#FF0050

CTM - a Web based Genome Closure Task Management System

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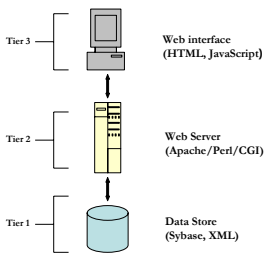
Introduction

CTM, an acronym for **C**losure **T**ask **M**anager, is a generic Web based project management system used by the JCVI Genome Finishing group to manage tasks within and between genome finishing (Closure) projects, to track project progress, to manage project teams, and to provide project summary / statistics to team leaders and collaborators. CTM also contains many project specific add-ons to facilitate automated generation of task descriptions, and provide convenient links to other JCVI software / resources to facilitate high throughput genome finishing. CTM are being actively used in all JCVI genome finishing projects including Eukaryotic BAC based projects, Sample based projects such as Influenza genome sequencing, and Whole Genome Shotgun (WGS) based projects.

CTM has been essential in the success of many large scale genome sequencing and finishing projects such as the Influenza, Rice, Tetrahymena genome sequencing projects, which typically need to manage thousands of tasks in their project life cycle. Currently there are over 30 JCVI genome finishing projects that depend on CTM for their daily task management.

CTM adopts a design of 3-tiered architecture that is composed of the front-end web interface, the PERL/CGI middle tier, and the Sybase database backend. By design, CTM can be easily modified to meet general task management needs for non-genome finishing projects as well.

3-tier Architecture



Glossary

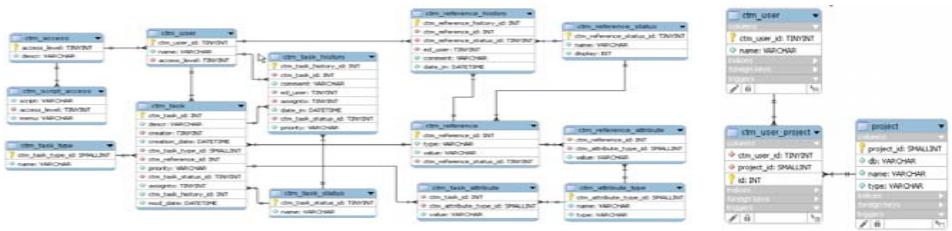
CTM reference
: a unique work unit to assign CTM tasks. A CTM reference is defined by its type, value, and status. Commonly used references include BAC, Sample, Chromosome, or the whole genome. A reference can only be imported and updated by an authorized CTM user.

CTM task
: a 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.

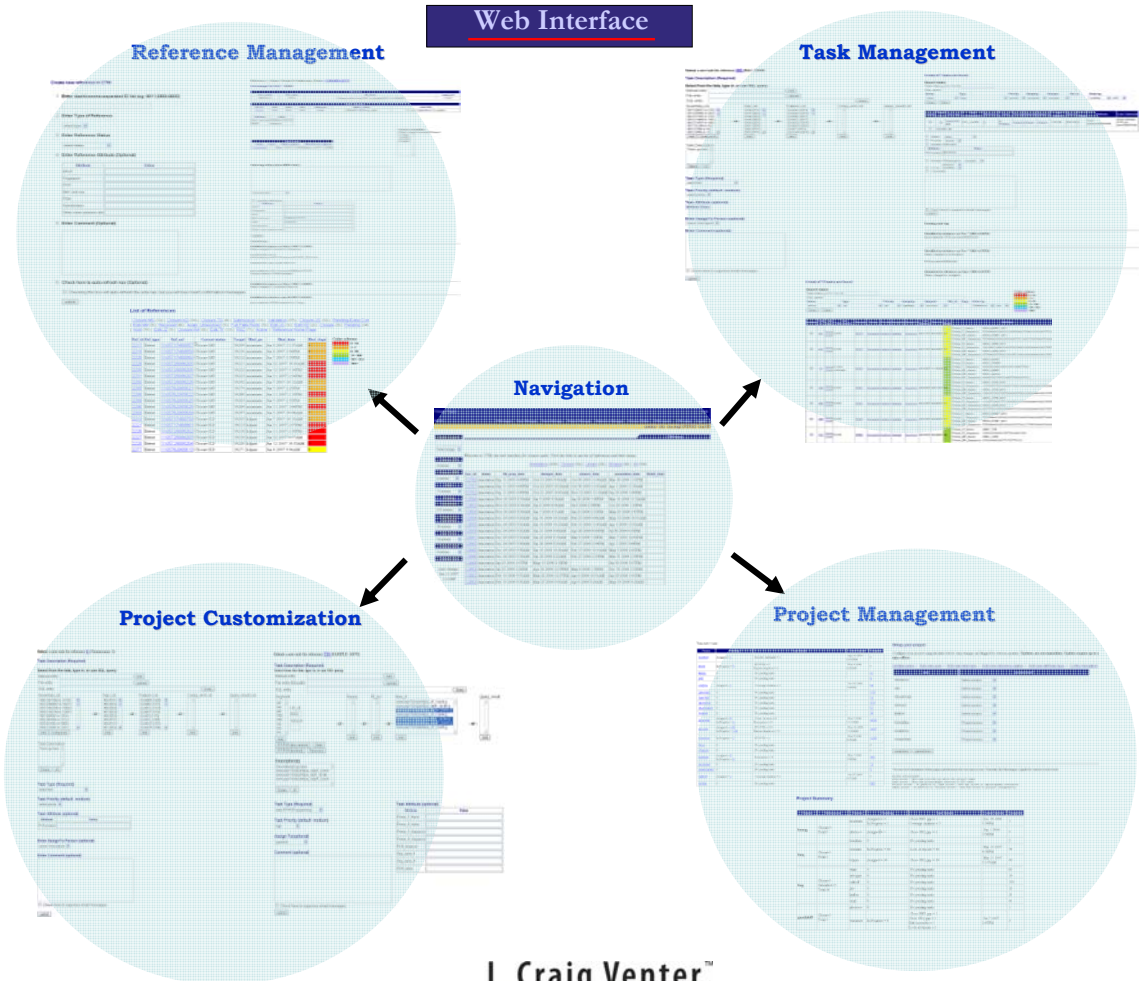
CTM attribute
: Additional dynamic attributes that are associated to CTM references or tasks. CTM attributes can be defined /added /modified /deleted by authorized CTM users.

CTM user
: Users who can access CTM. CTM users are granted different access levels that allow them from viewing only, to managing CTM references and tasks, to managing teams, and finally to setting up the CTM.

CTM Schema



Web Interface



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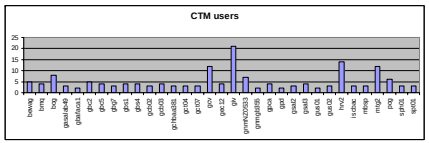
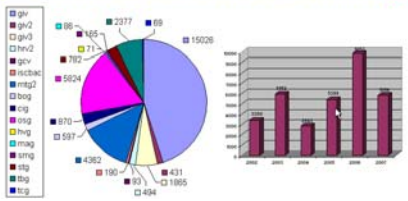
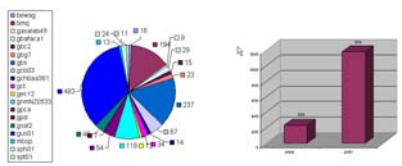
Usage Statistics







Future Directions

- Enhance project management functions including:
  - Provide more project tracking statistics
  - Analyze historical CTM data to facilitate project planning
  - Automate generation of project reports based on stored CTM data
- Optimize performance using AJAX
- Add timeline tracking function to assist global project planning
- Add event trigger mechanism to better handle moving CTM references between queues
- Plan for open source CTM code and database schema

Acknowledgements

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