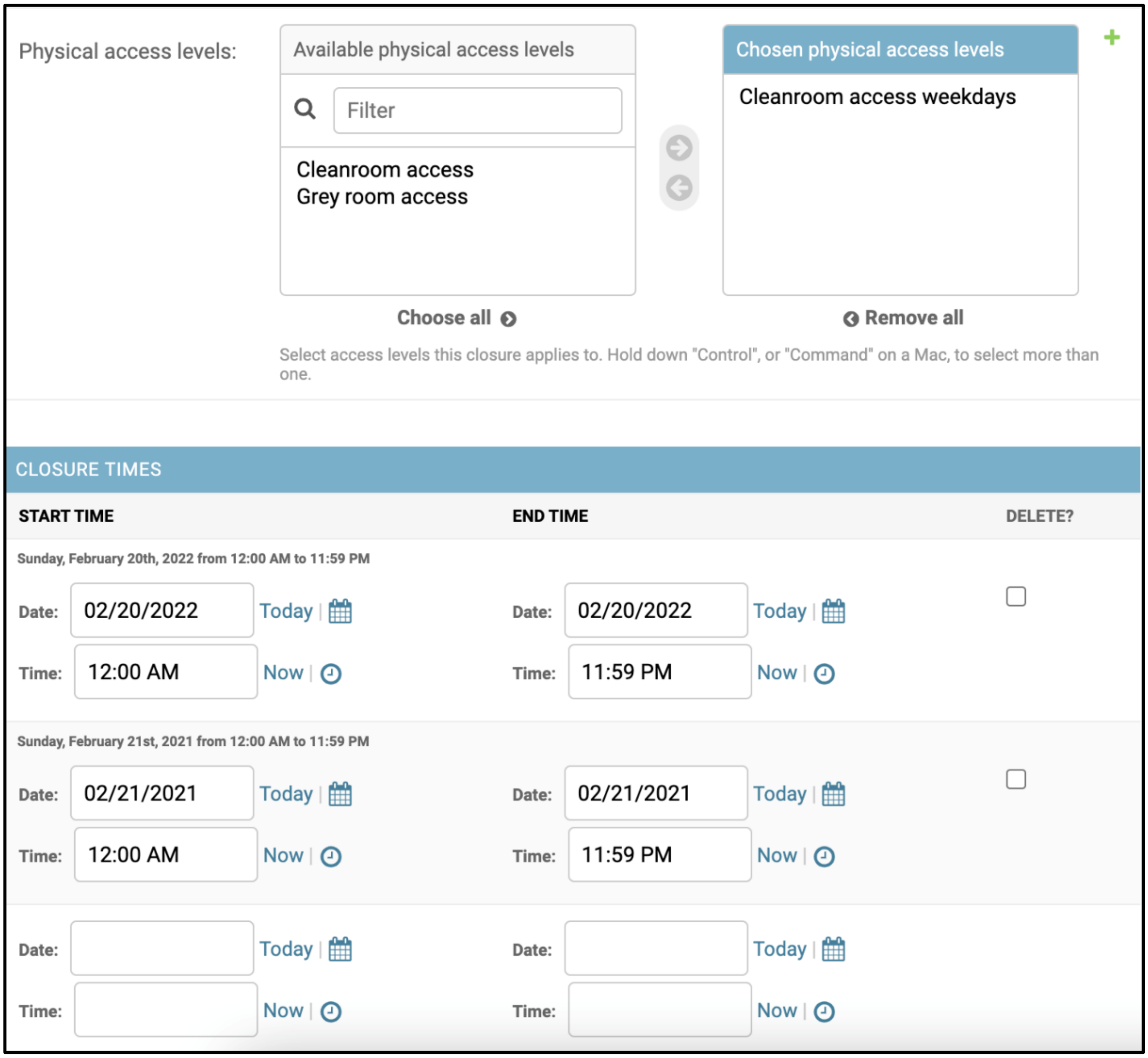


Figure 898 Closures page 2

- Physical access levels – select available physical access levels that the exception will apply to and use the right arrow to add to the chosen users list. Multiple physical access levels can be selected using the control or shift keys.
- Closure times (at least 1 required):
  - Start time – enter a start time for the closure.
  - End time – enter an end time for the closure.

39.11.4 User access page

There is no user page available to create facility closures. Once created, users with the selected physical access level will not be able to access the associated area during the closure window.

39.12 Comments

39.12.1 Usage

The comments table is used to store comments entered on the tool pages and should not normally need to be directly edited. Comments are entered on the post a comment tab of the tool control page and are detailed on page 120. The comment history for a tool can be viewed on the details tab of the tool control page and are detailed on page 111.

39.12.2 Summary page

The summary page provides a listing of comments (Figure 899). Click the id field in the row of interest to edit.

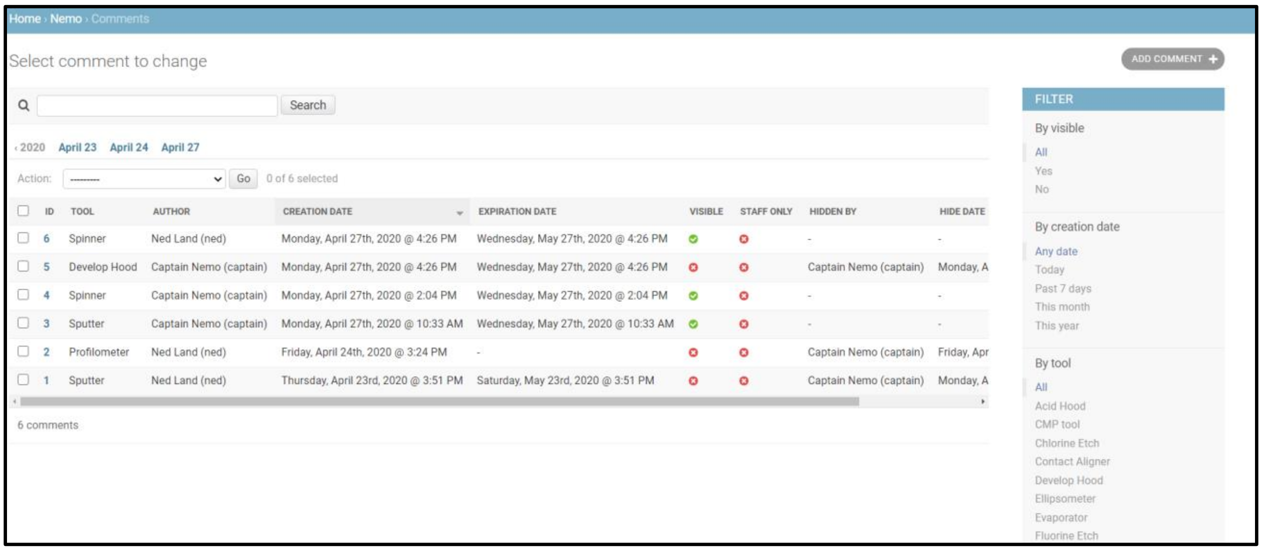


Figure 899 Comments summary page

39.12.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 900). Common features in detailed administration is detailed on page 359.

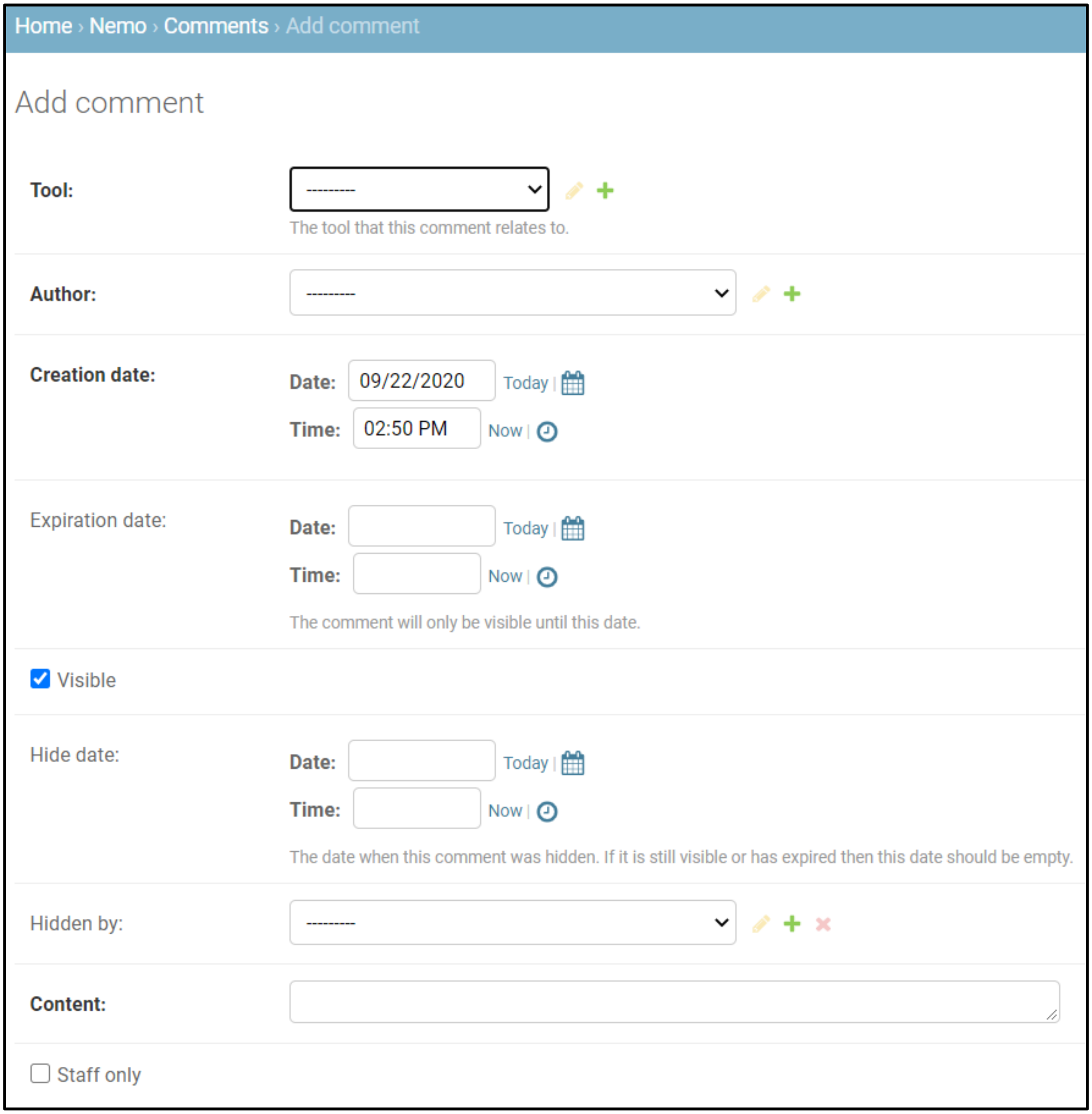


Figure 900 Comments add/edit page

- Tool – select the tool this comment relates to from the drop-down list (required). *Tools table*
- Author – select the user name from the drop-down list (required). *Users table*
- Creation date – use the dialog box or calendar/clock to select the creation date/time (required).
- Expiration date – use the dialog box or calendar/clock to select the expiration date/time for the comment. After the expiration date/time, the comment will no longer be visible.
- Visible – check box to indicate if the comment is visible on the tool summary page it pertains to.

- Hide date – use the dialog box or calendar/clock to select the expiration date/time for the comment. After the hide date/time, the comment will no longer be visible.
- Hidden by – select the user name from the drop-down list. *Users table*
- Staff only – check box to indicate that comment will only be visible to staff. This is useful for listing restart procedures or other information that users should not have access to.

39.12.4 User access page

Comments are entered on the post a comment tab of the tool control page and are detailed on page 120. The comment history for a tool can be viewed on the details tab of the tool control page and are detailed on page 111.

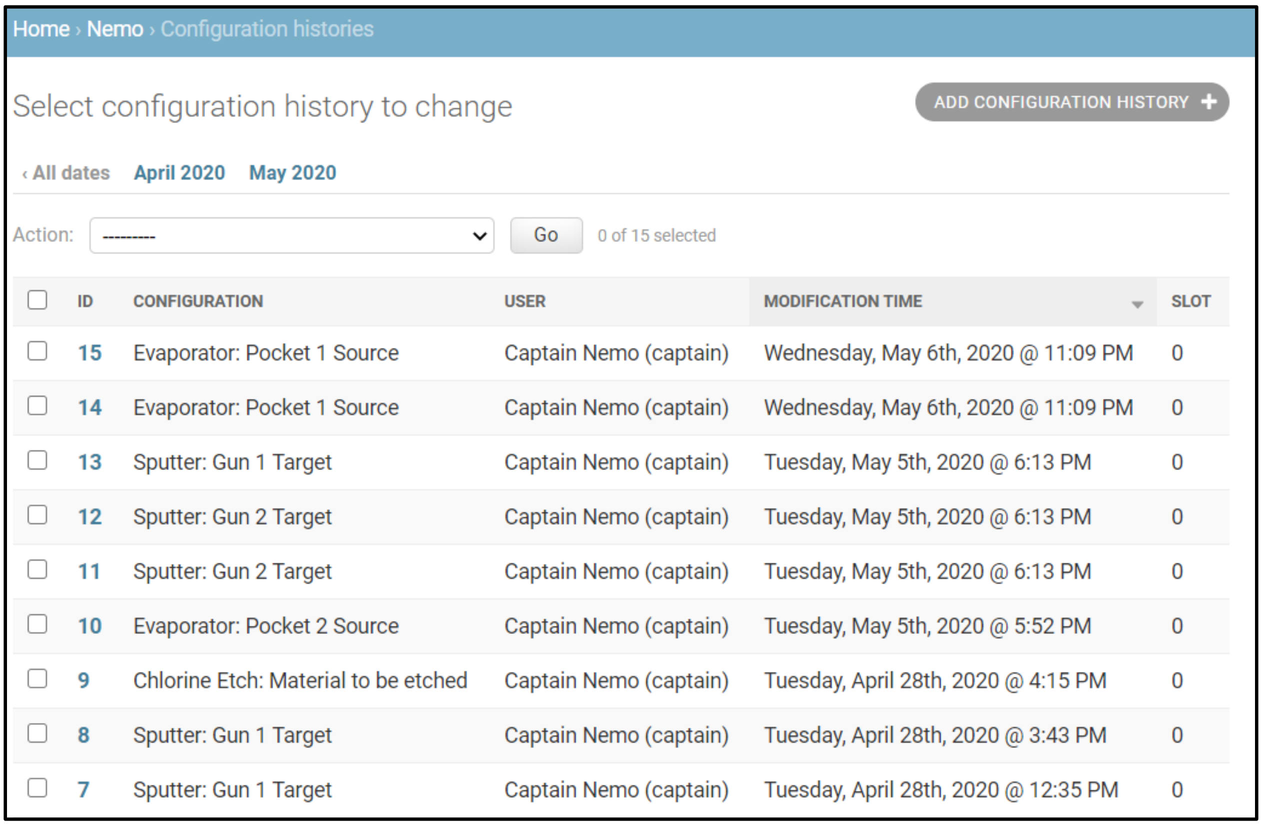
39.13 Configuration histories

39.13.1 Usage

The configurations histories table is used to store tool configurations for each configurable tool. The configuration can be selected when a reservation is made which is detailed on page 47, staff update the configuration when the tool is setup for the user which is detailed on page 212, and the history can be viewed from the config history tab of the tool control page which is detailed on page 113.

39.13.2 Summary page

The summary page provides a listing of configuration histories (Figure 901). Click the id field in the row of interest to edit.


Home › Nemo › Configuration histories

Select configuration history to change

ADD CONFIGURATION HISTORY +

‹ All dates April 2020 May 2020

Action: --------- Go 0 of 15 selected

	ID	CONFIGURATION	USER	MODIFICATION TIME	SLOT
☐	15	Evaporator: Pocket 1 Source	Captain Nemo (captain)	Wednesday, May 6th, 2020 @ 11:09 PM	0
☐	14	Evaporator: Pocket 1 Source	Captain Nemo (captain)	Wednesday, May 6th, 2020 @ 11:09 PM	0
☐	13	Sputter: Gun 1 Target	Captain Nemo (captain)	Tuesday, May 5th, 2020 @ 6:13 PM	0
☐	12	Sputter: Gun 2 Target	Captain Nemo (captain)	Tuesday, May 5th, 2020 @ 6:13 PM	0
☐	11	Sputter: Gun 2 Target	Captain Nemo (captain)	Tuesday, May 5th, 2020 @ 6:13 PM	0
☐	10	Evaporator: Pocket 2 Source	Captain Nemo (captain)	Tuesday, May 5th, 2020 @ 5:52 PM	0
☐	9	Chlorine Etch: Material to be etched	Captain Nemo (captain)	Tuesday, April 28th, 2020 @ 4:15 PM	0
☐	8	Sputter: Gun 1 Target	Captain Nemo (captain)	Tuesday, April 28th, 2020 @ 3:43 PM	0
☐	7	Sputter: Gun 1 Target	Captain Nemo (captain)	Tuesday, April 28th, 2020 @ 12:35 PM	0

Figure 901 Configuration histories summary page

39.13.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 902). Common features in detailed administration is detailed on page 359.

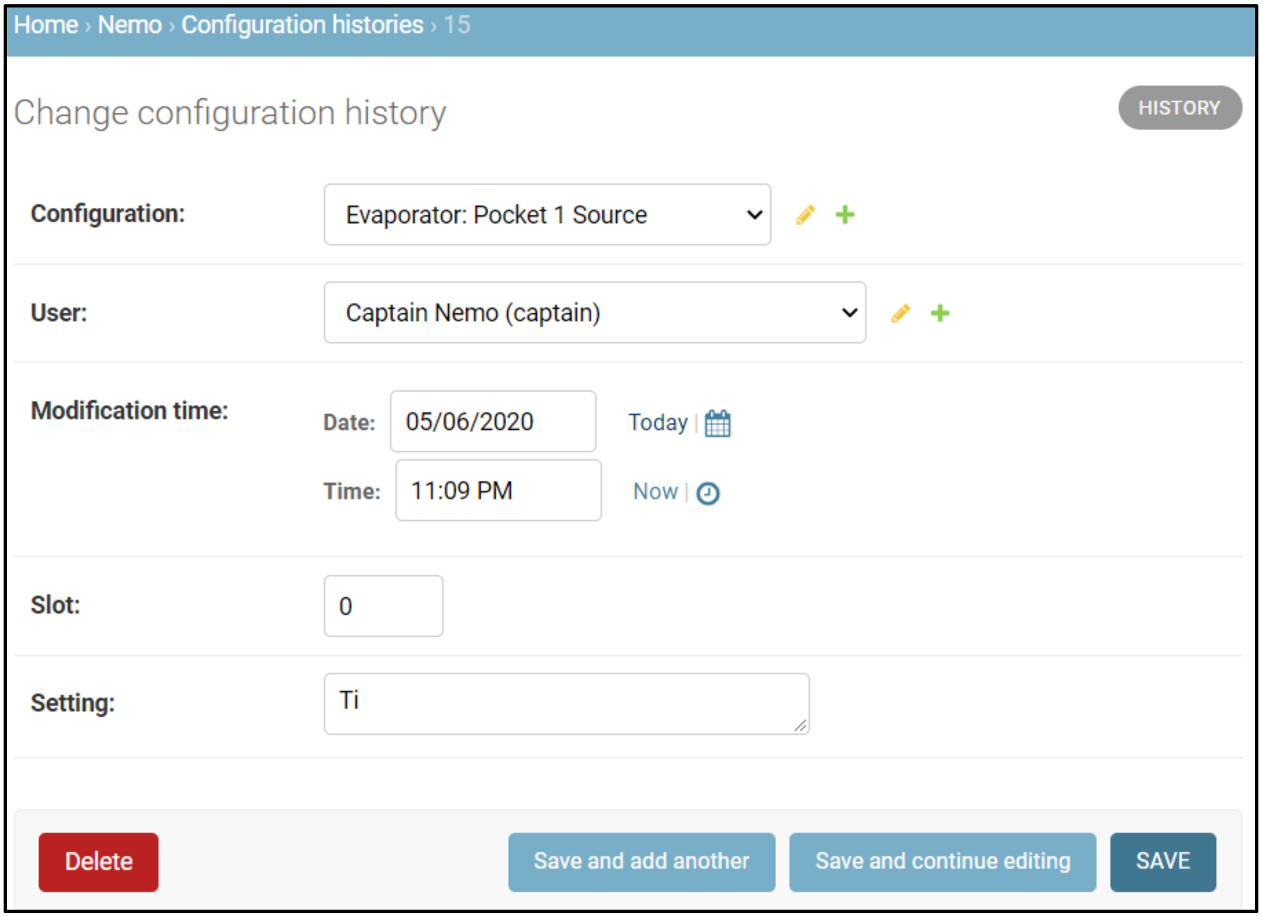


Figure 902 Configuration histories add/edit page

- Configuration – select the configuration from the drop-down list. (required) *Configurations table*
- User – select the user name from the drop-down list (required). *Users table*
- Modification time – use the dialog box or calendar/clock to select the creation date/time (required).
- Slot – indicates where the configuration will go
- Setting – the specific item to be used for the configuration

39.13.4 User access page

Configurations are created in the configurations table detailed on page 400. The configuration of a tool can be changed, updated, and viewed on several pages of NEMO. The configuration can be selected when a reservation is made which is detailed on page 47, staff update the configuration when the tool is setup for the user which is detailed on page 212, and the history can be viewed from the config history tab of the tool control page which is detailed on page 113.

39.14 Configurations

39.14.1 Usage

The configurations histories table is used to store tool configurations for each configurable tool. The configuration can be selected when a reservation is made which is detailed on page 47, staff update the configuration when the tool is setup for the user which is detailed on page 212, and the history can be viewed from the config history tab of the tool control page which is detailed on page 113.

39.14.2 Summary page

The summary page provides a listing of configurations (Figure 903). Click the id field in the row of interest to edit.

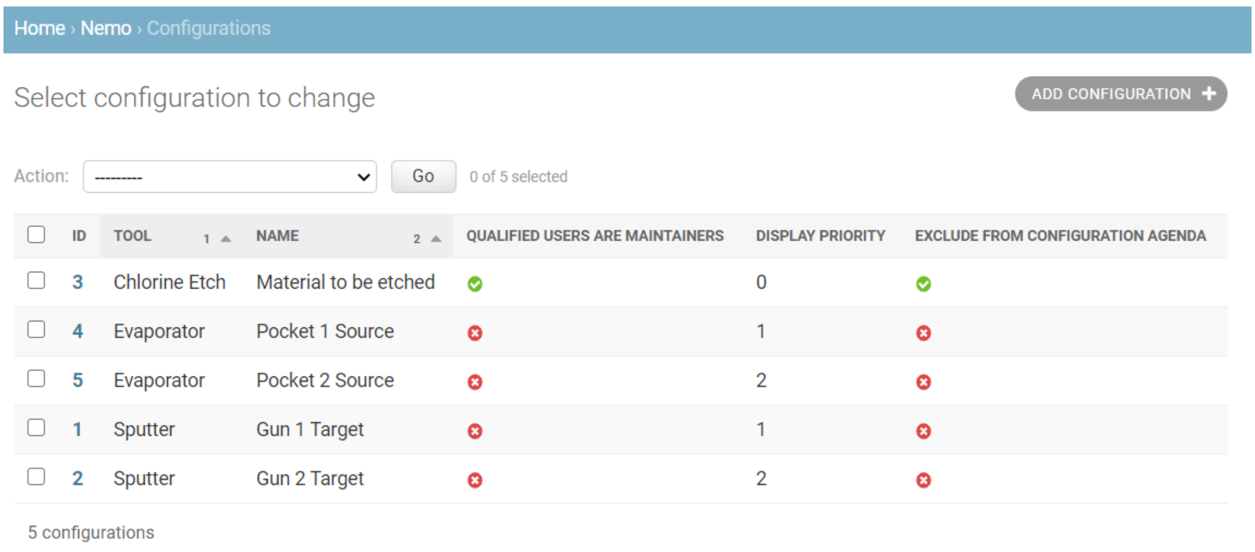


Figure 903 Configurations summary page

39.14.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 904, Figure 905). Common features in detailed administration is detailed on page 359.

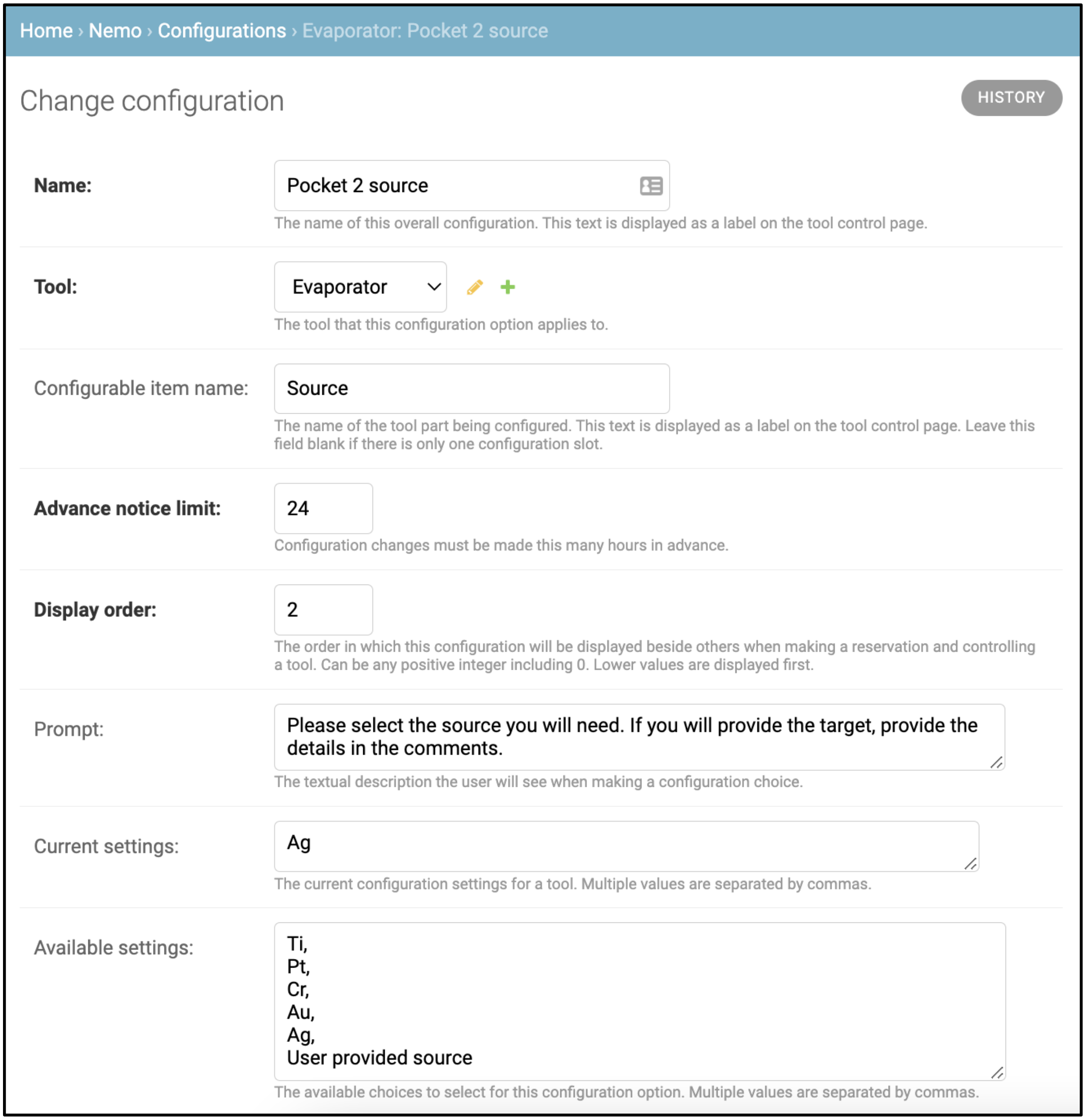


Figure 904 Configurations add/edit page part 1

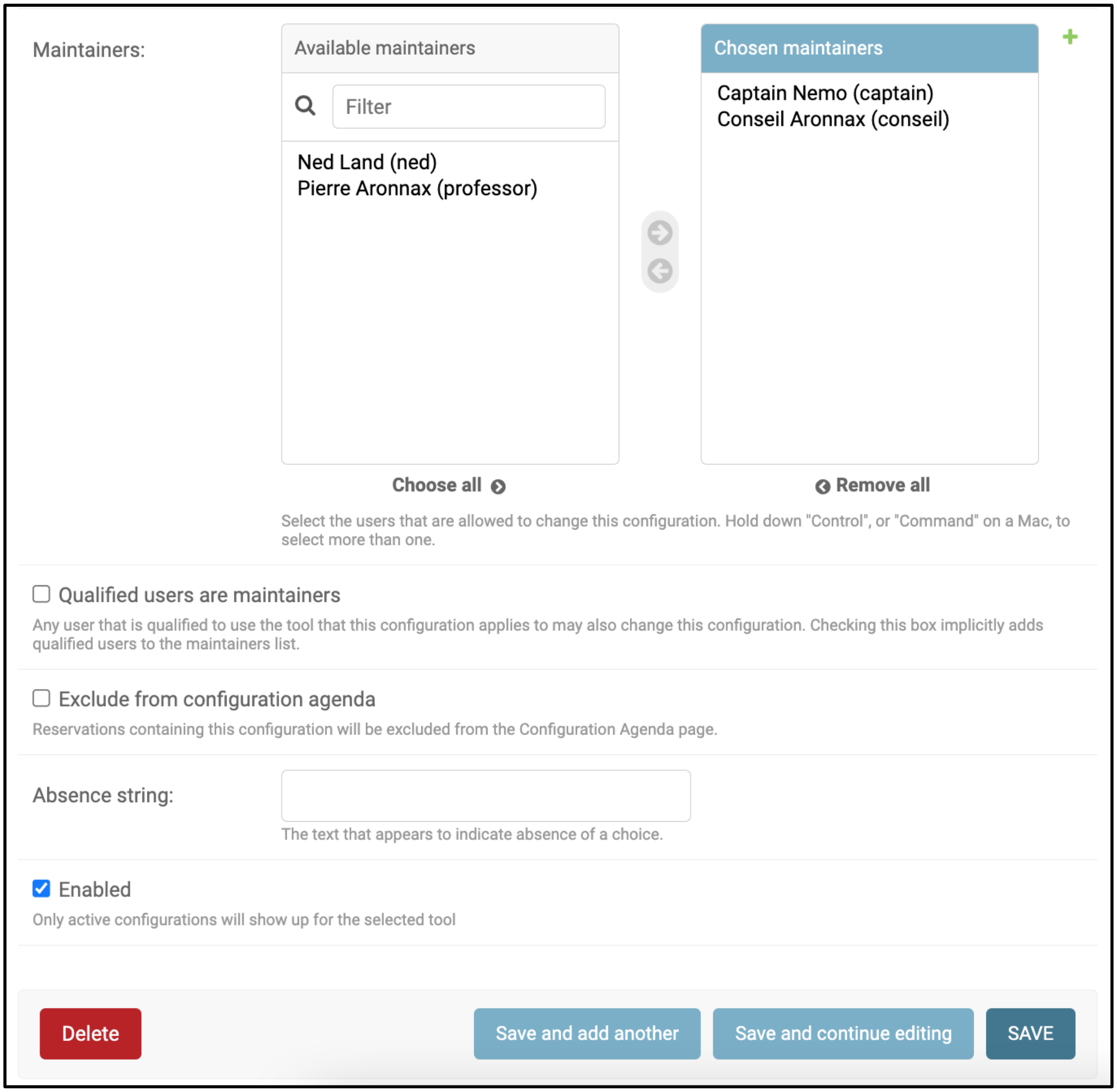


Figure 905 Configurations add/edit page part 2

- Name – The name of this overall configuration. This text is displayed as a label on the tool control page. (required)
- Tool – The tool that this configuration option applies to selected from the drop-down list. (required) *Tools table*
- Configurable item name – The name of the tool part being configured. This text is displayed as a label on the tool control page. Leave this field blank if there is only one configuration slot.
- Advance notice limit – Configuration changes must be made this many hours in advance or the user will be prompted that the configuration may not be done in time. (required)
- Display order – The order in which this configuration will be displayed beside others when making a reservation and controlling a tool. Can be any positive integer including 0. Lower values are displayed first. (required)

- Prompt – The textual description the user will see when making a configuration choice.
- Current settings – The current configuration settings for a tool. Multiple values are separated by commas.
- Available settings – The available choices to select for this configuration option. Multiple values are separated by commas.
- Maintainers – Select the users that are allowed to change this configuration. Hold down "Control", or "Command" on a Mac, to select more than one. *Users table*
- Qualified users are maintainers – Any user that is qualified to use the tool that this configuration applies to may also change this configuration. Checking this box implicitly adds qualified users to the maintainers list.
- Exclude from configuration agenda – Reservations containing this configuration will be excluded from the Configuration Agenda page.
- Absence string – The text that appears to indicate absence of a choice.
- Enabled – Enable/disable the configuration. If disabled, it will not show up in the tool control or in the Configuration Agenda page.

39.14.4 User access page

The configuration of a tool can be changed, updated, and viewed on several pages of NEMO. The configuration can be selected when a reservation is made which is detailed on page 47, staff update the configuration when the tool is setup for the user which is detailed on page 212, and the history can be viewed from the config history tab of the tool control page which is detailed on page 113.

39.15 Consumable categories

39.15.1 Usage

Consumable categories are optional but can be useful for binning consumables so they can be displayed in logical groups. Consumable categories, if used, must be created in this table view and can be any text name. Any number can be defined. If no consumable categories are defined, all consumables will be listed in alphabetical order. Consumable categories are discussed in the Supplies section detailed on page 269.

39.15.2 Summary page

The summary page provides a listing of consumable supply categories (Figure 906). Click the name field in the row of interest to edit.

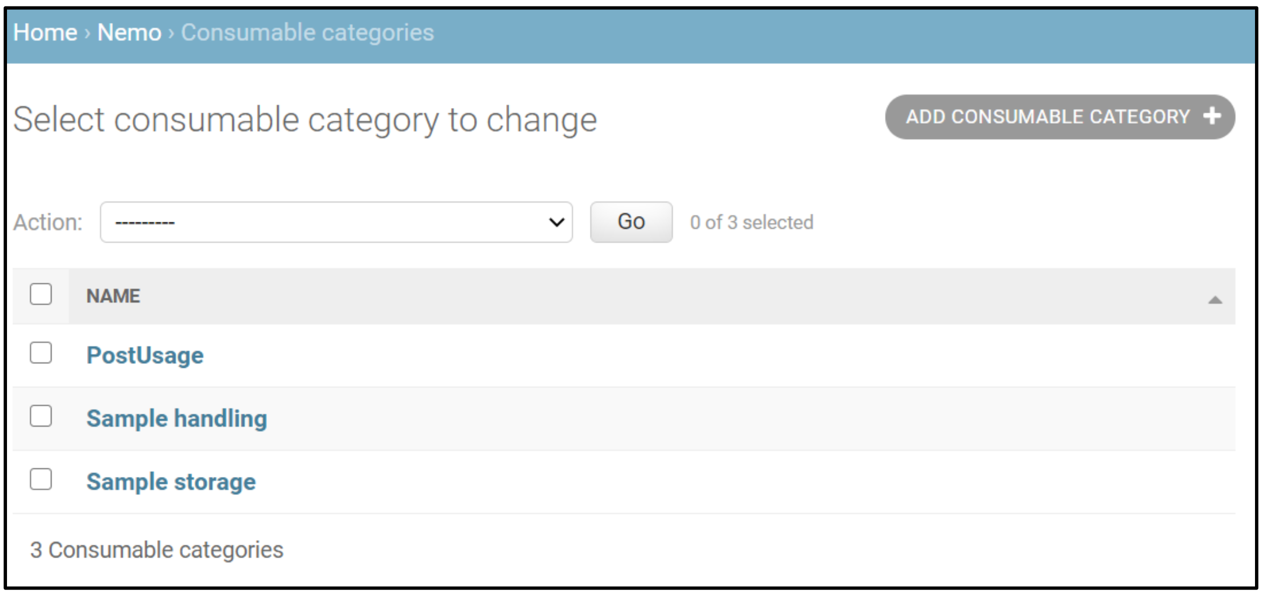


Figure 906 Consumable category summary page

39.15.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 907). Common features in detailed administration is detailed on page 359.

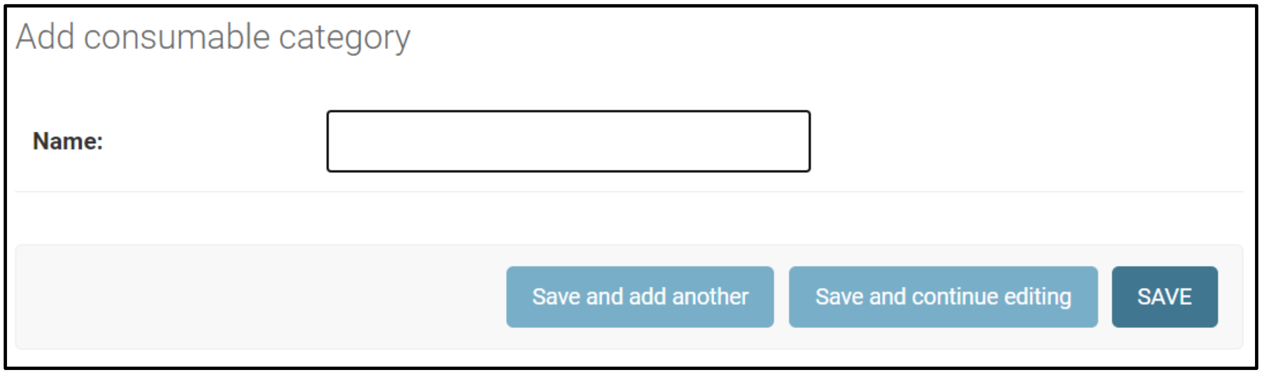


Figure 907 Consumable category add/edit page

- Name – the name can be up to 200 characters (required).

39.15.4 User access page

Consumable categories are discussed in the Supplies section detailed on page 269.

39.16 Consumable withdraws

39.16.1 Usage

The consumable withdraws records table maintains the list of consumable or supply items that have been distributed to users either manually by staff or automatically by tool usage. Records are written automatically when a staff member [checks out a supply] to a user which is detailed on page 269, or a consumable withdraw is initiated by a [tool post usage] question which is detailed on page 483. Normally, this table will not require manual editing unless an incorrect quantity is entered.

39.16.2 Summary page

The summary page provides date filtering, filtering by consumable, and by start date (Figure 908). Click the id field in the row of interest to edit.

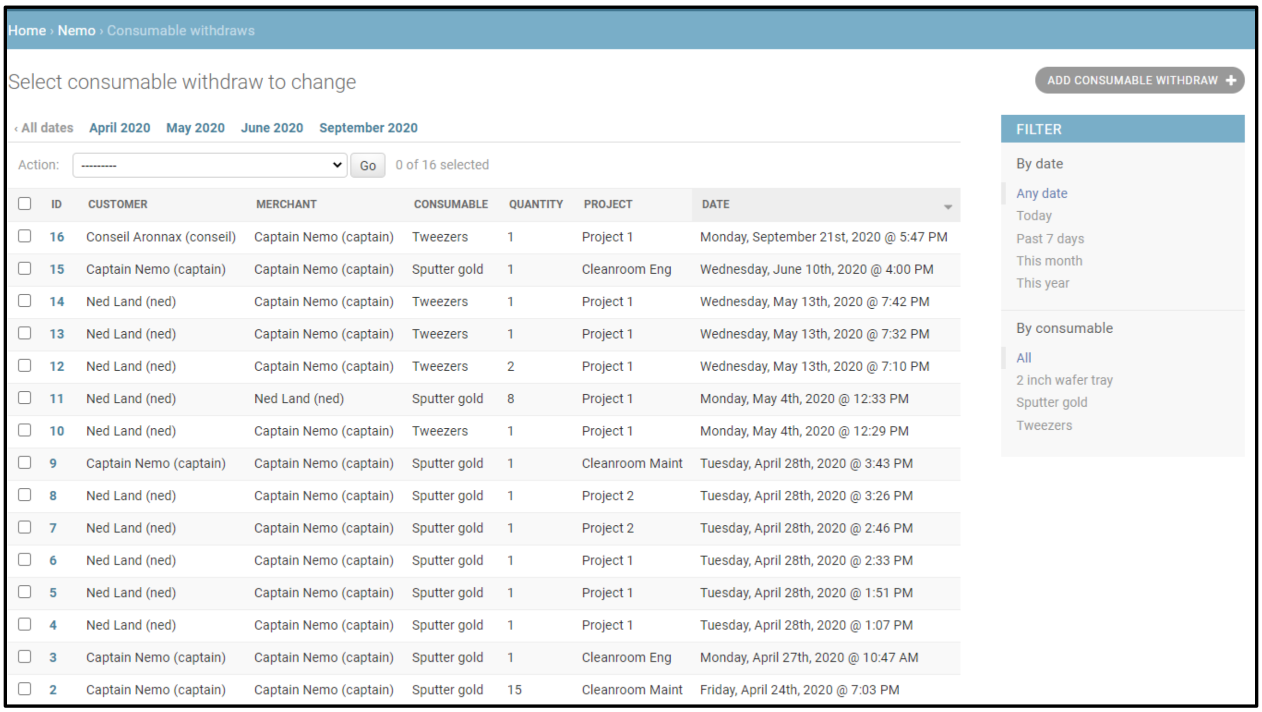


Figure 908 Consumable withdraws summary page

39.16.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 909). [Common features in detailed administration] is detailed on page 359. In addition, the history button will show any manual changes that were made to the record.

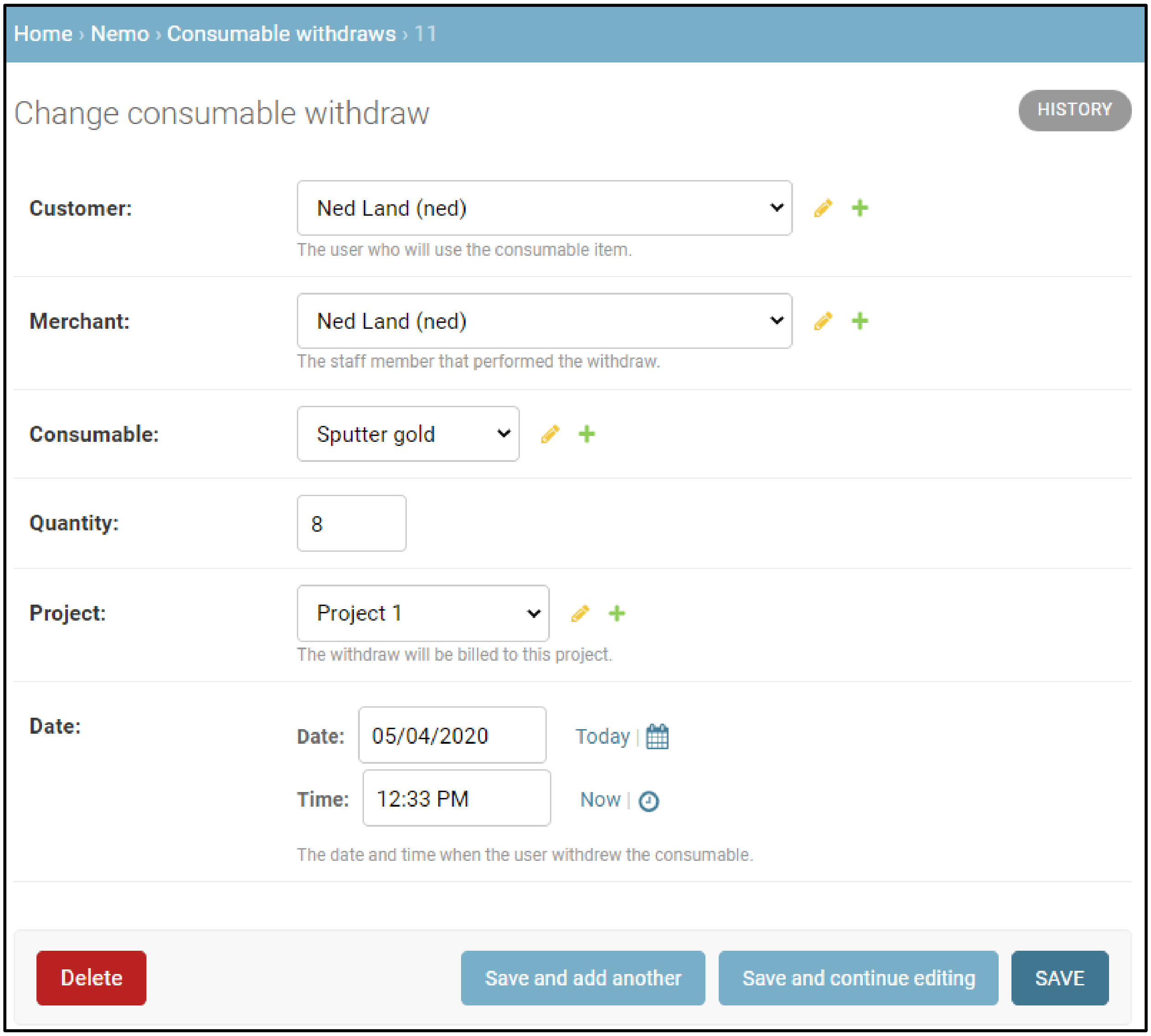


Figure 909 Consumable withdraws add/edit page

- Customer – The user who will use the consumable item. (required) *Users table*
- Merchant – The staff member that performed the withdraw. (required) *Users table*
- Consumable – Select the consumable from the drop-down list. (required) *Consumables table*
- Quantity – The integer number quantity provided (required)
- Project – The withdraw will be billed to this project. (required) *Projects table*
- Date – use the dialog box or calendar/clock to select the creation date/time (required).

39.16.4 User access page

Records are written automatically when a staff member checks out a supply to a user which is detailed on page 269, or a consumable withdraw is initiated by a tool post usage question which is detailed on page 483.

39.17 Consumables

39.17.1 Usage

The consumables can be defined as items manually distributable by staff to users or items automatically distributed to users triggered by tool usage. The total quantity in stock can be tracked and messages automatically sent to the responsible person at a set threshold.

39.17.2 Summary page

The summary page provides date filtering, filtering by visibility and consumable (Figure 910). Click the name field in the row of interest to edit.

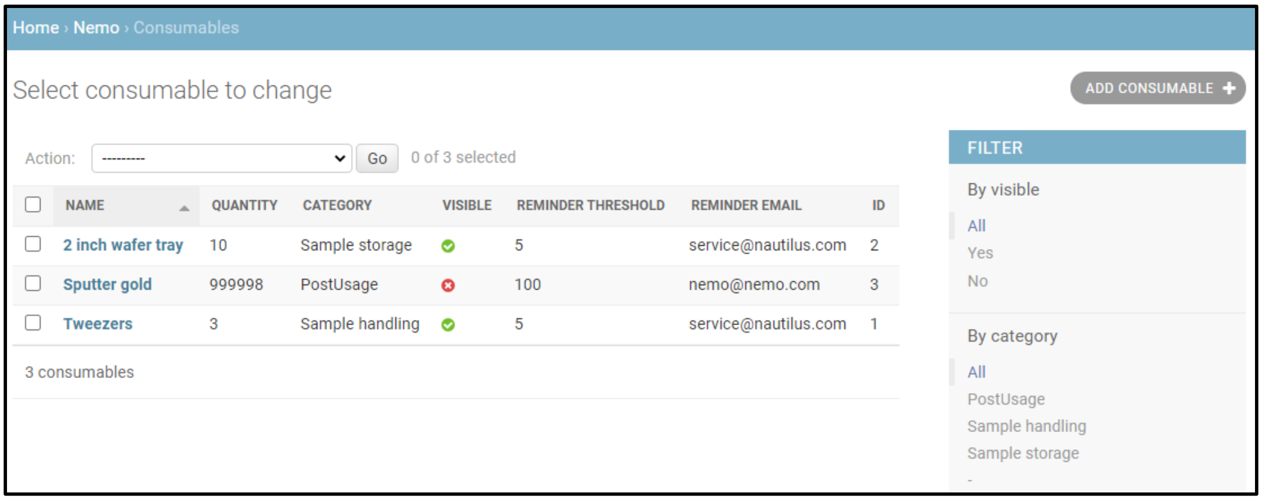


Figure 910 Consumables summary page

39.17.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 911). [Common features in detailed administration](#) is detailed on page 359. In addition, the history button will show any manual changes that were made to the record.

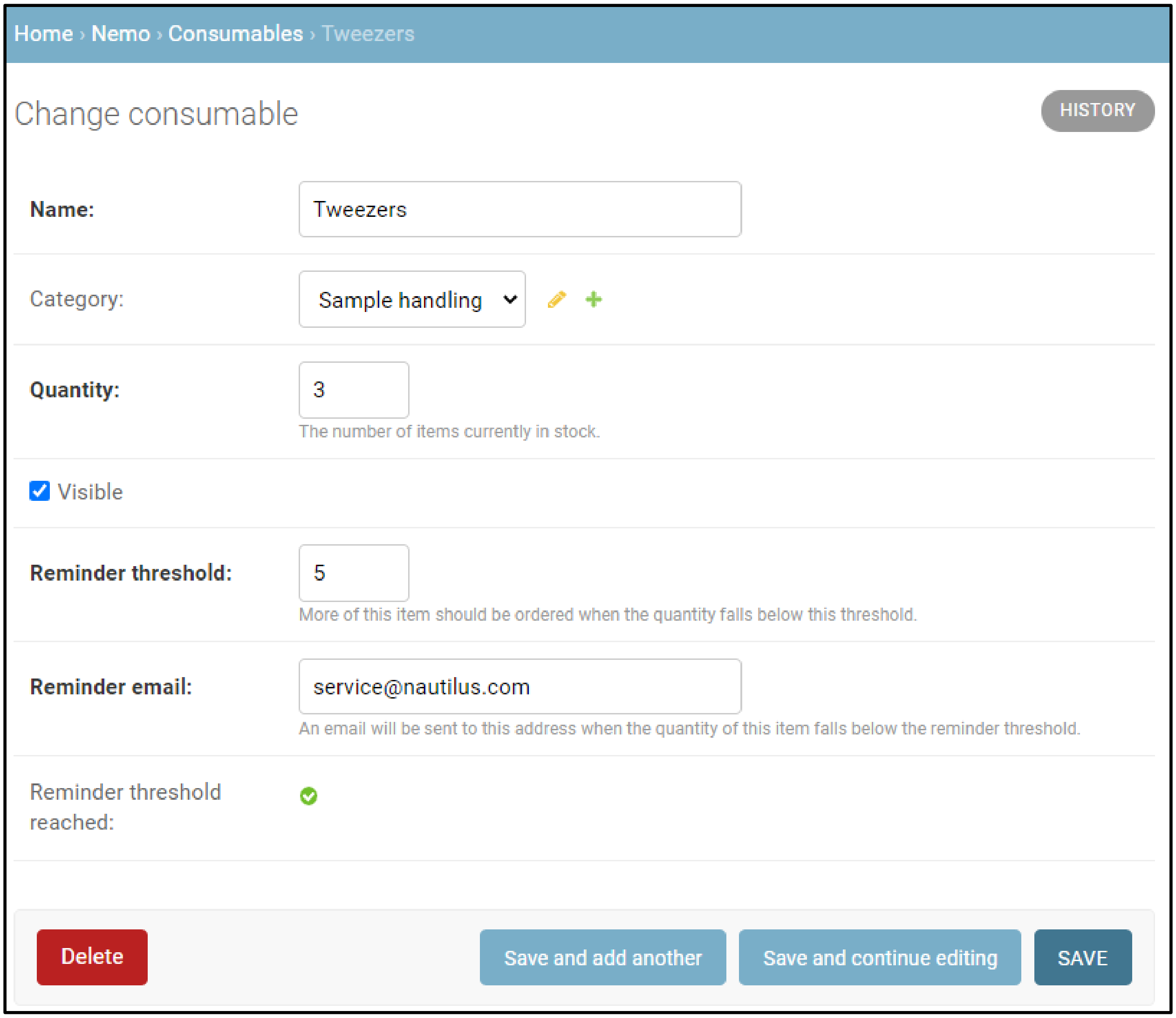


Figure 911 Consumables add/edit page

- Name – Name of the consumable (required)
- Category – Select a category from the drop-down list. *Consumable categories table*
- Quantity – The integer number of items currently in stock
- Visible – Checkbox to indicate if item is on the supply list. This is usually unchecked for items automatically distributed based on tool usage.
- Reminder threshold – The quantity at which a restock reminder email should be sent
- Reminder email – The email address of the person responsible for ordering additional stock.
- Reminder threshold reached – Indicator if stock is below reminder threshold (not user settable)

39.17.4 User access page

There is no page for creating or maintaining consumables, it must be done on this page. However, quantity records are updated automatically when a staff member checks out a supply to a user which is detailed on page 269, or a consumable withdraw is initiated by a tool post usage question which is detailed on page 483.

39.18 Contact information

39.18.1 Usage

Contact information can provide users information about how to find a staff member when needed. Contact information, if used, must be created in this table view. Any number can be defined. In addition, contacts can be associated with NEMO users to provide additional contact information on the tool detail pages. Contact information is discussed in the contact staff section detailed on page 169. Tool details are discussed in the tool details section starting on page 105.

39.18.2 Summary page

The summary page provides a listing of contacts (Figure 912). Click the name field in the row of interest to edit.

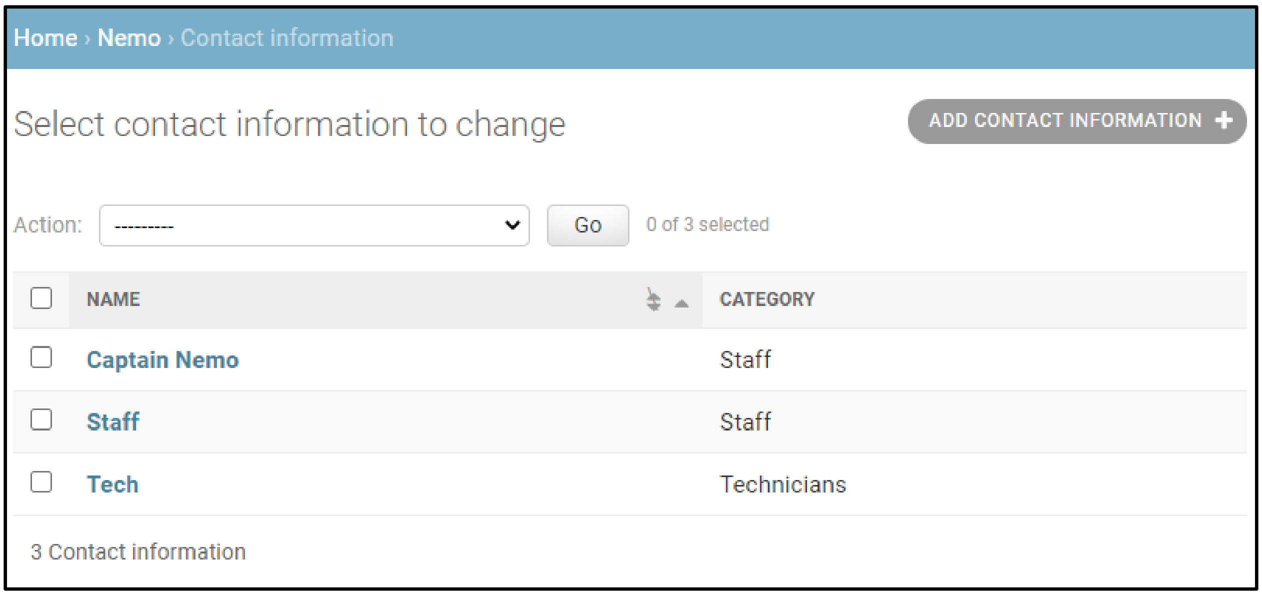


Figure 912 Contact information summary page

39.18.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 913). Common features in detailed administration is detailed on page 359.

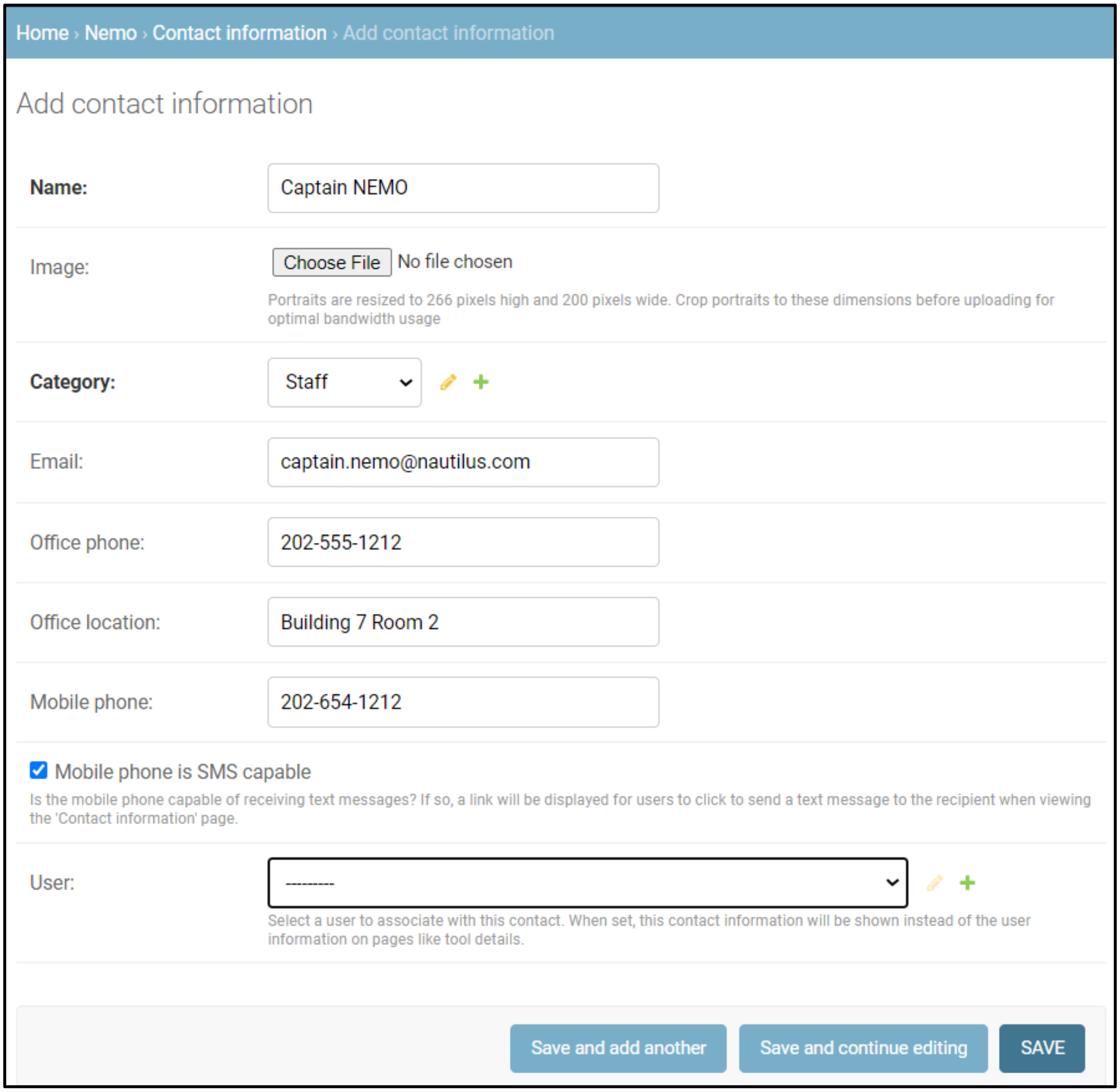


Figure 913 Contact information add/edit page

- Name – the name can be up to 200 characters and is not linked to a user in the user table (required).
- Image – an image of the contact can be uploaded to display on the contact page.
- Category – The group the contact should be in. (required if categories are defined)
- Email – email address of the contact
- Office phone – land line phone number of contact
- Office location – text box for office location, can provide directions, etc.
- Mobile phone – mobile number of contact
- SMS capable – If the mobile phone capable of receiving text messages a link will be displayed for users to click to send a text message to the recipient when viewing the 'Contact information' page.

- User – Select the NEMO user to associate with this contact. When a user and contact are associated, more contact information will be provided for the contact on the tool details page. Tool details are discussed in the tool details section starting on page 105.

39.18.4 User access page

Contact information, if used, must be created in this table view and can be any text name. Contact information is discussed in the contact staff section detailed on page 169.

39.19 Contact information categories

39.19.1 Usage

Contact information categories are optional but can be useful for grouping types of staff on the contact information page. Contact information categories, if used, must be created in this table view and can be any text name. Any number can be defined. If no contact information categories are defined, all contacts will be listed in alphabetical order. Contact information categories are discussed in the contact staff section detailed on page 169.

39.19.2 Summary page

The summary page provides a listing of contact information categories (Figure 914). Click the name field in the row of interest to edit.

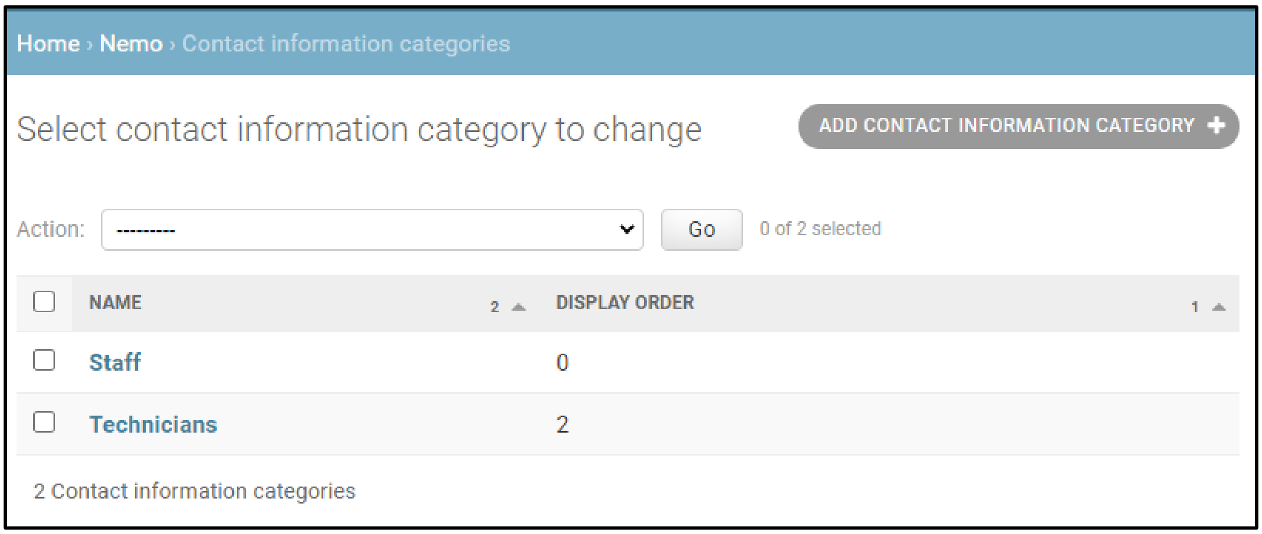


Figure 914 Contact information categories summary page

39.19.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 915). Common features in detailed administration is detailed on page 359.

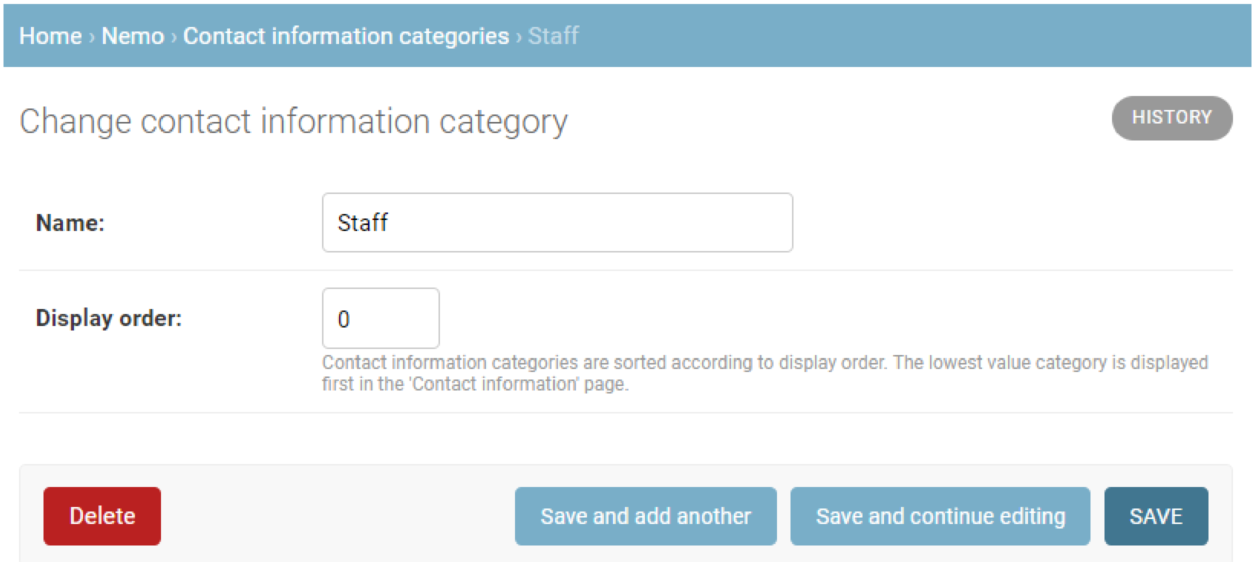


Figure 915 Contact information categories add/edit page

- Name – the name can be up to 200 characters (required).
- Display order – Contact information categories are sorted according to display order. The lowest value category is displayed first in the 'Contact information' page. (required)

39.19.4 User access page

Contact information categories, if used, must be created in this table view and can be any text name. Contact information categories are discussed in the contact staff section detailed on page 169.

39.20 Doors

39.20.1 Usage

NEMO has the capability to control access to lab doors using a display with card reader and interlock relay to actuate a door lock solenoid. Doors are optional but can be useful for ensuring lab occupancy is tracked. Doors are discussed in more detail in the entrance tablet section on page 566.

39.20.2 Summary page

The summary page provides a listing of doors (Figure 916). Click the name field in the row of interest to edit. Once doors are defined, a URL is automatically available to access the door based on the row id number. In the doors summary page figure below, accessing www.nemo.com/welcome_screen/1/ will display the door access screen for the lab entrance door.

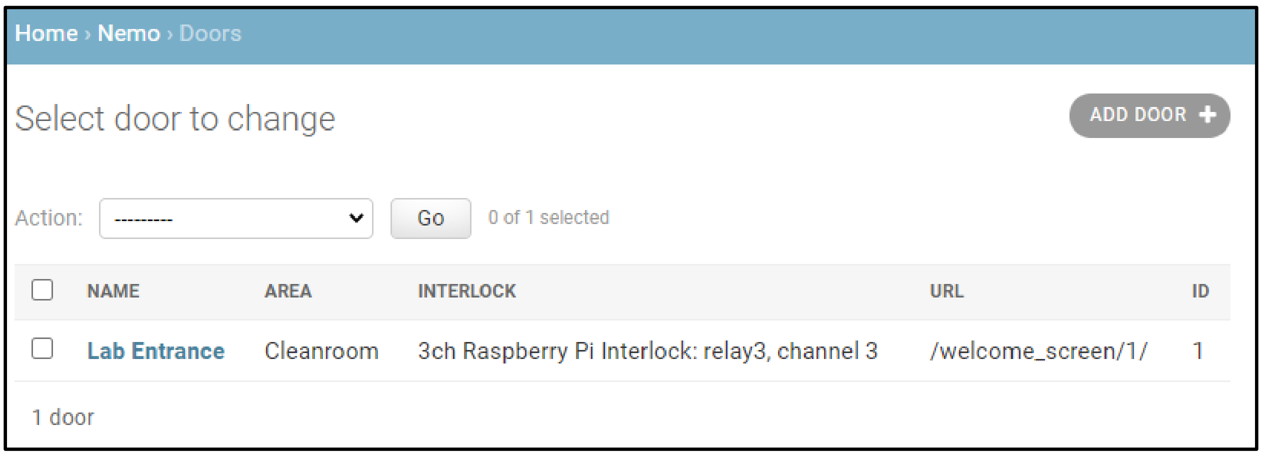


Figure 916 Doors summary page

39.20.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 917). Common features in detailed administration is detailed on page 359.

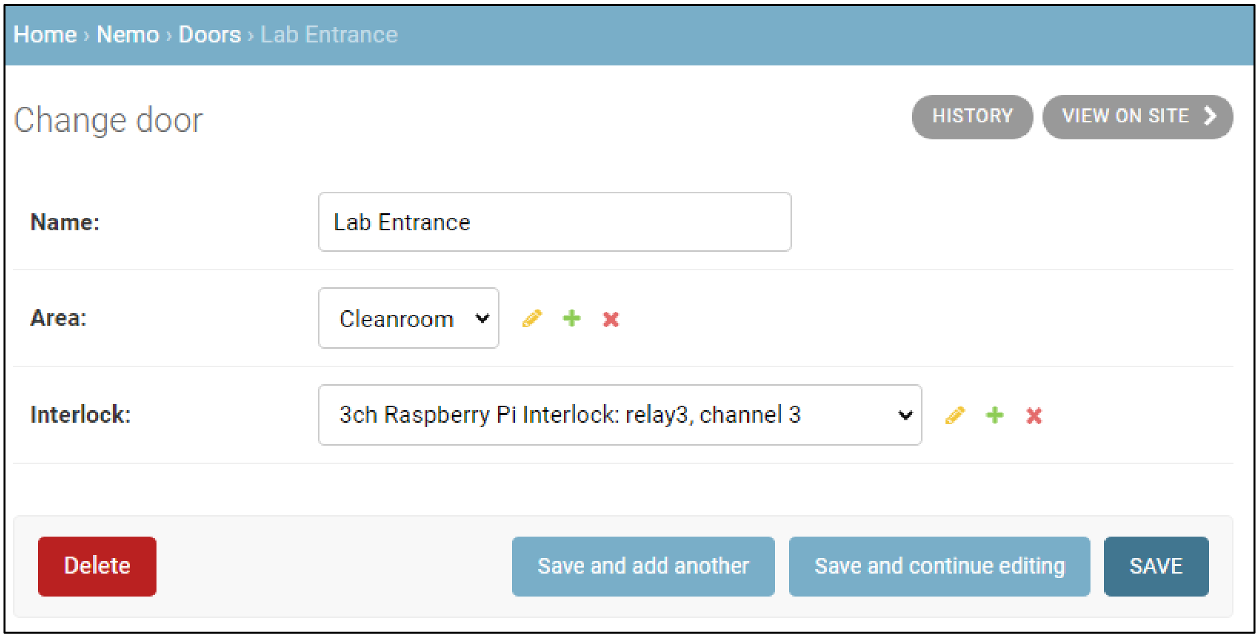


Figure 917 Doors add/edit page

- Name – the name can be up to 200 characters (required).
- Area – select the area from the dropdown list. A user accessing this door will automatically be logged into this area. (required) *Areas table*
- Interlock – select the interlock from the dropdown list. This interlock relay will be actuated to unlock the door. (required) *Interlocks table*

39.20.4 User access page

There is no user access page available for the email logs. They are generated internally and cannot be modified or deleted.

39.21 Email logs

39.21.1 Usage

All emails sent by NEMO are logged for audit purposes and accessible in the detailed administration. Use the `send_email` function available in `utilities.py` to automatically log emails.

39.21.2 Summary page

The summary page provides a listing of emails sent by NEMO (Figure 918). Click the ID field in the row of interest to view. Email log records cannot be edited or deleted.

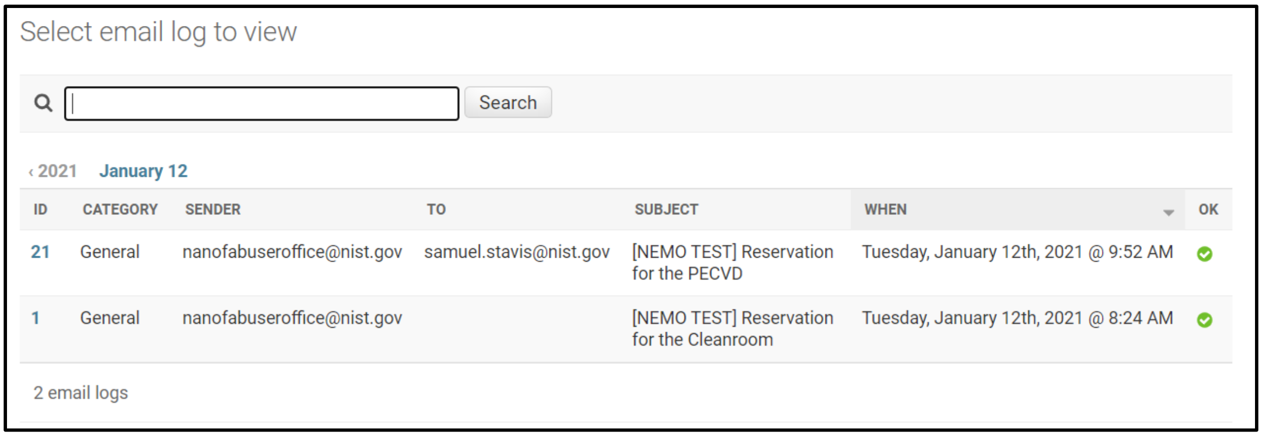


Figure 918 Email logs summary page

39.21.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 919). [Common features in detailed administration](#) is detailed on page 359.

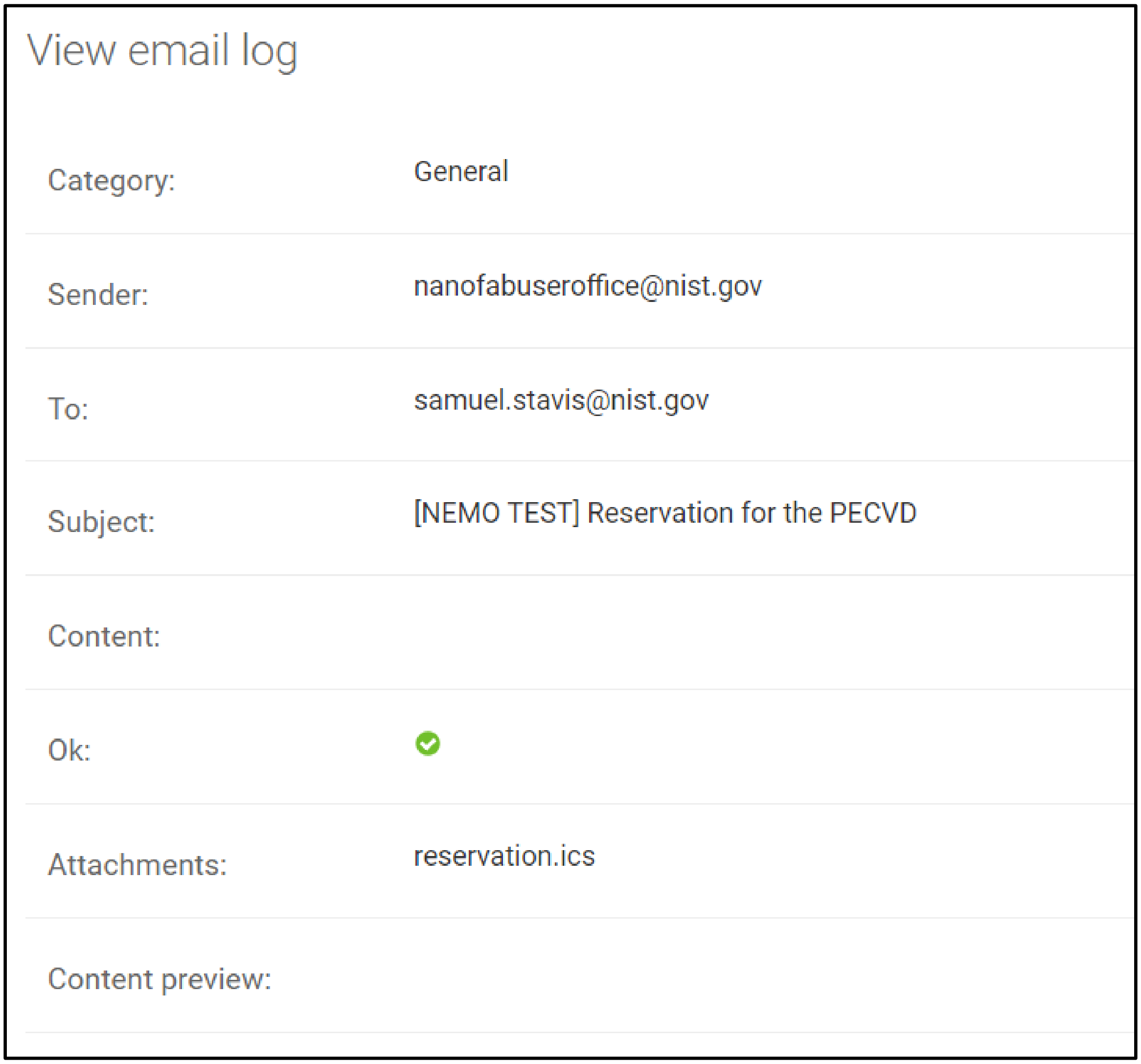


Figure 919 Email logs view page

- Category – the type of email NEMO sent.
- Sender – the name of the sender, typically the User office email defined in the customization page.
- To – the user the email was sent to.
- Subject – the subject of the email.
- Content – the body of the email.
- Ok – indicated if the message was sent without error.
- Attachments – list of files attached.
- Content preview – a preview of the email if available.

39.21.4 User access page

Interlock card categories, if used, must be created in this table view and can be any text name. Interlock card categories are used in the interlock cards table to define how NEMO should communicate with the interlock.

39.22 Interlock card categories

39.22.1 Usage

Interlock card categories are used to link an interlock class in interlocks.py to interlock cards so NEMO knows how to talk to the interlock. An interlock card category should be created for each interlock class in interlocks.py that will be used to control tool access or door access.

39.22.2 Summary page

The summary page provides a listing of interlock card categories (Figure 920). Click the name field in the row of interest to edit.

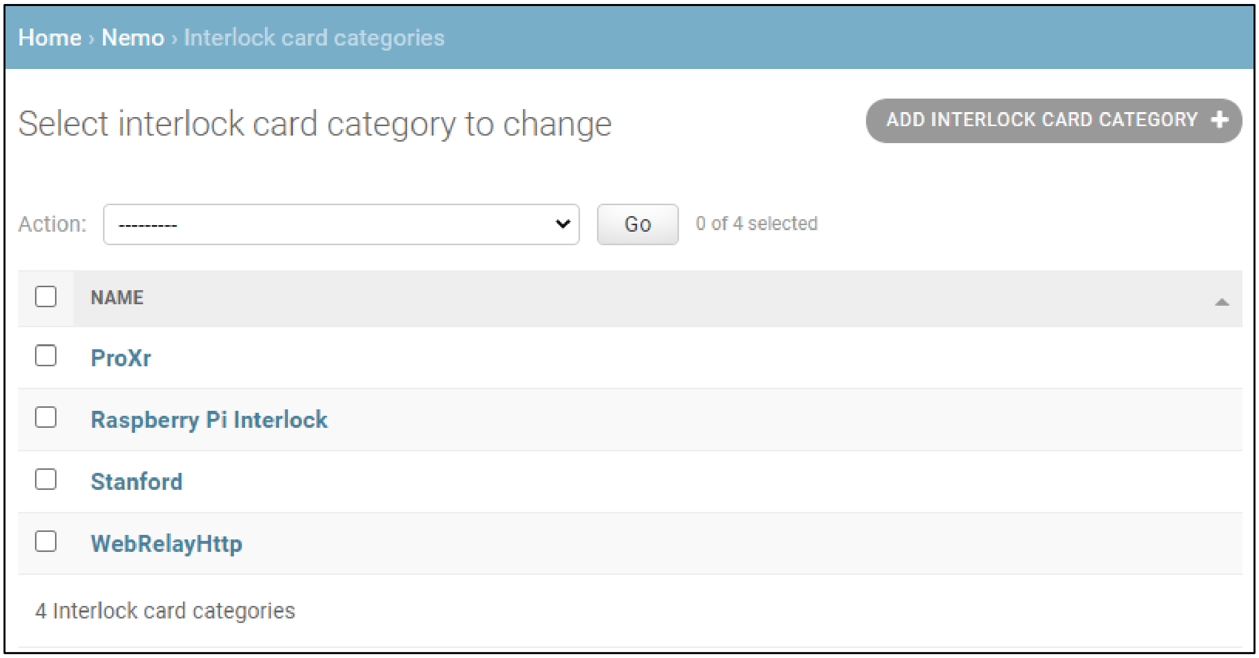


Figure 920 Interlock card categories summary page

39.22.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 921). [Common features in detailed administration] is detailed on page 359.

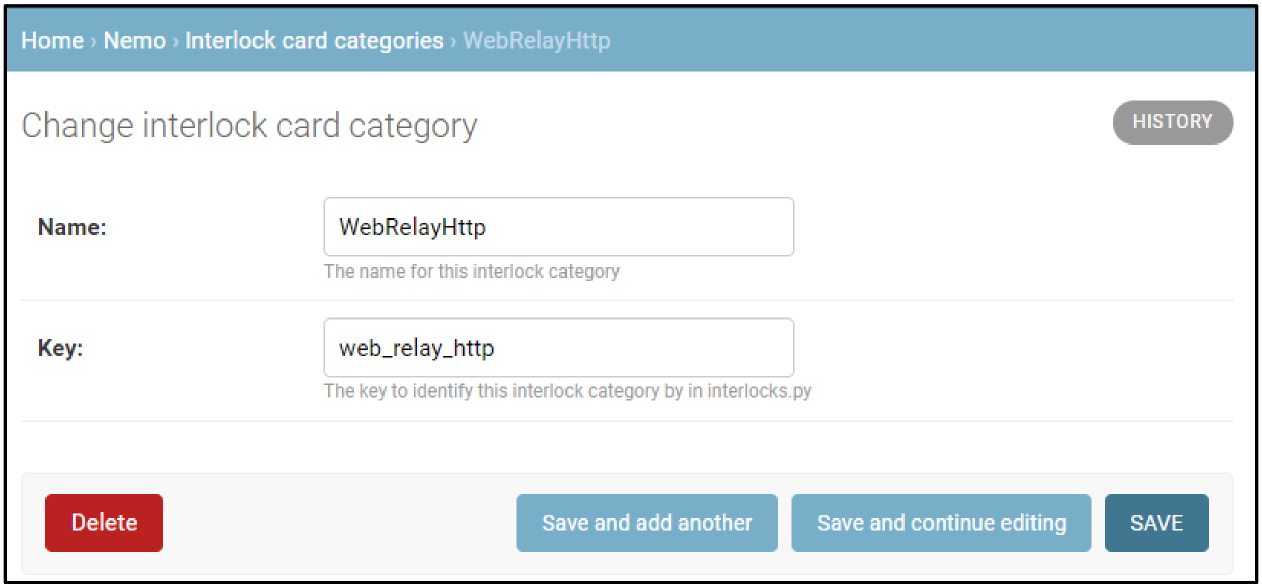


Figure 921 Interlock card categories add/edit page

- Name – name can be up to 200 characters (required).
- Key – The key to identify this interlock category in interlocks.py (required)

  The interlocks.py file has a dictionary that links this key name to each interlock class in interlocks.py. Users can create their own interlock class and access it in NEMO by updating the dictionary to include their custom class (Figure 922).

```
interlocks: Dict[str, Interlock] = {
        'stanford': StanfordInterlock(),
        'web_relay_http': WebRelayHttpInterlock(),
        'proxr': ProXrInterlock(),
        'rpi_interlock': RPiInterlock(),
}
```

Figure 922 Interlock card categories example dictionary in interlocks.py

39.22.4 User access page

Interlock card categories, if used, must be created in this table view and can be any text name. Interlock card categories are used in the interlock cards table to define how NEMO should communicate with the interlock.

39.23 Interlock cards

39.23.1 Usage

Interlock cards define the communication parameters with an interlock device. Regardless if single relay interlock devices are used or multi-relay interlock devices are used, each device will require definition as an interlock card. Information such as IP address, port number and interlock category define how NEMO will communicate with the device.

39.23.2 Summary page

The summary page provides a listing of interlock cards (Figure 923). Click the name field in the row of interest to edit.

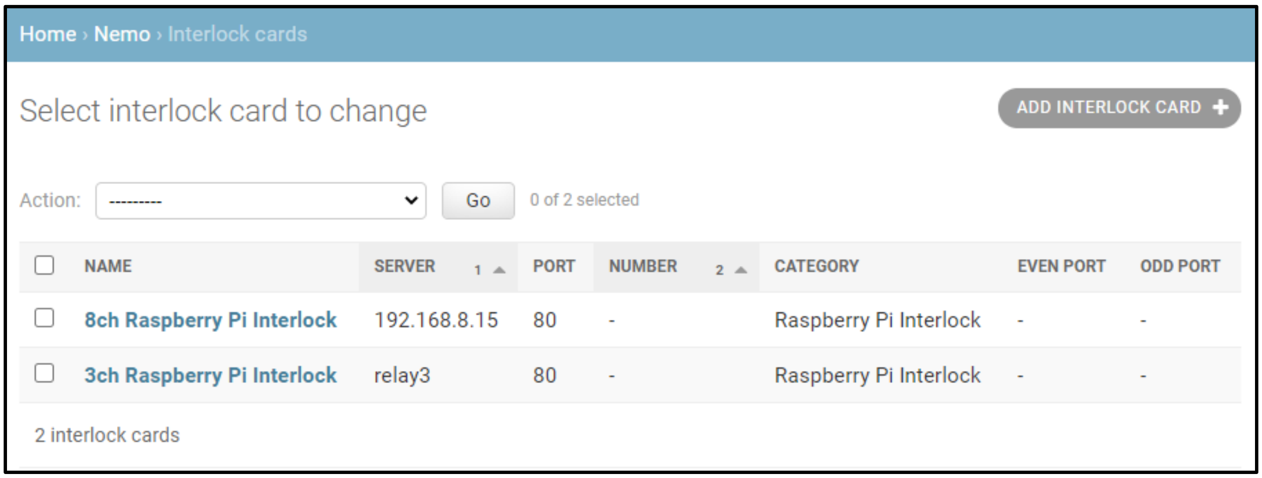


Figure 923 Interlock cards summary page

39.23.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 924). Common features in detailed administration is detailed on page 359.

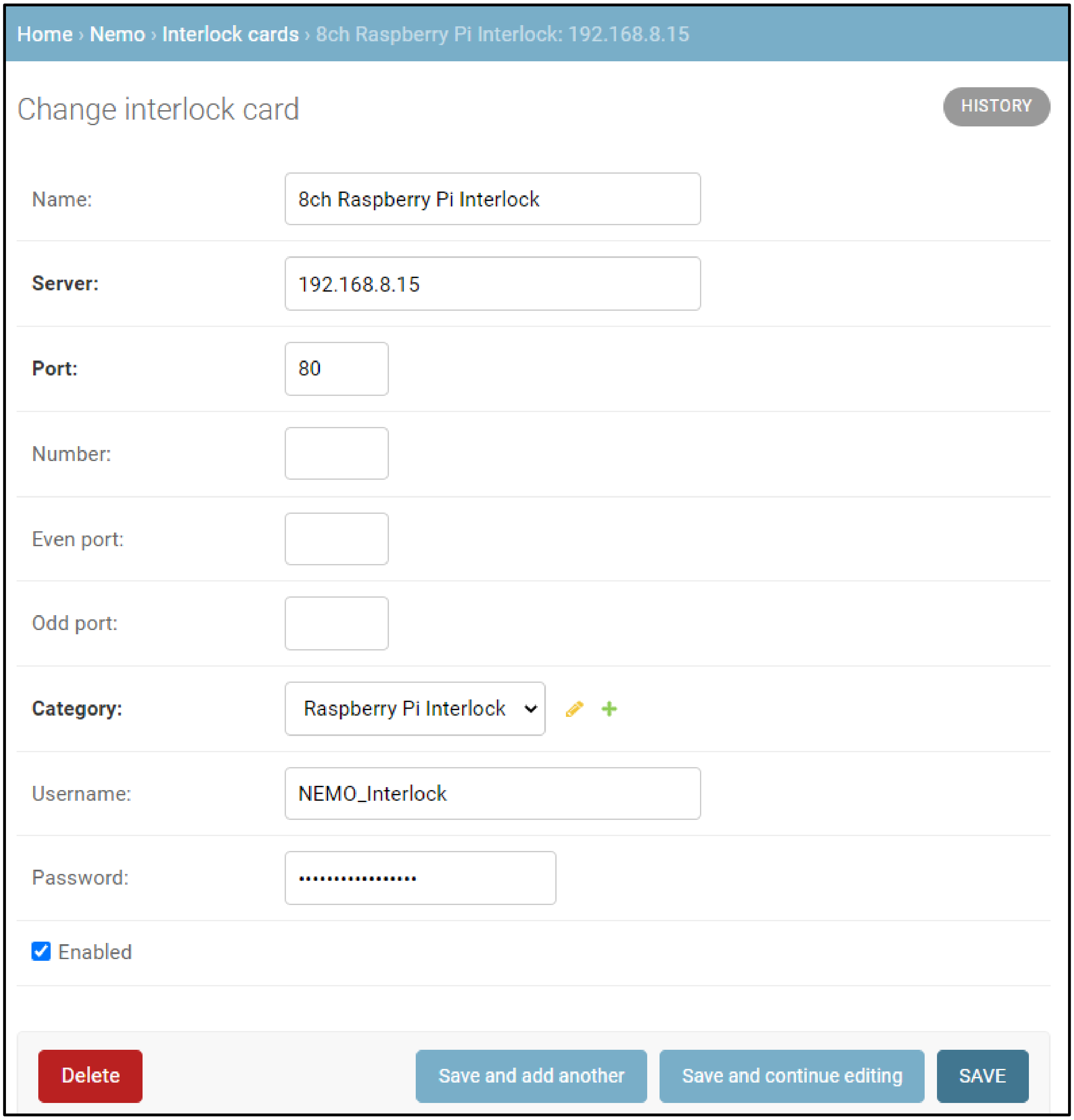


Figure 924 Interlock cards add/edit page

- Name – name can be up to 200 characters (required).
- Server – IP address or FQDN of interlock device (required)
- Port – port number to access device through (required)
- Number – Card number (required for Stanford interlocks)
- Even port – even port number (required for Stanford interlocks)
- Odd port – odd port number (required for Stanford interlocks)
- Category – interlock card category selectable from drop down list (required). See Interlock card categories.

- Username – if a username and password is required to access the interlock device, enter the username
- Password – if a username and password is required to access the interlock device, enter the password
- Enabled – check box to set the status of the device, normally checked.

39.23.4 User access page

Interlock cards, if used, must be created in this table view and can be any text name. Interlock cards are used in the interlocks table to define which interlock device to talk to.

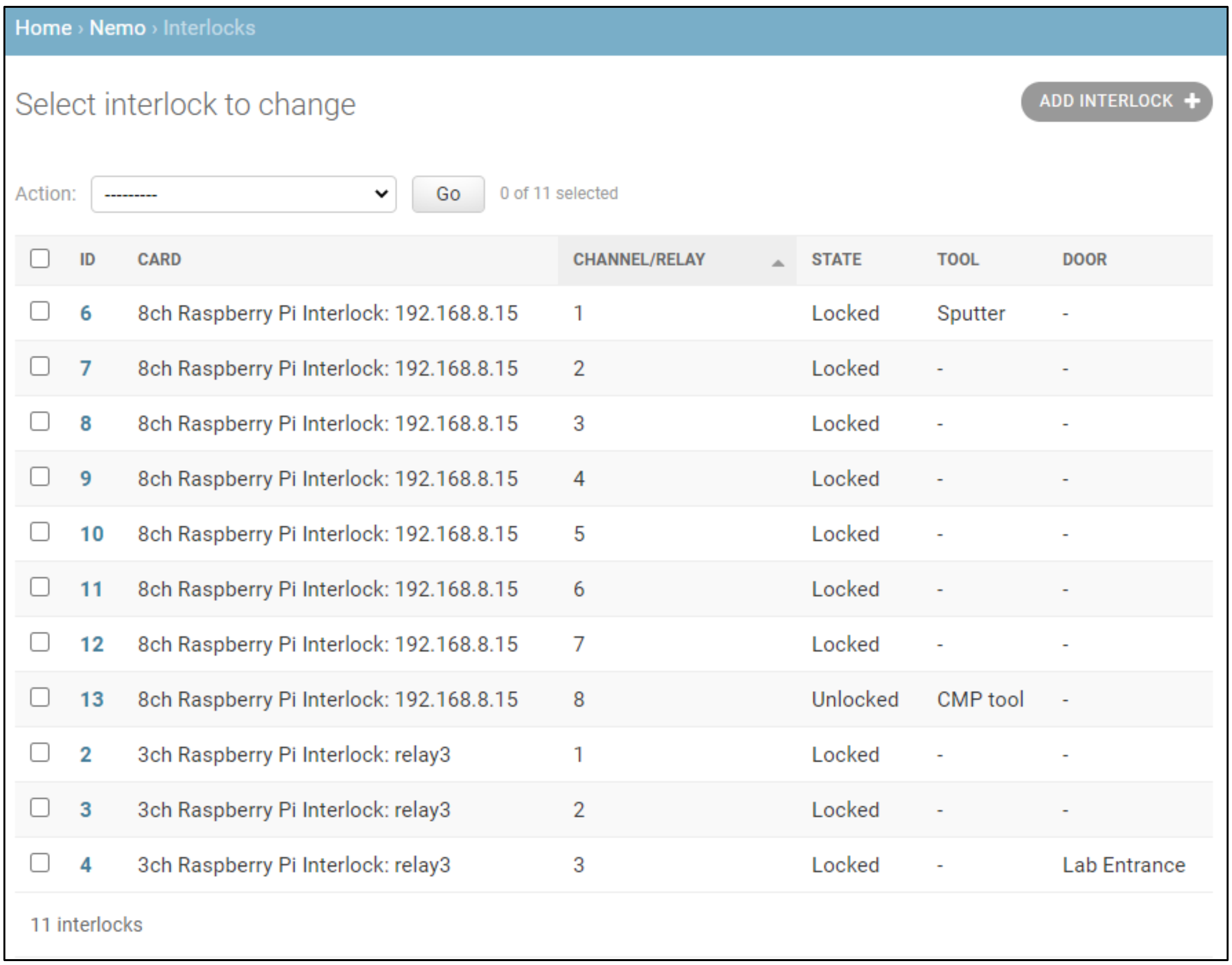
39.24 Interlocks

39.24.1 Usage

The interlocks table defines each relay on an interlock card. An entry is required for each relay on the card that will be used. NEMO areas and tools access the interlocks to control lab door and tool access.

39.24.2 Summary page

The summary page provides a listing of interlocks (Figure 925). Click the id field in the row of interest to edit.



Home › Nemo › Interlocks

Select interlock to change

ADD INTERLOCK +

Action: --------- Go 0 of 11 selected

ID	CARD	CHANNEL/RELAY	STATE	TOOL	DOOR
6	8ch Raspberry Pi Interlock: 192.168.8.15	1	Locked	Sputter	-
7	8ch Raspberry Pi Interlock: 192.168.8.15	2	Locked	-	-
8	8ch Raspberry Pi Interlock: 192.168.8.15	3	Locked	-	-
9	8ch Raspberry Pi Interlock: 192.168.8.15	4	Locked	-	-
10	8ch Raspberry Pi Interlock: 192.168.8.15	5	Locked	-	-
11	8ch Raspberry Pi Interlock: 192.168.8.15	6	Locked	-	-
12	8ch Raspberry Pi Interlock: 192.168.8.15	7	Locked	-	-
13	8ch Raspberry Pi Interlock: 192.168.8.15	8	Unlocked	CMP tool	-
2	3ch Raspberry Pi Interlock: relay3	1	Locked	-	-
3	3ch Raspberry Pi Interlock: relay3	2	Locked	-	-
4	3ch Raspberry Pi Interlock: relay3	3	Locked	-	Lab Entrance

11 interlocks

Figure 925 Interlocks summary page

39.24.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 926). [Common features in detailed administration](#) is detailed on page 359.

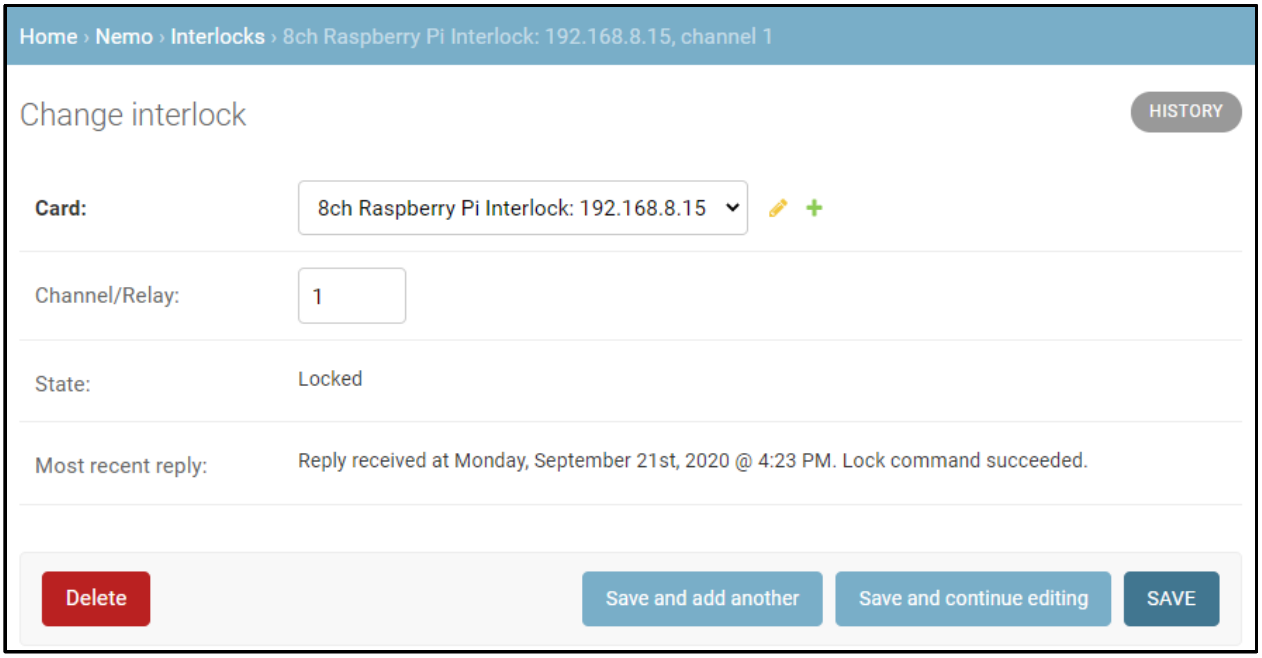


Figure 926 Interlocks add/edit page

- Card – select the card from the drop-down list (required). *Interlock cards table*
- Channel/Relay – the channel or relay number of the interlock (required).
- State – Informational only, can be locked, unlocked, or unknown if not initialized.
- Most recent reply – Informational only, useful for testing.

39.24.4 User access page

Interlocks, if used, must be created in this table view. Interlocks are used in the tools and doors table to define which relay is used on an interlock card.

39.25 Landing page choices

39.25.1 Usage

The landing page choices table stores configurable quick links that are displayed at the bottom of the landing page. The links can be tailored for desktop or laptop rendering and provide shortcuts to NEMO pages that are or are not accessible from the navigation bar, organizational pages, or outside resources. The landing page is detailed starting on page 28.

39.25.2 Summary page

The summary page provides a listing of landing page choices (Figure 927). Click the name field in the row of interest to edit.

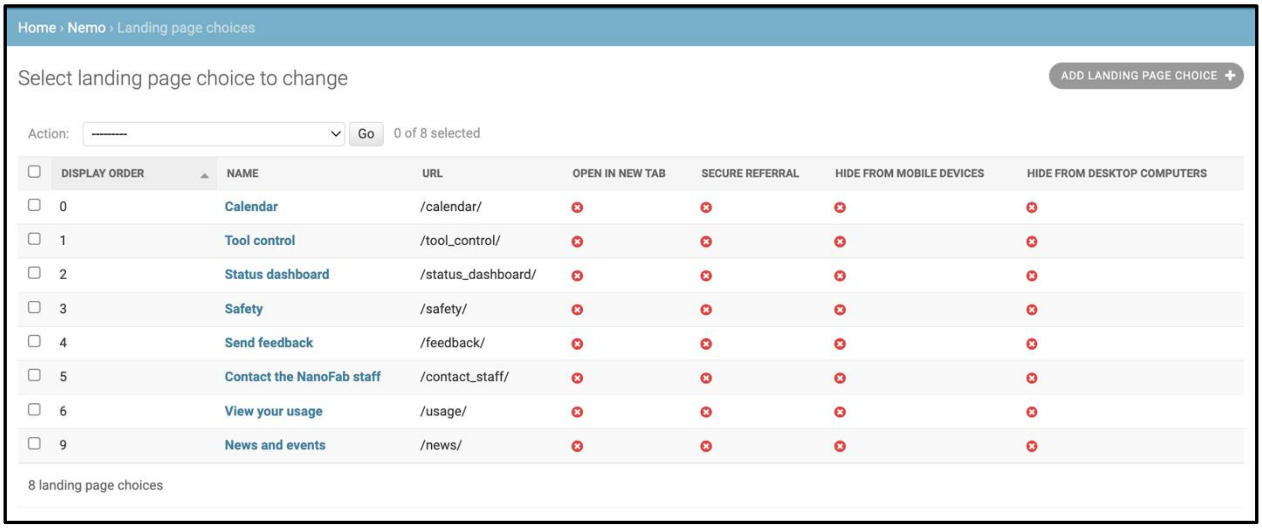


Figure 927 Landing page choices summary page

39.25.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 928). Common features in detailed administration is detailed on page 359.

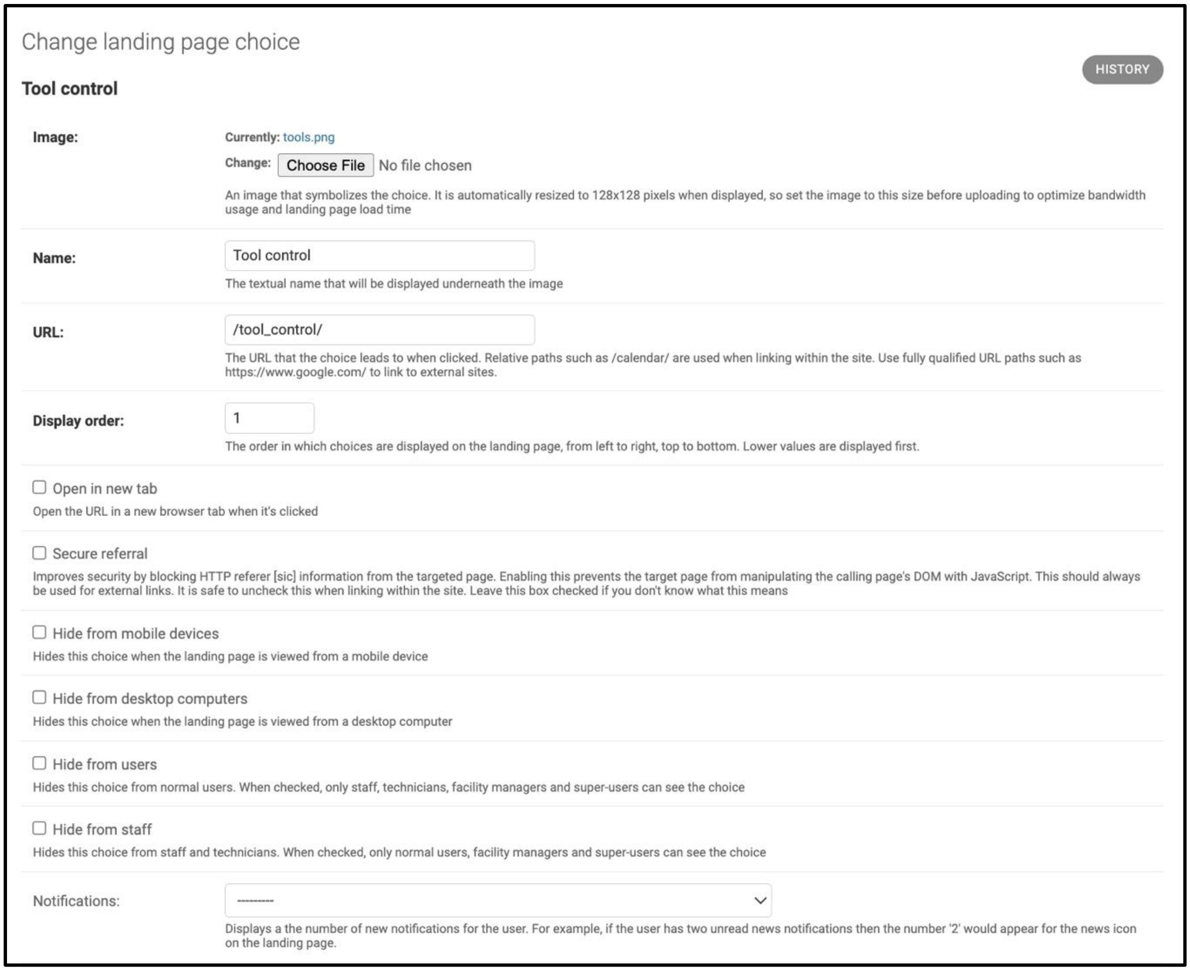


Figure 928 Landing page choices add/edit page

- Image – click the choose file button to select the icon image of interest. It is automatically resized to 128 x 128 pixels when displayed, so set the image to this size before uploading to optimize bandwidth usage and landing page load time. (required)
- Name – the textural name that will be displayed below the image. (required)
- URL – The URL that the choice leads to when clicked. Relative paths such as /calendar/ are used when linking within the site. Use fully qualified URL paths such as https://www.google.com/ to link to external sites. (required)
- Display order – The order in which choices are displayed on the landing page, from left to right, top to bottom. Lower values are displayed first. (required)
- Open in new tab – check the checkbox to open the URL in a new browser tab when it's clicked.
- Secure referral – Improves security by blocking HTTP referrer [sic] information from the targeted page. Enabling this prevents the target page from manipulating the calling page's DOM with JavaScript. This should always be used for external links. It is safe to uncheck this when linking within the site. Leave this box checked if you don't know what this means.
- Hide from mobile devices – Hides this choice when the landing page is viewed from a mobile device

- Hide from desktop computers – Hides this choice when the landing page is viewed from a desktop computer
- Hide from users – Hides this choice from normal users. When checked, only staff, technicians, and admins can see the choice
- Hide from staff – Hides this choice from staff and technicians. When checked, only normal users, facility managers and admins can see the choice
- Notifications – Displays the number of new notifications for the user. For example, if the user has two unread news notifications then the number '2' would appear for the news icon on the landing page. *Notifications table*

39.25.4 User access page

Landing page choices, if used, must be created in this table view. Once created, they appear on the landing page displaying the uploaded icon and description. The landing page is detailed on page 28.

39.26 Membership histories

39.26.1 Usage

The membership histories table automatically tracks several user actions, who took them, and when.

Actions tracked:

- Project joined or removed from an account
- User joined or removed from a project
- User joined or removed from a tool qualification
- User joined or removed from a physical access level.

Normally, this table does not require direct editing. User permissions and permission history can be accessed on the users page detailed on page 278. Account and project changes are detailed on page 191.

39.26.2 Summary page

The summary page provides a listing of membership histories (Figure 929). Click the membership history field in the row of interest to edit.

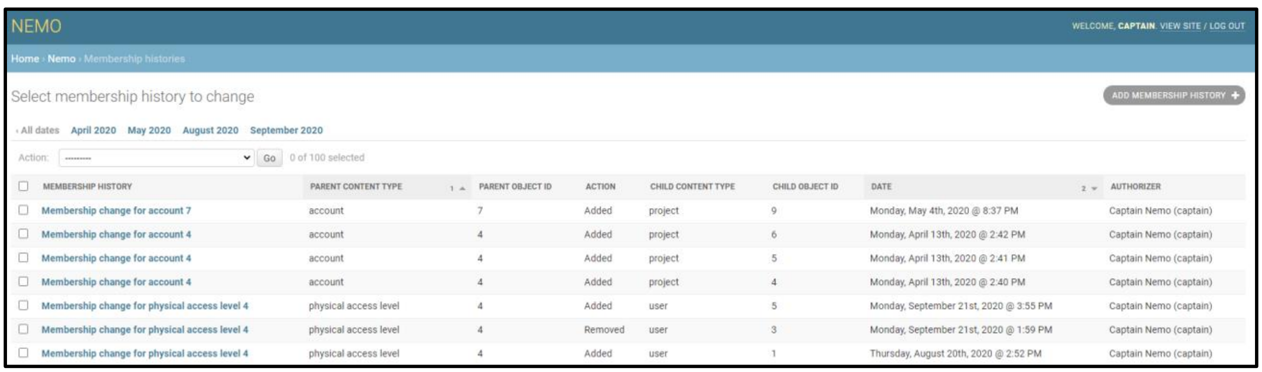


Figure 929 Membership histories summary page

39.26.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 930). Common features in detailed administration is detailed on page 359.

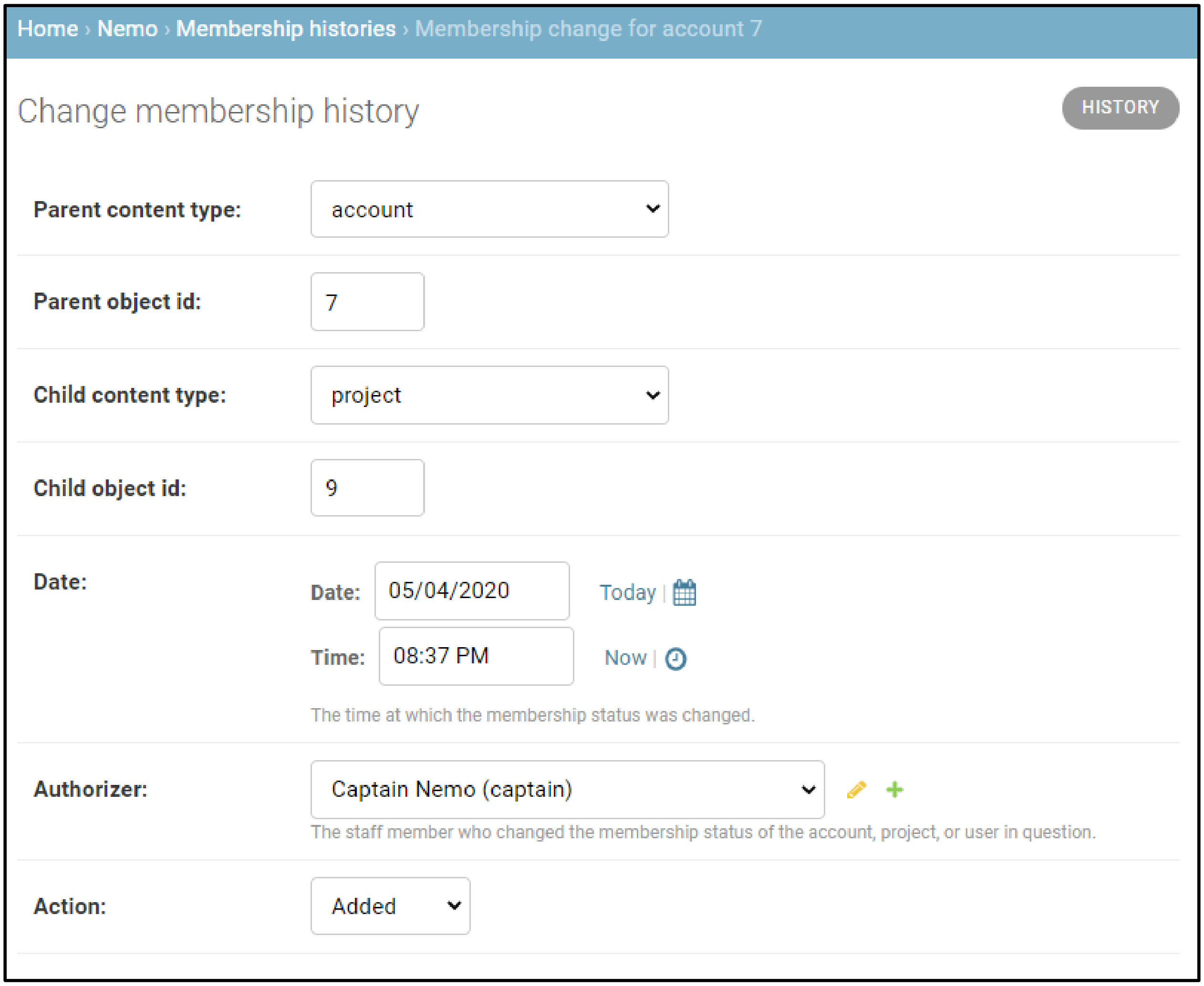


Figure 930 Membership histories add/edit page

- Parent content type – select from drop down list either account, physical access level, project or tool. Selection corresponds to a record in *Accounts table, Physical access levels table, Projects table, or Tools table.*
- Parent object id – the table row id number of the content type. For example, it the content type is account, an id of 10 would correspond to the account table where id=10.
- Child object type – select from the drop-down list either user or project. Selection corresponds to a record in *Users table or Projects table.*
- Child object id – the table row id number of the object type.
- Date – date and time action was taken.
- Authorizer – the user that made the change (required) *Users table*
- Action – select from drop down list either added or removed.

39.26.4 User access page

Normally, this table does not require direct editing. User permissions and permission history can be accessed on the users page detailed on page 278. Account and project changes are detailed on page 191.

39.27 News

39.27.1 Usage

The news table stores the story information for the news and events page. This table normally does not require direct editing however story content mistakes can be corrected here. The news and events page is detailed on page 178.

Normally, this table does not require direct editing. User permissions and permission history can be accessed on the users page detailed on page 278. Account and project changes are detailed on page 191.

39.27.2 Summary page

The summary page provides a listing of news stories (Figure 931). Click the id field in the row of interest to edit.

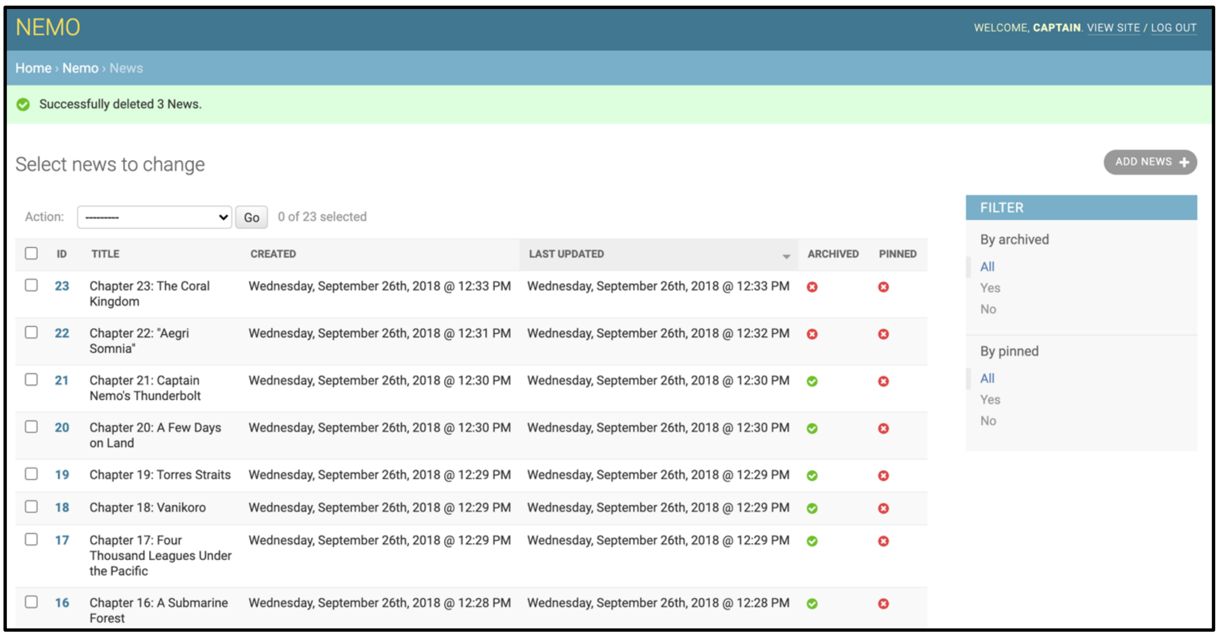


Figure 931 News summary page

39.27.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 932). Common features in detailed administration is detailed on page 359.

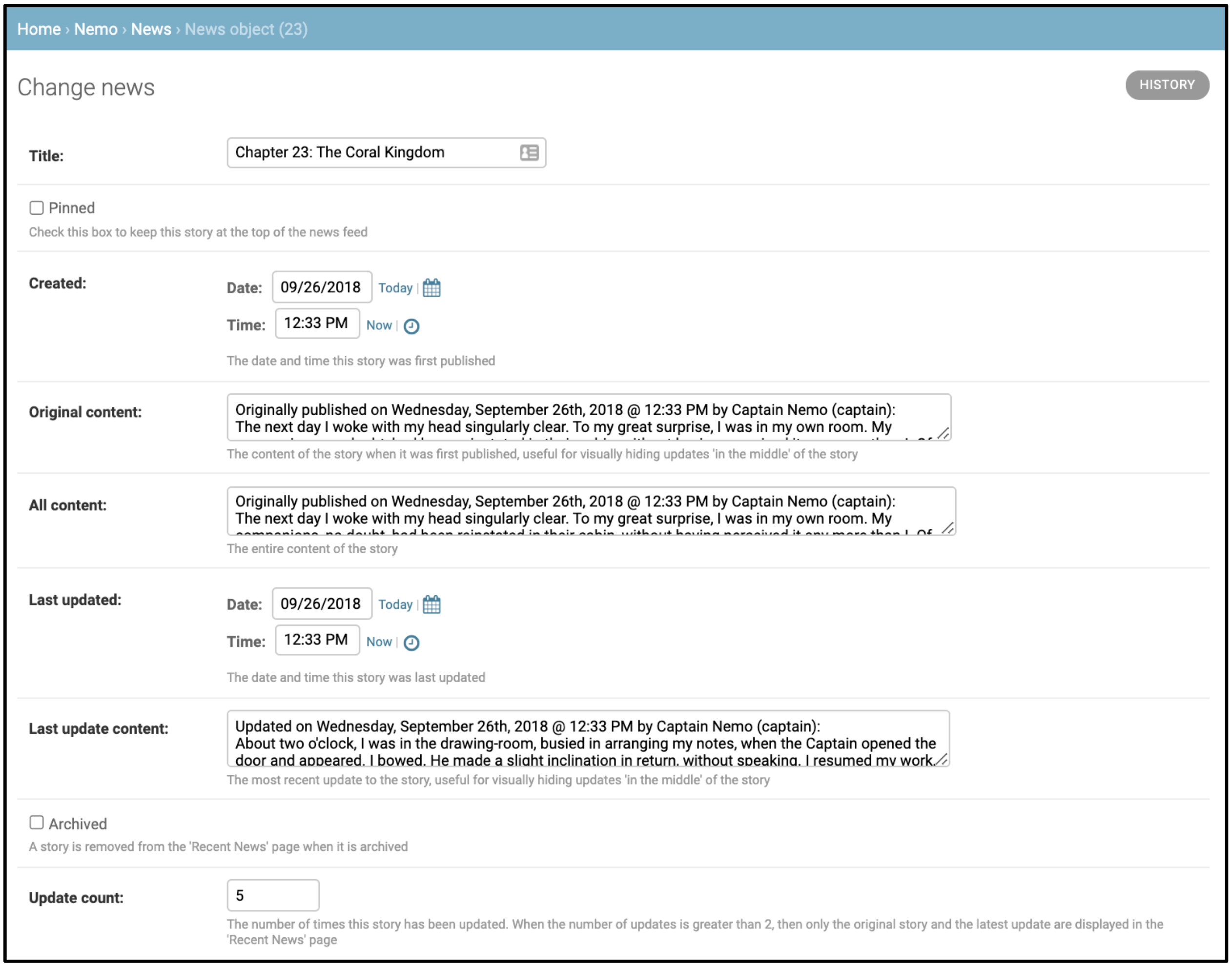


Figure 932 News add/edit page

- Title – this is the top-level title given to the news story.
- Pinned – checkbox to indicate whether or not this news story should stay at the top.
- Created – date and time story was initially posted.
- Original content - the content of the story when it was first published, useful for visually hiding updates 'in the middle' of the story.
- All content – the entire content of the story including all updates.
- Last updated – date and time the story was last updated.
- Last update content – the most recent update to the story useful for visually hiding updates 'in the middle' of the story.
- Archived – checkbox to indicate that the story has been removed from the Recent News page.
- Update count – integer number to indicate the number of times the story has been updated. When the number of updates is great than 2, only the original story and the latest update are displayed in the recent news page to save space. A reader would need to expand the story to see all of the content.

39.27.4 User access page

Normally, this table does not require direct editing. Adding and updating news stories is done on the news and events page detailed on page 178.

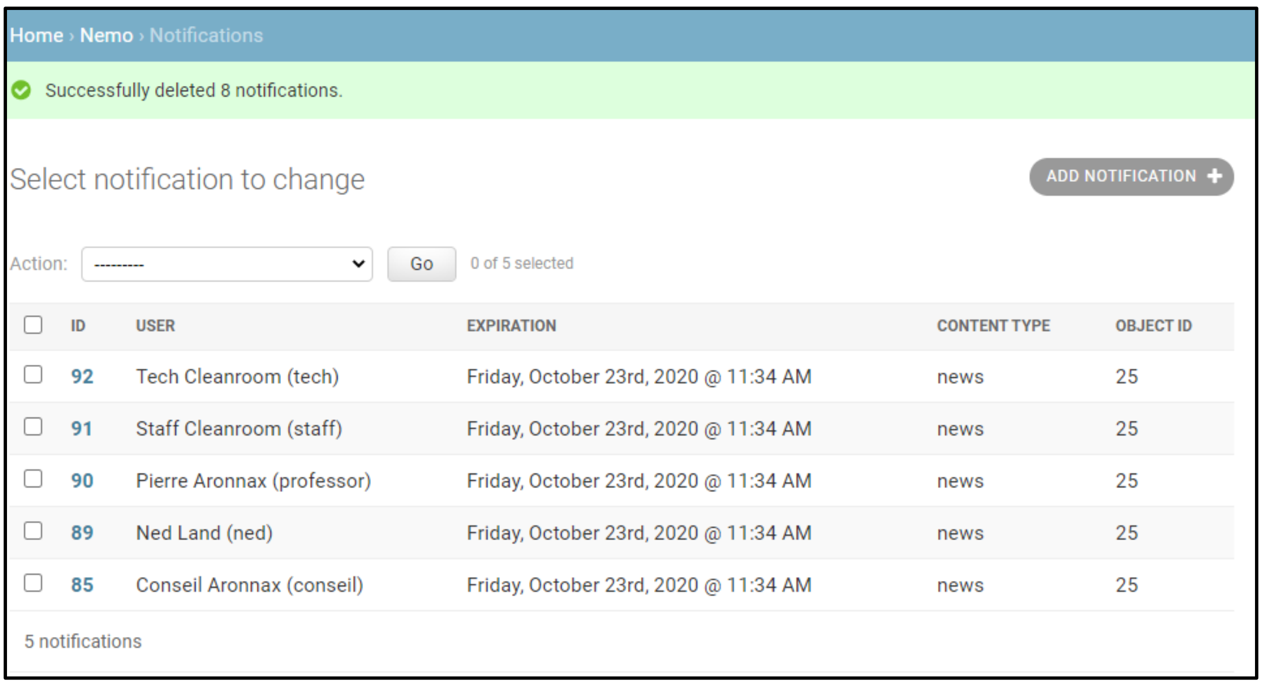
39.28 Notifications

39.28.1 Usage

The notifications table stores updates to news and safety events so notification alerts can be provided on a user-by-user basis on the landing page icons if used. If a new safety event or new news event is updated or published, the notifications will be triggered and stored in this table. Once a user visits the safety or news page, the notification is deleted from the table. Notifications are displayed as a number at the bottom right of the safety or new icon on the landing page. Safety notifications are discussed in the safety section starting on page 158. News notifications are discussed in the news and events section starting on page 178.

39.28.2 Summary page

The summary page provides a listing of notifications (Figure 933). Click the id field in the row of interest to edit.



ID	USER	EXPIRATION	CONTENT TYPE	OBJECT ID
92	Tech Cleanroom (tech)	Friday, October 23rd, 2020 @ 11:34 AM	news	25
91	Staff Cleanroom (staff)	Friday, October 23rd, 2020 @ 11:34 AM	news	25
90	Pierre Aronnax (professor)	Friday, October 23rd, 2020 @ 11:34 AM	news	25
89	Ned Land (ned)	Friday, October 23rd, 2020 @ 11:34 AM	news	25
85	Conseil Aronnax (conseil)	Friday, October 23rd, 2020 @ 11:34 AM	news	25

Figure 933 Notifications summary page

39.28.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 934). Common features in detailed administration is detailed on page 359.

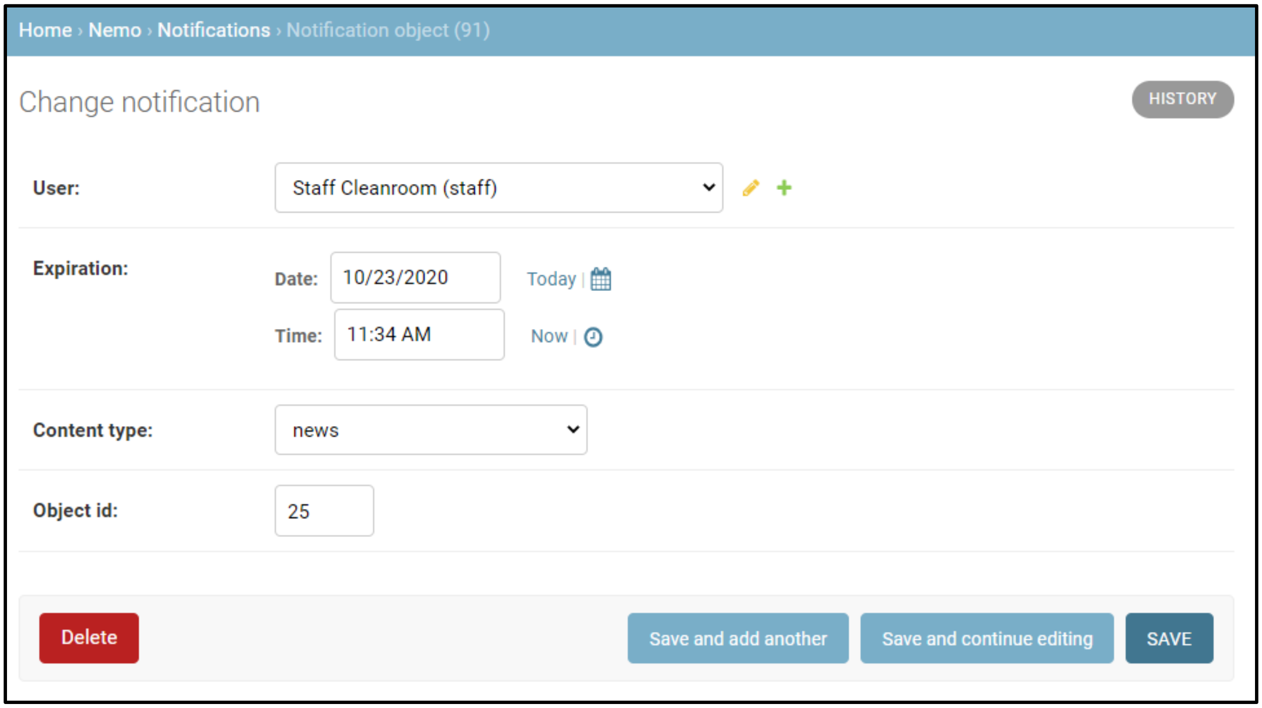


Figure 934 Notifications add/edit page

- User – person notification is for. (required) *Users table*
- Expiration – date and time notification will expire. Currently all notifications post for 30 days. (required)
- Content type – select from drop down list. Only news and safety issue have been implemented. (required)
- Object id – the ID of the news or safety issue record in their respective tables. (required)

39.28.4 User access page

Normally, this table does not require direct editing. Safety notifications are discussed in the safety section starting on page 158. News notifications are discussed in the news and events section starting on page 178.

39.29 Physical access levels

39.29.1 Usage

The physical access levels table associates areas with schedules. Schedules can be set for always, weekends, or weekdays between a set start and end time. User permissions to access areas are given as physical access levels to have the ability to limit the days and times users have access. Exceptions to a physical access level can be made using the physical access exception table detailed above. Exceptions could be a holiday schedule or other expected closures. User permissions are discussed on the users page detailed starting on page 278.

39.29.2 Summary page

The summary page provides a listing of physical access levels (Figure 935). Click the name field in the row of interest to edit.

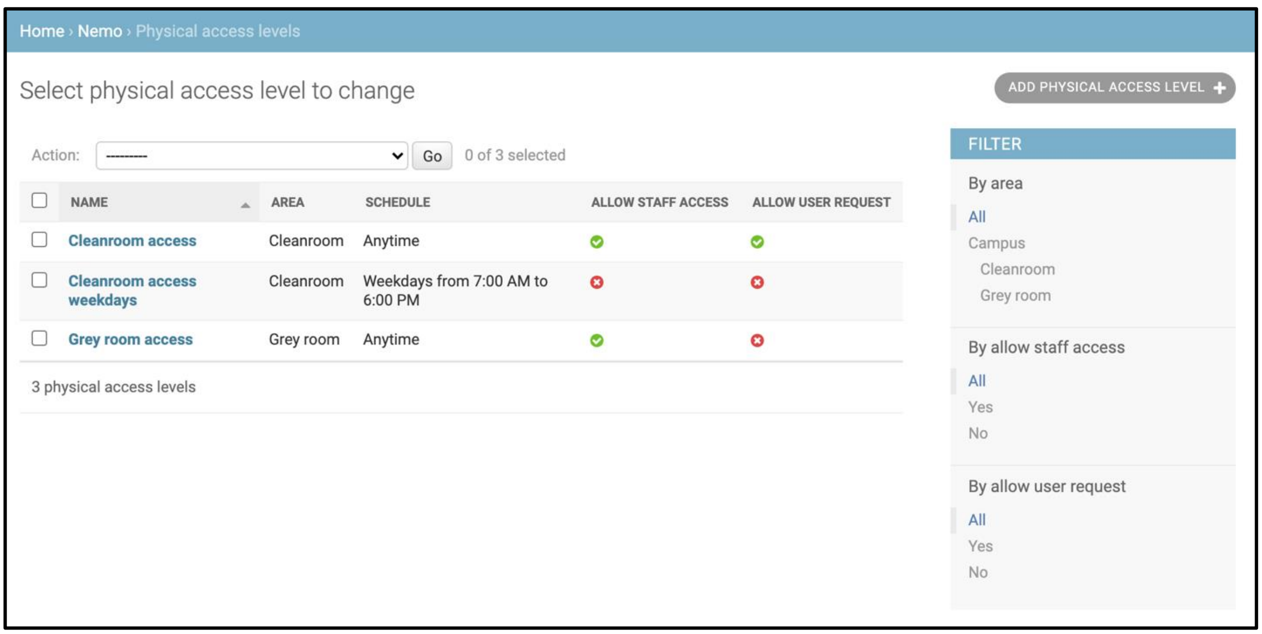


Figure 935 Physical access levels summary page

39.29.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 936, Figure 937). Common features in detailed administration is detailed on page 359.

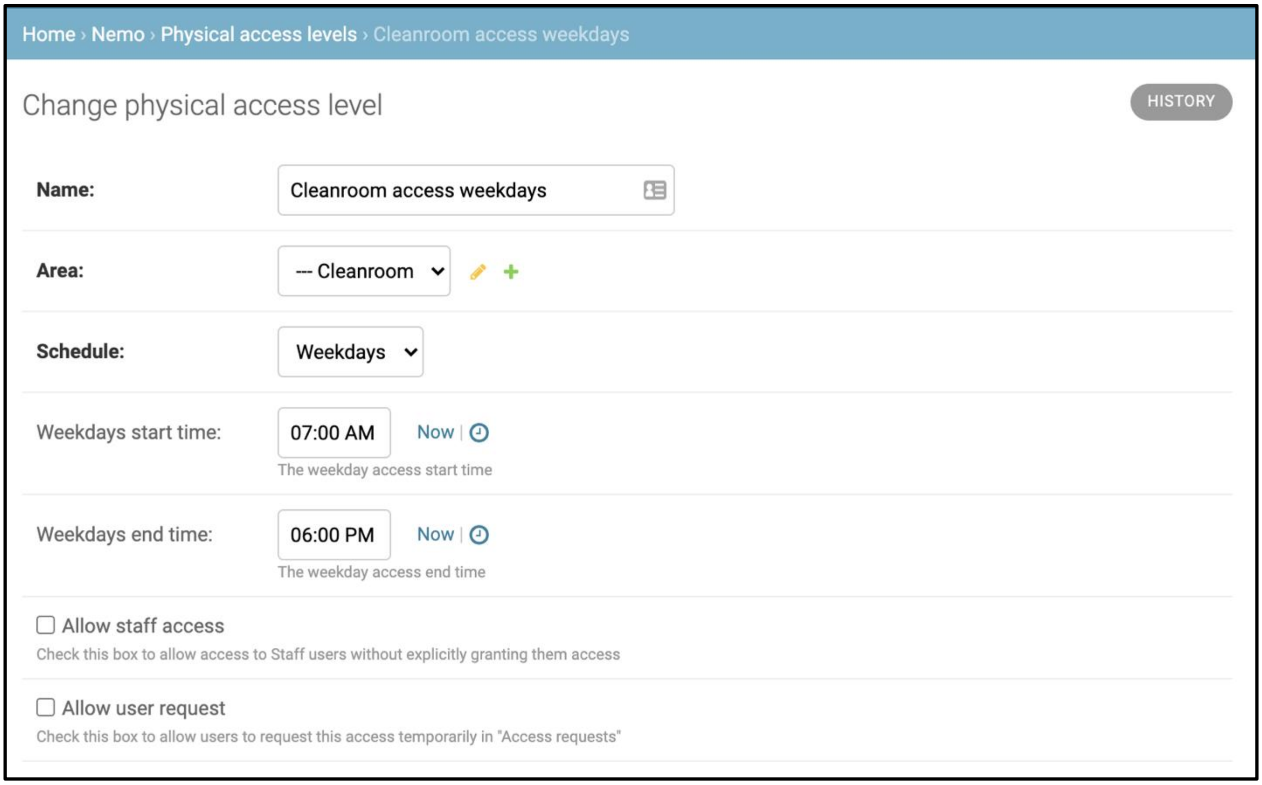


Figure 936 Physical access levels add/edit page 1

- Name – descriptive name of physical access level (required)
- Area – select from drop down list the area this access level is associated with. (required) *Areas table*
- Schedule – select from drop down list. Available options are Always, Weekdays, or Weekends. (required)
- Weekdays start time – the time weekday access will start. (required if weekdays schedule is selected)
- Weekdays end time – the time weekday access will end. (required if weekdays schedule is selected)
- Allow staff access – checking this box will give staff users access even if not explicitly granted in the user dialog.
- Allow user request – checking this box will allow users to request this access in Access requests.

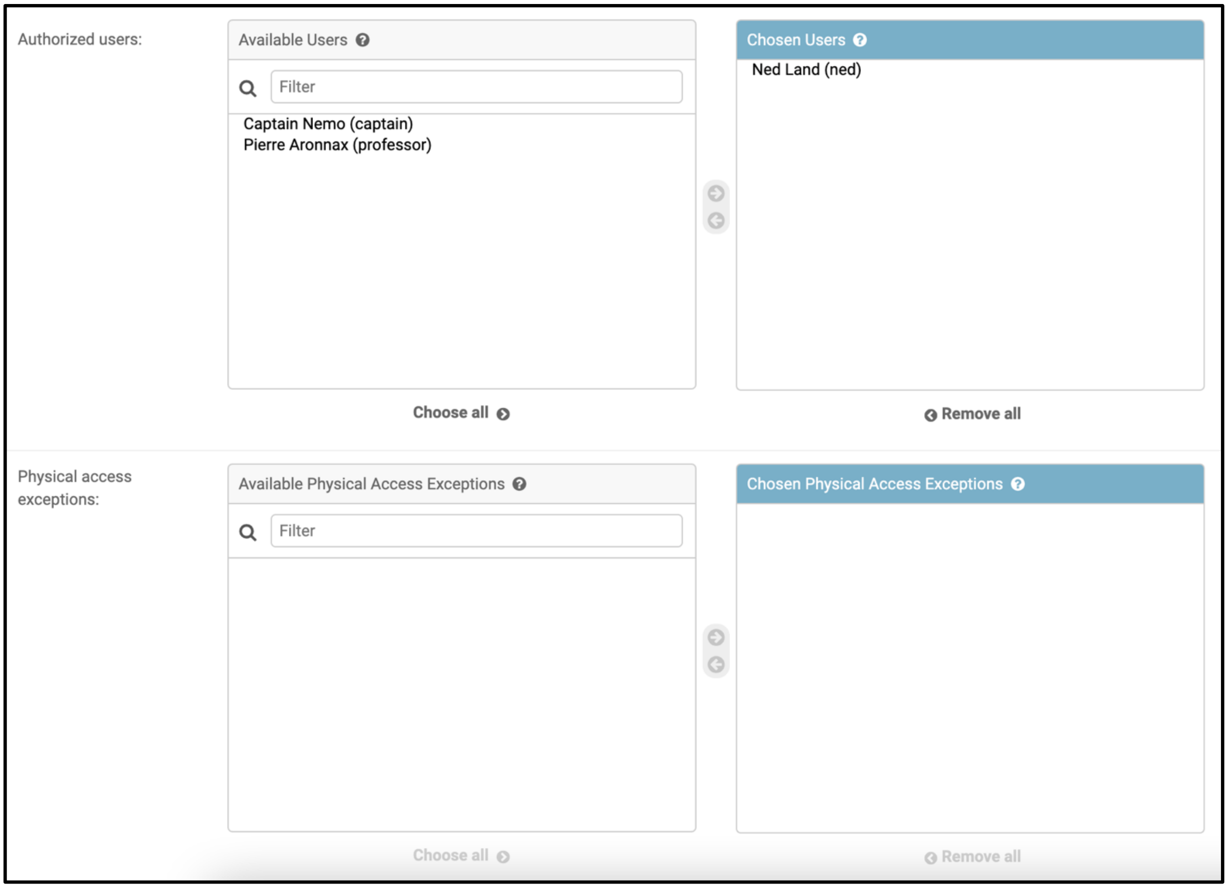


Figure 937 Physical access levels add/edit page 2

- Authorized users – select available users and use the right arrow to add to the chosen users list. Multiple users can be selected using the control or shift keys.
- Physical access exceptions – select available exceptions and use the right arrow to add to the chosen list. Multiple exceptions can be selected using the control or shift keys. More details about exceptions can be found in Detailed administration - Physical access exceptions.

39.29.4 User access page

There is no user page available to create physical access levels. Once created, permissions to access physical levels are given to users on the users page detailed starting on page 278.

39.30 Physical access logs

39.30.1 Usage

The physical access logs automatically record each time a door is accessed by a user at an entrance tablet and the access result. Doors are discussed in more detail in the entrance tablet section on page 566.

39.30.2 Summary page

The summary page provides a listing of physical access logs (Figure 938). Click the user field in the row of interest to edit.

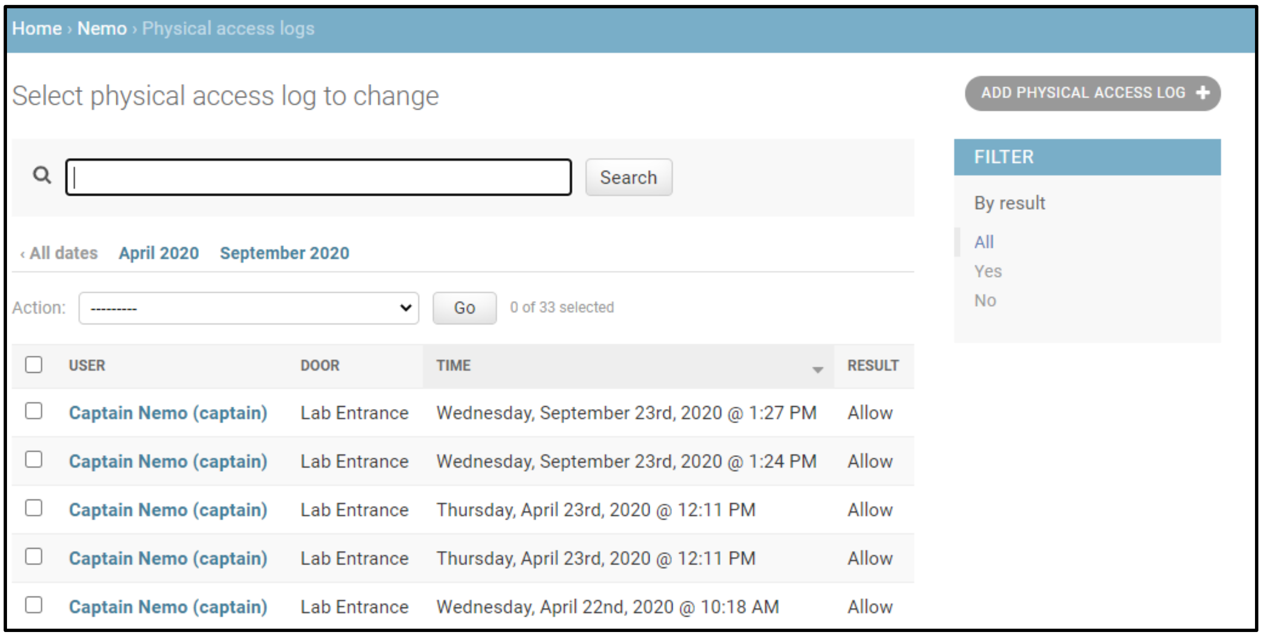


Figure 938 Physical access logs summary page

39.30.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 939). Common features in detailed administration is detailed on page 359.

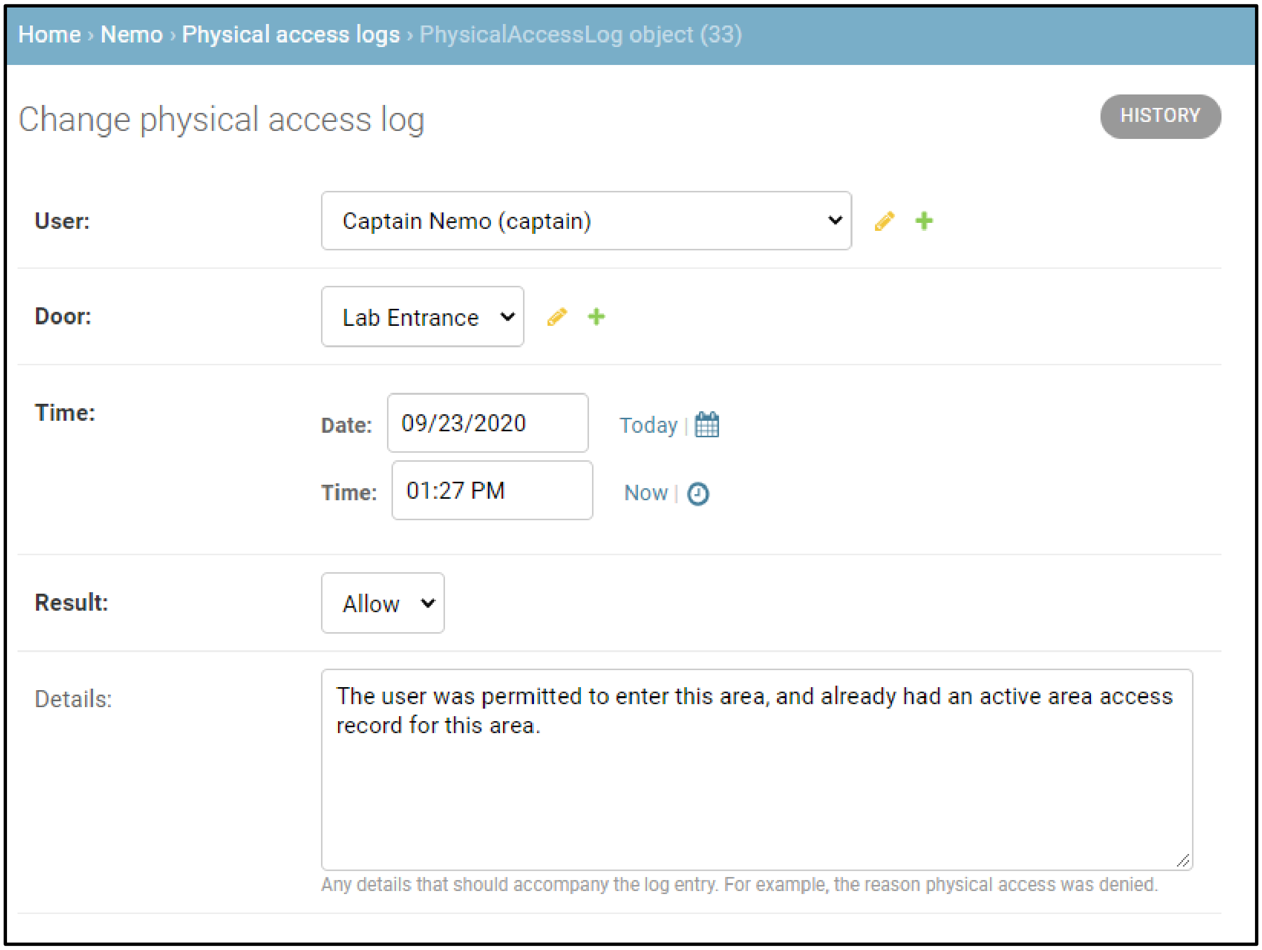


Figure 939 Physical access logs add/edit page

- User – drop down list of name of user accessing door. (required) *Users table*
- Door – drop down list of doors. (required) *Doors table*
- Time – date/time door was accessed. (required)
- Result – drop down list allow or deny. (required)
- Details – narrative of access event.

39.30.4 User access page

There is no user page available to create or edit physical access logs. Events are created automatically when a door is accessed at an entrance tablet. Doors are discussed in more detail in the entrance tablet section on page 566.

39.31 Projects

39.31.1 Usage

The projects table maintains the association of projects with a parent account and child users. For a user to access NEMO resources the user must be active on a project which is active on an account. A detailed discussion of projects can be found in the Accounts and projects section on page 191.

39.31.2 Summary page

The summary page provides a listing of projects (Figure 940). Click the name field in the row of interest to edit.

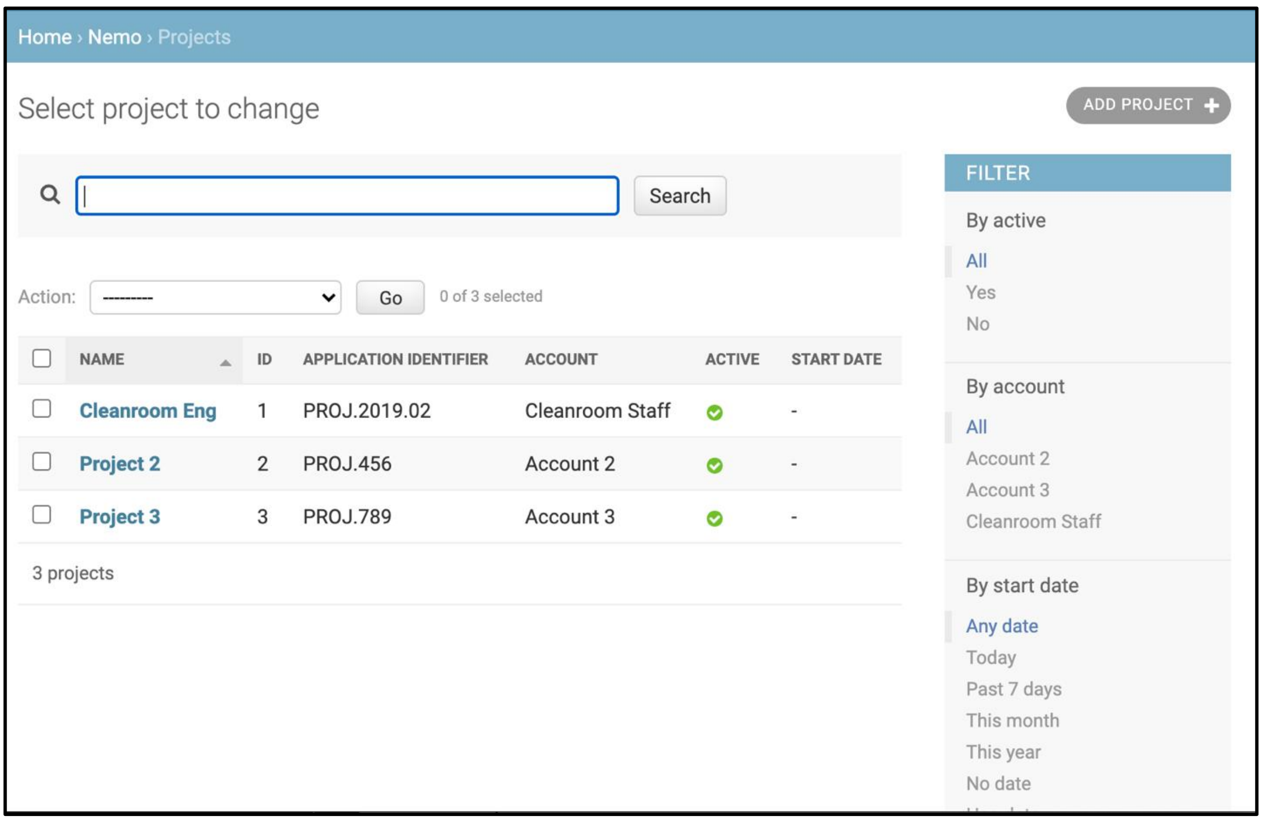


Figure 940 Projects summary page

39.31.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 941). Common features in detailed administration is detailed on page 359.

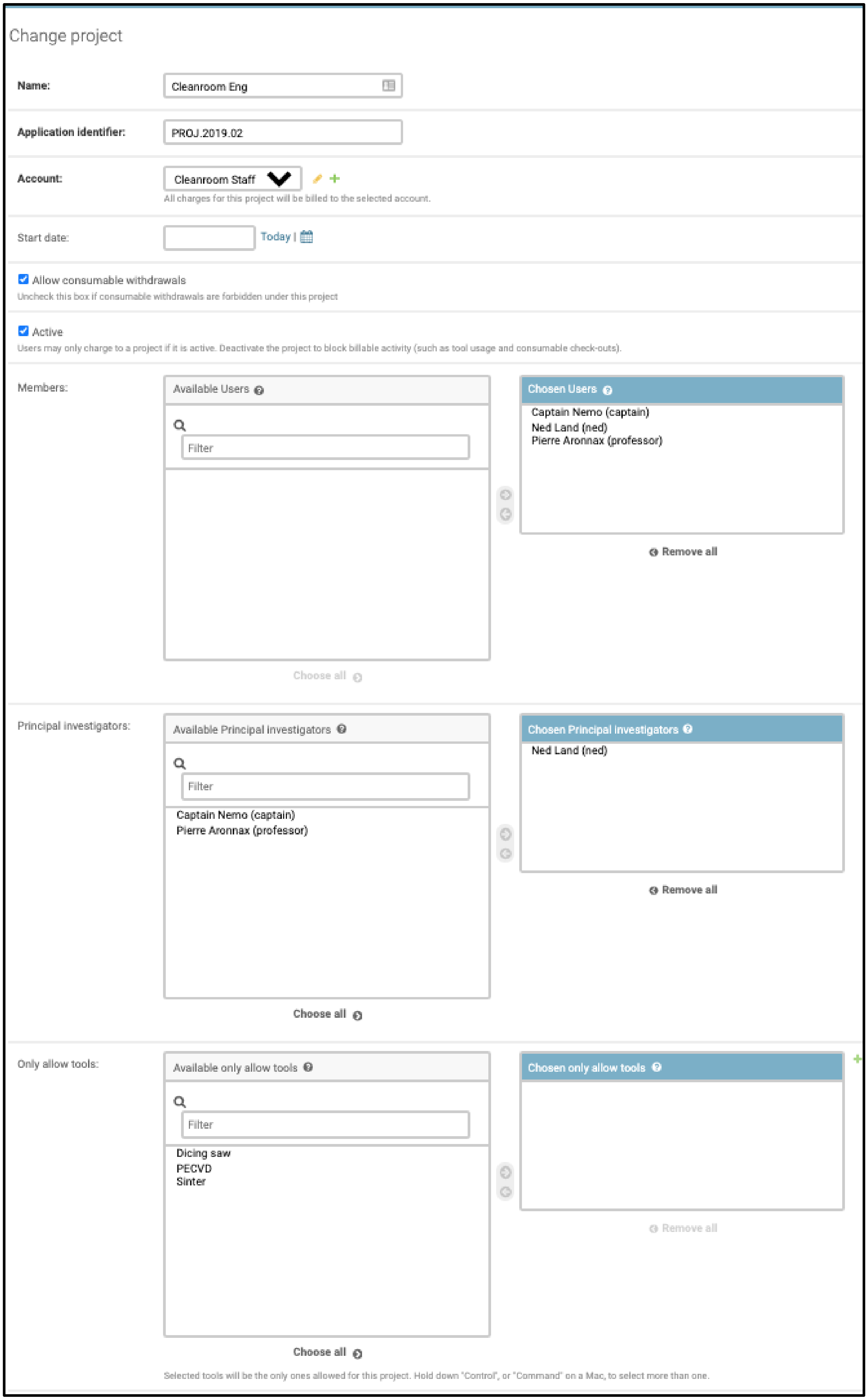

Change project
Name:
Cleanroom Eng
Application identifier:
PROJ.2019.02
Account:
Cleanroom Staff
All charges for this project will be billed to the selected account.
Start date:
Today |
Allow consumable withdrawals
Uncheck this box if consumable withdrawals are forbidden under this project
Active
Users may only charge to a project if it is active. Deactivate the project to block billable activity (such as tool usage and consumable check-outs).
Members:
Available Users
Filter
Choose all
Chosen Users
Captain Nemo (captain)
Ned Land (ned)
Pierre Aronnax (professor)
Remove all
Principal investigators:
Available Principal investigators
Filter
Captain Nemo (captain)
Pierre Aronnax (professor)
Choose all
Chosen Principal investigators
Ned Land (ned)
Remove all
Only allow tools:
Available only allow tools
Filter
Dicing saw
PECVD
Sinter
Choose all
Chosen only allow tools
Remove all
Selected tools will be the only ones allowed for this project. Hold down "Control", or "Command" on a Mac, to select more than one.

Figure 941 Projects add/edit page

- Name – descriptive name of project (required)
- Application identifier – the application identifier is not used by NEMO but is a convenient way to associate the project with external project tracking systems. (required)
- Account – select from drop down list. All charges for this project will be billed to the selected account. (required)
- Start date – the start date for this project.
- Allow consumable withdrawals – unselect to prevent consumable/supplies withdrawals for this project. Default is enabled.
- Active – users may only charge to a project if it is active. Deactivate the project to block billable activity (such as tool usage and consumable check-outs).
- Members – select available users and use the right arrow to add to the chosen users list. Multiple users can be selected using the control or shift keys.
- Principal Investigators – select available users and use the right arrow to add to the chosen users list. Multiple users can be selected using the control or shift keys
- Only allow tools – select available tools to limit billing options for this project. Users belonging to this project will only be able to reserve and enable those specific tools, and areas that this tool requires access to. Staff charges will only be available for those tools and areas they require. Training will also be limited to the tools as well.

39.31.4 User access page

Projects are administered in the Accounts and projects section detailed on page 191.

39.32 Reservation Questions

39.32.1 Usage

The reservation questions table provides a way to ask users questions when they are making a reservation.

39.32.2 Summary page

The summary page provides a listing of reservation questions (Figure 942). Click the id field in the row of interest to edit.

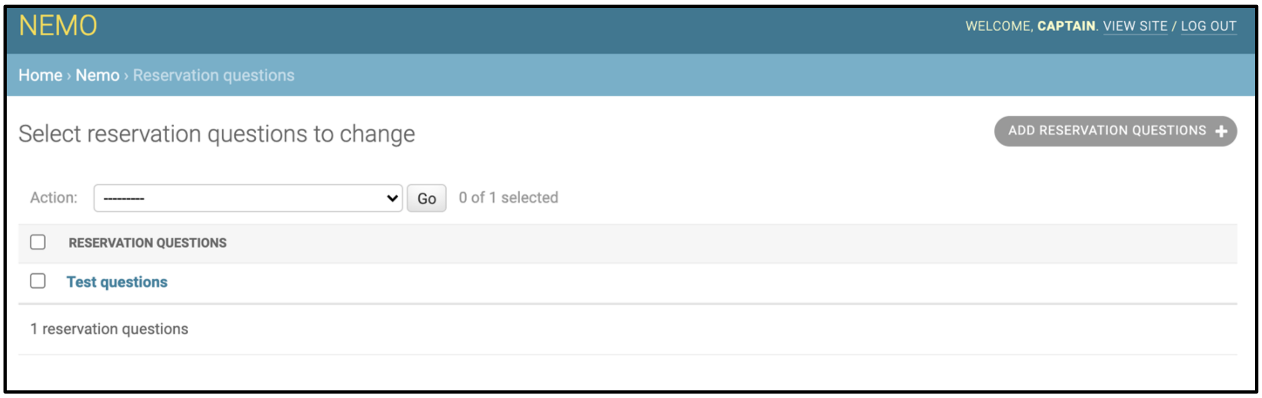


Figure 942 Reservation questions summary page

39.32.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 943). [Common features in detailed administration] is detailed on page 359.

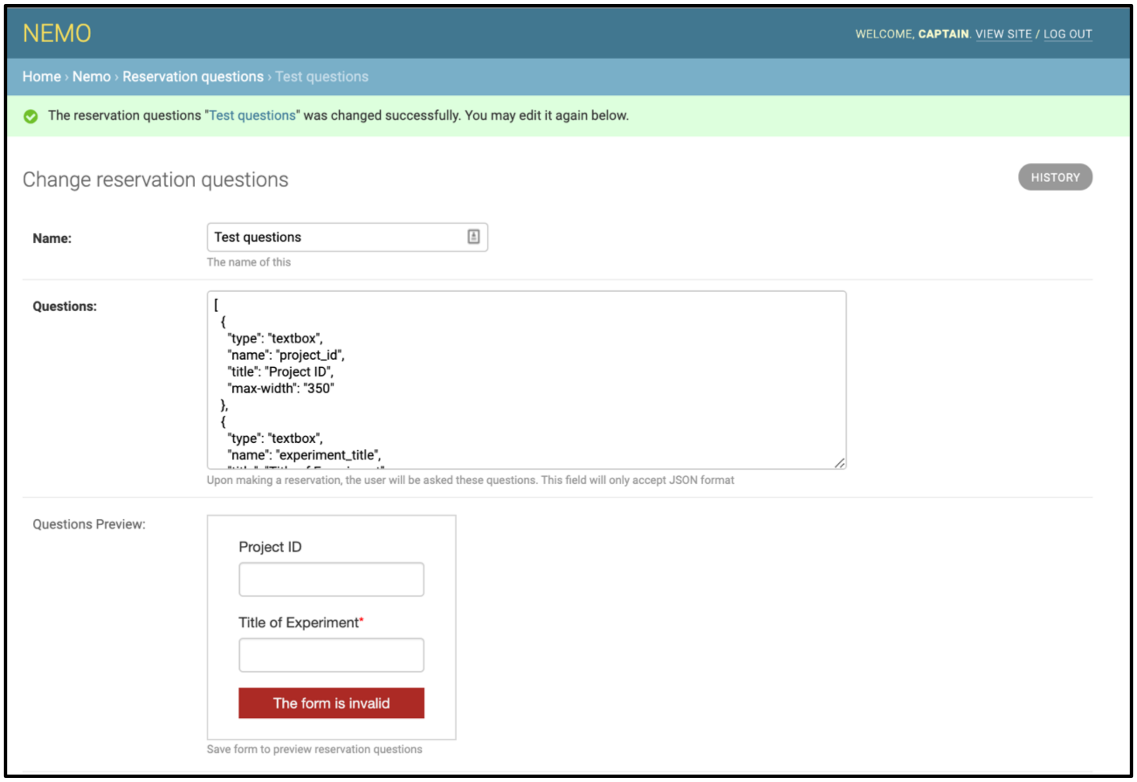


Figure 943 Reservation questions add/edit page part 1

- Name – descriptive name of reservation questions (required)
- Questions – json formatted list of questions to ask users for input when making reservations. The specific format of those questions is the same as discussed in Tool post usage questions on page 491.
- Questions preview – displays the preview of what the questions would look like.

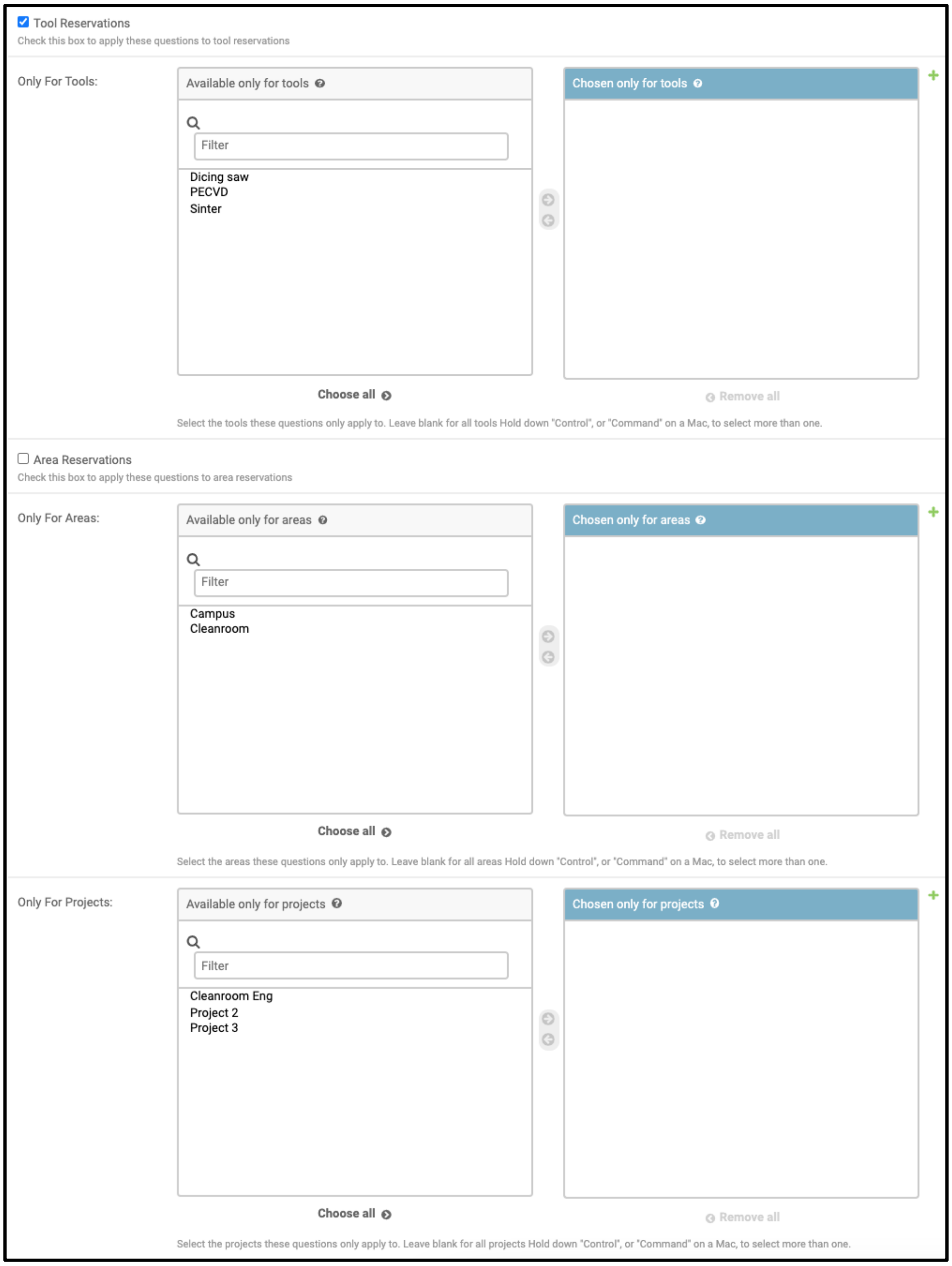


Figure 944 Reservation questions add/edit page part 2

- Tool reservations – select to apply questions to tool reservations
- Only For Tools – restrict the tools the questions apply to by selecting them. Leaving blank will apply to all tools.
- Area reservations – select to apply questions to area reservations
- Only For Areas – restrict the areas the questions apply to by selecting them. Leaving blank will apply to all areas.
- Only For Projects – restrict the reservations the questions apply to by selecting projects. Leaving blank will apply to all projects.

39.32.4 User access page

There is no user access page to create reservation questions.

39.33 Reservations

39.33.1 Usage

The reservations table maintains the association of projects with a parent account and child users. For a user to access NEMO resources the user must be active on a project which is active on an account. A detailed discussion of projects can be found in the Accounts and projects section on page 191.

39.33.2 Summary page

The summary page provides a listing of reservations (Figure 945). Click the id field in the row of interest to edit.

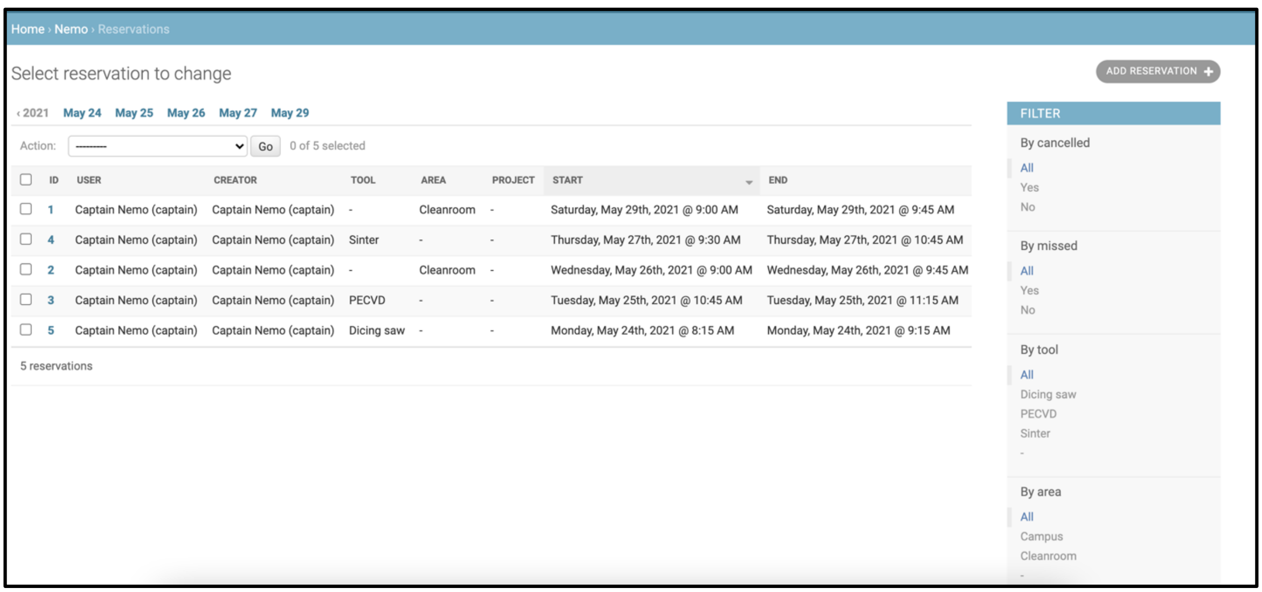


Figure 945 Reservations summary page

39.33.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 946, Figure 947). Common features in detailed administration is detailed on page 359.

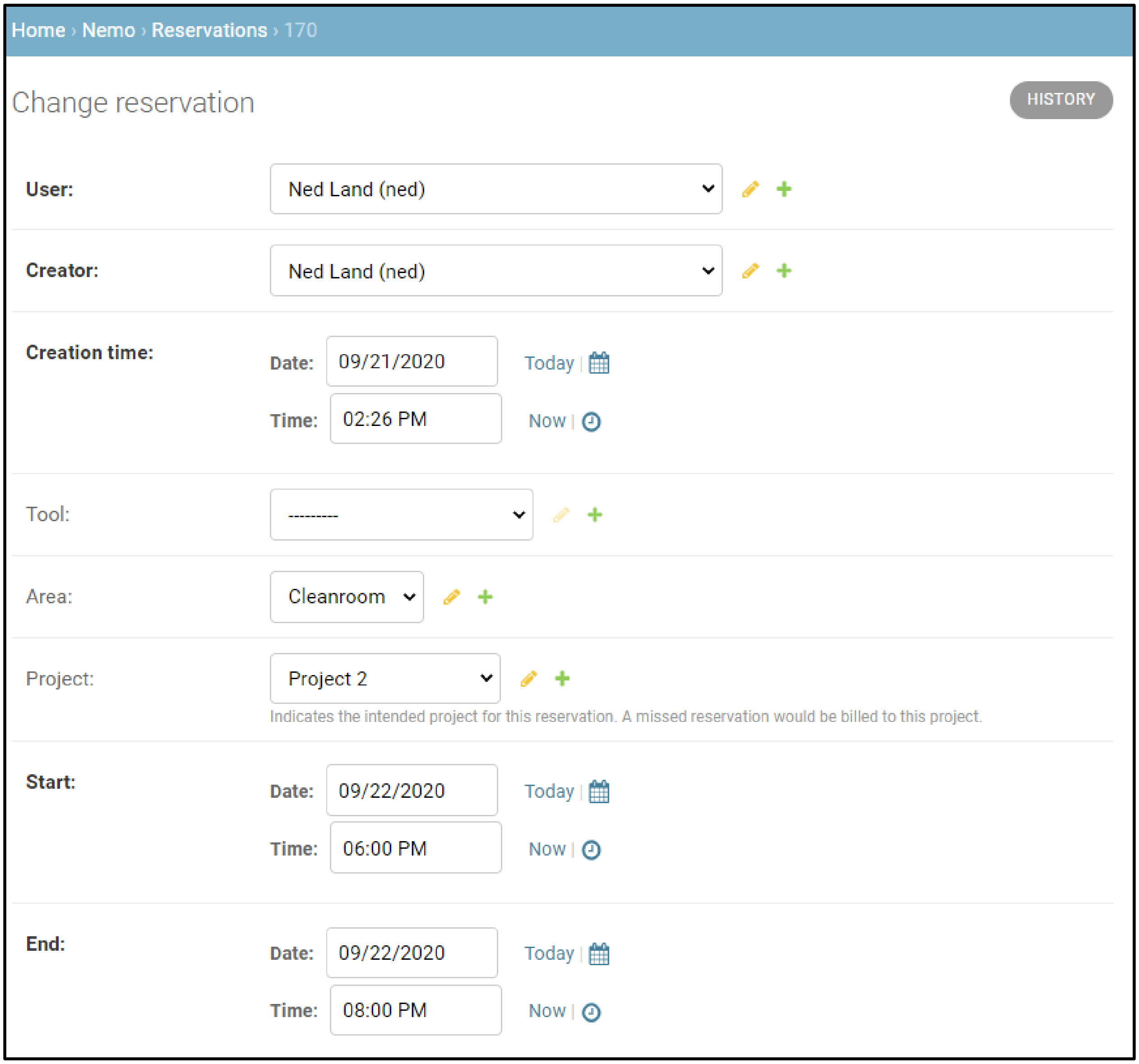


Figure 946 Reservations add/edit page part 1

- User – select from drop down name of user the reservation is for (required) *Users table*
- Creator – select from drop down name of user that created the reservation. (required) *Users table*
- Creation time – date/time the reservation was created. (required)
- Tool – select from drop down name of tool reserved. (either a tool or an area must be selected) *Tools table*
- Area – select from drop down name of area reserved. (either a tool or an area must be selected) *Area table*
- Project – select from drop down name of project to bill reservation to. A missed reservation would be billed to this project.
- Start – date/time the reservation starts. (required)
- End – date/time the reservation ends. (required)

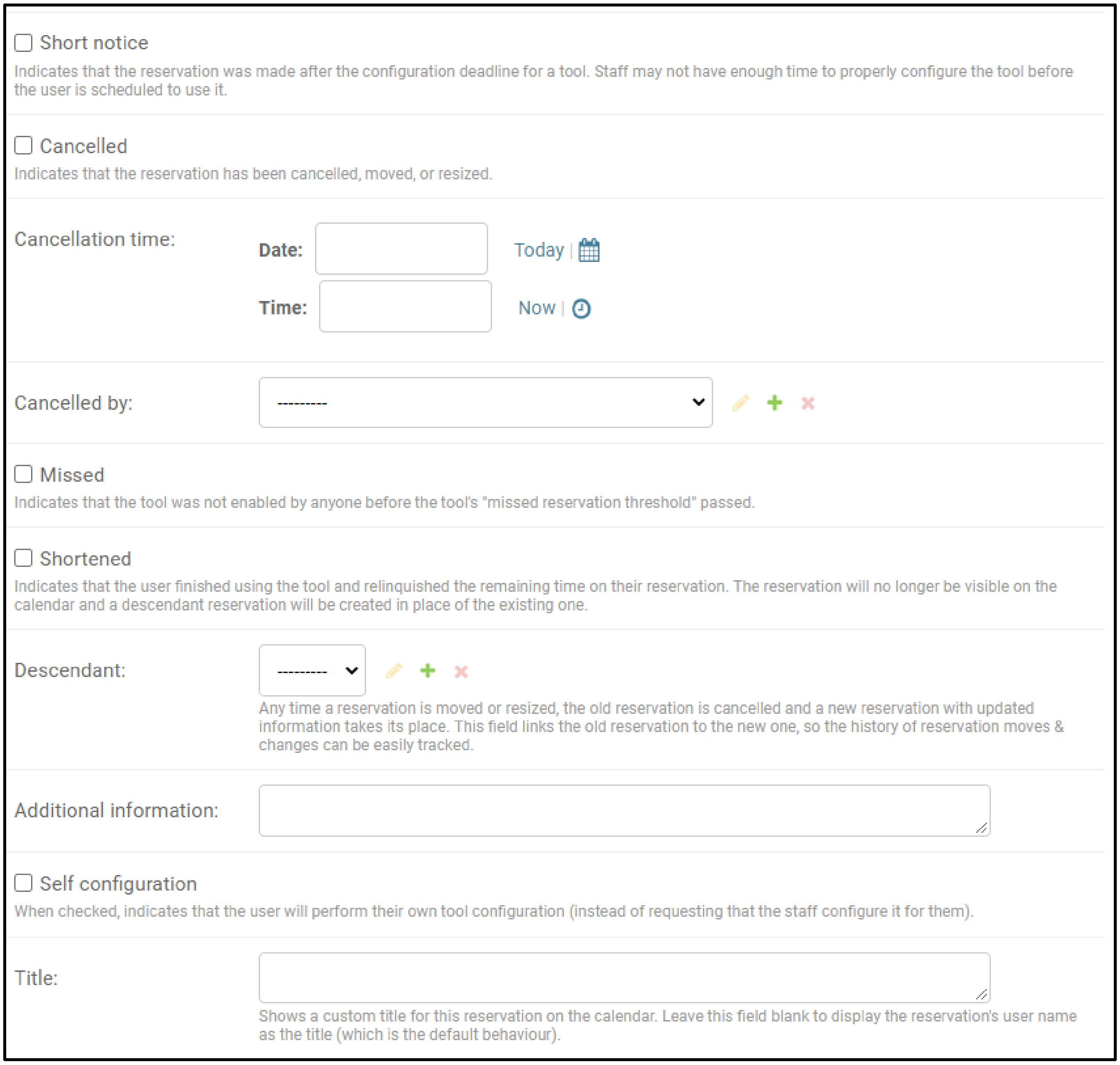


Figure 947 Reservations add/edit page part 2

- Short notice – indicates that the reservation was made after the configuration deadline for a tool. Staff may not have enough time to properly configure the tool before the user is scheduled to use it.
- Cancelled – indicates that the reservation has been cancelled, moved, or resized.
- Cancellation time – date/time the reservation was changed.
- Cancelled by – select from drop down name of user that changed the reservation *Users table*
- Missed – indicates that the tool was not enabled by anyone before the tool's "missed reservation threshold" passed. Missed reservations require a threshold set in the tool table and a timed job to check for missed reservations periodically. Missed reservations are discussed in the reservations section starting on page 59.

- Shortened – indicates that the user finished using the tool and relinquished the remaining time on their reservation. The reservation will no longer be visible on the calendar and a descendant reservation will be created in place of the existing one.
- Descendant – any time a reservation is moved or resized, the old reservation is cancelled and a new reservation with updated information takes its place. This field links the old reservation to the new one, so the history of reservation moves & changes can be easily tracked.
- Additional information – text that can be provided by a user when making a reservation on a configurable tool.
- Self-configuration – when checked, indicates that the user will perform their own tool configuration (instead of requesting that the staff configure it for them).
- Title – Shows a custom title for this reservation on the calendar. Leave this field blank to display the reservation's user name as the title (which is the default behavior).

39.33.4 User access page

Reservations are made and maintained on the calendar page and detailed starting on page 36.

39.34 Resource categories

39.34.1 Usage

Resource categories are optional but can be useful for grouping similar resources to make visualization easier. Resource categories, if used, must be created in this table view and can be any text name. Any number can be defined. If no resource categories are defined, they are not displayed on the resources page. Resource categories are discussed in the Resources section detailed on page 243.

39.34.2 Summary page

The summary page provides a listing of resource categories (Figure 948). Click the name field in the row of interest to edit.

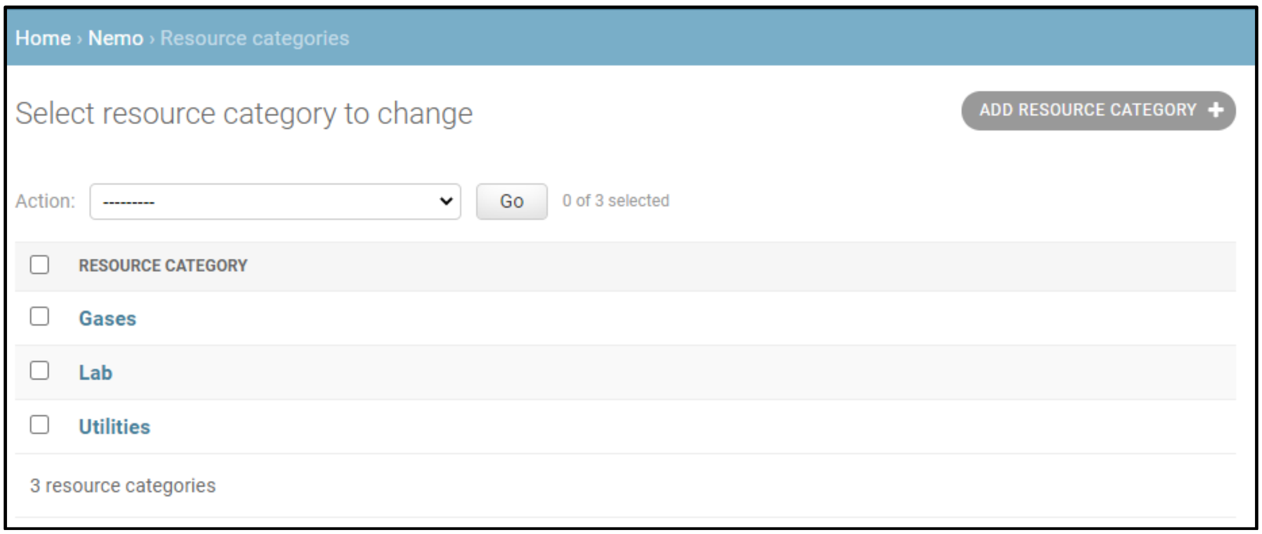


Figure 948 Resource category summary page

39.34.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 949). Common features in detailed administration is detailed on page 359.

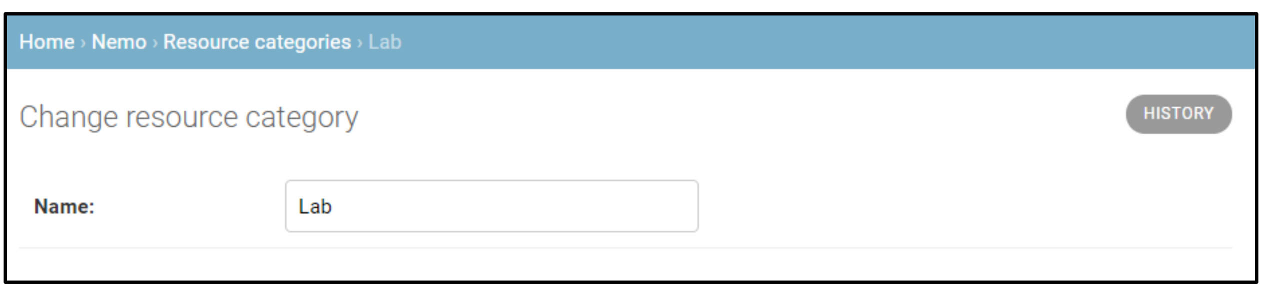


Figure 949 Resource category add/edit page

- Name – the name can be up to 200 characters (required).

39.34.4 User access page

Resource categories must be setup in this table view but are discussed in the Resources section detailed on page 243.

39.35 Resources

39.35.1 Usage

Resources provide a method to define tool dependencies such as gases, facility spaces, and utilities that can be associated with tools are either required or non-required resources. When a resource is unavailable, users are blocked from using tools or areas that require the resource and notified on tools that with a non-required association. Resources are discussed in the Resources section detailed on page 243.

39.35.2 Summary page

The summary page provides a listing of resources (Figure 950). Click the name field in the row of interest to edit.

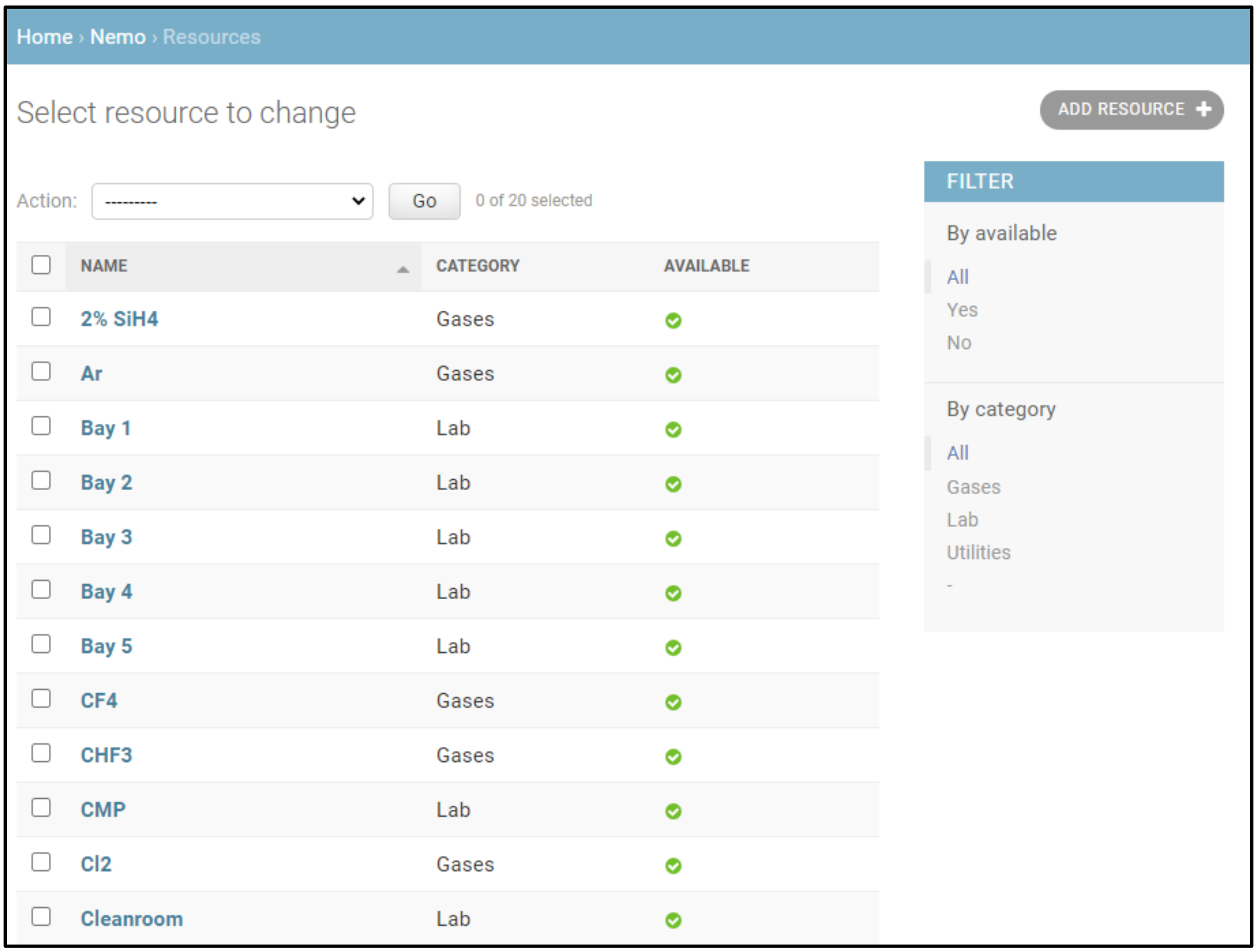


Figure 950 Resources summary page

39.35.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 951, Figure 952). Common features in detailed administration is detailed on page 359.

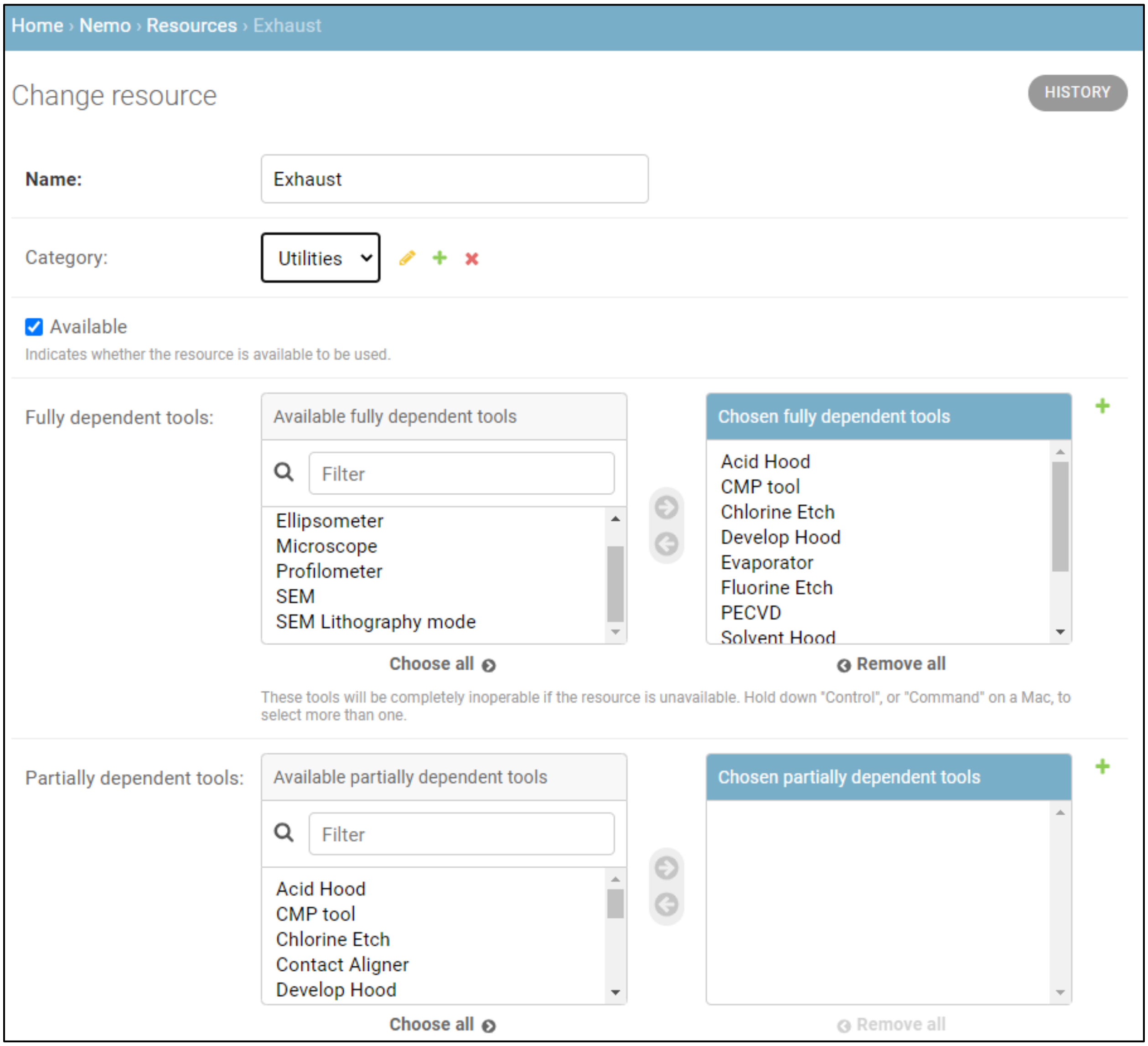


Figure 951 Resources add/edit page part 1

- Name – the name of the resource can be up to 200 characters (required).
- Category – drop down list used to group resources by similarity. *Resource categories table*
- Available – checkbox indicates whether the resource is available to be used.
- Fully dependent tools – These tools will be completely inoperable if the resource is unavailable. Hold down "Control", or "Command" on a Mac, to select more than one. *Tools table*
- Partially dependent tools – These tools depend on this resource but can operated at a reduced capacity if the resource is unavailable. Hold down "Control", or "Command" on a Mac, to select more than one. *Tools table*

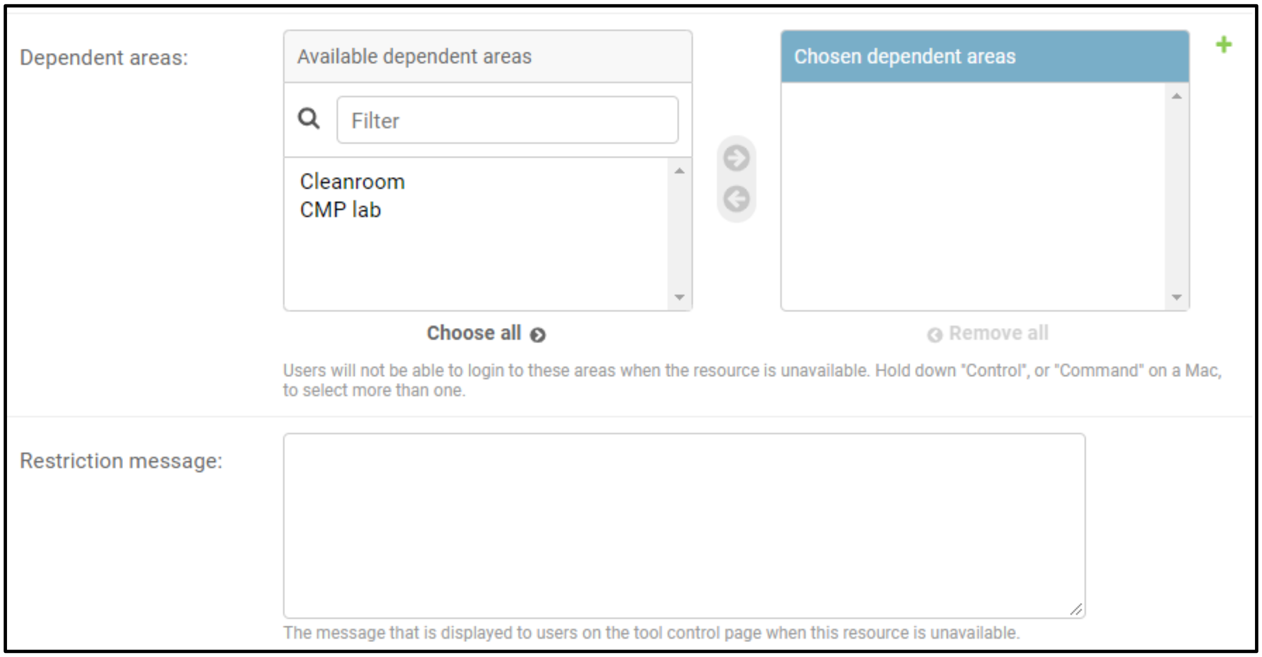


Figure 952 Resources add/edit page part 2

- Dependent Areas – Users will not be able to login to these areas when the resource is unavailable. Hold down "Control", or "Command" on a Mac, to select more than one. *Areas table*
- Restriction message – The message that is displayed to users on the tool control page when this resource is unavailable.

39.35.4 User access page

Resources must be setup in this table view but are managed in the Resources page detailed on page 243.

39.36 Safety issues

39.36.1 Usage

The safety issues table maintains a list and status of all safety issues reported through the safety page. Normally this table will not need to be edited directly. The safety section is detailed starting on page 158.

39.36.2 Summary page

The summary page provides a listing of safety issues (Figure 953). Click the ID field in the row of interest to edit.

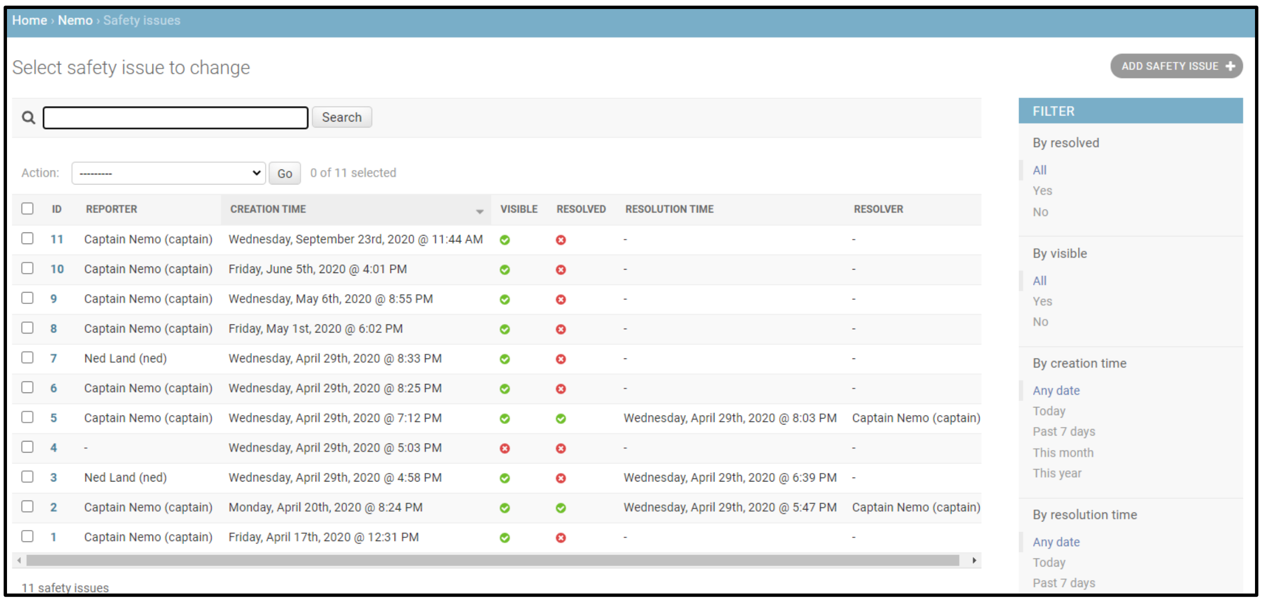


Figure 953 Safety issues summary page

39.36.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 954). Common features in detailed administration is detailed on page 359.

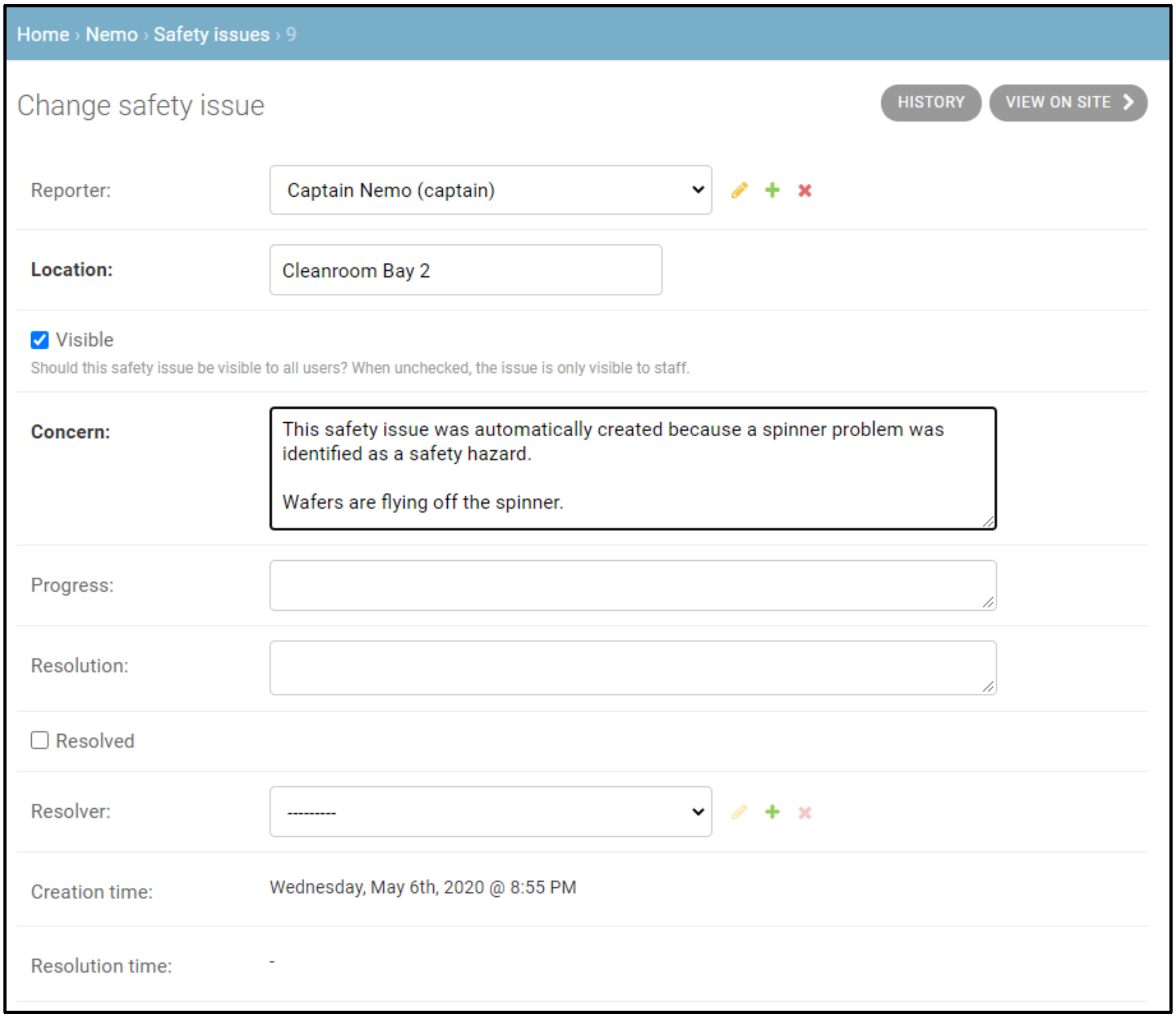


Figure 954 Safety issues add/edit page

- Reporter – drop down list select user who reported problem. (this is optional for anonymous reporting) *Users table*
- Location – text to report where the problem was observed. (required)
- Visible – checkbox, when unchecked, the issue is only visible to staff.
- Concern – narrative of safety issue found.
- Progress – narrative of actions in progress to address issue.
- Resolution – narrative of final action to address issue.
- Resolved – checkbox to indicate if the safety issue has been resolved.
- Resolver – drop down list select user who resolved the problem. *Users table*
- Creation time – information only, date/time issue was created.
- Resolution time – information only, date/time issue was resolved.

39.36.4 User access page

All safety functions are detailed in the safety section starting on page 158.

39.37 Scheduled outage categories

39.37.1 Usage

Scheduled outage categories are optional but can be useful for binning outages aiding in future analysis and trending. Scheduled outage categories, if used, must be created in this table view and can be any text name. Any number can be defined. If no scheduled outage categories are defined, they are not displayed on the scheduled outages page. Scheduled outage categories are discussed in the scheduled outages table section detailed on page 462.

39.37.2 Summary page

The summary page provides a listing of scheduled outage categories (Figure 955). Click the name field in the row of interest to edit.

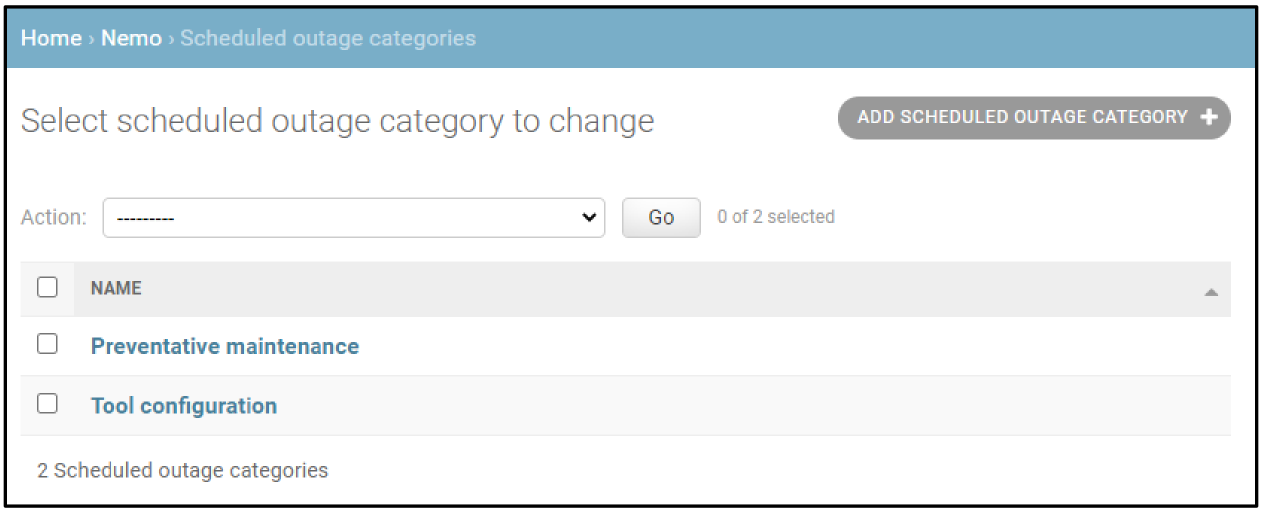


Figure 955 Scheduled outage categories summary page

39.37.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 956). Common features in detailed administration is detailed on page 359.

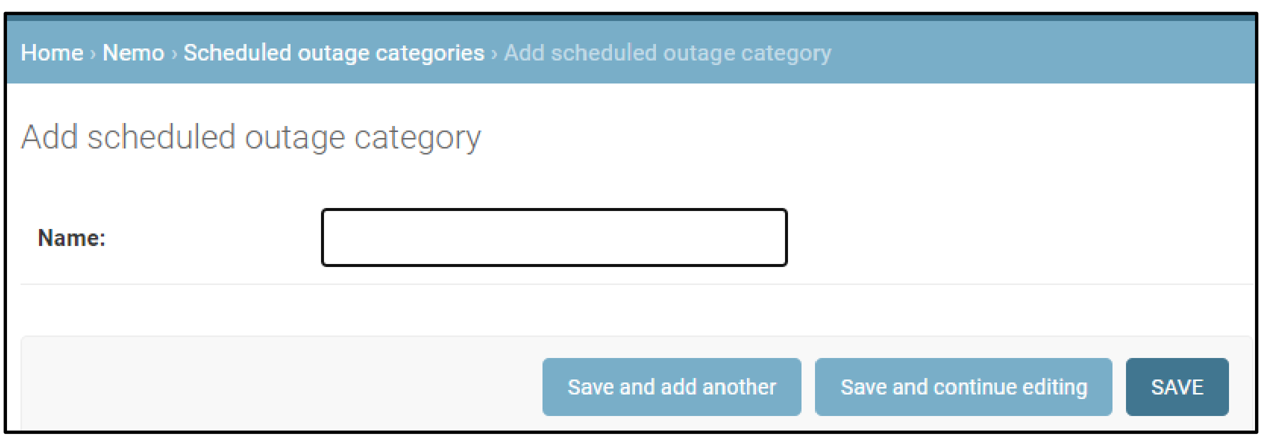


Figure 956 Scheduled outage categories add/edit page

- Name – the name can be up to 200 characters (required).

39.37.4 User access page

There is no user access page for scheduled outage categories however, scheduled outage categories usage are discussed in the scheduled outages table section detailed on page 462.

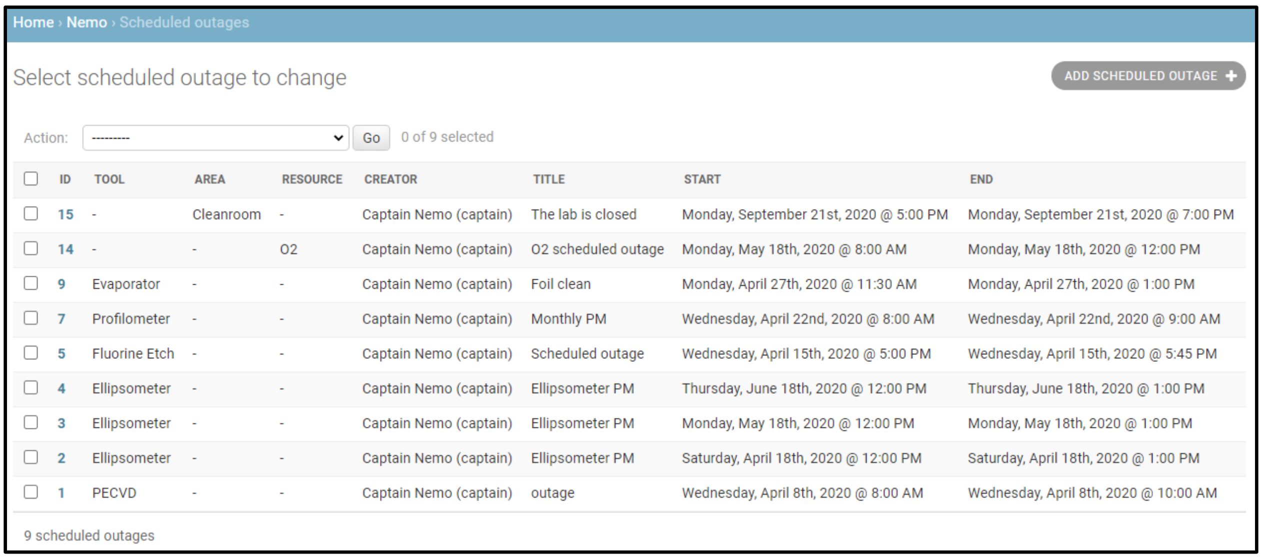
39.38 Scheduled outages

39.38.1 Usage

Scheduled outages table records outages for tools, areas, and resources. A scheduled outage is a planned shutdown that triggers automatically at the designated time and will clear automatically at the designated end time. Scheduled outages are useful for planned activities such as gas bottle changes or tool maintenance that happens in a predictable way. Scheduled outages are created and maintained on the calendar which is detailed on page 60 and the resource pages which is detailed on page 243.

39.38.2 Summary page

The summary page provides a listing of scheduled outages (Figure 957). Click the id field in the row of interest to edit.



Home › Nemo › Scheduled outages

Select scheduled outage to change

ADD SCHEDULED OUTAGE

Action: --------- Go 0 of 9 selected

ID	TOOL	AREA	RESOURCE	CREATOR	TITLE	START	END
15	-	Cleanroom	-	Captain Nemo (captain)	The lab is closed	Monday, September 21st, 2020 @ 5:00 PM	Monday, September 21st, 2020 @ 7:00 PM
14	-	-	O2	Captain Nemo (captain)	O2 scheduled outage	Monday, May 18th, 2020 @ 8:00 AM	Monday, May 18th, 2020 @ 12:00 PM
9	Evaporator	-	-	Captain Nemo (captain)	Foil clean	Monday, April 27th, 2020 @ 11:30 AM	Monday, April 27th, 2020 @ 1:00 PM
7	Profilometer	-	-	Captain Nemo (captain)	Monthly PM	Wednesday, April 22nd, 2020 @ 8:00 AM	Wednesday, April 22nd, 2020 @ 9:00 AM
5	Fluorine Etch	-	-	Captain Nemo (captain)	Scheduled outage	Wednesday, April 15th, 2020 @ 5:00 PM	Wednesday, April 15th, 2020 @ 5:45 PM
4	Ellipsometer	-	-	Captain Nemo (captain)	Ellipsometer PM	Thursday, June 18th, 2020 @ 12:00 PM	Thursday, June 18th, 2020 @ 1:00 PM
3	Ellipsometer	-	-	Captain Nemo (captain)	Ellipsometer PM	Monday, May 18th, 2020 @ 12:00 PM	Monday, May 18th, 2020 @ 1:00 PM
2	Ellipsometer	-	-	Captain Nemo (captain)	Ellipsometer PM	Saturday, April 18th, 2020 @ 12:00 PM	Saturday, April 18th, 2020 @ 1:00 PM
1	PECVD	-	-	Captain Nemo (captain)	outage	Wednesday, April 8th, 2020 @ 8:00 AM	Wednesday, April 8th, 2020 @ 10:00 AM

9 scheduled outages

Figure 957 Scheduled outages summary page

39.38.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 958). Common features in detailed administration is detailed on page 359.

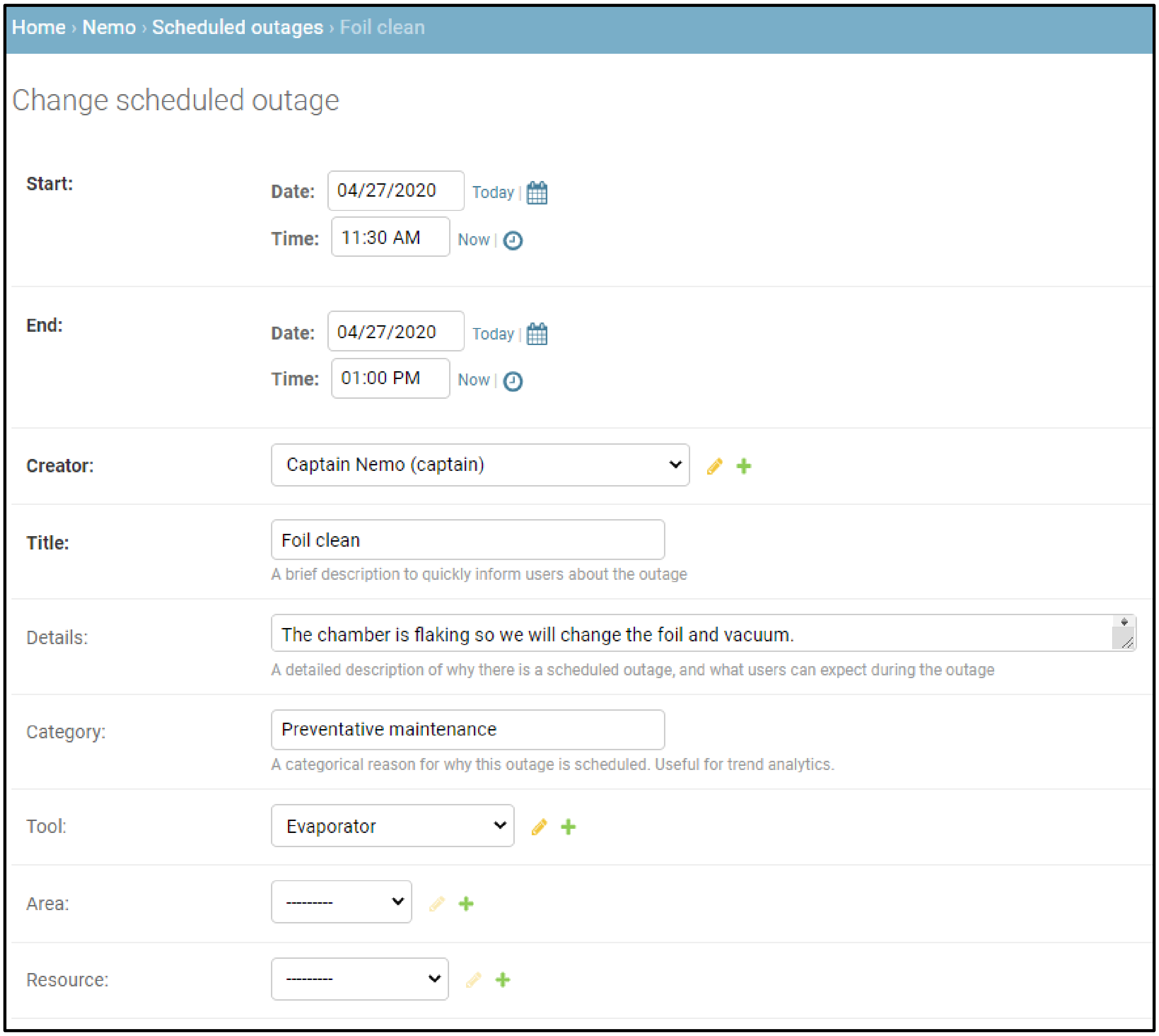


Figure 958 Scheduled outages add/edit page

- Start – date/time scheduled outage will start. (required)
- End – date/time scheduled outage will end. (required)
- Creator – drop down list select user that created the scheduled outage. (required) *Users table*
- Title – a brief description to quickly inform users about the outage. (required)
- Details – a detailed description of why there is a scheduled outage, and what users can expect during the outage.
- Category – grouping similar outages for future analysis. *Scheduled outage categories table*
- Tool – drop down list select tool. (required to have one tool, area, or resource selected) *Tools table*
- Area – drop down list select tool. (required to have one tool, area, or resource selected) *Areas table*

- Resource – drop down list select tool. (required to have one tool, area, or resource selected) *Resources table*

39.38.4 User access page

Scheduled outages are created and maintained on the calendar which is detailed on page 60 and the resource pages which is detailed on page 243.

39.39 Staff absence types

39.39.1 Usage

Staff absence types are used to represent the different types of absences for staff members. Examples would be Annual leave, Sick leave etc.
Absence types are used to create absences in [Detailed administration -> Staff absences]() and in the [Staff status]() page.

39.39.2 Summary page

The summary page provides a listing of staff absence types (Figure 959). Click the name field in the row of interest to edit.

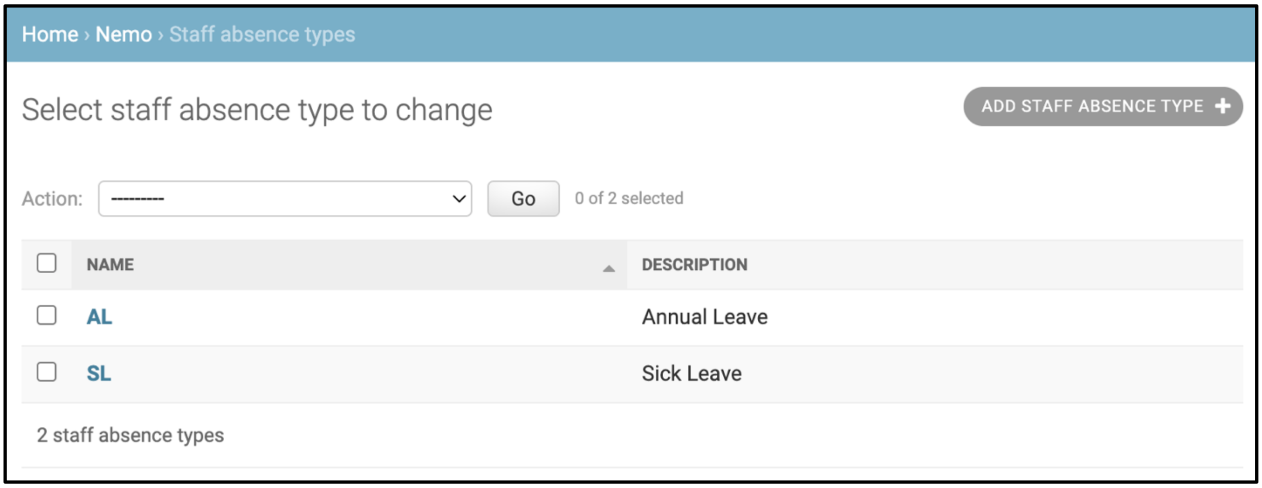


Figure 959 Staff absence types summary page

39.39.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 960). [Common features in detailed administration]() is detailed on page 359.

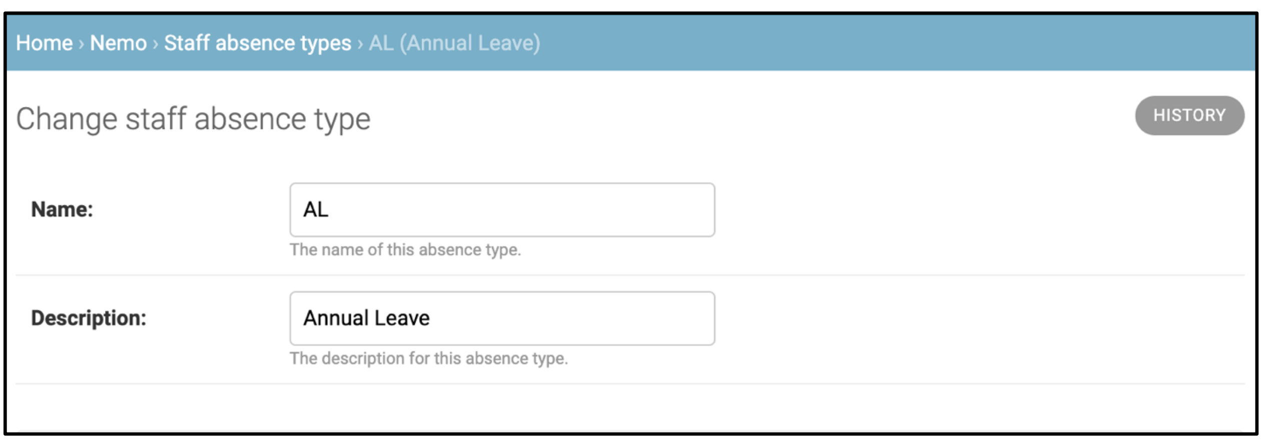


Figure 960 Staff absence types add/edit page

- Name – name of the absence type
- Description – longer description of the absence type

39.39.4 User access page

There is no user access page to create staff absence types. However, staff absence types are used on the absence type dropdown of the Create a new absence page.

39.40 Staff absences

39.40.1 Usage

Staff absences record when staff members are absent or on leave. Absences are discussed in details on the Staff status page.

39.40.2 Summary page

The summary page provides a listing of staff absences (Figure 961). Click the creation time field in the row of interest to edit.

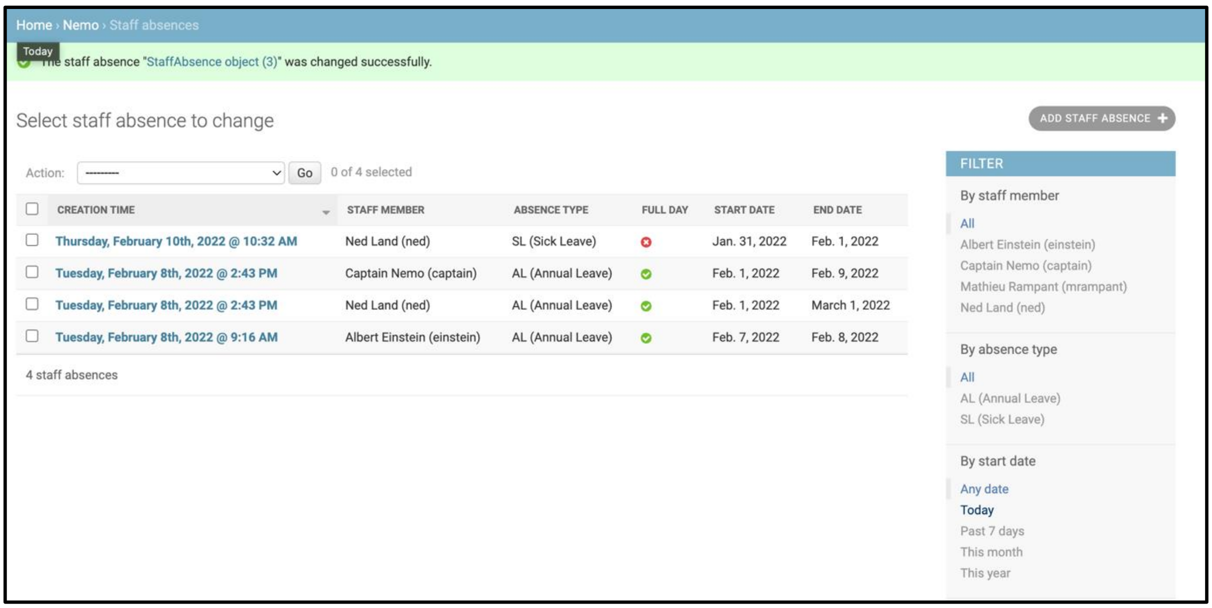


Figure 961 Staff absences summary page

39.40.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 962). Common features in detailed administration is detailed on page 359.

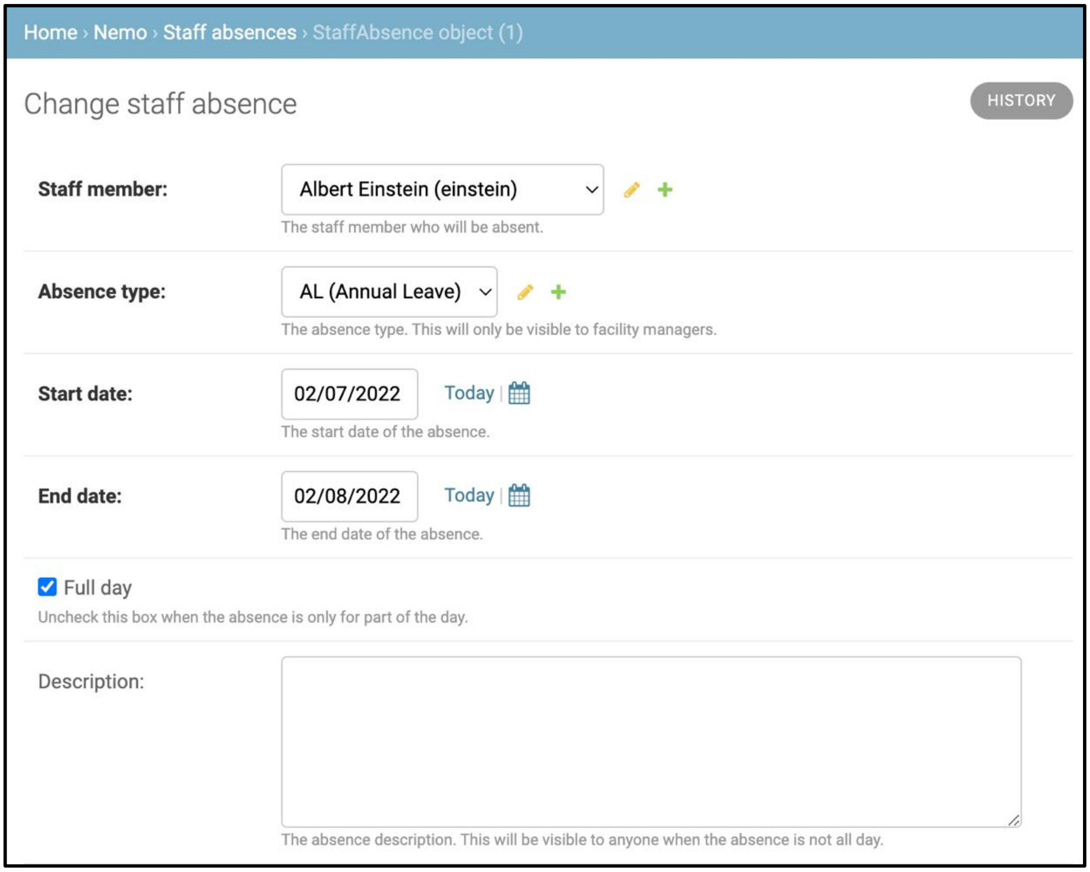


Figure 962 Staff absence add/edit page

- Staff member – the staff member that will be absent. This is **not** a reference to a user but rather a reference to Staff availability
- Absence type – the absence type as defined in Staff absence types
- Start date – the start date of the staff absence
- End date – the end date of the staff absence
- Full day – whether the absence is for the whole day or partial
- Description – the absence description, which will be displayed to all users if this absence is partial. Use this field to specify the partial absence information, for example "Out until 2pm"

39.40.4 User access page

Staff absences can be created by facility managers in the staff status page of the status dashboard. See Create a new absence for more details.

39.41 Staff availability

39.41.1 Usage

The staff availability provides a place to set staff working categories (shifts for examples), working days, and working hours. It is used when creating staff absences.

39.41.2 Summary page

The summary page provides a listing of staff availabilities (Figure 963). Click the staff member field in the row of interest to edit.

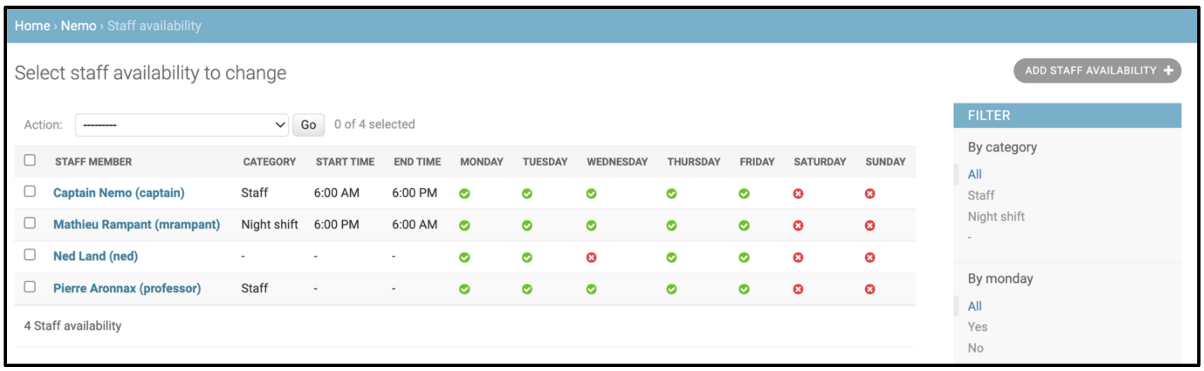


Figure 963 Staff availability summary page

39.41.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 964). [Common features in detailed administration](#) is detailed on page 359.

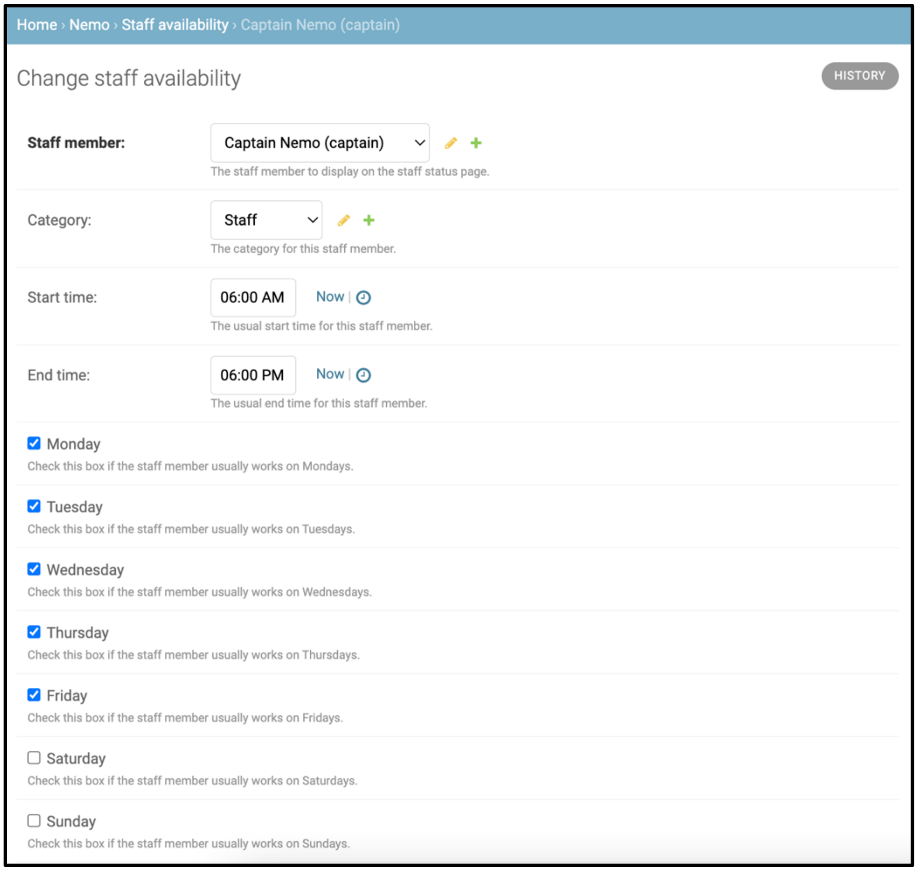


Figure 964 Staff availability add/edit page

- Staff member – the staff member to appear in the staff status list
- Category – the staff category that will be displayed on the staff status
- Start time – the typical daily start time of the staff member (optional)
- End time – the typical daily end time of the staff member (optional
- Monday – whether the staff member typically works on Mondays
- Tuesday – whether the staff member typically works on Tuesdays
- Wednesday – whether the staff member typically works on Wednesdays
- Thursday – whether the staff member typically works on Thursdays
- Friday – whether the staff member typically works on Fridays
- Saturday – whether the staff member typically works on Saturdays
- Sunday – whether the staff member typically works on Sundays

39.41.4 User access page

There is no user access page to create staff availabilities. However, staff availabilities are used on the staff member dropdown of the Create a new absence page.

39.42 Staff availability categories

39.42.1 Usage

Staff availability categories are optional but can be useful for grouping types of staff on the Staff Status page. Staff availability categories, if used, must be created in this table view and can be any text name. Any number can be defined. If no categories are defined, all staff will be listed in alphabetical order.

39.42.2 Summary page

The summary page provides a listing of staff availability categories (Figure 965). Click the name field in the row of interest to edit.

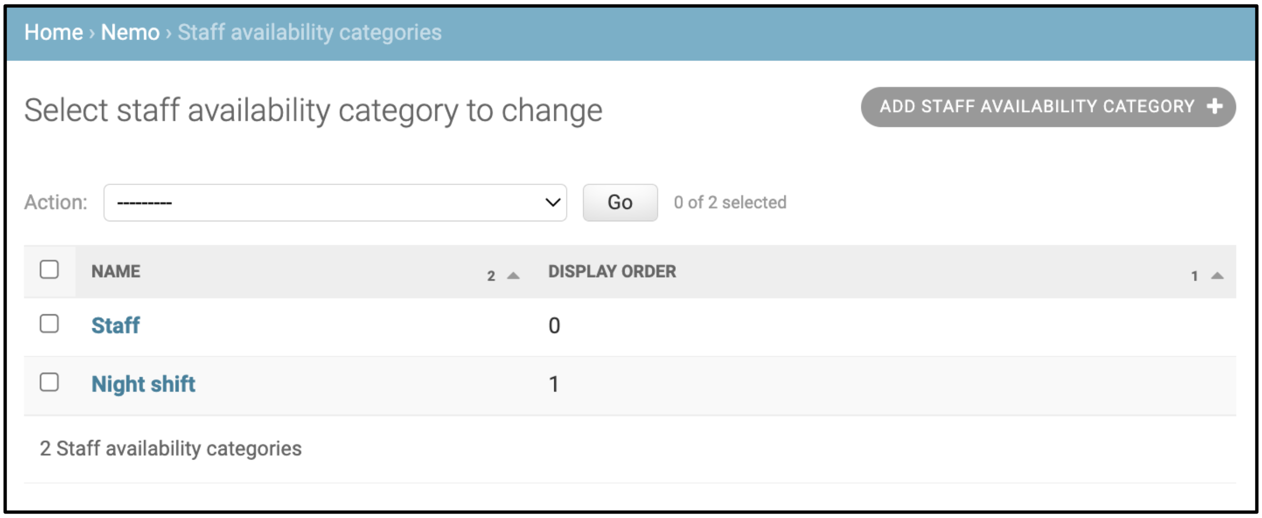


Figure 965 Staff availability categories summary page

39.42.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 966). Common features in detailed administration is detailed on page 359.

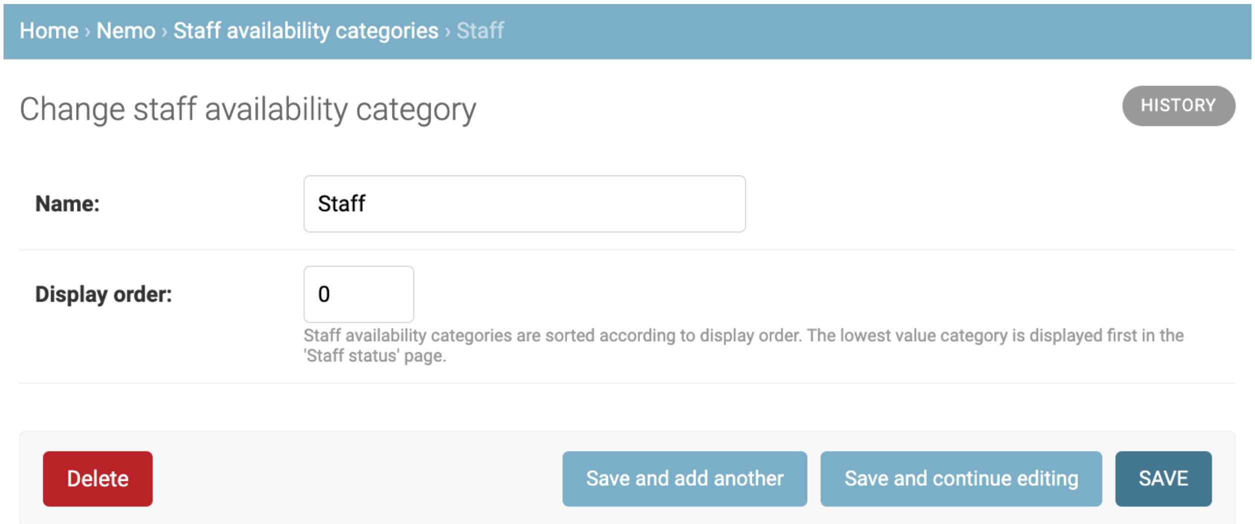


Figure 966 Staff availability categories add/edit page

- Name – the name can be up to 200 characters (required).
- Display order – Staff availability categories are sorted according to display order. The lowest value category is displayed first in the 'Staff status' page. (required)

39.42.4 User access page

There is no user access page to create staff availability categories. However, the categories are displayed on the staff status page.

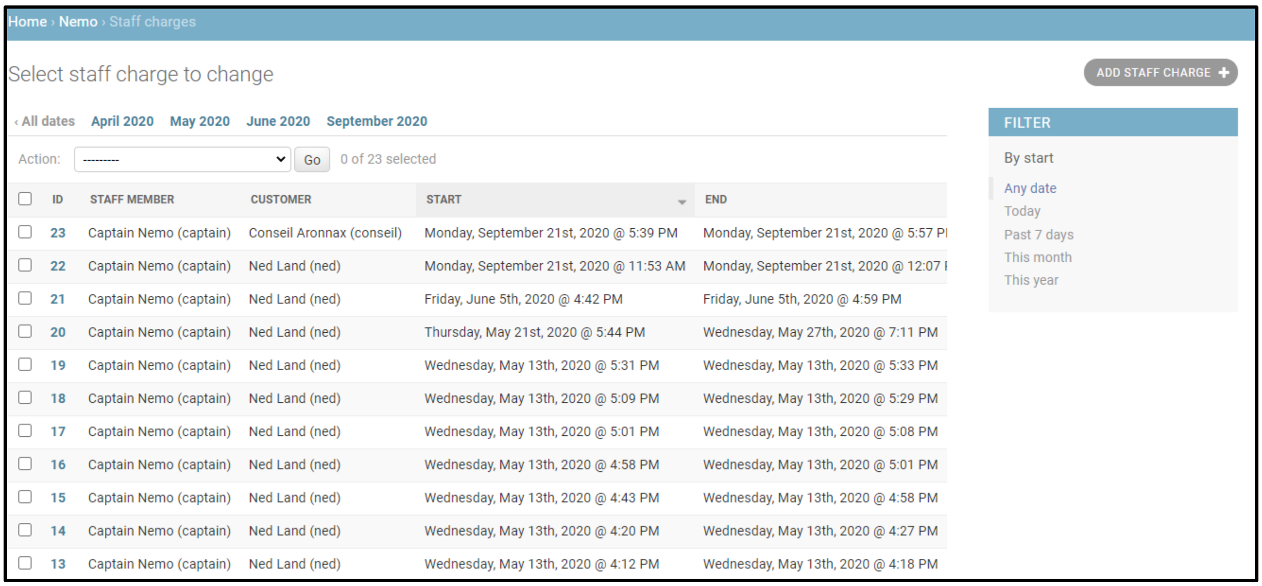
39.43 Staff charges

39.43.1 Usage

The staff charges table records the time that a staff member has performed work on behalf of another user. Staff charges are detailed in the staff charges section starting on page 254.

39.43.2 Summary page

The summary page provides a listing of staff charges (Figure 967). Click the id field in the row of interest to edit.



ID	STAFF MEMBER	CUSTOMER	START	END
23	Captain Nemo (captain)	Conseil Aronnax (conseil)	Monday, September 21st, 2020 @ 5:39 PM	Monday, September 21st, 2020 @ 5:57 PI
22	Captain Nemo (captain)	Ned Land (ned)	Monday, September 21st, 2020 @ 11:53 AM	Monday, September 21st, 2020 @ 12:07 I
21	Captain Nemo (captain)	Ned Land (ned)	Friday, June 5th, 2020 @ 4:42 PM	Friday, June 5th, 2020 @ 4:59 PM
20	Captain Nemo (captain)	Ned Land (ned)	Thursday, May 21st, 2020 @ 5:44 PM	Wednesday, May 27th, 2020 @ 7:11 PM
19	Captain Nemo (captain)	Ned Land (ned)	Wednesday, May 13th, 2020 @ 5:31 PM	Wednesday, May 13th, 2020 @ 5:33 PM
18	Captain Nemo (captain)	Ned Land (ned)	Wednesday, May 13th, 2020 @ 5:09 PM	Wednesday, May 13th, 2020 @ 5:29 PM
17	Captain Nemo (captain)	Ned Land (ned)	Wednesday, May 13th, 2020 @ 5:01 PM	Wednesday, May 13th, 2020 @ 5:08 PM
16	Captain Nemo (captain)	Ned Land (ned)	Wednesday, May 13th, 2020 @ 4:58 PM	Wednesday, May 13th, 2020 @ 5:01 PM
15	Captain Nemo (captain)	Ned Land (ned)	Wednesday, May 13th, 2020 @ 4:43 PM	Wednesday, May 13th, 2020 @ 4:58 PM
14	Captain Nemo (captain)	Ned Land (ned)	Wednesday, May 13th, 2020 @ 4:20 PM	Wednesday, May 13th, 2020 @ 4:27 PM
13	Captain Nemo (captain)	Ned Land (ned)	Wednesday, May 13th, 2020 @ 4:12 PM	Wednesday, May 13th, 2020 @ 4:18 PM

Figure 967 Staff charges summary page

39.43.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 968). Common features in detailed administration is detailed on page 359.

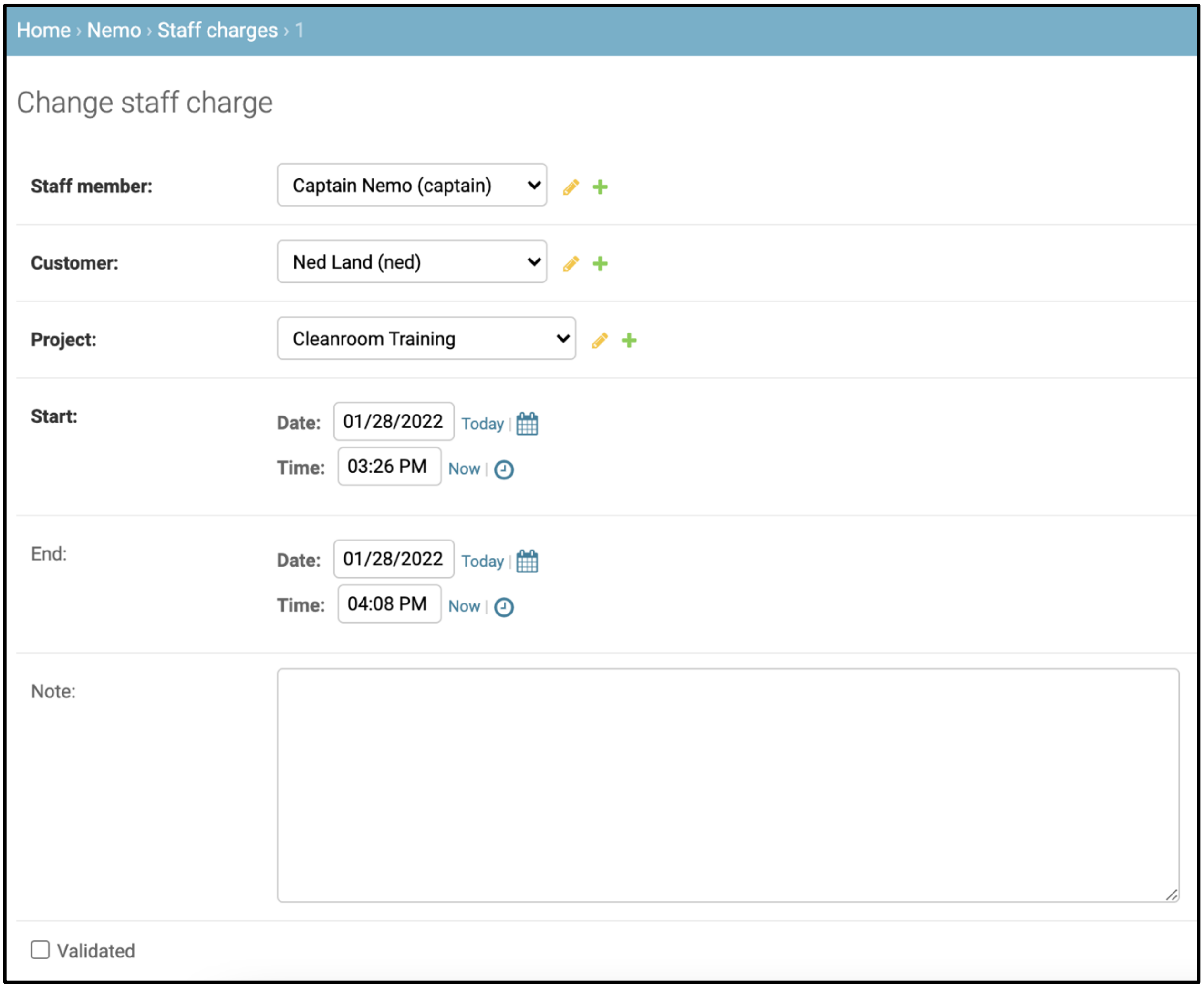


Figure 968 Staff charges add/edit page

- Staff member – drop down list select staff user that will perform the work. (required) *Users table*
- Customer – drop down list select user that work will be billed to. (required) *Users table*
- Project – drop down list select project to charge against. (required) *Projects table*
- Start – date/time scheduled outage will start. (required)
- End – date/time scheduled outage will end.
- Note – text description of the charge.
- Validated – checkbox to indicate if a staff member has confirmed the charge is valid and correct.

39.43.4 User access page

Staff charges are created and managed on the staff charges page which is detailed starting on page 254.

39.44 Task categories

39.44.1 Usage

Task categories are optional but can be useful for binning tasks aiding in future analysis and trending. Task categories, if used, must be created in this table view and can be any text name. Any number can be defined. Also, they can be defined for use as initial problem categories or final problem categories. If no task categories are defined, they are not displayed on the tasks page. Task categories are discussed in the Report a problem tab of the Tool control page detailed on page 116.

39.44.2 Summary page

The summary page provides a listing of task categories (Figure 969). Click the name field in the row of interest to edit.

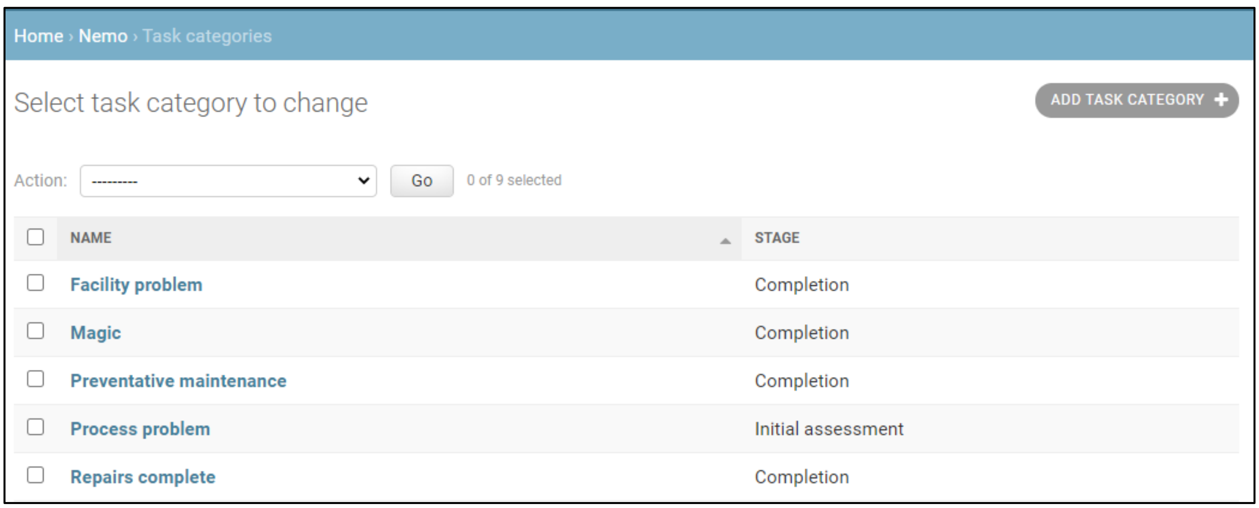


Figure 969 Task categories summary page

39.44.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 970). Common features in detailed administration is detailed on page 359.

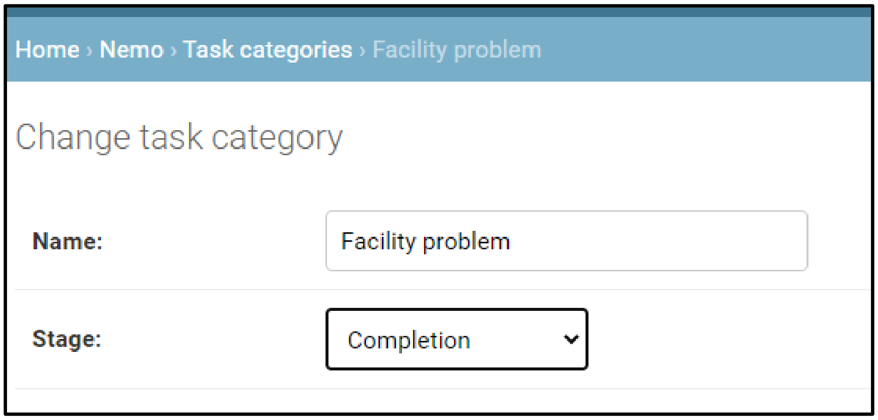


Figure 970 Task categories add/edit page

- Name – the name can be up to 200 characters (required).
- Stage – drop down list select either initial or completion (required).

39.44.4 User access page

There is no user access page to create task categories. However, task categories are discussed in the Report a problem tab of the Tool control page detailed on page 116.

39.45 Task statuses

39.45.1 Usage

Task statuses are optional but can be used to update various staff as a problem progresses to resolution. For example, once the maintenance team has finished a repair, they can change the status to qualification which notifies the process engineer that the tool is ready to requalify. Task statuses, if used, must be created in this table view and number can be defined. If no task statuses are defined, they are not displayed on the tasks page. Task statuses are discussed in the Report a problem tab of the Tool control page detailed on page 116.

39.45.2 Summary page

The summary page provides a listing of task statuses (Figure 971). Click the name field in the row of interest to edit.

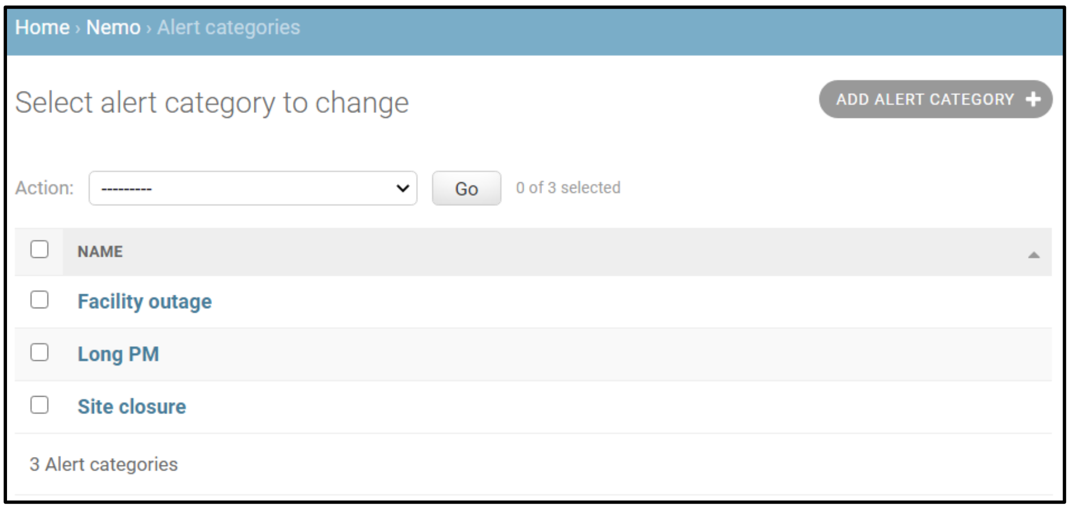


Figure 971 Task statuses summary page

39.45.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 972). Common features in detailed administration is detailed on page 359.

Figure 972 Task statuses add/edit page

- Name – the name can be up to 200 characters (required).

39.45.4 User access page

There is no user access page to create task statuses however, task statuses are discussed in the Report a problem tab of the Tool control page detailed on page 116.

39.46 Tasks

39.46.1 Usage

Tasks are used to track problems with tools statuses are optional but can be used to update various staff as a problem progresses to resolution. For example, once the maintenance team has finished a repair, they can change the status to qualification which notifies the process engineer that the tool is ready to requalify. Task statuses, if used, must be created in this table view and number can be defined. If no task statuses are defined, they are not displayed on the tasks page. Task statuses are discussed in the Report a problem tab of the Tool control page detailed on page 116.

39.46.2 Summary page

The summary page provides a listing of tasks (Figure 973). Click the id field in the row of interest to edit.

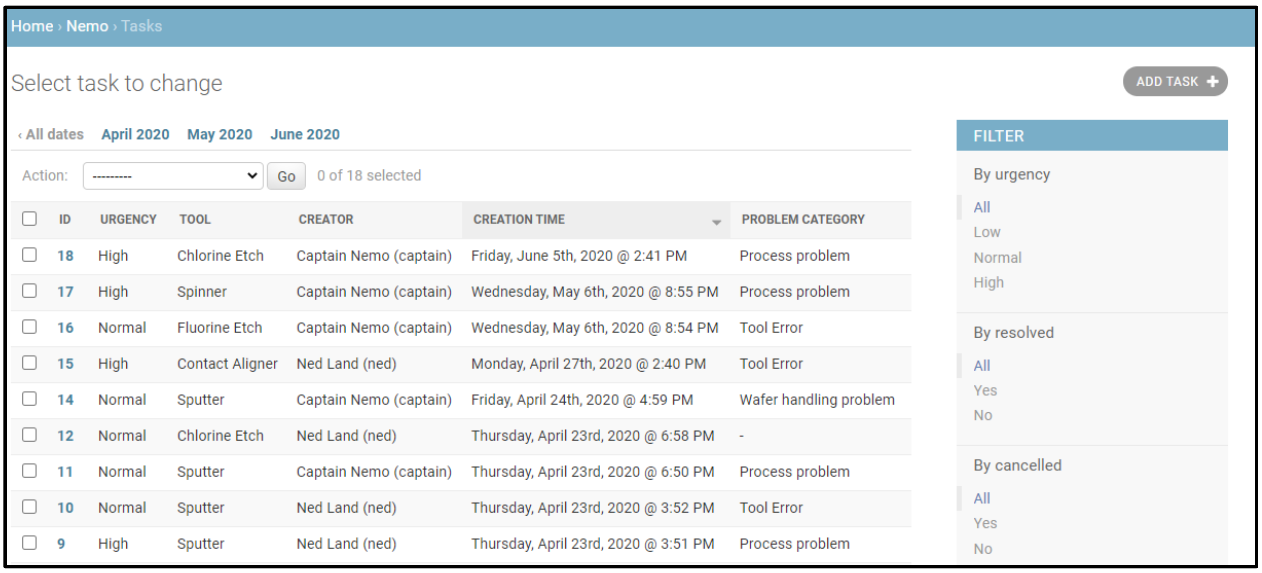


Figure 973 Task statuses summary page

39.46.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 974, Figure 975). Common features in detailed administration is detailed on page 359.

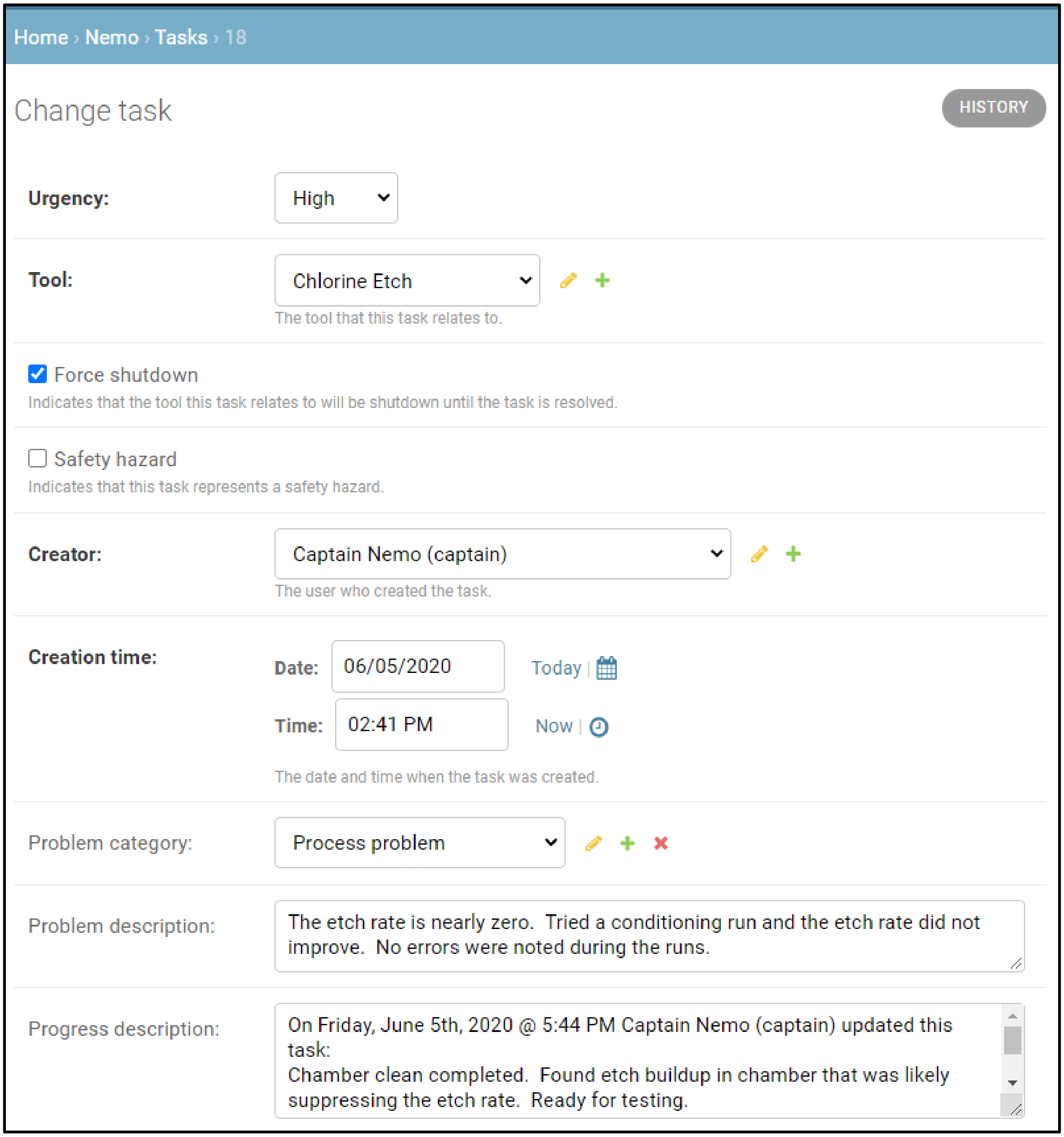


Figure 974 Tasks add/edit page part 1

- Urgency – drop down list select high, medium, or low (required).
- Tool – drop down list select tool that the task relates to (required). *Tools table*
- Force shutdown – checkbox indicates that the tool this task relates to will be shut down until the task is resolved.
- Safety hazard – checkbox indicates that this task represents a safety hazard.
- Creator – drop down list select user that created the task. (required) *Users table*
- Creation time – date/time the task was created. (required)
- Problem category – drop down list select category if used. *Task categories table*

- Problem description – text description of initial problem.
- Progress description – text description of progress posted through updates.

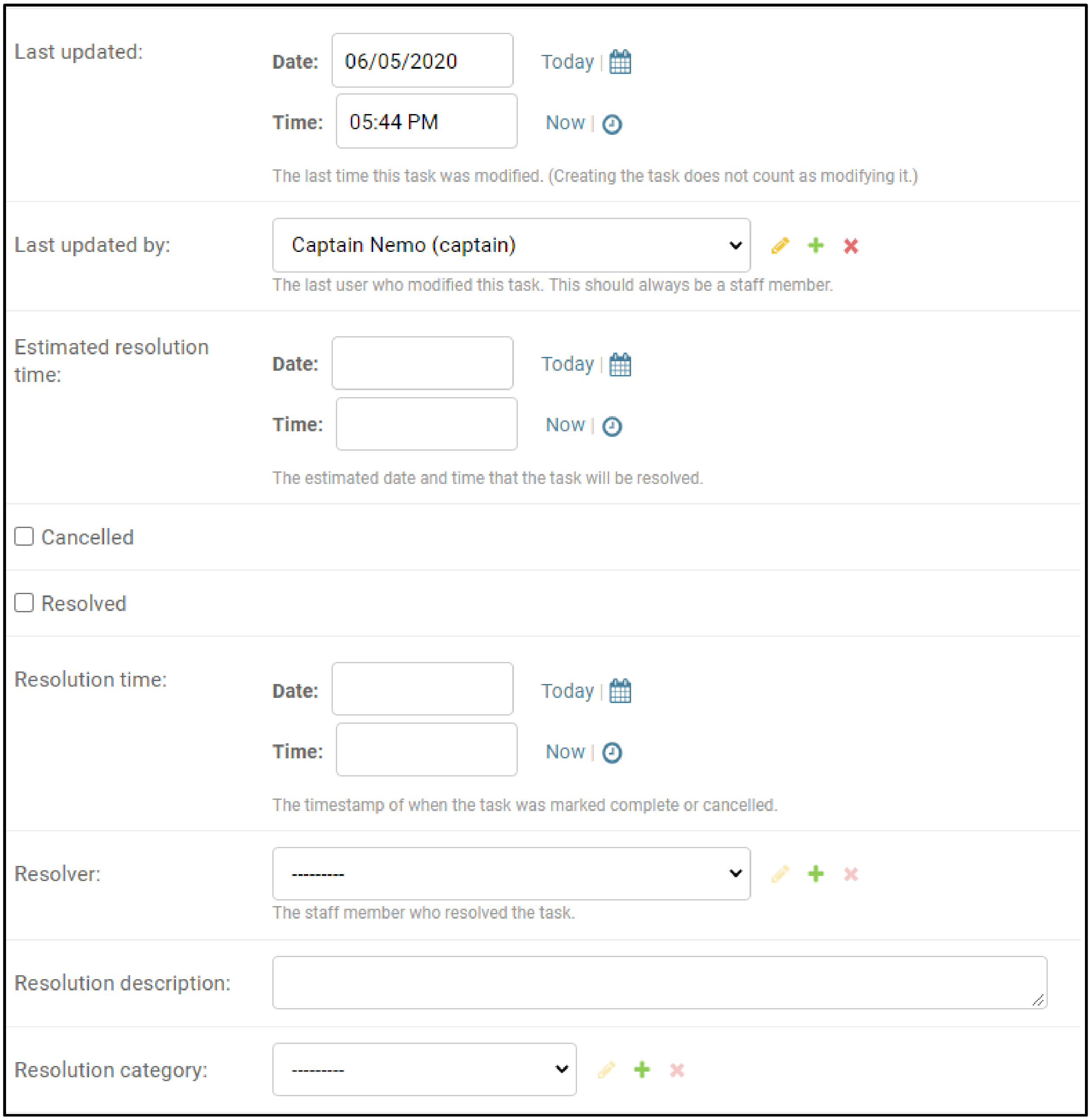


Figure 975 Tasks add/edit page part 2

- Last updated – date/time the task was last updated.
- Last updated by – drop down list select user that provided the last update. *Users table*
- Estimated resolution – date/time the problem is expected to be fixed.
- Cancelled – checkbox indicates that this task was cancelled.

- Resolved – checkbox indicates that this task was resolved.
- Resolution time – date/time the task was resolved.
- Resolver – drop down list select user that marked the problem resolved. *Users table*
- Resolution description – text description of steps taken to resolve the problem
- Resolution category – drop down list select category if used. *Task categories table*

39.46.4 User access page

Tasks are created and maintained in the Report a problem tab of the Tool control page detailed on page 116.

39.47 Temporary physical access requests

39.47.1 Usage

Temporary physical access requests are used so users can submit a request to obtain a physical access temporarily. For example, a user could request temporary access to the Cleanroom on a weekend when they don't otherwise have access. Access requests are discussed in the [access requests](#) page detailed on page 147.

39.47.2 Summary page

The summary page provides a listing of temporary physical access requests (Figure 976). Click the creator field in the row of interest to edit.

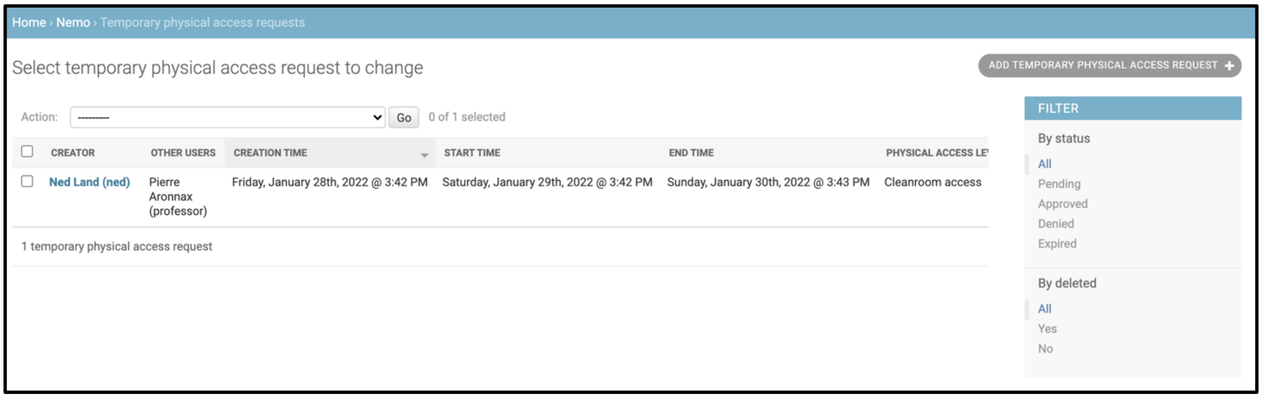


Figure 976 Temporary physical access requests summary page

39.47.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 977,Figure 978). [Common features in detailed administration](#) is detailed on page 359.

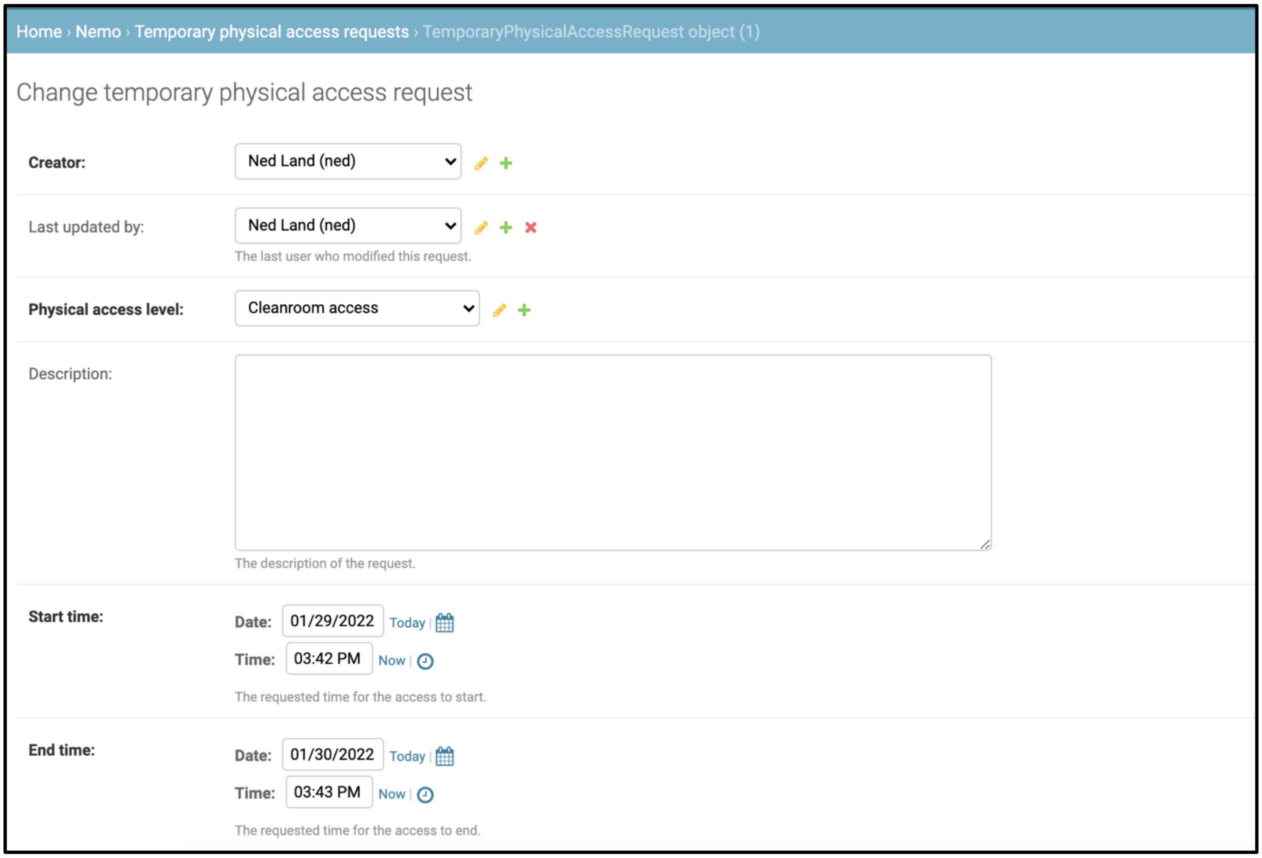


Figure 977 Temporary physical access requests add/edit page part 1

- Creator – drop down list select user who created the request (required).
- Last updated by – drop down list select the user who last updated the record.
- Physical access level – drop down list select the physical access level that the user is requesting (required).
- Description – text description of the request.
- Start time – date/time the requested access should start (required).
- End time – date/time the requested access should end (required).

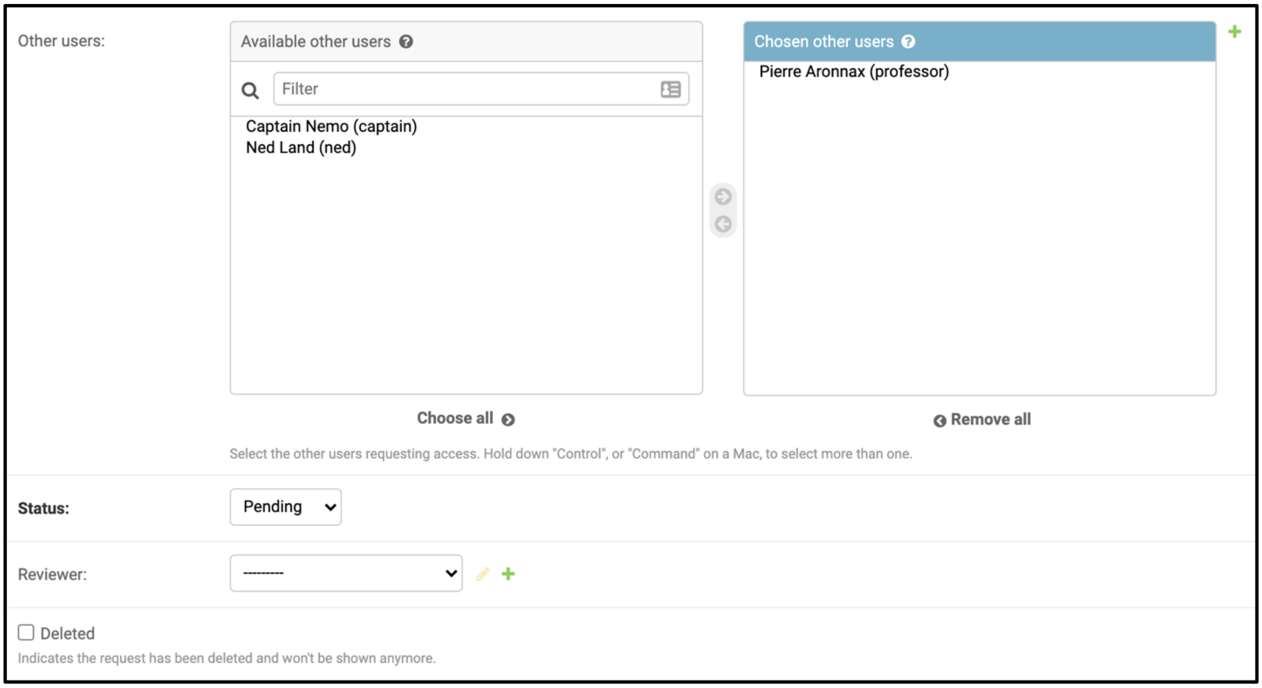


Figure 978 Temporary physical access requests add/edit page part 2

- Other users – select from available users and click the right arrow to add to chosen users. Multiple users can be selected at the same time using shift or control keys.
- Status – drop down list select the status of the request (required).
- Reviewer – drop down list select user who reviewed the request.
- Deleted – checkbox indicates that this request was deleted.

39.47.4 User access page

Access requests are created and maintained in the access requests page detailed on page 147.

39.48 Temporary physical access

39.48.1 Usage

Temporary physical access are used to temporarily give users access to an area.

39.48.2 Summary page

The summary page provides a listing of temporary physical access (Figure 979). Click the id field in the row of interest to edit.

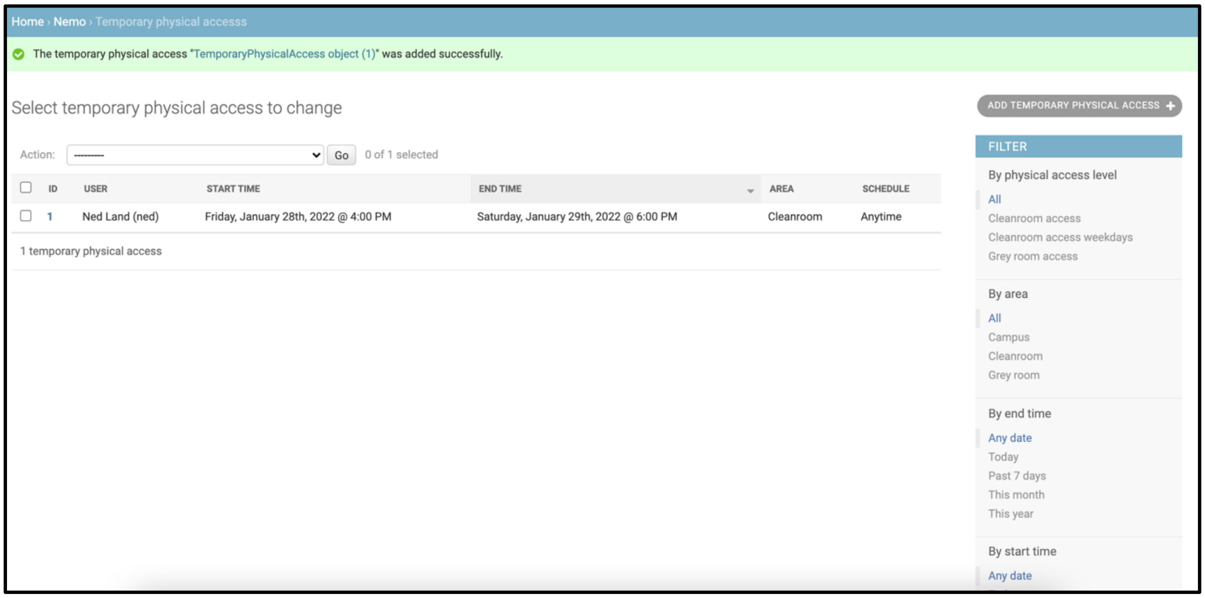


Figure 979 Temporary physical access summary page

39.48.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 980). Common features in detailed administration is detailed on page 359.

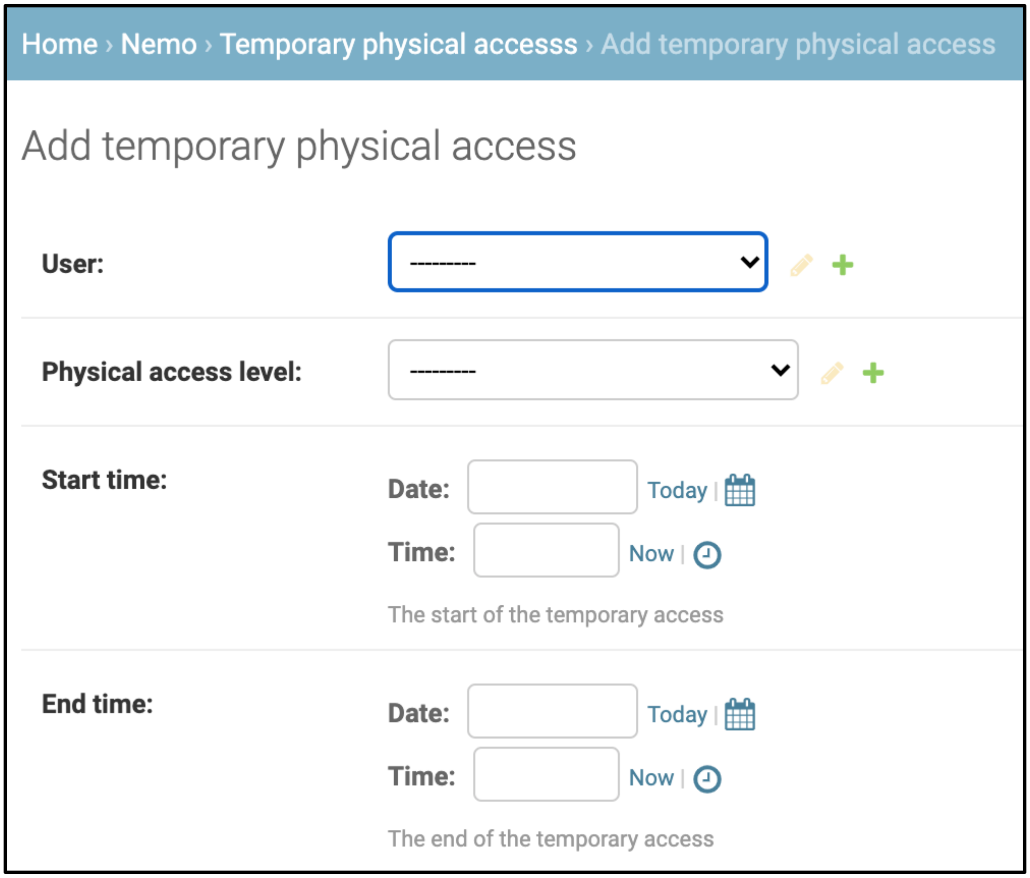


Figure 980 Temporary physical access add/edit page

- User – drop down list select user who will have the access (required).
- Physical access level – drop down list select the physical access level to give the user (required).
- Start time – date/time the start time of the temporary access (required).
- End time – date/time the end time of the temporary access (required).

39.48.4 User access page

There is no user access page for Temporary physical access. However, they are created behind the scenes from the data in Temporary physical access request discussed in the access requests page detailed on page 147.

39.49 Tool usage counters

Tool usage counters are linked to numeric or float post usage questions and accumulate value with each tool logout based on the answer to the post usage question. This feature is useful for displaying how much a tool has been used, to track material usage, or to trigger preventative maintenance. Tool usage counters are displayed on the tool control summary page detailed on page 88.

39.49.1 Usage

The tool usage counters table lists each counter, the associated tool, the post usage question field, the current value, and last reset information. The tool usage counter must be created from this view.

- Tool usage counter setup
  - Prerequisites: the tool and a post usage question for that tool must exist.
  - Create tools and post usage questions for tools of interest in the Detailed administration → Tools table detailed starting on page 491.
    - For example, if we used the following post usage question on the "790 RIE Right" tool (Figure 981)

```
[
    {
        "type": "number",
        "title": "How long did you etch?",
        "max-width": 250,
        "suffix": "minutes",
        "required": true,
        "default_choice": null,
        "placeholder": 0,
        "name": "etch_time"
    }
]
```

Figure 981 Tool usage counter example post usage question

  - Add a tool usage counter in the Detailed administration → Tool usage counter table in this section and save.
    - For example, if we create a tool usage counter based on the post usage question above:
      - **Name:** "Etch Time"
      - Description: "This is for the etch time in minutes.
        PMs are performed every 100 minutes of use."
        - NOTE: line breaks will be displayed on the tool summary page so limited formatting can be used to keep the page readable.
      - **Tool**: 790 RIE Right
        - NOTE: selected from dropdown box.
      - **Tool usage question: "etch_time"**

- NOTE: “etch_time” is the name we gave the post usage question in the previous step. When saving, the post usage question name must be present, or an error will occur.

- When we log out of the 790 RIE Right tool, the following post usage question is displayed on the tool summary page before logout (Figure 982). The Tool control → Summary page is detailed starting on page 88.

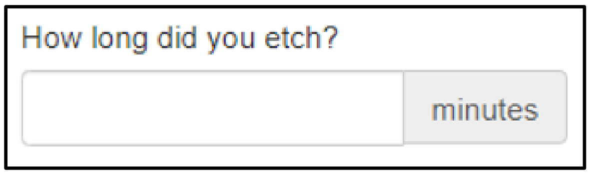


Figure 982 Tool usage counter post usage input

- The counter is updated and displayed (Figure 983) on the Tool control → Summary page detailed starting on page 88.
  If a warning threshold is set, the value will be green when it is let than the threshold, orange when it is equal to the threshold and red when the value is greater than the threshold.
  - NOTE: the reset button is only visible to staff.

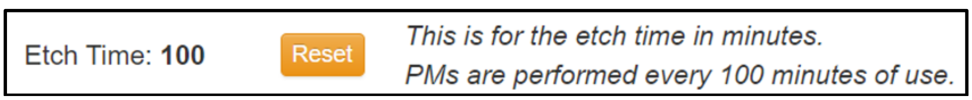
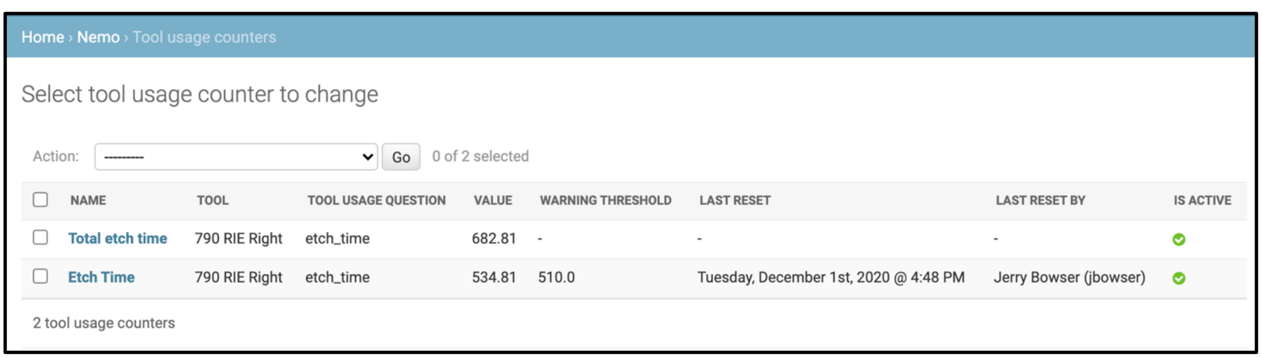


Figure 983 Tool usage counter display

39.49.2 Summary page

The summary page provides a listing of tool usage counters (Figure 984). Click the name field in the row of interest to edit.



Home › Nemo › Tool usage counters

Select tool usage counter to change

Action: --------- Go 0 of 2 selected

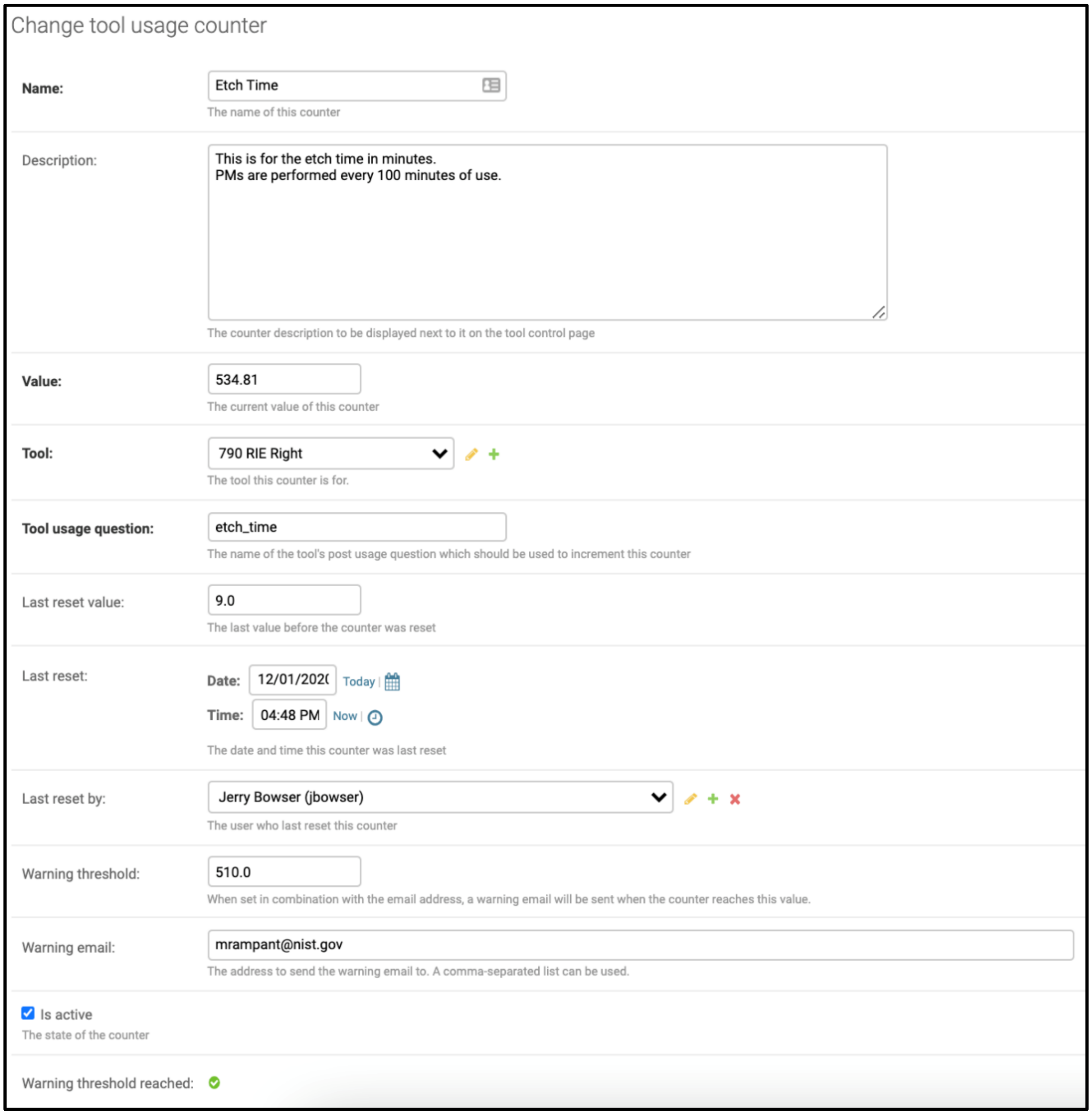
NAME	TOOL	TOOL USAGE QUESTION	VALUE	WARNING THRESHOLD	LAST RESET	LAST RESET BY	IS ACTIVE
Total etch time	790 RIE Right	etch_time	682.81	-	-	-	✔
Etch Time	790 RIE Right	etch_time	534.81	510.0	Tuesday, December 1st, 2020 @ 4:48 PM	Jerry Bowser (jbowser)	✔

2 tool usage counters

Figure 984 Tool usage counters summary page

39.49.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 985). Common features in detailed administration is detailed on page 359.


Change tool usage counter

Name: Etch Time
The name of this counter

Description: This is for the etch time in minutes.
PMs are performed every 100 minutes of use.
The counter description to be displayed next to it on the tool control page

Value: 534.81
The current value of this counter

Tool: 790 RIE Right
The tool this counter is for.

Tool usage question: etch_time
The name of the tool's post usage question which should be used to increment this counter

Last reset value: 9.0
The last value before the counter was reset

Last reset: Date: 12/01/202(Today | Time: 04:48 PM Now |
The date and time this counter was last reset

Last reset by: Jerry Bowser (jbowser)
The user who last reset this counter

Warning threshold: 510.0
When set in combination with the email address, a warning email will be sent when the counter reaches this value.

Warning email: mrampant@nist.gov
The address to send the warning email to. A comma-separated list can be used.

Is active
The state of the counter

Warning threshold reached:

Figure 985 Tool usage counters add/edit page

- **Name** – the name of the counter. This name will be displayed on the tool summary page.
- Description – the counter description to be displayed next to the counter on the tool summary page.
- **Value** – the current value of the counter.
- **Tool** – the tool the counter is for. *Tools table*
- **Tool usage question** – the name of the post usage question used to increment the counter.
- Last reset value – the last value before the counter was last reset. When a counter is reset, a comment is also written for the associated tool that captures the last reset value, date, and who reset.
- Last reset – the date/time the counter was last reset.
- Last reset by – the user who last reset the counter.

- Warning threshold – the value which once reached will trigger an email to be sent to the warning email.
- Warning email – email address to send the tool usage counter threshold reached email to. For this feature to work, the counter_threshold_reached_email needs to be set in Customization – Counter threshold reached email
- Is active – checked indicates the counter is active and will be displayed on the tool summary page. Unchecked hides the counter.

39.50 Tools

39.50.1 Usage

The tools table lists each tool, its status, qualified users, usage rules, interlock information, reservation rules, and dependencies. While the attributes can be modified on various pages of NEMO, the tool must first be created from this view.

39.50.2 Summary page

The summary page provides a listing of tools (Figure 986). Click the name field in the row of interest to edit.

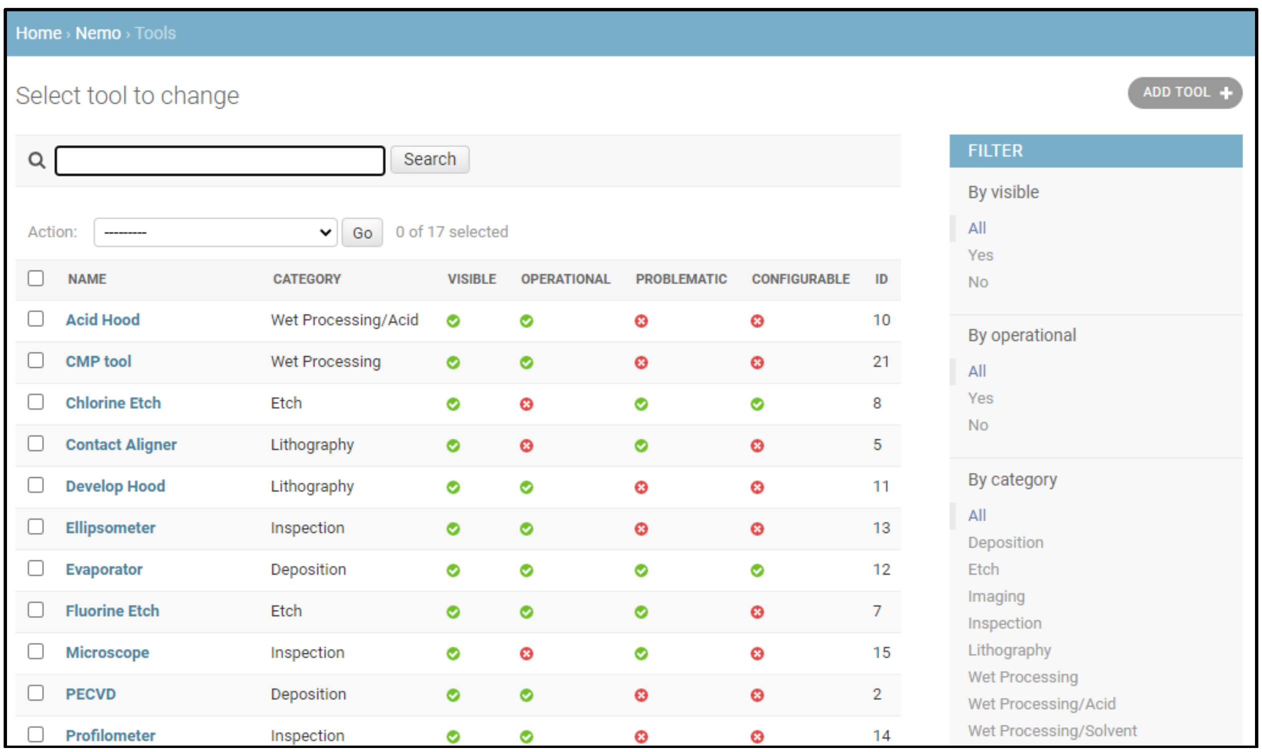


Figure 986 Tools summary page

39.50.3 Fields

The add/change page for this table lists the fields that can be edited. Common features in detailed administration is detailed on page 359.

General Information (Figure 987)

- Name – text field of what the tool will be called throughout NEMO. (required)
- Parent tool – Select the parent tool from the dropdown list. If parent/child tools will be used, the child tools must identify which tool is the parent tool. If a parent tool is selected, the child tool will use all of the attributes of the parent tool except for the name. The parent/child tool relationship is useful when a single tool is used for multiple purposes that may be billed at different rates. For example, a dual beam focused ion beam tool may have one rate to use in SEM mode and another rate when used in FIB mode. *Tools table*
- Category – tools can be grouped together by location, type, or other grouping. These categories will be used to group tool in the calendar and tool control sidebars. Create sub-categories using slashes. For example, "Category 1/Sub-category 1". (required)
- Qualified users – select from available users and click the right arrow to add to chosen users. Multiple users can be selected at the same time using shift or control keys. Qualified users are managed on the users page, training page, or qualifications page. *Users table*

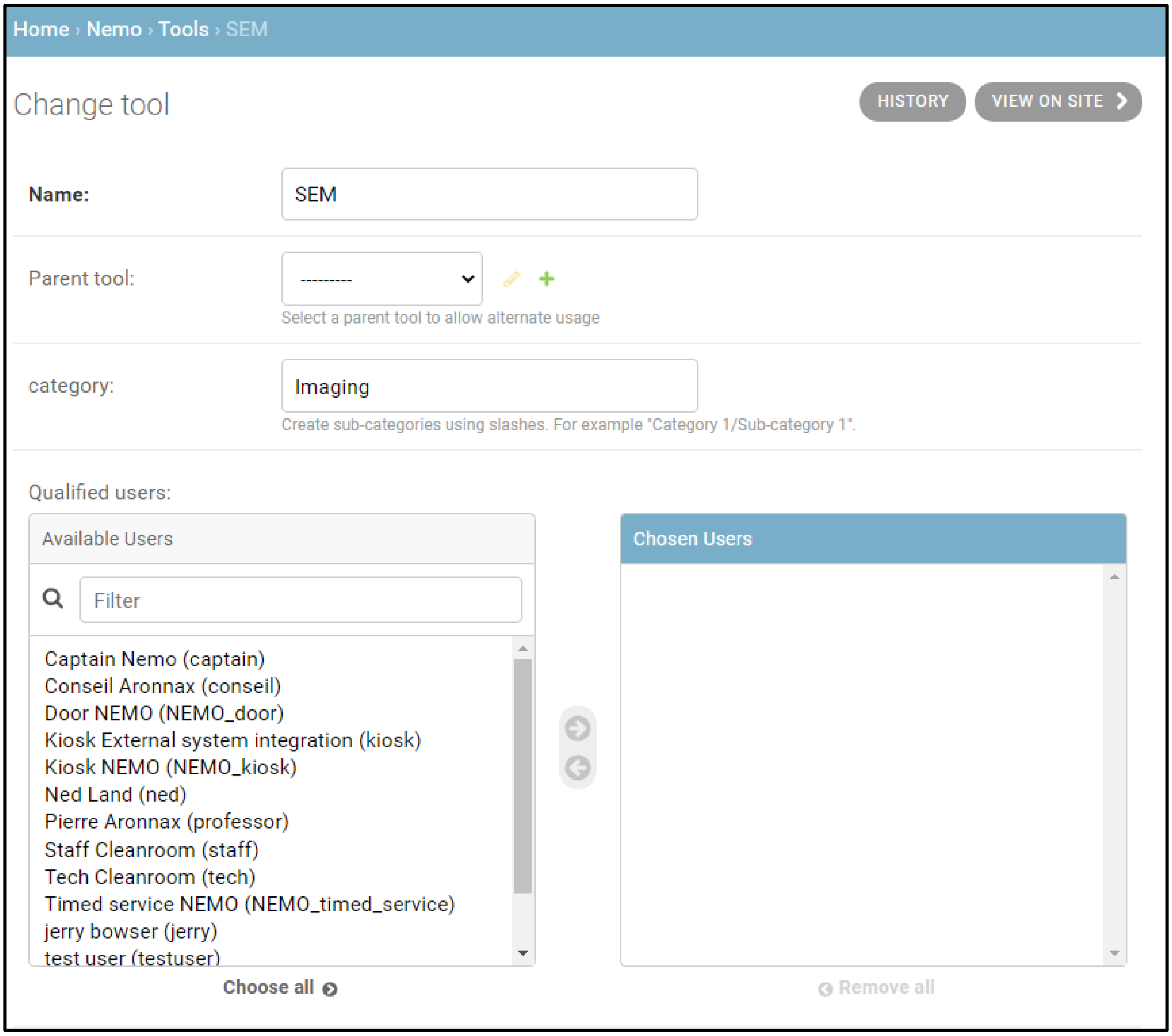


Figure 987 Tools general information

Post usage questions (Figure 988)

- Post usage questions – json formatted list can ask users for input at the end of their processes as either optional or required input using a radio button list, dropdown list, text entry (textbox or textarea), or numeric input (number or float). Only number inputs can trigger consumable purchases. The json script is validated when saving the tool record and error messages indicating format or missing required fields will be displayed. Responses to post usage questions are entered on the summary tab of the tool control page (page 101) and stored in the run data field of the usage events table as json formatted data (page 514). In addition, responses are displayed on the tool control page under usage data history detailed on page 113. Post usage questions can be configured so responses are either required or optional. In addition, questions can be grouped and repeated a configurable number of times to capture multiple processes in a single tool usage.

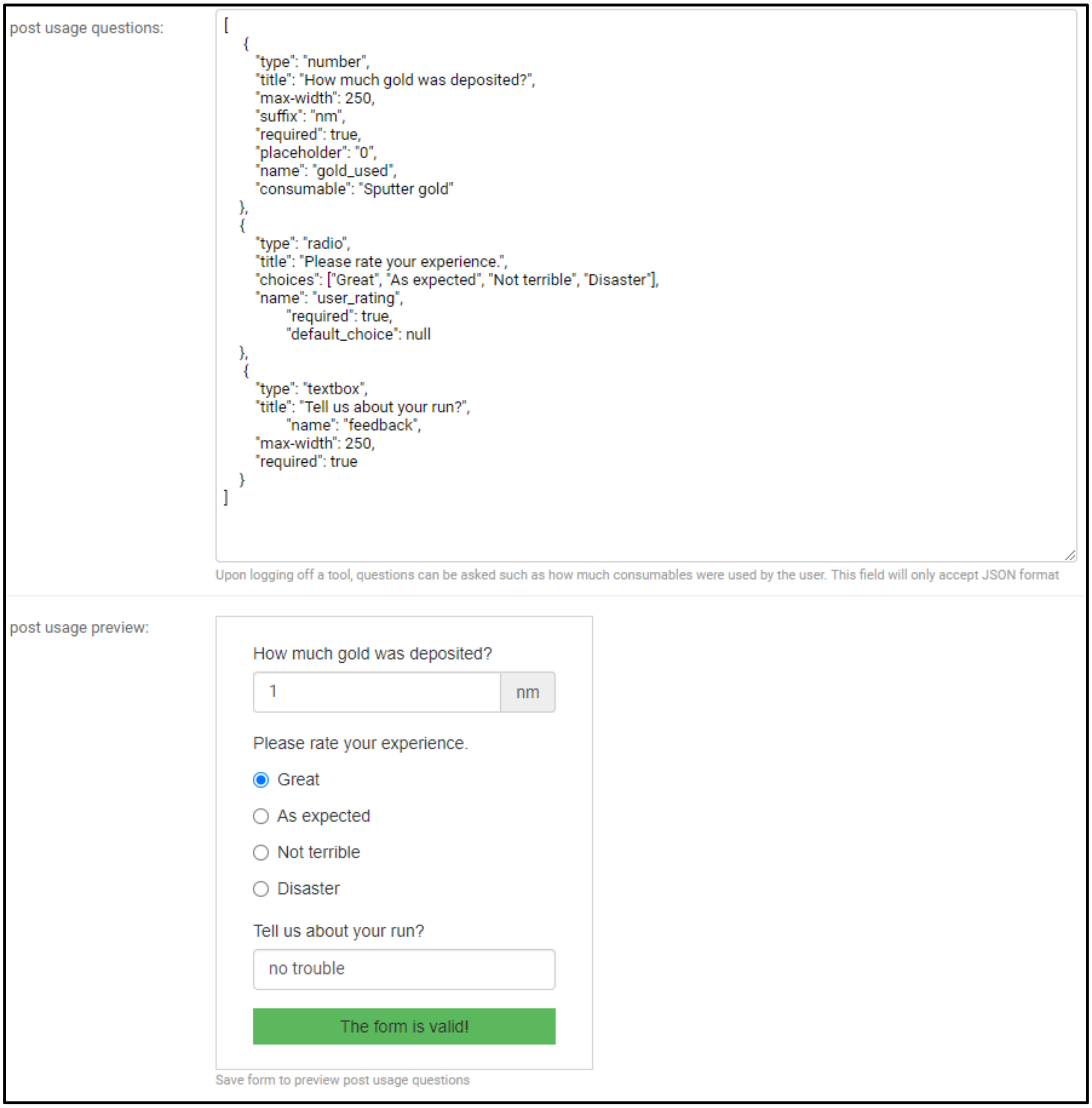


Figure 988 Tools post usage questions

- Radio button list, required fields in bold (Figure 989)
    - **“type”**: “radio”
    - **“title”**: title of the question (label)
    - **“name”**: name of the question for submit (unique)
    - **“choices”**: list of choices [‘choice1’, ‘choice2’]
    - **“required”**: whether the question is required, true or false
    - **“default_choice”**: the question default choice if any
    - “title_html”: html code to display instead of title
    - “help”: the question help text

```
[
    {
        "type": "radio",
        "title": "Please rate your experience.",
        "choices": ["Great", "As expected", "Not terrible", "Disaster"],
        "name": "user_rating",
        "required": true,
        "default_choice": null
    }
]
```

Figure 989 Tools post usage radio button list example

- Textbox entry, required fields in bold (Figure 990)
  - **"type"**: "textbox"
  - **"title"**: title of the question (label)
  - **"name"**: name of the question for submit (unique)
  - **"max-width"**: max width of the input in px
  - **"required"**: whether the question is required, true or false
  - "title_html": html code to display instead of title
  - "help": the question help text
  - "maxlength": the maximum allowed characters in the input
  - "pattern": input field pattern validation. The pattern is a regular HTML attribute that accepts regular expressions. More info and examples can be found here: https://www.w3schools.com/tags/att_input_pattern.asp.
  - "placeholder": input field placeholder
  - "prefix": prefix inside input field
  - "suffix": suffix inside input field

```
[
    {
        "type": "textbox",
        "title": "How did your run go?",
        "name": "feedback",
        "max-width": 250,
        "required": true
    }
]
```

Figure 990 Tools post usage textbox example

- Textarea entry, required fields in bold (Figure 991)
  - **"type"**: "textarea"
  - **"title"**: title of the question (label)
  - **"name"**: name of the question for submit (unique)
  - **"max-width"**: max width of the input in px

    - **“required”**: whether the question is required, true or false
    - “title_html”: html code to display instead of title
    - “help”: the question help text
    - “rows”: number of rows to display. Default is 2
    - “pattern”: input field pattern validation. The pattern is a regular HTML attribute that accepts regular expressions. More info and examples can be found here: https://www.w3schools.com/tags/att_input_pattern.asp.
    - “placeholder”: input field placeholder
    - “prefix”: prefix inside input field
    - “suffix”: suffix inside input field

```
[
    {
        "type": "textarea",
        "title": "Comments",
        "name": "comments",
        "required": true,
        "max-width":250,
        "rows": 5
    }
]
```

Figure 991 Tools post usage textarea example

- Numeric entry, required fields in bold (Figure 992)
    - **“type”**: “number”
    - **“title”**: title of the question (label)
    - **“name”**: name of the question for submit (unique)
    - **“max-width”**: max width of the input in px
    - **“required”**: whether the question is required. True or false
    - “title_html”: html code to display instead of title
    - “help”: the question help text
    - “placeholder”: input field placeholder
    - “prefix”: prefix inside input field
    - “suffix”: suffix inside input field
    - “min”: minimum number
    - “max”: maximum number
    - “step”: step number
    - “consumable”: supply name. This name must correspond to a valid entry in the consumables table, or an error will be triggered on saving. A consumable charge record will be created in the consumable withdraws table for the supply name listed for the quantity entered. Consumables are detailed in the Detailed administration → Consumables table starting on page 408.

```
[
    {
        "type": "number",
        "title": "How much gold was deposited?",
        "max-width": 250,
        "suffix": "nm",
        "required": true,
        "placeholder": "0",
        "min": 0,
        "max": 1000,
        "name": "gold_used",
        "consumable": "Sputter gold"
    }
]
```

Figure 992 Tools post usage number example

- Float entry, required fields in bold (Figure 993)
    - **“type”**: “float”
    - **“title”**: title of the question (label)
    - **“name”**: name of the question for submit (unique)
    - **“max-width”**: max width of the input in px
    - **“required”**: whether the question is required. True or false
    - “title_html”: html code to display instead of title
    - “help”: the question help text
    - “precision”: precision of the float number (default is 2)
    - “placeholder”: input field placeholder
    - “prefix”: prefix inside input field
    - “suffix”: suffix inside input field

```
[
    {
        "type": "float",
        "title": "How long did you etch?",
        "max-width": 250,
        "suffix": "minutes",
        "required": true,
        "placeholder": "0",
        "name": "etch_time"
    }
]
```

Figure 993 Tools post usage float example

- Dropdown list, required fields in bold (Figure 994)
    - **“type”**: “dropdown”
    - **“title”**: title of the question (label)
    - **“name”**: name of the question for submit (unique)

- **"max-width"**: max width of the input in px
- **"required"**: whether the question is required. true or false
- **"choices"**: list of choices enclosed in brackets
  - For example ["choice 1", "choice 2"]
- **"placeholder"**: input field placeholder, e.g. "Pick one"
- "title_html": html code to display instead of title
- "help": the question help text

```
[
  {
    "type": "dropdown",
    "title": "What material did you etch?",
    "placeholder": "Pick one",
    "required": true,
    "max-width": 250,
    "choices": ["Silicon Oxide", "Silicon Nitride"],
    "name": "etch_material"
  }
]
```

Figure 994 Tools post usage dropdown list example

- Group, allows creation of a group of questions that can be repeated. For example, when a user uses multiple processes on a tool, and we want to collect information about each one (Figure 995).
  - **"type"**: "group"
  - **"title"**: title of the group (label), use "\n" to force line breaks
  - **"name"**: name of the group for submit (unique)
  - **"max-number"**: maximum number of times the group of inputs can be repeated.
  - **"questions"**: list of questions, enclosed in brackets, to group together.
  - "title_html": html code to display instead of title
  - "group_add_button_name": name of "Add" button to display

```
[
{
    "type": "group",
    "title": "Tell us about the work you performed today.",
    "name": "group1",
    "max_number": 3,
    "questions":
    [
        {
            "type": "dropdown",
            "title": "What material did you etch?\n:",
            "placeholder": "Pick one",
            "required": true,
            "max-width": 250,
            "choices": ["Silicon Oxide", "Silicon Nitride"],
            "name": "etch_material"
        },
        {
            "type": "number",
            "title": "How long did you etch (minutes)?",
            "max-width": 250,
            "suffix": "minutes",
            "required": true,
            "default_choice": null,
            "placeholder": 0,
            "name": "etch_time"
        },
        {
            "type": "textbox",
            "title": "Additional Notes",
            "max-width": 500,
            "required": false,
            "default_choice": null,
            "name": "etch_notes"
        }
    ]
}
]
```


Figure 995 Tools post usage group example

- Post usage preview – after saving the tool record with post usage question json information, the post usage preview will display what users will see (Figure 996). This feature is useful for verifying the json input is correct and previewing the output. If there are errors in the json script, they will be indicated and suggestions to fix the issue will be given. The preview will show not valid if the required fields are not entered or in the specified range.

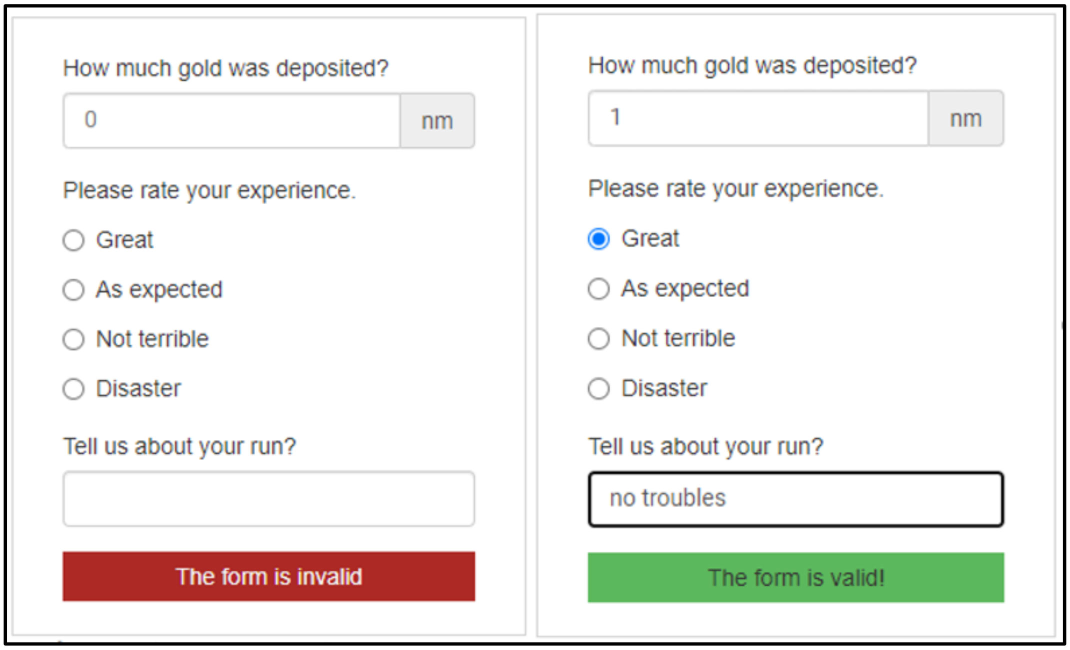


Figure 996 Tools post usage preview

- Post usage preview – example of groups
  - Using this json code example (Figure 997)

```
[
    {
        "type": "group",
        "title": "Tell us about the work you performed\nClick add to enter up to 3 processes",
        "name": "group1",
        "max_number": 3,
        "questions":
        [
            {
                "type": "dropdown",
                "title": "What material did you etch?",
                "placeholder": "Pick one",
                "required": true,
                "max-width": 250,
                "choices": ["Silicon Oxide", "Silicon Nitride"],
                "name": "etch_material"
            },
            {
                "type": "number",
                "title": "How long did you etch?",
                "max-width": 250,
                "suffix": "minutes",
                "required": true,
                "default_choice": null,
                "placeholder": 0,
                "name": "etch_time"
            }
        ]
    }
]
```

Figure 997 Tools post usage groups example json

  - Results in the initial display (Figure 998)

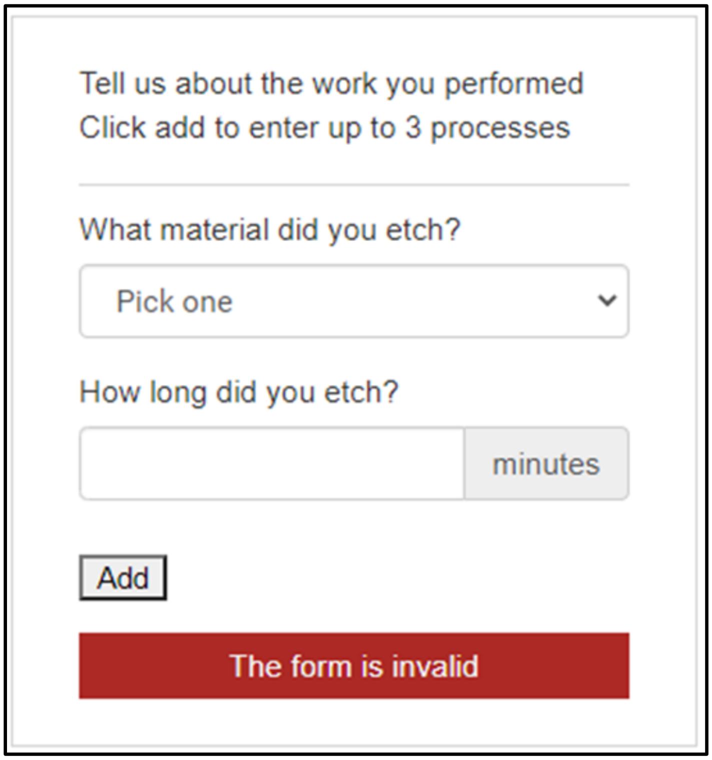


Figure 998 Tools post usage groups initial

- Entering required information makes the form valid (Figure 999)

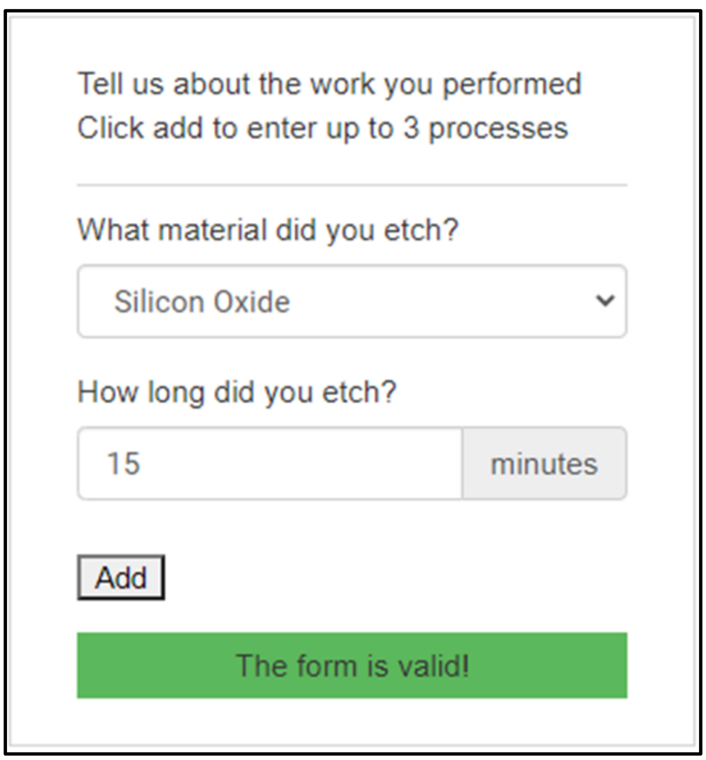


Figure 999 Tools post usage groups validated

- Clicking add will create another group of questions and make the form invalid again until required information is entered (Figure 1000). Click remove to remove added groups if needed.

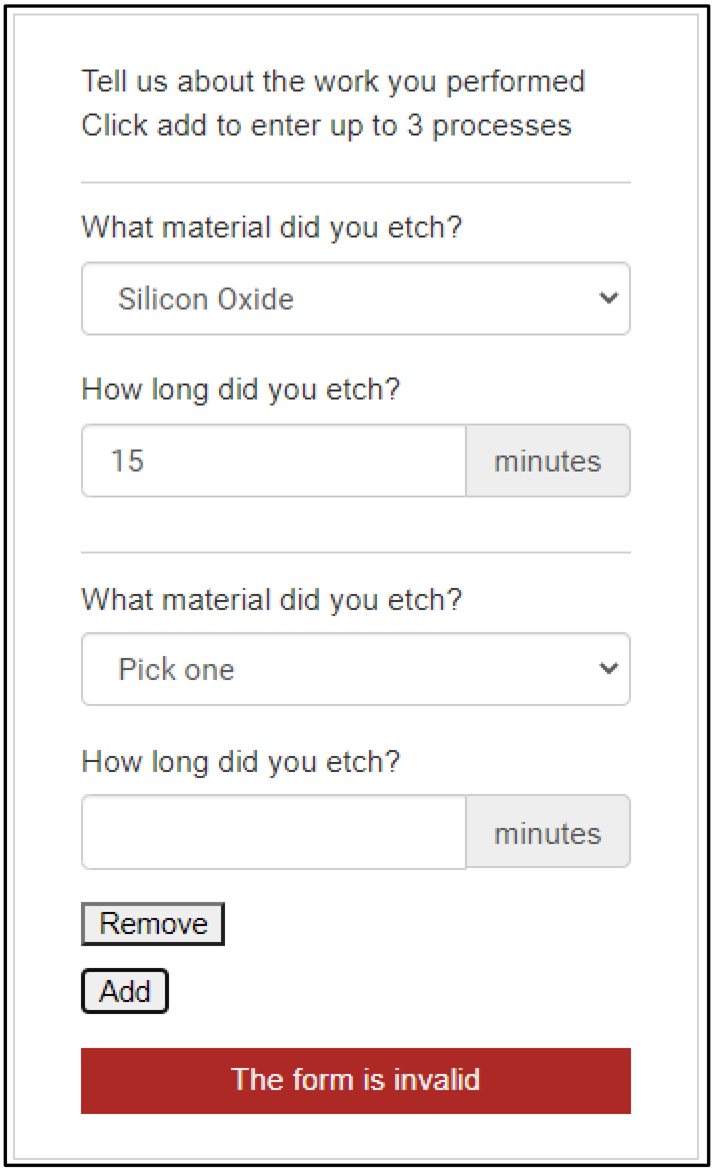


Figure 1000 Tools post usage groups add/remove

- Once the maximum number of groups is added, the add button will disappear (Figure 1001). Unneeded groups can be removed by clicking the remove button. Removals do not need to be done in sequence.

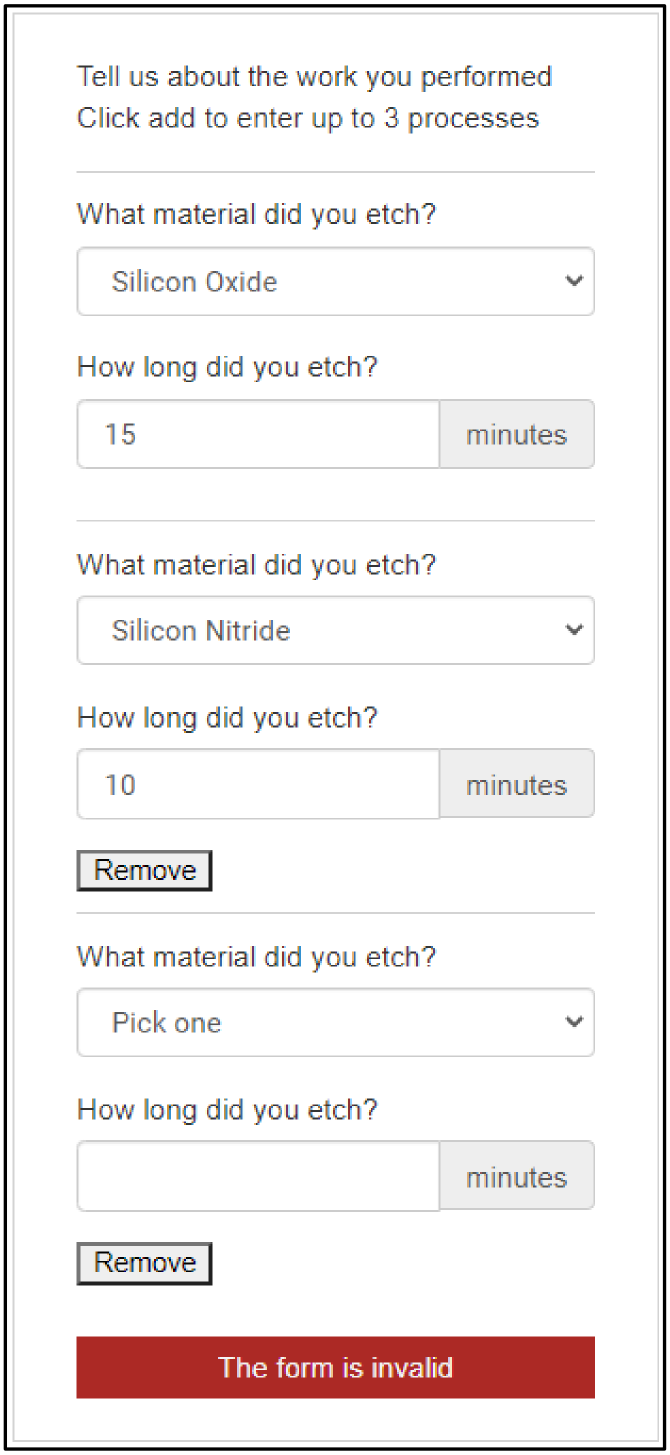


Figure 1001 Tools post usage groups maximum

Additional Information (Figure 1002)

- Description – html description that will be displayed near the bottom of the tool summary page.
- Serial – alphanumeric field that will display at the top right of the tool summary page.

- Image – 500 pixel x 500 pixel maximum image that will display on the tool summary page next to the description.

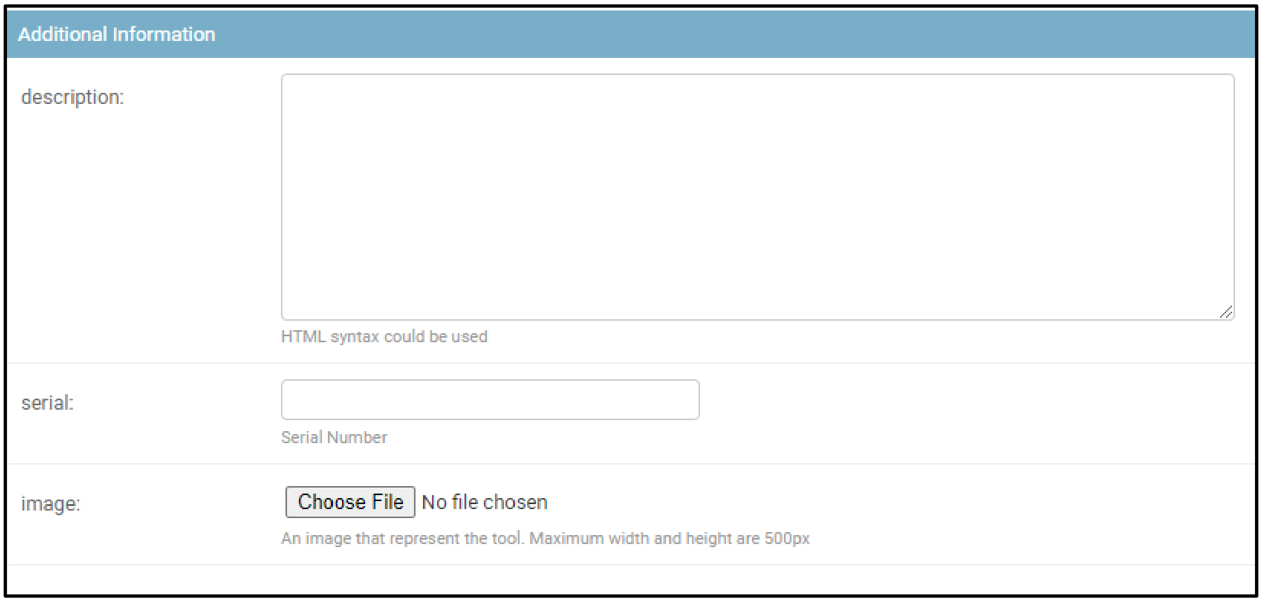


Figure 1002 Tools additional information

Current state (Figure 1003)

- Visible – checkbox to indicate whether the tool is visible to users. If not checked, the tool will not be displayed on the calendar or tool control sidebars.
- Operational – checkbox to indicate whether the tool is available to users. The operational status is managed by the report a problem tab on the tool control page.

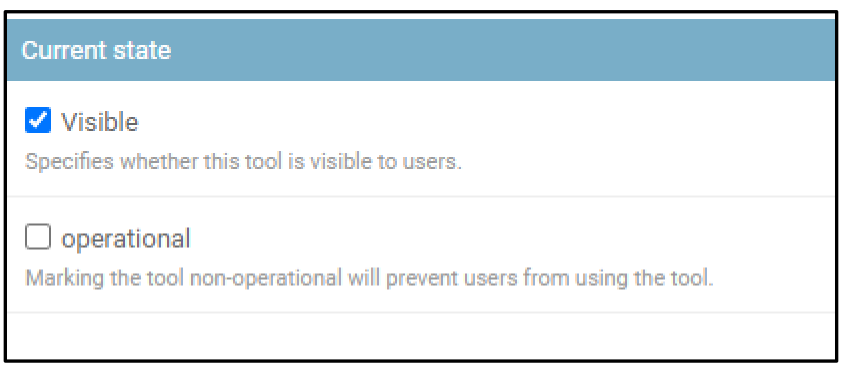


Figure 1003 Tools current state

Contact Information (Figure 1004)

- Primary owner – select from the drop down list the staff member who is responsible for the administration of the tool. The primary owner is listed on the details tab of the tool control page. (required)
- Backup owners - select from available users and click the right arrow to add to chosen users. Multiple users can be selected at the same time using shift or control keys. The backup owners are listed on the details tab of the tool control page.

- Superusers – select from available users and click the right arrow to add to chosen superusers. Multiple users can be selected at the same time using shift or control keys. The superusers are listed on the details tab of the tool control page and have the ability to train users on tools they are listed as superusers for.
- Notification email address – in addition to the primary and backup tool owners, comments, problems, and shutdown notices will be forwarded to this email address.
- Location – a text descriptor to identify the tools location. The location is displayed on the details tab of the tool control page. In addition, the kiosk uses the location to group nearby tools. Since this is a free form text input, make sure locations across tools are consistently listed. (required)
- Phone number – a text listing of the phone number. No phone number formatting is performed so extensions can be used as well as full phone numbers. The phone number is displayed on the details tab of the tool control page. (required)

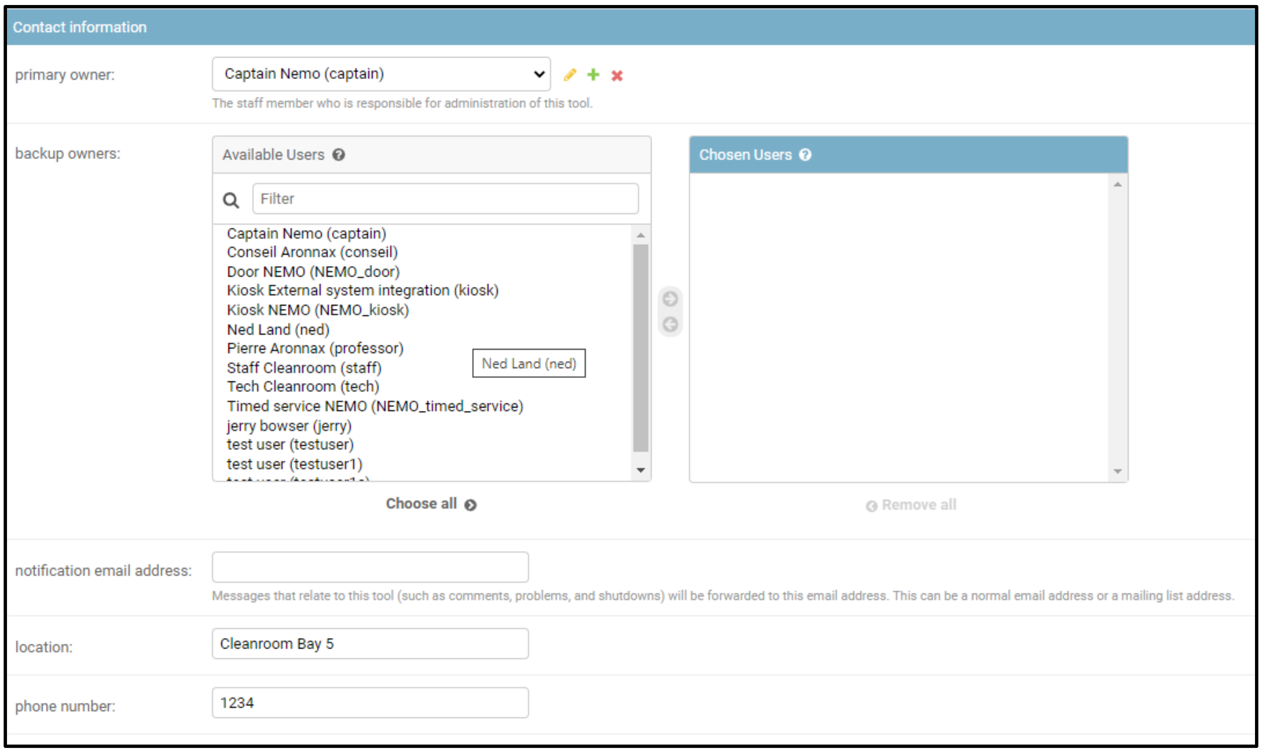


Figure 1004 Tools contact information

Reservation (Figure 1005)

- Reservation horizon – Users may create reservations this many days in advance. Leave this field blank to indicate that no reservation horizon exists for this area.
- Missed reservation threshold – The amount of time (in minutes) that an area reservation may go unused before it is automatically marked as "missed" and hidden from the calendar. The cancellation process is triggered by a timed job on the web server.

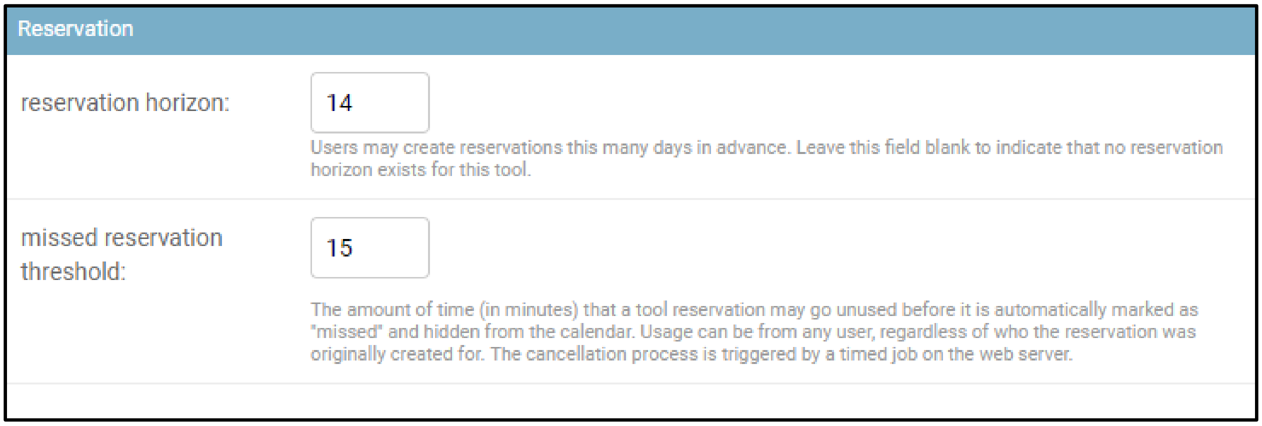


Figure 1005 Tools reservation

Usage policy (Figure 1006)

- Policy off between times – Check this box to disable policy rules every day between the given times
- Policy off start time – The start time when policy rules should NOT be enforced
- Policy off end time – The end time when policy rules should NOT be enforced
- Policy off weekend – Whether or not policy rules should be enforced on weekends
- Minimum usage block time – The minimum amount of time (in minutes) that a user must reserve this tool for a single reservation. Leave this field blank to indicate that no minimum usage block time exists for this tool.
- Maximum usage block time – The maximum amount of time (in minutes) that a user may reserve this tool for a single reservation. Leave this field blank to indicate that no maximum usage block time exists for this tool.
- Maximum reservations per day – The maximum number of reservations a user may make per day for this tool.
- Minimum time between reservations – The minimum amount of time (in minutes) that the same user must have between any two reservations for this tool.
- Maximum future reservation time – The maximum amount of time (in minutes) that a user may reserve from the current time onwards.

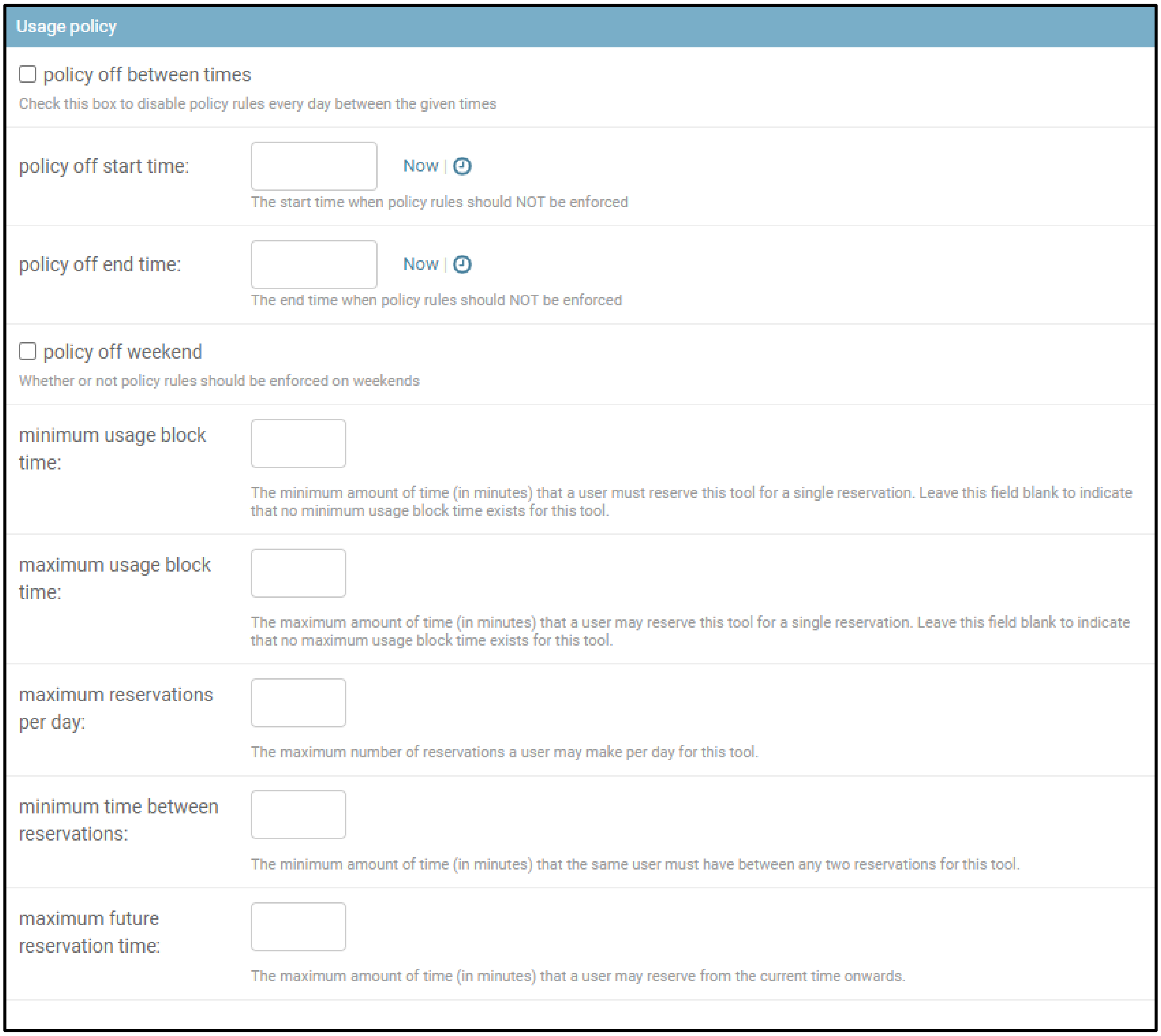


Figure 1006 Tools usage policy

Area access (Figure 1007)

- Requires area access – drop down list select area. Indicates that this tool is physically located in a billable area and requires an active area access record in order to be operated. *Areas table*
- Grant physical access level upon qualification – drop down list select physical access level. The designated physical access level is granted to the user upon qualification for this tool. *Physical access levels table*
- Grant badge reader access upon qualification – text that corresponds to a door name setup through the external identity service. Badge reader access is granted to the user upon qualification for this tool.
- Interlock – drop down list select interlock channel to associate with this tool. *Interlocks table*
- Allow delayed logoff - Upon logging off users may enter a delay before another user may use the tool. Some tools require "spin-down" or cleaning time after use.

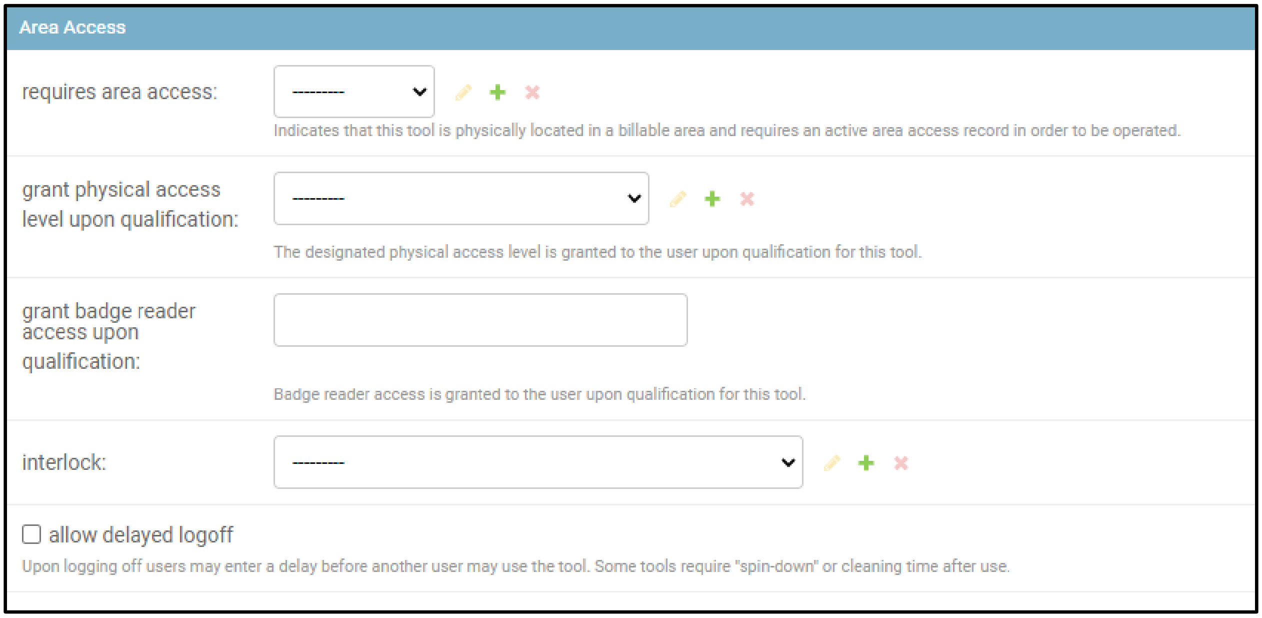


Figure 1007 Tools area access

Dependencies (Figure 1008)

- Required resources – select from available resources and click the right arrow to add to chosen required resources. Multiple resources can be selected at the same time using shift or control keys. If a required resource is shutdown, this tool will not be available to users. Resource status is displayed on the tool control page. Resources are managed through the resources page. *Resources table*
- Nonrequired resources – select from available resources and click the right arrow to add to chosen nonrequired resources. Multiple resources can be selected at the same time using shift or control keys. If a nonrequired resource is shutdown, this tool will be available to users but will notify them of a potential problem. Resource status is displayed on the tool control page. Resources are managed through the resources page. *Resources table*

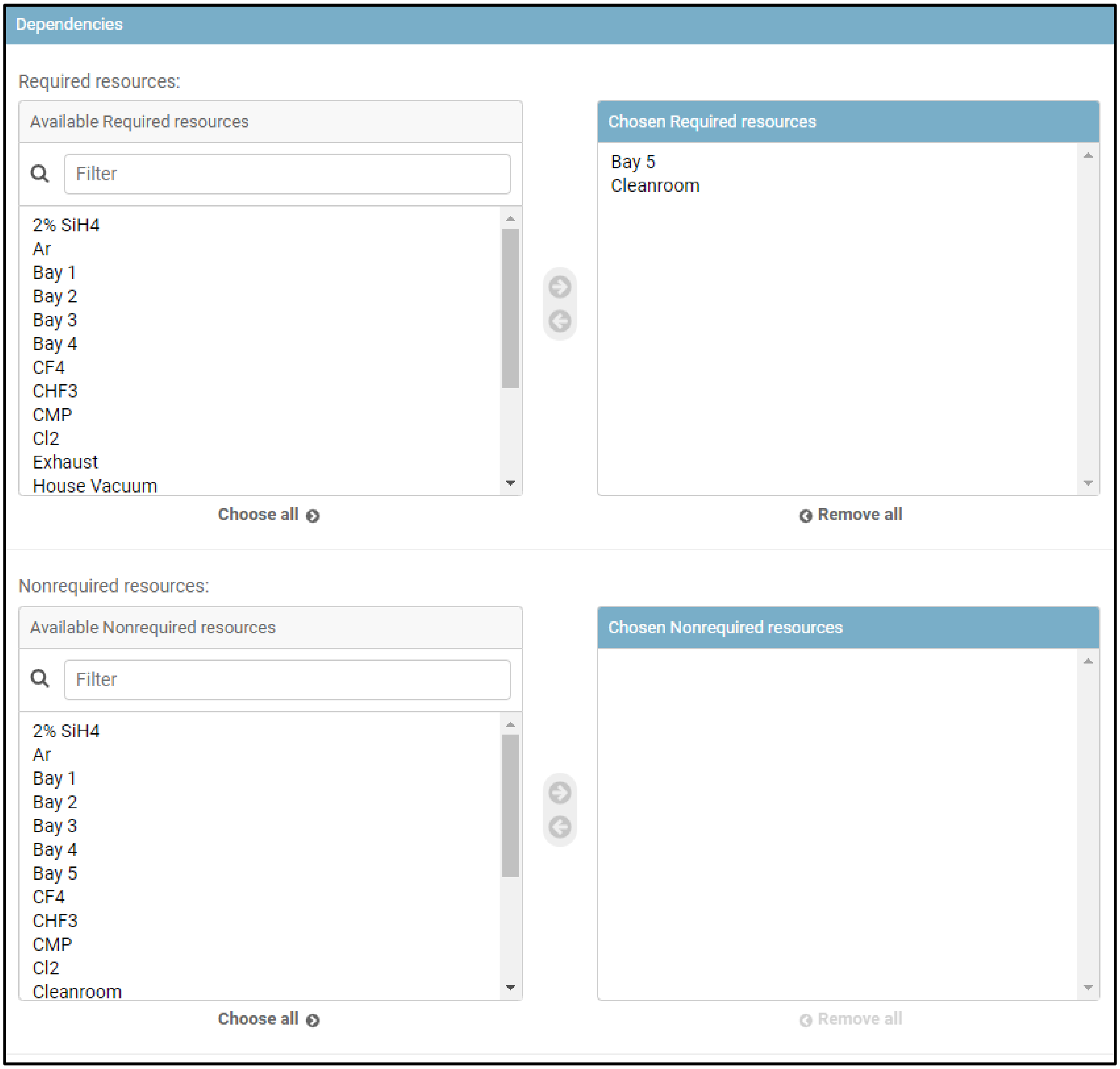


Figure 1008 Tools dependencies

Tool Documents (Figure 1009)

- Tool documents can be uploaded and will be displayed on the tool control page near the bottom of the tool summary page.
- You can either click “Choose File” to upload a file or enter a URL to a file.
- Optionally a name can be set for the document. If not provided, the document filename will be used.
- To delete a file, either replace it or click the “DELETE?” checkbox for that file, then save.

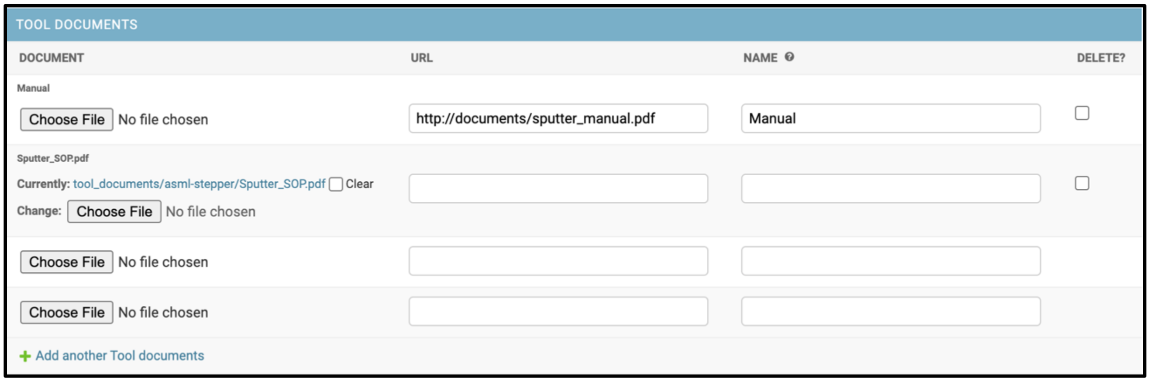


Figure 1009 Tools documents

39.50.4 User access page

There is no user access page to create tools. However, once created, several parameters can be updated in NEMO pages.

- Qualified users are managed on the users page detailed starting on page 278, the training page detailed starting on page 274, or the qualifications page detailed starting on page 235.
- Most tool attributes are displayed on the tool control pages detailed starting on page 79.
- Reservation and usage policy are discussed in the reservations section detailed starting on page 47.
- Dependency status is updated on the resources page detailed starting on page 243.

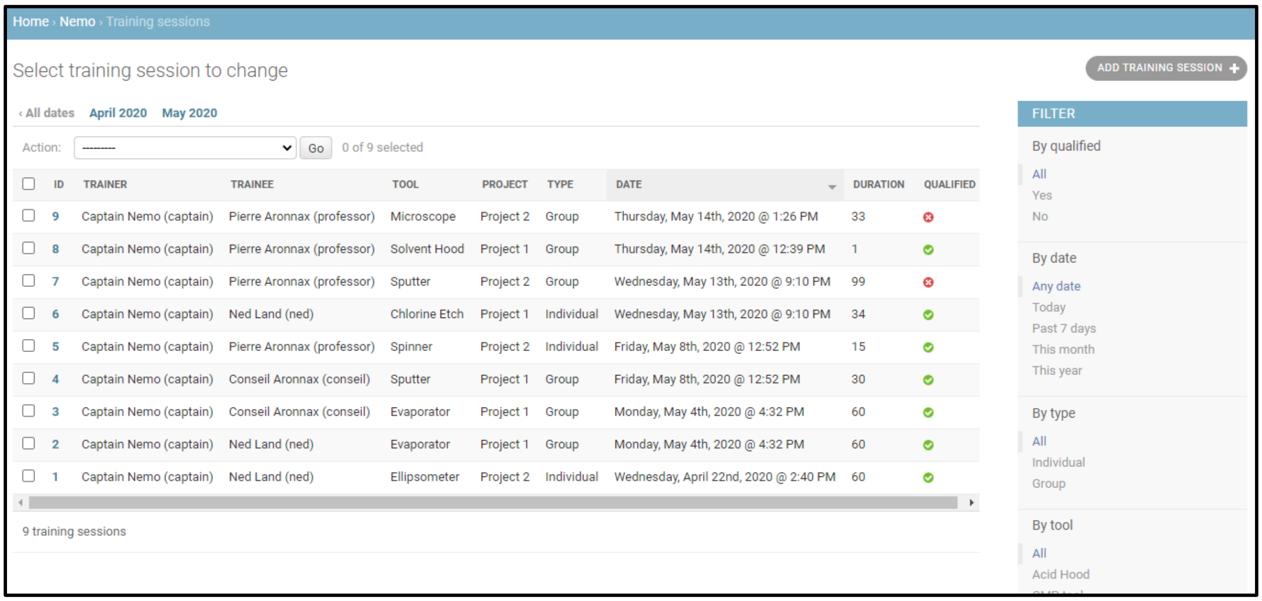
39.51 Training sessions

39.51.1 Usage

The training sessions table records the time and type of training provided. It is updated directly from the training page and under normal situations this table should not need to be directly modified. If a facility charges for training, this table contains the training to be billed and duration.

39.51.2 Summary page

The summary page provides a listing of training sessions (Figure 1010). Click the id field in the row of interest to edit.



ID	TRAINER	TRAINEE	TOOL	PROJECT	TYPE	DATE	DURATION	QUALIFIED
9	Captain Nemo (captain)	Pierre Aronnax (professor)	Microscope	Project 2	Group	Thursday, May 14th, 2020 @ 1:26 PM	33	✗
8	Captain Nemo (captain)	Pierre Aronnax (professor)	Solvent Hood	Project 1	Group	Thursday, May 14th, 2020 @ 12:39 PM	1	✓
7	Captain Nemo (captain)	Pierre Aronnax (professor)	Sputter	Project 2	Group	Wednesday, May 13th, 2020 @ 9:10 PM	99	✗
6	Captain Nemo (captain)	Ned Land (ned)	Chlorine Etch	Project 1	Individual	Wednesday, May 13th, 2020 @ 9:10 PM	34	✓
5	Captain Nemo (captain)	Pierre Aronnax (professor)	Spinner	Project 2	Individual	Friday, May 8th, 2020 @ 12:52 PM	15	✓
4	Captain Nemo (captain)	Conseil Aronnax (conseil)	Sputter	Project 1	Group	Friday, May 8th, 2020 @ 12:52 PM	30	✓
3	Captain Nemo (captain)	Conseil Aronnax (conseil)	Evaporator	Project 1	Group	Monday, May 4th, 2020 @ 4:32 PM	60	✓
2	Captain Nemo (captain)	Ned Land (ned)	Evaporator	Project 1	Group	Monday, May 4th, 2020 @ 4:32 PM	60	✓
1	Captain Nemo (captain)	Ned Land (ned)	Ellipsometer	Project 2	Individual	Wednesday, April 22nd, 2020 @ 2:40 PM	60	✓

Figure 1010 Training sessions summary page

39.51.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 1011). Common features in detailed administration is detailed on page 359.

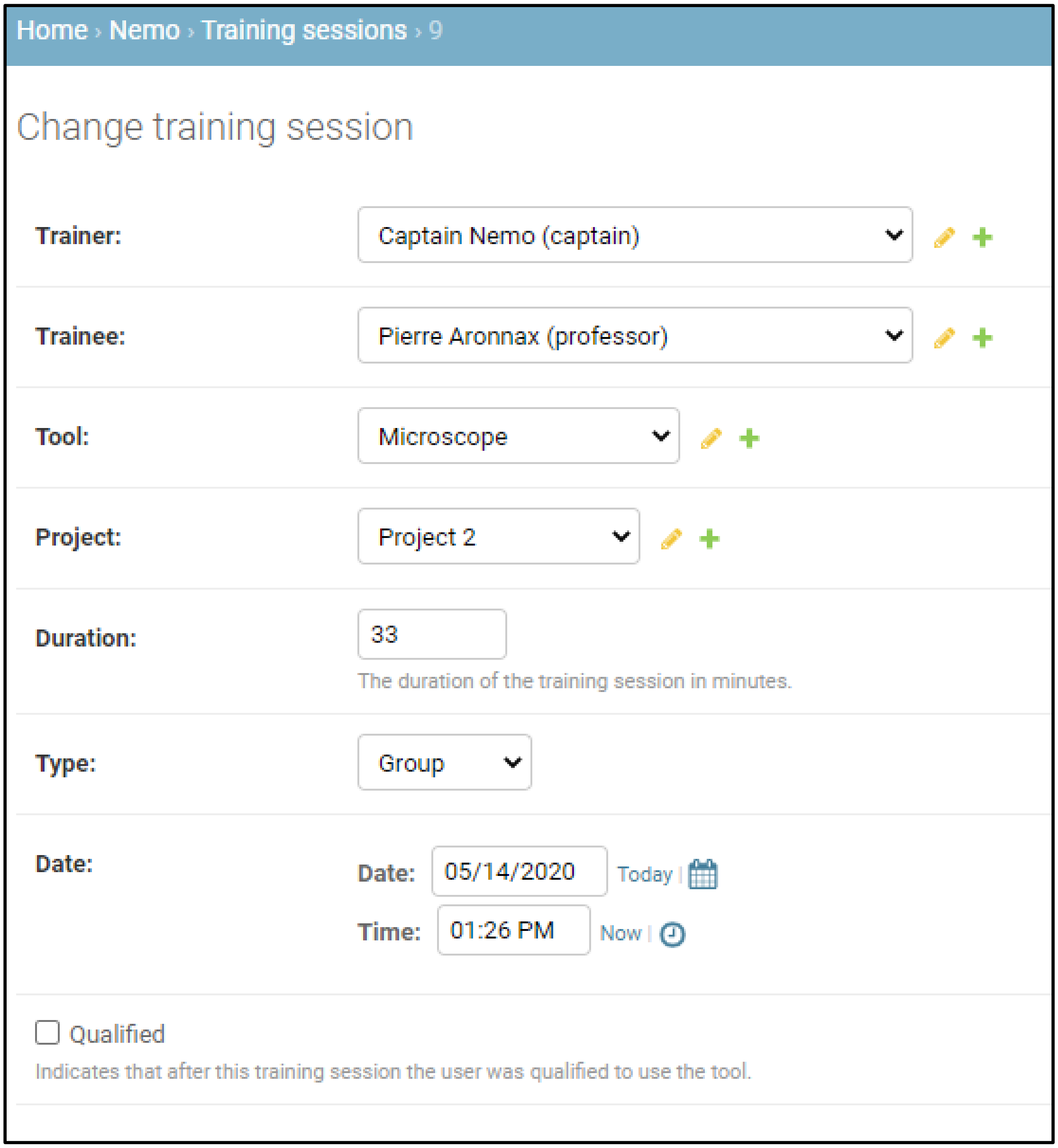


Figure 1011 Training sessions add/edit page

- Trainer – drop down list select the staff user that performed the training. (required) *Users table*
- Trainee – drop down list select the user that received training. (required) *Users table*
- Tool – drop down list select the tool that training was performed on. (required) *Tools table*
- Project – drop down list select the project to charge training to. (required) *Projects table*
- Duration – the training duration in whole minutes. (required)
- Type – drop down list select group or individual. (required)
- Date – data/time the training activity was recorded. (required)
- Qualified – checkbox indicates if the user was qualified to use the tool after the training session.

39.51.4 User access page

Training sessions are maintained on the training page detailed on page 274.

39.52 Usage events

39.52.1 Usage

The usage events table records all tool usage based on log in and log out events on the tool control page. Under normal situations this table should not need to be directly modified. If a facility charges for tool usage, this table contains the usage events to be billed and duration.

39.52.2 Summary page

The summary page provides a listing of usage events (Figure 1012). Click the id field in the row of interest to edit.

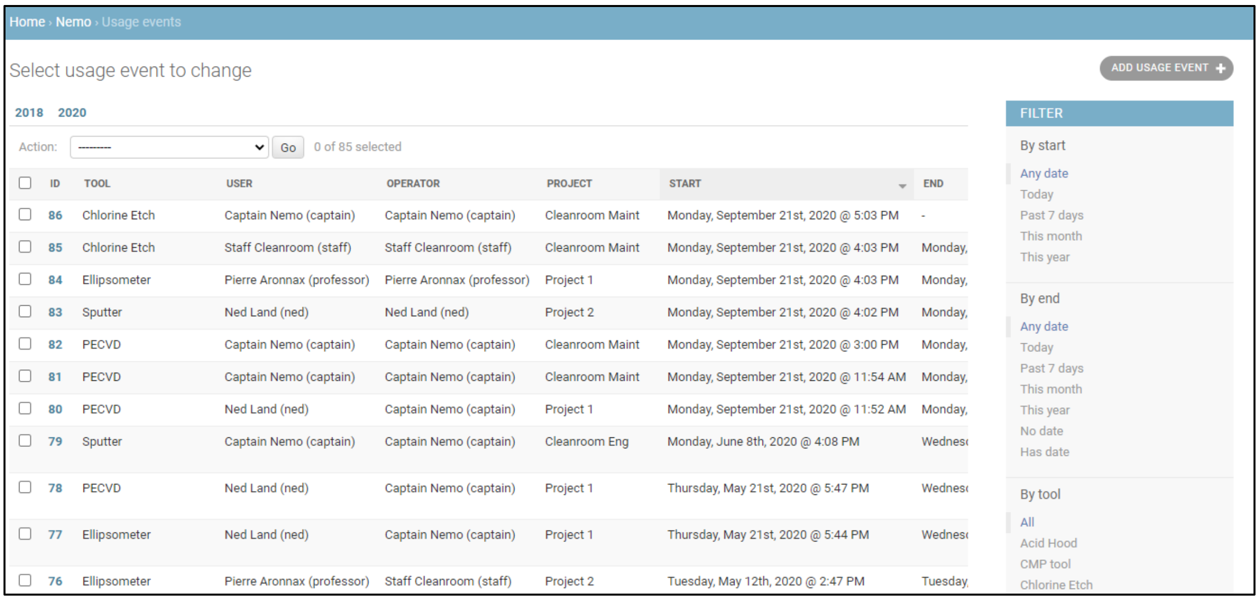


Figure 1012 Usage events summary page

39.52.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 1013). [Common features in detailed administration](#) is detailed on page 359.

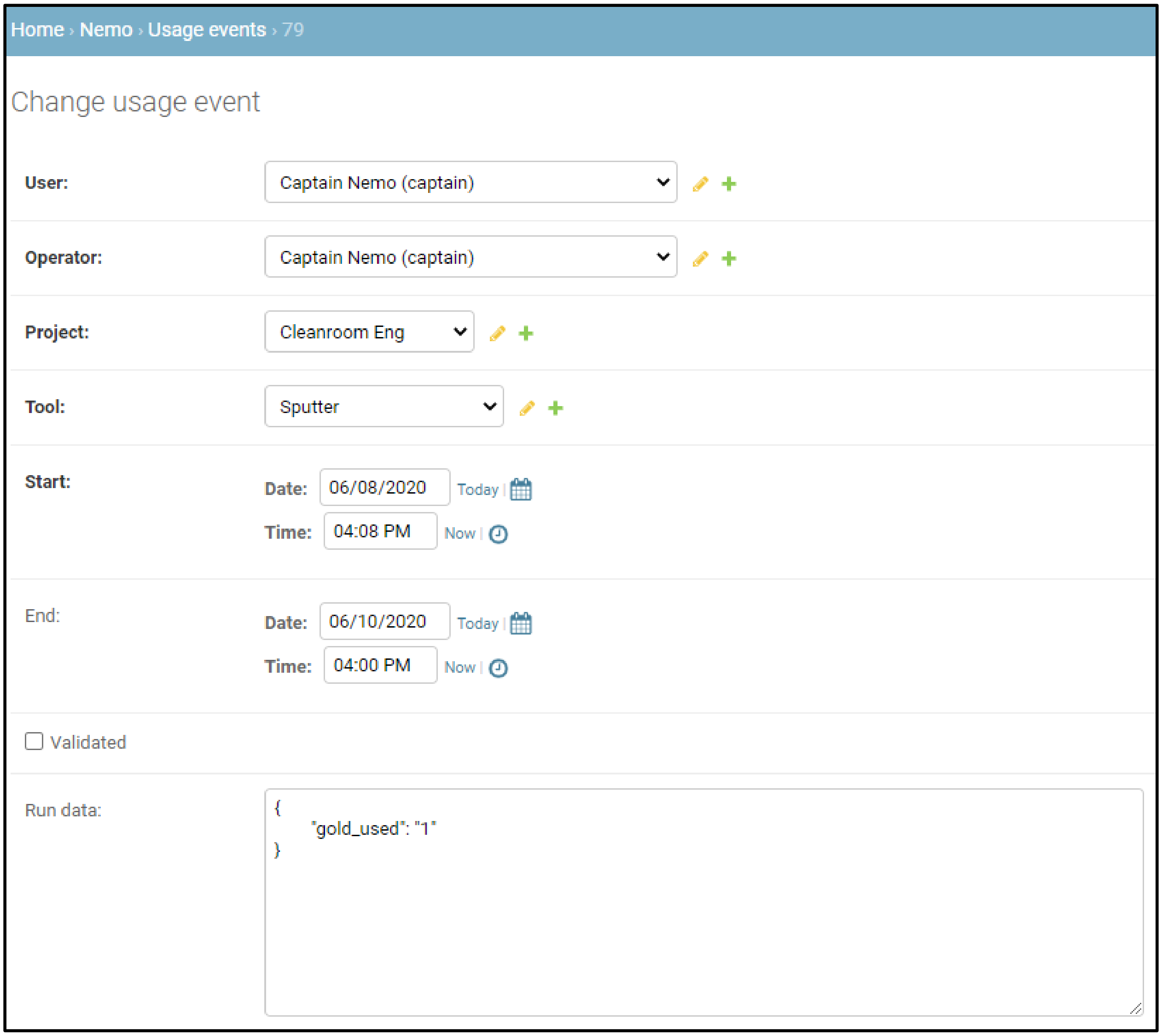


Figure 1013 Usage events add/edit page

- User – drop down list select the user using the tool. This is the person being billed. (required) *Users table*
- Operator – drop down list select the user using the tool. This is the person using the tool so it could be the user or a staff member on behalf of the user. (required) *Users table*
- Project – drop down list select the project to charge usage to. (required) *Projects table*
- Tool – drop down list select the tool in use. (required) *Tools table*
- Start – data/time the usage event started. (required)
- End – data/time the usage event ended. Active usage has a blank end date/time.
- Validated – checkbox indicates if the staff member confirmed the usage was correct. Only applies to tool run on behalf of another user.
- Run data – contains the answers to any post usage questions in json format.

39.52.4 User access page

Training sessions are maintained on the training page detailed on page 274.

39.53 User preferences

39.53.1 Usage

The user preferences table records the preferences for each user that are settable in NEMO. User preferences are automatically created and updated from the user preference page detailed on page 186.

39.53.2 Summary page

The summary page provides a listing of user preferences (Figure 1014). Click the user field in the row of interest to edit.

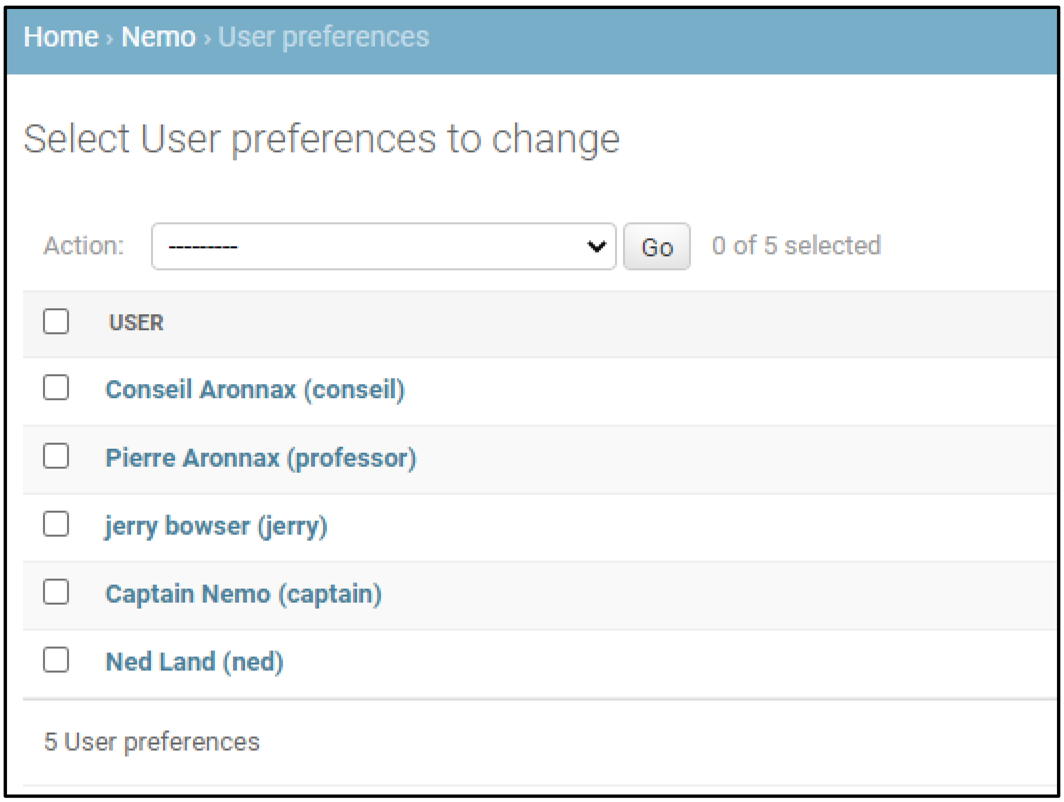


Figure 1014 User preference summary page

39.53.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 1015). Common features in detailed administration is detailed on page 359.

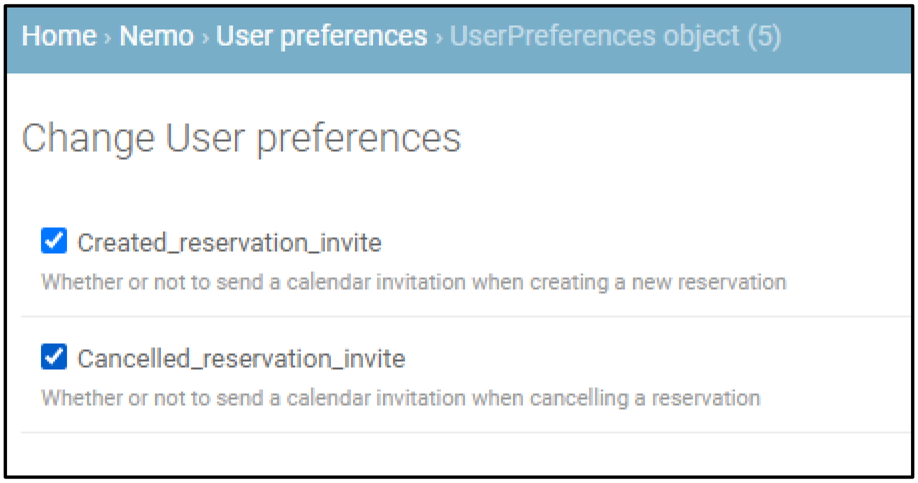


Figure 1015 User preference add/edit page

- Created_reservation_invite – checkbox indicates whether or not to send a calendar invitation when creating a new reservation
- Cancelled_reservation_invite – checkbox indicated whether or not to send a calendar invitation when cancelling a reservation

39.53.4 User access page

User preferences are automatically created and updated from the user preference page detailed on page 186.

39.54 User types

39.54.1 Usage

User types are optional but can be useful for binning users aiding in future analysis and trending. User types, if used, must be created in this table view and can be any text name. Any number can be defined. If no user types are defined, they are not displayed on the user page. User types are discussed in the users page detailed on page 278.

39.54.2 Summary page

The summary page provides a listing of user types (Figure 1016). Click the name field in the row of interest to edit.

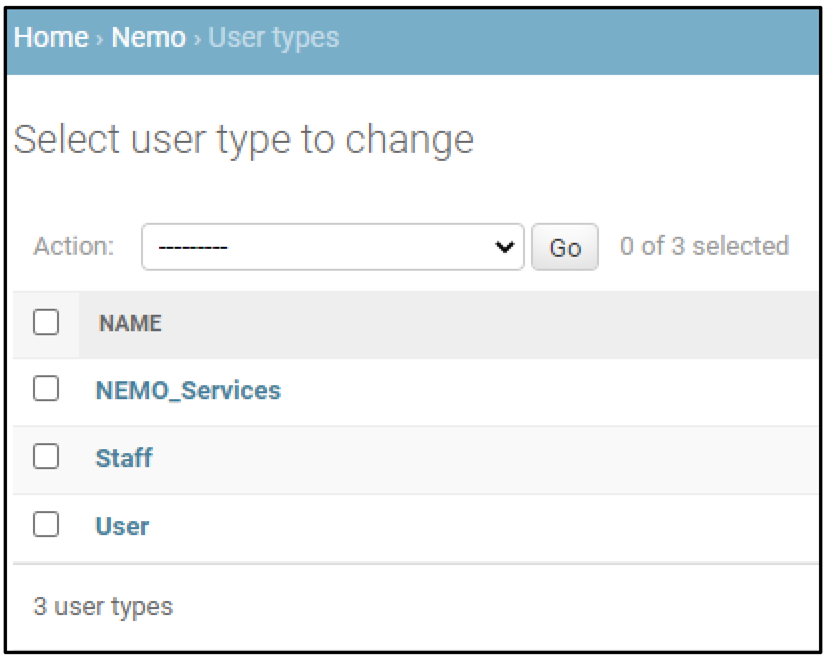


Figure 1016 User types summary page

39.54.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 1017). Common features in detailed administration is detailed on page 359.

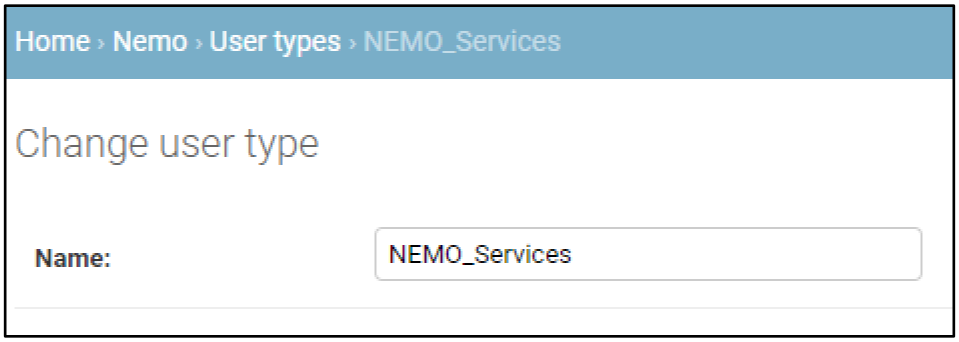


Figure 1017 User types add/edit page

- Name – the name can be up to 200 characters (required).

39.54.4 User access page

There is no user access page to create user types however, user types are discussed in the users page detailed on page 278.

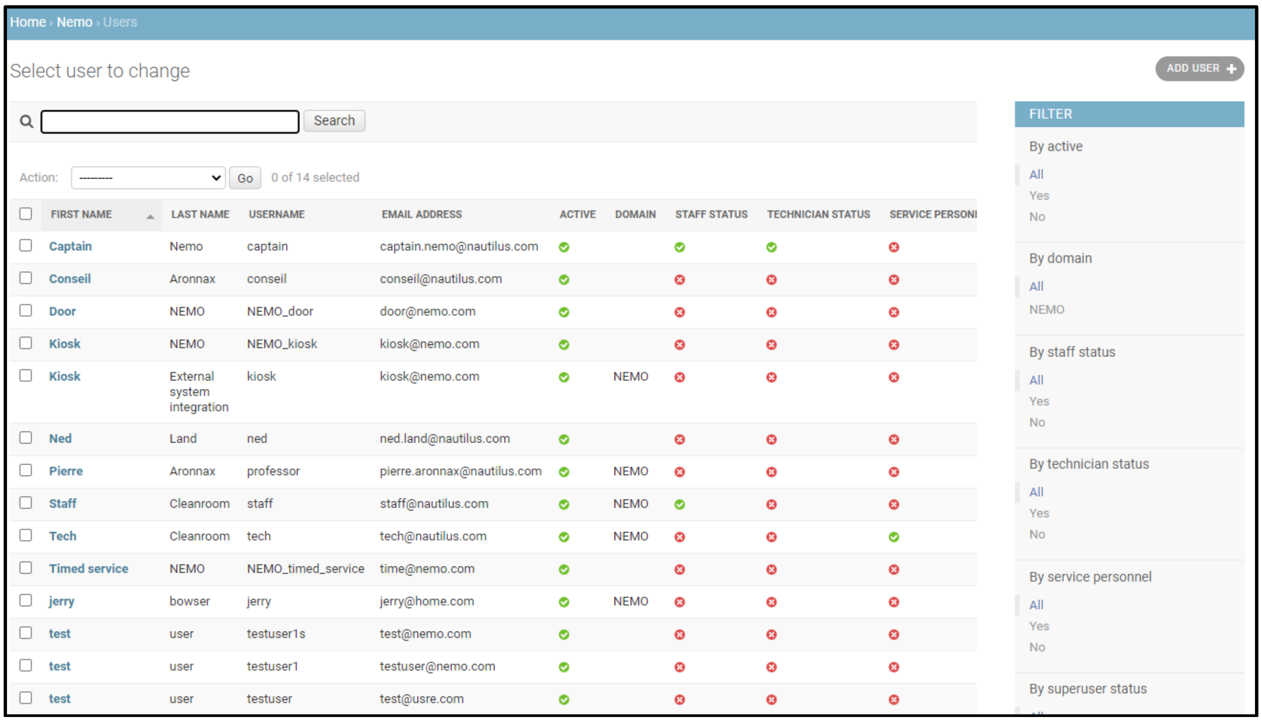
39.55 Users

39.55.1 Usage

The users table lists each user, their permissions, important dates, and qualifications. Users are created and maintained from the users page detailed on page 278. However, some attributes may be updated from other pages and some attributes may only be set directly from this page. If an attribute can be set from a page other than the users page, it will be noted in the field details below.

39.55.2 Summary page

The summary page provides a listing of tools (Figure 1018). Click the name field in the row of interest to edit.



FIRST NAME	LAST NAME	USERNAME	EMAIL ADDRESS	ACTIVE	DOMAIN	STAFF STATUS	TECHNICIAN STATUS	SERVICE PERSONNEL
Captain	Nemo	captain	captain.nemo@nautilus.com	✓		✓	✓	✗
Conseil	Aronnax	conseil	conseil@nautilus.com	✓		✗	✗	✗
Door	NEMO	NEMO_door	door@nemo.com	✓		✗	✗	✗
Kiosk	NEMO	NEMO_kiosk	kiosk@nemo.com	✓		✗	✗	✗
Kiosk	External system integration	kiosk	kiosk@nemo.com	✓	NEMO	✗	✗	✗
Ned	Land	ned	ned.land@nautilus.com	✓		✗	✗	✗
Pierre	Aronnax	professor	pierre.aronnax@nautilus.com	✓	NEMO	✗	✗	✗
Staff	Cleanroom	staff	staff@nautilus.com	✓	NEMO	✓	✗	✗
Tech	Cleanroom	tech	tech@nautilus.com	✓	NEMO	✗	✗	✓
Timed service	NEMO	NEMO_timed_service	time@nemo.com	✓		✗	✗	✗
jerry	bowser	jerry	jerry@home.com	✓	NEMO	✗	✗	✗
test	user	testuser1s	test@nemo.com	✓		✗	✗	✗
test	user	testuser1	testuser@nemo.com	✓		✗	✗	✗
test	user	testuser	test@usre.com	✓		✗	✗	✗

Figure 1018 Users summary page

39.55.3 Fields

The add/change page for this table lists the fields that can be edited. Common features in detailed administration is detailed on page 359.

Personal Information (Figure 1019)

- First name – text field of the user's first name. (required)
- Last name – text field of the user's last name. (required)
- Username – text field of the user's username. This is the name the user authenticates with. (required)

- Email address – text field of the users email address. NEMO uses emails to provide useful updates and information to users. (required)
- Badge number – the badge number associated with this user. This field must correctly correspond to a user in order for the entrance tablet and kiosk systems to work properly.
- Type – drop down list select user type from list. This is an informational user type for grouping users for future data analysis.
- Domain – If the identity service is being used to validate users against multiple domains, enter the active directory domain that the account resides on. Not needed for single domain implementations.

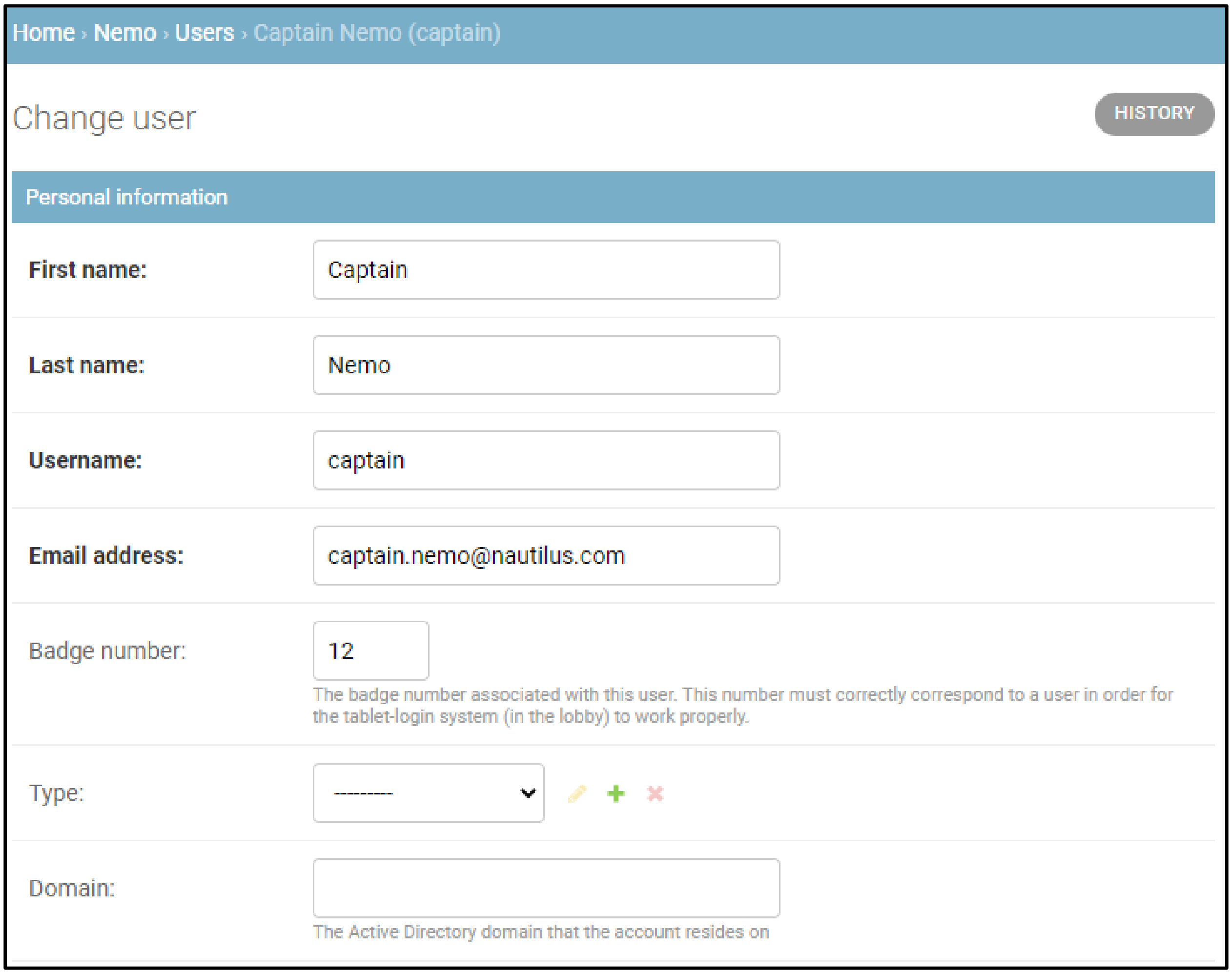


Figure 1019 Users personal information

Permissions (Figure 1020)

- Active – checkbox designates whether this user can log in. Unselect this instead of deleting accounts.
- Staff – checkbox designates whether the user can log into this admin site. Can only be changed from this page.

- Facility manager – checkbox designates the facility manager(s). When checked, users will receive task status updates and will be able to approve/deny access requests. Can only be changed from this page.
- Technician – checkbox specifies how to bill staff time for this user. When checked, customers are billed at technician rates. Can only be changed from this page.
- Service personnel – checkbox designates this user as service personnel. Service personnel can operate qualified tools without a reservation even when they are shutdown or during an outage and can access authorized areas without a reservation. Can only be changed from this page.
- Administrator – checkbox designates that this user has all permissions without explicitly assigning them. Can only be changed from this page.
- Training required – checkbox when selected, the user is blocked from all reservation and tool usage capabilities.

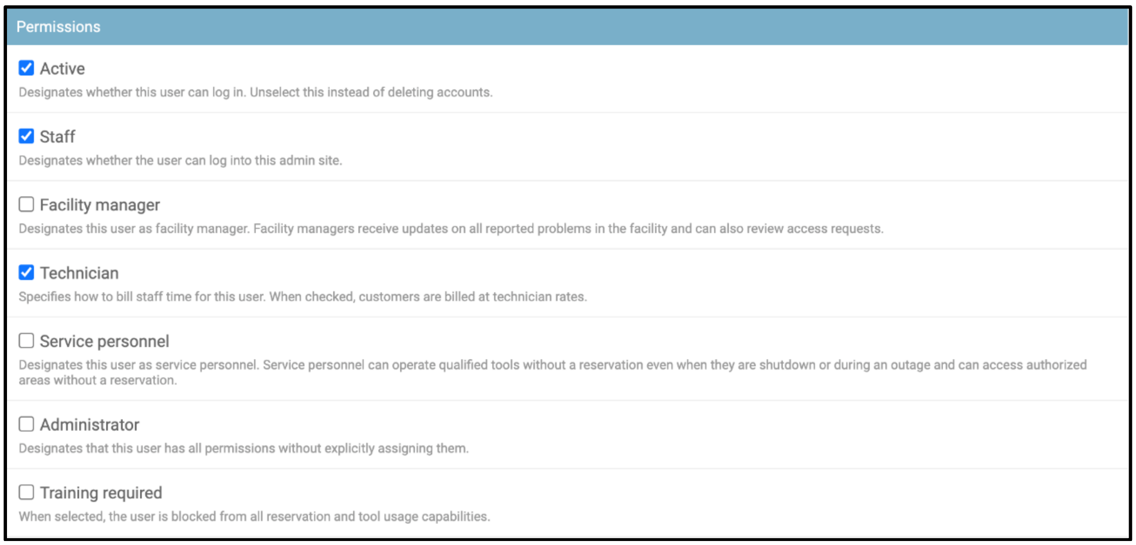


Figure 1020 Users permissions

Additional Permissions (Figure 1021)

- Groups – groups can be used to list common user permissions into a single item to make assignment easier. Select from available groups and click the right arrow to add to chosen groups. Multiple groups can be selected at the same time using shift or control keys. Groups can be created from the detailed administration groups page. Normally, groups do not need to be assigned to users. Can only be changed from this page.
- User permissions – user permissions pertain to either detailed administration access or behind the scenes activity such as doors and kiosks. Select from available user permissions and click the right arrow to add to chosen user permissions. Multiple user permissions can be selected at the same time using shift or control keys. Normally, user permissions do not need to be assigned to users. Can only be changed from this page.
- Physical access levels – physical access levels determine what area access a user has and when. Select from available physical access levels and click the right arrow to add to chosen physical access levels. Multiple physical access levels can be selected at the same time using shift or control keys. *Physical access levels table*

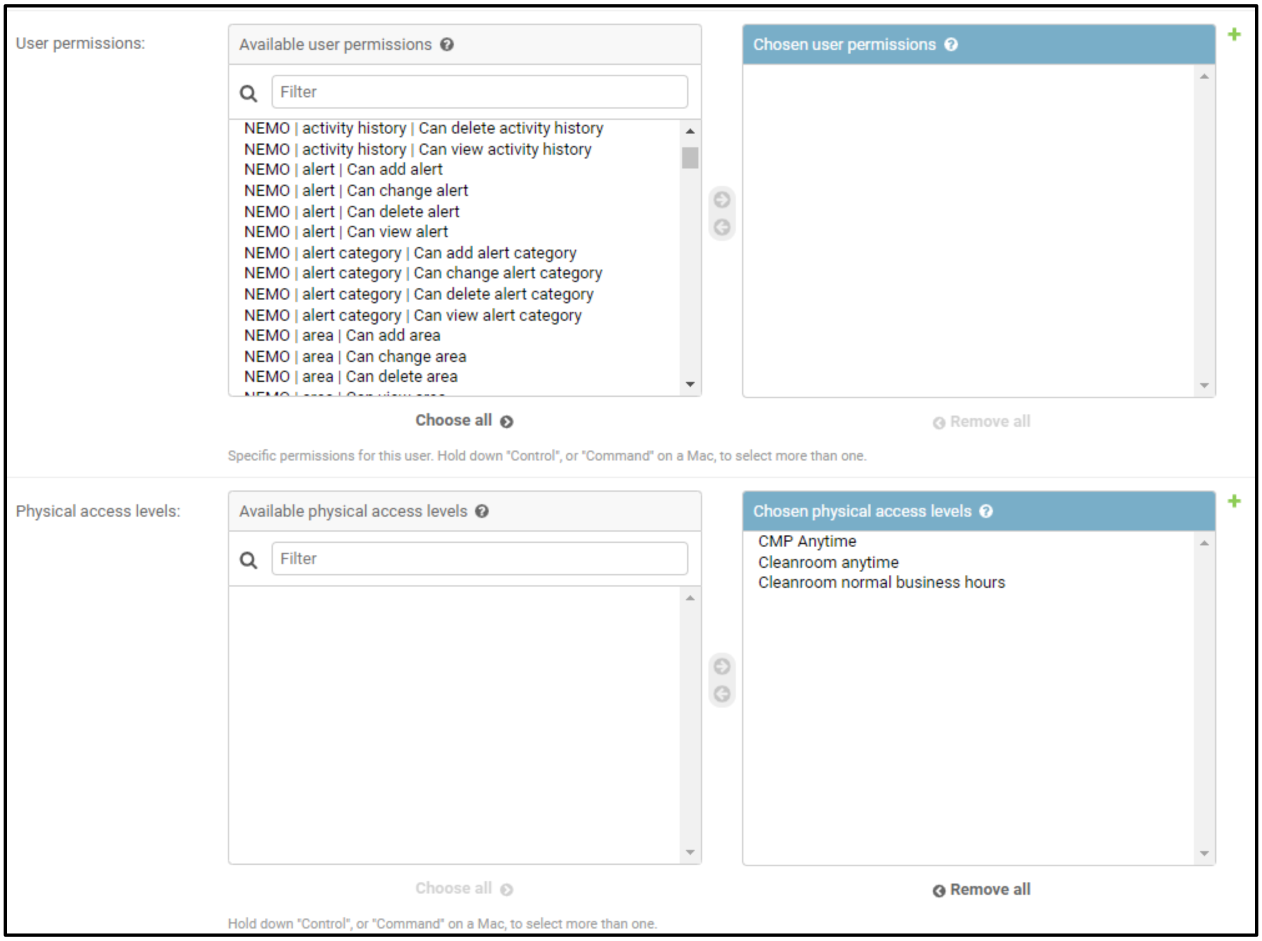


Figure 1021 Users additional permissions

Important Dates (Figure 1022)

- Date joined – date/time the user record was created. This field is automatically set and should not be changed.
- Last login – date/time the user last authenticated into NEMO. This field is automatically set and should not be changed.
- Access expiration – date/time the user will lose all access rights. Typically, this is used to ensure that safety training has been completed by the user every year and that users don’t have perpetual access.

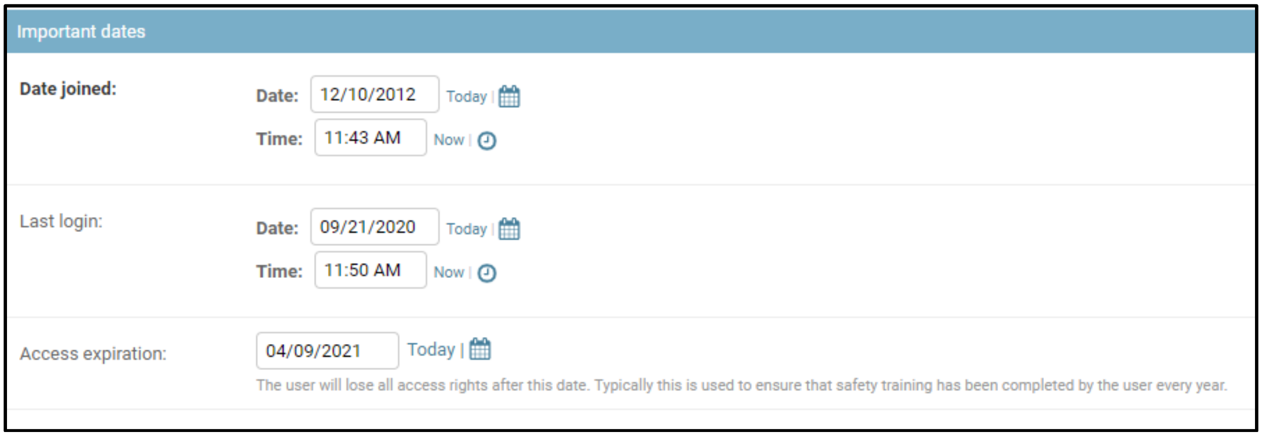


Figure 1022 Users important dates

Facility Information (Figure 1023 & Figure 1024)

- Qualifications – select from available tool qualifications and click the right arrow to add to chosen tool qualifications. Multiple tool qualifications can be selected at the same time using shift or control keys.
- Backup owner on tools – select from available tools and click the right arrow to add the chosen tool. Multiple tools can be selected at the same time using shift or control keys.
- Superuser on tools – select from available tools and click the right arrow to add the chosen tool. Multiple tools can be selected at the same time using shift or control keys.
- Projects - select from available projects and click the right arrow to add to chosen projects. Multiple projects can be selected at the same time using shift or control keys.
- Managed projects - select from available projects and click the right arrow to add to chosen projects. Multiple projects can be selected at the same time using shift or control keys.

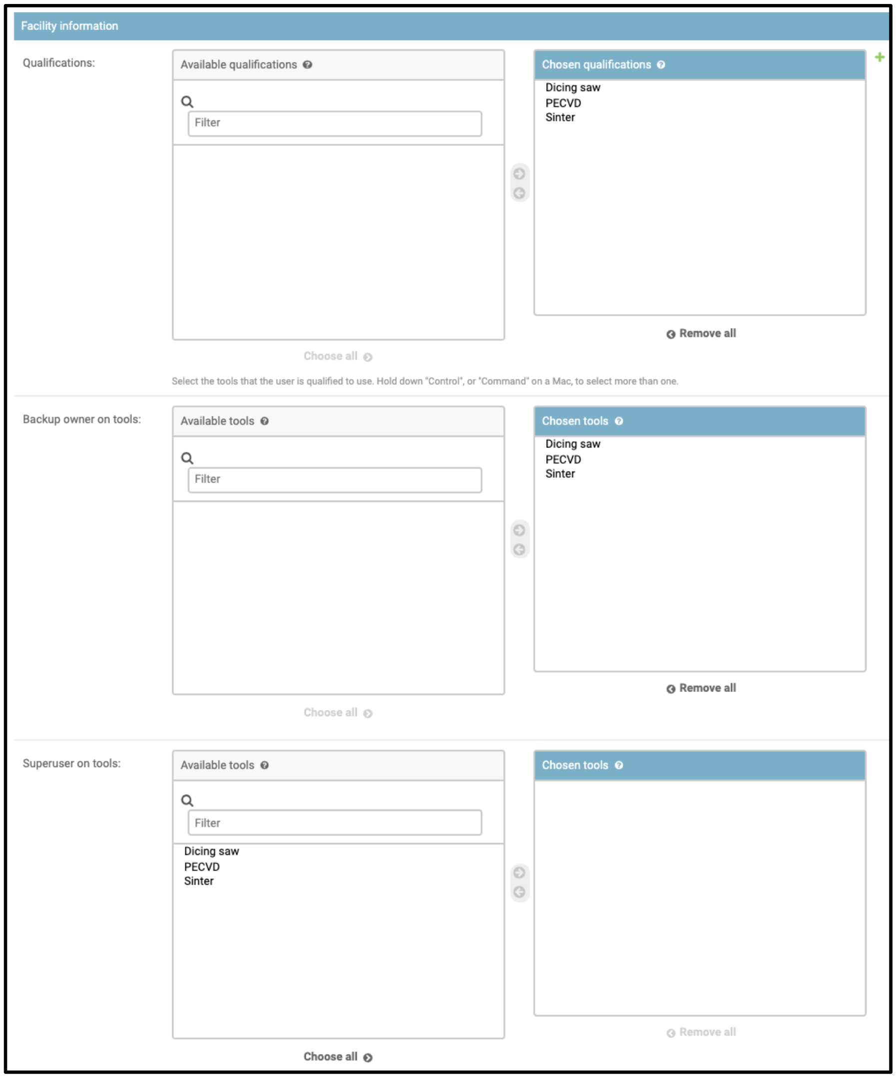


Figure 1023 Users facility information

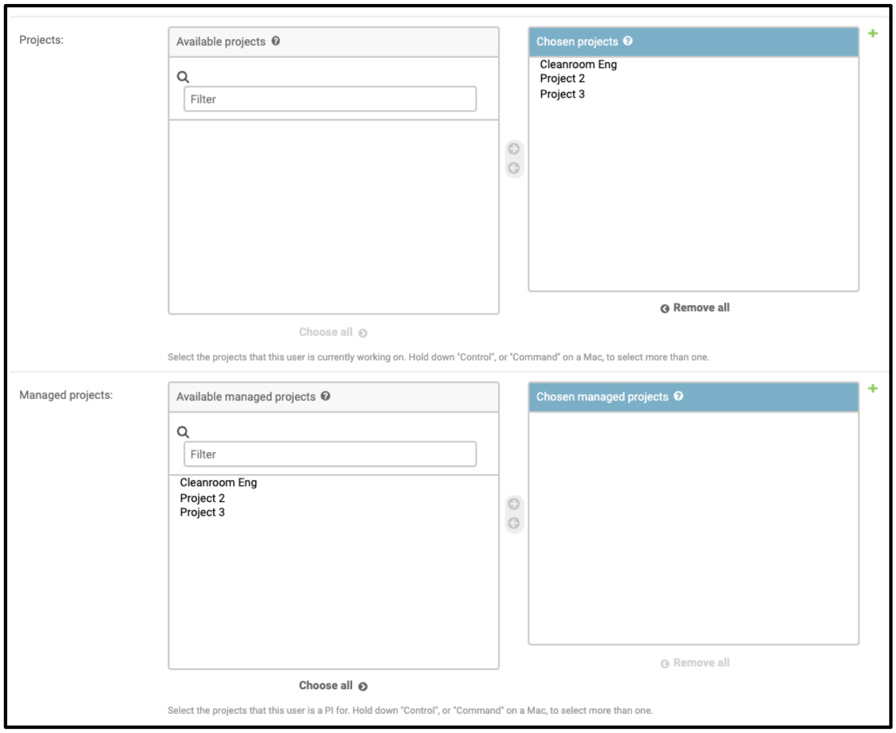


Figure 1024 Users facility information (continued)

39.55.4 User access page

Users are created and maintained from the users page detailed on page 278 or directly in this table view. The permissions that give elevated user status are only settable or updateable in this table view.

Once created, some parameters can be updated in NEMO pages other than the users page.

- Qualified users can also be managed on the training page detailed starting on page 274, or the qualifications page detailed starting on page 235.
- Projects can also be managed in the Accounts and projects section detailed on page 191.

40 Detailed administration – Sensors (admin only)

This is the section regarding admin pages for Sensors.
It is available by going to Administration -> Detailed administration -> Sensors, or directly at <site_address>/admin/sensors.
To enable sensors in your application, see the Sensor data -> Setup page.

40.1 Sensor alert emails

40.1.1 Usage

The sensor alert emails page lists alerts for sensors. Those alerts trigger an email as well as an alert log when the trigger condition is met, or when no data could be read if that option is selected.

40.1.2 Summary page

The summary page provides a listing of sensor alert emails (Figure 1025). Click the sensor field in the row of interest to edit.

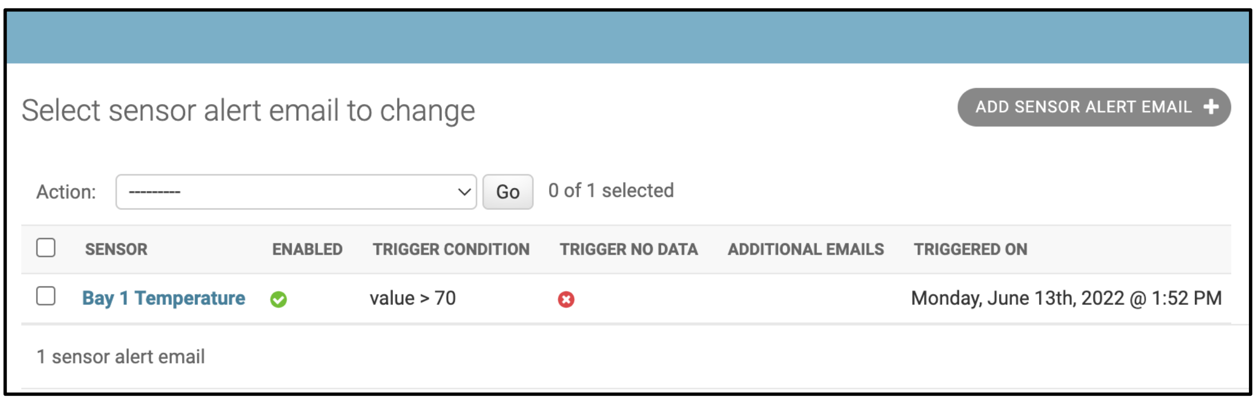


Figure 1025 Sensor alert emails summary page

40.1.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 1026). Common features in detailed administration is detailed on page 359.

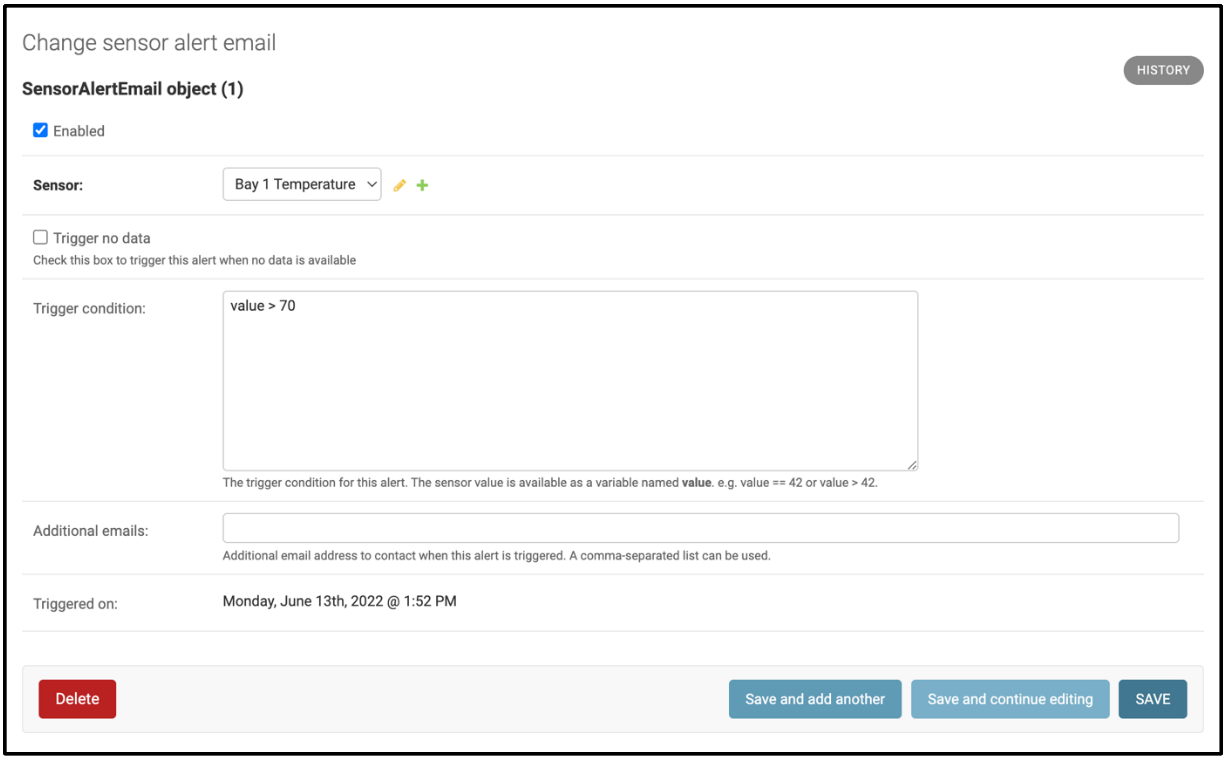


Figure 1026 Sensor alert email fields

- Enabled – uncheck to disable the alert
- Sensor – the sensor this alert should apply to (required)
- Trigger no data – check the box to have this alert triggered when no data is read
- Trigger condition – the condition that will trigger this alert. Mathematical functions and operators can be used. The sensor value is available as the variable "value". For example: "abs(value) > 42". The result will be evaluated as a python Boolean. See https://docs.python.org/3/library/stdtypes.html#truth-value-testing for details on what is considered true/false in python.
- Additional emails – text field of additional email addresses to send the alert email to. A comma separated list can be used
- Triggered on – read only field showing the last time the alert was triggered

40.1.4 User access page

There is no user access page to create sensor alert emails. However, sensor alerts are discussed in the Sensor data -> Alerts section.

40.2 Sensor alert logs

40.2.1 Usage

The sensor alert logs page is a read-only page displaying the history of all alert logs. It will display the alert details from the time the alert was triggered, even if the information has changed since.

40.2.2 Summary page

The summary page provides a listing of sensor alert logs (Figure 1027). Click the id field in the row of interest to edit.

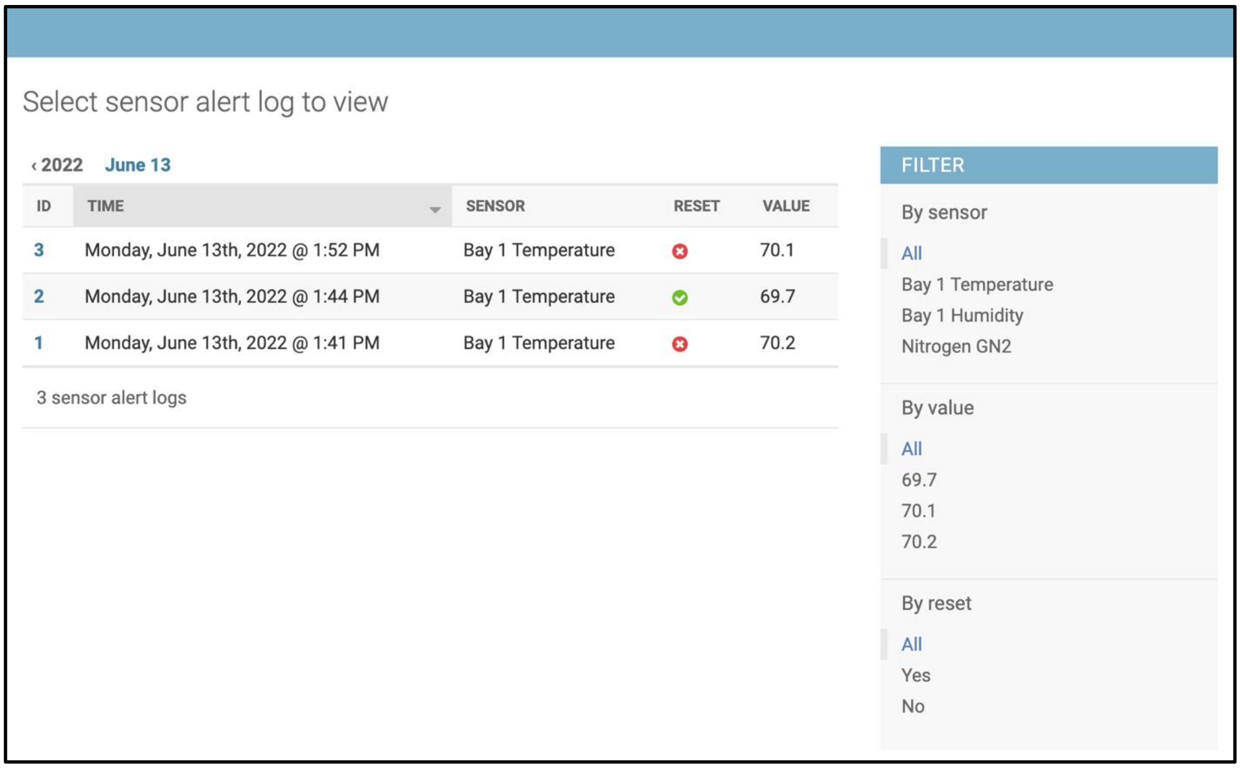


Figure 1027 Sensor alert logs summary page

40.2.3 Fields

The view page for this table lists the read-only fields (Figure 1028).

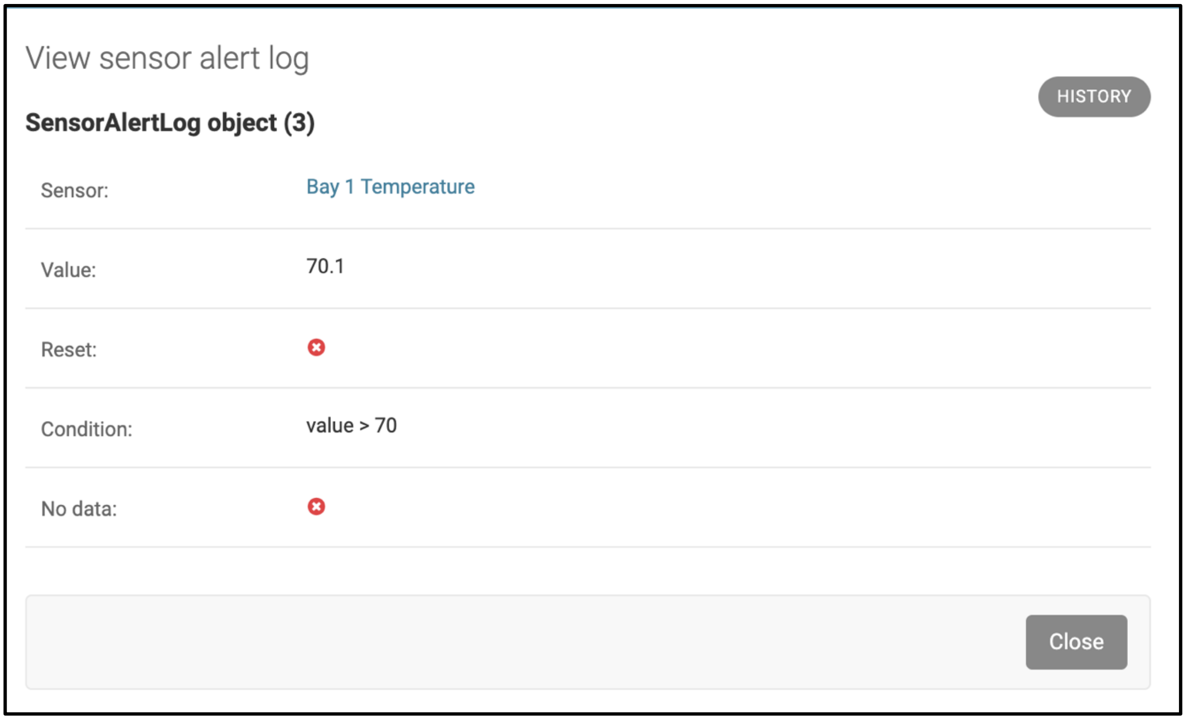


Figure 1028 Sensor alert log fields

- Sensor – read-only sensor
- Value – read-only sensor value at the time of the alert
- Reset – read-only flag, whether the alert was set or reset
- Condition – read-only text of the trigger condition at the time of the alert
- No data – read-only flag, whether the alert trigger condition included triggering when no data is read

40.2.4 User access page

There is no user access page to create sensor alert logs. However, sensor alerts logs are discussed in the Sensor data -> Alerts section.

40.3 Sensor card categories

40.3.1 Usage

Sensor card categories are used to link a sensor class in sensor.py to sensor cards so NEMO knows how to talk to the sensor. A sensor card category should be created for each sensor class in sensors.py that will be used to control sensors.

40.3.2 Summary page

The summary page provides a listing of sensor card categories (Figure 1029). Click the name field in the row of interest to edit.

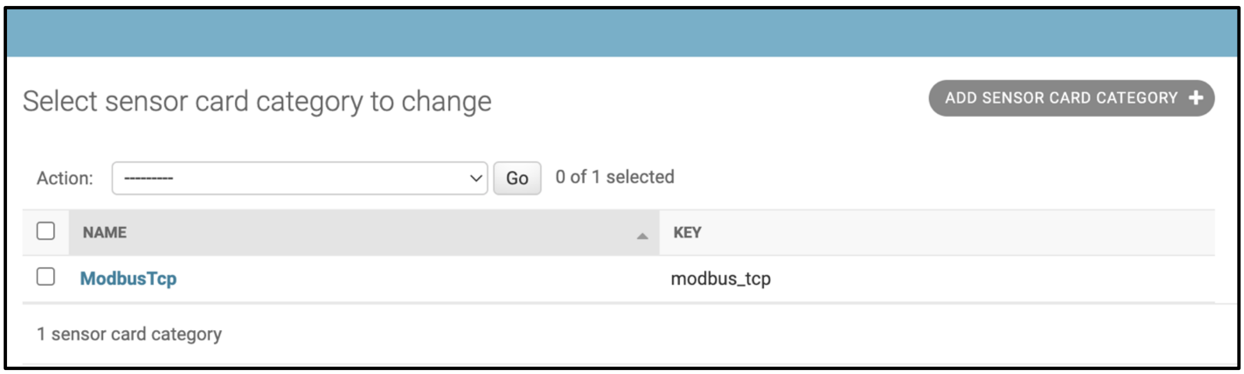


Figure 1029 Sensor card categories summary page

40.3.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 1030). [Common features in detailed administration]() is detailed on page 359.

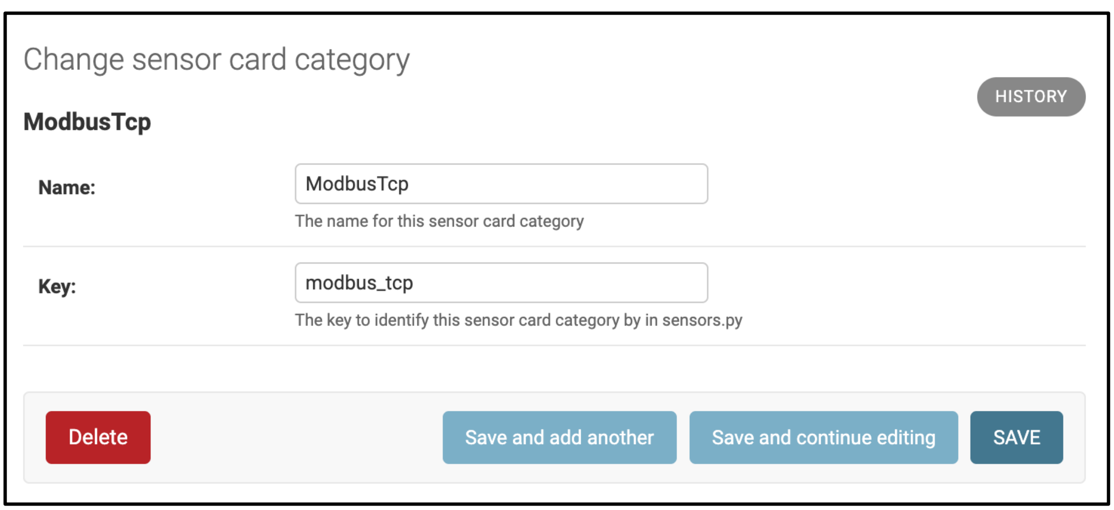


Figure 1030 Sensor card category fields

- Name – name can be up to 200 characters (required).

- Key – The key to identify this sensor card category in sensors.py (required)

  The sensors.py file has a dictionary that links this key name to each sensor class in sensors.py. Users can create their own sensor class and access it in NEMO by updating the dictionary to include their custom class (Figure 1031).

```
sensors: Dict[str, Sensor] = {"modbus_tcp": ModbusTcpSensor()}
```

Figure 1031 Sensor card categories example dictionary in sensors.py

40.3.4 User access page

There is no user access page to create sensor card categories. Sensor card categories, if used, must be created in this table view and can be any text name. Sensor card categories are used in the sensor cards table to define how NEMO should communicate with the sensors.

40.4 Sensor cards

40.4.1 Usage

Sensor cards define the communication parameters with a sensor device. Regardless if single sensors are used or multi-sensor devices are used, each device will require definition as an sensor card. Information such as IP address, port number and sensor category define how NEMO will communicate with the device.

40.4.2 Summary page

The summary page provides a listing of sensor cards (Figure 1032). Click the name field in the row of interest to edit.

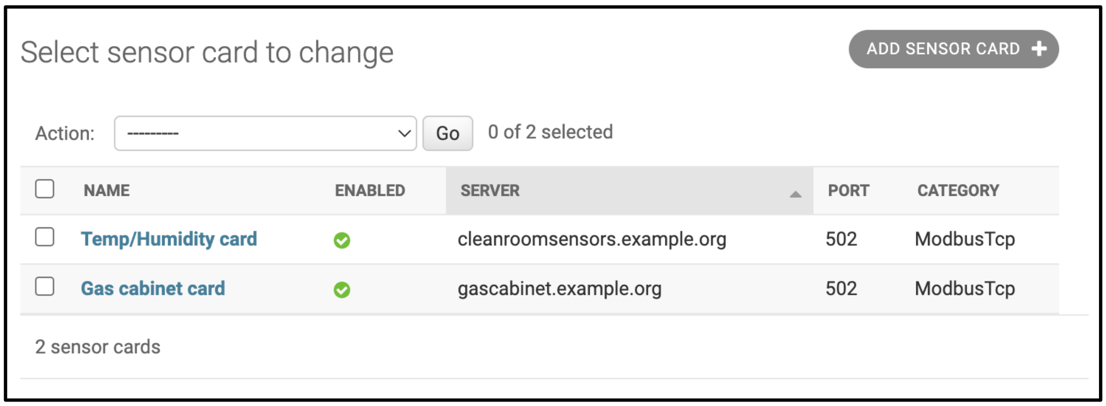


Figure 1032 Sensor cards summary page

40.4.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 1033). [Common features in detailed administration](#) is detailed on page 359.

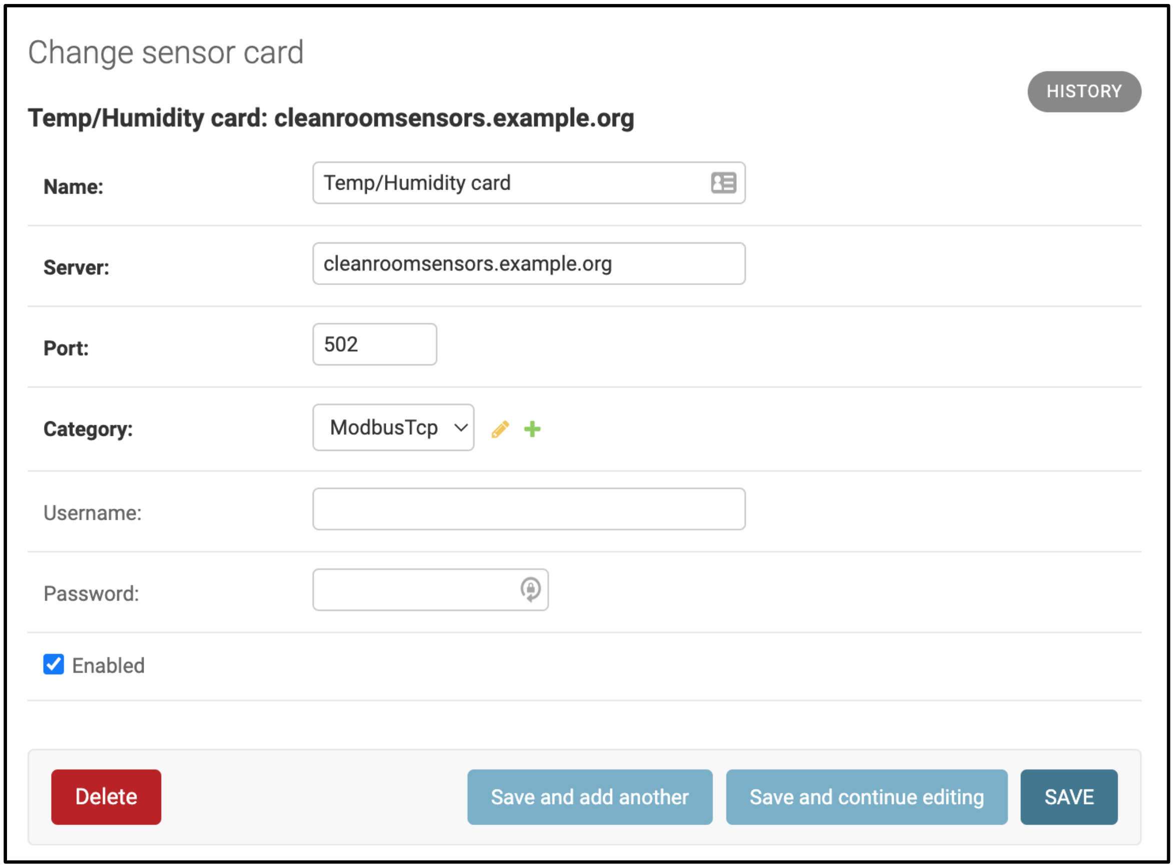


Figure 1033 Sensor card fields

- Name – name can be up to 200 characters (required).
- Server – IP address or FQDN of interlock device (required)
- Port – port number to access device through (required). ModbusTcp default port is 502
- Category – sensor card category selectable from drop down list (required). See Sensor card categories.
- Username – if a username and password is required to access the sensor device, enter the username
- Password – if a username and password is required to access the sensor device, enter the password
- Enabled – check box to set the status of the device, normally checked.

40.4.4 User access page

There is no user access page to create sensor cards. Sensor cards must be created in this table view. Sensor cards are used in the sensors table to define which sensor device to talk to.

40.5 Sensor categories

40.5.1 Usage

The sensor categories page lists categories for sensors. It provides a way to organize sensors with multiple level hierarchies.

40.5.2 Summary page

The summary page provides a listing of sensor categories (Figure 1034). Click the name field in the row of interest to edit.

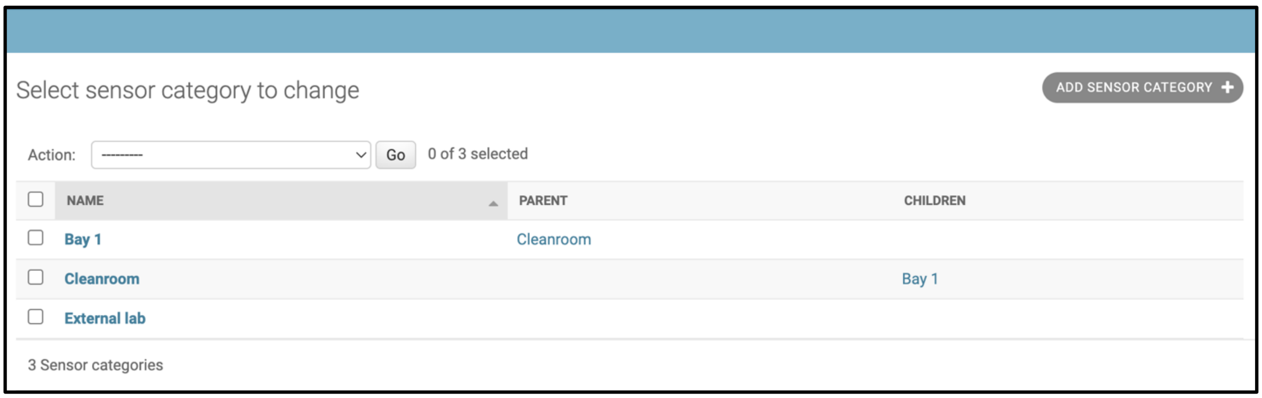


Figure 1034 Sensor categories summary page

40.5.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 1035). [Common features in detailed administration](#) is detailed on page 359.

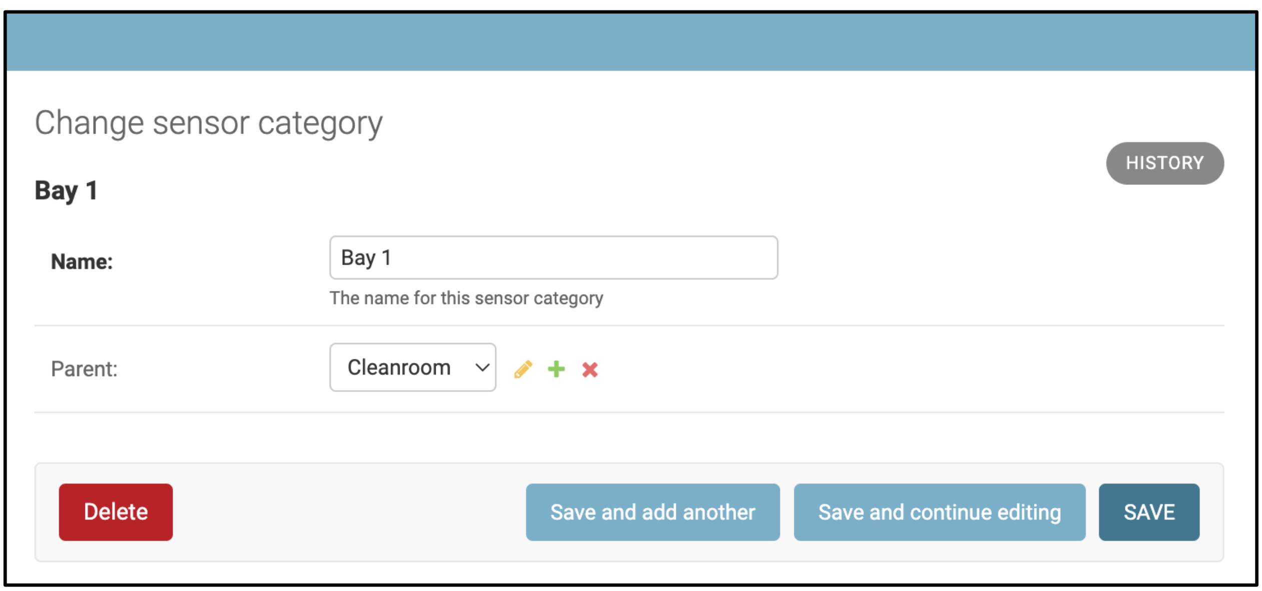


Figure 1035 Sensor category fields

- Name – text field of the sensor category name (required)

- Parent – drop down list of sensor categories to select as a parent category.

40.5.4 User access page

There is no user access page to create sensor categories. However, sensor categories are discussed in the Sensor data section.

40.6 Sensor data

40.6.1 Usage

The sensor data page lists data points for sensors.

40.6.2 Summary page

The summary page provides a listing of sensor data (Figure 1036). Click the created date field in the row of interest to edit.

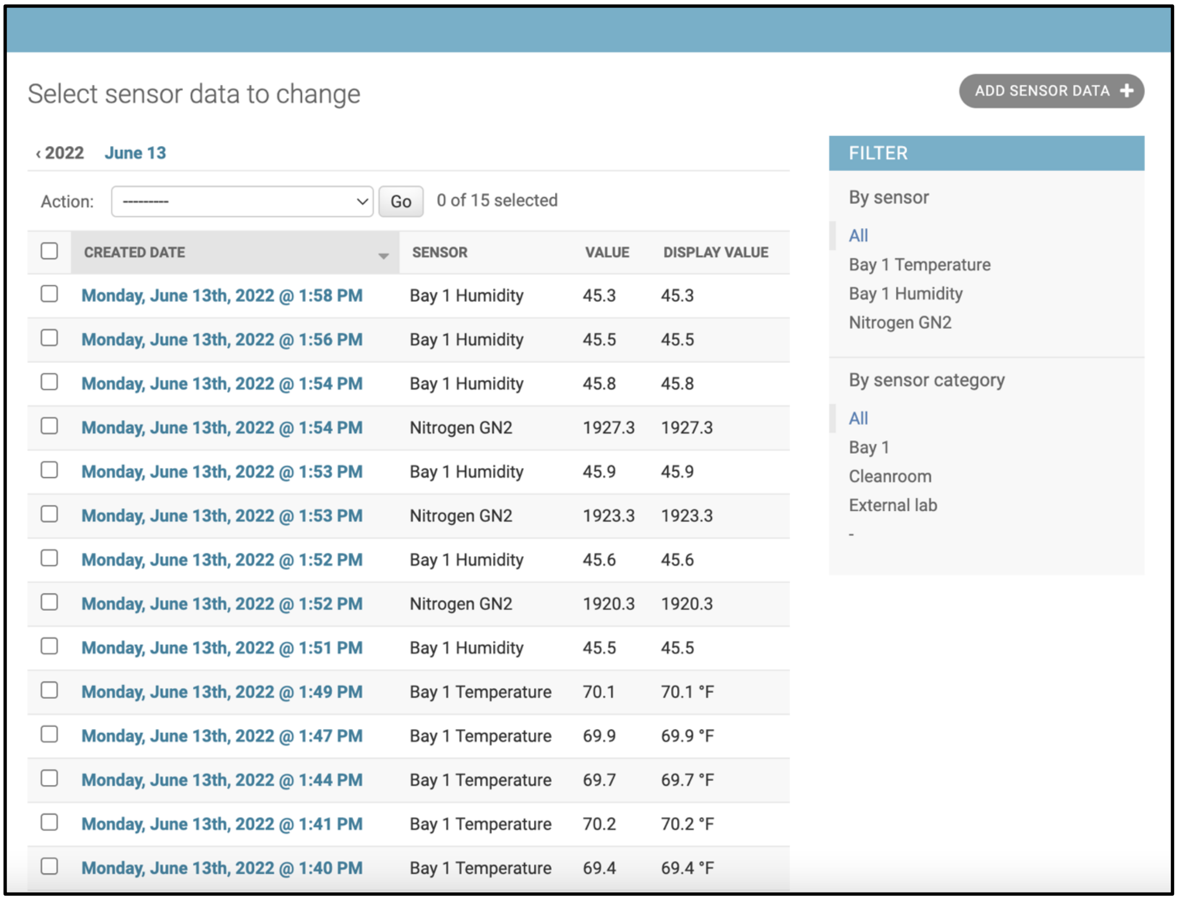


Figure 1036 Sensor data summary page

40.6.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 1037). Common features in detailed administration is detailed on page 359.

Sensor data point created date cannot be changed. It is automatically added as the current date when a new sensor data object is created.

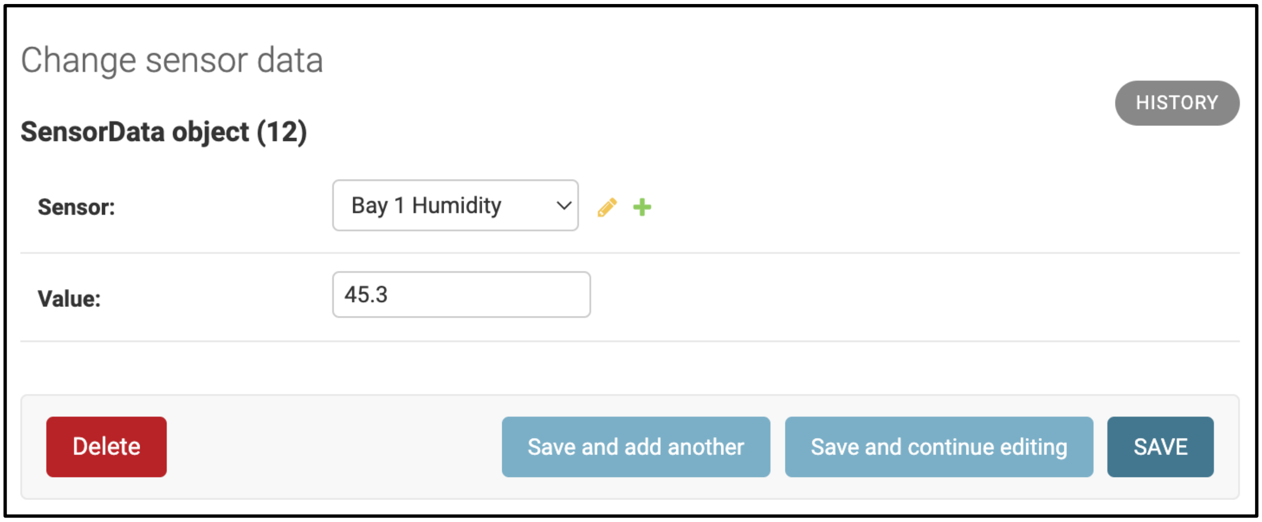


Figure 1037 Sensor data fields

- Sensor – the sensor this data point is coming from (required)
- Value – the value read by the sensor, after processing (required)

40.6.4 User access page

There is no user access page to create sensor data. However, sensor data is discussed in the Sensor data section.

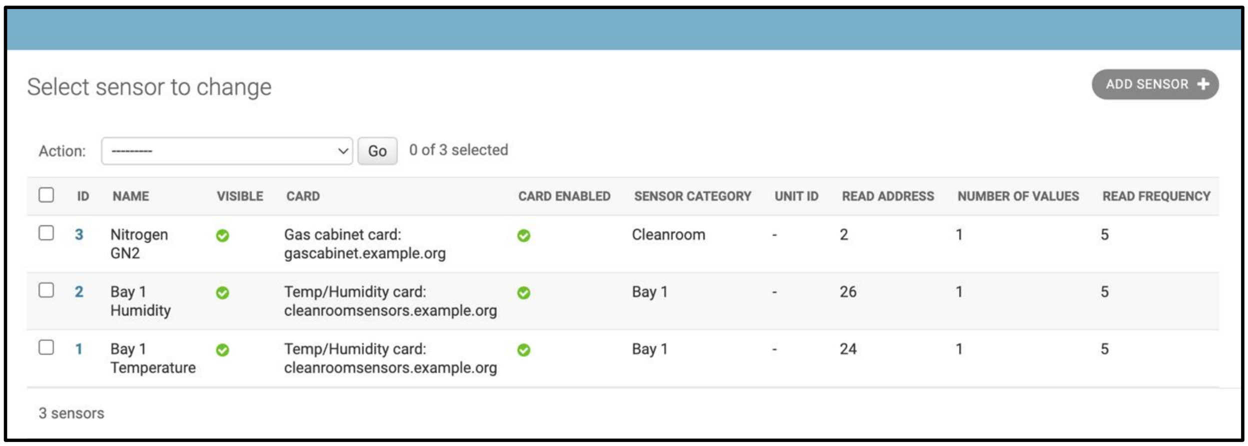
40.7 Sensors

40.7.1 Usage

The sensor table defines each sensor on a sensor card. An entry is required for each sensor on the card that will be used.

40.7.2 Summary page

The summary page provides a listing of sensors (Figure 1038). Click the name field in the row of interest to edit.


Select sensor to change

ADD SENSOR

Action: --------- Go 0 of 3 selected

ID	NAME	VISIBLE	CARD	CARD ENABLED	SENSOR CATEGORY	UNIT ID	READ ADDRESS	NUMBER OF VALUES	READ FREQUENCY
3	Nitrogen GN2	✓	Gas cabinet card: gascabinet.example.org	✓	Cleanroom	-	2	1	5
2	Bay 1 Humidity	✓	Temp/Humidity card: cleanroomsensors.example.org	✓	Bay 1	-	26	1	5
1	Bay 1 Temperature	✓	Temp/Humidity card: cleanroomsensors.example.org	✓	Bay 1	-	24	1	5

3 sensors

Figure 1038 Sensors summary page

40.7.3 Fields

The add/change page for this table lists the fields that can be edited (Figure 1039, Figure 1040). Common features in detailed administration is detailed on page 359.

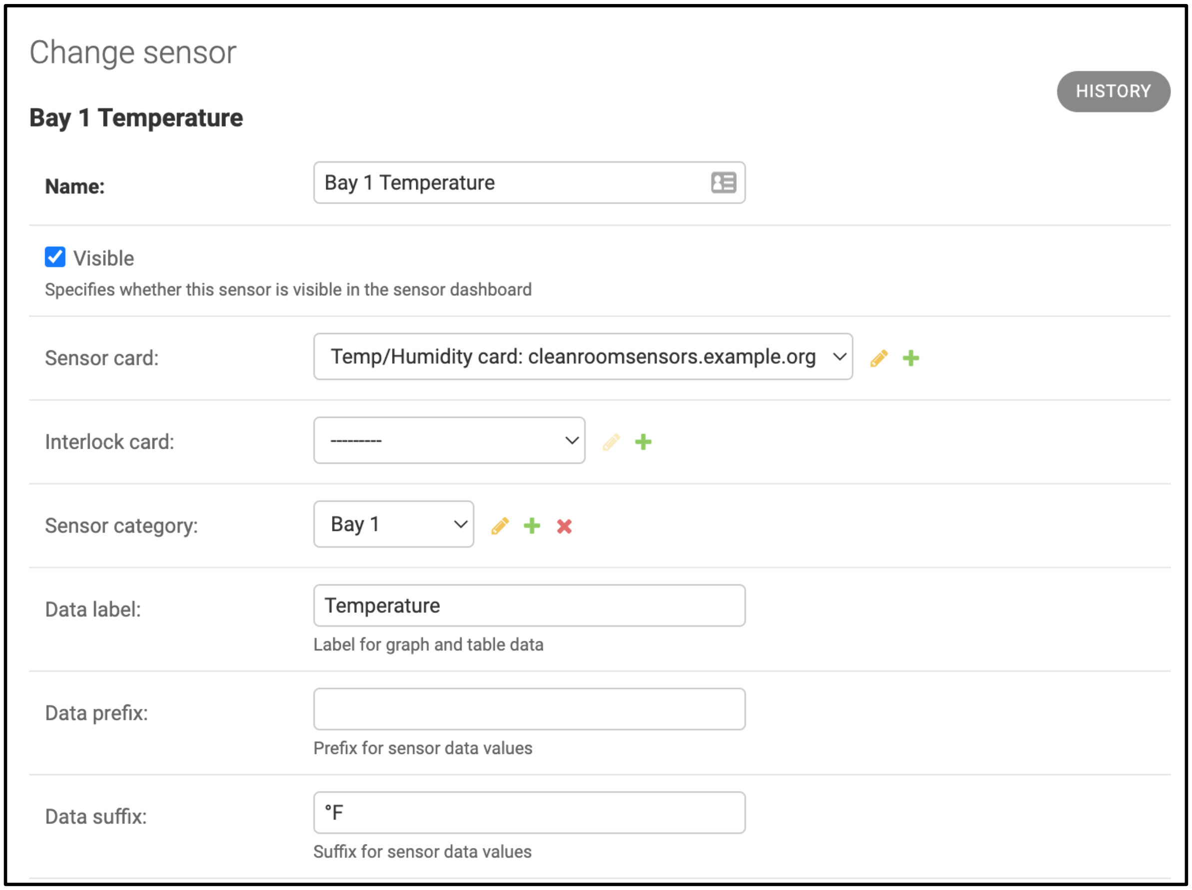


Figure 1039 Sensor fields

- Name – text field of the sensor name (required)
- Visible – checkbox of whether this sensor should be visible in the sensor dashboard page.
- Sensor card – sensor card this sensor is connected too.
- Interlock card – interlock card this sensor is connected too. This allows for certain sensors to be connected to an interlock card, provided the interlock card category key is the same as the one corresponding to the sensor class. For example, a ModbusTCP interlock card is compatible with the ModbusTCP sensor implementation. Certain manufacturers provide interlock boxes allowing for relays and sensor connection on the same device.
- Sensor category – the sensor category for this sensor
- Data label – text field for the label to show on the Y axis of the chart data for this sensor
- Data prefix – text field for the prefix to add to the value read. Only used when displaying the data.
- Data suffix – text field for the suffix to add to the value read. Only used when displaying the data.

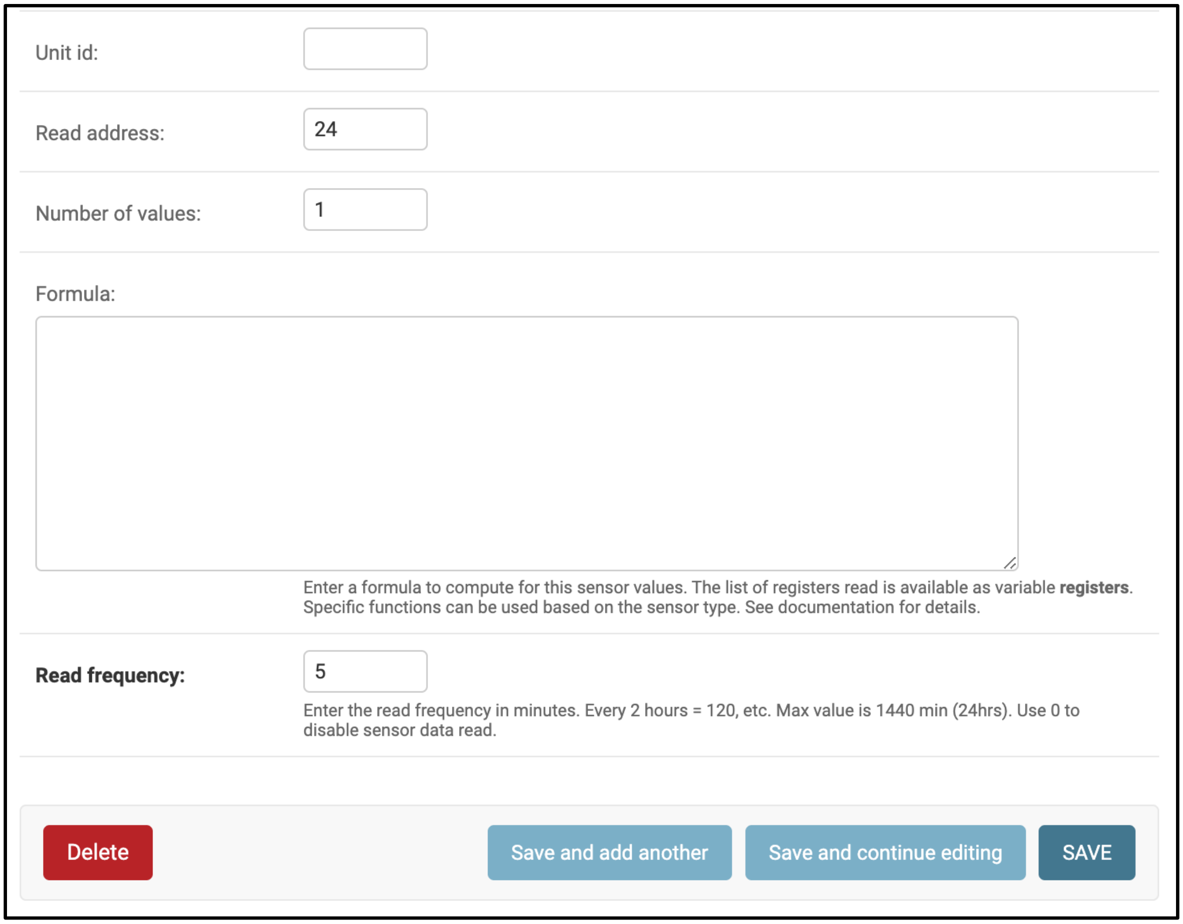


Figure 1040 Sensor fields continued

- Unit id – number field for the unit id of the sensor. Usually left empty
- Read address – number field for the address to start reading data from (required for ModbusTCP sensors). Refer to your sensor manual to find this value.
- Number of values – number of values to read (required for ModbusTCP sensors). Refer to your sensor manual to find this value. If greater than 1, the formula field will be required
- Formula – the formula to apply when reading the values. The values are available as a list “registers”. For example, “round(registers[0], 2)” to round the value to the nearest 2 decimal value. Some sensor ModbusTCP devices split data into multiple registers, and they need to be decoded together. The following modbus-specific functions are available:
    - decode_8bit_uint
    - decode_16bit_uint
    - decode_32bit_uint
    - decode_64bit_uint
    - decode_8bit_int
    - decode_16bit_int
    - decode_32bit_int
    - decode_64bit_int
    - decode_16bit_float
    - decode_32bit_float

- decode_64bit_float
- decode_bits
- decode_string

For example, “decode_32bit_float(registers)” would decode a 32 bit float from a register list containing 2 values. Refer to your sensor manual for details.

40.7.4 User access page

There is no user access page to create sensors. However, sensors are discussed in the Sensor data section.

41 API access

41.1 Usage

- The API base access page is accessible in the Administration menu under API. A list of available data tables will be displayed (Figure 1041).
- Several tables are available through the API
    - accounts: "site-address /api/accounts/",
    - area_access_records: "site-address /api/area_access_records/",
    - areas: "site-address /api/areas/",
    - billing: "site-address /api/billing/",
        - The billing information is discussed in a separate later in this section.
    - projects: “site-address /api/projects/",
    - reservations: "site-address /api/reservations/",
    - resources: "site-address /api/resources/",
    - scheduled_outages: “site-address /api/scheduled_outages/",
    - staff_charges: “site-address /api/staff_charges/",
    - tasks: "site-address /api/tasks/",
    - tools: "site-address /api/tools/",
    - training_sessions: “site-address /api/training_sessions/",
    - usage_events: "site-address /api/usage_events/",
    - users: “site-address/api/users/"

Figure 1041 API access root

- Directly enter the web address or click on the address link of any table to access the data (Figure 1042). The example below was reached with the address “site-address/api/users/”

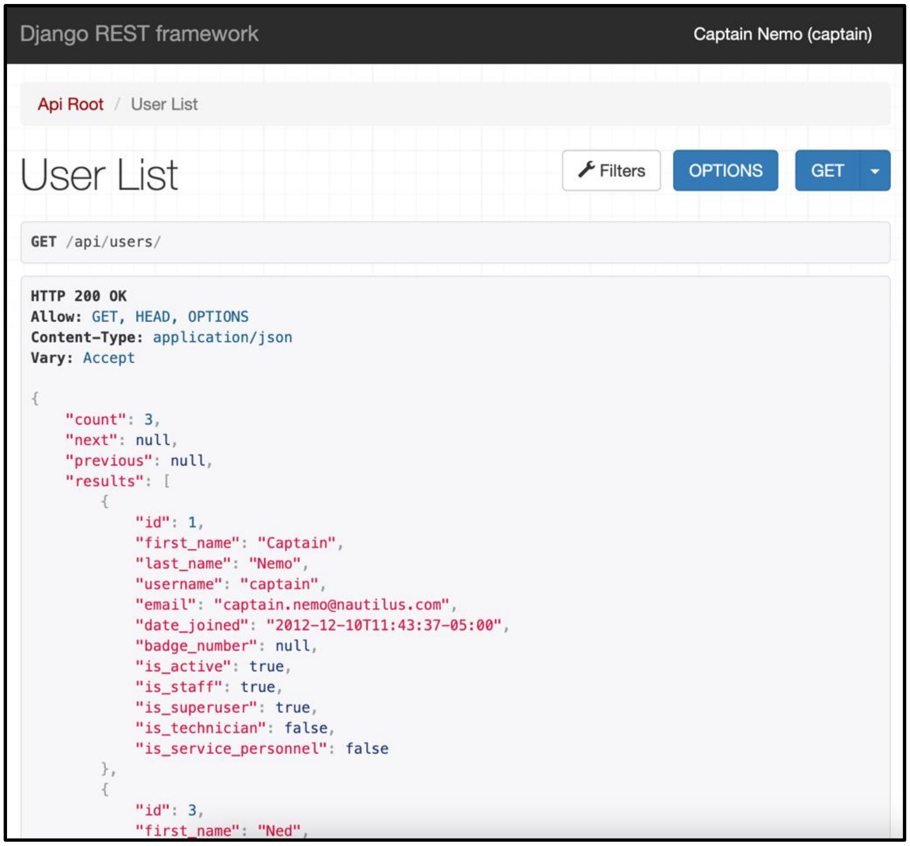


Figure 1042 API access example data list view

- To remove all formatting and convert the data to a json output stream, add the parameter “format=json” or select the drop down in the top right corner then select json from the list (Figure 1043).

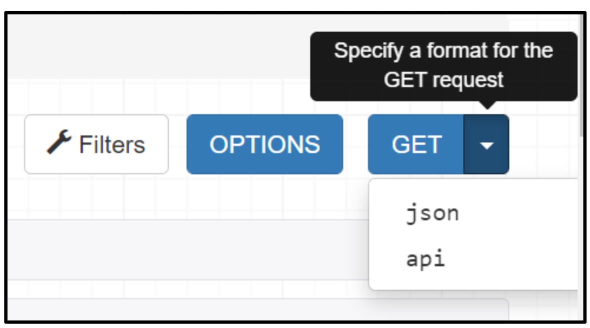


Figure 1043 API access change to json view

- The page output will now be in json format which can be parsed in many external software packages for analysis or billing (Figure 1044). The example below was reached with the address “site-address/api/users/?format=json”

```
{"count":3,"next":null,"previous":null,"results":
[{"id":1,"first_name":"Captain","last_name":"Nemo","username":"captain","email":"captain.nemo@nautilus.com"
,"date_joined":"2012-12-10T11:43:37-
05:00","badge_number":null,"is_active":true,"is_staff":true,"is_superuser":true,"is_technician":false,"is_s
ervice_personnel":false},
{"id":3,"first_name":"Ned","last_name":"Land","username":"ned","email":"ned.land@nautilus.com","date_joined
":"2012-12-10T11:49:38-
05:00","badge_number":null,"is_active":true,"is_staff":false,"is_superuser":false,"is_technician":false,"is
_service_personnel":false},
{"id":2,"first_name":"Pierre","last_name":"Aronnax","username":"professor","email":"pierre.aronnax@nautilus
.com","date_joined":"2012-12-10T11:48:43-
05:00","badge_number":null,"is_active":true,"is_staff":false,"is_superuser":false,"is_technician":false,"is
_service_personnel":false}]}
```


Figure 1044 API access example data json view

41.2 Special parameters

The “expand” parameter can be used to request fully nested object in the response.
For example, this is the view without expand. “site-address/api/projects/” (Figure 1045)

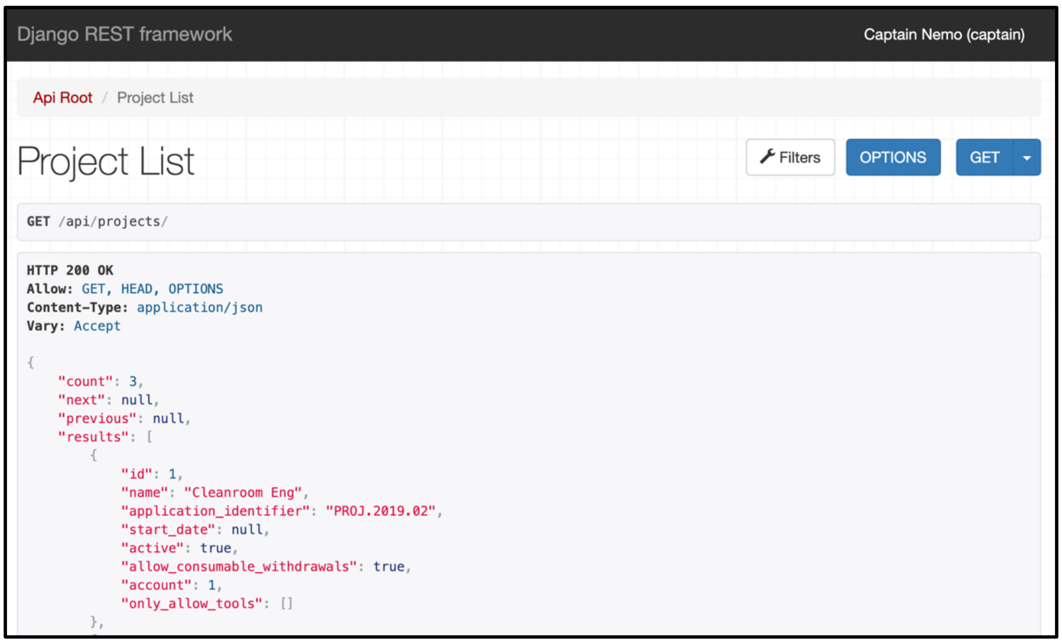


Figure 1045 API access example projects

And this is an example with expand. “http://localhost:8005/api/projects/?expand=account” (Figure 1046)

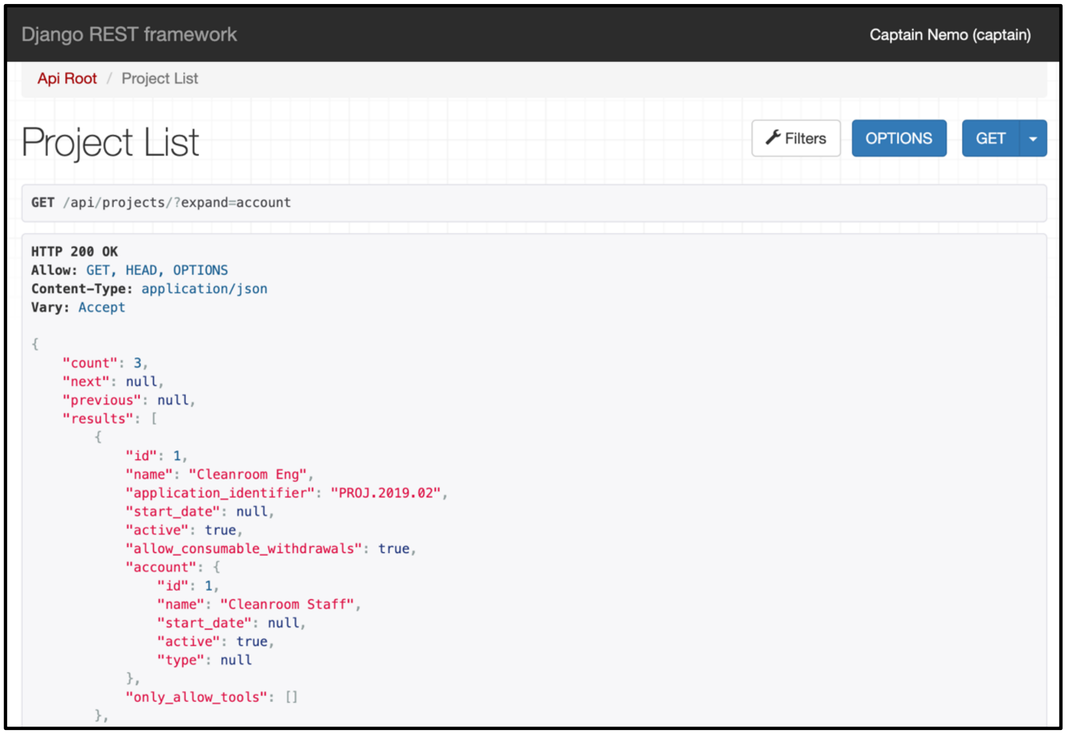


Figure 1046 API access example projects with expand

The parameter “fields” can be used to select specific fields to be retrieved. For example “site-address/api/projects/?fields=name” will only retrieve the name of the projects (Figure 1047)

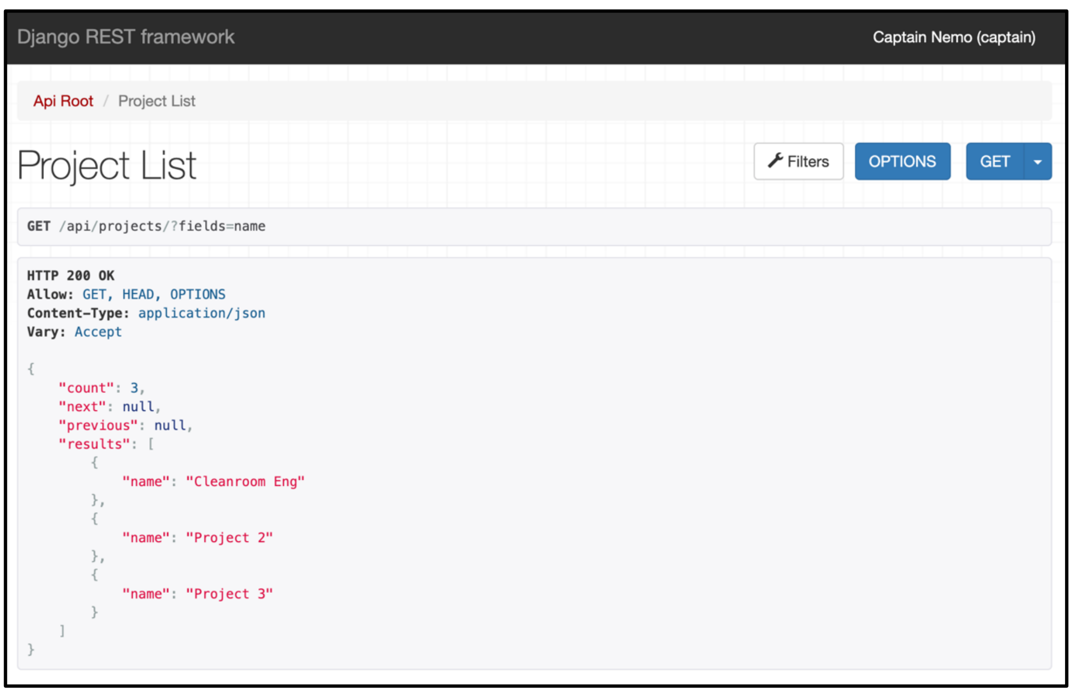


Figure 1047 API access example projects with fields

Using the same syntax, “?omit=name” can be used to retrieve all fields except “name” (Figure 1048)

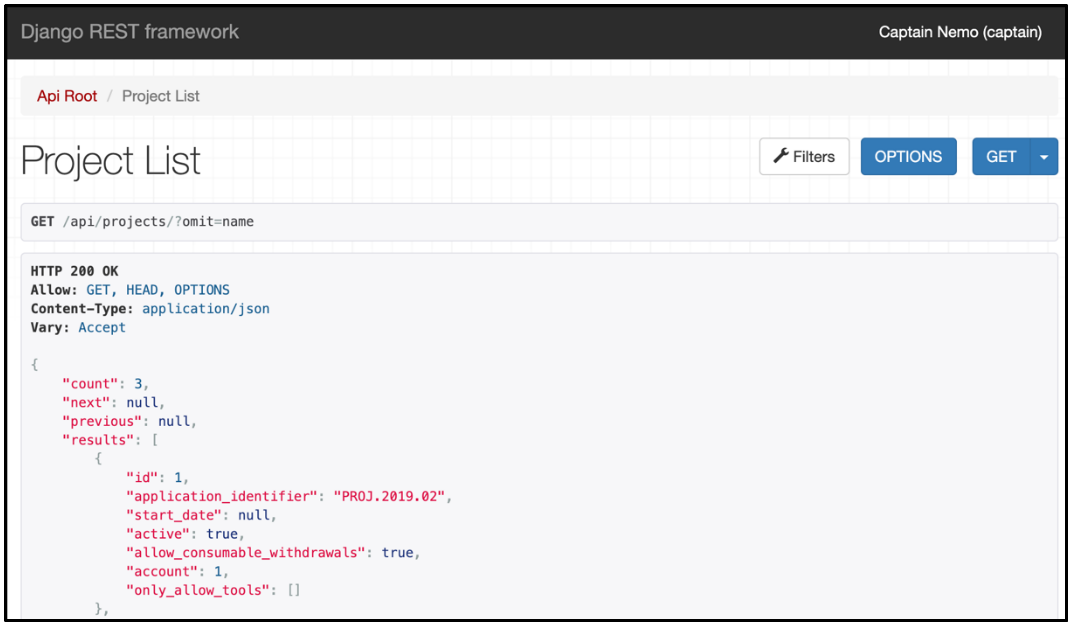


Figure 1048 API access example projects with omit

41.3 Export formats

The API data can be exported in 2 different formats: JSON and XLSX.
JSON export format is enabled out of the box, however the XLSX format is not.
To enable XLSX format, the following setting must be used in the REST_FRAMEWORK section of the setting.py file:
'DEFAULT_RENDERER_CLASSES': ['rest_framework.renderers.JSONRenderer',
'rest_framework.renderers.BrowsableAPIRenderer',
'drf_renderer_xlsx.renderers.XLSXRenderer'],

41.4 Date/Time formats

The default date/time formats which are used to format date and times in the API can be set in the REST_FRAMEWORK section of the settings.py file, for example:
'DATETIME_FORMAT': '%m-%d-%Y %H:%M:%S',
'DATE_FORMAT': '%m-%d-%Y',
'TIME_FORMAT': '%H:%M:%S',

41.5 Access Errors

If an error is received, the user may not have permission to access the API interface (Figure 1049). Users accessing the API must have either superuser status or have the “Can use billing API” permission.

Figure 1049 API access permission error

The authentication class must be set for the method you plan to access the API, or you will receive an error (Figure 1050). To use token authentication which is the easiest way for a program to retrieve data, the following setting must be used in the REST_FRAMEWORK section of the setting.py: 'DEFAULT_AUTHENTICATION_CLASSES': ('rest_framework.authentication.TokenAuthentication',). Then, a token must be created for the user that will access the API. When token authentication is enabled, tokens can be created in the detailed administration tokens table.

To allow web address access, add ('rest_framework.authentication.SessionAuthentication') to the authentication class tuple.

Figure 1050 API access authentication error

41.6 Billing information

Billing information can be directly accessed in a date range through the billing API. The billing API requires a start date (start) and end date (end) to be passed as arguments.

Valid parameters are:

- **start** (required): date in format MM/DD/YYYY
- **end** (required): date in format MM/DD/YYYY
- **username**: username of a user to get billing for
- **account_name**: name of the account to get billing for
- **account_id**: id of the account to get billing for
- **project_name**: name of the project to get billing for
- **project_id**: id of the project to get billing for
- NOTE: If valid start and end dates are not given, an error will be returned (Figure 1051).

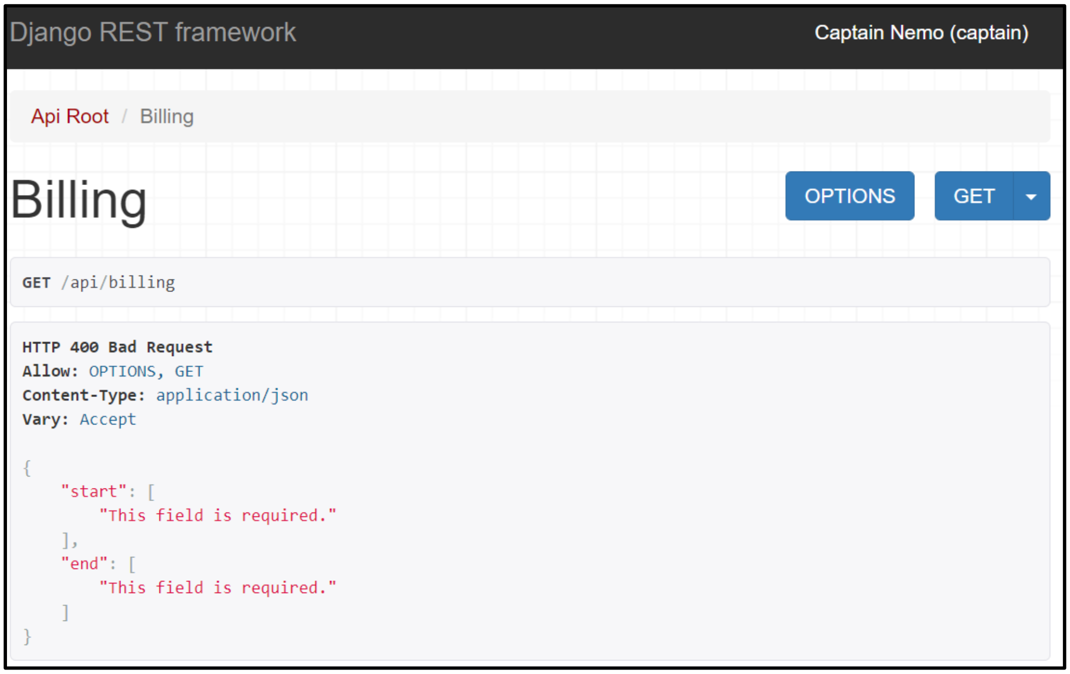


Figure 1051 API access billing date range error

- The format for requesting billing information through the API is site-address/api/billing?start=1/1/2020&end=12/31/2020. This request will produce the output in Figure 1052.

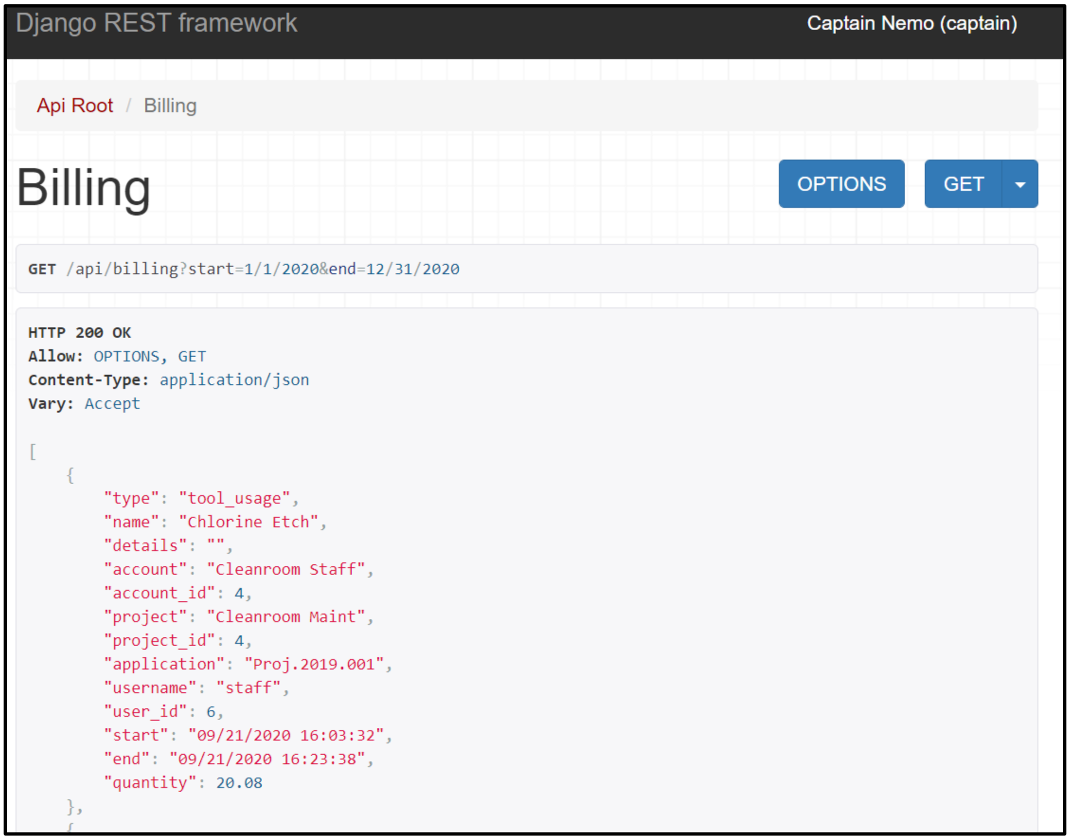


Figure 1052 API access example billing data list view

- The format for requesting billing information as a json stream is the same as the other tables; site-address/api/billing?start=1/1/2020&end=12/31/2020&format=json. This request will produce the output in Figure 1053.


```
[{"type":"tool_usage","name":"Chlorine Etch","details":"","account":"Cleanroom
Staff","account_id":4,"project":"Cleanroom
Maint","project_id":4,"application":"Proj.2019.001","username":"staff","user_id":6,"start":"09/21/2020
16:03:32","end":"09/21/2020 16:23:38","quantity":20.08},
{"type":"tool_usage","name":"Ellipsometer","details":"","account":"Account
1","account_id":1,"project":"Project
1","project_id":1,"application":"PROJ.123","username":"professor","user_id":2,"start":"09/21/2020
16:03:02","end":"09/21/2020 16:23:40","quantity":20.62},
{"type":"tool_usage","name":"Sputter","details":"","account":"Account 2","account_id":2,"project":"Project
2","project_id":2,"application":"PROJ.456","username":"ned","user_id":3,"start":"09/21/2020
16:02:39","end":"09/21/2020 16:23:43","quantity":21.07},
{"type":"tool_usage","name":"PECVD","details":"","account":"Cleanroom
Staff","account_id":4,"project":"Cleanroom
Maint","project_id":4,"application":"Proj.2019.001","username":"captain","user_id":1,"start":"09/21/2020
15:00:39","end":"09/21/2020 16:23:41","quantity":83.02},
{"type":"tool_usage","name":"PECVD","details":"","account":"Cleanroom
Staff","account_id":4,"project":"Cleanroom
Maint","project_id":4,"application":"Proj.2019.001","username":"captain","user_id":1,"start":"09/21/2020
11:54:07","end":"09/21/2020 15:00:33","quantity":186.42},{"type":"tool_usage","name":"PECVD","details":"Work
performed by Captain Nemo (captain) on your behalf","account":"Account 1","account_id":1,"project":"Project
1","project_id":1,"application":"PROJ.123","username":"ned","user_id":3,"start":"09/21/2020
11:52:45","end":"09/21/2020 11:53:03","quantity":0.28},
{"type":"tool_usage","name":"Sputter","details":"","account":"Cleanroom
Staff","account_id":4,"project":"Cleanroom
Eng","project_id":6,"application":"Proj.2019.002","username":"captain","user_id":1,"start":"06/08/2020
```


Figure 1053 API access example billing data json view

42 Kiosk

Kiosks provide a quick and convenient way for users to access tools and reservations. The kiosk can run on any device with web access but requires a card reader and NEMO user with permission to act as a kiosk.

42.1 Setup

To enable this feature, you need to have ‘NEMO.apps.kiosk’ in INSTALLED_APPS in your settings.py.
The use of a kiosk tablet requires a tablet or computer configured to interface with NEMO and send the appropriate messages.

42.1.1 Kiosk user

A dedicated NEMO user should be setup for kiosk tablets. That user must have the following permissions which are set in the users table of the database:

- NEMO|user|Kiosk services

42.1.2 Card reader

The kiosk tablet uses a badge reader to identify the user. Usually, an identity card that users of the facility already have can be utilized, but there are also tokens that can be used. NEMO defaults to expecting the F2 character to start recording the badge number and another F2 character to end and submit the badge number similar to what is provided by a pcProx Plus card reader (Figure 1054). NIST does not endorse this product but the information is provided as an example of the type of reader that can be used.

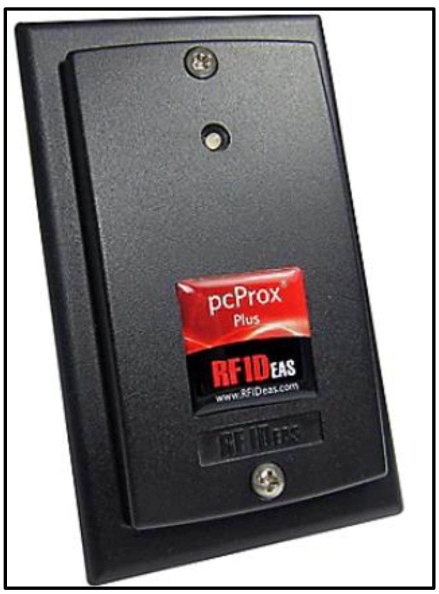


Figure 1054 Kiosk card reader example

If your card reader uses different characters, a custom badge reader configuration can be setup in the badge reader table detailed starting on page 384.

Once the card reader is setup, it can be tested by opening notepad or other computer text editor software then scan a badge. A serial number should be seen (Figure 1055).

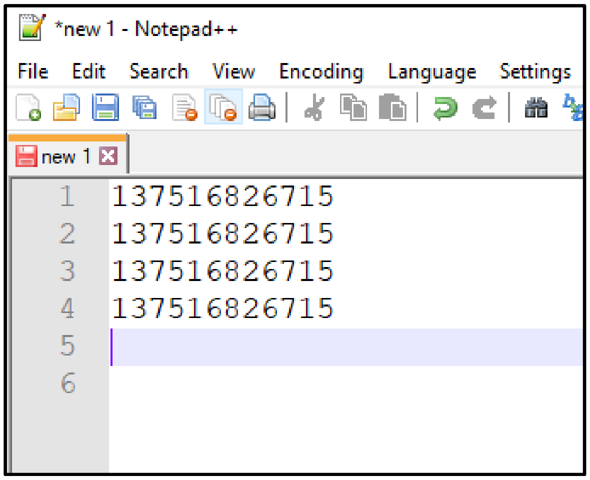


Figure 1055 Kiosk card reader test example

42.1.3 User setup

Now that the card reader is setup, each user needs to have their badge number entered into their user profile. This is easily accomplished by setting up a card reader on a computer that has access to NEMO by a staff member. Then follow these steps:

- Navigate to the Administration → Users page (Figure 1056)

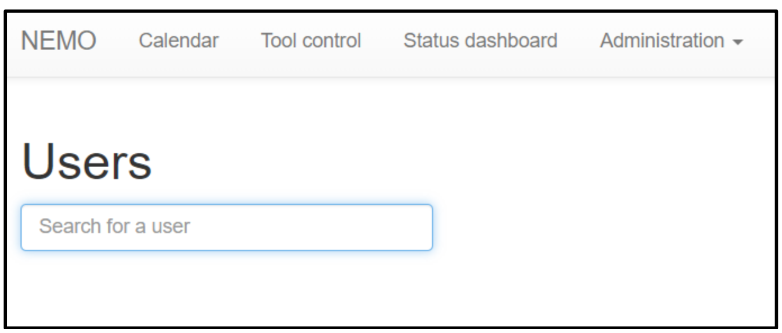


Figure 1056 Kiosk card reader users page

- Enter the user name of interest and click their name when it appears or create a new user if needed (Figure 1057).

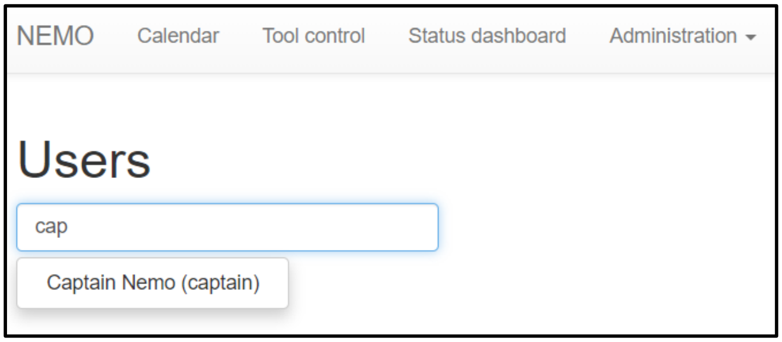


Figure 1057 Kiosk user name

- Click in the badge number dialog box and ensure there are no characters already entered (Figure 1058).

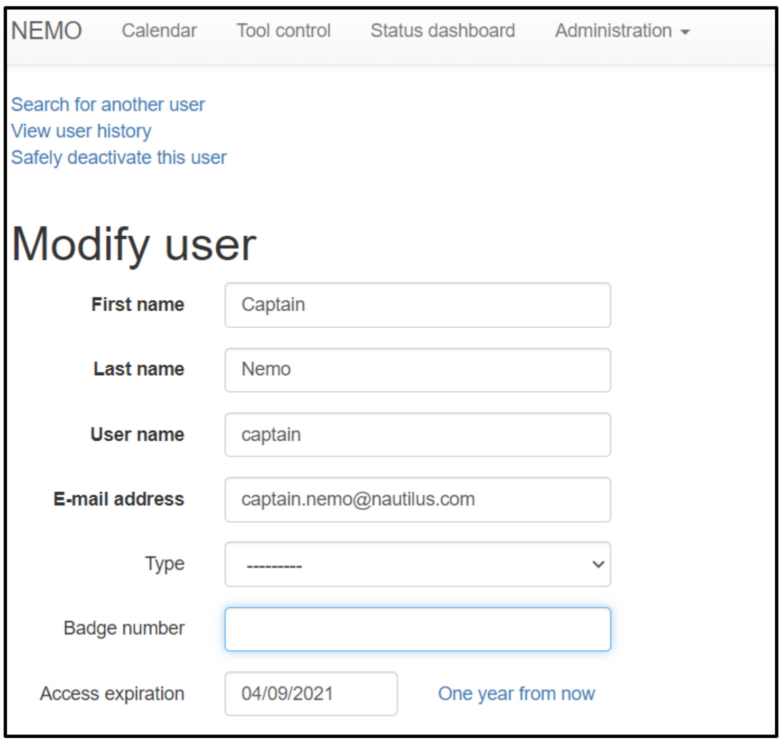


Figure 1058 Kiosk update user

- Then, scan the users badge. The badge number will fill in and the user dialog will close (Figure 1059).

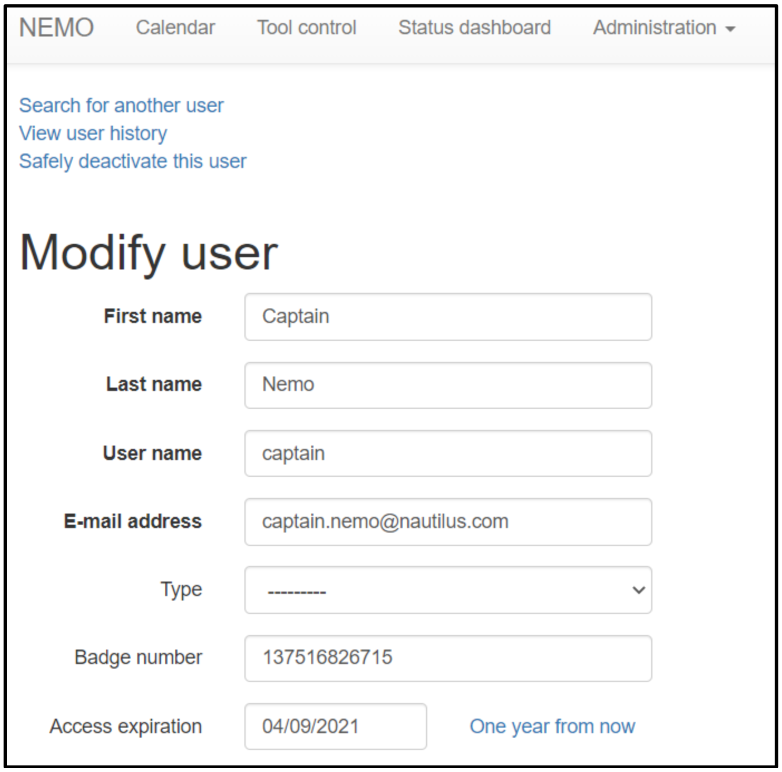


Figure 1059 Kiosk scan badge

- An update successful message will appear at the top of the users page (Figure 1060).

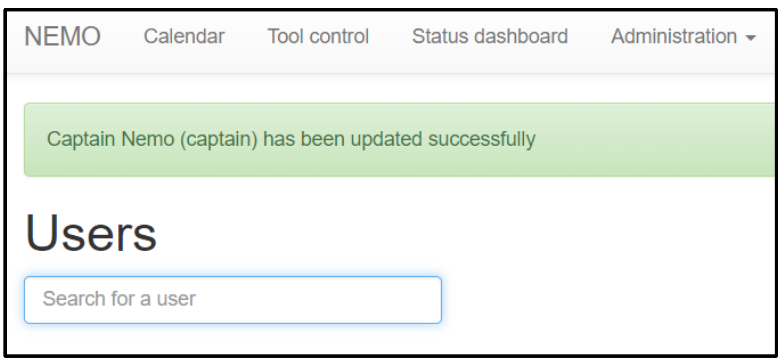


Figure 1060 Kiosk update success

- Once the kiosk tablet is confirmed to be operational, repeat the badge update for all users.

42.1.4 Web page

The list of kiosk locations can be found on the kiosk summary page, site-address/kiosk/ (Figure 1061). The list is enumerated from the location field in the tool table. Since the field is a text input, it is important to make how locations are entered consistent (e.g. cleanroom is not the same as Cleanroom). This location is important for capturing near-by tools.

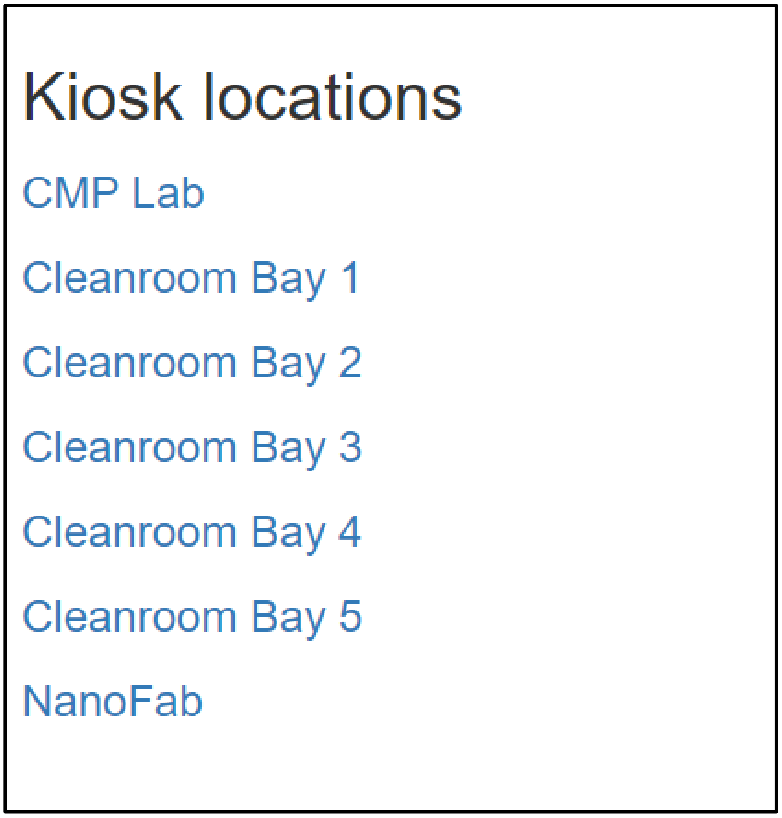


Figure 1061 Kiosk summary page

- Kiosk URL format – site-address/kiosk/{location}/

In addition, the current occupants of an area can be displayed on the idle tablet by including the occupancy parameter and providing the case sensitive area name.

- Kiosk URL format – site-address/kiosk/{location}/?occupancy=Cleanroom

42.2 Usage

42.2.1 Access and main page

- When idle, the kiosk tablet will display the idle message (Figure 1062). The idle message can be edited in the kiosk.html page in the kiosk/templates directory.

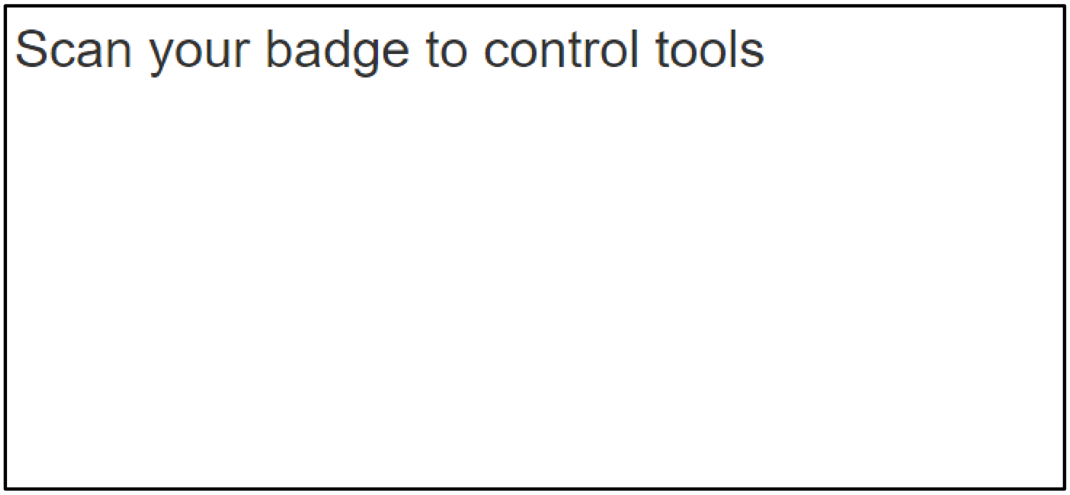
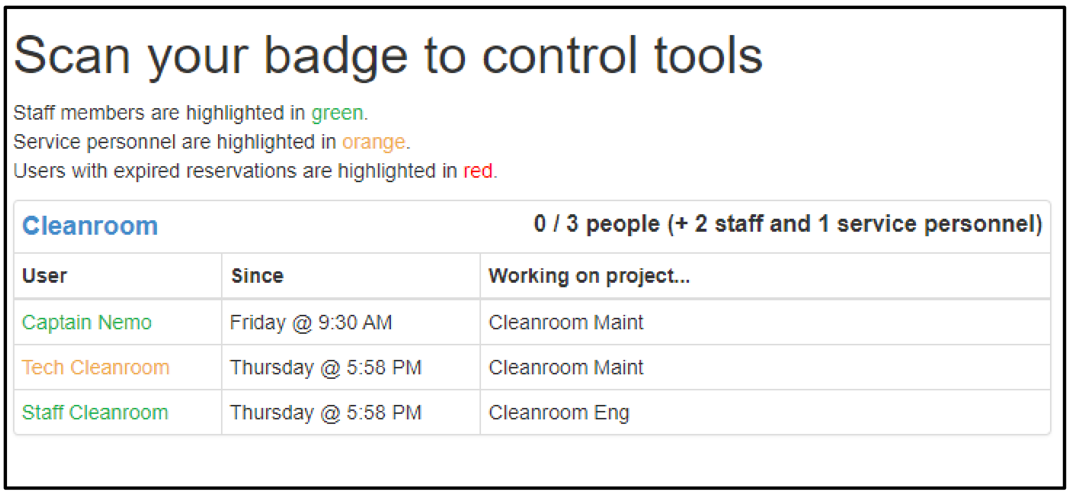


Figure 1062 Kiosk idle screen

- If the occupancy parameter is set for the area (e.g. site-address/kiosk/Cleanroom bay 2/?occupancy=Cleanroom), occupancy will be displayed as well (Figure 1063).


Scan your badge to control tools

Staff members are highlighted in green.
Service personnel are highlighted in orange.
Users with expired reservations are highlighted in red.

Cleanroom — **0 / 3 people (+ 2 staff and 1 service personnel)**

User	Since	Working on project...
Captain Nemo	Friday @ 9:30 AM	Cleanroom Maint
Tech Cleanroom	Thursday @ 5:58 PM	Cleanroom Maint
Staff Cleanroom	Thursday @ 5:58 PM	Cleanroom Eng

Figure 1063 Kiosk idle screen with area occupancy

- Scan your badge at the card reader to begin. NOTE: after a badge scan if the user is prompted for additional information and does not respond the page will automatically return to the welcome screen. Wait times vary and are detailed with each prompt below.
    - Each time a badge is scanned, the badge number is displayed on the screen greyed out (Figure 1064). This is useful when determining why a user's badge isn't opening a door.

Figure 1064 Kiosk badge scan

- If the badge isn’t recognized, a message will be displayed, and the view will revert to the idle screen after 15 seconds (Figure 1065).

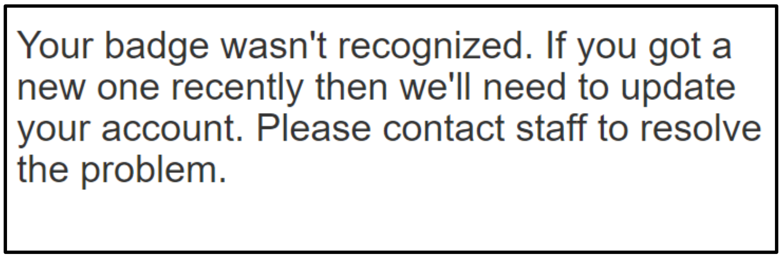


Figure 1065 Kiosk badge error

- If there is a problem with user permissions, a message will be displayed, and the view will revert to the idle screen after 15 seconds (Figure 1066).

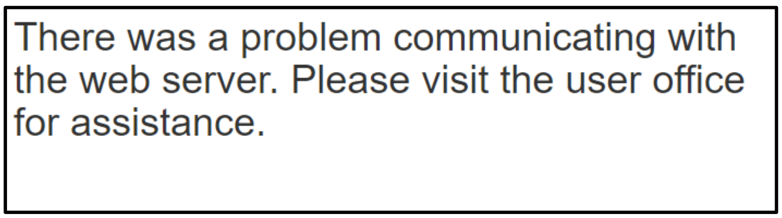


Figure 1066 Kiosk permission error

- Upon success, the kiosk main page will appear (Figure 1067). The page will revert to the idle screen after 75 seconds. The time remaining appears in the bottom right side of the screen. Anytime user input occurs, the timer is reset to 75 seconds.

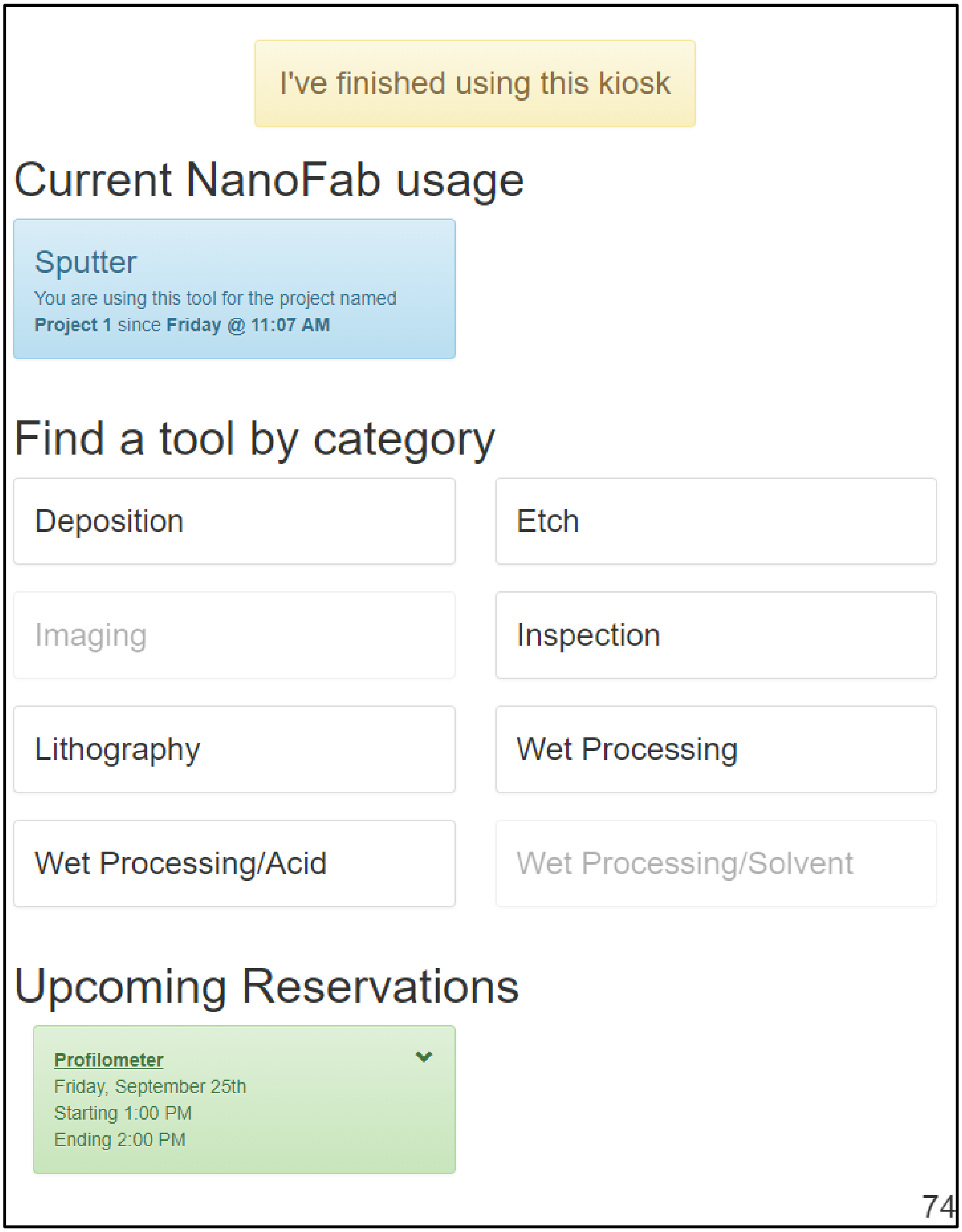


Figure 1067 Kiosk main page

- Click the I've finished using the kiosk button to end the kiosk session (Figure 1068). If no activity is detected in 75 seconds, the view will revert to the idle screen.

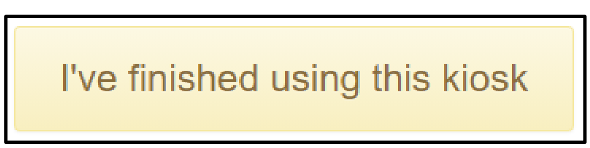


Figure 1068 Kiosk finished button

- Current usage is displayed at the top of the screen (Figure 1069). Click the tool usage of interest to open that tools detail page.

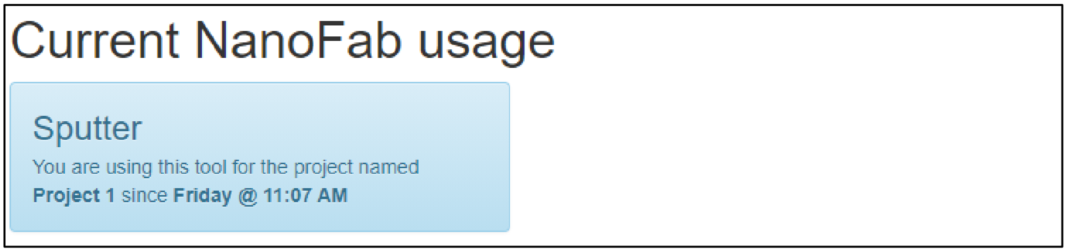


Figure 1069 Kiosk current usage

- Tool can be accessed by clicking the category (Figure 1070). Categories that are in grey mean the user does not have any qualifications on tools in that category. Clicking a category will open the tool selection page for the tool category.

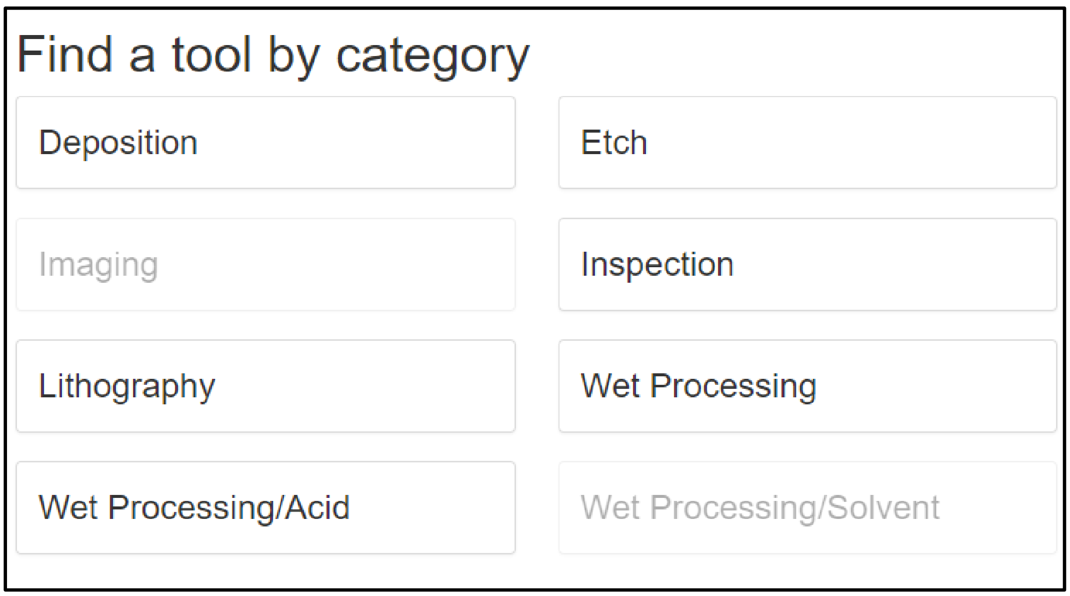


Figure 1070 Kiosk find tool

- Upcoming reservations are displayed at the bottom of the screen (Figure 1071). Click the reservation of interest to open that tools detail page.

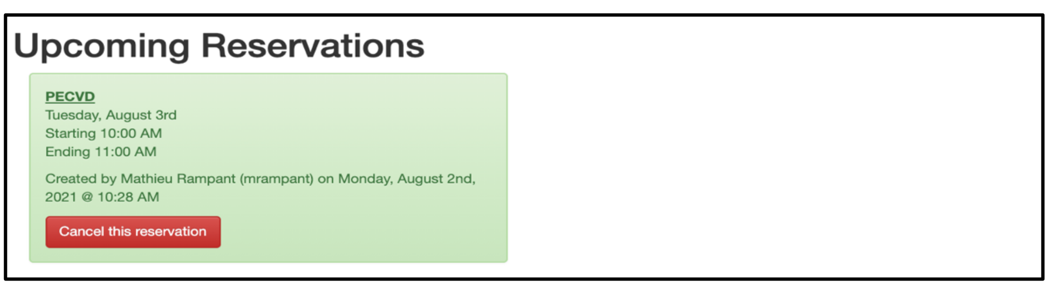


Figure 1071 Kiosk reservations

42.2.2 Tool selection

- Clicking a tool category on the main page will open the tool selection page for the selected category (Figure 1072).
    - Icons are displayed next to each tool to provide status information. Tool status icons are described on page 81.
    - Click the tool button to open the tool detail page for the selected tool.
    - Click the 'Go back' button to return to the main page.
    - The page will revert to the idle screen after 60 seconds of no activity.

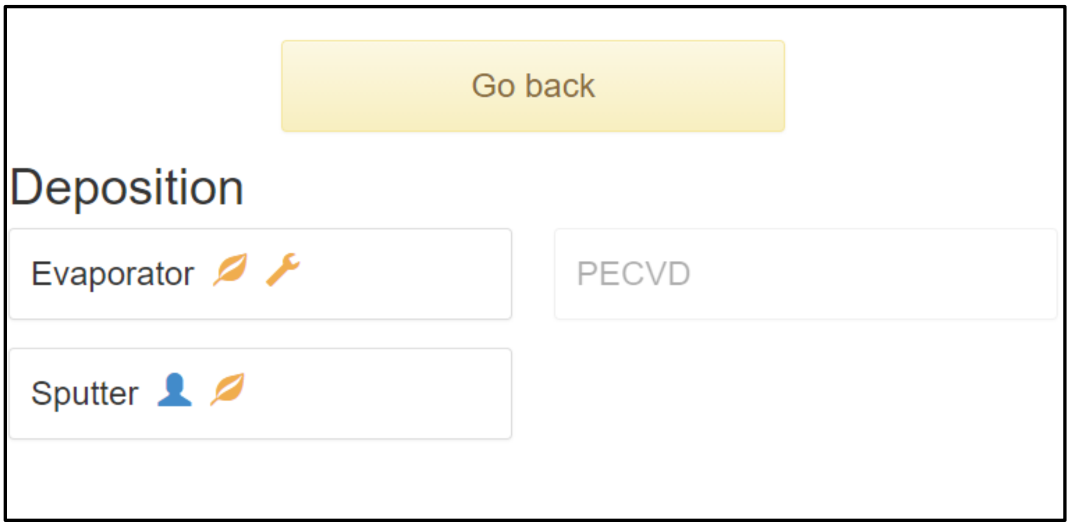


Figure 1072 Kiosk tool selection

42.2.3 Tool detail

- Tool usage features are the same as the mobile view tool control features and are detailed in the tool control section starting on page 124.
- Tool reservation features are the same as the mobile view reservation features and are detailed in the reservations section starting on page 72.
- The tool detail page provides the tool status and buttons to use the tool and to reserve the tool (Figure 1073).

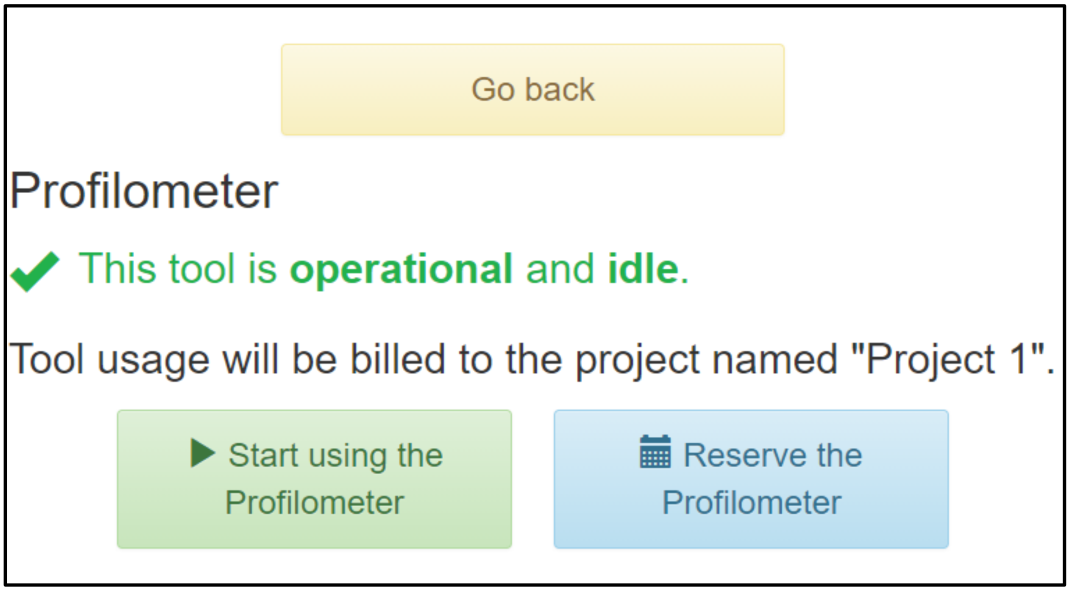


Figure 1073 Kiosk tool detail idle tool

- If a tool is currently in use, usage information, a stop usage button, and a make reservation button are provided (Figure 1074).

Figure 1074 Kiosk tool detail tool in use

- If the tool has numeric input post usage questions configured (Figure 1075), clicking in the dialog box will open a keypad for the user to enter the response (Figure 1076).

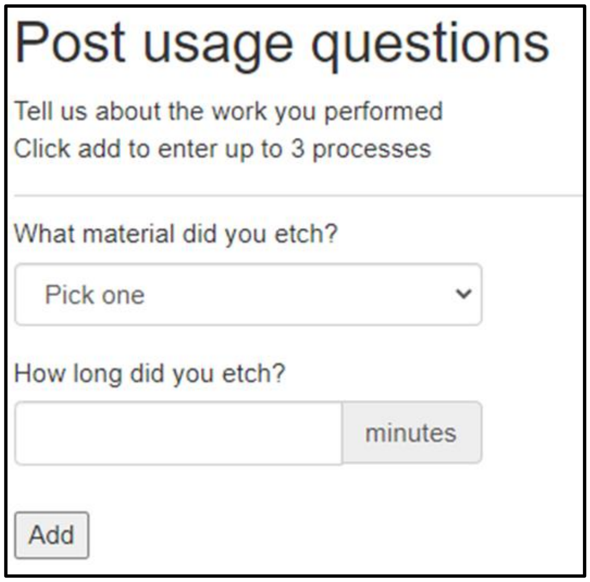


Figure 1075 Kiosk post usage questions

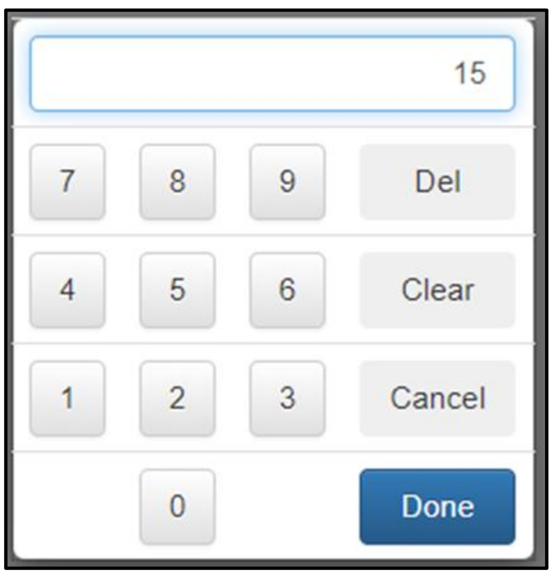


Figure 1076 Kiosk post usage question and delayed logout numeric input keypad

- If the tool has delayed logout configured, clicking in the dialog box will open a keypad for the user to enter the delay time to prevent other users login (Figure 1077).

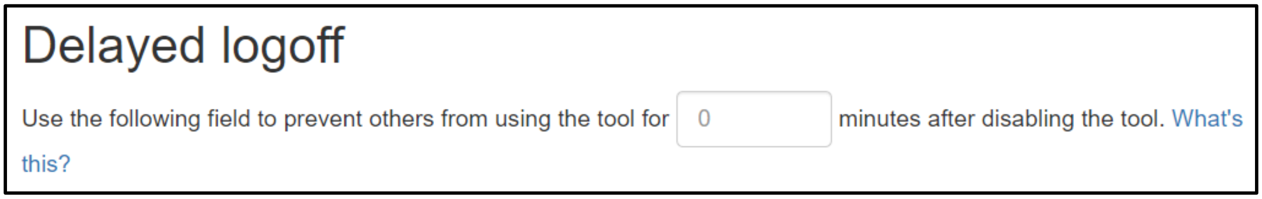


Figure 1077 Kiosk delayed logout dialog

- If a user clicks on a tool they are not qualified to use, information about how to get trained is provided (Figure 1078).

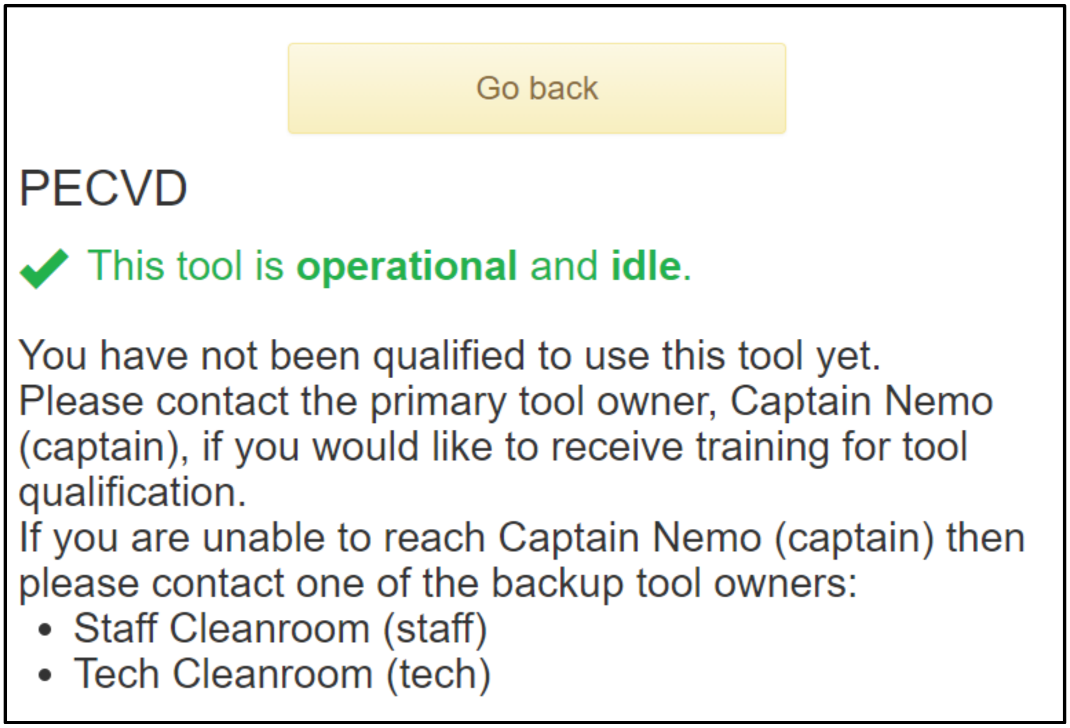


Figure 1078 Kiosk tool detail not qualified for tool

43 Entrance tablet

The entrance tablets are used to provide an interface for users to access the lab and choose the appropriate project to bill lab time against. Entrance tablets are associated with door that have been defined in the doors table of the database. This method allows multiple entrance and exit tablets to be associated with one area but multiple doors and locks. Tablets or computers can be configured to allow users to sign into an area and open the door (entrance tablet) as well as sign them out when they leave (exit tablet).

43.1 Setup

To enable this feature, you need to have ‘NEMO.apps.area_access in INSTALLED_APPS in your settings.py.
The use of an entrance or exit tablet requires a door that is tied to an interlock that will unlock a door and an entrance tablet configured to interface with NEMO and send the appropriate messages.

43.1.1 Door setup

Doors are setup in the doors table of the database detailed on page 416. The doors table associates areas with interlocks.

Physical access levels must be established to provide users with a time schedule that they can access a door and are detailed on page 438. Users are given physical access level permission on the users page.

Areas are created in the areas table of the database detailed on page 379 and are used to group tools into common spaces. When a tool is located in an area, the requires area access field in the tools table for the tool of interest should be updated to require the active area access. This will prevent users enabling or disabling the tool unless they are currently logged into the area.

Interlocks are created in the interlocks table detailed on page 425. An interlock must be associated with an interlock card which are created in the interlocks card table.

43.1.2 Entrance tablet user

A dedicated user should be setup for entrance tablets. That user must have the following permissions which are set in the users table of the database:

- NEMO|area access record|Can add area access record
- NEMO|area access record|Can change area access record

43.1.3 Card reader

The entrance tablet uses a badge reader to identify the user. Usually an identity card that users of the facility already have can be utilized, but there are also tokens that can be used. NEMO defaults to expecting the F2 character to start recording the badge number and another F2 character to end and submit the badge number similar to what is provided by a pcProx Plus card reader (Figure 1079). NIST does not endorse this product but the information is provided as an example of the type of reader that can be used.

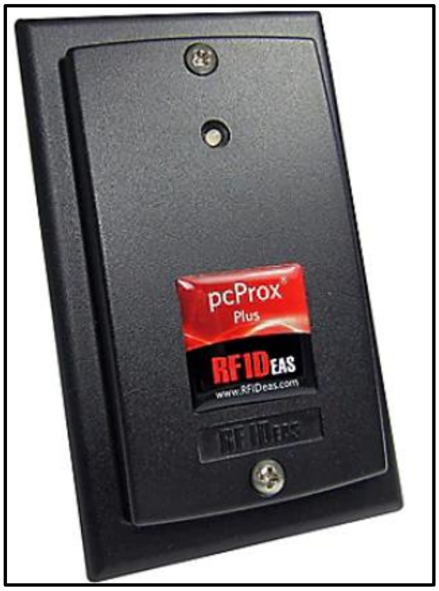


Figure 1079 Entrance tablet card reader example

If your card reader uses different characters, a custom badge reader configuration can be setup in the badge reader table detailed starting on page 384.

Once the card reader is setup, it can be tested by opening notepad or other computer text editor software then scan a badge. A serial number should be seen (Figure 1080).

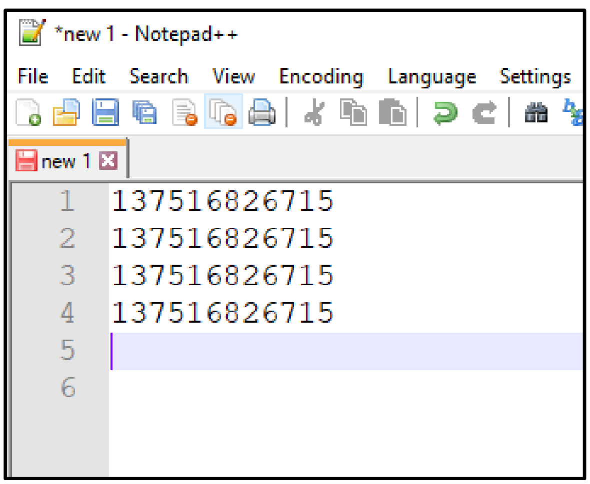


Figure 1080 Entrance tablet card reader test example

43.1.4 User setup

Now that the door and card reader are setup, each user needs to have their badge number entered into their user profile and be given permission to access the door. This is easily accomplished by setting up a card reader on a computer that has access to NEMO by a staff member. Then follow these steps:

- Navigate to the Administration → Users page (Figure 1081)

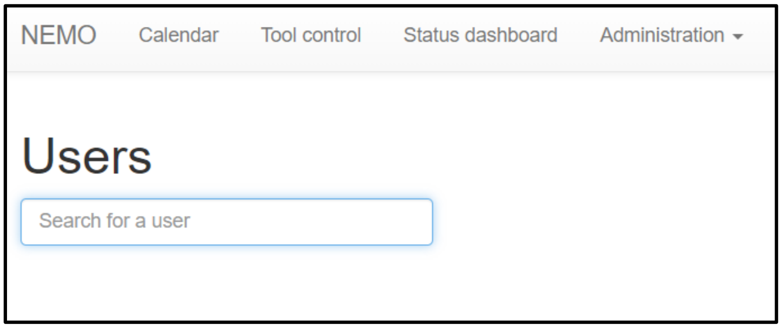


Figure 1081 Entrance tablet card reader users page

- Enter the user name of interest and click their name when it appears or create a new user if needed (Figure 1082).

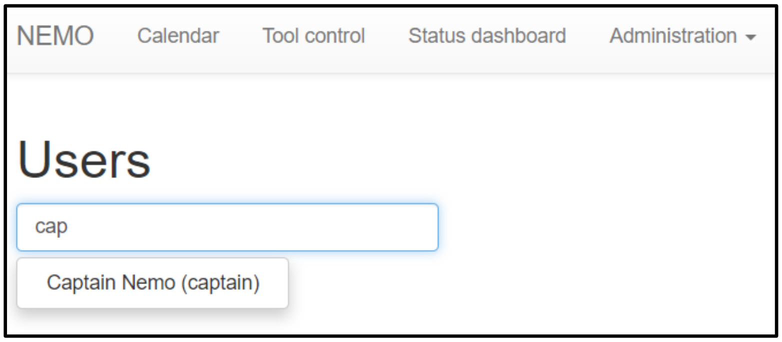


Figure 1082 Entrance tablet user name

- Scroll down and update the physical access level for the user (Figure 1083). Note: staff and super users may already have access by default if the physical access level was set up to allow staff access. In that case, the checkboxes will be checked but greyed out.

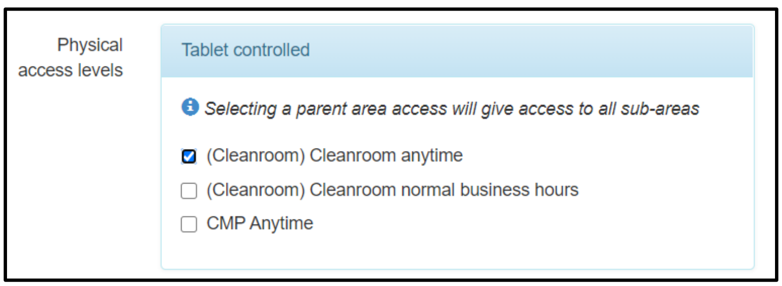


Figure 1083 Entrance tablet physical access

- Click in the badge number dialog box and ensure there are no characters already entered (Figure 1084).

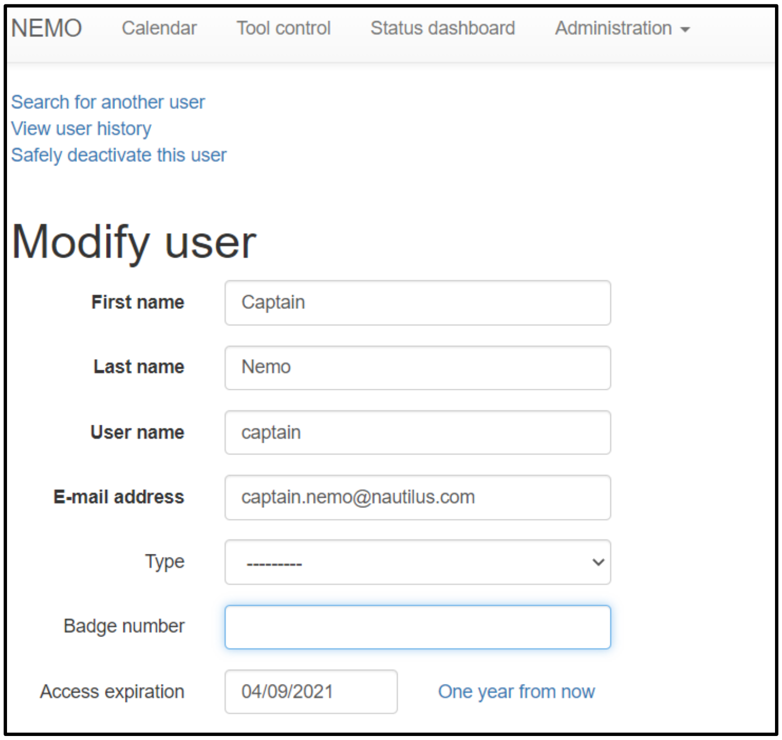


Figure 1084 Entrance tablet update user

- Then, scan the users badge. The badge number will fill in and the user dialog will close (Figure 1085).

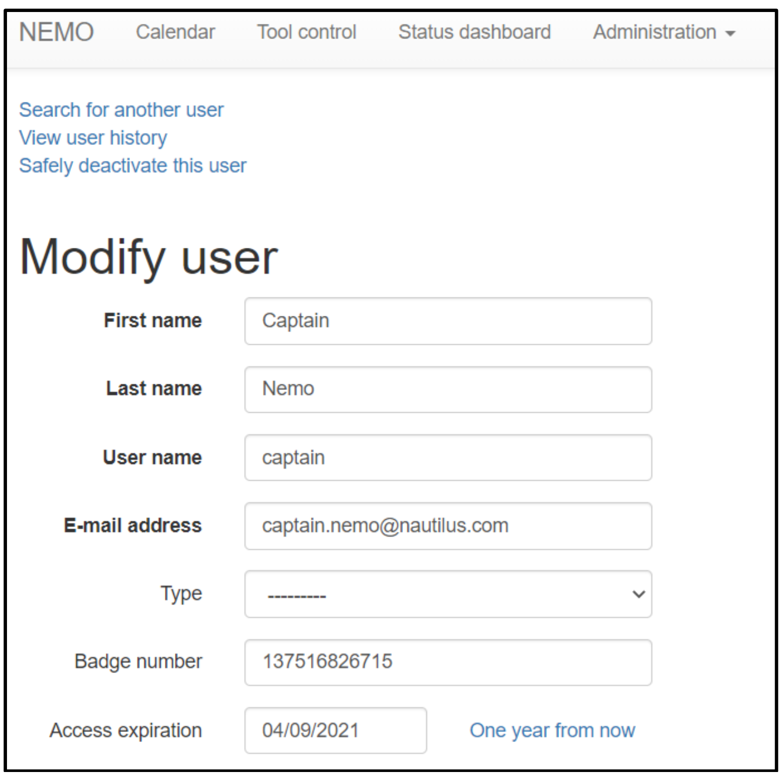


Figure 1085 Entrance tablet scan badge

- An update successful message will appear at the top of the users page (Figure 1086).

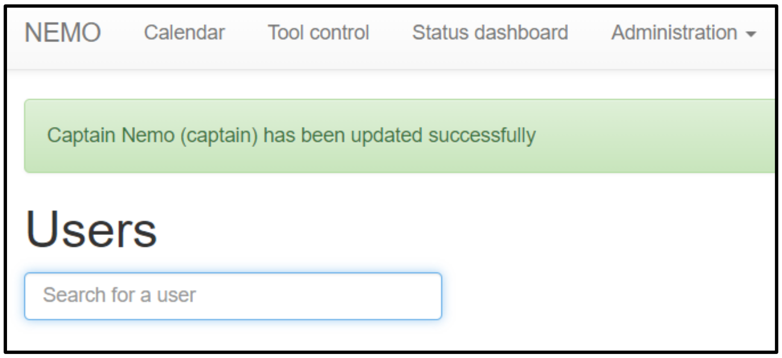


Figure 1086 Entrance tablet update success

- Once the entrance tablet is confirmed to be operational, repeat the badge update for all users.

43.1.5 Web page

The webpage URL for each door is listed on the doors summary page (Figure 1087).

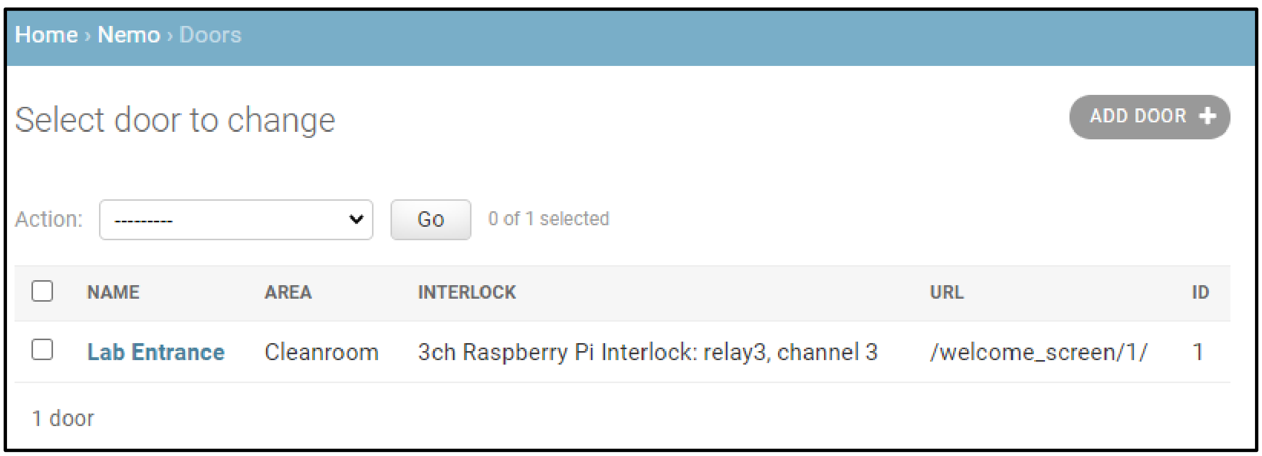


Figure 1087 Doors summary page

- Entrance URL – site-address/welcome_screen/{doors_ID}/
- Exit URL – site-address/farewell_screen/{doors_ID}/

In addition, the current occupants of the area can be displayed on the idle tablet by including the occupancy parameter and providing the case sensitive area name.

- Entrance URL with occupancy – site-address/welcome_screen/{doors_ID}/?occupancy=Cleanroom
- Exit URL – site-address/farewell_screen/{doors_ID}/?occupancy=Cleanroom

43.2 Usage

43.2.1 Entrance Tablet

- When idle, the entrance tablet will display the welcome message that was set in the area table for the area the entrance leads to (Figure 1088).

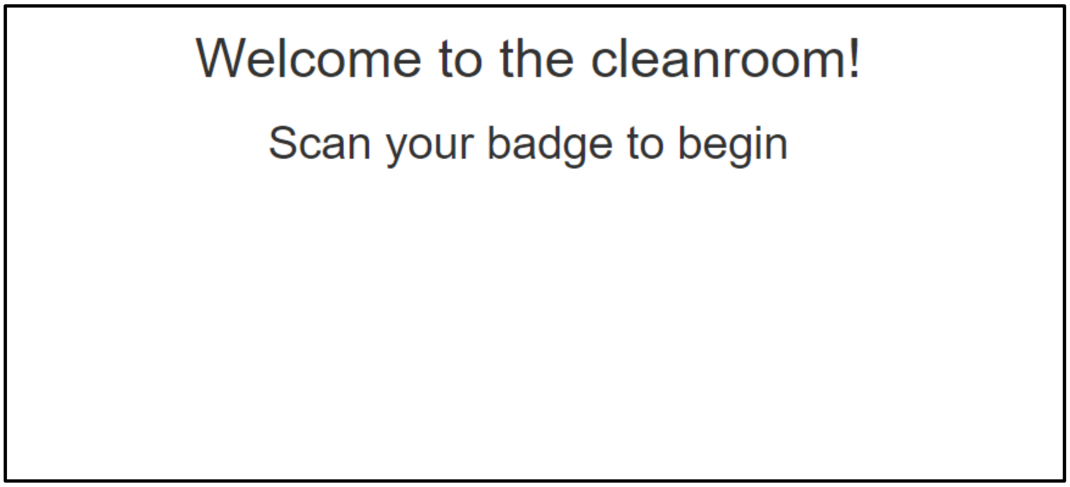


Figure 1088 Entrance tablet welcome screen

- If the occupancy parameter is set for the area (e.g. site-address/welcome_screen/1/?occupancy=Cleanroom), occupancy will be displayed as well (Figure 1089).

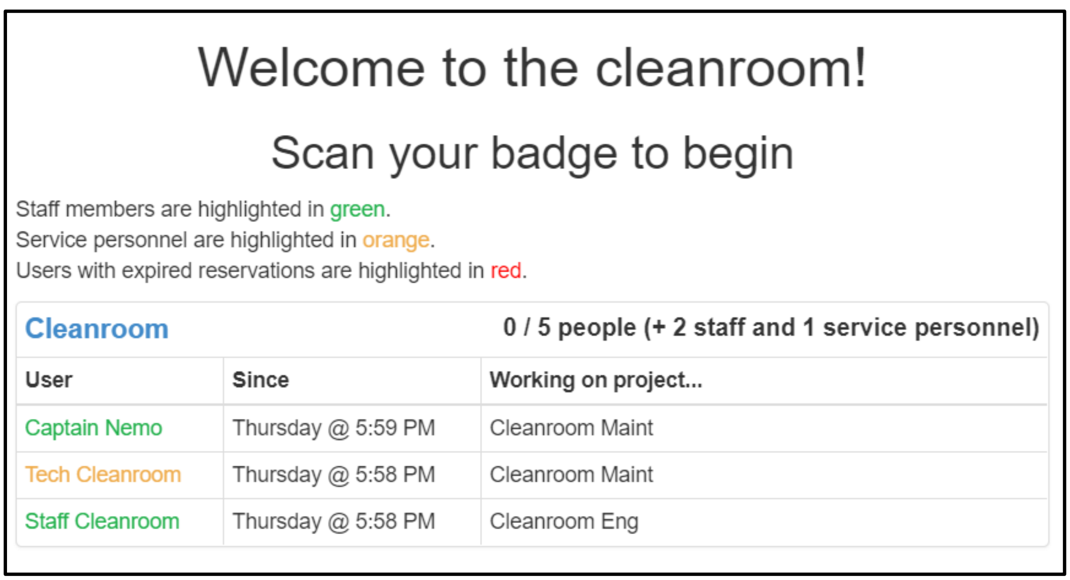


Figure 1089 Entrance tablet welcome screen with area occupancy

- Scan your badge at the card reader to begin the login process. NOTE: after a badge scan if the user is prompted for additional information and does not respond the page will automatically return to the welcome screen. Wait times vary and are detailed with each prompt below.

- Each time a badge is scanned, the badge number is displayed on the screen greyed out (Figure 1090). This is useful when determining why a user's badge isn't opening a door.

Figure 1090 Entrance tablet badge scan

- If you have multiple projects, a dialog to select your project will appear (Figure 1091). Select the project to be billed or select 'Nevermind, don't log in' to return to the welcome screen. If no input is provided within 30 seconds, the page will return to the welcome screen.

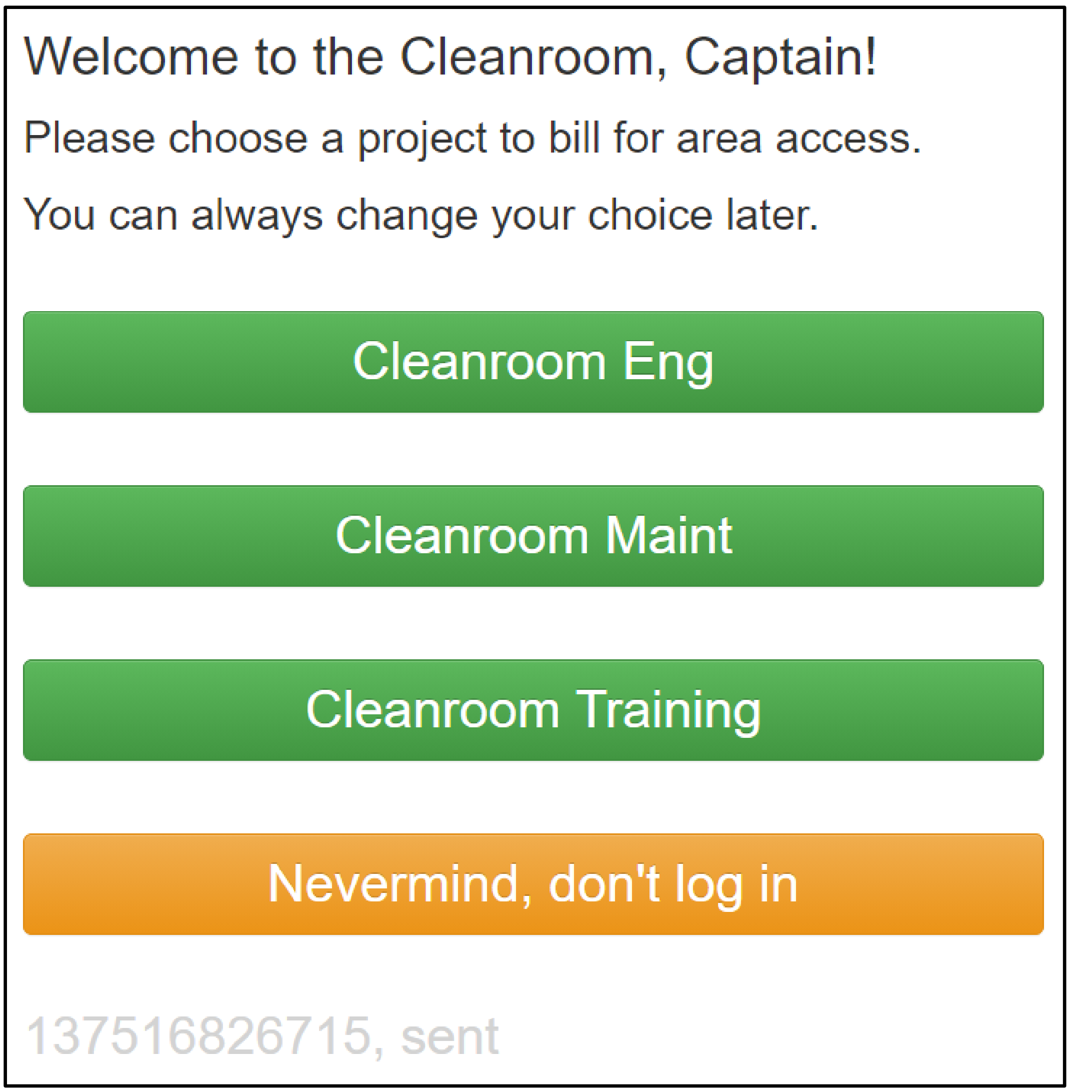


Figure 1091 Entrance tablet multiple projects

- If you are already logged in to the area, a dialog with a list of possible actions is displayed (Figure 1092). Select the action to take. If no input is provided within 15 seconds, the page will return to the welcome screen.

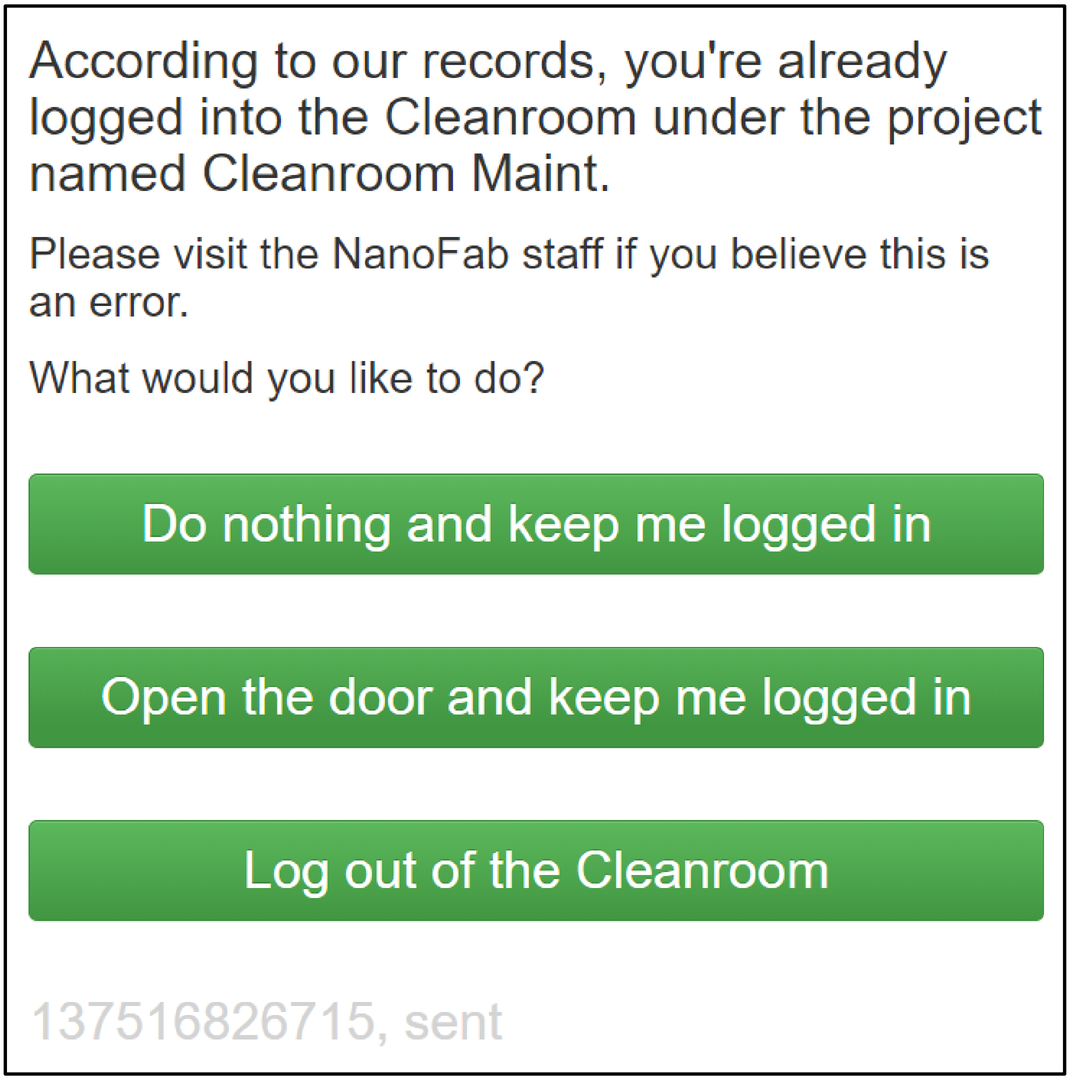


Figure 1092 Entrance tablet already logged in

  - Selecting 'Do nothing and keep me logged in' will return to the welcome screen.
  - Selecting 'Open the door and keep me logged in' will display a door unlocked dialog (Figure 1093) and unlock the door for 8 seconds then return to the welcome screen.

Figure 1093 Entrance tablet door open

- Selecting ‘Log out of the Cleanroom’ will end your area access. Note: additional screens displayed are detailed in the Exit tablet section below.

- If an error occurs a dialog will appear informing the user of the issue. Log in errors are described in section 43.2.2 below.
- Upon success, the user will be logged into the area, a record will be recorded in the area access records table, a record will be recorded in the physical access logs table, and the door will open for 8 seconds. A success message will be displayed while the door is unlocked then revert to the welcome screen (Figure 1094).

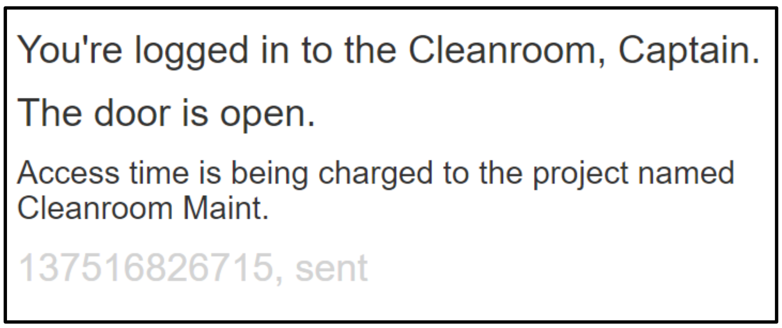


Figure 1094 Entrance tablet success message

- If the user was already logged into a different area, they will be prompted with a dialog notifying them that they were logged out of the other area and logged into the new area (Figure 1095).

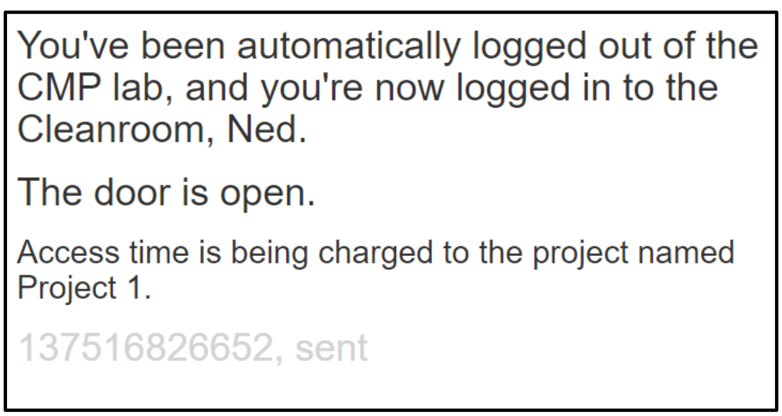


Figure 1095 Entrance tablet success message area change

43.2.2 Log in errors

If an error occurs a dialog will appear informing the user of the issue. Errors will be displayed for 15 seconds then the page will revert to the welcome screen.

- Physical access denied.
  - The area requires a reservation, and the user does not have one (Figure 1096). Requiring reservations to access an area are set in the areas table detailed on page 379.

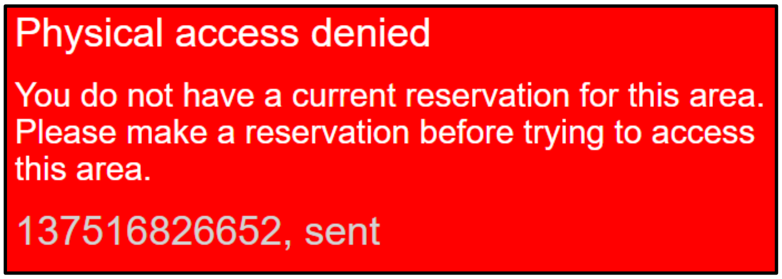


Figure 1096 Entrance tablet reservation error

  - The area occupancy limit has been reached (Figure 1097). Occupancy limits are set in the areas table detailed on page 379.

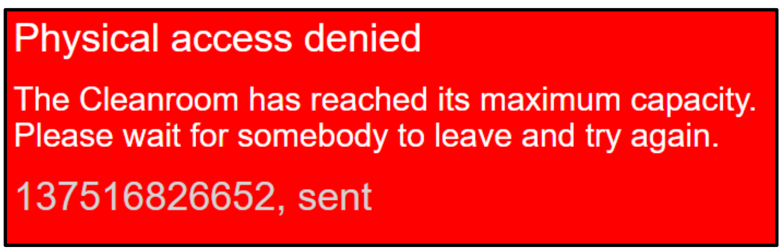


Figure 1097 Entrance tablet occupancy error

  - No physical access levels have been granted to the user (Figure 1098). Physical access level permissions are set in the users page detailed on page 278 or the users table detailed on page 521.

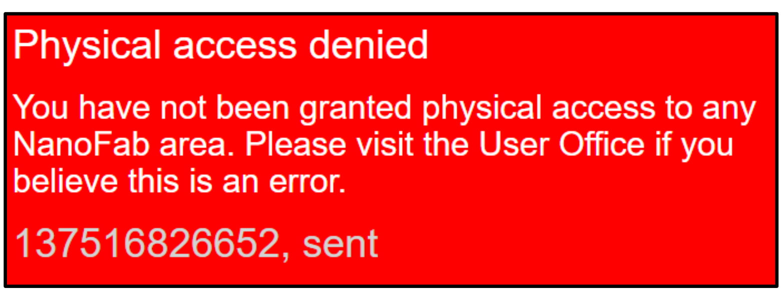


Figure 1098 Entrance tablet access level error

  - Access has expired (Figure 1099). Access expiration dates are set in the users page detailed on page 278 or the users table detailed on page 521.

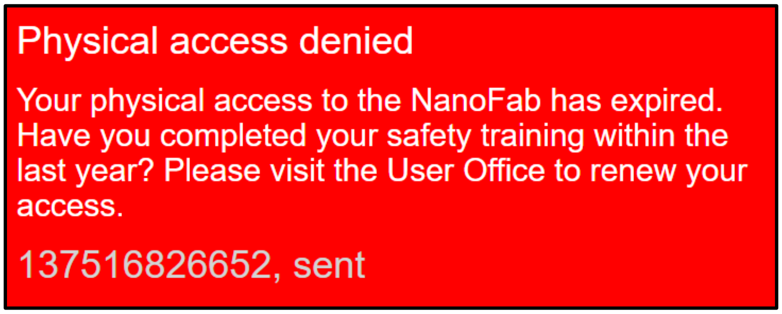


Figure 1099 Entrance tablet access expired error

- ○ The area has a scheduled outage in progress (Figure 1100). Scheduled outages are created on the resources page detailed on page 243 or the scheduled outages table detailed on page 462.

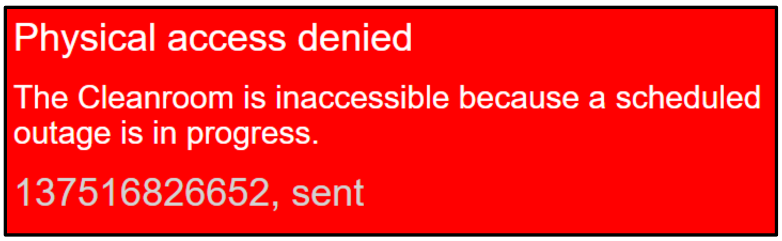
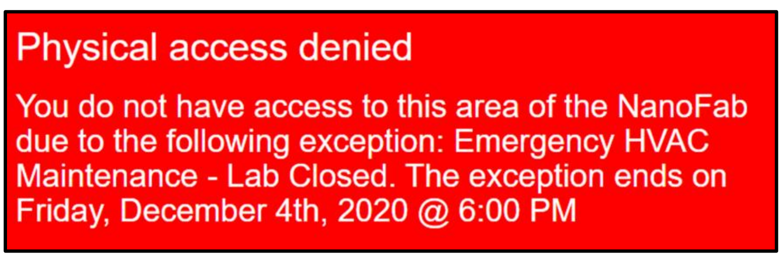


Figure 1100 Entrance tablet outage error

- ○ The area has a physical access exception in progress. Physical access exceptions are used to block access that would normally be granted to a physical access level. This feature is used for holiday schedules, emergency closures, or other reasons to prevent access at an otherwise accessible time. More information about physical access exceptions can be found in the Detailed administration → Physical access exceptions section detailed starting on page 391.



- Account deactivated (Figure 1101). User accounts are activated/deactivated in the users page detailed on page 278 or the users table detailed on page 521.

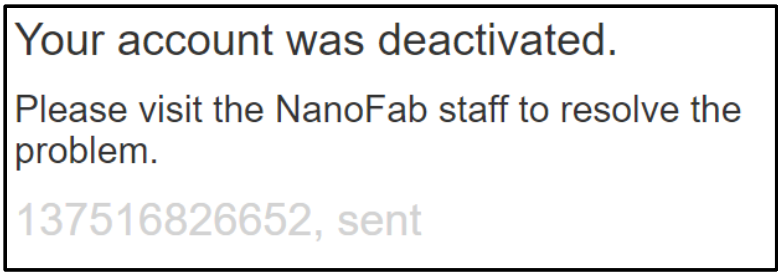


Figure 1101 Entrance tablet deactivated error

- No active project (Figure 1102). Projects are associated with users on the accounts and projects page detailed on page 191, the users page detailed on page 278 or the users table detailed on page 521.

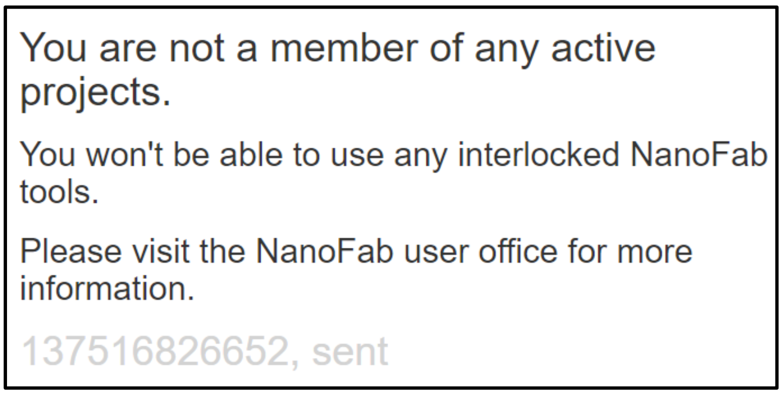


Figure 1102 Entrance tablet project error

- Badge not found (Figure 1103). Badge numbers are recorded for users in the users page detailed on page 278 or the users table detailed on page 521.

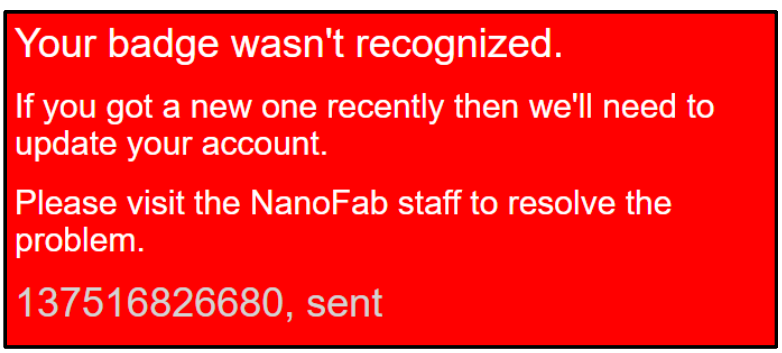


Figure 1103 Entrance tablet badge error

- A required resource is not available (Figure 1104). Resources are maintained on the resources page detailed on page 243.

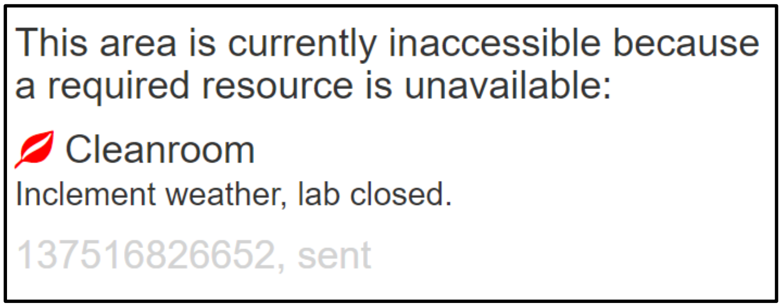


Figure 1104 Entrance tablet resource error

- Interlock command failed (Figure 1105). The interlock command failed, you can choose to login anyway (if that option is checked), try again or cancel. More information on the interlock settings customization detailed on page 296.

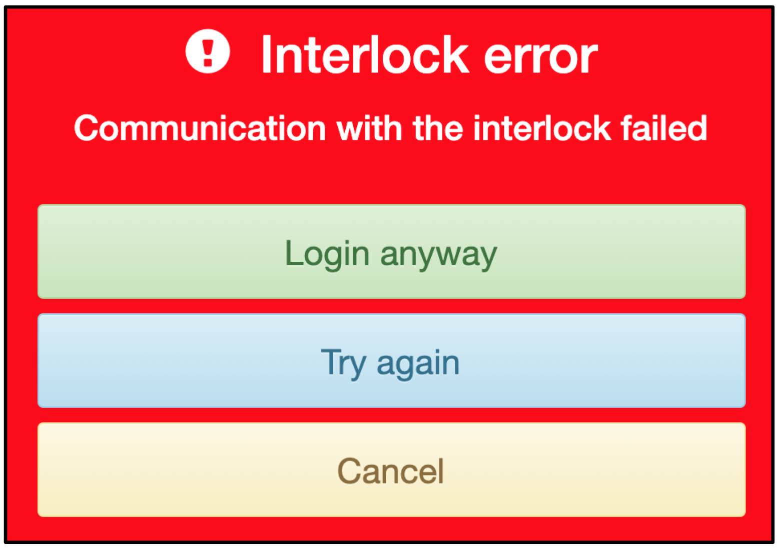


Figure 1105 Entrance tablet interlock error

43.2.3 Exit Tablet

- When idle, the exit tablet will display the farewell message (Figure 1106).

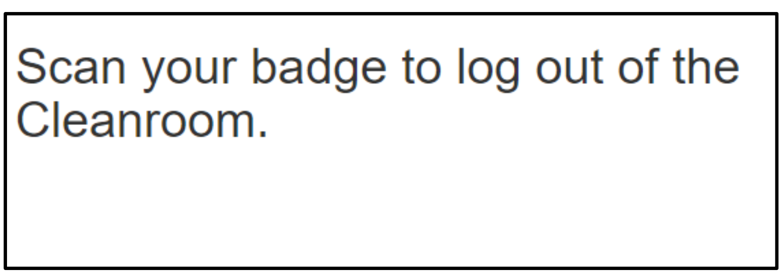


Figure 1106 Exit tablet farewell screen

- If the occupancy parameter is set for the area (e.g. site-address/farewell_screen/1/?occupancy=Cleanroom), occupancy will be displayed as well (Figure 1107).

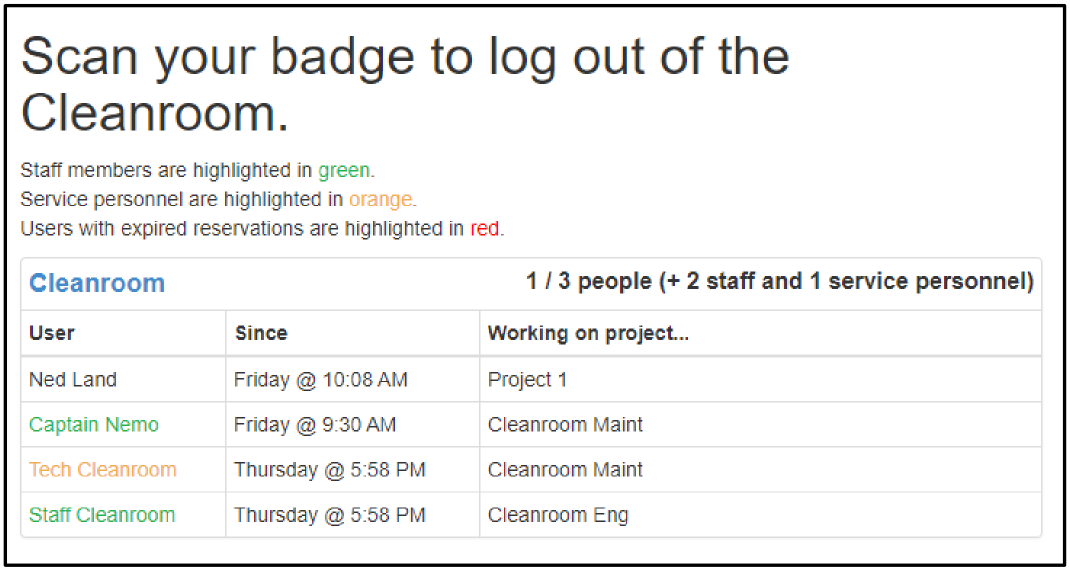


Figure 1107 Exit tablet farewell screen with area occupancy

- Scan your badge at the card reader to begin the log out process.
    - Each time a badge is scanned, the badge number is displayed on the screen greyed out (Figure 1108). This is useful when determining why a user's badge isn't working properly.

Figure 1108 Exit tablet badge scan

-
    - If the user is a staff member and was logged in on behalf of another user, they will be automatically logged out as well.
    - If the user is still logged into a tool in the area, a warning is displayed on an orange background along with a list of tools the user is currently logged into. and the user is logged out of the area (Figure 1109).

Figure 1109 Exit tablet logout warning

- If the user is not logged into any tools in the area, a green background is displayed along with a success message and the user is logged out (Figure 1110).

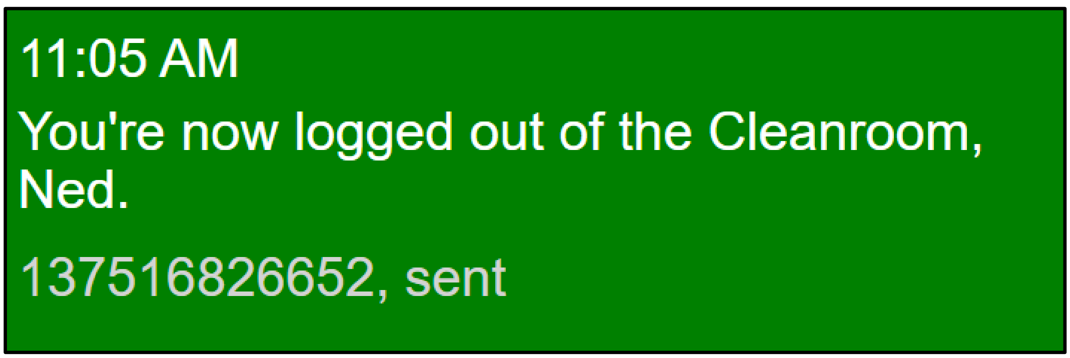


Figure 1110 Exit tablet logout

- If an error occurs a dialog will appear informing the user of the issue. Errors will be displayed for 15 seconds then the page will revert to the farewell screen.
  - Badge not found (Figure 1111). Badge numbers are recorded for users in the users page detailed on page 278 or the users table detailed on page 521.

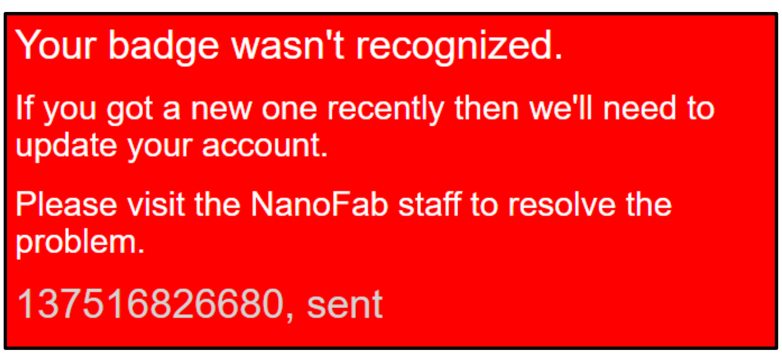


Figure 1111 Entrance tablet badge error

44 Configuring NEMO

44.1 Configuring NEMO Settings

NEMO settings are maintained in the settings.py file. Additional information about the settings including examples is available on the NEMO GitHub site at www.github.com/usnistgov/NEMO

44.1.1 Authentication Backends

The AUTHENTICATION_BACKENDS key is used to select the between a decoupled "REMOTE_USER" method such as Kerberos from a reverse proxy and LDAP authentication from NEMO itself.

44.1.2 Templates

The context processors in the templates section of settings.py determines if the logout button is displayed or not. Uncomment the desired processor.

'NEMO.context_processors.hide_logout_button', will hide the logout button on the navigation bar.

'NEMO.context_processors.show_logout_button', will show the logout button on the navigation bar.

44.1.3 Lab Managers

Lab managers can be defined in the settings.py file and will receive all shutdown and progress notices posted for tools.

44.2 Identity service

The identity service can be used to connect to external resources such as billing systems or access control systems. The identity service requires the user to create an intermediary service to act as a go between for NEMO and the service.

44.3 NEMO Timed Services

A few features require periodically polling NEMO to trigger events which can be done in two ways, by web request or management command.

44.3.1 Web request

The user that connects must have the 'NEMO|user|Can trigger timed services' permission or the connection will be refused. Make a GET request to trigger the service.

- Email usage reminders – typically runs every hour, site-address/email_usage_reminders/
- Reservation reminders – typically runs every 15 minutes, site-address/email_reservation_reminders/
- Reservation ending reminders – typically runs every 15 minutes, site-address/email_reservation_ending_reminders
- Missed reservations – runs every minute, site-address/cancel_unused_reservations/
- Out of time – runs every minute, site-address/ email_out_of_time_reservation_notification/

- Weekend access – runs every hour, site-address/email_weekend_access_notification
- Automatic alert creation for closures – typically runs every day, site-address/create_closure_alerts
- Sensor data management – runs every minute, site-address/manage_sensor_data

44.3.2 Management command

Management commands can be run directly on the NEMO server and eliminate the authentication and http overhead. Run the required service using "python manage.py service-name" or "django-admin service-name".

- Email usage reminders – typically runs every hour, send_email_usage_reminders
- Reservation reminders – typically runs every 15 minutes, send_email_reservation_reminders
- Reservation ending reminders – typically runs every 15 minutes, send_email_reservation_ending_reminders
- Missed reservations – runs every minute, cancel_unused_reservations
- Out of time – runs every minute, send_email_out_of_time_reservation_notification
- Weekend access – runs every hour, send_email_weekend_access_notification
- Automatic alert creation for closures – typically runs every day, create_closure_alerts
- Sensor data management – runs every minute, manage_sensor_data

For example, to process missed reservations, run: "python manage.py cancel_unused_reservations" or "django-admin cancel_unused_reservations"

44.4 Email logging

All emails sent by NEMO are logged for audit purposes and accessible in the detailed administration. If you are a developer, make sure to use the `send_email` function available in `utilities.py` to benefit from this feature.

45 NEMO Release notes

45.1 Release 4.1.0

45.1.1 Upgrade notes

To enable the new sensor data plugin:

- Add 'NEMO.apps.sensors' to INSTALLED_APPS in your settings.py
- Add a cron job to run every minute, either calling docker exec -it nemo django-admin manage_sensor_data or sending an http request to /manage_sensor_data

45.1.2 Live demo!

A live splash pad demo is now available at https://nemo.nist.gov/demo.
You can find the instructions on how to use it at https://github.com/usnistgov/NEMO#online-demo

45.1.3 New features

- Added Sensor data plugin for temperature, humidity, gases etc.:
    - Sensor cards can be created in a similar way to the interlock cards. Currently only Modbus TCP connection is available for sensors.
    - Sensors can be added to a sensor card as well as Sensor categories to organize all the sensors.
    - Sensor data can be displayed as a graph with different date ranges and data can be exported in csv file for further processing.
    - Sensor email alerts can be set with a trigger condition or when no data is read for a sensor.
    - The sensor dashboard will display sensor or categories as red when an alert has been triggered.
- Split customization settings into tabs for better readability and refactored it in a way that plugins can now add their own.
- Added option to make training required flag for new users optional (in customizations page).
- Added alternate email in user preferences (gear icon on top right corner in NEMO) as well as flags to decide which NEMO emails should be sent to the alternate email address.

45.1.4 Improvements

- Added landing page option flag to hide item from staff (visible to facility managers and admin only)
- Added minified version of most Javascript libraries to improve page load time
- Date pickers will now follow the format set for DATETIME_INPUT_FORMAT, DATE_INPUT_FORMAT and TIME_INPUT_FORMAT for better consistency throughout the application. Remove Bootstrap datepicker in favor of more versatile datetimepicker.

- Added red border on required reservation and post usage questions, and on failed validation to better spot where the error is. Updated validation checks to happen on any input rather than only on required ones.
- Added new REST_FRAMEWORK API permission: 'NEMO.permissions.DjangoModelPermissions' that allows for more granular permissions. With this permission class, users need view permission on individual models (UsageEvent, Project, Account etc.) to be able to access the data in the REST API. The only exception is for accessing billing data, which requires the special use_billing_api permission to access since no models are directly associated with billing.

45.1.5 Bug fixes

- Fixed issue where staff status calendar was not respecting the closure staff_absent flag (always showing closure rather than only when flag is set)
- Fixed "Cancel outage" button not showing anymore
- Users should be logged in to access any media files. Thanks @r-xyz for reporting and fixing this!
- Fixed a chicken-and-egg situation when migrating or creating migrations

45.1.6 Libraries

- Django 3.2.12 -> 3.2.13 (vulnerability)
- Moment 2.10.2 -> 2.29.3
- cryptography 36.0.2 -> 37.0.2
- Pillow 9.1.0 -> 9.1.1 (vulnerability)

45.2 Release 4.0.0

45.2.1 Upgrade notes

- In settings.py:
    - Set DEFAULT_AUTO_FIELD = 'django.db.models.AutoField'
    - In REST_FRAMEWORK -> DEFAULT_RENDERER_CLASSES replace renderer 'drf_renderer_xlsx.renderers.XLSXRenderer' by 'drf_excel.renderers.XLSXRenderer'
    - If using postgres database, replace database engine django.db.backends.postgresql_psycopg2 by django.db.backends.postgresql
- Some web browsers will cache old CSS/Javascript from detailed administration. If you are having issues (blank screens) in the admin section, try Ctrl + Shift + R or Ctrl + F5 to force a refresh or clear your browser's cache

45.2.2 Improvements

- Closure alert preview and validation were added to catch potential issues before the automatic alert is created.
- Closure on staff status calendar will now display the alert content if one is set.
- Added interlock card enabled field on interlock view in detailed administration.

45.2.3 Interlock Modbus support

- Support for Modbus over TCP was added to provide greater flexibility and support more interlock types.

45.2.4 Libraries

- Django 2.2 -> 3.2.17
- drf_renderer_xlsx 0.4.5 -> drf_excel 2.1.0
- cryptography 36.0.1 -> 36.0.2
- Pillow 9.0.1 -> 9.1.0
- drf-flex-fields 0.9.7 -> 0.9.8
- Added pymodbus 2.5.3 as new dependency

45.3 Release 3.16.0

45.3.1 New features

- Added export of email addresses on broadcast email page. For use outside of NEMO.
- Added option to send broadcast email using the users default email client. This only works when the list of emails is less than 2000 characters total due to limitations of the MAILTO feature. Use the export function to get around it.

45.3.2 Improvements

- Tool configurations can now be enabled/disabled for more flexibility.
- Added day view option for staff status page which is also the new default view.
- Added settings in customizations to control whether users and or staff members can look at past/future staff availability and what view choices users can have (day/week/month) for more privacy control.
- Added separate Staff availability categories to allow more flexibility in ordering staff in the staff status page.
- Added user preference so users can choose their default staff status view.

45.3.3 Bug fixes

- Fixed a bug with tool usage counter throwing an error when being updated from post usage questions. Thanks **@cnf-clark** for reporting it!

45.3.4 Libraries

- Pillow 9.0.0 -> Pillow 9.0.1

45.4 Release 3.15.0

45.4.1 Upgrade Notes

- For the new automatic alert creation for Closures and reminder emails on last occurrence to work, a daily cron job must be added, calling either docker exec -it nemo django-admin create_closure_alerts or by sending an http request to /create_closure_alerts

45.4.2 New features

- Added Staff status, a new feature on the status dashboard displaying whether staff are in/out:
    - Leave type can be customized (sick leave, annual leave, parental leave etc.)
    - Staff working days and typical hours can be set, as well as staff categories (second shift, user office etc.)
    - Only facility managers can add/edit staff absences and see the details (sick leave, annual leave etc.)
    - Regular user and staff users only see in/out status
    - Facility managers can also export the calendar
    - Customizations available: show/hide weekends, display staff status only to other staff members, start week on Sunday/Monday
    - Week/Month view
- Renamed PhysicalAccessException to Closure and massively updated the feature:
    - A closure can now have multiple dates (to set Labor day for multiple years in advance for example)
    - A closure can triggered an automatic alert a certain number of days prior to the closure. (5 days before Labor day for example, informing users that buddy system will be in place etc.)
    - Staff can be marked as absent in the Staff status page during a closure (optional)
    - A reminder email can be sent on the last occurrence of a closure reminding facility managers to add more if needed. (In case you set Labor day 5 years in advance and then forget to add more dates)

45.4.3 Bug fixes

- Fixed a bug preventing XLSX export in API
- Fixed a bug requiring the identity service to be set in settings for qualifications to work. Thanks @rmwhite85 for reporting this!
- Fixed reservation details on Mobile and Kiosk only displaying times which would make it very confusing when reservations span over multiple days. Thanks @nsieb for bringing this up!
- Fixed reservations losing their reservation questions when moving/resizing them. Fixes #104. Thanks @jat255 for reporting it!

45.4.4 Libraries

- Django 2.2.26 -> 2.2.27 (vulnerability)
- drf-renderer-xlsx 0.4.4 -> 0.4.5 (fixes broken XLSX with manytomany fields)

45.5 Release 3.14.1

45.5.1 Bug fixes

- Fixed a wrong template name used in usage event details in calendar
- Fixed another bug in custom task status. Thanks @rmwhite85 once more!
- Fixed date format issues in user creation and abuse pages

45.6 [Release 3.14.0]

45.6.1 Upgrade Notes

- NEMO now requires Python 3.7 since security support for 3.6 ended last month.
- The LAB_MANAGERS list in settings.py has been replaced by a permission on users called is_facility_manager. If you were using the LAB_MANAGERS setting, go to Detailed Administration -> Users and set the facility managers there after updating NEMO. Also please note that you need at least one facility manager to enable the new Access request feature.
- The qualified checkbox is now enabled by default when recording training sessions. Make sure to double check before confirming.
- The access request weekend access feature (more on this below) requires a cron job to be set hourly, calling docker exec -it nemo django-admin send_email_weekend_access_notification or sending a request to /email_weekend_access_notification

45.6.2 New Features

- Added temporary access. This allows admins to give users access for a limited time. For example, giving someone weekend cleanroom access for one weekend. It is available through in Detailed Administration only.
- Added user access requests:
  - Grouping Access Requests and Buddy Requests under one common "Requests" menu item.
  - Access requests (after-hours requests) need to be enabled by checking the "allow user request" box on a "Physical Access Level" in Detailed administration and by setting at least one Facility manager.
  - Added customizations for tab title, description message, minimum number of buddies, maximum number of requests to display, and weekend access emails and cutoff day and time (more on this below)
  - Once enabled, users can submit access requests by selecting a start and end time, an access level (if multiple are enabled) and a list of buddies. Facility managers (see below) are then notified and can approve/deny the request in NEMO. Upon approval, a corresponding temporary access will be created for all users in the request.
  - The request creator and buddies will receive a confirmation email, and buddies/facility managers will have a notification badge in NEMO on the requests tab indicating there is something new.
  - Facility managers can approve/deny a request and have the opportunity to update it before approving. This allows them to change the dates, update the description etc. before approving. This is useful if for example the request can only be approved for one day due to lack of staff on the second day, etc.
  - A "weekend access" customizable email can be sent to a list of emails set in customization on the cutoff day and time set. If the email template is set, the email will be sent the within an hour of the first approved request that includes weekend time with a weekend_access value of True. If no access requests that

include weekend time are approved by the cutoff day and time, the same email will be sent with a weekend_access value of false. The latter will not be sent if the cutoff day and time is not set.

- Added the facility manager role in Detailed administration -> Users to replace the LAB_MANAGERS settings. Facility managers receive all tasks related updates and approve/deny access requests.
- Added "Charge note". This is a text area field that can be set and updated after creating a Staff Charge. It will be displayed in "My usage", "Project billing" and "Remote work" pages as well as in the API.
- The project selection name can now be customized in the "Customization" page. It will use the Django templating engine, allowing the use of things like "{{ project.account.name }} - {{ project.name }}" which would display the account name followed by the project name. This is limited to project selection lists (in reservations, logging in an area, kiosk etc.)
- A standalone reservation view was added for linking from outside of NEMO, available at /event_details/reservation/<reservation_id>/. Thanks @jat255 for the contribution!
- Email templates to be used in customizations were added in the resources folder. Feel free to adapt them to your needs.

45.6.3 Improvements

- Date and time formats have been made more consistent across NEMO and follow django's format from settings.py instead of being hardcoded in certain places. Make sure DATETIME_FORMAT, SHORT_DATETIME_FORMAT, DATE_FORMAT, SHORT_DATE_FORMAT and TIME_FORMAT are set to your liking in settings.py otherwise Django's default will be used.
- Added an EXPORT_DATE_FORMAT and EXPORT_TIME_FORMAT to settings.py to allow a custom format to be used in filenames when exporting (in API, My Usage, Tool Usage Data etc.). If not set, they will default to “m_d_Y” and “h_i_s” respectively.
- Supplies/consumables withdrawals are now allowed in group post usage questions.
- Project information can now be shown and exported in "Tool Usage Data History" through a checkbox (unchecked by default).
- The qualified checkbox when recording a training session is now checked by default.
- Fixed styling issues in the Email logs feature in the detailed administration, and also updated Customization to open the content preview in a separate tab.

45.6.4 Bug fixes

- Fixed a bug dating back to 2018 in custom task status using primary_tool_owner instead of primary_owner. Thanks @rmwhite85 for noticing!
- Fixed a bug when exporting usage where it would use UTC dates in the CSV file.
- Fixed a bug when user having back-to-back reservations would have one of them marked as missed when they were in fact already logged in to the area (from the prior reservation).
- Updated the misleading message when selecting projects for reservation. It will now only mention missed reservation fees if the missed_reservation_threshold field is set on the tool/area and the message will mention what the threshold actually is.

- Fixed issue when billable items would not show up in API when crossing over the period. i.e. if a charge started before the end of the month and finished the next month, it would not show up. Changed the logic to show billables by end date only.

45.6.5 Libraries

- Updated Django to 2.2.26
- Updated django-filter to 21.1
- Updated djangorestframework to 3.13.1
- Updated django-mptt to 0.13.4
- Updated cryptography to 36.0.1
- Updated drf-flex-fields to 0.9.7
- Updated drf-renderer-xlsx to 0.4.4
- Updated python-dateutil to 2.8.2
- Updated ldap3 to 2.9.1
- Updated requests to 2.27.1
- Updated Pillow to 9.0.0

45.7 Release 3.13.2

45.7.1 Bug fix

- Fixed email broadcast error when sending to users having access to an area or when sending to all users

45.8 Release 3.13.1

45.8.1 Bug fix

- Fixed issue with mobile reservations breaking when the user has only one project

45.9 Release 3.13.0

45.9.1 New Features

- Added support for group questions in Reservation questions.
- Added option to send an email to all registered users.
- Rest API updates:
    - Added Excel export.
      To enable it, it must be added to the DEFAULT_RENDERER_CLASSES of the REST_FRAMEWORK dictionary in settings.py, like the following:
      'DEFAULT_RENDERER_CLASSES':
      ['rest_framework.renderers.JSONRenderer',
      'rest_framework.renderers.BrowsableAPIRenderer',
      'drf_renderer_xlsx.renderers.XLSXRenderer'],
    - Added billing to the browsable API page.
    - Added link to the API in the Administration menu. Only visible for admins.

45.9.2 Bug fix

- Fixed an issue where sorting tools by name in the detailed admin section would break.
- Fixed multi email field validation issue where rendering would break when there was a validation issue.
- Fixed multiple issues with reservation calendar invite in Outlook where the organizer cannot be the attendee. The organizer can now be set in settings.py using RESERVATION_ORGANIZER_EMAIL and RESERVATION_ORGANIZER for the email and the name of the organizer, respectively. see the settings page for details.
- Made Customizations page only accessible to admins.

45.9.3 Library updates

- Updated drf-flex-fields to 0.9.3
- Updated Pillow to 8.3.2

45.10 [Release 3.12.2]

45.10.1 Bug fix

- Fixed issue with badge number not working on area access pages (already logged in and choose project pages) and kiosk “Go back” button.

45.11 [Release 3.12.1]

45.11.1 Bug fix

- Fixed issue with badge number not working in area access if they start with 0 or have letter in it.

45.12 [Release 3.12.0]

45.12.1 New Features

- Added export of tool tasks and comments history to a text file.
  Located in Tool Control -> Details -> Task and comment history.
- When creating recurring scheduled outages, the number of days in advance can now be customized in the Customization page.

45.12.2 Improvements

- In post usage group questions, the "Add" button text can be customized using property group_add_button_name
- Changed display of upcoming reservation on Kiosk so they don't need to be expanded to cancel. Clicking on a reservation will go to the corresponding tool.

45.12.3 Bug fix

- Fixed a bug in new version of Chrome where extra scrollbars would appear and flicker on the calendar page.

- Fixed an issue with recording training sessions, where a staff member who is also a tool superuser would not be able to record training on tools he is not superuser for.
- Fixed issue when double clicking on task/comment creation/update would create multiple instances.

45.12.4 Vulnerabilities

- Updated drf-flex-fields to version 0.9.1

45.13 Release 3.11.0

45.13.1 New Features

- Added reservation questions that are asked when a user makes a reservation. They can be added in the detailed admin section. Reservation questions can be set for tools and/or areas and can also be limited to specific tools, specific areas and/or specific projects.
- Added Areas, Resources, Staff Charges and Training Sessions to Rest API
- Added conditional nesting of related objects in Rest API as well as cherry picking of fields returned using drf-flex-fields (see link for details)
- Added a projects page for projects Principal Investigators who are not staff members. This allows them to see project information and users.

45.13.2 Improvements

- Added filtering by display and filtering by areas in Reservation admin page.
- Added filters to Rest API (for a complete list, see NEMO/views/api.py)
- Added a "pinned" field to news to have certain news stay at the top of the feed.
- Added optional start date for both projects and accounts. Added optional account type for accounts.
- Improved dynamic form (JSON formatted questions):
    - Added red asterisk when a field is required
    - Added "title_html" attribute to display html in title
    - Added "help" attribute (displaying help text for inputs)
    - Added "maxlength" attribute to textbox questions (max characters allowed in input)

45.13.3 Bug fix

- Fixed issues with reservation dates in ical invites not using UTC times.

45.14 Release 3.10.0

45.14.1 New Features

- Added "All tools", "All areas" and "All tools & Areas" overview options in the calendar. Thanks @bpedersen2 for the contribution!
- Added tool superusers who are allowed to train users on tools. They can be added in the detailed admin section, either in the user section or the tool section.

- Added a way to restrict projects to only certain tools, regardless of the users qualifications. This can be done in Detailed Administration/Project.
  A project restricted to certain tools will:
    - allow reservations and usage of those tools only.
    - allow reservations and login on area that this tool requires.
    - allow staff charges on those tools and areas they require.
    - allow training on those tools only.
- Added a checkbox on projects to allow consumable withdrawals or not. Consumable withdrawals set through post usage questions are always allowed.
- Added warning threshold and warning email addresses for Tool usage counter. Added corresponding email template in customizations
- Added an area reservation ending reminder email 30 and 15 minutes before reservation ends and user is still logged in.

45.14.2 Improvements

- Changed user's badge number field to string (rather than integer) to get around integer max number but also to provide better flexibility with card readers.
- Added option to clear the list of consumable withdrawals.
- Added tools the user is a backup owner on, in detailed administration user page.
- Improved calendar support for making and cancellation reservations. Thanks @bpedersen2 for the suggestion.
- Moved the set PI on project feature to Detailed Administration only.
- Now sending task updated email when a task is cancelled.

45.14.3 Bug fix

- Fixed issue where writing in a post usage question of type textarea would not update the "stop using tool" button
- Fixed layout issues on pagination pages on mobile devices
- Fixed an issue when multiple coincident reservations could be created at the same time.
- Fixed NEMO install_systemd_service command.

45.15 [Release 3.9.2]

45.15.1 Bug fix

- Fixed badge number max digits issue by making it a char field instead of integer. It should also provide more flexibility with badge readers

45.15.2 Security vulnerability

- Fixed badge number max digits issue by making it a char field instead of integer. It should also provide more flexibility with badge readers

45.16 *Release 3.9.1*

45.16.1 Bug fix

- fixed a bug after updating LDAP library. TLS is not needed anymore since the LDAP connection security is set on the server connection through use_ssl (and it actually raises an error if set on an already secure server connection).

45.17 *Release 3.9.0*

45.17.1 New Features

- Added the ability to set Principal Investigators on projects. PIs are able to see all activities for the projects they manage in the "My usage" page.
- Added exporting of data in CSV format from "My usage" page.
- When forcing a user out of a tool, if there are any required unanswered post usage questions, the required questions will be sent in an email to the user, lab managers, tool owner & backup owner, and to the staff member who forced the user off. Blank answers are set in the usage history record until edited in detailed admin.
- Added float post usage question (with optional precision property) and textarea (with optional rows property)
- Added tool documents. (thanks to 4D Labs for the contribution)

45.17.2 Improvements

- Added options for last 10, 25, 50 & 100 records and filtering by users in tool usage data history
- Added filtering by tool in Tool usage counter admin page
- Improved the import of plugin URLs to be more consistent

45.17.3 Bug fixes

- Fixed an issue where areas that don't require a reservation would not show up when using staff charges
- Updated to latest versions for all dependencies

45.18 *Release 3.8.0*

45.18.1 New Features

- Added list views for Accounts and Projects and Users pages (thanks to 4D Labs for the contribution)

- Supplies/Consumables withdrawal can now be done in bulk. A flat list is displayed, and users can add supplies to their cart, and checkout all the items at once.
- Added a way to bypass interlock errors on both desktop and kiosk. If there is an error with an interlock command, the user will now be able to:
    - enable anyway (so that time tracking can still take place - when staff can override interlocks manually)
    - try again
    - cancel

The "enable anyway" option can be turned on or off in customizations, and the error messages for both tool and door interlock failures can be customized as well.

45.18.2 Improvements

- Billing pages (billing and project billing) will now redirect to usage/project usage if billing service is not defined or not available
- Added notification message when post usage questions are linked to consumables/supplies withdrawals so that the user is aware that they are being billed for those.
- Added 11:59pm time option for access level exception (end of the day)
- Updated resources page so resizing would not mess with the layout
- Made required tool fields bold and capitalized in detailed admin for consistency

45.18.3 Bug Fix

- Fixed issue with upcoming reservation showing when delayed logoff is in effect (#60)
- Fixed an error when creating a user would fail if identity service was not defined
- Fixed an error when adding access level exception with blank start or end time would break (added validation)
- Added locking mechanism to enable/disable tools and area login to prevent race condition (enabling the same tool at the same time - through js or "double click")

45.18.4 Security

- Updated dependency version of cryptography library (due to vulnerability in previous version)

45.19 Release 3.7.0

45.19.1 New Features

- When a tool requires an area access, area access time will be charged when staff use tool for a remote project (so staff time, tool time and area time are all started at the same time)
- Staff charge for area access will stop when staff users log out of any area

- Added virtual keyboard for Kiosk text post usage questions
- Added keypad for delayed logoff on Kiosk
- Kiosk timeout will now reset on user input
- Added a way to contact other users from reservation details and to contact the current user of a tool on tool control page
- Added the Buddy Board, a simple message board for buddy requests:
  - At least one area need to be set to "allow buddy system" in detailed administration for this feature to be active
  - Users will be notified of new buddy requests with notification badge number on menu item (can be turned off in user preferences)
  - Users will be notified by notification badge number and via email when somebody also replies on a request they replied to (can be turned off in user preferences)
  - A disclaimer can be set in customizations. Use it to specify special instructions or rules for buddy system
  - Buddy requests expire at the end of the day on their end date
  - Only users who have completed training, have an active project and have access to the area can reply
- A news story will now be published when a new NEMO release is installed (with links to the release notes and the feature manual). This feature can be disabled by setting `NEW_VERSION_NEWS = False` in settings.py
- All emails sent by NEMO will now be logged for audit purposes and accessible in the detailed administration. If you are a developer, make sure to use the `send_email` function available in `utilities.py` to benefit from this feature.

45.19.2 Improvements

- News stories can now include HTML tags (link etc.)
- Added validation for physical access exceptions in detailed admin (end date must be later than start date)

45.19.3 Bug Fix

- Fixed a bug where project usage page was only showing results for the current logged in user.
- Fixed a bug on Kiosk when the keypad would stay open on Kiosk timeout.

45.20 [Release 3.6.0]()

45.20.1 New Features

- Added "dropdown" type for tool post usage questions

- Added "group" type post usage question. This allows to create groups of questions that can be repeated. For example, when a user uses multiple processes on a tool, and we want to collect information about each one. More details can be found on the feature manual.
- Added "Usage Data History" tab in tool control, which displays the history of answers to post usage questions. The data can also be exported to CSV.
- Added Tool usage counters:
    - They are counters linked to a "number" type post usage question and keep a running total of some user inputs.
    - They can be added in the detailed administration and NEMO will check that the post usage question exists in the corresponding tool (with the correct type)
    - Counters are displayed in the tool summary page.
    - Counters can be reset by staff members. A comment will be added to the tool and an email will be sent to LAB_MANAGERS if that setting is enabled.
    - For example, you can use it to keep track of total etch time for maintenance purposes etc.
- Added a new setting in customization to display current time indicator in the calendar.
- Added Physical Access Exceptions which allows to set specific exceptions when access levels will be denied. This can be used for holiday closures, understaffed times etc.

45.20.2 Improvements

- Area reservations can now be extended even while user is logged in the area (but not moved or cancelled).
- Updated calendar area login/logout buttons to be shown only when relevant (instead of being grayed out if a tool is selected for instance)
- Updated billing/usage search to use Bootstrap date picker instead of pickadate
- Updated validation on post usage questions to check that consumable exists with the correct name, and that required attributes are provided
- Added management commands to run timed services. (you can now use manage.py or django-admin to run timed services actions)
- Added keypad for answering post usage questions of type number (only on Kiosk)

45.20.3 Bug Fixes

- Fixed an error when using the search feature in physical access log (in Detailed Administration)
- Fixed excessive load time when selecting a reservation in Detailed Administration
- Fixed #43 unique constraint violation in Postgres, thanks to **@bpedersen2**

45.20.4 Security

- Updated dependency version of cryptography library (due to vulnerability in previous version)

45.21 *Release 3.5.0*

45.21.1 New Features

- Added a way to link contact information to an actual user (through Detailed Administration\Contact Information). When both are linked, in Tool Control details page, the contact information will be displayed (instead of simply the email) of the tool owner or backup owner.

45.21.2 Improvements

- Area reservation policies: user cannot cancel area reservation while logged in that area during that reservation. also, users won't be able to cancel or move an area reservation when they have tools reservations that require that area reservation.
- Added post usage question validation and better error message for required attributes.
- Consumables can now only be withdrawn if the post usage question is of type "number".

45.21.3 Bug Fixes

- Fixed a bug preventing tool synchronization feature to work.
- Fixed a bug in tool admin page, when missing required attributes of post usage questions would completely break the page.
- Fixed a bug where selecting Facility Usage in calendar view would display ALL tool usage even when selecting a particular area.
- Fixed a bug when a tool needed to be shutdown and the wrong email was sent to users.

45.22 *Release 3.4.0*

45.22.1 New Features

- Added the ability to create more badge reader configuration in detailed administration. When using the Kiosk or Area Access, add `?reader_id=<reader_id>` to the URL to select a badge reader configuration.

45.22.2 Improvements

- Added ability to search by user in project billing
- Added user information on Usage Events in usage page.
- Hiding project billing if billing service isn't defined

45.22.3 Bug Fix

- Fixed an error when not all areas would show up on the email broadcast page
- Fixed out of time email being sent when customer has back to back reservations

45.23 Release 3.3.0

45.23.1 New Features

- Added service personnel to NEMO: service personnel can access **authorized** areas without having a reservation and use **qualified** tools even when shutdown or during outages
- Added checkbox to count service personnel in area capacity or not
- Added supply reminder email: a reorder email will be sent when supplies fall below the defined threshold.

45.23.2 Improvements

- Improved the staff charges page to show more details: customer being charged staff time, area access and tool usage on behalf of that user
- Improved resources page to be easier to navigate. Added a resource details page where the user can schedule an outage and modify the resource availability.

45.23.3 Security

- Updated Pillow library to latest stable version

45.23.4 Bug fix

- Reservations were not marked as missed if the email template wasn't defined. Fix it so that reservations would be marked as missed regardless.

45.24 Release 3.2.7

45.24.1 Bug Fix

- fixed a broken link when selecting tool on mobile

45.25 [Release 3.2.6]

45.25.1 Bug Fix

- fixed an issue in the kiosk where upcoming reservations would include area reservations and trying to display tool_id would fail

45.26 [Release 3.2.5]

45.26.1 Bug Fix

- Fixed an issue with platform specific formatting (was causing issues on Windows)
- Fixed an issue when enabling a tool would not work if the user id contained a specific number

45.27 [Release 3.2.4]

45.27.1 Bug Fix

- fixed an issue with overlapping reservations not being counted correctly towards capacity

45.28 [Release 3.2.3]

45.28.1 Bug Fix

- Fixed a small UI issue where calendar/tool control would not show up correctly when impersonating.
- Fixed an issue where Jumbotron would try to show tool usage info when no tools are set up

45.29 [Release 3.2.2]

45.29.1 Bug Fix

- fixed an issue with impersonating (couldn't go back in some conditions)

45.30 [Release 3.2.1]

45.30.1 Bug Fix

- fixed an issue when `rest_framework` isn't installed

45.31 [Release 3.2.0]

45.31.1 New Features

- (**superusers only**) added the ability to impersonate other users. Located in the administration dropdown menu. You'll need to add `'NEMO.middleware.ImpersonateMiddleware',` to `settings.py` for this to work
- default user reservation preferences can be overridden in settings.py with `USER_RESERVATION_PREFERENCES_DEFAULT = True`

45.31.2 Bug Fix

- fixed a bug where access usage was not showing when clicking on areas in sidebar

45.31.3 Improvements

- removed hard coded URLs which cause issues when deploying using subpath
- added success message when saving user preferences
- fixed authentication issues when using multiple authentication backends (especially when mixing pre-auth backends and backends using login page)

45.32 [Release 3.1.2]

45.32.1 Bug Fix

- fixed an issue when staff cancels another user's reservation and the email is not sent to the additional reservation emails set on the area

45.33 [Release 3.1.1]

Re-releasing 3.1.0 as 3.1.1 to fix docker tag issue.

45.34 [Release 3.1.0]

45.34.1 New Features

- A reservation email (or a list) can now be set on areas. Any reservation created or cancelled will be sent to that email with an .ics calendar invite attached (in addition to the user).

- An abuse email (or a list) can now be set on areas. When a non-staff user overstays (reservation expired but still logged in the area) an email will be sent to that email (in addition to the user).

45.34.2 Improvements

- Now using foldable trees in views where areas can be selected (self login, area access login, and physical access in user form).
- Added email previews and link to download current content in customizations.

45.34.3 Note

For the abuse and reservation emails, NEMO will send the emails "all the way up the tree". So if you have a setup where Campus contains Buildings which contains Offices, then when a reservation is created in an office, the email will be sent to the email for the Office, and the email for the Building (if set) and the email for the Campus (again, if set) etc. same goes for overstays.

45.35 [Release 3.0.1]

45.35.1 Bug Fix

- fixed a bug when counting occupancy

45.36 [Release 3.0.0]

NEMO 3.0.0 is here with area reservations!

45.36.1 Before Updating

- **add `mptt` to `INSTALLED_APPS` in `settings.py`**
- **add timed services call to url `/email_out_of_time_reservation_notification` every minute**
- **if you plan on using area reservations, update reservation email templates to check whether the reservation item is a tool or an area. `reservation.tool`, `reservation.area` or `reservation.reservation_item`and `reservation.reservation_item_type` can be used for that. (emails to update area: `reservation_reminder_email`, `reservation_warning_email`, `missed_reservation_email`, `cancellation_email`, `reservation_created_user_email`, `reservation_cancelled_user_email`)**
- **if you plan on using area reservations, update `unauthorized_tool_access_email` to use the new `type` variable. It can be either `'reservation'` when a user tries to use a tool without a reservation**

or `'access'` when a user tries to use a tool without being logged in to the required area

45.36.2 New Area Features

- Added the ability to make reservations for Areas that have `requires_reservation` set to `True`
- Added icon on tools in the sidebar when they require access to an area that requires a reservation
- Tools cannot be reserved until a reservation is made on the required area (area reservation needs to exist at the start time of the tool reservation)
- Added Area capacity and policy rules for area reservations. Area capacity is checked when making reservation and logging in, parent area capacity is also checked. (Capacity can be set on buildings or campuses that have other areas in them as well)
- Warning will be shown to user when making a reservation if `reservation_warning` is set on an area
- Added categories to area
- Added `count_staff_in_occupancy` flag on areas. If unchecked, staff users will not count.
- Added customization setting to display all areas or only areas the user has access to
- Access levels can now be set directly when creating the access level.
- Access level can be given on parent areas (i.e. Buildings)
- Outages can be scheduled on Areas as well. Can also be set on parent area through the detailed administration
- Added tooltip showing all users logged in an area
- Added ability to log in and out of areas directly from the calendar view (enable with setting in customization)
- Logged in users without a reservation will be shown in red on status dashboard
- Area reservation are shortened when user logs out
- Added ability to email users authorized to access an area or parent area (building)
- Displaying scheduled outages and unavailable resources for areas in sidebar
- Added mobile calendar area reservations
- Added email to be sent when users are out of time (logged in area but reservation expired). A grace period can be set in area.

45.37 Release 2.3.4

45.37.1 Bug fix

- Fixed a bug preventing disabling tools from kiosk

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45.38 Release 2.3.3

45.38.1 Security vulnerability

- Updated django version

45.39 Release 2.3.2

45.39.1 Bug Fix

- fixed a bug with reservation warning

45.40 Release 2.3.1

45.40.1 Bug Fix

Fixed a bug with facility usage events not showing in calendar

45.41 Release 2.3.0

45.41.1 Before Updating

- Replace `'NEMO.context_processors.device'` with `'NEMO.context_processors.base_context'` in context_processors in `settings.py`
- Rename media file `nanofab_rules_tutorial.html` to `facility_rules_tutorial.html` and update form in file to post to `facility_rules` URL
- Rename media file `nanofab_rules_tutorial_email.html` to `facility_rules_tutorial_email.html`

45.41.2 New Features

- Added a reservation warning (number) field to Area. A "Busy time" warning will be displayed when reserving a tool in that Area when there already are a greater number of users with reservations for that same area. (This can be used separately from the area capacity)

- Added a Boolean field in area to decide if staff should count towards max capacity. Updated pages to show a separate staff count if unchecked
- Post usage questions now support `number` type and `min`, `max` and `pattern` attribute.
- Post usage questions preview has been added as well.
- Consumable withdrawal now subtracts from quantity.
- In email page, subject and content are now required and the preview can now be updated before sending.
- Added area access record in remote work for staff charges.
- Self login button will now be shown all the time when enabled from customization. Errors will be displayed when user cannot login (rather than hiding the button)
- User type isn't required anymore. Confirmation of user creation/update has been added and another `safely deactivate user` link was added next to the `active` checkbox
- The facility name can now be configured from the customization page. Thanks **@dsbarth** for the original code!
- The site name can also be configured from the customization page.
- The calendar view can now be configured from the customization page (default view, first day of the week, start of the day, column date format for day, week, and month views). Thanks **@sbonaime** for the suggestions and help!

45.41.3 Improvements

- Added a spinner in tool control page when waiting after clicking on tools
- Past outages aren't shown on scheduled outage page anymore
- Added staff charges to billing api. Added detailed information for items.
- Made identity service optional in `settings.py`
- Made `no_header` feature sticky (per session): use parameter `no_header=True` in page URL to use NEMO without header bar, use `no_header=False` to turn it off.

45.41.4 Bug fixes

- Added consumable withdrawal on Kiosk after answering post usage questions.

45.42 Release 2.2.3

45.42.1 Bug Fix

- Fixes #32 (mix up between access levels and areas in area access record page)

45.43 Release 2.2.2

45.43.1 Bug Fix

- fixes #33

45.44 Release 2.2.1

45.44.1 Bug Fix

- Fixes #32

45.45 Release 2.2.0

45.45.1 Improvements

- Improved LDAP settings to allow users to specify port, bind credentials, dn search and more
- Improved interlock implementation interface, allowing to validate both interlock card and interlock objects
- Updated tool autocomplete results to have better spacing.
- Updated Jumbotron to not display areas when none are defined

45.45.2 New Features

- Users can now change the project on an upcoming reservation
- Added comments that only staff can see (and create)
- Added ProXR interlock implementation (contribution by **@4Lowe** at the Minnesota Nano Center)
- Added rates to customizations. Labs can now upload a json file containing rates for tools
- Added authorization failed to customizations. Labs can personalize the error message shown when login failed
- Added jumbotron watermark to customizations.
- Made tasks and comments searchable

- Added notification icon and statement when scheduled non required resource is not available
- Added tool config history tab (in tool control)
- Added max capacity for areas

45.45.3 Bug fixes

- Fixed an issue where staff needed to select a project when making reservations on desktop site (didn't need to in mobile). Now it doesn't ask for project either way (staff are not charged for missed reservations, so no projects needed)
- Fixed a few typos here and there

45.46 Release 2.1.1

45.46.1 Bug Fix **#24**

- Fixed error when image was being resized and removed then saved again (when no changes were made on the file)

45.47 Release 2.1.0

45.47.1 New Features

- Added Tool image, serial and description. Thanks **@sbonaime** for the contribution!
- In Kiosk, categories and tools that a user is not qualified to use will be grayed out
- Added checkbox in Physical Access Level to grant access to staff without have to do it explicitly
- Added categories to alerts, and updated alerts to keep them after they are deleted or expired
- Only showing visible tools on resource pages

45.47.2 Improvements

- Updated Ldap authentication to provide better logging and not require certificate
- Updated NEMO's configuration to work without django admin installed
- Added version number to Jumbotron, Kiosk & Area Access pages

- LAB_MANAGERS will now receive an email when a task is created (not just updated)
- Added training sessions to billing API
- Updated plugin feature so that URLs are automatically added when plugin name starts with 'NEMO'
- Added name to interlock cards

45.47.3 Bug Fix

- Fixed user history when history item had been deleted

45.48 Release 2.0.1

45.48.1 Bug Fix

- fixed wrong migration filename

45.49 Release 2.0.0

45.49.1 NEMO 2.0 is here!

This major release is focused solely on internal improvements and library updates. no changes have been to features or user interface.

45.49.2 Plugin Development

- A big effort has been made to facilitate plugin development in NEMO. See the Plugin Development wiki page for detailed instructions and examples.

45.49.3 Improvements

- Updated to Django 2.2 (LTS version with extended support until April 2022), requests 2.22, django rest framework 3.11, and to latest version of all the other libraries (cryptography, django-filter, ldap, pillow and dateutil).
- Added JSON validation for post usage questions. Thanks **@sbonaime** for the contribution!

45.49.4 Before Updating

The `Kiosk` and `Area Access` features of NEMO have been moved into internal plugins. If you were using them, you'll need to add them to `INSTALLED_APPS` of your `settings.py` file:

- `'NEMO.apps.kiosk',`
- `'NEMO.apps.area_access',`