



# **Issue Tracking and Project Management with BUGtrack**

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## Executive summary

Meeting the dynamically changing needs of the market is at the heart of any software enterprise. How well the company is able to adjust to these changes and increase customer loyalty can make a big difference in today's fiercely competitive environment. Regardless of whether it is a software development, implementation, support, or improvement project, or many such projects managed simultaneously, the most critical value-adding factors to control are quality and time.

When all major R&D issues are left behind and your project seems to have reached its conclusion phase, the efforts become focused on relieving it of numerous flaws and inconsistencies commonly known as bugs. Despite the possible seeming simplicity of resolving separate bugs, professionals know how resource- and time-consuming debugging usually is. At the same time, balancing your capacity and customer satisfaction is a key for reaching the project goals. This is especially true when large (and, sometimes, global!) development teams and customers are involved in a number of different projects.

Fortunately, the craft of bug tracking has been keeping pace with the industry. While it is still possible to report and track issues on paper or in separate files circulated via email, modern bug tracking and project management technology can provide a comprehensive solution to help you:

- improve general project organization;
- promote online cross-functional cooperation within company;
- enhance resource planning;
- speed up bug/issue resolution times;
- ensure the necessary quality levels at every project stage and functional area;
- implement collaborative development scenarios with substantial customer input and feedback;
- increase transparency of development and support processes;
- efficiently employ international taskforce and development teams;
- capitalize on best practices across projects

This white paper examines ways in which BUGtrack software addresses these issues and helps you reach project goals.

## Introduction

Globalization in the modern economy and technology advances have opened a completely new era for software industry, which is distinguished by such factors as:

- increased competition
- higher quality demands
- customers in many countries
- diversification of product lines
- box products and completely custom software
- internationalization of development teams
- shorter project cycles
- higher demands for R&D flexibility.

The new conditions pose new requirements on all businesses in the industry. Thus, to remain competitive and increase market share, companies should implement strategies and methodologies that would allow them to quickly adapt to the fast-changing environment of customers and competitors while constantly raising quality standards and keeping costs down.

In software projects, managing these tasks relies on resolution of numerous issues including bugs, documentation problems, innovations, improvement requests etc. To deal with these tasks, BUGtrack offers a comprehensive solution and approach which help you manage project issues and resources simultaneously, and

- BUGtrack is completely customizable;
- BUGtrack has a simple, intuitive interface;
- BUGtrack is safe and reliable;
- BUGtrack is completely web-based;
- BUGtrack is multilingual;
- BUGtrack is open to integration;
- BUGtrack users are provided with 24x7 support.

In further chapters we will discuss the features and functions of BUGtrack software and how they can help better manage software projects.

## The BUGtrack Approach

BUGtrack was initially developed as a system for online control of separate problems that brought together testers and developers, but later it grew into a powerful bug tracking and project management tool that can be used to enhance virtually any kind of collaborative work. However, because BUGtrack's evolution was based on the needs of real-life software projects, it was specifically suited to allow software bugs and issues to be processed and closed in the most flexible manner, which is reflected in its interface and process flow logic. Today, more than 4300 users in 28 countries use BUGtrack to manage their projects.

BUGtrack is a completely web-based application, which means there is no need for additional hardware to buy and service while managing unlimited numbers of projects, bugs/issues and using unlimited attachment storage space. It also requires no installation and support efforts on your part. Moreover, it does not matter which platforms your users operate: web interface is supported by Windows, Linux, Unix, and MacOS web browsers from anywhere in the world.

BUGtrack comes in two editions: Standard and Professional. BUGtrack Standard Edition is a great tool for small teams with relatively simple business model. Wide range of functions, low cost, friendly and convenient user interface, and unlimited storage make BUGtrack Standard Edition the perfect choice for companies with a small team or tight budget.

BUGtrack Professional Edition is a perfect solution for companies looking to utilize the latest technology for their issue-tracking and project management needs. The system allows organizing and coordinating efficient teamwork, unifying development teams and customers from different locations around the world. Moreover, both editions are covered by 24x7 customer support and provide high level of security and reliability.

# Features Overview

## Interface

BUGtrack supports simple and convenient interface for both administrative and user functions to allow quick and easy start and day-to-day work processes. In addition, its intuitiveness lets managers and employees begin their work without any training at all.

All projects and issues are managed in BUGtrack through a few consistent, customizable views:

- bug/issue view – the main window for working with separate bugs; contains a complete history of the record with attachments and links to related records, rich text-formatting entry, identification and estimation fields as well as controls for changing bug/issue status and user email notification option;
- search view – used for ad-hoc full-text search and narrowing search criteria;
- “My Stuff” view – lists all open bugs/issues assigned to the user;
- filter view – allows to customize and use standard bug list filters;
- list and statistics views – provide an overview of the situation in selected projects
- reports view – gives access to viewing and customizing reports
- preferences view – lets users quickly customize personal interface settings
- admin view – administrators’ cockpit for managing projects, users, roles, bug attribute sets etc.

Each view is supplied with quick links bars at the top and at the bottom of the page for quick access to all other views plus Go-to windows for immediate access to a bug/issue by its number (all bugs/issues are numbered automatically at the moment of creation).

## Multilingual Support

Today BUGtrack supports user interface in English, German, Japanese and Swedish, and more languages will be available soon. Language interface can be selected by each user individually. Another feature that makes BUGtrack a truly international tool is that all its system fields support Unicode, so you are free to choose any language you like.

## Security

As customers put their trust in Application Service Provider, ASP should do everything necessary to achieve highest level of security and confidentiality over customer’s data. It is SkyeyTech's policy to keep all customers’ administrative information and project content highly confidential. As soon as a user performs an action in a BUGtrack project and the data reaches the SkyeyTech's OLTP/storage facility, it resides on servers that are secured by physical and electronic means.

Physical protection is provided by hosting BUGtrack on highly reliable, secure and completely redundant DELL PowerEdge servers located in the Equinix colocation facility in Chicago.

On the electronic level, SkyeyTech employs Windows 2003 Server operating system fenced by electronic firewall on all of its servers. All storage drives use NTFS partitions.

All Microsoft patches, hot fixes and updates are installed weekly, and the most critical ones are installed immediately upon release. Moreover, all client-server data transfers are secured with Secure

Sockets Layer (SSL) protocol using 128-bit encryption, and BUGtrack is Thawte-certified.

## Workflow Logic

Each bug/issue entered into BUGtrack has the following attributes with corresponding fields to classify it and control its processing:

- Project – specifies which project the entry belongs to.
- Area – shows which area of the project the issue corresponds to (e.g. code, interface, upgrades etc.).
- Title – a short description of the problem.
- Type – specifies whether the entry is a bug, a suggestion, etc.
- Priority – an attribute used for queuing entries.
- Version – identifies the version and/or the deadline for which the issue must be resolved.
- Category – used as an additional classification attribute.
- Phase – shows the phase of the project to which the entry is relevant.
- Assigned to – displays the user who is responsible for the issue.
- Linked bugs/issues – the area where all linked (“subordinate” or related) bugs are referenced as hyperlinks with numbers and titles.
- Time estimate – used for tracking planned and actual resolution time.

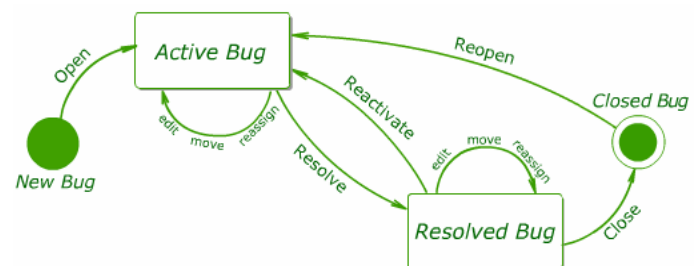
BUGtrack supports both global and project-specific fields.

When a new entry is created in the system, the user must specify the project, fill record title and assign it to another user or to him/herself. Description text size is unlimited and BUGtrack supports HTML and rich text format.

Also, any files related to the issue (such as screenshots or documents) can be attached, and the system recognizes common graphical formats and automatically generates thumbnails to images. Record’s discussion thread includes complete history of user comments, attachments and actions system protocol on one scrollable page.

If the user assigns the newly opened entry or reassigns an existing record to another person, this person receives an email notification with a hyperlink to the entry for immediate access. Moreover, each user who has access to a record, can subscribe/unsubscribe to receive email notices each time the record is updated.

As shown in the workflow diagram, a new bug can be edited, moved to another project/area, and reassigned to other team members. Once the issue has been resolved, the record status is automatically changed to Resolved and reassigned to the record’s creator for review. If the creator confirms that the issue has been resolved, the bug can be closed or it may be reactivated if necessary. Should the problem arise in future, the bug can be reopened. All reactivated and reopened bugs are automatically assigned the Active status and can be handled like every other entry with their complete history stored and displayed.



Bugs/issues can also be moved to recycle bin or destroyed completely.

## Access Permissions

BUGtrack administration is organized for maximum flexibility and convenience.

Access management is split into four levels: roles, users, records, and fields.

Role-based permissions allow you to control how users from different groups can access different projects in your system.

User-based permissions restrict individual users access to separate projects and ways to handle (view, edit, reassign, resolve) bugs within these projects.

Record-level permissions allow restricting access to separate entries within a project.

Field-level permissions allow administrators to specify hidden, read-only or change access levels to any particular field or action button on user level.

## Customizing Options

BUGtrack is very customizable to better suite your specific needs. The system allows customizing not only project management and issue tracking options but user interface as well.

The interface options allow you to:

- Place customer company logo on every page header;
- display your company name in the browser window header;
- assign colors for marking selected priority grades;

Project management / issue tracking options help you to customize the workflow logic and issue handling in your projects by letting you:

- create unlimited custom bug/issue attributes and create project-specific sets to better structure your work;
- create unlimited roles and users;
- customize access permissions for each role;
- choose date/time formats for estimates;
- setting user-dependant defaults for views, layouts and fields;
- create custom bug entry forms;
- hide/show entry attributes for each project;

## Integration

BUGtrack empowers you with a number of integration options making it easier to upload and download data and improve interaction within projects. These features include:

- Data export from BUGtrack is accomplished by downloading report and entry data in commonly accepted file formats, such as HTML, XML and CSV.
- BUGtrack import wizard makes data import from Microsoft Excel spreadsheets or Word tables as easy as just a copy-and-paste operation;
- Email interface (apart from system email notifications) converts BUGtrack to a powerful email-tracking processor. BUGtrack can retrieve email from multiple POP3 mailboxes and turn it into new entries or automatically add to existing ones, including formatting and attachments; Email interface also lets you communicate with team members and/or customers even without giving them access to your BUGtrack projects.
- Integration with source control solutions (CVS and Microsoft VSS) – allows creating a two-way link: BUGtrack entry's details will contain the list of check-ins, associated with this entry – from one hand, and check-in will point to the issue it is supposed to resolve – from another hand; extremely useful feature for project with large numbers of developers involved.



- Project sharing – allows you and your partners who have separate BUGtrack accounts to share joint projects. This feature should be used when two or more companies work on common projects but want to keep the rest of the projects secure and separate.
- Third-party software integration – BUGtrack can be seamlessly integrated with CRMdesk – a web-based help desk, customer service and online support software. Such integration creates a bridge between your development and support teams.

## Reporting

Reporting is crucial to project management and this is why BUGtrack provides two ways to implement it: customizable statistical reports with optional graphs to gather statistical information and display it in the convenient format, and Web-query – based detailed custom reports. The system gives you a wizard to generate custom web-query to a filtered dataset.

Customizable reports can be used for tracking time data (estimates and actual times) for entries selected

with a custom filter. Each BUGtrack account initially contains a few ready-to-use reports. Unlimited custom reports can be created using a wizard that allows to:

- specify a record filter for reports, so that you can apply different selection criteria for your data and get information on exactly what you need;
- choose a chart type used (pie, vertical column, horizontal bar, line or none);
- group records by any attribute to review aggregated data from different viewpoints.

Web-query gives you the most advanced way to build custom reports using HTML and XML/XSL technology. With HTML format BUGtrack automatically creates a web page with a table that can be then copied into clipboard and pasted into an Excel or Word file. With XML/XSL technology is used, the system uses XSL stylesheet for XML data formatting to generate different styles of detailed HTML custom reports.

## Best BUGtracking Practices

Just like having a good tool does not ensure best results, employing BUGtrack does not automatically take you where you want to be. And the way to get there is to make best use of BUGtrack. Years of use and improvement have delivered a number of general guidelines which can help you get the most out of your BUGtrack account.

### **Make bugs/issues easy to use**

When an issue arises, enter it as soon as possible trying to keep to the “one issue – one record” principle, and provide it with a clear and straightforward summary, so that it can be quickly routed to the right people. To avoid redundant communication and misunderstanding, be sure to give a detailed description of the problem itself and the circumstances it appeared in. It is also a very good idea to attach a screenshot or an output file to the entry and put down what you expected to happen (vs. actual, wrong result) and where you think the shoe pinches. Always keep in mind that other people might not be aware of things you take for granted.

### **Get your entire team involved**

Leaving out certain team members has never been a good practice. Once an employee is contributing to your project, this person should have access to it and share all relevant information with other project staff. This will ensure maximum collaboration and most efficient time use. Access restrictions will help to establish the necessary content security.

### **Use time estimates and control issue resolution processes**

To allow for better planning, distribution and control of project human resources, BUGtrack provides users and managers with a simple but efficient time-tracking feature. Once estimates and actual time values are logged by users, it is easy to analyze your workforce’s actual and planned load from different viewpoints and thus assess the team members’ efficiency, foresee idle and overload periods and redistribute resources between them. Customizable reports will help you to get and review required information.

### **Encourage customer participation**

Customer participation is especially important in projects where much of your product’s value is created cooperatively with your customers (e.g. customization of software is performed on the customer’s site). Of course, you can accept customer bug reports and questions by phone or email and log them manually, but why not let customers take a more active part in the project and log their issues directly into your BUGtrack project? The benefits are obvious: shorter initial logging and reaction time, less work, and better content integrity. Moreover, the complete history of each issue will help you prove your position when disputes with customers arise. Once again, access restrictions will allow your customers to see only what you allow them to see. BUGtrack Custom Form and Mail interface are designed to give your customers unanimous access to the system that can be especially useful for beta-testing.

### **Plan and follow a usage scenario**

It is advisable that each project or group of projects run within a transparent communication and workflow framework best tailored to their specifics. When beginning new projects, managers should decide on general bug/issue communication procedures and implement the model in BUGtrack project settings (i.e. page layout, roles, users, permissions). For example, while some projects may involve direct customer participation, other ones may imply to customer input at all, and so project settings will differ. Once a project is under way, changing its settings may cause certain inconsistencies, so it is better to see ahead in the planning phase and follow your vision during implementation. Sample usage scenarios are described on the BUGtrack web site.

### **Make BUGtrack your knowledge base**

BUGtrack's capabilities for data storage, classification, access restrictions and search make it a perfect knowledge base tool for your entire company. After an issue has been resolved, its history and content can be viewed later unlimited times. So, even when a team member is not available, his/her knowledge and experience remains available for use by your entire crew while your storage space is unlimited. This is why your account administrator should never delete entries unless they are totally useless (i.e. empty records). In all other cases, if you want to remove a record, move it to a different project/area and restrict access to it.

### **Use BUGtrack to manage all of your issues**

Despite the fact that BUGtrack is, in the first place, a solution for managing software projects, it is also a good tool for handling virtually any issue in your company. It can be used for administrative communication, planning workforce in non-software projects, personal organizer etc.

## Conclusion

As we can see, bug tracking and project management can be treated most efficiently by using the comprehensive approach offered by BUGtrack. While providing solutions for standard tasks, it allows you to broaden your perspectives and implement complex project management scenarios. Its easiness of use, security, 24x7 customer support and capabilities for customizing, reporting and integration make BUGtrack a complete and comprehensive solution that:

- supports general project management tasks such as organization, workforce planning and assessment;
- promotes teamwork and cooperation within company;

- helps assure product quality and thus leads to its improvement while shortening problem resolution times;
- increases customer loyalty by improving your service and support;
- makes your business more intelligent and human-factor independent.

By using BUGtrack, software companies can spur internal process improvements and gain a lasting competitive advantage. To learn more about improving software project management in your company, visit the SkyeyTech's web site at **[www.skyeytech.com](http://www.skyeytech.com)**



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