ITracker Issue Tracking

Feature Roadmap v2.4

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Summary

This document will define the current and proposed features of Cowsultants.com's ITracker. ITracker is a J2EE issue tracking designed to support multiple projects with independent user bases. Its primary goal is to provide a simple, yet powerful issue tracking system easily usable by non-technical people. This is accomplished by providing a simple web based system that can be customized on a per installation basis. In addition, entirely new clients can be written by utilizing its web services based API.

ITracker has two types of releases, development and production. Development releases are always identified by an odd number in the second digit of the version (e.g., 1.5, 2.1, etc.), while production releases will have an even number in the second digit (e.g., 1.6, 2.2, etc.). Development versions are usually stable, but have not been through any significant testing, and are used to introduce major new features. Production releases are more fully tested development releases that are major feature stable. In general changes to production release will only be made for bug fixes, and minor feature additions. The third digit of any version number identifies the patch level.

Version History

1.x

The 1.x versions of ITracker provided the basic functionality for issue management.

2.0

Version 2.0 was a complete rewrite of the web client using Apache struts. This provided a much more flexible and easy to manage client interface. In addition, internationalization was added, along with the ability to easily customize the site messages, and items such as statuses, severities, and resolutions.

2.2

Version 2.2 focused on adding to the ability to customize an installation. Major new features included custom project fields, pluggable authentication, and a built in scheduler. Also the eclipse plug-in was extended to take advantage of the new features, and also adds the ability to create new issues.

2.4

Version 2.4 moved all of the configuration that was previously done through resources bundles into a web based configuration tools. This includes all statuses, severities, resolutions, custom fields, and languages. Pluggable

authentication was augmented to allow for more flexibility. Also the reporting system was completely rewritten using JFreeCharts.

2.6

To be determined.

Feature Groups

Clients

ITracker provides an optional API to allow external clients to connect to, and use an ITracker server. This API is based on web services to provide a language and platform independent facility for the clients.

Eclipse (1.0)

ITracker provides an Eclipse plugin that provides ITracker services directly in the Eclipse environment. The plugin currently allows for viewing issues and filtering and sorting them. ITracker version 2.2 added the ability to create new issues through the plugin.

Command Line (2.2)

A simple example command line client for ITracker is available in the CVS repository. Currently this client is only provided as an example of how a command line client might be written to create issues. It could be easily modified to create new issues for a project that might require issue creation through email for example.

Web (1.0)

See User Interface

Windows (Future)

A full featured Windows client using C# and .Net is planned for a future release. No feature list or release date has been set.

Core

Application Configuration (1.0)

Core system wide configuration is done through env-entries in the ejb-jar.xml, or optionally though an itrackerApplication.properties file. Most of the default values for system configuration are applicable for all installations, however, some items must be configured for each installation such as SMTP hostnames. The installation guide gives details on how to

change these values, and which ones most likely need to be updated. The system configuration is also used to control some optional features.

As of ITracker 2.4, other configuration such as translations, statuses, severities, and resolutions are now done through a web based interface.

Application Server Support (2.2)

ITracker is currently supported on JBoss 3.x, Weblogic 6.3+ and Orion 2.0.2+. Deployment descriptors for these servers are supplied with ITracker. Other application servers should also work, but ITracker would have to be deployed using the server's deployment routines.

Application Program Interface (API) (1.0)

ITracker provides an API based on web services. As of version 2.4, the API provides the ability to create, view and update issues. The API also provides the ability to obtain information on projects, system configuration, and some user information.

Version 2.4 of ITracker also added support for attachments. This is provided through the use of web services attachments.

Architecture (2.0)

ITracker uses a 3-tier architecture with the JSPs and Struts actions performing most authorization checks, and in turn calling local session beans which access local entity beans that perform database calls. The exception to this is the session beans that make up the web service API, perform their own authentication and authorization checks, since they are stateless and accessible remotely, and then they access the local session beans.

Audit Trails (1.0)

Basic auditing is included in ITracker. A future version of the application will provide a more full featured audit trail that can be used to find the exact changes to any issue in the system.

Data Export (1.0)

Data export via XML was added in version 1.0 of ITracker. Version 2.4 of ITracker extends this to provide full export of configuration, project, user and issue data. An XML export file can be used to import the same data into the system.

Data Import (2.4)

Data import is introduced in version 2.4 of ITracker. It provides import of configuration, project, user and issue data. It is envisioned that scripts and

other tools will be available in the future to export data from other issue tracking systems and create an XML file suitable for import into ITracker.

Data Deletion (Future)

Currently ITracker retains all data in the system forever. A future version will allow for almost all data including users, issues, and projects to be deleted to remove old projects from the system. The current plan is that this deletion will not actually remove the data from the underlying data store, but instead mark it deleted so it is no longer available from the user interface. This allows for the data to be retained for audit purposes.

Another option that might also be included is for some type of option that would allow the system to run in archive mode so all the previous data would be available for display.

Scheduler (2.2)

ITracker has a built in scheduling system to process recurring tasks in the system using a cron like syntax. The architecture allows the user to create classes that are run within the scheduler at specific times. Currently the only task provided with ITracker, sends reminder emails for issues that have been unmodified for a length of time.

Unit Tests (Future)

This is a recognized need for complete and automated unit test scripts. This would allow for detailed testing of the core system, and reduce the number of bugs introduced when adding a new feature.

Customization

Optional Features (Forgot Password, Self Registration, Auto Logon)

ITracker allows for some built in features to be disabled on a per installation basis. These currently include self registration, user password recovery, and auto login.

Project Options (2.0)

ITracker provides for project level options. This allows some features to be implemented on a per project basis. Currently options exist for automated access to a project for self registered users, different types of history entry formatting, bypassing of some status workflow, and the ability to restrict attachments. Other options will be added as requested.

Statuses, Severities, Resolutions (2.0)

ITracker provides the ability to customize the statuses, severities and resolutions used in the system. This was introduced in version 2.0, and 2.4 added an online web configuration tool to make the management much easier. Severities and resolutions are fully customizable, however some basic workflow in the system prevent some of the core statuses from being

deleted. Existing statuses can be renamed, and new statuses can be added between or after the existing statuses.

A future release will make statuses fully customizable with the introduction of a workflow system.

Per project fields (2.2)

ITracker provides for additional per project fields, commonly known in the system as custom fields. Version 2.2 introduced this feature, and 2.4 expanded it to provide online configuration of the fields. Currently string, integer, date and list fields are supported. A future version of ITracker will support BeanShell scripts that allow the user to customize how the data of a field is populated, and also perform custom validation on the field.

Web templates

See Web Templates under User Interface

Internationalization

ITracker is written with full i18n support. It currently offers 9 languages and 11 locales available through the web client. The application has a default language which controls things such as the language of the login page, and emails, and also the user can set which language they would like to view the site in from their preferences.

Supplied translations are provided as resource bundle property files, which are loaded into the database when the system is first initialized. Updates to these languages are then done online using a web configuration tool. This tool also allows the user to create new locales and keys. In addition, the tool allows for language export to send any new translations or updates in so they can be included in future releases.

A future release will provide an online tool to import language files. In the interim, the standard way to import a new language would be to place the new properties file into the resources directory of the distribution, and then edit a file that defines the currently available locales for import.

Available Translations (2.4)

Chinese, English, French, German, Italian, Portuguese, Russian, Spanish, Turkish

Issue Management

Create Issues (1.0)

ITracker provides the ability to create new issues in a project from the project list page. Users must have Create Issue permission in the project they wish to create the issue in. Currently a new issue is only required to

have a description and a history entry by default, but required custom fields can also be added.

Update Issues (1.0)

ITracker provides the ability to modify existing issues in a project from the project issue list page, the view issue page, or the myITracker page. Users must have either the Edit Issue, or be either the owner or creator and have the Edit Own Issue permission in the project that issue belongs to. The issue goes through the same validation as a new issue. Any changes to the issue are logged to the audit log.

View Issues (1.0)

ITracker provides the ability to view an existing issue from the myITracker page, the project issue list page or the search results page. Users must have either the View All or be either the owner or creator and have View Own permission in the project the issue belongs to, to view the issue.

Move Issues (2.0)

ITracker allows an issue to be moved from one project to another. Once moved, there will be mo record of the issue in the original project. To move an issue, the user must have Edit permission in the original project of the issue, and either Create or Edit permission in the target project. No other changes are allowed to the issue during the move, and the move will be logged to the audit log.

Clone/Split Issues (Future)

A future version of ITracker will include the ability to clone or split an existing issue. It is very common for users to submit multiple problems in a single issue. It is then difficult to manage the issue because the problem may need to be assigned to multiple users, or even deferred between releases. The new feature will allow for the retention of data, assignments, and notifications, and also maintain a relationship between the issues and an audit trail.

Duplicate/Related Issues (Future)

A future version of ITracker will allow tracking of duplicate or related issues. Currently the only way to do this is to set the resolution to duplicate and then add history comments to link the issue. There isn't a clear way to search for related issues, or even know about them if the comments are kept up to date. This feature will maintain a many to many relationship between the issues to allow duplicates, and related issues, to be linked and updated as needed. Each issue will continue to maintain its own history and a unique audit trail, but links may be automatically maintained by the system if any of the related issues are modified.

Search Issues (1.0)

ITracker provides two levels of searching, global, and project. Global searches allow searching across projects, but with a reduced set of attributes such as status, severity, and text strings. Project level searches expand the criteria to allow for creators, owners, versions, and components.

Version 2.4 of ITracker added the ability to run reports on the results of searches.

A future version of ITracker will allow the user to created saved search queries that can then be reissued easily.

Issue Attachments (1.0)

ITracker allows an unlimited number of attachments for an issue, and can be added during create, or during an edit. Currently, only a single attachment may be added per create or edit. Attachments must be allowed at the global level, and may be constrained in size in the system configuration.

Source Code Control Integration (Future)

Notifications

Reporting

The old custom reporting system was replaced in version 2.4 with a more flexible system based on JFreeReports. The new reporting system uses the search functionality to define a set of issues, to be used in the reports. Also a report can be run against one or more projects that the user has access to.

As of version 2.4, ITracker also supports the export of reports. During initialization, ITracker will look for predefined reports in this export format and automatically load or update the report in the user's database. This makes it easy to donate the report and have it included in all future releases.

ITracker does ship with a few sample reports, but it is expected that a majority of the reports will be developed by the ser community as needed.

User Authentication and Authorization

Auto-Logon (1.0)

ITracker has the ability to auto logon users if they enable it in their preferences. This stores a cookie on their machine with their userid and encrypted password. Due to the security implications of this feature, it can be disabled globally if it is not desired.

Forgot Password (1.4)

ITracker has the ability to issue a new password to a user if they forget their current one. The system will ask the user for their login and last name, and if correct, generate a new random password and email it to the address in their profile. This feature can be disabled globally if it is not desired.

Permissions

All access to features in the system by users is controlled by a set of permissions on the project level. Permission encompass create, edit, view and admin functionality. The permission system is very flexible, and allows a user to have full permission on some projects, while very minimal or no permissions on others.

The one exception is the super-user attribute which acts like a global permission. Users with this attribute have full control over all functionality in the system. Some functionality of the system, such as system configuration, is only available to users with this permission.

Pluggable Authentication (2.2)

ITracker introduced a pluggable authentication system in version 2.2. This introduced the ability to authenticate a user using whatever mechanism that was needed. Version 2.4 improved on the functionality by adding several new authentication types, retrieving permissions, the ability for the authenticator to define what parts of a profile could be modified, control over self registration, and notification of profile events such as modification and creation.

Roles and Groups (Future)

A future version of ITracker will add the ability to control permissions via user roles and groups. While the permission system is flexible, it is difficult to manage the permissions with a large number of users and projects. The new system will allow a group to be created, and a set of permissions assigned to the group. Then users can be assigned to the group. The group's users and permissions can be modified at any time. These groups will form the core set of permissions for a user, which can then be augmented individually if needed.

User roles haven't been completely defined, but will probably take over some or all of the functionality currently encapsulated by the Project Admin permission, super user attribute, and project owner functionality. The goal is to be able to assign users to roles that inherently give them a set of permissions in the system. These role permissions will most likely not be modifiable, but instead are defined in the systems core processes.

Self Registration (1.6)

ITracker has a self registration feature to allow users to create accounts without an administrator. After self registration, a user would be automatically granted permission to create and view issues in any project with the self registration options enabled. This feature can be disabled globally if it is not desired.

As of version 2.4, self registration can also be controlled through a custom pluggable authentication module. A pluggable authentication module can determine whether a user is allowed to self register based on the supplied information, and also has the ability to return user permissions based on profile information.

User Interface

The primary access to ITracker is through the integrated web client. This client does not make use of the API, but instead makes direct calls into the ejb backend. All ITracker functionality is available though the web client, and is then usually added to the API at a later date.

User Preferences (1.0)

The ITracker web interface includes user level preferences. These preferences control such items as the locale the site is displayed in, the number of items displayed on lists, and whether the user uses auto login. Other preferences to make the site more customizable for the user, are planned in the future.

Project and User Messaging (Future)

There is a recognized need for ITracker to be able to notify users of system and project events. A future version of ITracker will include the ability to display banner messages in the site either for general system information, or only targeted towards users with certain project level permissions.

History Markup Language (Future)

A future version of ITracker may include the ability to markup the text of history entries. Currently there are several project level options that give the administrator the option of allowing html markup. However HTML markup is difficult for the average user, and also poses problems in the display of issues if certain tags are used, or misused. Any future markup would allow for limited markup of the text and most likely use a proprietary markup language bundled with a small embedded editor.

Web Templates (Future)

Currently ITracker uses a simplistic template that only splits out the header and footer. The layout, other than the header and footer, is contained inside of each page. In a future release, all of the jsps will be rewritten to use Tiles or Java Server Faces to support a more generalized layout, and

make it easier for sites to customize the size layout easily, or add alternate layouts for integrating with existing applications.

Workflow

General (Future)

Currently there is very limited workflow built into ITracker. It only controls the progression of an issue through a few predetermined status levels. Since workflow can be highly varied between installations, any changes should allow for custom workflows across a variety of attributes. This feature has not been planned, and requires major discussion of needed features before being implemented. Also it needs to be determined whether an existing open source workflow engine can be used, or if some sort of custom engine should be written.

In addition to workflow, the system should also be able to raise events due to actions taken in the system. This would allow external systems to be notified of events within the system and take actions accordingly, including firing other events, or modifying the workflow of an issue through the system.

Issue Escalation (Future)

As a subset of workflow, issue escalation is also an important feature. Even if full workflow isn't implemented for several releases, a temporary solution to issue escalation may be put into place to satisfy the need for this feature.