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1. Introduction

CTM, an acronym for Closure Task Manager, is a generic Web based Project Management System used by the TIGR Biotech Core Facility to manage tasks within and between research projects, to track project progress, to manage project teams, and to provide project summary / statistics to team leader and collaborators. CTM also contains many project specific add-ons to facilitate task automation, to link to other TIGR tools / resources and to facilitate high throughput genome finishing. CTM is actively used in all Biotech Core genome closure projects including Eukaryotic BAC based projects, Sample based projects such as Influenza, and Whole Genome Shotgun based projects.

1.1 USAGE

- This document describes the set up process and functionality of the CTM.
- Users must submit a BITS ticket to the Biotech Core (http://bits.tigr.org/bcis/) to request a CTM setup for new projects. The ticket should include the desired project features-CTM users with assigned access levels, reference statuses, task statuses and CTM attributes (*contact Jerry Liu for questions)* (*see Appendix A for sample features*).
- Users must have a valid SYBASE username and password to access the CTM.
- Users can navigate through the CTM by using the schema presented in Appendix A.

PLEASE NOTE: Only authorized users will be allowed to add/remove/modify certain features in the CTM. Please contact Jerry Liu to set up access levels

1.2 DEFINITIONS

- **CTM reference** - a unique work unit of a genome to which tasks can be assigned. A CTM reference is defined by its type, value, and status. Each reference is assigned a unique reference id. Commonly used references include BAC, Sample, Chromosome, or the whole genome. A reference can only be imported and updated by an authorized CTM user. There is only one CTM reference per work unit.
- **CTM project type** – the project type is determined by the target basic unit of the majority of CTM references. There are currently three main types of projects, i.e. BAC, WGS, and Sample based, targeting BACs, the whole genome, and samples.
- **CTM task** - any unique task that is tracked by CTM. A task must be related to a defined CTM reference, and can only be created and updated by an authorized CTM user. A task is defined by its type, description, priority, and status. A CTM task can be assigned / reassigned to any CTM user.
- **CTM attribute-** Additional dynamic attributes that is associated to a CTM reference or task. CTM attributes can be arbitrarily named by the CTM admin. Their values can be added /updated /deleted by CTM users with sufficient privileges.
- **CTM user-** Users who can access CTM. CTM users are granted multiple access levels that allow them to set up the CTM, to manage references and to manage tasks.
- **Access level** - Access level determines which pages and functions the user may access. Access levels are defined as follows:
  Level 0 - Access discontinued
  Level 1 - View access, user may view but can not alter any tasks.

Level 2 - Task access, user has access/update privileges to all tasks.
Level 3 - Project access. In addition to “Task access”, user has privileges to import/update references.
Level 99 - Admin access. In addition to “Project access”, user has privileges to configure CTM.

- **CTM reference status –** Users can track a particular reference by creating status queues that reflect the work flow of the project. The reference status can be arbitrarily named by the CTM admins.

- **CTM reference history –**Users can track the history of a particular reference at any given time. This feature allows the user to check if a reference has followed the work flow process of the project.

- **CTM reference log –** Comments made by a user on reference’s homepage.

- **CTM reference value –** This is the value assigned to a CTM reference when a reference is imported the first time. For most projects, a reference’s value is the Extent ID of an imported extent, which cab be viewed in LEMUR via links on the CTM.

- **CTM task type** – The type of work that needs to be performed on a given task. The task types can be arbitrarily named by the CTM admin. e.g. RT-PCR

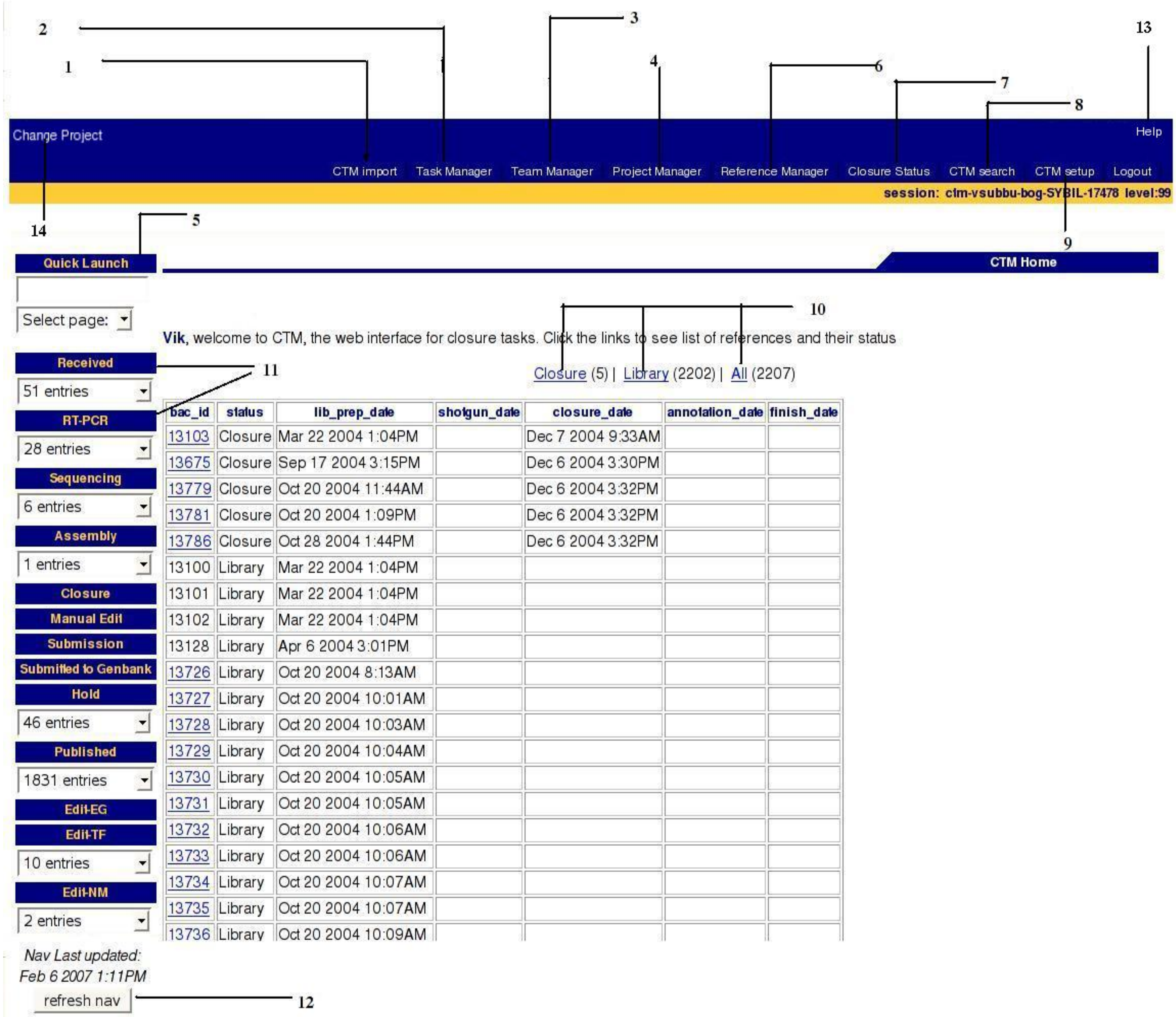
- **CTM task status-** Users can track the status of a task from the time of creation to the time of completion, allowing efficient project management. The task status can be updated by CTM users with at least the task access level..

- **CTM task description-** Users must enter a brief description of the task that needs to be performed when a task is created.

- **CTM task log-** Comments made by the users on a specific task.

2. Navigation

2.1 CTM layout



bac_id	status	lib_prep_date	shotgun_date	closure_date	annotation_date	finish_date
13103	Closure	Mar 22 2004 1:04PM		Dec 7 2004 9:33AM		
13675	Closure	Sep 17 2004 3:15PM		Dec 6 2004 3:30PM		
13779	Closure	Oct 20 2004 11:44AM		Dec 6 2004 3:32PM		
13781	Closure	Oct 20 2004 1:09PM		Dec 6 2004 3:32PM		
13786	Closure	Oct 28 2004 1:44PM		Dec 6 2004 3:32PM		
13100	Library	Mar 22 2004 1:04PM				
13101	Library	Mar 22 2004 1:04PM				
13102	Library	Mar 22 2004 1:04PM				
13128	Library	Apr 6 2004 3:01PM				
13726	Library	Oct 20 2004 8:13AM				
13727	Library	Oct 20 2004 10:01AM				
13728	Library	Oct 20 2004 10:03AM				
13729	Library	Oct 20 2004 10:04AM				
13730	Library	Oct 20 2004 10:05AM				
13731	Library	Oct 20 2004 10:05AM				
13732	Library	Oct 20 2004 10:06AM				
13733	Library	Oct 20 2004 10:06AM				
13734	Library	Oct 20 2004 10:07AM				
13735	Library	Oct 20 2004 10:07AM				
13736	Library	Oct 20 2004 10:09AM				

Figure 1- CTM layout

The above diagram is an example layout from project 'giv'. This layout will vary depending on your project's setup. (Contact Jerry Liu)

1	**CTM Import**	Link to the page to create a new reference for the project
2	**Task Manager**	Link to the page for task management including: Viewing tasks using one of three options: a. Using task ids b. Using SQL query c. Using specific criteria from drop down menus Updating tasks: a. update task status b. assign/reassign to CTM user c. update task priority adding comments
3	**Team Manager**	Link to the page for team management. It currently contains task summary and session history for each team member
4	**Project Manager**	Link to the page for project management. It contains references and tasks update for each project in which the current user is the CTM admin.
5	**a. Quick Launch** **b. Select Page**	Jump directly to a reference's homepage by entering the reference id From a reference homepage, users can jump directly to a specific section related to a reference, by using the drop down menu options
6	**Reference Manager**	Link to the reference summary page which list references for all or a particular reference status.
7	**Closure Status**	Link to the page that displays the closure status of references
8	**CTM search**	Link to the page that allows the user to search the CTM in various ways.
9	**CTM setup**	Link to the page on which the CTM admin user can setup or re-configure the CTM
10	**Status links**	Links to references in a particular reference status
11	**Reference Status/Queues**	Break down of CTM references in different reference statuses.
12	**Refresh Nav**	Refreshes the CTM browser to reflect up to date reference statuses
13	**Help**	Explanation of key functions of the CTM
14	**Change Project**	Allows users to switch projects without logging out

Table 1.1- Description of navigation links

2.2 CTM search

- Users can search the CTM by clicking on the **"CTM search"** tab shown in *Figure 1*(8)
- Searches can be conducted using task ids, reference ids, extent ids, BAC ids and scaffold ids
- Searches can also be conducted using the 'Keyword' format for task attributes, task descriptions, task logs, reference value, reference log and reference attribute. *

* *Please see the definitions in Section 1.2*

3. Reference Management

PLEASE NOTE: Information in the GLK MUST be present to import extents or BACS as new CTM references.

3.1 REFERENCE IMPORT

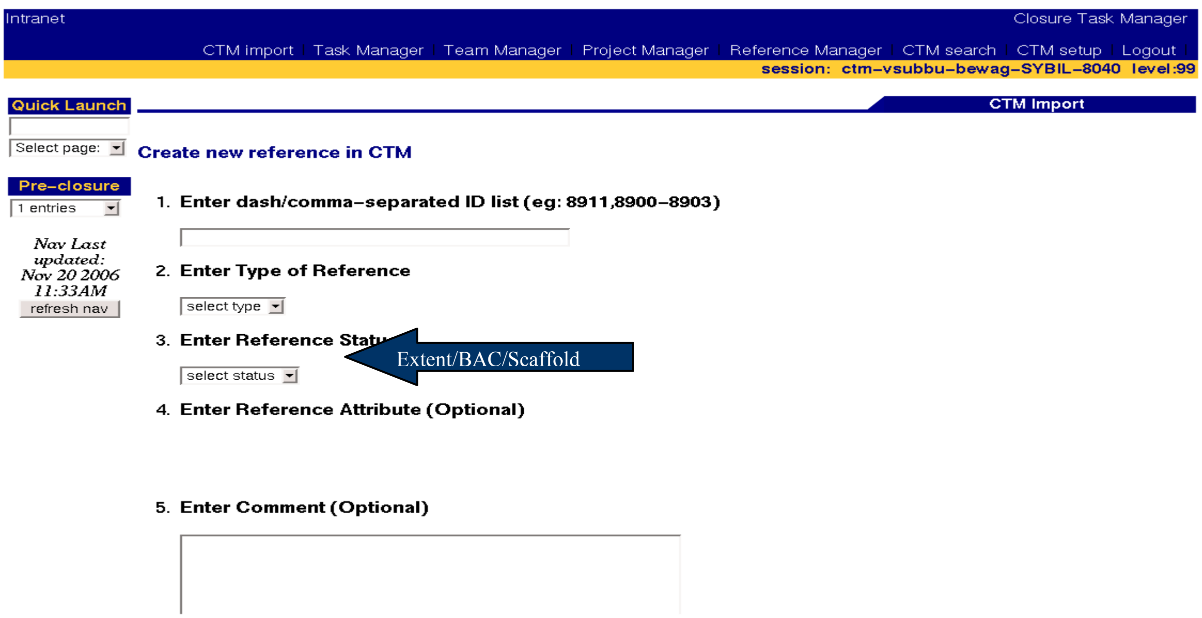


Figure 2 Create new references

- Users can generate a CTM reference id for a known BAC, Extent or Scaffold by clicking on the '**CTM Import**' tab shown in *Figure 1*.

- Users can enter the following types of values to import into the CTM.

Values	Conditions
BAC ids (or) range of BAC ids	GLK entry required*
Extent ids	GLK entry required
Scaffold number	BAMBUS entry required

Table 1.2

- Each imported reference will automatically be assigned a Reference id. (e.g.*) 16022***(10)←Reference id**

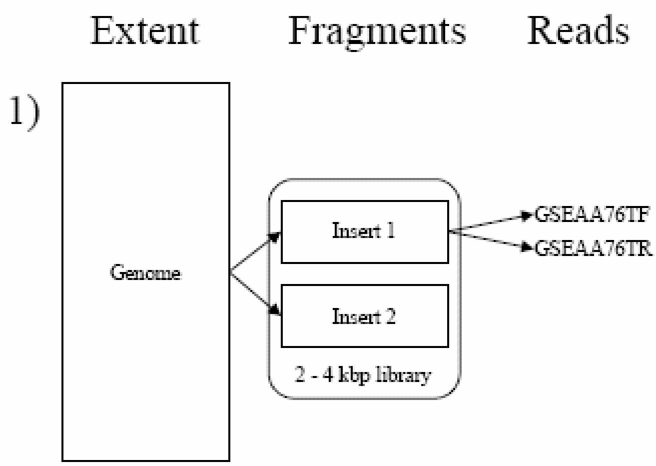
- Select the type of reference assignment for your entry using the drop down menu provided. An explanation of the types of references follows.

***Please consult the *LEMUR* manual for GLK information.**

3.1.1 Extent

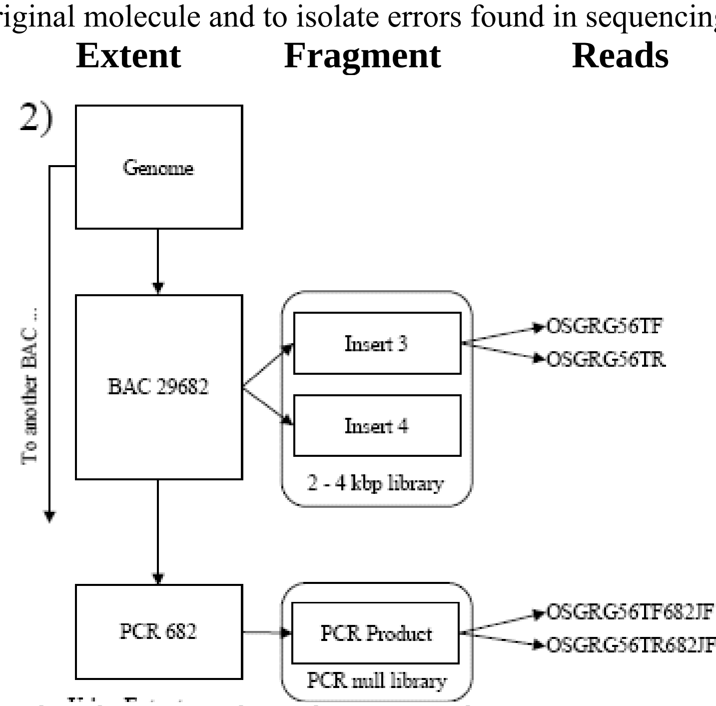
- An *'Extent'* is a partition of a genome for purposes of genomic sequencing. Often it is not possible to gather much useful information from whole or large genome DNA strands. The larger the genome, the more it may be broken down and organized into manageable pieces for sequencing. Currently, *TIGR* database models genomic and *BAC* extents. Two cases of using extent assignments are :

1. In a whole genome sequencing case, the genome is the *Extent* and is assigned an 'Extent id'. The libraries created for this genome map to this *Extent*. If the user knows the Extent id, they need to enter this value to create a new reference in the CTM.



Example 1 shows the typical whole genome sequencing case. Each library maps to a genome.
Figure 3

2. In a *BAC* based project, a hierarchy of Extents is created with the genome as the parent Extent. Each *BAC* maps to the genome as a child Extent. PCR products in turn map to the *BAC* extents. Tracking the hierarchy of an extent helps both to map information discovered in highly derived extents back to the original molecule and to isolate errors found in sequencing or library construction.



Example 2 shows the BAC case, where each BAC maps to the genome extent. A PCR product is also Shown mapping to BAC 29682 in example 2. ***Figure 4***

3.1.2 BAC

- Users can select this reference type if entering a *BAC* id. However, the *BAC* id must be present in the GLK along with an assigned Extent id. The CTM will not create a reference id if the *BAC* (and its Extent id) is not present in the GLK. For instance, in example 2 provided above, users can simply enter the BAC id '29682' to create a new CTM reference.
- For sample based projects, a *BAC* id (and Extent id) is assigned to each sample.

3.1.3 Scaffold *

- Users can select this reference type if entering a scaffold id.

* *Work is in progress to better define the usage of this feature (contact Jerry Liu or Luke Tallon for further information)*

3.2 VIEWING A REFERENCE

3.2.1 Viewing the homepage of a reference

- Click on the "**Quick Launch"** box shown in *Figure 1*(5)
- Enter the Reference id of the reference you would like to view and select "homepage from the drop down menu.
- The homepage of the reference will appear.
- To view a reference's homepage using a *BAC* id, type : **bac :**<BAC ID> in the Quick Launch text box.

3.2.2 Viewing references under a given status

- Click on the **"Reference Manager"** tab shown in *Figure 1*(7)
- The page shows URLs to references in every reference status plus links to "all" references and links to "Active" references (excluding "Published" and "Removed" references).
- Click on a URL to view a tabular list of references and their ids, types, reference values, statuses, the user and date of the last status update, and days since last status modification. *The days since the last modification are also displayed in different color background for the purpose of easy identification.* In addition, BAC ids are shown in the extra "target" column for BAC and Sample-based projects.

3.3 UPDATING A REFERENCE

3.3.1 Reference log

- Users can communicate to other project members regarding a reference by entering comments in the **'New log entry'** box located on the homepage of the reference.
- A log of all reference comments are maintained in the CTM, viewable to all project members.
- Reference comments are stored under the *comment field* in the *ctm_reference_history* table of the CTM schema.

3.3.2 Reference Attribute

Users can add attributes to a reference using the ‘Add new attribute’ feature discussed in *Section 5.6*

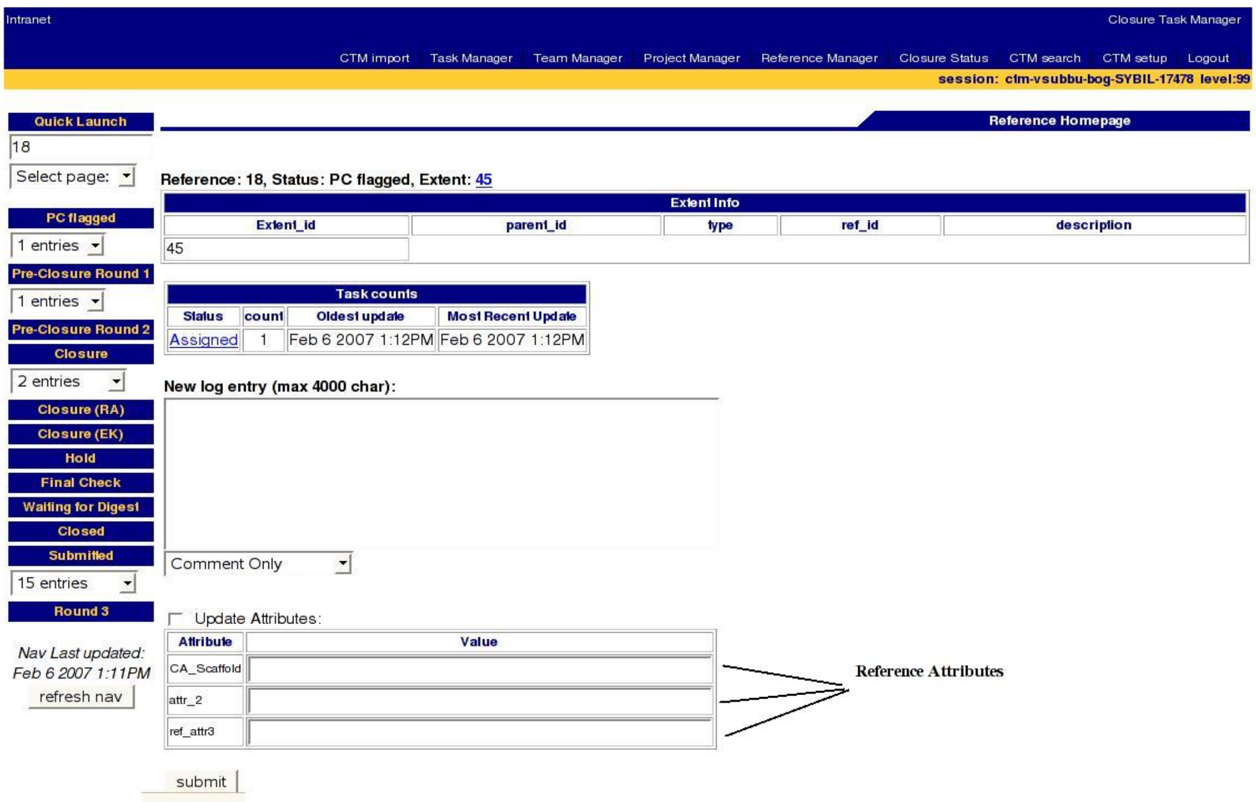


Figure 5 – Reference Attribute View

3.3.2.1 Entering an attribute value

- To **Enter** a Reference Attribute from a reference homepage, simply enter the new attribute values in the attribute box shown on the homepage (below the *Comment* box).
- After entering the values check the ‘Update Attribute’ box provided. (see *Figure 6* below)
- Click ‘submit’ (and wait for a few seconds)
- The attributes will be displayed on the homepage of the reference.

3.3.2.2 Modifying an attribute value

- To **modify** a reference attribute, simply replace the current values with the new attribute values.
- Check the ‘Update Attribute’ box and click ‘submit’.

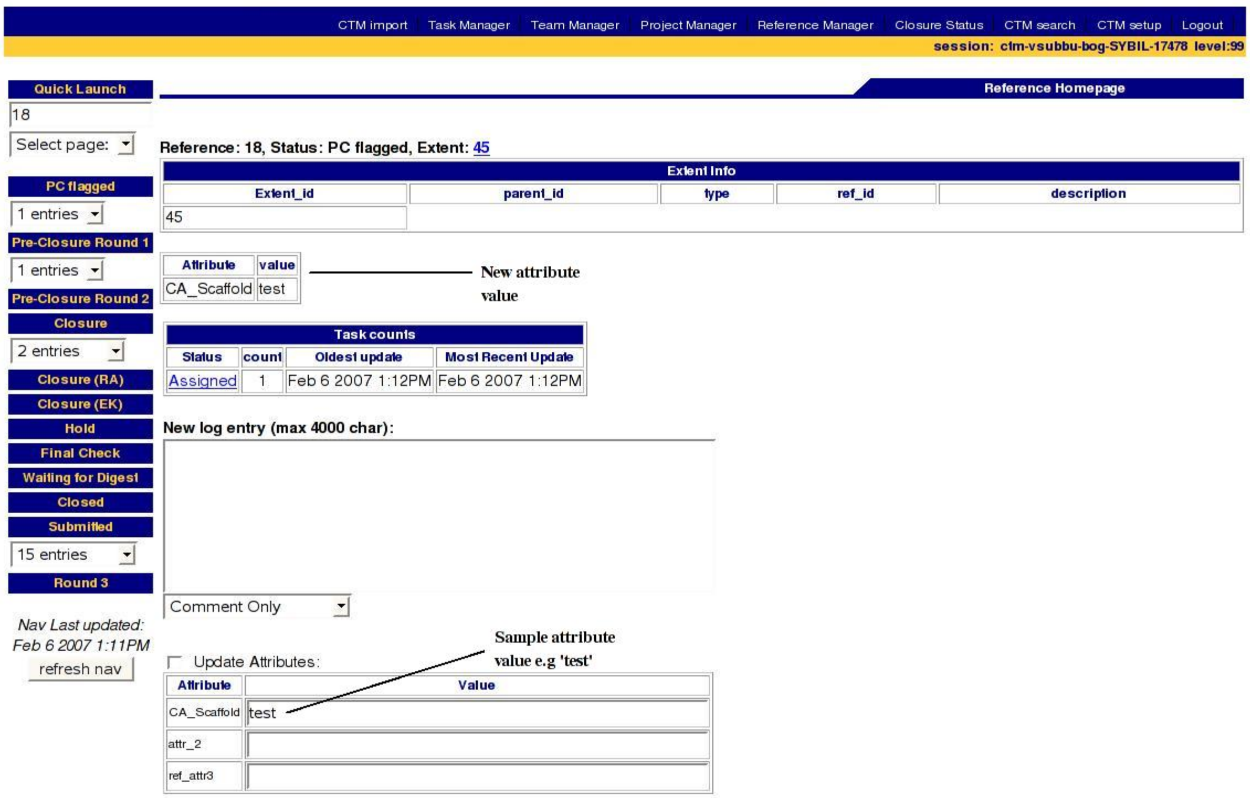


Figure 6 – Adding a reference attribute value

4. Task Management

4.1 CREATING TASKS

- Users can assign a task to a reference from its homepage (*please refer to Section 3.2.1*)
- Click on the **'Select page'** drop down menu shown in *Figure 1*(6) and select the **'submit task'** option (wait for few seconds)
- Depending on the project type (BAC/WGS/SAMPLE), the CTM will guide you to a new page listing a variety of options to choose from.
- Users can assign tasks through the various options provided.

4.1.1 Entry options for BAC based projects

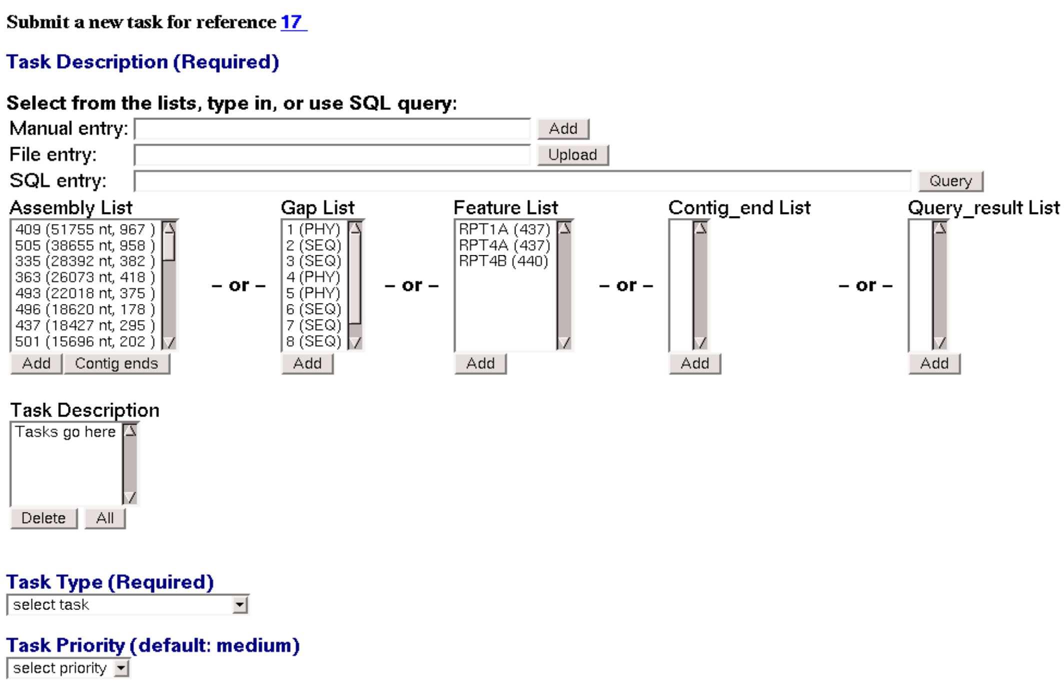


Figure 7- BAC based projects (web interface)

A. Manual Entry

- Manually enter the task description and click on the 'Add' button next to the box provided.

B. File entry

- Upload a file task descriptions for new tasks using the **'Upload'** button provided.

C. SQL entry

- Enter a query that will generate results to be used as task descriptions for new tasks. Click on the 'Query' button next to the box provided. The results of your query will appear in the '**Query result List'** box provided, from which you can choose some or all descriptions and then click the "Add" button at the bottom of the Query result list.

D. Assembly list *(only appear for BAC/WGS project, see figure 5 as example)*

- A list of assembly ids for the given BAC or the whole genome are displayed in the Assembly List box.
- Select assembly id(s) from the list (To select multiple assemblies, click the assemblies while holding down the *Ctrl key*).
- Click the 'Add' button after selecting assemblies

E. Gap list *(only appear for BAC/WGS project)*

- Lists of gap ids and their descriptions (PHY/SEQ) for the given BAC or the whole genome are displayed in the Gap List box.
- Select gap(s) from the list (To select multiple gaps, click the gaps while holding down the *Ctrl key*).
- Click the 'Add' button after selecting gaps

F. Feature list *(only appear for BAC/WGS project)*

- List of features such as repeat regions for the given BAC or the whole genome are displayed in the Feature List box.
- Select feature(s) from this list (To select multiple features, click feature ids while holding down the *Ctrl key*).
- Click on the 'Add' button after selecting features.

G. Contig_end list *(only appear for BAC/WGS project)*

- This list contains end reads for given assembly(s)
- Select an assembly (or multiple assemblies) in the Assembly list and click on the **'Contig ends'** button.(wait for a few seconds)
- A list of contig_ends for the assembly will appear in the **Contig_end** list box.
- Select contig_end(s) from the list (To select multiple contig ends, click the end reads while holding down the *Ctrl key*)
- Click on the 'Add' button to add them to the description list.

(Note: You may select and add multiple tasks simultaneously provided the 'Task type' assignment is the same)

4.1.2 Task description

- Task description is required for submitting each new task.
- Ways to enter task description(s) include Manual entry, File entry, SQL entry, and options specific to different project types (BAC/WGS/SAMPLE) to generate description candidates automatically from data stored in the project database and/or XML files.
- Selected descriptions will appear in the **'Task Description'** box. Check to see if all tasks have been entered correctly.
- If there are errors in your task descriptions, simply highlight the task(s) (to highlight more than one task select while holding down the *Ctrl key*) and click on the **'Delete'** button.
- You may select multiple task descriptions and submit tasks simultaneously provided their task type, priority, person assigned to, comment, and even attributes are the same

- Task descriptions are stored under the *'descr'* field in the *ctm_task* table of the CTM schema

4.1.3 Task Type

- Task type is required for submitting a new task.
- Using the drop down menu provided, users can assign a **'Task Type'** to the selected tasks.
- Only one Task type can be assigned at a time
- Task types are project specific *(please consult your project leader)*
- Task types are stored in the *ctm_task_type* table of the CTM schema

4.1.4 Task Priority

- Priority assignments can be issued to tasks using the drop down menu provided under **'Task priority'.** Options include: *low, medium, high and critical*.
- The default priority is *medium*
- Priority assignment are stored under the *'priority'* field in the *ctm_task* table of the CTM schema

4.1.5 Assigning tasks to project members

- To assign a task to a project member, select the member's user id from the drop down menu provided under **'Enter Assign To person'**
- Tasks assigned to a project member are stored under the *'assignto'* field in the *'ctm_task_history'* table of the CTM schema

4.1.6 Task log

- Enter comments specific for the task(s) you assigned using the 'Comment' box provided.
- A log of all comments for a given task is maintained in the CTM for all members to view.
- Task comments are stored under the *'comment'* field in the *ctm_task_history* table of the CTM schema

4.1.7 E-mail notification of task assignments

- Uncheck the box next to **'Check here to suppress e-mail message'** to notify the assignee that a task has been issued. The assignee will receive an e-mail message for each task assigned to them.
- To avoid e-mail notifications, simply check the box provided

4.1.8 Submit tasks

- When you have completed all above steps, click the '**Submit'** button at the bottom to submit the new task(s). (wait for a few seconds)
- Each task will be assigned a unique 'task id' upon successful creation, (see below). The id tag is used to keep track of all tasks issued for the project.

4.1.9 Task Attributes

Users can add a 'Task Attribute' to the CTM by following *Section 5.6*

- In addition to general task assignments, users can keep track of specific work units using the task attributes features. Task attributes can be any value. Examples include primer names, primer sequences etc.

1 tasks created with the following values:

priority = low
status = Assigned
assignto = 14
descr = 409
comment = TEST OF CTM
assignby = vsubbu
type = 3
ref_id = 17

New tasks follow:

46899 **Task_id**

Figure 8 – Post task creation web interface view.

- The number of tasks and their statuses are displayed on the homepage of the reference
- Task ids are stored under the '*ctm_task_id*' field in the *ctm_task* table of the CTM schema

4.2 ENTRY OPTIONS FOR 'SAMPLE' BASED PROJECTS

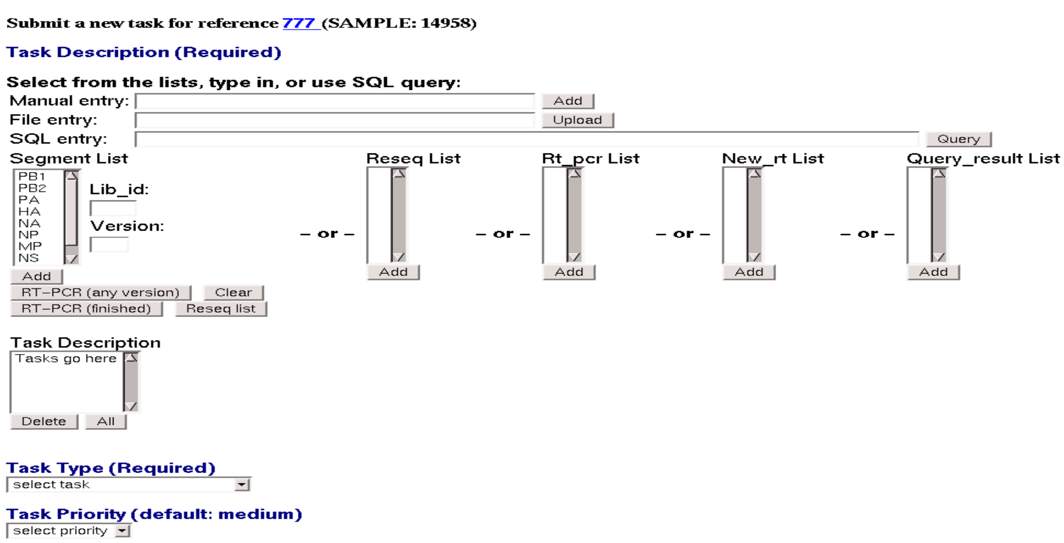


Figure 9 -SAMPLE based projects (web interface)

A. Manual entry - *Please see Section 4.1.1 (A)*
B. File entry - *Please see Section 4.1.1 (B)*
C. SQL entry - *Please see Section 4.1.1 (C)*

D. Segment list *(only appear for Sample-based project, see figure 6 for example)*

- This list contains all segments (or) genes for a given sample
- User can select one segment and then click the 'Add' button to add it to the description list

E. Reseq list *(only appear for Sample-based project)*

- Select a segment from the 'Segment list' provided.
- Click on the **'Reseq list'** button.
- A list of alternating Forward(F) and Reverse(R) resequencing tasks will appear in the box titled **'Reseq list'**
- Select your tasks from the list and click 'Add'

Note: Depending on the project, you may want to select paired Forward and Reverse tasks. This allows for efficient automation of the closure process

F. RT-PCR list (Finished) (only appear for Sample-based project)

- Select a segment from the 'Segment list'
- Click on the **'RT-PCR (finished)'** button.
- A list of previously 'used' amplicons for the given sample will be displayed in the box under **'RT pcr list'**
- Select your tasks from the list and click 'Add'

G. New RT-PCR list *(only appear for Sample-based project)*
Sometimes SAMPLE based projects will have multiple primer version plates in use. Project members may have the need to try specific amplicons from various plates on a given sample.

- Select a segment (gene) from the **'Segment list'** box.
- In the **'Lib_id'** box, enter the four letter library id of the given sample
- In the **'Version'** box enter the version number of the plate you wish to use e.g. T17
- Click on the **'RT-PCR'(any version)'** button
- A list of amplicons from the selected plate will appear in the box under **'New RT-PCR list'**
- Select the amplicons you wish to assign as tasks and click 'Add'

Please follow Section 4.1.2 thru Section 4.1.8 to complete tasks creations for SAMPLE based projects

4.3 VIEWING TASKS

- Users can view a task or multiple tasks using the ‘CTM Search’ feature described in *Section 2.2.*
- Enter known a task id or a series of task ids in the space provided.
- Alternatively, users can view tasks for a reference or multiple references by following steps described in the *Section 4.3*

4.4 UPDATING TASKS

Users can update a single task or in bulk (and their statuses) for a specific reference or in bulk. Current status assignments are as follows:

1. ***Assigned*** - Initial task status given to a newly created task.

2. ***In Progress*** - Indicates project members are working on their assigned tasks.

3. ***Complete*** - Indicates the work on the task is complete

4. ***Removed*** - Incorrect or incomplete tasks can be updated to this status.

Tasks updates can take place in two ways:

4.4.1 Task updates for a reference

- Navigate to the reference homepage (*please see Section 3.2.1*)
- The table titled **‘Task counts’** provides users with a quick view of all tasks, their statuses and the dates of creation and completion.

Task counts			
Status	**count**	**Oldest update**	**Most Recent Update**
Unassigned	2	Oct 19 2006 11:18AM	Dec 8 2006 2:59PM
Assigned	1	Dec 8 2006 5:43PM	Dec 8 2006 5:43PM

- To view these tasks, click on the status link e.g. Assigned (wait for a few seconds)
- A list of all ‘Assigned’ tasks related to the reference will appear.

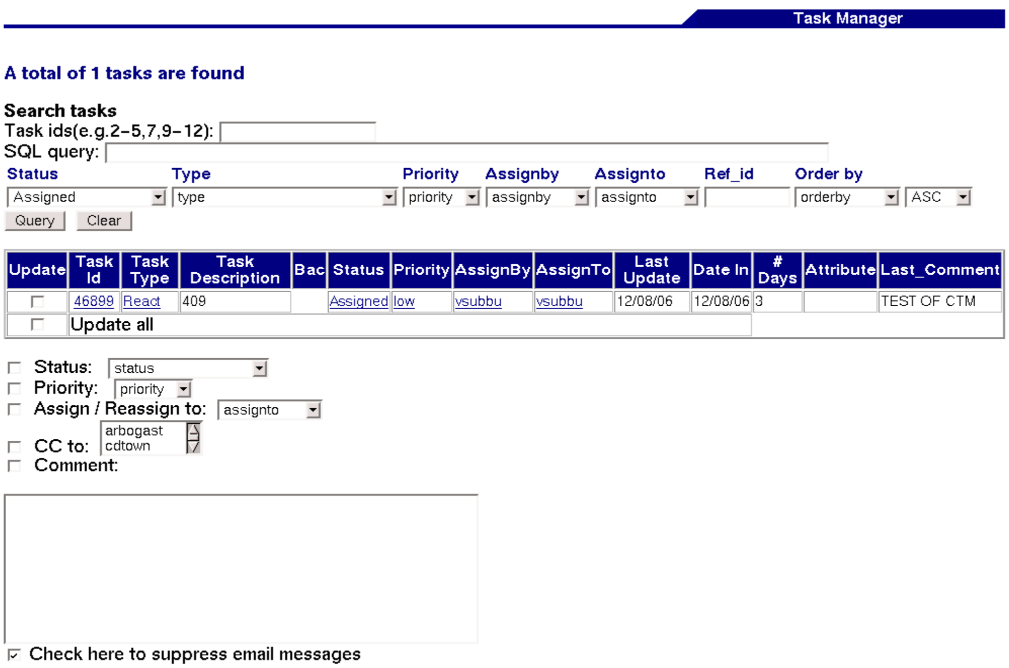


Figure 10- Task Manager

- Users can update the tasks by using the check box provided under the **'Update'** column for each task.
- User can change task status by selecting a status from the "Status" drop down menu.
- User can change task priority by selecting a priority from the "Priority" drop down menu.
- Users can reassign a task to another project member by selecting a user id from the drop down menu provided.
- User can CC task updates to other project members by selecting a user id from the "CC" drop down list. To select more than one use to CC to, press "Control" while selecting multiple users.
- Enter comments for the tasks by checking the **'Comment'** box. The comments will apply to all tasks that are updated.
- To notify members of task changes or updates via e-mail use the e-mail notification box provided (*See Section 4.1.7*)
- Click the '**Submit'** button (wait for a few seconds)
- The CTM will display the task id (s), the new status and the number of updated tasks when updates are complete.

4.4.2 Task updates for all references

- Click on the **'Task Manager'** option shown in *Figure 1*(2) provided at the top of the CTM interface. The following window will appear

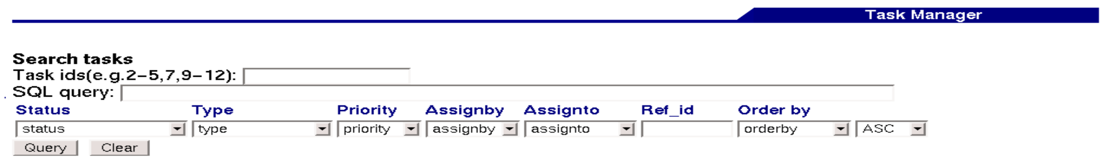


Figure 11 –Task Manager Interface

- Users can enter known tasks id or a range of task ids they would like to update
- Another option is to enter an SQL query that will retrieve the desired task(s) in the box labeled 'SQL query'
- Users can view tasks by :

  A. Selecting only one of the options provided
  E.g. selecting 'Assigned' under the option 'Status'

  B. Selecting a combination of options
  E.g. selecting 'Assigned' (Status) and 'Begin Closure' * (Type) and 'Medium' (Priority)

  C. Entering the Reference id in the **'Ref_id'** box. This will retrieve all tasks related to the reference. You may use the options provided to view specific tasks.
  E.g. select 'Assigned' (Status) and 'Begin Closure' (Type) and '12' (Ref_id)

- To update tasks please follow the latter half of *Section 4.3.1*

5. Project Customization

5.1 CTM SETUP

Only authorized users (Admins) can set up their projects by clicking on the **'CTM Setup '**tab shown in *Figure 1* (9). Here users can configure their CTM to reflect the workflow process of the project by creating new reference statuses for each step of the pipeline. In addition, they can control the creation/deletion/modification of task types, user access, task/reference attributes, reference status and navigation tabs.

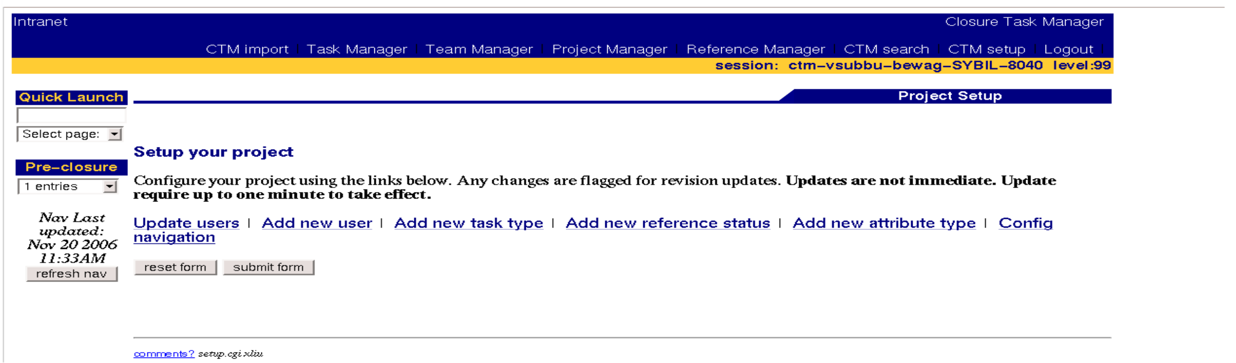


Figure 12- CTM setup interface

EXPLANATION OF SETUP LINKS

Setup links	**Description**
Update users	Update access level to project users
Add new users	Add/remove project users
Add new task type	Add new task types relevant to the project e.g.' Close Gap'
Add new reference status	Add new work flow statuses
Add new attribute type	Add/remove attributes for *tasks* **or** a *reference*. Users can assign values to these attributes.
Config navigation	Add/remove a reference status's visibility.

5.2 UPDATE USERS

- Only persons with *admin* access level can update the users for a project.
- Click on the **‘Update users’** link. Admins can update the access level of project personnel by selecting from the drop down menu as shown below.

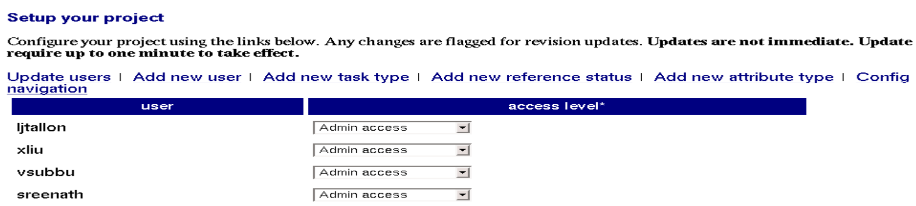


Figure 13 – Admin access levels

5.3 ADD NEW USERS

- Only users with *admin* access can add a new user to a project.
- Click on the **‘Add new users’** link.
- Enter the <userid> (UNIX id) of the person you wish to add to the project.
- Set the user’s access level by selecting from options in the drop down menu as shown below.

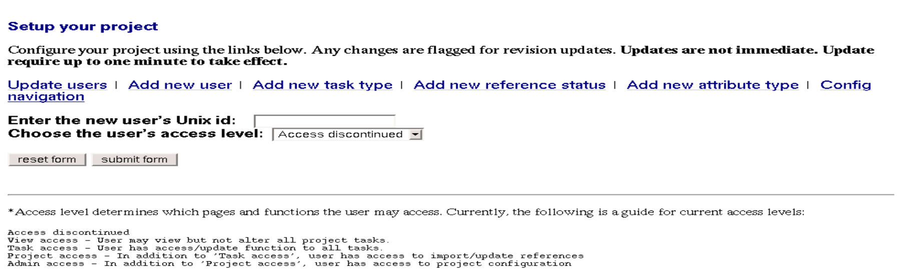
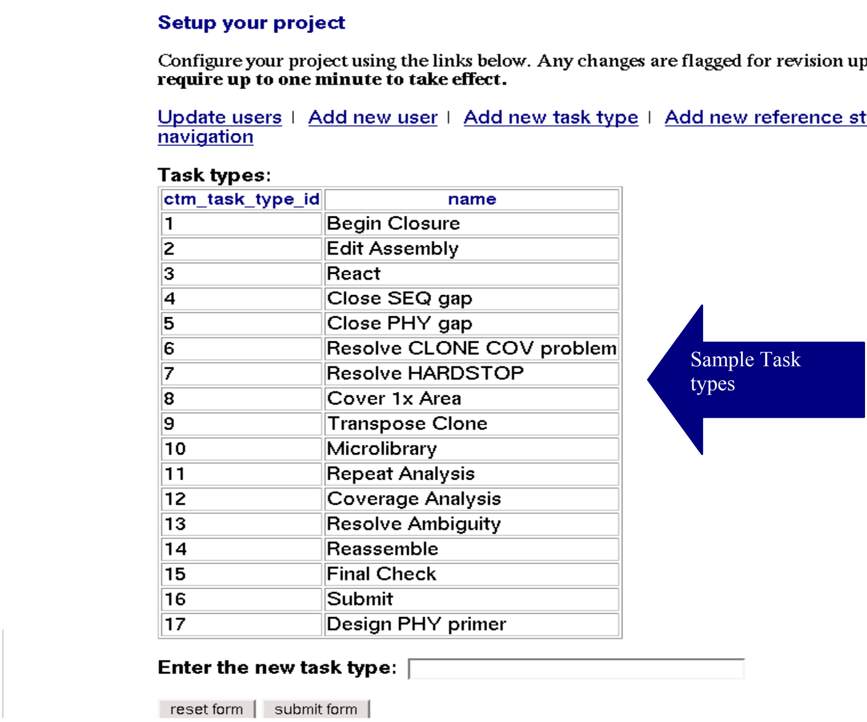


Figure 14 – Add new user interface

5.4 ADD NEW TASK TYPE

- Admins can configure their CTM by creating task types that reflect the type of work that is required to successfully complete the project.
- Click on **‘Add new task type’**.
- Enter the name of the task type you would like to create in box provided. The task name can be anything. A **ctm_task_type_id** will be assigned to the task that is entered.
- The tasks can be queried using the *ctm_task_type* table in the CTM schema. (See above)



Setup your project

Configure your project using the links below. Any changes are flagged for revision updates. **Updates are not immediate. Update require up to one minute to take effect.**

Update users | Add new user | Add new task type | Add new reference status | Add new attribute type | Config navigation

Task types:

ctm_task_type_id	name
1	Begin Closure
2	Edit Assembly
3	React
4	Close SEQ gap
5	Close PHY gap
6	Resolve CLONE COV problem
7	Resolve HARDSTOP
8	Cover 1x Area
9	Transpose Clone
10	Microlibrary
11	Repeat Analysis
12	Coverage Analysis
13	Resolve Ambiguity
14	Reassemble
15	Final Check
16	Submit
17	Design PHY primer

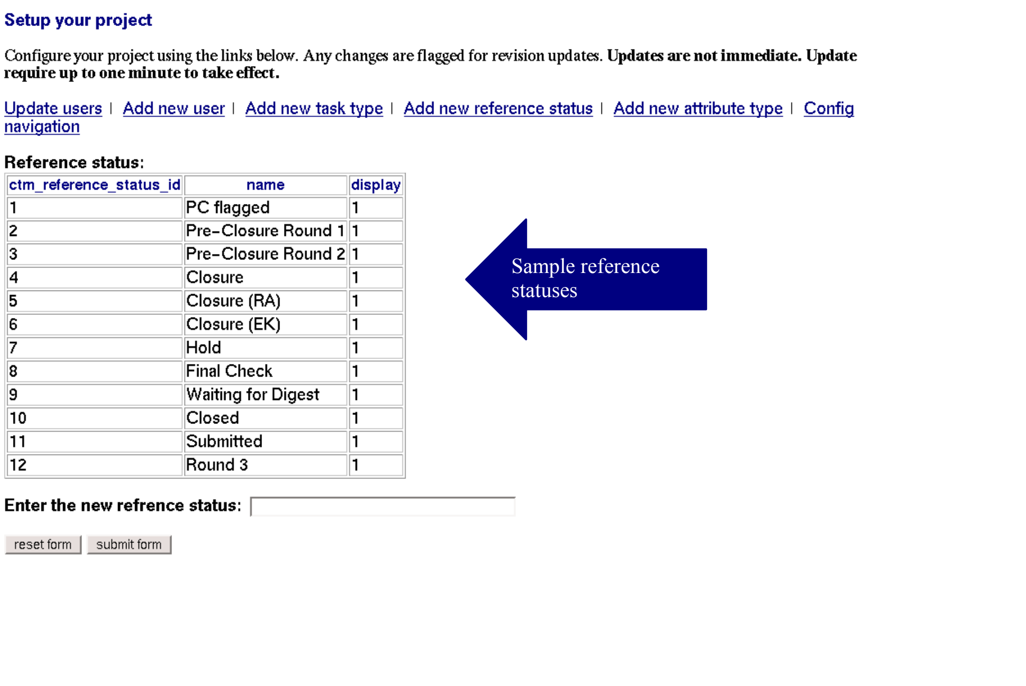
Enter the new task type:

reset form | submit form

Figure 15 –Task Type interface

5.5 ADD NEW REFERENCE STATUS

- Admins can create a status queue to track a reference and maintain the workflow for a project.
- Click on the **‘Add reference status’** link to add new reference statuses.
- Each reference status should be entered into the box provided.
- Once submitted, a **ctm_reference_status_id** is assigned to each status.
- The ctm_reference_status_id is stored in the *ctm_reference* table in the CTM schema.


Setup your project

Configure your project using the links below. Any changes are flagged for revision updates. **Updates are not immediate. Update require up to one minute to take effect.**

Update users | Add new user | Add new task type | Add new reference status | Add new attribute type | Config navigation

Reference status:

ctm_reference_status_id	name	display
1	PC flagged	1
2	Pre-Closure Round 1	1
3	Pre-Closure Round 2	1
4	Closure	1
5	Closure (RA)	1
6	Closure (EK)	1
7	Hold	1
8	Final Check	1
9	Waiting for Digest	1
10	Closed	1
11	Submitted	1
12	Round 3	1

Enter the new refrence status:

reset form | submit form

Figure 16- Reference Status View

5.6 ADD NEW ATTRIBUTE TYPE

- Admins can assign an attribute to a reference or a task using this feature.
- The attribute can be anything the user considers useful in tracking the workflow of the project (e.g.) PCR size, CA_Scaffold.
- Click on the **'Add new attribute type'** link.
- Enter the name of the attribute in the box provided.
- The new attribute type can be associated with a references or tasks using the drop down box.
- Each attribute is assigned a **ctm_attribute_type_id** that is stored in the *ctm_task_attribute* table in the CTM schema.

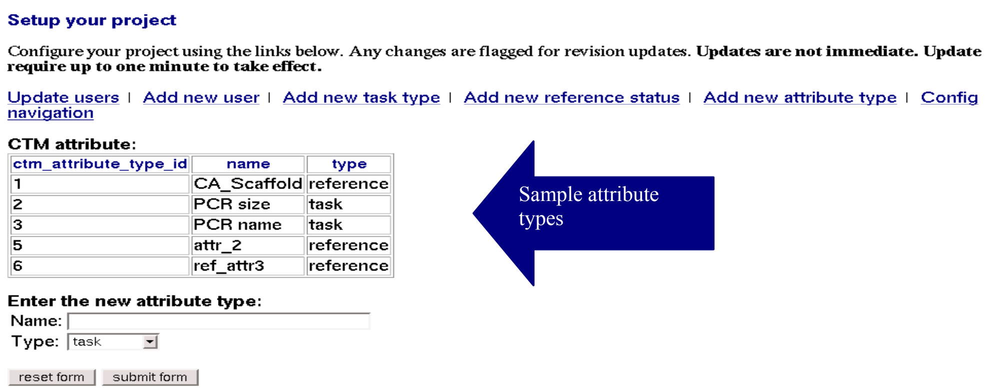


Figure 17 – Task attribute interface

5.7 CONFIG NAVIGATION

- This feature allows Admins to choose whether they would like to display a reference status in the CTM.
- Click on the **'Config navigation'** link.
- The page will display all reference statuses available.
- Users can choose to display the reference status by toggling between the 'Yes' or 'No' option in the drop down box.

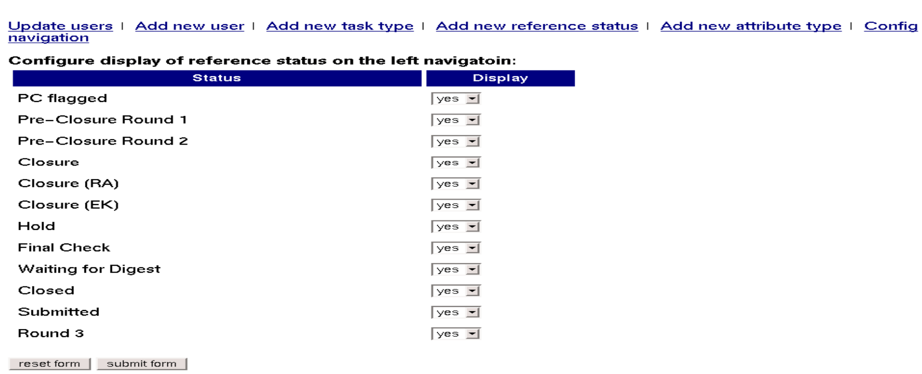


Figure 18 – Config navigation interface

6. Project Management

6.1 PROJECT SUMMARY

- Only users with the Admin access can view project summary by clicking on the **'Project Manager'** tab shown in *Figure 1* (4).
- A snapshot view of projects (listed as TIGR db names) , the number of pending tasks, the person responsible for completing the task, task details and number of completed tasks in a tabular format.

Project	Person	Pending	Task Details	Latest Update	Complete
bewag	xliu	In Progress = 2	Close Phys gap = 2	Nov 17 2006 1:40PM	0
bog	ehine	0	No pending tasks		131
	arbogast	0	No pending tasks		19
	ralthoff	0	No pending tasks		373
	jlee	0	No pending tasks		18
	ljtallon	Assigned = 4	Final Check = 3 Submit = 1	Jun 18 2004 4:12PM	26
	unassigned	0	No pending tasks		20
	vsubbu	Assigned = 1	React = 1	Dec 8 2006 5:43PM	0
gnmNZ0533	xliu	Assigned = 1	React = 1	Sep 15 2006 12:32PM	0

Figure 19- Project Summary interface

7. Team Management

7.1 TASK COUNTS

- Project managers can view the statistics of project tasks in relation to project members by clicking on the **'Team Manager'** tab shown in *Figure 1* (3)

- A list of project members along with the number of pending tasks, task details and number of task completions is shown in tabular format.

Team task Counts

Person	Pending	Task Details	Latest Update	Complete
ehine	0	No pending tasks		131
arbogast	0	No pending tasks		19
ralthoff	0	No pending tasks		373
jlee	0	No pending tasks		18
ljtallon	Assigned = 4	Final Check = 3 Submit = 1	Jun 18 2004 4:12PM	26
unassigned	0	No pending tasks		20
vsubbu	Assigned = 1	React = 1	Dec 8 2006 5:43PM	0

Figure 20- Task count interface

7.2 SESSIONS

- Managers can view a time log of project member sessions by clicking on the **'Sessions'** tab.

- Every time a project member logs in, the CTM timestamps the entry and the length of the session per user.

```
Sessions for hkoo:
None
Sessions for ehine:
None
Sessions for ljtallon:
None
Sessions for xliu:
ctm-xliu-bog-SYBTIGR-10157 5 days, 2 hours, 59 minutes, 51 seconds ago
ctm-xliu-bog-SYBIL-1009 19 days, 4 hours, 34 minutes, 5 seconds ago
```

Figure 21 –Session interface

APPENDIX A

CTM
SCHEMA