EXTENDED DEMOGRAPHY
AMXEDITOR – PLUGIN

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1. Introduction.

This Plugin is related to Demographic Aspects on Idempiere ERP. It is well known that on some countries there is a political division with concepts that go beyond country, region and city.

For example in Spain we talk about Communities, they are related to Group of Provinces that keeps Local Government. They also have a political division for Provinces called Municipalities (Municipality-*Municipio*).

Another example is Venezuela, they have a political division for Provinces (*Estados*) called Municipalities (Municipality-*Municipio*) and a Municipality is also divided on Parishes (Parish-*Parroquia*). Particularity Main Mail office in Venezuela has published a new rule indicating the way postal address is to be written:

Postal Codes is another concern to be covered in future on this plugin, because a default value can be obtained from Region, Provinces, Municipality and Parish. Also Street Names provides a rule for finding zip codes.

In order to accomplish what have been explained before, some tables have to be modified, and some others tables have to be added to implement the new Window and plugin.

Tables	
Modify	**Add**
C_Country (2)	*C_Municipality*
AD_Message (1)	*C_Parish*
C_Location (2)	*C_Zipcode*
C_Region (2)	*C_Community*
AD_Reference (1)	

(1) Add New Records (2) Add New Fields

I have been working with Idempiere since version 1.0c, before I made some test on Adempiere 3.70. Right now I am migrating my old Visual FoxPro application with one of my customer using Idempiere 2.0 in VENEZUELA.

A list of Lectures and References related with this Material. Some information, procedures, code and data taken from:

Wiki Page: **Developing plug-ins without affecting the trunk**
http://wiki.idempiere.org/en/Developing_plug-ins_without_affecting_the_trunk
Jan Thielemann Videos in special:
Developing iDempiere 2.0 - Custom Editors (IEditorFactory and IDisplayTypeFactory)
https://www.youtube.com/watch?v=jVhKnFzsMZo
DCS-ERP Repository from Orlando Curieles.
https://bitbucket.org/dcs_bitbucket/
Initial Venezuelan Demography.
Redhuan Daniel Oon (red1) Repository.
https://bitbucket.org/red1/
Ghintech Location.
https://bitbucket.org/ghintech/com.ghintech.location
Carlos Ruiz (CarlosRuiz_globalqss)
https://bitbucket.org/CarlosRuiz_globalqss/

Plugin Source code, documentation and jar files are located on Bitbucket repository:
https://bitbucket.org/luisamesty/extendeddemography

You may clone it with mercurial:
$ hg clone https://luisamesty@bitbucket.org/luisamesty/extendeddemography

I really appreciate all material, readings and information provided by forum, wiki pages and repositories. This is my fist little contribution to the group and I hope it will be useful to you.

2. AD_Reference Table.

AD_Reference Table, it is an Application Dictionary's Table that contains all Small List arrays associated with fields, where it is necessary to select from Short Length selection List. It is used instead of a Table. Normally Tables are used when Selection contains Large List Counts of records.

When defining Tables on Application Dictionary, *AD_Reference* table is used for selection of Field Type on Table's Columns. For example, we can see records among others:

Name	Description
….	….
Image	Binary Image Data
Integer	10 Digit numeric
List	Reference List
Location (Address)	Location/Address
LocationExtended	**Location Extended /Address with Parish and Municipality**

Location Reference Type is related with Address Fields, normally associated with *C_Location* table records thru *C_Location_ID* field. This reference selects the type of editor associated with the Table's Field on AD Model. For example:

Integer: is associated with a plain integer number editor.
Date: is associated with a Date Format (MM/DD/YYYY) editor.
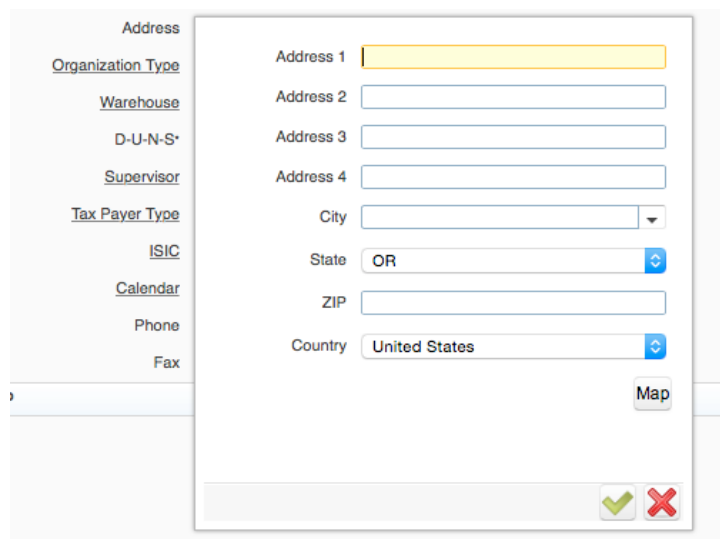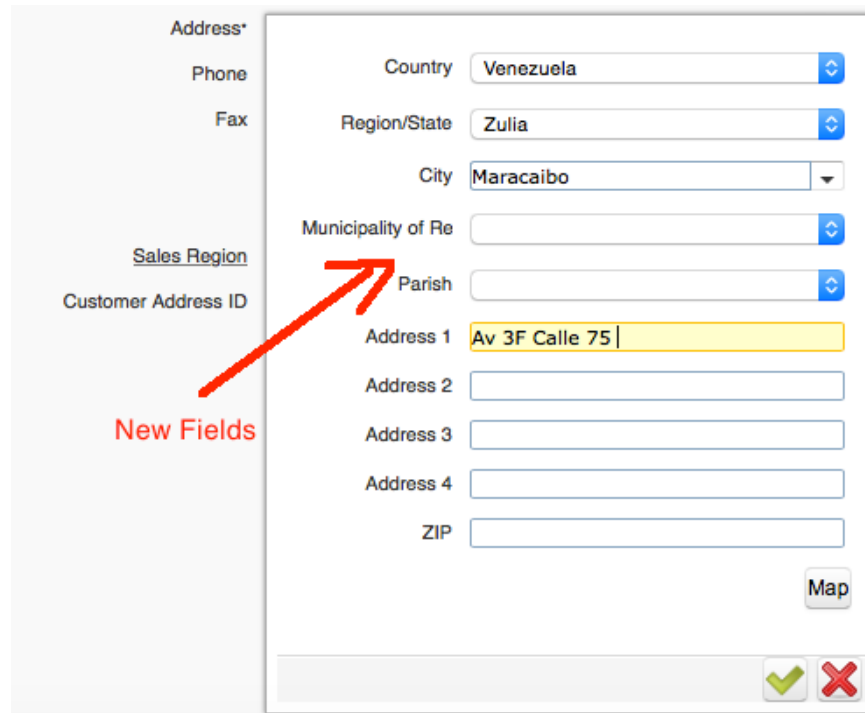Location: is associated with Address Location Field (see Figure 2.1)

Figure 2.1

LocationExtended Is the name of the new reference to be added to Application Dictionary in order to run Plugin. It must to be defined exactly with this name, because plugin code will find on *AD_Reference* table as it.

When Plugin be completed and running, it can be associated The *C_Location_ID* field on *C_BPartnerLocation* Table to a *LocationExtended* reference, the address form will be presented as figure 2.2:
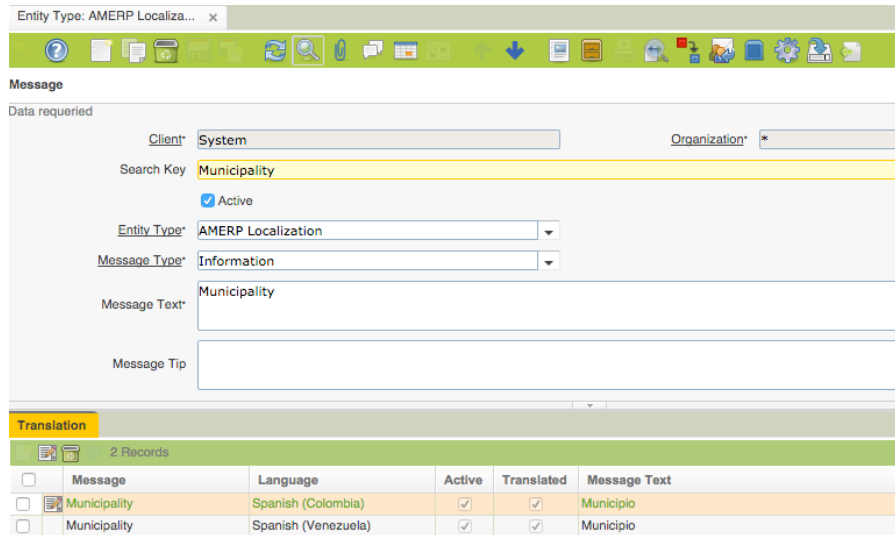

Figure 2.2

3. New Messages on AD_Message Table.

New Messages translations are required to be presented on Plugin Forms. Add new messages Community, Municipality, Parish and Zipcode, and their respective translation to your Localization Language. It must be done using AD window Message: (See examples)

Figure 3.1

Figure 3.2

4. Fields Added on C_Country Table.

C_Country table contains Records for Countries. Some fields have been added to this table, and they have to be done using Application Dictionary. The fields added are:

System Element	DB Column Name	Description
CountryCode3 (*)	CountryCode3	Country Code 3 Digits Standard
HasCommunity	HasCommunity	Country is divided in Communities Y-N
HasMunicipality	HasMunicipality	Country Regions are divided in Municipalities Y-N
HasParish	HasParish	Country Regions are divided in Municipalities and Parish Y-N

In some Countries the appropriate translation for Region differs, for example:

> Colombia: *Departamento*.
> Venezuela: *Estado*.
> USA: *Estado*.
> España: *Provincia*.

Take note for this, when create Field Elements and their translation:

(*) For CountryCode3 inclusion, see Script 'amxeditor.sql', included on Sources.

5. Capture Sequence on Table C_Country.

Capture Sequence indicates the order on which Address Fields are presented to the user when creating or modifying address fields (Location or LocationExtended).

Tokens are surrounded by @ character.

For example:

    @CO@ @R@ @C@ @A1@ @A2@ @A3@ @A4@ @P@
        Available Tokens:
            CO: Country
            R: Region
            C: City
            A1, A2, A3, A4: Four Address Lines.
            P: Postal Code

        Added Tokens to Plugin:
            MU: Municipality
            PA: Parish

Idempiere Administrator could change this Value in order to modify the Form's Field Sequence on Window's Address Fields.

Recommended sequence:
@CO@ @A1@ @A2@ @A3@ @A4@ @P@ @R@ @C@ @MU@ @PA@

6. New Table C_Community

C_Community Table contains the Community Political Territorial Division of The Country. As it will be used for Key reference on *C_Region* table, at least one record for each Country must be created. A SQL file is provided (See amxeditor.sql).

Create Table using PostgreSQL pgAdmin3 app, with this Script:

```
/* CREATE TABLE c_community (COUNTRY'S COMMUNITIES ) */
CREATE TABLE "adempiere"."c_community" (
 "c_community_id" NUMERIC(10,0) NOT NULL,
 "ad_client_id" NUMERIC(10,0) NOT NULL,
 "ad_org_id" NUMERIC(10,0) NOT NULL,
 "isactive" CHAR(1) DEFAULT 'Y'::bpchar NOT NULL,
 "created" TIMESTAMP WITHOUT TIME ZONE DEFAULT now() NOT NULL,
 "createdby" NUMERIC(10,0) NOT NULL,
 "updated" TIMESTAMP WITHOUT TIME ZONE DEFAULT now() NOT NULL,
 "updatedby" NUMERIC(10,0) NOT NULL,
 "name" VARCHAR(60) NOT NULL,
 "description" VARCHAR(255),
 "c_country_id" NUMERIC(10,0) NOT NULL,
 "isdefault" CHAR(1) DEFAULT 'N'::bpchar,
 CONSTRAINT "c_community_pkey" PRIMARY KEY("c_community_id"),
 CONSTRAINT "c_community_isactive_check" CHECK (isactive = ANY (ARRAY['Y'::bpchar, 'N'::bpchar])),
 CONSTRAINT "c_community_isdefault_check" CHECK (isdefault = ANY (ARRAY['Y'::bpchar, 'N'::bpchar])),
 CONSTRAINT "c_communityclient" FOREIGN KEY ("ad_client_id")
  REFERENCES "adempiere"."ad_client"("ad_client_id")
  ON DELETE NO ACTION
  ON UPDATE NO ACTION
  DEFERRABLE
  INITIALLY DEFERRED,
 CONSTRAINT "c_communityorg" FOREIGN KEY ("ad_org_id")
  REFERENCES "adempiere"."ad_org"("ad_org_id")
  ON DELETE NO ACTION
  ON UPDATE NO ACTION
  DEFERRABLE
  INITIALLY DEFERRED,
 CONSTRAINT "ccountry_cregion" FOREIGN KEY ("c_country_id")
  REFERENCES "adempiere"."c_country"("c_country_id")
  ON DELETE NO ACTION
  ON UPDATE NO ACTION
  DEFERRABLE
  INITIALLY DEFERRED
) WITHOUT OIDS;
```

See Application Dictionary Window for Table C_Community:

Table > Column ▼

	Table	DB Column Name	Reference	Reference Key	Length	Mandatory	Updatable
☐	C_Community_Community	AD_Client_ID	Table Direct		10	☑	☐
☐	C_Community_Community	AD_Org_ID	Table Direct		10	☑	☐
☐	C_Community_Community	C_Community_ID	ID		10	☑	☐
☐	C_Community_Community	C_Community_UU	String		36	☐	☑
☐	C_Community_Community	C_Country_ID	Table	C_Country	10	☑	☐
☐	C_Community_Community	Created	Date+Time		29	☑	☐
☐	C_Community_Community	CreatedBy	Table	AD_User	10	☑	☐
☐	C_Community_Community	Description	String		255	☐	☑
☐	C_Community_Community	IsActive	Yes-No		1	☑	☑
☐	C_Community_Community	IsDefault	Yes-No		1	☐	☑
☐	C_Community_Community	Name	String		60	☑	☑
☐	C_Community_Community	Updated	Date+Time		29	☑	☐
☐	C_Community_Community	UpdatedBy	Table	AD_User	10	☑	☐

See Script 'amxeditor.sql', included on Sources.

7. New Tables C_Municipality and C_Parish

Some countries divide Region on Municipality entities.
This is the Script for create the table.

```
--- C_ Municipality  TABLE (c_municipality)
CREATE TABLE "adempiere"."c_municipality" (
  "c_municipality_id" NUMERIC(10,0) NOT NULL,
  "ad_client_id" NUMERIC(10,0) NOT NULL,
  "ad_org_id" NUMERIC(10,0) NOT NULL,
  "isactive" CHAR(1) DEFAULT 'Y'::bpchar NOT NULL,
  "created" TIMESTAMP WITHOUT TIME ZONE DEFAULT now() NOT NULL,
  "createdby" NUMERIC(10,0) NOT NULL,
  "updated" TIMESTAMP WITHOUT TIME ZONE DEFAULT now() NOT NULL,
  "updatedby" NUMERIC(10,0) NOT NULL,
  "name" VARCHAR(60) NOT NULL,
  "capital" VARCHAR(60) NOT NULL,
  "c_country_id" NUMERIC(10,0),
  "c_region_id" NUMERIC(10,0),
  "isdefault" CHAR(1) DEFAULT 'Y'::bpchar,
  CONSTRAINT "c_municipality_pkey" PRIMARY KEY("c_municipality_id"),
  CONSTRAINT "c_municipality_isactive_check" CHECK (isactive = ANY (ARRAY['Y'::bpchar, 'N'::bpchar])),
  CONSTRAINT "c_municipalityclient" FOREIGN KEY ("ad_client_id")
   REFERENCES "adempiere"."ad_client"("ad_client_id")
   ON DELETE NO ACTION
   ON UPDATE NO ACTION
   DEFERRABLE
   INITIALLY DEFERRED,
  CONSTRAINT "c_municipalityorg" FOREIGN KEY ("ad_org_id")
   REFERENCES "adempiere"."ad_org"("ad_org_id")
   ON DELETE NO ACTION
   ON UPDATE NO ACTION
   DEFERRABLE
   INITIALLY DEFERRED,
  CONSTRAINT "ccountry_cmunicipality" FOREIGN KEY ("c_country_id")
   REFERENCES "adempiere"."c_country"("c_country_id")
   ON DELETE NO ACTION
   ON UPDATE NO ACTION
   DEFERRABLE
   INITIALLY DEFERRED,
  CONSTRAINT "cregion_cmunicipality" FOREIGN KEY ("c_region_id")
   REFERENCES "adempiere"."c_region"("c_region_id")
   ON DELETE NO ACTION
   ON UPDATE NO ACTION
   DEFERRABLE
   INITIALLY DEFERRED
) WITHOUT OIDS;
```

Note:
PRIMARY KEY for C_Municipality Table is c_municipality_id.

Some countries also, divide Municipality on Parish entities.

This is the Script for create the table.

```
CREATE TABLE "adempiere"."c_parish" (
  "c_parish_id" NUMERIC(10,0) NOT NULL,
  "ad_client_id" NUMERIC(10,0) NOT NULL,
  "ad_org_id" NUMERIC(10,0) NOT NULL,
  "isactive" CHAR(1) DEFAULT 'Y'::bpchar NOT NULL,
  "created" TIMESTAMP WITHOUT TIME ZONE DEFAULT now() NOT NULL,
  "createdby" NUMERIC(10,0) NOT NULL,
  "updated" TIMESTAMP WITHOUT TIME ZONE DEFAULT now() NOT NULL,
  "updatedby" NUMERIC(10,0) NOT NULL,
  "name" VARCHAR(60) NOT NULL,
  "c_country_id" NUMERIC(10,0) NOT NULL,
  "c_region_id" NUMERIC(10,0) NOT NULL,
  "c_municipality_id" NUMERIC(10,0) NOT NULL,
  "isdefault" CHAR(1) DEFAULT 'N'::bpchar,
  CONSTRAINT "c_parish_pkey" PRIMARY KEY("c_parish_id"),
  CONSTRAINT "c_parish_isactive_check" CHECK (isactive = ANY (ARRAY['Y'::bpchar, 'N'::bpchar])),
  CONSTRAINT "c_parishclient" FOREIGN KEY ("ad_client_id")
   REFERENCES "adempiere"."ad_client"("ad_client_id")
   ON DELETE NO ACTION
   ON UPDATE NO ACTION
   DEFERRABLE
   INITIALLY DEFERRED,
  CONSTRAINT "c_parishorg" FOREIGN KEY ("ad_org_id")
   REFERENCES "adempiere"."ad_org"("ad_org_id")
   ON DELETE NO ACTION
   ON UPDATE NO ACTION
   DEFERRABLE
   INITIALLY DEFERRED,
  CONSTRAINT "ccountry_cparish" FOREIGN KEY ("c_country_id")
   REFERENCES "adempiere"."c_country"("c_country_id")
   ON DELETE NO ACTION
   ON UPDATE NO ACTION
   DEFERRABLE
   INITIALLY DEFERRED,
  CONSTRAINT "cmunicipality_cparish" FOREIGN KEY ("c_municipality_id")
   REFERENCES "adempiere"."c_municipality"("c_municipality_id")
   ON DELETE NO ACTION
   ON UPDATE NO ACTION
   DEFERRABLE
   INITIALLY DEFERRED,
  CONSTRAINT "cregion_cparish" FOREIGN KEY ("c_region_id")
   REFERENCES "adempiere"."c_region"("c_region_id")
   ON DELETE NO ACTION
   ON UPDATE NO ACTION
   DEFERRABLE
   INITIALLY DEFERRED
) WITHOUT OIDS;
```

Note:
PRIMARY KEY for C_Parish Table is c_parish_id.

Finally take care of Adequate Name and Description on AD using Upper and Lower Cases on AD Tables.

C_Municipality Table looks like this on AD:

Table > Column▼

	Table	DB Column Name	Reference	Reference Key	Length	Mandatory	Updatable
☐ 📝	C_Municipality_C_Municipality	AD_Client_ID	Table Direct		10	✓	☐
☐	C_Municipality_C_Municipality	AD_Org_ID	Table Direct		10	✓	☐
☐	C_Municipality_C_Municipality	C_Country_ID	Table	C_Country	10	✓	☐
☐	C_Municipality_C_Municipality	C_Municipality_ID	Table Direct		10	✓	☐
☐	C_Municipality_C_Municipality	C_Municipality_UU	String		36	☐	✓
☐	C_Municipality_C_Municipality	C_Region_ID	Table	C_Region	10	✓	☐
☐	C_Municipality_C_Municipality	Created	Date+Time		29	✓	☐
☐	C_Municipality_C_Municipality	CreatedBy	Table	AD_User	10	✓	☐
☐	C_Municipality_C_Municipality	IsActive	Yes-No		1	✓	✓
☐	C_Municipality_C_Municipality	IsDefault	Yes-No		1	☐	✓
☐	C_Municipality_C_Municipality	Name	String		60	✓	✓
☐	C_Municipality_C_Municipality	Updated	Date+Time		29	✓	☐
☐	C_Municipality_C_Municipality	UpdatedBy	Table	AD_User	10	✓	☐
☐	C_Municipality_C_Municipality	capital	String		60	✓	✓

C_Parish Table looks like this on AD:

Table > Column▼

	Table	DB Column Name	Reference	Reference Key	Length	Mandatory	Updatable	S
☐ 📝	C_Parish_C_Parish	AD_Client_ID	Table Direct		10	✓	☐	
☐	C_Parish_C_Parish	AD_Org_ID	Table Direct		10	✓	☐	
☐	C_Parish_C_Parish	C_Country_ID	Table	C_Country	10	✓	☐	
☐	C_Parish_C_Parish	C_Municipality_ID	Table		10	✓	☐	
☐	C_Parish_C_Parish	C_Parish_ID	ID		10	✓	☐	
☐	C_Parish_C_Parish	C_Parish_UU	String		36	☐	✓	
☐	C_Parish_C_Parish	C_Region_ID	Table	C_Region	10	✓	☐	
☐	C_Parish_C_Parish	Created	Date+Time		29	✓	☐	
☐	C_Parish_C_Parish	CreatedBy	Table	AD_User	10	✓	☐	
☐	C_Parish_C_Parish	IsActive	Yes-No		1	✓	✓	
☐	C_Parish_C_Parish	IsDefault	Yes-No		1	☐	✓	
☐	C_Parish_C_Parish	Name	String		60	✓	✓	
☐	C_Parish_C_Parish	Updated	Date+Time		29	✓	☐	
☐	C_Parish_C_Parish	UpdatedBy	Table	AD_User	10	✓	☐	

EXTENDED DEMOGRAFY FOR IDEMPIERE

8. Fields Added on C_Region Table.

The table *C_Region* is the second level on demographic structure. On this new proposal *C_Community* is the New second level, nevertheless in order to be compatible with Standard Address structure on Idempiere, Community an Region are both Second Level, but on *C_Region* table a Community ID has to be indicated if Idempiere Administrator desire to use it.
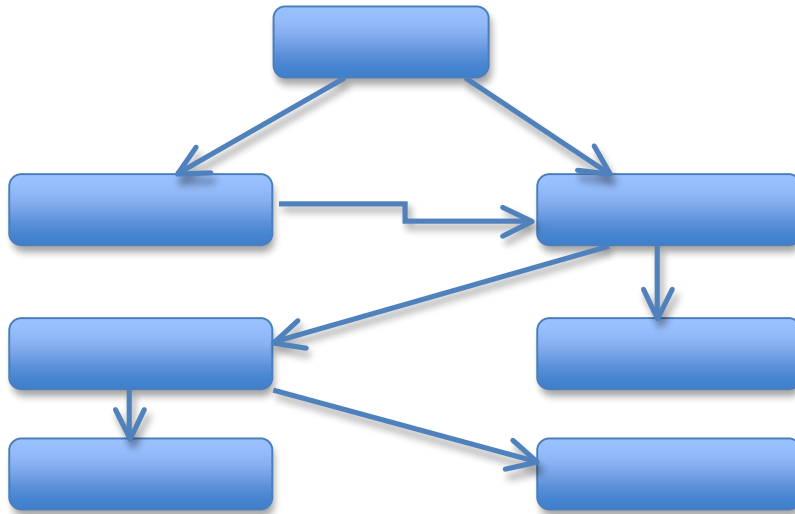
See Figure 8.1 For the New Demographic Structure of Plugin:

Figure 8.1
(*) Future Development

A new Field (*C_Community_ID*) is added to *C_Region* Table. This Field Accept Null values, because some country may not use this feature. See Figure 8.2.
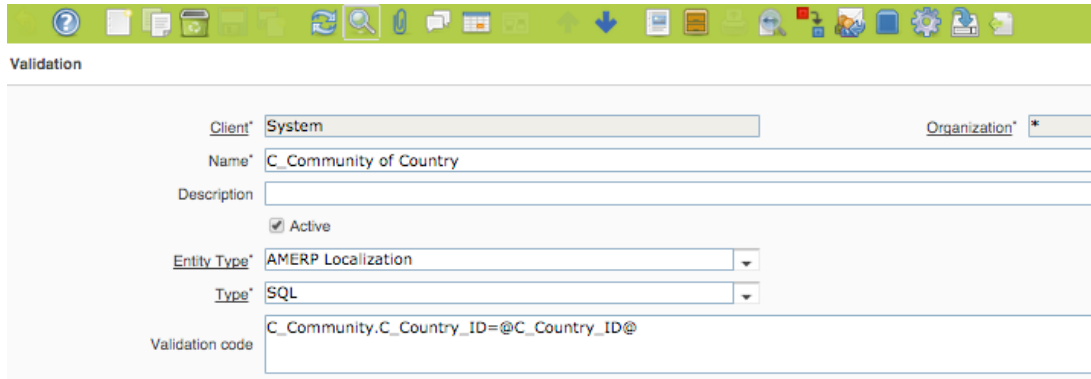
Figure 8.2

A new Validation Rule is created in order to accept only Communities from selected Country. See figure 8.3.

Figure 8.3

9. Fields Added on C_Location.

C_Location Table contains the all addresses included on Business Partners, Employees, Wharehouses, Organization Info, and any other table containing **Location** or **LocationExtended** Reference Fields.

New fields added are *C_Municipalty_ID* and *C_Parish_ID*, both have been mentioned before. See Figures 9.1 and 9.2 for AD window on Table C_Location.
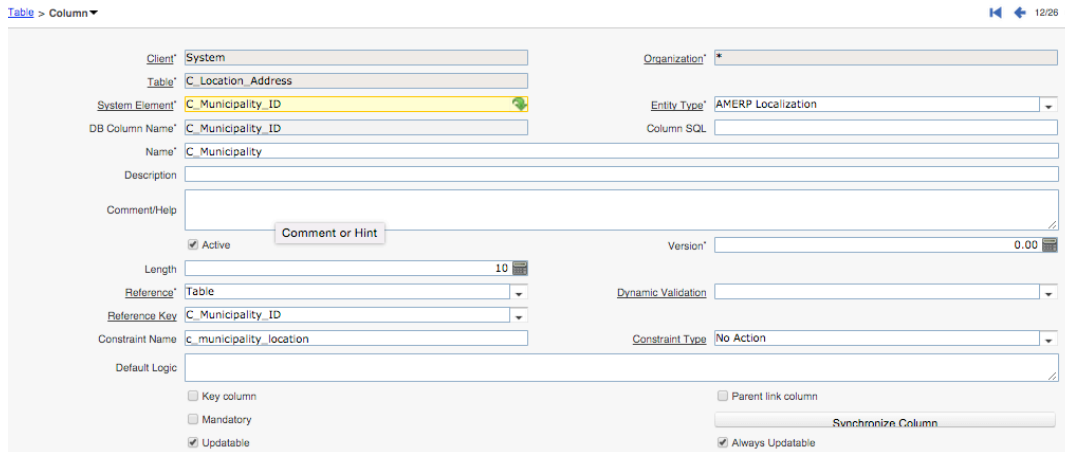
Figure 9.1.
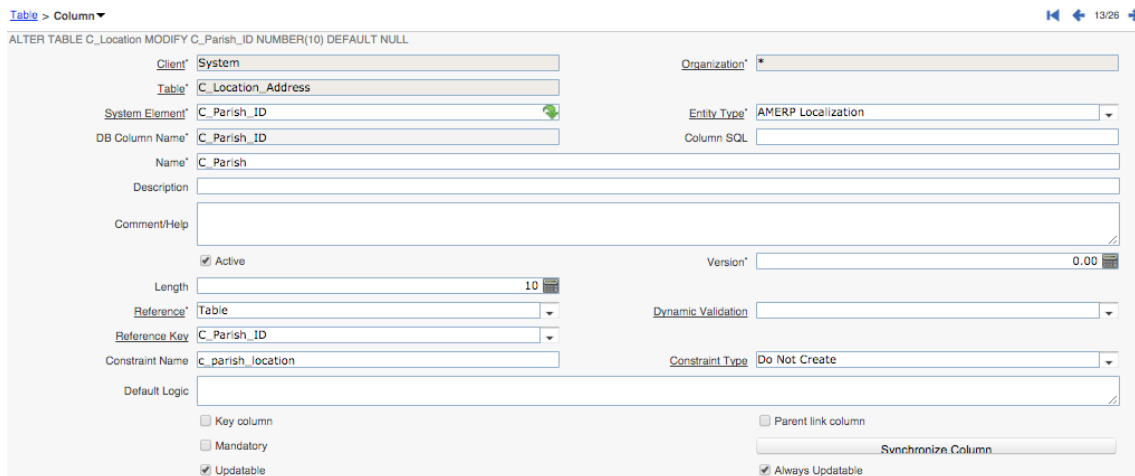
Figure 9.2

Both Fields may contain Null values in order to be compatible with Idempiere Address Standard.
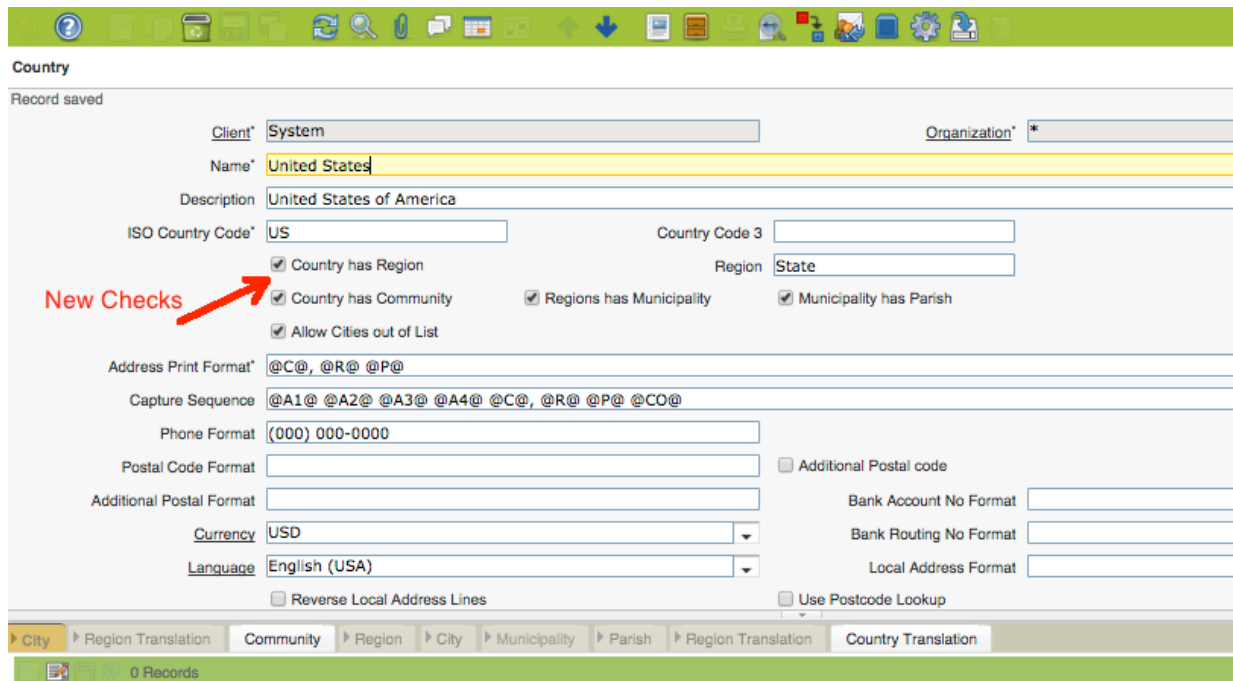
Field *C_City_ID* may contain Null Value, because some Country can be configured with '*Allow Cities out of List' feure*. A City String Field is Provided for Storing values when this happens.

10.Country-Community-Region-Municipality-Parish Window.

Finally a New Window is created to perform extended address and Demographic Structure for the Countries. It has tried to develop the window so that it can be used as Standard Country-Region-City one. But also the Idempiere Administrator can perform the construction of new Communities, Municipalities and Parishes.

It is shown below the main Window, and will explain some fields that has to be set for Country in order to perform adequate update of actual Demography Structure.

Figure 10.1
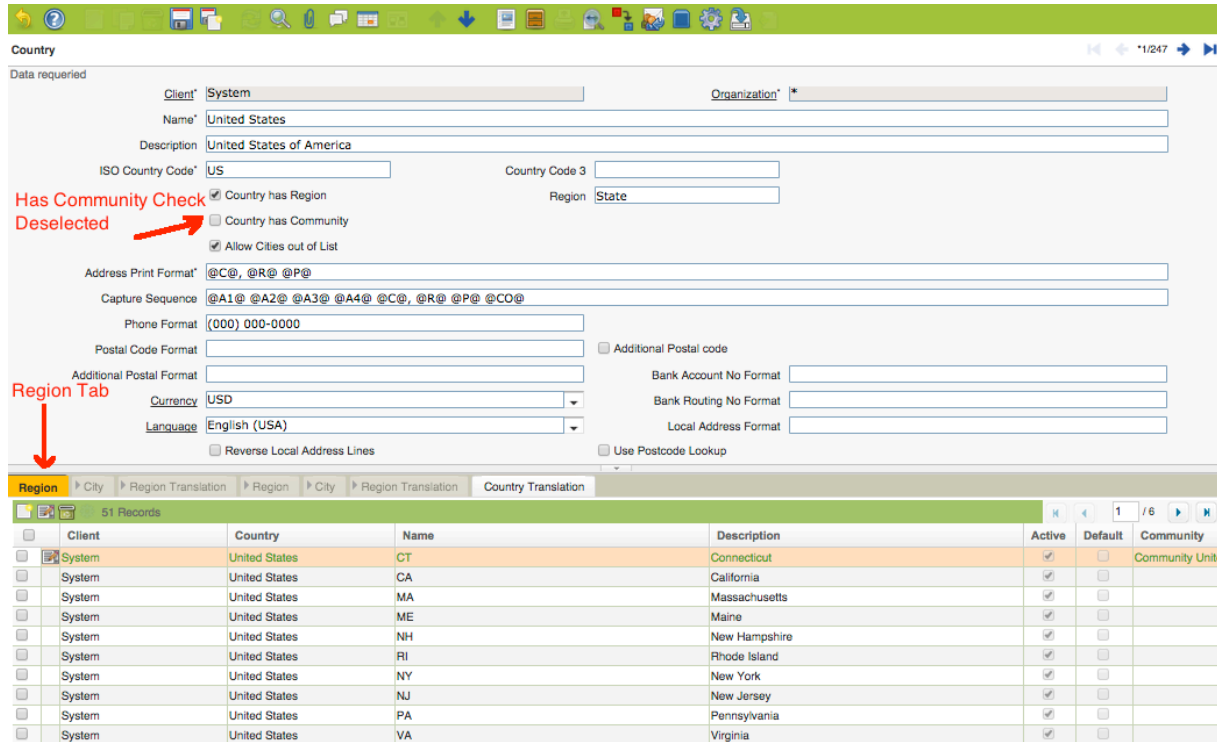
New Fields Added:
  Country has Region
  Country has Community
  Regions has Municipality
  Municipality has Parish

Idempiere Administrator may perform Community input through database, but just in case it is necessary to include the new Country's Communities using the Window, the 'Country has Community' check has to be set in order to have Community Tab available and then include Communities.

After completing income communities, regions have to be associated with their respective communities. In order to do this job, Idempiere Administrator has to deselect 'Country has Community' check in order to have Standard Region Tab available.

Having this Region Tab Visible, Regions can be updated in order to set Community associated with them. See Figure 10.2 and 10.3.
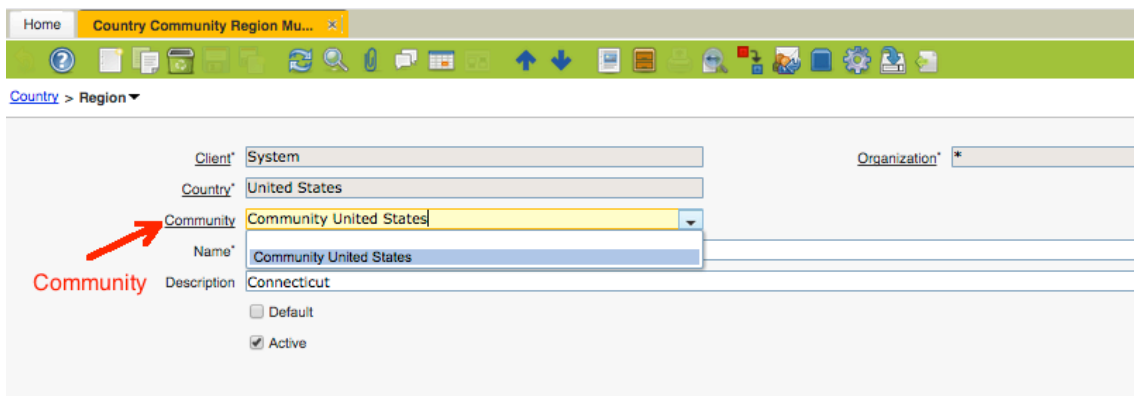

Figure 10.2

Figure 10.3

Complete Community association for all Regions and then set again 'Country has Community' Check. Community Tab will be visible again and Idempiere Administrator can perform Extended Demography Structure.

Community -> Region -> (Municipality – City) → Parish

A1. Plugin Installation.

Plugin installation can be performed using:
Apache Felix Web Console

Log in into Apache Fenix Console, as SuperUser and Install Jar File, provided on p2 repository's directory:

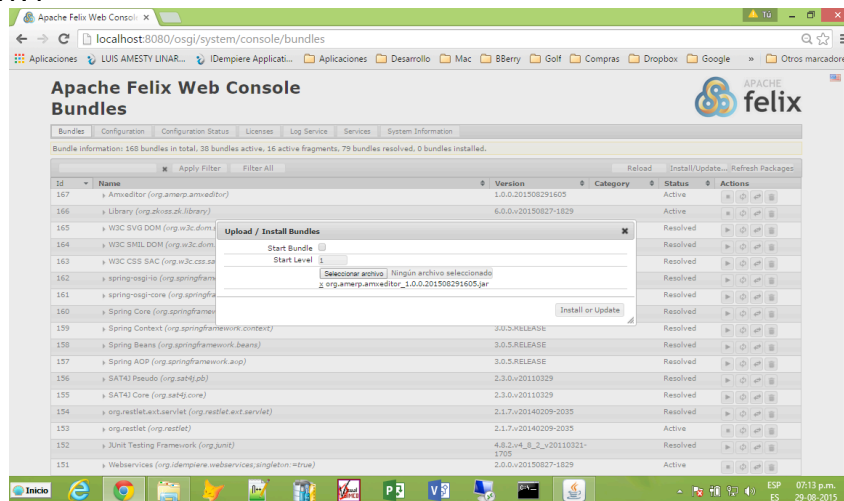### org.amerp.amxeditor_1.0.0.201508291605.jar

See Figure A1.1

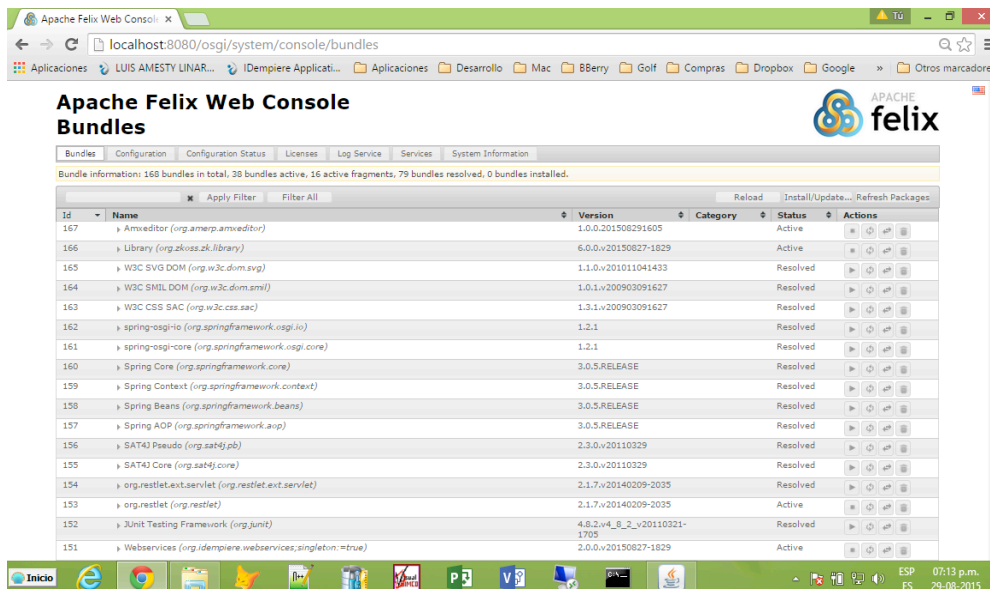Figure A1.1

Screen will be seen as it shows on figure A1.2

Figure A1.2

You must restart Idempiere Server in order to accomplish the changes.

Plugin Installation provides all changes on Application Dictionary previously exposed on Manual. A Pack-in zip file (AMERP amxeditor.zip) is provided in documentation folder, just in case AD changes weren't applied with plugin.

A2. Venezuela Extended Demography.

Venezuela's Extended Demography is provided by a zip Packing File on documentation folder in repository.
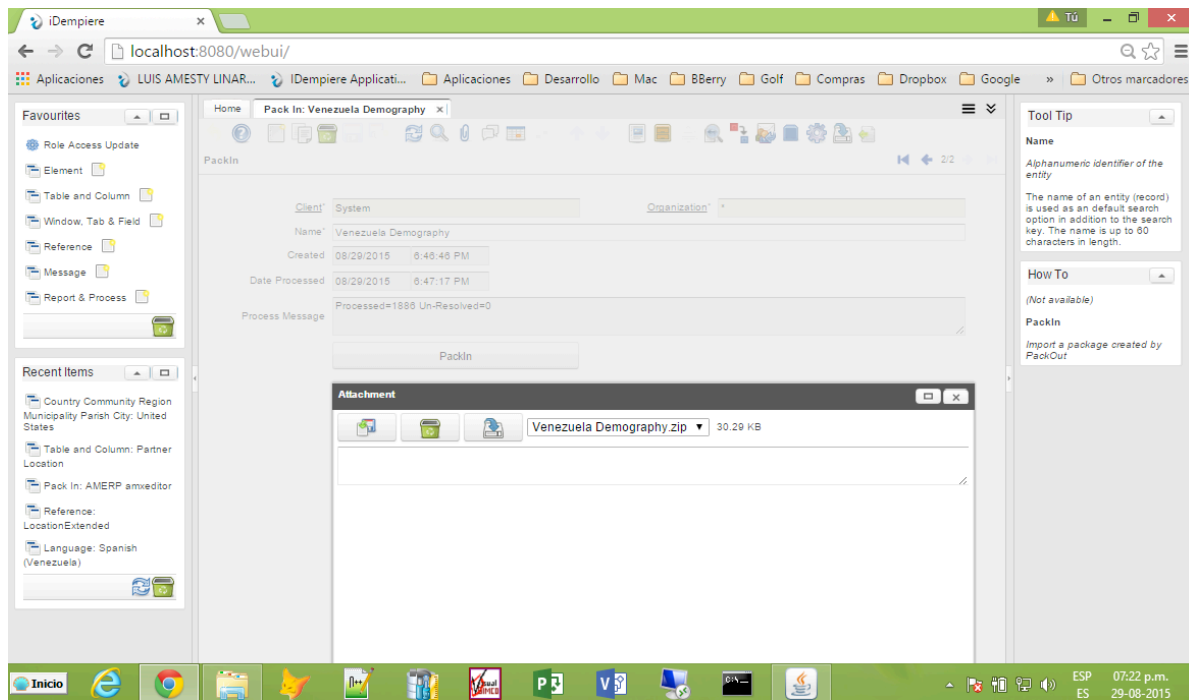

Figure A2.1