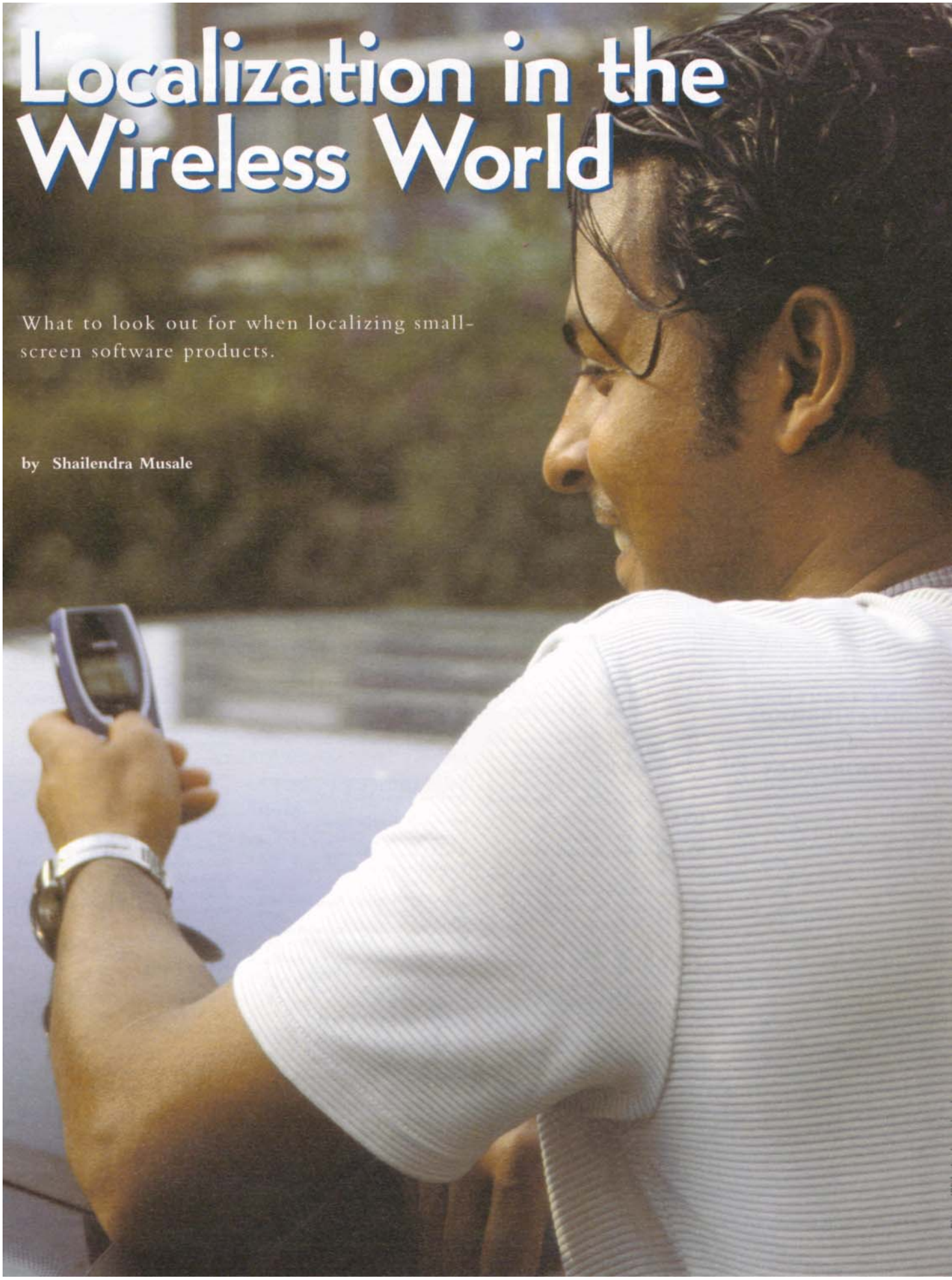
Localization in the Wireless World

What to look out for when localizing small-screen software products.

by **Shailendra Musale**



Get connected was the buzz phrase for quite a few years. The current buzz is *Get wireless*. Many predictions say that handheld devices, PDAs and Communicators are the tools that everybody will soon be using to surf the web and communicate. Increased virus attacks have also made people realize the importance of getting secure systems.

F-Secure has been a leader in the creation of content security applications that are optimized for wireless devices and offer reliable and automatic on-device protection. This article focuses on the localization issues that are unique and specific to the security field.

It's a Wireless World

Our work environment is becoming increasingly mobile. The workforce is on the road and needs fast and open access to corporate networks and services from anywhere in the world. People value freedom and openness, and have learned to demand customized solutions and privacy.

The new wireless devices are today's personal computers. Wireless devices are used to store large amounts of confidential information and the processors and displays support all kinds of applications. Content download is very easy through instant connectivity to a multitude of servers and services. The operating systems are open and well documented, and the terminals can be easily personalized with third-party software as the software development kits are freely downloadable.

The government or the national security association decides the type and strength of encryption that is allowed in each country.

When localizing software for wireless devices, one of the first issues to deal with is the size of the display, which is much smaller than a desktop computer screen. Wireless projects, like other localization projects, come with the common localization tasks such as dialog box resizing, character display issues, text-truncations, etc. However, this article illustrates some additional issues for mobile devices, especially those related to security issues.

Encryption Laws

Laws regarding data encryption are different for each country. The government or the national security association decides the type and strength of encryption that is allowed in each country. Basically, there are two types of encryption: strong and weak. The difference between these two is the *key length*. With strong encryption, the key length is more than 128 bits; with weak encryption the key length is 56 bits.

These different laws result in the need for software customization and market-specific dialog-boxes, thereby creating new challenges in localizing security software. After localizing legislation-specific (rather than language-specific) software, you need to test whether it uses the appropriate type of encryption for the target market and whether all encryption-related dialog boxes are displayed correctly. These changes in the software also need to be reflected in supporting materials, such as the online help, user documentation, datasheets and marketing materials.

Passphrase with Language Specific Characters

On wireless devices, the *passphrase* is used to protect your confidential data. In the localized version of the software, if you create an encrypted package using a passphrase that contains language-specific characters and send it to a person located in a different country, it may not be possible to decrypt the encrypted package. This is because the recipient is using characters of a different language and therefore the passphrase can simply not be entered.

A solution typically used to overcome this problem is to allow users to enter the passphrase in ASCII characters only. Alternatively, the sender uses an encryption type acceptable in the recipient's country.

Issues in Double-Byte Languages

Localization becomes even more challenging when dealing with Asian languages. After our product had been localized into Japanese, the developers found an interesting bug. The Japanese version of the encryption software could not create encrypted packages from a file or folder that contained specific Kanji characters. After further investigation, developers found out that it was the 5C code point that was causing this error. A code point is a hexadecimal number that is used to represent that character in computer data. The code point 5C is also used in the Japanese backslash and Japanese Yen currency symbol. Some Kanji characters also contain 5C in their code point. If a folder name contains 5C in its code point, then the encryption function does not work.

On all these systems, the smaller screen sizes require that words and lines are correctly wrapped and that this is done in accordance with the standard used in the target language.

点数表

The above example is a sample Kanji word that contains 5C in its code point. In English, this word means a chart or table containing scores or marks. This word is commonly used in schools, where a schoolteacher stores students' exam scores in a file or folder having this name. Since exam scores are confidential, teachers would encrypt it. Many financial organizations also use Japanese words that have 5C in their code points when they want to encrypt their confidential reports and data.

The F-Secure developers managed to fix this bug.

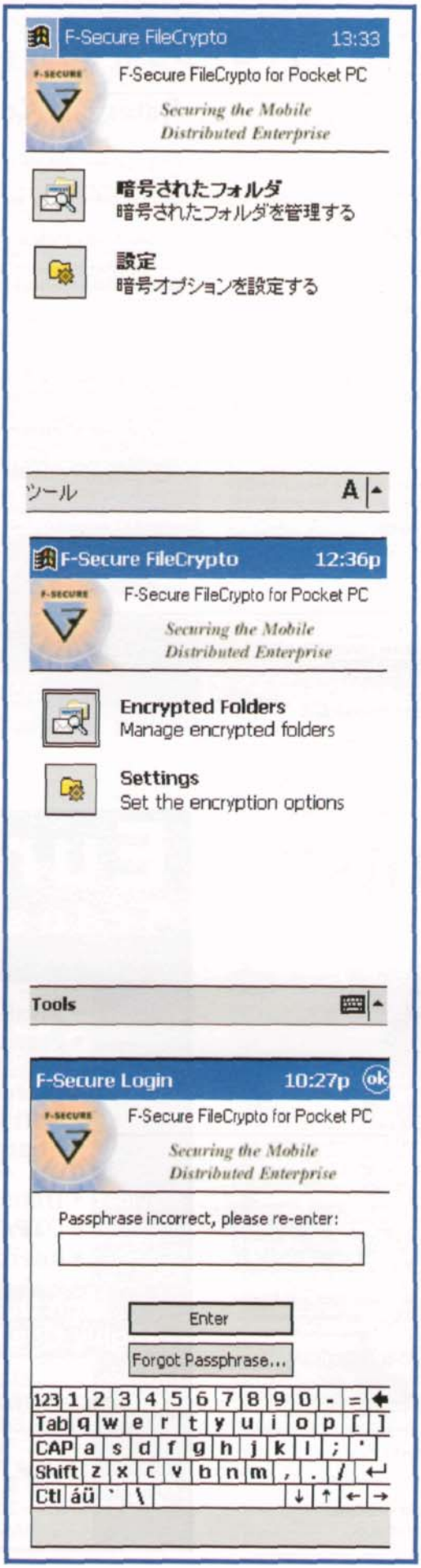
Testing localized security software is a very important milestone in a localization project. During localization testing, sample files and folders with language-specific characters are used for virus scanning and also for creating encrypted packages. For example, Finnish folder names such as Åland or file names such as töölö or hyvinkää are used to test the application. Such testing ensures that the localized software can detect and disinfect any virus, and that it can also encrypt files and folders with non-ASCII character sets.

Line or Word Wrapping Issues

Different operating systems (OS) are available for handheld and wireless devices. Operating systems such as Microsoft Windows CE, Palm OS and EPOC are competing for the leading position in the wireless market. On all these systems, the smaller screen sizes require that words and lines are correctly wrapped and that this is done in accordance with the standard used in the target language. To test your software for line and word wrapping issues, you should first localize your software in the languages that are known to be the *longest* in word and sentence length compared to English. Languages such as Finnish and German are ideal for these tests.

Dialog box resizing can be done using Microsoft eMbedded Visual Tools software. However, there are many constraints for resizing. The screen is small and in most cases the size of the dialog boxes is hard coded in the software. You may also find text-truncation problems in the pull-down lists. If resizing cannot be done, there are various options for fixing these sizing problems, such as rephrasing the translation, using shorter synonyms, using commonly known abbreviations, or even using icons instead of words.

Testing localized security software is a very important milestone in a localization project.



XML-based Online Help

Most of the wireless devices use context-sensitive (CS) online help systems based on XML. Context-sensitive help contains only the necessary and context-specific help topics. Such help files are smaller in size and thus ideal for handheld devices with limited memory. Content-sensitive help files are compiled using special CS compilers.

Since these help files are based on XML, it is important to test that the translation process has not affected the structure and styles used in help files. In some cases, even translation memory software modifies the structure or change the styles used.

On all these systems, the smaller screen sizes require that words and lines are correctly wrapped and that this is done in accordance with the standard used in the target language.

The wireless world is a whole new world with exciting things in store for all of us. Localization and content security will play a significant role, as it will increase the number of users and at the same time will make sure that it is a secured wireless world for all.

Shailendra Musale is Senior Localization Engineer for F-Secure Corporation in Finland. He can be reached at Shailendra.Musale@F-Secure.com.

Shailendra Musale