



Top-Five Considerations when Internationalizing Software

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Twitter hash-tag: [#i18ntips](#)

Definition Slide: i18n, l10n and G10n

Internationalization (i18n): Process of making a single code base locale-independent, so it can be localized without source code changes.

Locale: Defines user's language, country and preferences.

Localization (l10n): Translation & application of locale terms and style so that it looks locale-specific, i.e. looks and reads like a product native to the respective market.

Tip #1. \$ Examine the Business Case



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Tip #1. \$ Examine the Business Case

- Market opportunities drive the need for i18n.
- Develop i18n Requirements Document that reflects expectations from each stakeholder.
- Examine ROI over multiyear span of product.
- In-house, outsource or combo?

Tip #2. Scope & Plan the i18n Effort



Tip #2: Scope & Plan the i18n Effort

- Conduct a thorough assessment of the code base for internationalization readiness.
- Remove guess work and understand the task duration and dependencies.
- Align the business plan and requirements document to the assessment. Not everything needs to be internationalized!
- Review how to manage concurrent product development and i18n of technical debt.

Who is going to do what, by when and with which resources?

Tip #3: i18n is more than string externalization

1. Requirements Document
2. Architecture & Locale
3. Programming issues
 - Externalization of strings
 - Methods/Functions by programming language
 - Locale sensitive-code, such as layout settings, font, etc.
 - Handling images that contain text, help files, videos, etc.

Tip #3: i18n is more than string externalization

The screenshot shows the Globalyzer IDE interface. The main editor displays the code for `ExamplePanel.java` and `ExampleMain.java`. The code includes comments and calls to `DateFormat` and `I18nUtils` for date and time formatting. The `Scan Results` panel at the bottom shows the following table:

S.	File	Line	Issue	Code Line	Reason
1	src/com/lingoport/demo/java/ExampleMain.java	45	setLocale	I18nUtils.setLocale(locale);	Encoding
1	src/com/lingoport/demo/java/ExamplePanel.java	167	DateFormat.getDateInst...	datePanel_add(new JLabel(D...	Date/Time
1	src/com/lingoport/demo/java/ExamplePanel.java	181	DateFormat.getTimeIns...	datePanel_add(new JLabel(D...	Date/Time
1	src/com/lingoport/demo/java/utis/I18nUtils.java	40	setLocale	public static void setLocale(Local...	Encoding

Tip #4: Define and measuring results



Tip #4: Define and Measuring Results

- **Speed** is achieved by creating efficiency and eliminating guess work that delays projects; understanding which functionality of the product is needed, by when.
- **Quality** incorporates business and requirement information into the software code base so it performs correctly, and as expected. You have to live with the code base when finished.
- **Cost** is reduced by removing iterative errors and processes between localization, testing and development.

Tip #5. Maintain & Support i18n



#5. Maintain & Support i18n

- Ensure i18n errors are not introduced in future releases.
- Develop and modify test cases for i18n.
- Integrate concurrent and future SW development.
- Localization and ongoing development cycles.

Questions & Answers

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