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So You Want Multiple Languages in Your Oracle E-Business Suite, Revisited 10 Years Later

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Session ID:

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Prepared by:

John Peters

JRPJR, Inc

john.peters@jrpjr.com

June 11, 2021

11 Years Later

- This was a revised version (in fact it is a complete rewrite) of a presentation I made back in 2010.

- A lot has changed:
  - Lightweight MLS is now available
  - Experience with multiple customers enabling Lightweight MLS

- Later in the presentation, some subtleties when dealing with EBS and user desktops in different languages

NLS and MLS What Do These Mean?

National Language Support (NLS)

- In Oracle Applications, National Language Support (NLS) refers to the ability to run an Applications instance in any single supported language, including specific regional or territorial number and date formats.

Multiple Language Support (MLS)

- In Oracle Applications, Multiple Language Support (MLS) refers to the ability to run multiple languages in the same Applications instance.

➢ While NLS provides the individual language translations
➢ MLS provides multiple language architecture

Globalization Guide for Oracle Applications Release 12 (Doc ID 393861.1)

Client's Business Case

- On R12.1.3 or higher
- EBS Base Language is US
- Wants to have external facing documents in other languages (F,JA,D)
  - PO's
  - SO Ack's
  - Shipping Documents
  - AR Invoices
- Will use different BI Publisher templates to get multi-language boiler plate text, we need to MLS enable the actual data
- Willing to maintain data translations from English to other languages to support external facing documents (item description, terms, etc)
- Really only wants to support EBS user I/F in English even in other countries
  Sort of the approach 'We are a US company, and we will communicate in English internally with each other'

Options

We currently have three options to solve for the Clients Business Case:

1. Enable EBS “Full” MLS (Multi Language Support), giving us access to translated data

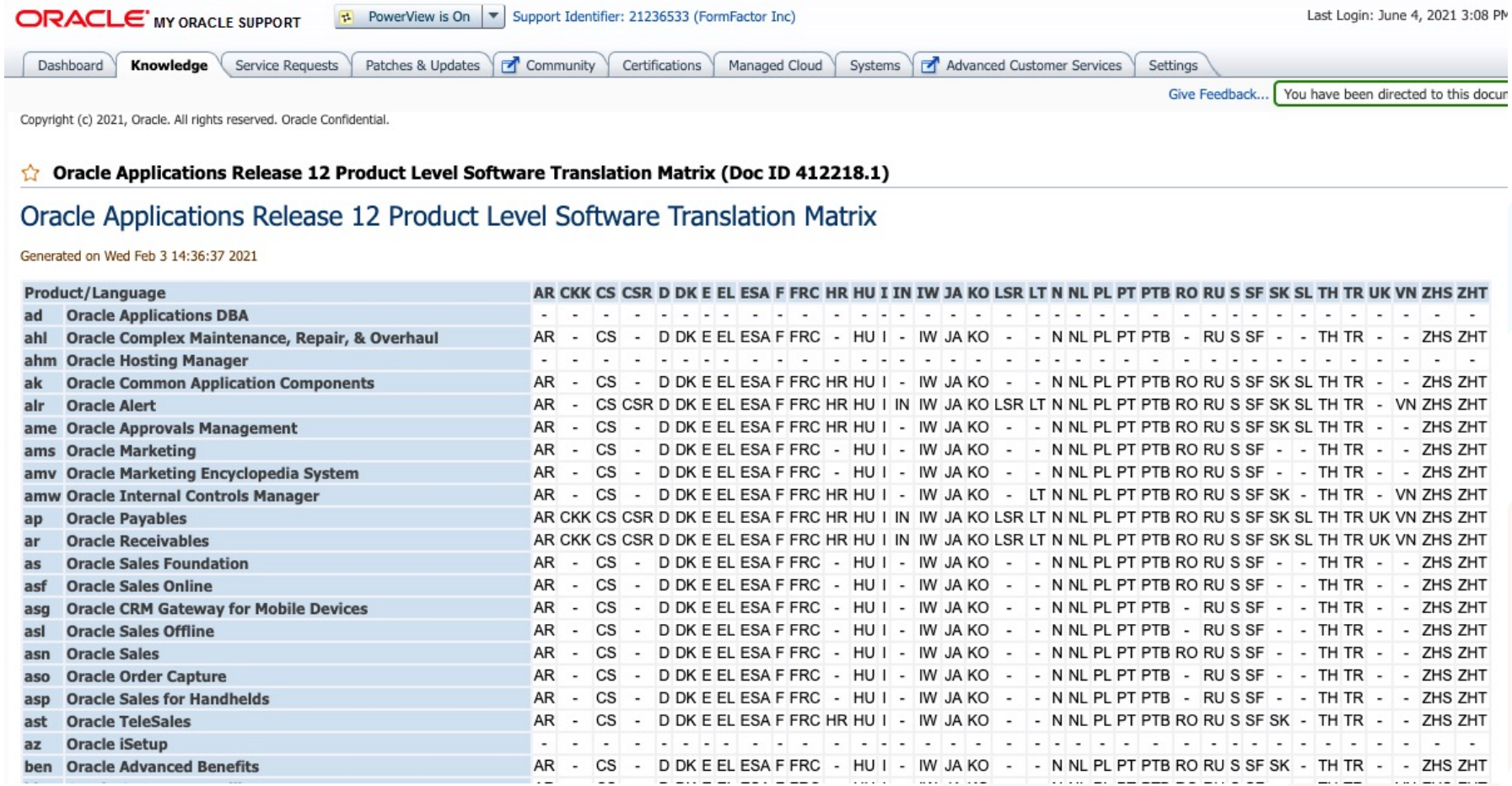
2. Create a custom table to hold the translations and customize external facing documents to use custom table’s translation data

3. Enable EBS “Lightweight” MLS (became available as an option ~2012-2013), This give us the ability to use EBS translation infrastructure with minimal overhead

Option 3 is really the simplest solution, and this presentation will describe some of the reasons why.

Oracle Does Not Provide NLS Translations In All EBS Modules

- Oracle Applications Release 12 Product Level Software Translation Matrix (Doc ID 412218.1)



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Oracle Applications Release 12 Product Level Software Translation Matrix (Doc ID 412218.1)

Oracle Applications Release 12 Product Level Software Translation Matrix

Generated on Wed Feb 3 14:36:37 2021

Product/Language		AR	CKK	CS	CSR	D	DK	E	EL	ESA	F	FRC	HR	HU	I	IN	IW	JA	KO	LSR	LT	N	NL	PL	PT	PTB	RO	RU	S	SF	SK	SL	TH	TR	UK	VN	ZHS	ZHT
ad	Oracle Applications DBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ahl	Oracle Complex Maintenance, Repair, & Overhaul	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	-	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	-	RU	S	SF	-	-	TH	TR	-	-	ZHS	ZHT
ahm	Oracle Hosting Manager	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ak	Oracle Common Application Components	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	HR	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	RO	RU	S	SF	SK	SL	TH	TR	-	-	ZHS	ZHT
alr	Oracle Alert	AR	-	CS	CSR	D	DK	E	EL	ESA	F	FRC	HR	HU	I	IN	IW	JA	KO	LSR	LT	N	NL	PL	PT	PTB	RO	RU	S	SF	SK	SL	TH	TR	-	VN	ZHS	ZHT
ame	Oracle Approvals Management	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	HR	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	RO	RU	S	SF	SK	SL	TH	TR	-	-	ZHS	ZHT
ams	Oracle Marketing	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	-	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	RO	RU	S	SF	-	-	TH	TR	-	-	ZHS	ZHT
amv	Oracle Marketing Encyclopedia System	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	-	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	RO	RU	S	SF	-	-	TH	TR	-	-	ZHS	ZHT
amw	Oracle Internal Controls Manager	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	HR	HU	I	-	IW	JA	KO	-	LT	N	NL	PL	PT	PTB	RO	RU	S	SF	SK	-	TH	TR	-	VN	ZHS	ZHT
ap	Oracle Payables	AR	CKK	CS	CSR	D	DK	E	EL	ESA	F	FRC	HR	HU	I	IN	IW	JA	KO	LSR	LT	N	NL	PL	PT	PTB	RO	RU	S	SF	SK	SL	TH	TR	UK	VN	ZHS	ZHT
ar	Oracle Receivables	AR	CKK	CS	CSR	D	DK	E	EL	ESA	F	FRC	HR	HU	I	IN	IW	JA	KO	LSR	LT	N	NL	PL	PT	PTB	RO	RU	S	SF	SK	SL	TH	TR	UK	VN	ZHS	ZHT
as	Oracle Sales Foundation	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	-	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	RO	RU	S	SF	-	-	TH	TR	-	-	ZHS	ZHT
asf	Oracle Sales Online	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	-	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	RO	RU	S	SF	-	-	TH	TR	-	-	ZHS	ZHT
asg	Oracle CRM Gateway for Mobile Devices	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	-	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	-	RU	S	SF	-	-	TH	TR	-	-	ZHS	ZHT
asl	Oracle Sales Offline	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	-	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	-	RU	S	SF	-	-	TH	TR	-	-	ZHS	ZHT
asn	Oracle Sales	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	-	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	RO	RU	S	SF	-	-	TH	TR	-	-	ZHS	ZHT
aso	Oracle Order Capture	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	-	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	-	RU	S	SF	-	-	TH	TR	-	-	ZHS	ZHT
asp	Oracle Sales for Handhelds	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	-	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	-	RU	S	SF	-	-	TH	TR	-	-	ZHS	ZHT
ast	Oracle TeleSales	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	HR	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	RO	RU	S	SF	SK	-	TH	TR	-	-	ZHS	ZHT
az	Oracle iSetup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ben	Oracle Advanced Benefits	AR	-	CS	-	D	DK	E	EL	ESA	F	FRC	-	HU	I	-	IW	JA	KO	-	-	N	NL	PL	PT	PTB	RO	RU	S	SF	SK	-	TH	TR	-	-	ZHS	ZHT

Other Points

- You are enabling MLS on a language-by-language basis, so theoretically one can be Lightweight, and one can be Full.
  (I have not done this myself, but I understand how it would work)

- You can move from EBS Lightweight MLS to EBS Full MLS in the future
  - Change the config, apply all NLS patches

- You can move from EBS Full MLS to EBS Lightweight MLS (after R12.2.2)
    - Change the config, remove the language code trees from APPL_TOP

- So, I would recommend to start out on the simpler path first and move to the more complicated path if the business requires it later on

EBS Full MLS

EBS Full Multi Language Support (MLS)

- Please review MOS note:
  Globalization Guide for Oracle Applications Release 12 (Doc ID 393861.1)
- In summary, the Full MLS solution delivers:
  - Translated Forms and Reports
    These are completely different sets of code that need to be tested and verified independently, when you look in your APPL_TOP you will find language versions of these objects under the US, D, JA, etc directories. While they attempt to keep the same layout even that is sometimes different.
  - Translated seeded values for some lookups
- It is important to note that these NLS Translations are applied as patches, and you must wait for the NLS patch to become available.
- Bottom line is this becomes a support nightmare for most clients, especially if all you wanted to do was get a small quantity of the external facing documents to support other languages

EBS Full MLS - Enabling

1. Using OAM (Oracle Applications Manager), navigate to License Manager, and enable the language in “Full” mode
2. Using AD Administration Main Menu, 'Maintain Applications Database Entities' option and then the 'Maintain Multi-lingual Tables' task.
3. Run the message synchronization script $FND_TOP/patch/115/sql/AFMSGSYNC.sql
4. Shutdown and Restart the Apps Tier Services
5. Using AD Administration Main Menu, choose the 'Compile/Reload Maintain Applications Database Entities' option and then the 'Compile flexfields' task
6. Apply NLS Patches

You should now have forms and reports in the various $APPL_TOP Language directories

EBS Full MLS - Other Points

- You must now always apply Oracle's NLS patches for those languages in Full MLS mode, these deliver changes to forms, reports and seed data.
- When upgrading you must apply Oracle's NLS upgrade steps.
- You must remember to test each Form and Report in each language since they are completely different sets of code.
- You must document, train and support the users with these other languages, because the non-US layout is often different from the US layout.
- And your APPL_TOP has also gotten bigger to support each languages Forms and Reports code objects. In addition, that is now doubled in size in later releases of R12.2 because of online patching and the run/patch code trees.

- This sure seems like a lot of work for just a few external facing reports.

Custom Table

Custom Option

In summary, you would:

1. Create a custom table that holds the translated strings, columns are something like:
   TRANSLATION_LOOKUP_TYPE (which data element, Payment Terms, Item Desc, etc)
   TRANSLATION_LOOKUP_CODE (or FK, Payment Term Value, Item Number, etc)
   TRANSLATED_LANGUAGE (one of the EBS Language values, US, D, JA, etc)
   TRANSLATED_VALUE (the resulting translated string)
2. You can create a PL/SQL function that can be dropped into Queries to return the TRANSLATED_VALUE, passing in:
   TRANSLATION_LOOKUP_TYPE
   TRANSLATION_LOOKUP_CODE
   TRANSLATED_LANGUAGE
3. Modify reports to call PL/SQL function to translate specific data elements
4. You need to put a flag or logic on when/how to perform translation on an external report and to what language. This probably goes on: operating unit, customer, supplier, or use address country, etc.

Custom Option - Other Points

- You need to use Forms or APEX to create a screen to allow the users to maintain the data translations.
- You need to write the PL/SQL function to always return a value, even if the translation does not exist (basically fall back to your base language value). This is as simple as wrapping it in an NVL statement.
- You must modify any report to include your custom PL/SQL function to pull the translation values.
- You must modify the BI Publisher template to include the correct language boiler plate. In the past with the custom solution, I have even stored the boiler plate text in the custom table, so I can get by with just one BIP template.

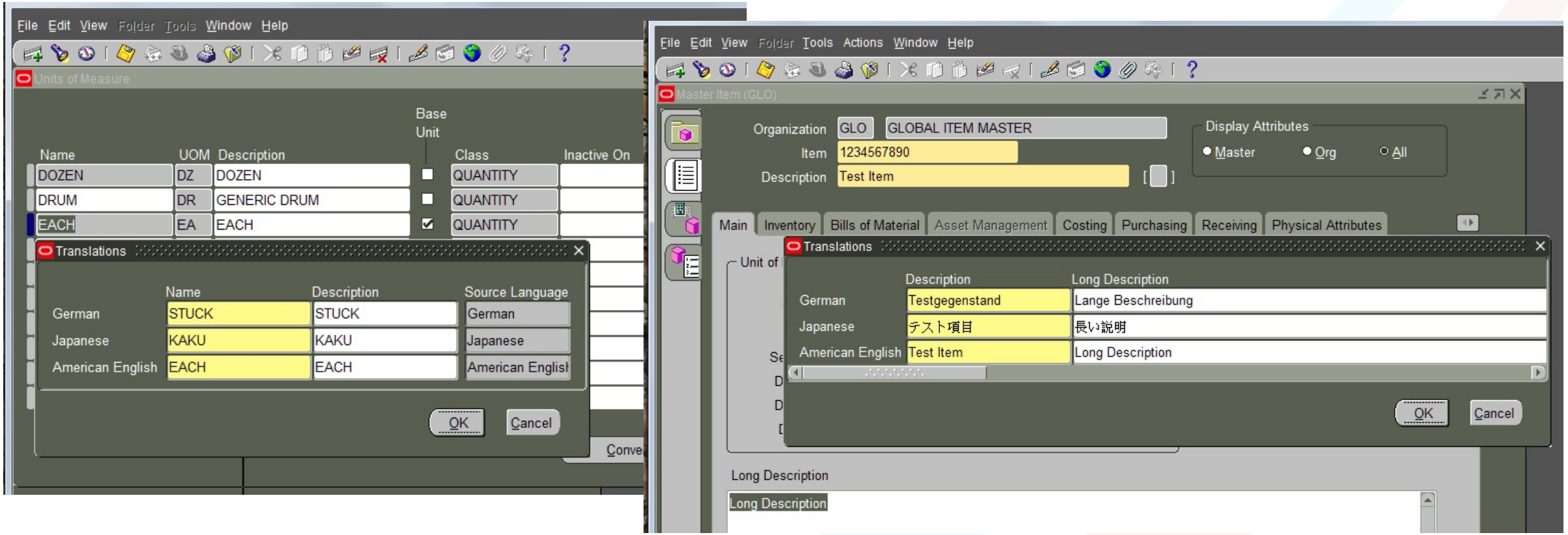
Prior to Lightweight MLS

- Prior to Oracle's release of Lightweight MLS this was the only option.
- If you did not want the overhead for Full MLS, you had to do a custom solution.
- There was another more invasive customization option involving Oracle's AOL PL/SQL code. There is one routine which basically sets the LANGUAGE for a given session, by tweaking this routine you could allow access to the %_TL tables. But this in not supported and I would not recommend this at this time.


Lightweight MLS

Lightweight MLS

- This allows you to enable a language, getting access to the %_TL tables from the forms and reports just like Full MLS. Click the Globe icon to see translations.
- Your users have the task to provide the translations, Oracle does not provide NLS patches for the translations even for their seeded values.
- By default, Base Language values are copied to all other enabled languages.



EBS Lightweight MLS - Enabling

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1. Using OAM (Oracle Applications Manager), navigate to License Manager, and enable the language in “Lightweight” mode
2. Using AD Administration Main Menu, 'Maintain Applications Database Entities' option and then the 'Maintain Multi-lingual Tables' task.
3. Run the message synchronization script $FND_TOP/patch/115/sql/AFMSGSYNC.sql
4. Shutdown and Restart the Apps Tier Services
5. Using AD Administration Main Menu, choose the 'Compile/Reload Maintain Applications Database Entities' option and then the 'Compile flexfields' task

There are no NLS patches to apply! No additional code that needs to be tested!

But you must provide the translations. If not you will just have base language values.

OAM License Manager

- This is what the OAM License Manager data looks like for enabled languages.

Current database character set is WE8ISO8859P1
Asterisk indicates language is supported as Lightweight MLS ONLY

Select languages to license.

Select All | Select None

	Translation Mode	Language Name	Language Code
☐	Lightweight	*Albanian	SQ
☑	Full	American English	US
☐	Lightweight	*Amharic	AM
☐	Full	Arabic	AR
☐	Lightweight	*Armenian	HY
☐	Lightweight	*Azerbaijani	AZ
☐	Full	Brazilian Portuguese	PTB
☐	Lightweight	*British English	GB
☐	Lightweight	*Bulgarian	BG
☐	Full / Lightweight	Canadian French	FRC
☐	Lightweight	*Catalan	CA
☐	Full	Croatian	HR
☐	Full	Cyrillic Kazakh	CKK
☐	Full	Cyrillic Serbian	CSR
☐	Full	Czech	CS

EBS Lightweight MLS - Other Points

- You can not apply Oracle's NLS patches (you must take care of data translations)
- There is no additional code to test since you are only running the forms/reports in the base language.
- No additional training of users, since you are running only one set of forms/reports.
- APPL_TOP is the exact same since you only have one set of forms/reports
- Basically, Oracle has just given you access to the %_TL tables to allow you to create translated entries and to pull them off when you specify languages in reports.

Summary Recommendation

- If you have a requirement for your EBS instance to provide external documents in different languages, I will strongly recommend you investigate Lightweight MLS.

- While the custom table approach will work, it ends up being far more work in the long run and is not really an integrated approach.

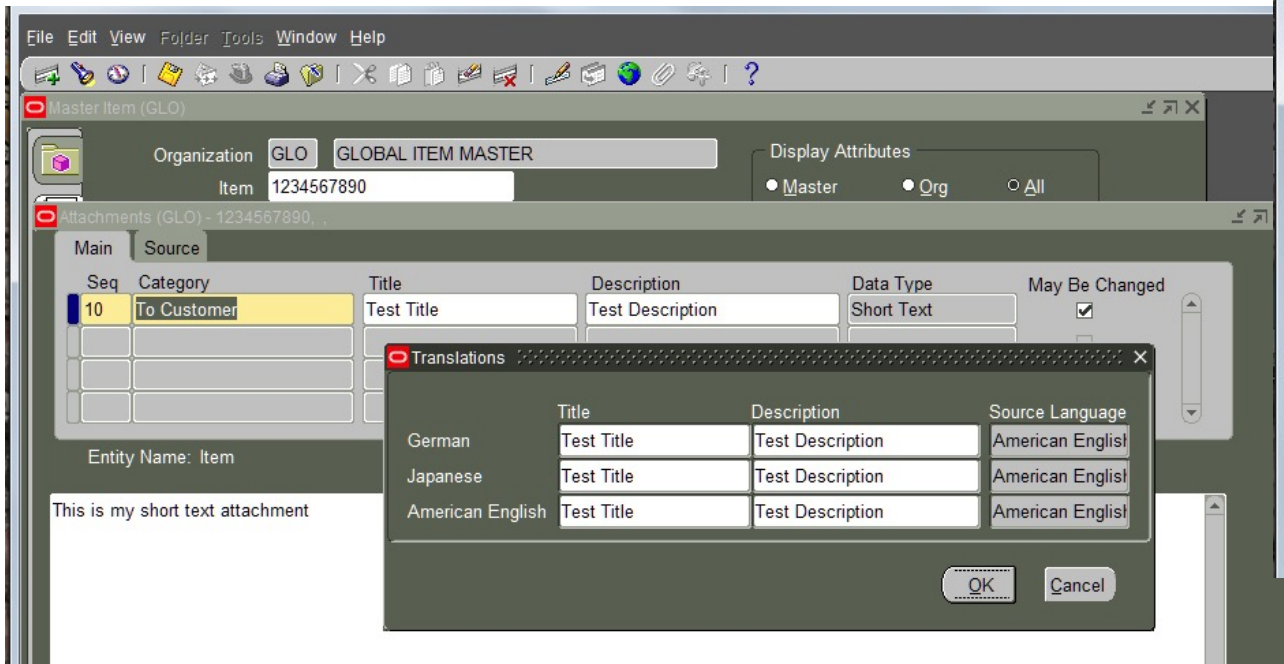
- Full MLS is entirely too much overhead with additional testing and training if all you need are a few documents in different languages.

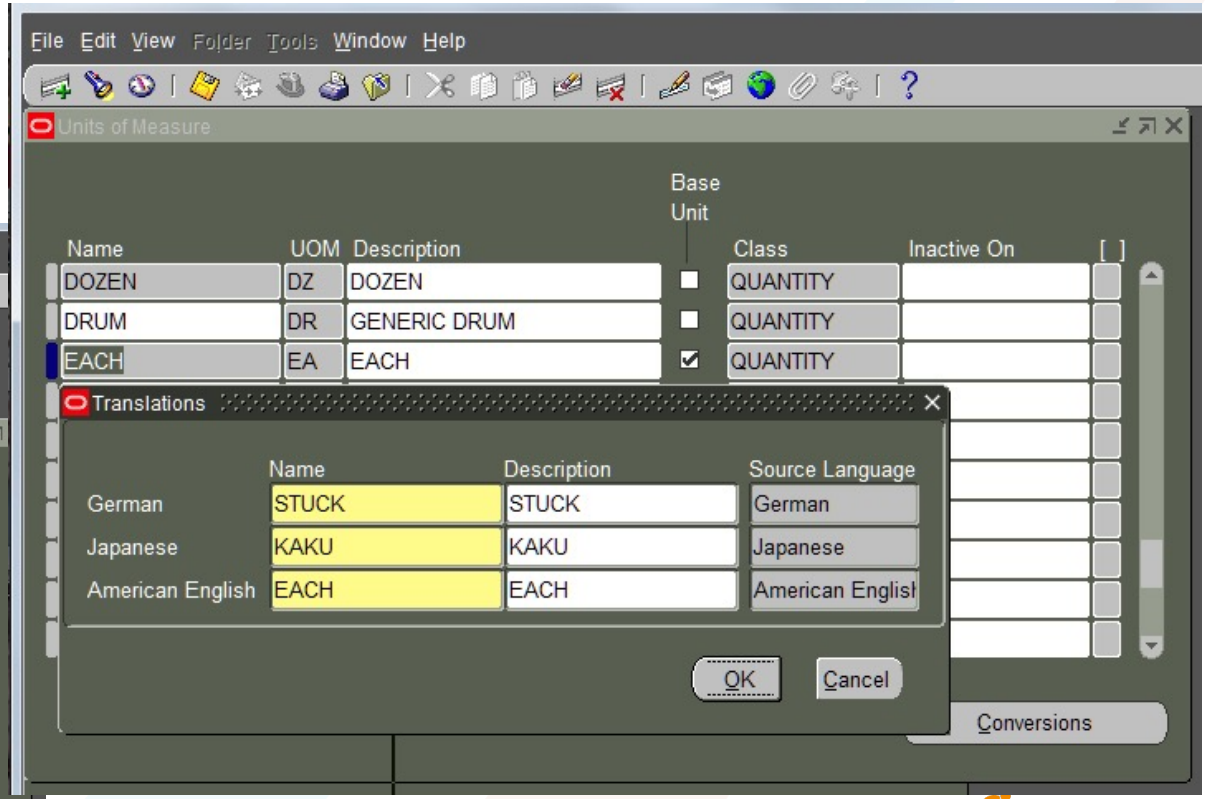

Some Other Details

%_TL Tables Architectures

- %_TL table contain the columns:
  - LANGUAGE = The translated values language
  - SOURCE_LANG = Where did this value come from
    - When SOURCE_LANG = <base language> it is the seeded value
    - When SOURCE_LANG != <base language> a translation was provided

- To get the right language use the sql where clause: LANGUAGE = USERENV ('LANG')





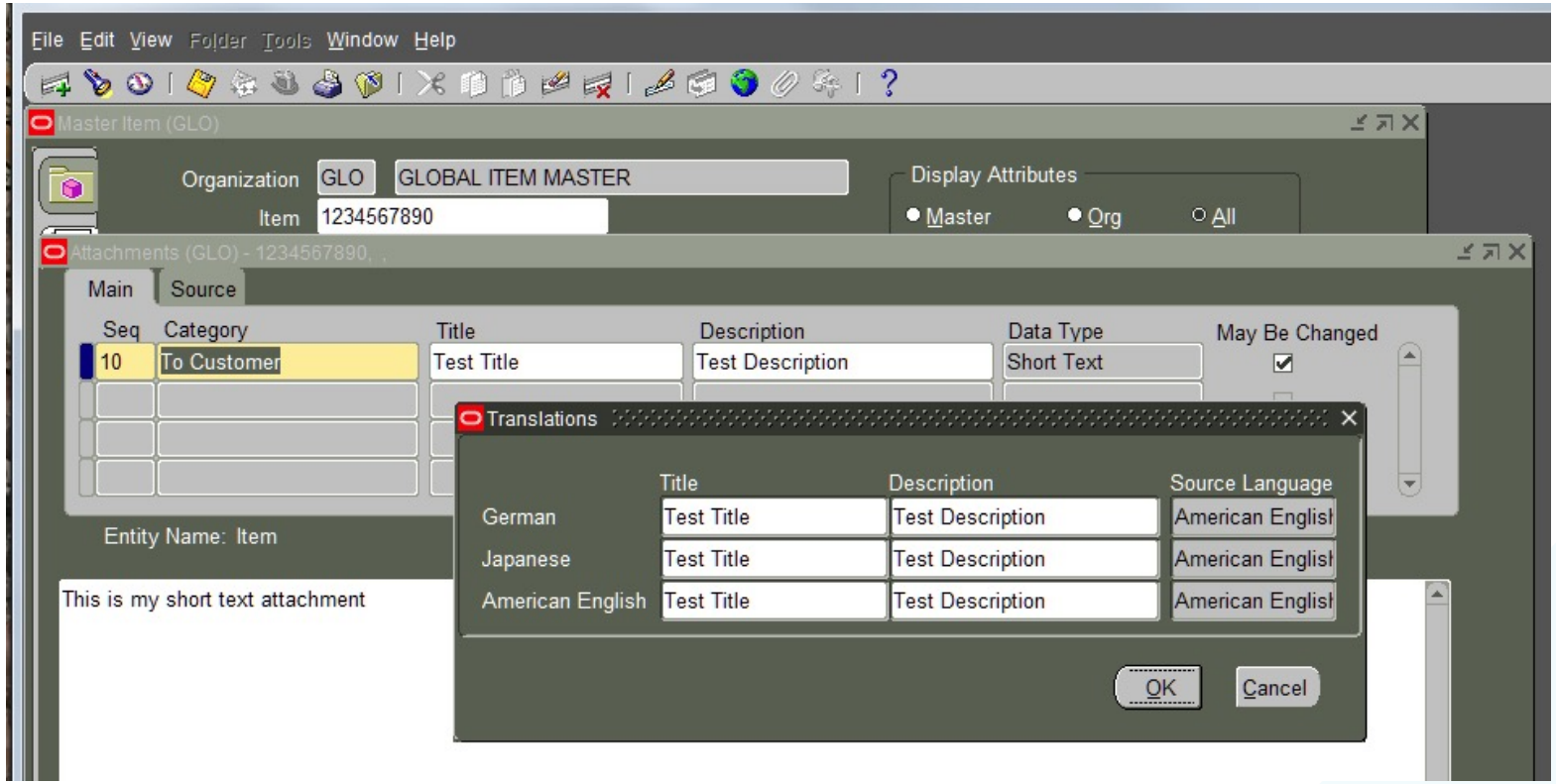
Tipa

- If you get duplicate rows in queries, and it is a multiple of the languages you have enabled, you are probably missing a USERENV ('LANG') where clause on one of the %_TL table joins.

- If you all of the sudden don't get rows in queries for certain languages, verify the %_TL table has all the rows of data for all the languages.

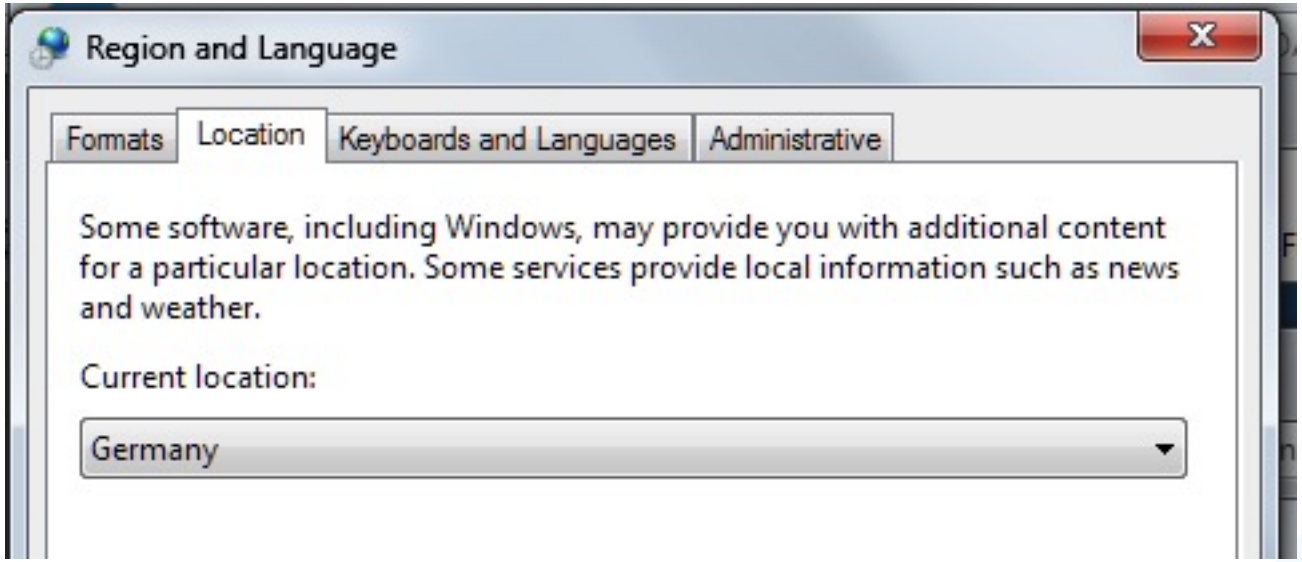
Attachments Don’t Offer Translations

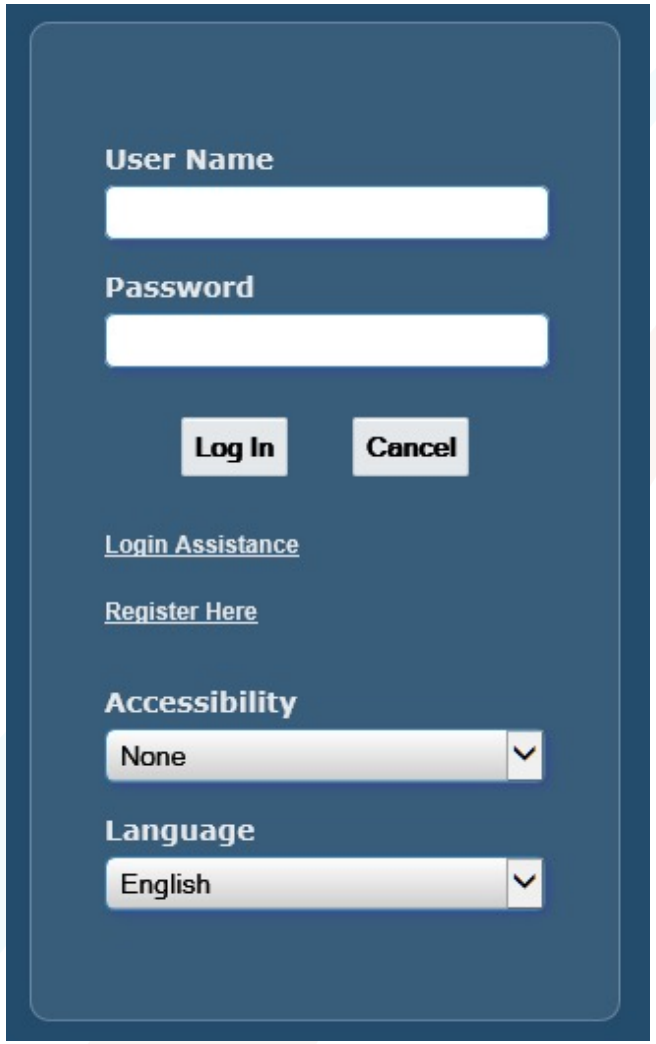
- All that is translatable are the translations meta data. The actual attachments can’t be indexed by language.
- The only option I have found is to manually prefix the title with a language prefix, so the user knows the language of the attachment text.
- Users can then select the correct attachment and link it to the give transaction.



Defaulting Layer 1 - Desktop OS Language

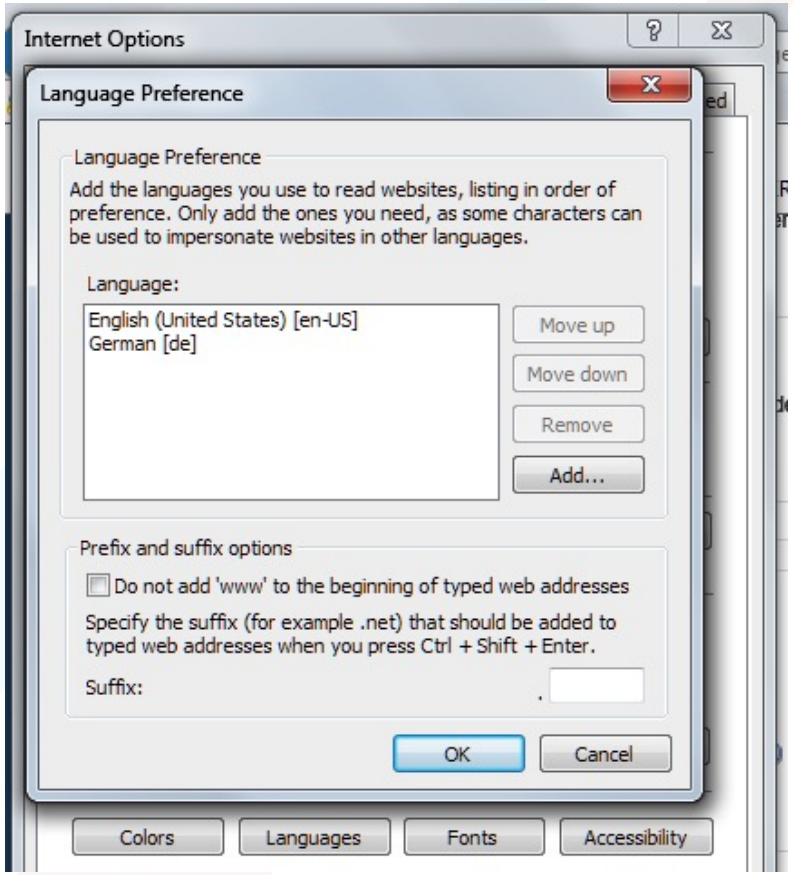
- Your Desktop OS language establishes the:
  - Character set
  - Number formatting options
  - Date formatting options
- Not only does this impact things like Forms/Reports it also impacts tools like WebADI.





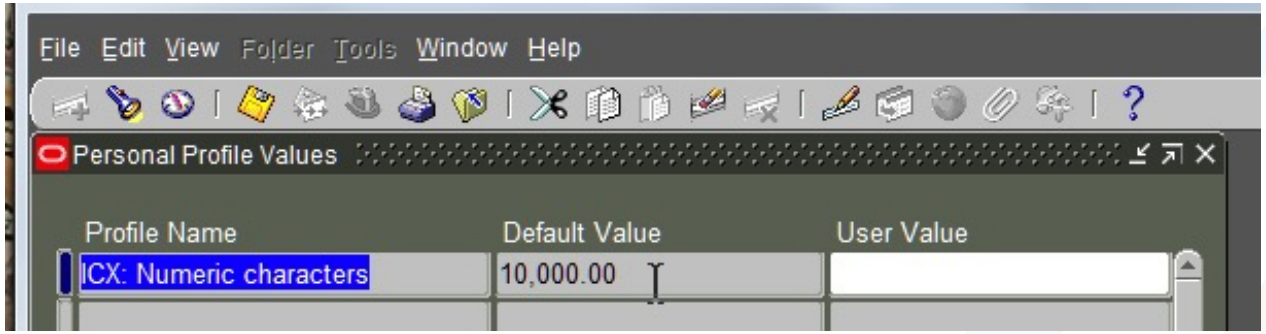
Defaulting Layer 2 - Desktop Browser

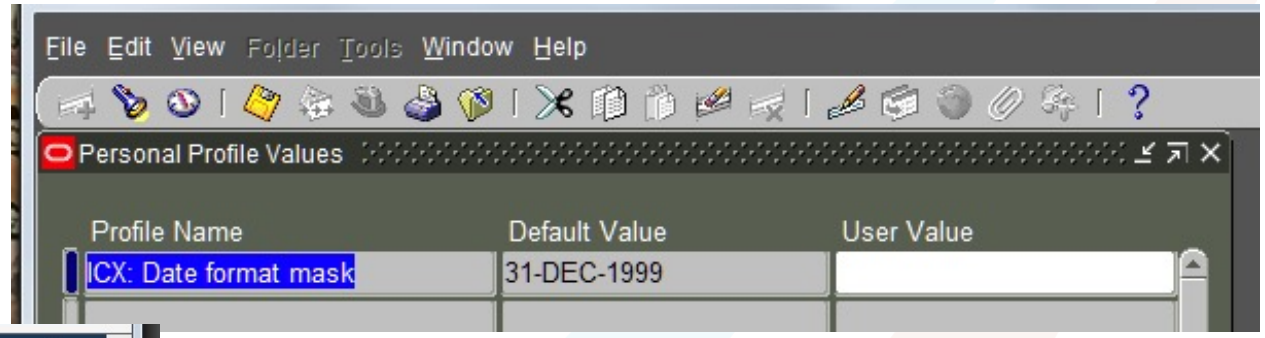
- Browsers have a Language Preference, setting this passes it the EBS login page and sets you language.
- This is inherited from the OS Language.
- You can force it to override by using the ?langCode=US option in the URL when you connect to the login page

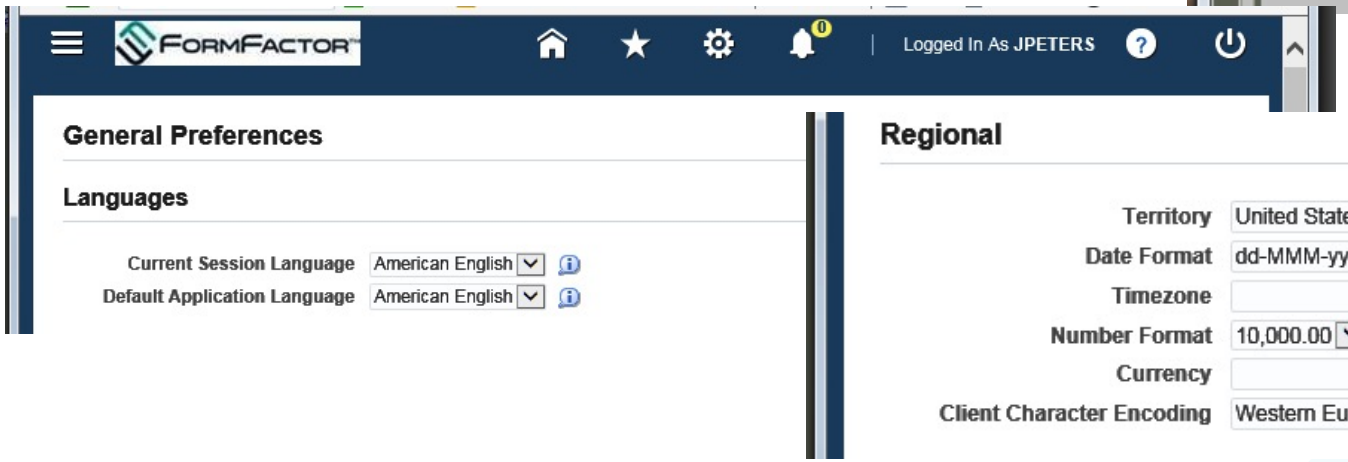


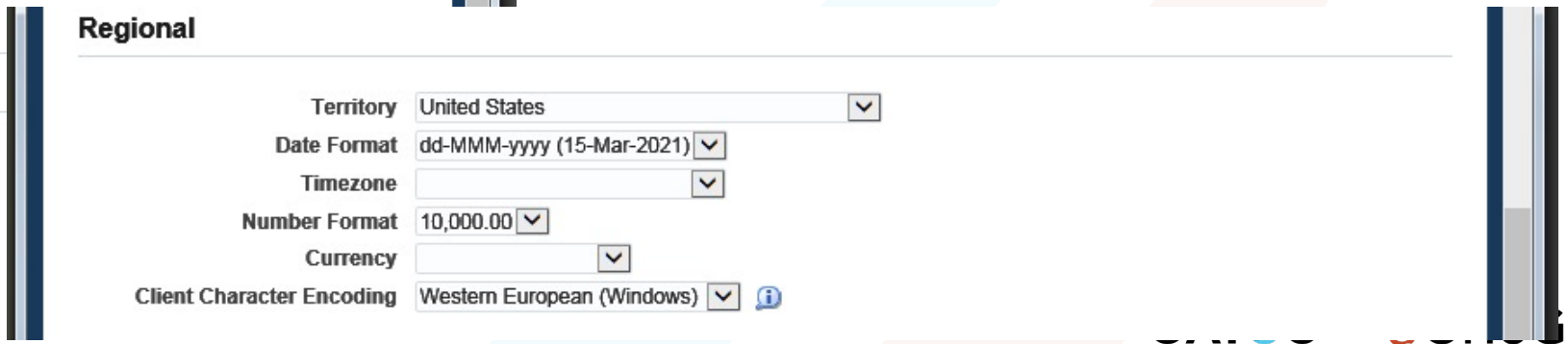
Defaulting Layer 3 – Default Language EBS Profile Options and Preferences

- ICX: Language
- ICX: Territory
- ICX: Date format mask
- ICX: Numeric characters
- ICX: Preferred Currency
- FND: NATIVE CLIENT ENCODING
- Client Timezone









Character Sets

- AL32UTF8 is the recommended character set for instances providing multi-language support. This is default from Oracle on install.

- You can specify other more limited character sets on DB install, but this will reduce your flexibility when business requirements change in the future.

- There is a table of supported characters sets by language in the note: Globalization Guide for Oracle Applications Release 12 (Doc ID 393861.1)

Multi-Byte Characters and String Sizes

- Characters in a AL32UTF8 database are encoded in 1 to 4 bytes.
- VARCHAR2(100)
  - Typically means 100 bytes of data, not 100 characters
  - This can result in database errors related to data being too large for a given column
  - This can also be specified when defining a table by VARCHAR2(100 BYTE) or VARCHAR2(100 CHAR)
  - This can be changed globally for the DB instance using the initialization parameter NLS_LENGTH_SEMANTICS
- SUBSTR(MY_STRING,4,10)
  - Typically means start at byte 4 return next 10 bytes (based on NLS_LENGTH_SEMANTICS)
  - This will result in a hopelessly scrambled return value in a multi-byte character if not careful
  - Developers should use specific functions to ensure no ambiguity SUBSTRC this will return based on characters
  - This also applies to other string functions LENGTH, INSTR they have a similar variant function
- LIKE condition
  - There is a LIKEC version that correctly handles different string lengths based on encoding

Some Useful Tables To Support International Use

- FND_TERRITORIES and FND_TERRITORIES_TL
  Holds the Country Codes and Translated Country Names

- FND_LANGUAGES and FND_LANGUAGES_TL
  Holds languages enabled
  ISO_TERRITORY_CODE links to
  FND_TERRITORIES.ISO_TERRITORY_CODE

- FND_CURRENCIES and FND_CURRENCIES_TL
  Holds currency codes enabled and precisions
  ISSUING_TERRITORY_CODE links to
  FND_TERRITORIES.TERRITORY_CODE

DB NLS Parameters and Functions Impacted

- TO_DATE
  - NLS_DATE_LANGUAGE
  - NLS_CALENDAR
- TO_NUMBER
  - NLS_NUMERIC_CHARACTERS
  - NLS_CURRENCY
  - NLS_DUAL_CURRENCY
  - NLS_ISO_CURRENCY
- TO_CHAR
  - NLS_DATE_LANGUAGE
  - NLS_NUMERIC_CHARACTERS
  - NLS_CURRENCY
  - NLS_ISO_CURRENCY
  - NLS_DUAL_CURRENCY
  - NLS_CALENDAR
- TO_NCHAR
  - NLS_DATE_LANGUAGE
  - NLS_NUMERIC_CHARACTERS
  - NLS_CURRENCY
  - NLS_ISO_CURRENCY
  - NLS_DUAL_CURRENCY
  - NLS_CALENDAR
- NLS_UPPER
  - NLS_SORT
- NLS_LOWER
  - NLS_SORT
- NLS_INITCAP
  - NLS_SORT
- NLSSORT
  - NLS_SORT

Some key MOS Documents

- Globalization Guide for Oracle Applications Release 12 (Doc ID 393861.1)
- Using Lightweight MLS With Oracle E-Business Suite Release 12.1.3 and Higher (Doc ID 1077709.1)
- Customizing Translation in Oracle E-Business Suite - R12 (Doc ID 1382124.1)

Summary

Summary

- I hoped this presentation provided some details on the options when it comes to supporting multiple languages.

- Some of the key differences between Full MLS and Lightweight MLS, especially when you only need to support a few external facing documents.

- **Q&A and My contact information:**

  John Peters
  john.peters@jrpjr.com
  http://www.jrpjr.com

- Additional reference papers can be found on my web site:
  http://www.jrpjr.com

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john.peters@jrpjr.com

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