



MEASURING INTERNATIONALIZATION WITH LINGOPORT DASHBOARD

A Lingoport Study

www.lingoport.com

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EXECUTIVE SUMMARY

71% of participants in a recent Lingoport webinar stated they experienced product delays due to internationalization (i18n) bugs and errors. Causes include software engineers who often assume that it is the localization department's responsibility to fix them, but who are generally poorly equipped to make software code changes that seriously improved the quality of the final product. Additionally, without any i18n metrics and key performance indicators (KPIs) that are shared across department levels, it becomes very difficult to understand, in advance of possible delay, which tasks are affecting the release of software.

To overcome these challenges, Globalyzer helps adapt, create, manage and verify software so that it is localization-ready. It automatically populates a dashboard from a command-line interface from nightly builds to provide valuable information on trends, errors, hotspots and general readiness across products and groups. Key coding quality metrics allow managers to quickly decide which bugs to fix relative to their importance for example, while organizational KPI's show positive or negative effects on reaching goals of releasing software quicker with better quality. The net result is that businesses are now better able to answer the question of "what is the management value of knowing the global readiness of their next release?"

THE NEED FOR A DASHBOARD

Internationalization metrics and key performance indicators (KPI) are often buried deep within a corporate enterprise, if even tracked at all. Without technology to measure processes to generate intelligence on the readiness of internationalization support for a product, the true knowledge of a product's development status to go global often remains locked in with software development – and unavailable to respective managers and senior executives in an organization.

Typically, the largest software producers have recognized over the years the need to answer the question, "What is the management value of knowing the global readiness of our latest release?" In a recent Lingoport webinar, 71% of participants had stated that they experienced product delays related to internationalization bugs and errors. To understand possible delays and tasks that affect the release of software, companies have the option to develop custom scorecards with considerable investment or web-based dashboards to track the flows inherent to the production of world-ready software. The ability to share KPI's, however, and which ones are important regarding internationalization readiness amongst groups from software development to localization to QA, remains a challenge even for the largest organizations.

This paper investigates the opportunities both enterprises and small to medium sized business have in implementing dashboards from Lingoport to present not only keep performance measures and trends, but measure efficiencies, critical i18n issues and align strategies and organizational goals across departments that won't break the bank.

DASHBOARD BUILDS EXPERTISE FOR BETTER LOCALIZATION OUTCOMES

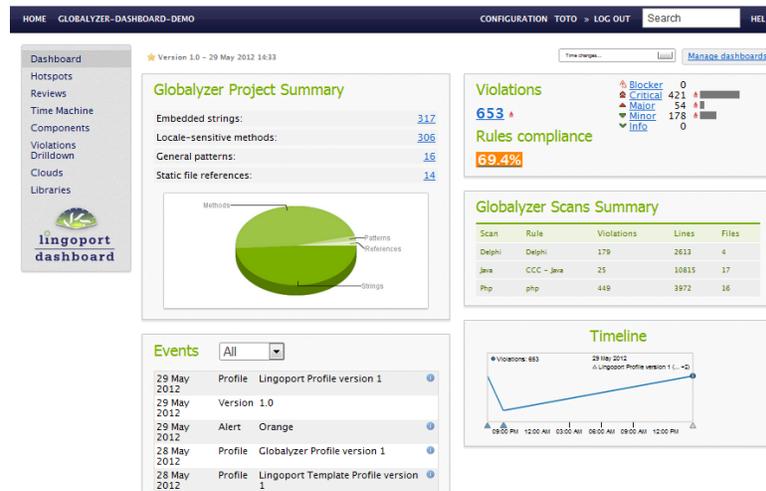
Organizations may already be far along with internationalization practices, establishing requirements and localizing regularly. They still battle internationalization issues, often finding them during localization testing (long after the developers have moved to other efforts) or even worse, after release. Often developers assume that it's a localization department responsibility, but localization teams are generally poorly equipped to make internationalization changes that seriously improve the quality of the final localized result. They operate after development is generally complete, likely they do not know the code well, or may not even have many developer resources.

Fortunately, it's not as difficult to introduce new issues during feature development or bug fixing. But, when you consider how distributed development teams are, it does get harder to communicate and enforce without an automated measurement and feedback process. A basic principle of management is that whatever gets measured, improves. When developer teams have more visibility to internationalization defects, they naturally learn from them and the internationalization bug fixing process.

DASHBOARD FOR GLOBALYZER: HOW IT WORKS

Globalyzer helps companies adapt, create, manage and verify software so that is localization-ready, supporting worldwide languages and cultural formatting & operations. It is a client/server application that is supported by a server to centralize conditional "rules" that power static analysis of source code to find i18n errors. A Workbench client or Eclipse plug-in seamlessly integrates to the server to fix and report on the internationalization errors.

The product also supports a command-line component that can be integrated into an automated process and build environments to generate detailed summary reports. It's this component that carries powerful data for globally focused enterprises. By shifting emphasis from Globalyzer reports and data, previously only available in individual reports, and into an automatically populated Dashboard fed from the Command Line, management and developers are provided with valuable information on trends, errors, hotspots and general readiness across all products and groups. Executives can receive real-time aggregate i18n metrics, while managers and engineers alike can also view summary scans, percentage rule compliance and details on violations to help better manage their team to where time and resources should be spent to meet release schedules.



INTERNATIONALIZATION QUALITY METRICS

The Lingoport Dashboard tracks four key internationalization coding quality metrics:

- **Embedded strings:** User facing strings that must be externalized for efficient localization
- **Locale-limiting methods/functions/classes:** These can limit locale support in areas such as encoding, date/time, sorting and more. They vary depending upon the programming language.
- **Programming Patterns:** These are programmatic elements that may cause locale support issues, such as hard coded fonts, sorting or other issues
- **Static Files:** Images, video and more that will need examination for localization
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Importantly, the Dashboard sorts each respective i18n coding quality by severity, allowing managers to quickly decide which bugs to fix first relative to their importance. Teams can also quickly see "hotspots" within their projects that need particular attention

Each of these issues are summarized as well as detailed in drill downs of Dashboard data.

TRENDS AND PROFILES:

While the Dashboard supports actual internationalization metrics, it also provides a timeline to showcase changes of internationalization violations over time. This provides direct feedback on internationalization progress in key areas of concern, as well as ongoing or new development.

The Dashboard provides users with varying access privileges based on profile. While multiple development projects can be tracked in the Dashboard, administrators can limit user access to specific projects.

Senior Executives may only be interested in a simple view to receive aggregate trends and violation reports, while software engineers are interested in detail views of single violations found in the source code. Users can also be delegated to product so information relevant to one group is not shared with the other.

MANUAL MEASURES:

There are internationalization issues that go beyond what can be found in a code analysis. These include optimization for architectural requirements specific to an application and its components. The point is to answer the question, "What is not in the structure of our code that needs to be added?" Answers range from locale handling to associated design concepts. The Lingoport Dashboard can be extended by a Lingoport consultant as a professional services effort to indicate assessed architectural issues and track progress on broader internationalization design.

ORGANIZATIONAL KEY PERFORMANCE INDICATORS

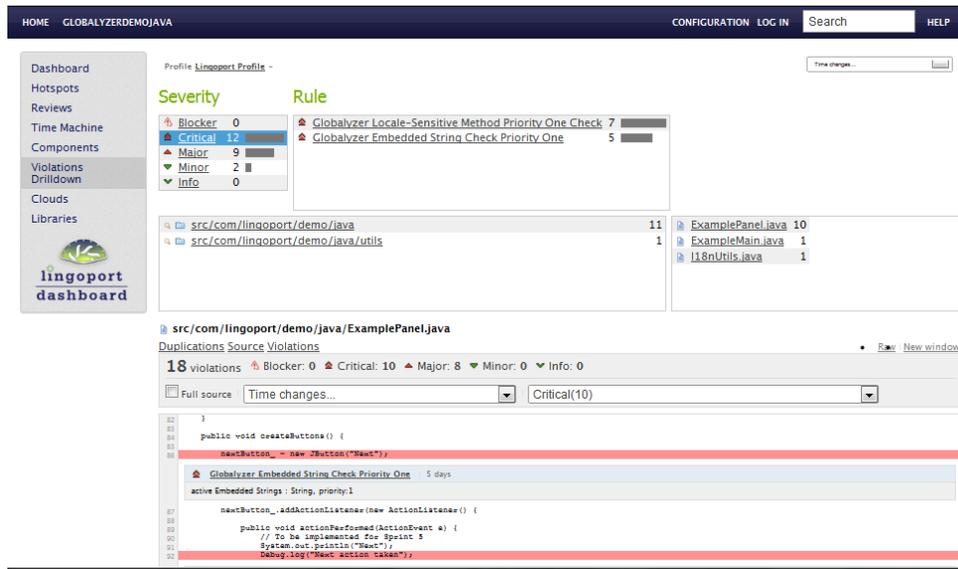
While each organization has their own KPI's for internationalization, Lingoport generally has seen the following areas when companies starting to track KPI's for releasing software in an agile environment:

- **Time to market reduction:** Are your releases ready for localization upon release or is there a lag?
- **i18n bugs reduced over time:** Does greater i18n support during development reduce the over-head to meet that goal?
- **L10n bugs reduced over time:** Does it lower costs for other groups beyond software development?
- **Ease of L10n for new iterations:** Can your agile releases be localized faster?
- **Better product quality:** Does the i18n quality focus improve overall general bug fixing issues?

INTERNATIONALIZATION VERIFICATION BEFORE TESTING

Global savvy development teams may also test internationalization via pseudo-localization. This is a process that involves adding non-English pad characters around strings to expand them and test character encoding. While this is a highly useful technique for visualizing a localized interface without requiring testers (or developers) to know the target languages, it is fundamentally limited to going through interface screens and assuming a string-centric QA view of all internationalization issues. Strings are important, but they are just one aspect of internationalization. It's also unlikely to cover all use cases and locale requirements as testers go through screens.

Pseudo-localization, while recommended, typically takes place after development is complete and developers have moved on to other tasks. This makes it an expensive and inefficient time to go back and revisit code. The pseudo-localization process also reports a result rather than identifying where exactly the issue may be located in the source. We encourage teams to continue using pseudo-localization in testing (it's even facilitated in [Globalyzer's Workbench](#)), but code analysis and seeing the results prior to the testing effort should instead be the first line approach to internationalization verification. If teams can quickly see their defects during their development efforts, drill down to where the issues are happening and correct them, the processes of new and ongoing internationalization are improved. Teams can learn from their mistakes and global readiness can be achieved faster, at higher quality and at lower cost.



The screenshot shows the Lingoport dashboard interface. At the top, there is a navigation bar with 'HOME', 'GLOBALYZERDEMOJAVA', 'CONFIGURATION', 'LOG IN', a search box, and 'HELP'. A sidebar on the left contains navigation links: 'Dashboard', 'Hotspots', 'Reviews', 'Time Machine', 'Components', 'Violations Drilldown', 'Clouds', and 'Libraries'. The main content area is titled 'Profile: Lingoport Profile' and features a 'Severity' section with a bar chart showing counts for Blocker (0), Critical (12), Major (9), Minor (2), and Info (0). A 'Rule' section lists 'Globalyzer Locale-Sensitive Method Priority One Check' (7) and 'Globalyzer Embedded String Check Priority One' (5). Below this, a table shows file counts for 'src/com/lingoport/demo/java' (11) and 'src/com/lingoport/demo/java/utills' (1). A detailed view of 'src/com/lingoport/demo/java/ExamplePanel.java' shows '18 violations' with a breakdown: Blocker: 0, Critical: 10, Major: 8, Minor: 0, Info: 0. A specific violation is highlighted: 'Globalyzer Embedded String Check Priority One' (5 days) with 'active Embedded Strings: String, priority: 1'. The code snippet shows a button creation and listener function.

CONCLUSION

Through the research and development of Dashboard, Lingoport found that development organizations crave the ability to track, analyze and act on code quality data. There is a tremendous value in knowing the health of a product before it is released. Time isn't wasted with guess work, and lesser-performing components can be better targeted for improvement.

It starts and ends with measurement. Speak with Lingoport about your goals and discover what metrics are most important to you reaching success globally. Lingoport has helped a number of top software companies identify high costs associated to i18n bugs, and allowed localization and QA teams to focus on what they do best.

ABOUT LINGOPOINT

Lingoport helps globally focused technology companies accelerate and improve how software is built for world markets. Lingoport's suite of products is the market leader for companies looking to remove surprises in coding software for the world by automatically checking, measuring and fixing source code for internationalization (i18n) defects. Combined with comprehensive outsourcing services, Lingoport offerings enable our clients to make world-ready software development a priority for their worldwide customers.

Learn more about Lingoport at www.lingoport.com and www.globalyzer.com. For a technical discussion, a free quote, or a guided tour and demonstration of Globalyzer, please contact us at info@lingoport.com or by phone at +1 303.444.8020.