

ISO/IEC JTC 1/SC 22/WG20

Euro Phase 3 - Locale Handling
Expert Contribution
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This document contains a set of recommendations for dealing with the locale requirements of Euro Phase 3.

NOTE: In the following discussion, the words EURO and EURO SIGN refer to the same thing i.e. the EURO SIGN and EURO are used inter-changeably. Additionally, it is understood that the @euro modifier etc. (for XPG4) and the *_EURO variant etc. (for Java) are essentially the same mechanism.

Background

Euro Phase 3: On January 1, 2002, the following countries (known as the Euro-zone) will be finalizing the conversion of their national currency to the euro (the single currency):

- Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal and Spain

Of the 15 EU Member countries, Denmark, Sweden and the UK have not adopted the euro and are therefore not participating in its introduction.

(From: <http://www.euro.ecb.int/en/section/euro/distribution.html>)

In most participating countries, the "dual circulation period" will last between four weeks and two months. After that, national banknotes and coins will cease to be legal tender, and the euro banknotes and coins will become the sole currency throughout the euro area.

Once the "dual circulation period" is over, you will still be able to exchange your national banknotes and coins for euro banknotes and coins at your national central bank either indefinitely or for a very long period of time (at least ten years in the case of banknotes). Concerning national coins, in most cases this period is limited to a few years.

Euro Phase 1 and Phase 2

Phase 1 (see document ISO/IEC JTC1/SC22/WG20 N573 "*Dual Currency Handling in Locales with respect to the EURO*") and Phase 2 of the Euro introduction involved the following:

- Defining and rolling out new coded character sets and keyboards supporting the euro sign on all platforms and terminal emulations, in the Euro-zone countries as well as other countries worldwide.
- Defining and implementing necessary code point conversion resources for data interchange between old and new data.
- Defining and implementing the proper formatting for the euro in the Euro-zone countries.
- Defining and implementing new locales and mechanisms to activate the locale to deal with the EURO SIGN in currency fields
- Defining and implementing mechanisms to deal with the dual currency printing/display requirements during the transition period from national currency to the EURO in the Euro-zone countries.

To handle dual currency requirements in Phase 1 and Phase 2, the scenario used was:

Bank statements etc., at least during the transition period (three years, from 1999 to 2002), will probably have to indicate monetary amounts in both the local currency as well as the EURO. An example may be the following statement:

"Your balance as of today is 1 234,56 F or 4 938,24 €"

where the balance is stated in both French francs and the EURO.

And the solution, using the @euro modifier was:

- (a) Load the French locale (*Fr_FR.IBM-1147*). The *LC_MONETARY* category contains information for formatting as per the French franc.
- (b) Call *strfmon()* to format the amount into the string "1 234,56 F".

- (c) Set `LC_MONETARY=Fr_FR.IBM-1147@euro` and load
- (d) Call `strfmon()` again to format the `(amount*4)`, assuming that 4 is the conversion rate stipulated for French francs to EURO, into the string "4 938,24 €".
- (e) Set `LC_MONETARY=Fr_FR.IBM-1147` and load. Back to the French locale.
- (f) Print using the values obtained.

Euro Phase 3 Locale Implications

The finalization of the conversion of the national currency to the euro by the Euro-zone countries means the following is needed:

- Provide euro monetary formatting behaviour in the base locale for each Euro-zone country. This implies a change from the current base locale monetary formatting behaviour.
- Provide dual currency display/print capability for each Euro-zone country. This support is needed past 2002 for financial reporting and may be needed well beyond that for some financial instruments.
- Provide for an orderly switch-over mechanism. One does not want a report indicating 10 Million Lira on 31/December/2001 to suddenly indicate 10 Million Euros on 01/January/2002!!

Recommendations

To handle the Euro Phase 3 locale requirements identified above, we need:

- To provide euro monetary formatting behaviour in the base locale for each Euro-zone country, modify the existing base locale for each Euro-zone country by replacing the `LC_MONETARY` content with that of the @euro modifier for that country. No naming change is required.

Here is an example of how this works for the French (fr_FR) locale in POSIX/XPG4:

Existing LC_MONETARY category	New LC_MONETARY category

```

.....
LC_MONETARY
int curr symbol "<F><R><F><space>"  

currency symbol "<F>"  

mon decimal point "<comma>"  

mon thousands_sep "<space>"  

mon grouping 3  

positive sign ""  

negative sign "<hyphen>"  

int fract digits 2  

frac digits 2  

p cs precedes 0  

p sep by space 1  

n cs precedes 0  

n sep by space 1  

p sign posn 1  

n sign posn 1  

END LC_MONETARY
.....

```

```

.....
LC_MONETARY
int curr symbol "<E><U><R><space>"  

currency symbol "<euro_sign>"  

mon decimal point "<comma>"  

mon thousands_sep "<space>"  

mon grouping 3  

positive sign ""  

negative sign "<hyphen>"  

int fract digits 2  

frac digits 2  

p cs precedes 0  

p sep by space 1  

n cs precedes 0  

n sep by space 1  

p sign posn 1  

n sign posn 1  

END LC_MONETARY
.....

```

And in Java, again for the French locale (fr_FR), it would be:

Snippet of Existing LocaleElements_fr_FR	Snippet of New LocaleElements_fr_FR
<pre> {"CurrencyElements", newString[] { "F", //local currency symbol // "FRF", //intl currency code // ",", //monetary decimal separator // } }, {"LocaleString", "fr_FR"}, </pre>	<pre> {"CurrencyElements", newString[] { "\u20AC", //local currency symbol // "EUR", //intl currency code // ",", //monetary decimal separator // } }, {"LocaleString", "fr_FR"}, </pre>

- To provide dual currency display/print capability for each Euro-zone country, **create a new @preeuro modifier** for each Euro-zone country by copying the LC_MONETARY content of the current base locale for that country. The old @euro modifier will continue to exist, to optionally allow existing applications to function unchanged in single currency

(euro) mode, in addition to the new @preeuro modifier.

To illustrate dual currency handling in Phase 3, the same scenario/solution used in Phase 1 and Phase 2 can be re-cycled. The scenario, altered below from the original only in which currency value appears first, was:

Bank statements etc., at least during the transition period (three years, from 1999 to 2002), will probably have to indicate monetary amounts in both the Euro as well as the pre-euro currency. An example may be the following statement:

"Your balance as of today is 4 938,24 €" or 1 234,56 F

where the balance is stated in both the Euro and French francs (the pre-euro currency).

And the solution, for POSIX/XPG4, now using the @preeuro modifier is:

- (a) Load the French locale (*Fr_FR.IBM-1147*). The *LC_MONETARY* category for this base locale contains information for formatting as per the Euro.
- (b) Call *strfmon()* to format the amount into the string "4 938,24 €".
- (c) Set *LC_MONETARY=Fr_FR.IBM-1147@preeuro* and load
- (d) Call *strfmon()* again to format the (amount*0.25), assuming that 0.25 is the conversion rate stipulated for Euros to French francs, into the string "1 234,56 F".
- (e) Set *LC_MONETARY=Fr_FR.IBM-1147* and load. Back to the base French locale.
- (f) Print using the values obtained.

For Java, the above applies where the base locale would be *fr_FR* and the equivalent to the @preeuro modifier would be the *fr_FR_preeuro* locale variant.

- To provide for an orderly switch-over mechanism, let the system administrators and application writers decide when the switch-over is made. Together with the dual currency requirement, this means:
 - Provide the new base locales and @preeuro modifiers in a update/patch/PTR etc. that the system administrators and the application writers can apply when the application code has been modified. This update/patch/PTR should be ready for delivery before 31/December/2001.
 - Cut-over to shipping the new base locales and @preeuro modifiers as part of the next release (and not as a patch/PTR) after 2002. By that time, hopefully, all applications will have been modified and the 10 Million Lira surprise will not occur. The year's lead time, between now and the next release after 2002, should be used to prepare/advise/warn customers of the change to the base locale behaviour.

- To provide platform specific migration guidelines to system administrators and application writers to enable them to install and utilize the new national locales in the contexts of both single currency as well as be able to deal with any dual currency needs relating to the previous national currency in these countries.
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