# Table of Contents

### I INVOICE to ROefact

### 1 INVOICEtoROefact

- 1.1 Componentele si facilitatile sistemului
- 1.2 Date identificare

## 2 Componentele sistemului

- 2.1 Componente
  - 2.1.1 xl2roefact
  - 2.1.2 xl2roefact Python library
  - 2.1.3 web2roefact
  - 2.1.4 invoice template
- 2.2 Criterii de clasificare
- 2.3 Note

## II xl2roefact

# 3 xl2roefact

- 3.1 Facilitati
- 3.2 Instalarea aplicatiei xl2roefact
- 3.3 Configurarea aplicatiei xl2roefact
- 3.4 Comenzile aplicatiei
  - 3.4.1 xl2roefact
- 3.5 Practici si regului referitoare la continutul facturilor din Excel
- 3.6 Tutorial utilizare aplicatie
  - 3.6.1 Organizarea informatiei
  - 3.6.2 Exemplu de procesare a unei facturi
- 3.7 Aspecte tehnice referitoare la formatul fisierului JSON aferent facturii
- 3.8 Descarcare (download) aplicatie xl2roefact CLI
- 3.9 Date identificare
- 3.10 Note

## III web2roefact

## 4 Under construction page

## IV xl2roefact python library

## 5 xl2roefact python library

- 5.1 System modules
  - 5.1.1 rdinv module logic
- 5.2 Install library
  - 5.2.1 Install from PyPi
  - 5.2.2 Install from distribution packages
- 5.3 Working directories
- 5.4 Aspecte tehnice referitoare la formatul fisierului JSON aferent facturii
- 5.5 Download xl2roefact library

# 6 xl2roefact python library API Reference

- 7 app\_cli
- 8 chkisld
- 9 chkxml
- 10 config\_settings
- 11 ldxml
- 12 libutils
- 13 rdiny
- 14 wrxml
- 15 \_\_init\_\_
- 16 \_\_main\_\_
- 17 \_version\_

## V invoice template

## 18 invoice template

- 18.1 Instalarea sablonului de factura emisa
- 18.2 Recomandari in utilizarea sablonului
- 18.3 Descarcare (download) sablon factura

### VI Help

## VI.I Manuale web2roefact

- 19 Catalogul manualelor de utilizare
- 20 Catalogul manualelor de configurare si administrare

### VI.II Cerintele sistemului

## 21 Propunere tehnica

- 21.1 Aria de cuprindere
- 21.2 Considerente generale de securitate
- 21.3 Considerente generale privind bazele de date proprii sistemelor
- 21.4 Considerente generale privind auditarea informatiilor

## 22 Propunere tehnica sistem INVOICEtoROefact

- 22.1 Objective
- 22.2 Vedere de ansamblu a solutiei
- 22.3 Componenta xl2roefact
  - 22.3.1 Diagrama logica de functionare a componentei
- 22.4 Componenta WEB\_DASHB
- 22.5 Componenta SYSTEM\_DB

## 23 Propunere tehnica sistem PayValidaBoa

- 23.1 Objective
- 23.2 Vedere de ansamblu a soluției
- 23.3 Cerinte functionale generale
- 23.4 Componenta xxx

## 24 Optiuni tehnice

- 24.1 Optiuni sistem INVOICEtoROefact
  - 24.1.1 Recomandari sistem INVOICEtoROefact
- 24.2 Optiuni sistem PayValidaBoa
- 24.3 Optiuni generale de implementare

### 25 Descarcare resurse (downloads)

- 25.1 Format biblioteca Python
  - 25.1.1 Pachetul xl2roefact pe PyPi
  - · 25.1.2 Pachetul xl2roefact python library format sursa
  - 25.1.3 Pachetul web2roefact pe PyPi
- 25.2 Format executabil Windows x64
  - 25.2.1 Aplicatia xl2roefact linie comanda pachet instalare (win64-msi)
  - 25.2.2 Aplicatia xl2roefact linie comanda executabil portabil (win64-exe)
  - 25.2.3 Aplicatia web2roefact pachet instalare (win64-msi)
- 25.3 Format DEB instalare Linux
- 25.4 Sablon template factura

### VII About

# VII.I Despre INVOICEtoROefact

## **26 CHANGELOG**

- 26.1 0.3
  - 26.1.1 wip... 0.3.2b0 single EXE version (...date\_here...)
  - 26.1.2 0.3.1b1 fixed bug JSON->["Invoice"]["cac\_InvoiceLine"] list[list] (230306 h19:30)

# **27 Archived CHANGELOGs**

- 27.1 0.3 version
- 27.2 0.2 version
- 27.3 0.1 version

# I. INVOICEtoROefact



by RENware Software System

**RENware Software Systems** 

# 1 INVOICEtoROefact

### **Cuprins:**

- INVOICEtoROefact
  - · Componentele si facilitatile sistemului
  - Date identificare

Acest sistem va asigura incarcarea facturilor emise in sistemul ANAF E-Factura (https://www.anaf.ro/anaf/internet/ANAF/despre\_anaf/strategii\_anaf/proiecte\_digitalizare/e.factura).

# 1.1 Componentele si facilitatile sistemului

Sistemul INVOICEtoROefact 0.3.2b0 ofera urmatoarele componente:

- xl2roefact 0.3.1b1 procesarea facturilor in mod linie de comanda
- web2roefact n/a procesarea facturilor din interfara web
- xl2roefact python library 0.3.1b1 procesarea facturilor prin cod / program (development propriu)
- invoice template 0.1.20 model / sablon factura in Excel

Descrierea tuturor acestora poate fi accessata aici.

# 1.2 Date identificare

• p/n: 0000-0095

• code-name: api\_to\_roefact

· commercial name: INVOICEtoROefact

- site web (https://invoicetoroefact.renware.eu/)
- git repository (https://github.com/petre-renware/api\_to\_roefact)
- copyright: RENware Software Systems
- author: Petre Iordanescu (petre.iordanescu@gmail.com)
- general system license

**RENware Software Systems** 

# 2 Componentele sistemului

### **Cuprins:**

- · Componentele sistemului
  - Componente
    - xl2roefact
    - xl2roefact Python library
    - · web2roefact
    - invoice template
  - · Criterii de clasificare
  - Note

Sistemul consta din mai multe componente toate avind acelasi obiectiv central: **emiterea de facturi si procesarea facturilor emise existente deja**. Faptul ca sunt mai multe componente asigura *mai multe cai alternative* de a atinge obiectivul central, cai ce pot fi utilizate in paralel (concurent, in acelasi timp) in functie de "dotarea tehnica" a fiecaruia, de afinitatea fiecaruia la un "gen" de sisteme sau pur si simplu de preferinta de moment a fiecaruia.

# 2.1 Componente

Sistemul ofera urmatoarele componente:

- xl2roefact 0.3.1b1 procesarea facturilor in mod linie de comanda
- xl2roefact Python library 0.3.1b1 procesarea facturilor prin cod / program (development propriu)
- web2roefact n/a procesarea facturilor din interfara web
- invoice template 0.1.20- model / sablon factura in Excel

Facilitatile generale ale fiecareia din acestea sunt prezentate in continuare.

# 2.1.1 xl2roefact

Aplicatie linie de comanda pentru procesarea facturilor. Facilitati (vezi "Criterii de clasificare"):

- · Operare: CLI
- Introducere si import factura (INp):
  - XLSX
  - JSON

- FORM
- Export si salvare factura electronica (EXp);
  - JSON
  - XML
  - EXCEL (pentru recipisa incarcare ROeF)
  - PDF
- Ready to Run
- ROeF

Descriere detaliata aici

# 2.1.2 xl2roefact Python library

Pachet (biblioteca) public *Python* utilizabil pentru dezvoltare / extindere aplicatii proprii. Facilitati (*vezi "Criterii de clasificare"*):

- Operare: din cod software
- Introducere si import factura (INp):
  - XLSX
  - JSON
  - FORM
- Export si salvare factura electronica (EXp);
  - JSON
  - XML
  - EXCEL (pentru recipisa incarcare ROeF)
  - PDF
- Ready to Run
- ROeF

Descriere detaliata aici

# 2.1.3 web2roefact

Aplicatie web pentru procesarea facturilor. Facilitati (vezi "Criterii de clasificare"):

- Operare: WEB
- Introducere si import factura (INp):

	✓ XLSX
	✓ JSON
	✓ FORM
,	Export si salvare factura electronica (EXp);
	✓ JSON
	✓ XML
	✓ EXCEL (pentru recipisa incarcare ROeF)
	Ready to Run
	ROeF
2	.1.4 invoice template
Sá	ablon factura in format Office Excel. Facilitati (vezi "Criterii de clasificare"):
,	Operare: din aplicatie Office Excel
,	Introducere si import factura (INp):
	✓ XLSX
	JSON
	FORM
•	Export si salvare factura electronica (EXp);
	JSON
	XML
	✓ PDF (din aplicatia Office Excel)
	Ready to Run
	ROeF

# 2.2 Criterii de clasificare

Descriere detaliata aici

In scopul identificarii mai usoare a componentelor necesare acestea sunt clasificate dupa urmatoarele criterii:

- Operare interfata de operare al componentei:
  - CLI linie de comanda (din consola tip "command prompt" sau terminal)

- · WEB web din browser
- · din cod software
- din aplicatia locala Office Excel
- INp modul de introducere si import a facturii:
  - XLSX import dintr-un document Office Excel unde a fost deja introdusa anterior preluarii. Ca si
    instrument de introducere poate fi folosit oricare din cele ce permit salvarea / exportul in format XLSX (alte
    formate, in special cel anterior XLS nu sunt importabile ci trebuiesc "convertite" la formatul xlsx)
  - JSON import din format JSON
  - FORM factura se poate introduce manual direct in sistem, acesta punind la dispozitie un formular dedicat acestei operatii
- **EXp** formatul de exportare si salvare a facturii electronice<sup>1</sup>:
  - JSON format folosit pentru interschimbarea, interfatarea datelor cu sisteme standard REST (de exemplu Oracle EBS)
  - XML format folosit pentru interschimbarea, interfatarea datelor cu sisteme standard SOAP <sup>2</sup> (de exemplu RO eFact, SAP)
  - EXCEL format Office Excel xlsx
  - PDF format Adobe PDF tiparibil
- Ready to Run specifica faptul ca acea componenta poate fi folosita ca atare, fara o instalare prealabila ("ready to run") altfel aceasta trebuie instalata inainte de utilizare
- ROeF specifica faptul ca acea componenta permite incarcarea automata<sup>3</sup> a facturii in sistemul ANAF SPV RO
  eFact

# 2.3 Note

- 1. Exportul facturilor in formatele EXCEL si respectiv PDF se face utilizind formatul vizual al documentului din componenta invoice template ←
- 3. incarcarea automata a facturii in sistemul ANAF RO eFact este conditionata de configurarea respectivei componente cu credentialele necesare autentificarii in acest sistem (altfel acesta informatie va fi ceruta utilizatorui pentru introducere manuala) ←

# II. xl2roefact

**RENware Software Systems** 

# 3 xl2roefact

- Pentru accesul la toate link-urile din acest document vizitati site-ul dedicat (https://invoicetoroefact.renware.eu/) acestui sistem.
- Pachetul pe PyPi (https://pypi.org/project/xl2roefact/)
- Pachetul pe GitHub (https://github.com/petre-renware/api\_to\_roefact/xl2roefact/)

# 3.1 Facilitati



Aceasta componenta este "totul despre crearea de facturi electronice" din formatul Excel office (xlsx). Aplicatia poate genera factura in format JSON, XML, PDF si o poate incarca in sistemul *RO E-Fact* <sup>1</sup>.

Aceasta componenta ofera urmatoarele facilitati (acestea fiind obiectivele fundamentale ale componentei):

- transformarea facturilor din Excel in formatul XML cerut de catre sistemul ANAF RO E-Fact pentru incarcare
- incarcarea acestora in sistemul ANAF RO E-Fact<sup>1</sup>
- transformarea facturilor din Excel intr-un format JSON intermediar, independent de platforma si care permite integrarea acestora cu alte sisteme (standard REST)
- **generarea facturii in format PDF** pentru transmiterea acesteia catre client, semnarea electronica, tiparirea si arhivarea acesteia in format fizic (in general manipularea facturii in format "human readable")

Componenta ofera doua instrumente pentru realizarea si indeplinirea acestor obiective:

- x12roefact o aplicatie de tip linie de comanda (disponibila pentru sistemele de operare Windows, Linux si MacOS)
- x12roefact PyPi o blioteca standard Python utilizabila pentru dezvoltari proprii in scopul extinderii altor sisteme existente (custom development)

# 3.2 Instalarea aplicatiei xl2roefact

Pachetele de instalare sunt disponibile aici. Pachetele disponibile contin in numele lor versiunea de aplicatie utilizata si sistemul de operare pentru care sunt disponibile:

• MSI pachet instalare pentru Windows

- DEB pachet instalare pentru *Linux Debian* (verificati disponibilitatea pentru varianta sistemului de operare folosit de dvs)
- EXE executabil Windows in format "portabil" (un singur fisier)
- Pachet Python pe PyPi (https://pypi.org/project/xl2roefact/) este de fapt biblioteca xl2roefact care poate fi
  folosita ca si script independent de sistemul de operare daca aveti Python 3 instalat

NOTA 1: pentru echivalent utilizare portabila pentru Linux se va instala biblioteca Python (vezi sectiunea x12roefact PyPi library) dupa care devine utilizabil scriptul Python "ca orice alta comanda Linux"

NOTA 2: pachetul MSI pentru Windows este disponibil in orice variante / versiuni al sistemului. Optiunile pentru Linux sunt mult mai flexibile si astfel celelalte pot lipsi insa pot fi disponibile graruit, la cerere.

# 3.3 Configurarea aplicatiei xl2roefact

Parametrii de configurare a plicatiei se gasesc in fisierul config\_settings.py . Acestia sunt sub elaborati in limbaj Python prin utilizarea conventiilor de constante conform recomandarilor PEP (numele capitatlizat) si sunt acompaniti de linii de explicatii privind aplicabilitatea lor.

Configurare aplicatiei se poate face interactiv si din aplicatie. Pentru a obtine help referitor la detaliile comenzi se va folosi

```
xl2roefact settings --help
```

# 3.4 Comenzile aplicatiei

Interfata aplicatie este realizata utilizind conventiile si practicile uzuale pentru aplicatii tip linie de comanda consola. Pentru informatii privind comenzile se poate folosi optiunea de **help**, dispobilia atit la nivelul general:

```
xl2roefact --help
```

cit si la nivel detaliat pentru fiecare comanda

```
xl2roefact [COMMAND] --help
```

### Lista comenzilor:

- about Afiseaza informatii despre aceatsa aplicatie (copyright, scop, etc)
- settings \_ Afiseaza parametrii de configurare a aplicatiei. Vezi sectiunea de configurare a aplicatiei
- xl2json Transforma fisierul (fisierele) Excel in forma JSON pentru utilizare ulterioara ca forma de date standardizat pentru schimbul de informatii cu alte sisteme electronice

#### Comenzile detaliate:

## 3.4.1 xl2roefact

function called when no command is invoked and to provide only application version (for external users to test it!).

Usage:

```
xl2roefact [OPTIONS] COMMAND [ARGS]...
```

### Options:

```
--version show application version
--install-completion Install completion for the current shell.
--show-completion Show completion for the current shell, to copy it or customize the installation.
```

#### 3.4.1.1 about

provide a short application description.

Usage:

```
xl2roefact about [OPTIONS]
```

### **3.4.1.2 settings**

display application configuration parameters and settings that are subject to be changed by user.

Args: rules: show recommended rules to follow when change application configurable settings (available in both RO & EN languages). Defaults to False.

Usage:

```
xl2roefact settings [OPTIONS]
```

Options:

```
-r, --rules show settings recommended update rules
```

## 3.4.1.3 xl2json

extract data from an Excel file (save data to JSON format file with the same name as original file but .json extension).

Args: file\_name: files to process (wildcards allowed). files\_directory: directory to be used to look for Excel files. Defaults to invoice\_files/. NOTE: if default directory does not exists will consider current directory instead verbose: show detailed processing messages". Defaults to False.

Usage:

xl2roefact xl2json [OPTIONS] [FILE\_NAME]

# Options:

# 3.5 Practici si regului referitoare la continutul facturilor din Excel

Acest capitol se refera la modul in care este "tratat" continutul fisierului Excel cu factura, mai exact la modalitatea in care informatia facturii este cautata, identificata si gasita in scopul de a fi salvata in oricare din formatele de "factura electronica / E-Fact".

Utilizarea sablonului de factura Excel ce este livrat impreuna cu aplicatia **ESTE O VARIANTA DE LUCRU RECOMANDATA**, dar nu obligatorie. Chiar si in cazul utilizarii acestuia, prin modificarea "structurii" acestuia, informatia poate ajunge *nerecognoscibila / neidentificabila* total sau partial daca nu sunt urmate regulile expuse.

In general trebuie facuta diferenta intre datele facturii si modul in care aceasta va fi tiparita (va aparea la tiparire / previzualizare).

Mai exact **continutul informational** al facturii nu trebuie nici confundat si nici mixat cu **formatul de afisare al acesteia** (layout). Pentru acesta din urma se recomanda a fi folosite cu precadere *regulile de formatare* din Excel si nu cele stocare a datelor. Un exemplu este un numar zecimal oarecare unde:

- una este valoarea introdusa intr-o celula (de ex cu 3 zecimale) si
- alta este valoarea afisata (cu 2 zecimale) aceasta din urma trebuie obtinuta prin formatarea celulei respective de a afisa 2 zecimale prin rotunjire insa valoarea efectiva trebuie sa fie cea originala cu 3 zecimale, lucru (diferenta) care se poate vedea la editarea continutului celulei.

# 3.6 Tutorial utilizare aplicatie

## 3.6.1 Organizarea informatiei

Aplicatia xl2roefact "promoveaza" structurarea informatiei procesate astfel incit sa fie evitata situatia "de aglomerare" a directorului curent cu fisiere ce trebuiesc identificate si izolate in situatia in care se fac procesari in masa (pe mai multe fisiere / facturi sursa).

Astfel, aplicatia se asteapa ca fisierele Excel sursa (adica facturile de procesat) sa fie copiate in directorul invoice\_files/ de unde vor fi citite si tot aici vor fi create fisierele rezultate (JSON, XML, etc). Acest director este relativ la directorul curent de unde este lansata aplicatia si considerat "implicit" cu acest nume dar daca se doreste un alt director acest lucru poate fi facut folosind parametrul --files-directory (sau prescurtat -d) la lansarea aplicatiei astfel:

```
xl2roefact -d "calea si numele directorului dorit"
```



#### Nota

Ghilimelele sunt necesare numai daca numele si calea (path) contin caracterul spatiu.

### **Exemple:**

• pentru stabilirea directorului curent ca sursa pentru fisierele factura Excel:

```
xl2roefact -d ./
```

• procesarea tuturor facturilor facturilor din luna iunie, copiate intr-un director dedicat sub directorul curent:

```
xl2roefact -d ./facturi_iunie/
```

# 3.6.2 Exemplu de procesare a unei facturi

• se creaza directorul recomandat pentru stocarea facturilor in Excel:

```
md invoice_files
```

- se copiaza factura factura\_A.xlsx in acest director apoi se revine in directorul anterior daca acesta a fost schimbat pentru efectuarea copierii
- se lanseaza aplicatia:

```
xl2roefact xl2json
```

In urma acestor operatii, in directorul invoice\_files vor rezulta:

factura\_A.xlsx ca fiind fisierul Excel original cu factura

• factura\_A.json acesta fiind fisierul format JSON rezultat in urma procesarii si ce poate fi folosit pentru interschimbarea electronica a informatiei intre sisteme

# 3.7 Aspecte tehnice referitoare la formatul fisierului JSON aferent facturii

Acest fisier este cel generat de catre aplicatie in urma executiei acesteia cu comanda x12 j son . Formatul JSON are urmatoarra structura de baza:

```
{
    "Invoice": {...},
    "meta_info": {...},
    "excel_original_data": {...}
}
```

Cheile de la primul nivel contin:

- Invoice datele efective ale facturii
- meta\_info
  - informatii referitoare la procesarea facturii si mapa de conversie a cheii Invoice din formatul JSON in formatul XML cerut de sistemul RO E-Fact
  - harta de ajutor in conversia formatului JSON in formatul XML acceptat de sistemul RO E-Fact (cheie meta\_info.map\_JSONkeys\_XMLtags) si definititiile XML aferente (cheie meta\_info.invoice\_XML\_schemes)
  - alte informatii despre fisierul Excel prelucrat (numele, worksheet cu factura, data si ora procesarii, CRC pentru verificare, etc)
- excel\_original\_data informatiile originale din fisierul Excel, asa cum au fost ele identificate si gasite precum si locatia (adresele celulelor). Aceste informatii sunt utile in cazul in care exista neclaritati in urma procesuluicde conversie pentru "a intelege" de unde si cum arata informatiile originale din fisierul Excel

Pentru detalii suplimentare despre formatul JSON trebyie consultata componenta referitoare la *biblioteca x12roefact destinata dezvoltarii* software.

# 3.8 Descarcare (download) aplicatie xl2roefact CLI

- · Pachet instalare aplicatie Windows
- · Pachet instalare script Python

# 3.9 Date identificare

- part number (p/n): 0000-0095-x12roefact
- producator si copyright: RENWare Software Systems
- · author: Petre Iordanescu (petre.iordanescu@gmail.com)

# 3.10 License

# 3.11 Note

<sup>1.</sup> Toate interactiunile cu sistemul ANAF RO E-Fact necesita o conexiune la internet si un set de credentiale ANAF RO E-Fact ale companiei pentru care se incarca factura. In lipsa acestora, fisierul XML generat de aplicatie poate fi incarcat ulterior (de ex de catre departmentul contabilitate) ← ←

# III. web2roefact

# 4 Under construction page



UPCOMING...

# IV. xl2roefact python library

# 5 xl2roefact python library

- · xl2roefact python library
  - · System modules
    - · rdinv module logic
  - · Install library
    - Install from PyPi
    - · Install from distribution packages
  - · Working directories
  - Aspecte tehnice referitoare la formatul fisierului JSON aferent facturii
  - API Reference
  - · Download xl2roefact library

# 5.1 System modules

x12roefact main and basic modules are:

- rdiny read an Excel file and extract invoice data to a JSON file format
- wrxml write, convert the JSON invoice file to a XML file format, respecting schemes required by RO EFact standard
- chkxml check generated XML file
- ldxml load an invoice (ie, its XML associated file) to ANAF SPV system
- chkisld check if an invoice is already loaded in ANAF SPV system
- config\_settings define system settings & parameters mainly used in invoice info / data detection and extract from invoice Excel format file
- app\_cli contains the code for x12roefact application command line (CLI) format

Below is presented the *skeleton logic* of those modules which and where is relevant ie meaning where is not enough obvious from code or code complexity exceed usual limits (*for example nore than 100 lines of code per function*). For more technical details and specification regarding modules see API Reference

# 5.1.1 rdinv module logic

Main function of rdinv module is rdinv(...) which has the following logic sections which are in **strict sequence in presented order**:

- search of invoice\_items\_area sub-table. This area is expected to contain invoice lines and is "processed" first because it is more structured and easier to identify; after its identification the header area is considered upper of it and footer area below it
- solve invoice\_items\_area in 2 step.... In this step the code-data-variables of items area will be initialized in order to hold information that will be found
- *localize and mark areas for...* section that follows natural the previous one by initializing code-data-variables forcheader and footer areas to hold their corresponding information
- solve invoice\_header\_area detailed initialize of header area code-data-variables
- ReNaSt -RegNameStrategy section that identify and extract the legal registered name of invoice customer
- section to (Excel data)--->(JSON) format preparation and finishing section which prepare Excel original data found to be be saved as JSON as a more "electronic interchangeable" structure
- for more details about code logic description and presentation, please contact RENware Systems (http://www.renware.eu)

# 5.2 Install library

Library can be installed using 2 methods:

- · install from PyPi
- install from distribution packages

## 5.2.1 Install from PyPi

The library installation should be done using standard Python instruments:

pip install xl2roefact

## 5.2.2 Install from distribution packages

To install from distribution packages first download the package version intended to install (see download section), choose the package type (if you have no special option, then choose WHEEL format) and install it using pip as any other Python library installation (detailed in Python official documentation).

# 5.3 Working directories

Below is a short description of most important directories that will (can!) be found on local development environment.

invoice\_files/ default directory for Excel files which is intended to be processed

- build/ this directory which will contain intermediary files resulted from building CLI application, library distribution parts, etc. Directory is subject of .gitignore
- dist/ package files (wheels, dist), Windows executables, etc, generally all files subject of "public" distribution and download
- test\_\*/ contains test invoice samples (from client, a RENware one, a 3rd party one) and some useful specs in dev & test process

# 5.4 Aspecte tehnice referitoare la formatul fisierului JSON aferent facturii

Acest fisier este cel generat de catre aplicatie in urma executiei acesteia cu comanda x12 j son . Structura de baza a acestui fisier este:

```
{
    "Invoice": {...},
    "meta_info": {...},
    "excel_original_data": {...}
}
```

Cheile de la primul nivel contin:

- Invoice datele efective ale facturii
- meta\_info
  - informatii referitoare la procesarea facturii si mapa de conversie a cheii Invoice din formatul JSON in formatul XML cerut de sistemul RO E-Fact
  - harta de ajutor in conversia formatului JSON in formatul XML acceptat de sistemul RO E-Fact (cheie meta\_info.map\_JSONkeys\_XMLtags) si definititiile XML aferente (cheie meta\_info.invoice\_XML\_schemes)
  - alte informatii despre fisierul Excel prelucrat (numele, worksheet cu factura, data si ora procesarii, CRC pentru verificare, etc)
- excel\_original\_data informatiile originale din fisierul Excel, asa cum au fost ele identificate si gasite precum si locatia (adresele celulelor). Aceste informatii sunt utile in cazul in care exista neclaritati in urma procesuluicde conversie pentru "a intelege" de unde si cum arata informatiile originale din fisierul Excel

An example of JSON generated file is available here

# 5.5 API Reference

# 5.6 Download xl2roefact library

Pachete instalare biblioteca Python formate WHEEL si DIST

# 6 xl2roefact python library API Reference

- xl2roefact python library API Reference
- app\_cli
  - about
  - settings
  - xl2json
  - called\_when\_no\_command
  - run
- chkisld
- chkxml
- · config\_settings
  - DEFAULT\_SUPPLIER\_COUNTRY
- Idxml
- libutils
  - complete\_sexe\_file
  - invoice\_taxes\_summary
  - dict\_sum\_by\_key
  - isnumber
  - find\_str\_in\_list
- rdinv
  - rdinv
  - get\_excel\_data\_at\_label
  - mk\_kv\_invoice\_items\_area
  - get\_invoice\_items\_area
- wrxml
- \_\_init\_\_
- \_\_main\_\_
- \_\_version\_\_
  - normalized\_version

# 7 app\_cli

app\_cli: the command line application for all xl2roefact functionalities.

Identification:

- · copyright: (c) 2023 RENWare Software Systems
- author: Petre Iordanescu (petre.iordanescu@gmail.com)

### 7.0.0.1 about

```
@app_cli.command()
def about()
```

provide a short application description.

## **7.0.0.2 settings**

```
@app_cli.command()
def settings(rules: Annotated[
    bool,
    typer.
    Option("--rules", "-r", help="show settings recommended update rules"),
] = False)
```

display application configuration parameters and settings that are subject to be changed by user.

### **Arguments**:

• rules - show recommended rules to follow when change application configurable settings (available in both RO & EN languages). Defaults to False.

# 7.0.0.3 xl2json

```
@app_cli.command()
def x12json(
    file_name: Annotated[
        str, typer.Argument(
            help="files to process (wildcards allowed)")] = "*.xlsx",
    files_directory: Annotated[
        Path,
        typer.Option(
            "--files-directory",
            "-d",
            exists=False,
            file_okay=False,
            dir_okay=True,
            writable=True,
            readable=True,
            resolve_path=True,
            "directory to be used to look for Excel files (if default directory does not exists
will consider current directory instead)."
        ) .
    ] = "invoice_files/",
    verbose: Annotated[
       bool,
        typer.
        Option("--verbose", "-v", help="show detailed processing messages"),
    ] = False)
```

extract data from an Excel file (save data to JSON format file with the same name as original file but .json extension).

## **Arguments**:

- file\_name files to process (wildcards allowed).
- files\_directory directory to be used to look for Excel files. Defaults to invoice\_files/. NOTE: if default directory does not exists will consider current directory instead
- verbose show detailed processing messages". Defaults to False.

## 7.0.0.4 called\_when\_no\_command

```
@app_cli.callback(invoke_without_command=True)
def called_when_no_command(
   ctx: typer.Context,
   version: Annotated[
        bool,
        typer.Option("--version", help="show application version"),
] = False)
```

function called when no command is invoked and to provide only application version (for external users to test it!).

## 7.0.0.5 run

NOTE: for run "reason to be" as copy of app\_cli see iss 0.1.22b 240216piu\_a

# 8 chkisld

chkisld: modul de verificare a starii de incarcare a unei facturi emise

### Identification:

- code-name: chkisld
- copyright: (c) 2023 RENWare Software Systems
- author: Petre Iordanescu (petre.iordanescu@gmail.com)

### Specifications:

- document cerinte initiale: 110-SRE-api\_to\_roefact\_requirements.md section Componenta xl2roefact
- INTRARI: fisier f-XLSX sau numarul / cheia / codul facturii
- IESIRI: valoarea echivalent TRUE daca factura a fost deja incarcata sau valoare echivalent FALSE daca factura nu a fost incarcata

# 9 chkxml

chkxml: modul de validare a facturii in sistemul ANAF E-Factura

### Identification:

- code-name: chkxml
- · copyright: (c) 2023 RENWare Software Systems
- author: Petre Iordanescu (petre.iordanescu@gmail.com)

### Specifications:

- document cerinte initiale: 110-SRE-api\_to\_roefact\_requirements.md section Componenta xl2roefact
- INTRARI: fisier f-XML
- IESIRI: raport cu eventualele erori de validare

# 10 config\_settings

Configuration and setting parameters.

(en-us) README before making changes:

- each parameter has a short help (lines starting with # character) read it before changing that parameter
- do not change parametrs name as specified before equal (=) sign
- lists are enclosed in sqaured brackets ( [ . . . ] ) and items are separated by comma character ( , )

- strings are enclosed in " characters
- if you want to clear a list (for example you do not wants any options inside) just let it as <PARAMETR NAME> = [] do not drop that parameter
- do not add supplementary parameters, they will not be used without software changes (also risk to induce potential errors)
- · for calendaristic dates Excel cells use date format and change it as display option to show wanted format

(ro) README inainte de a face modificari:

- fiecare parametru are un hep scurt (liniile ce incep cu caracterul #) citi-l inainte de a modifica uun parametru
- nu schimbati numele parametrilor asa cum este el specificat inainte de semnul egal (=)
- listele sunt incluse intre paranteze drepte ([...]) si elementele lor sunt separate prin caracterul virgula (,)
- sirurile de caractere sunt incluse intre ghilimele (caracterul ")
- daca doriti stergerea unei listei (de ex daca nu doriti nici o optiune pentru acea lista) doar lasati acel parametru cu valoarea [] nu stergeti in nici un caz acel parametru
- nu adaugati parametrii suplimentari (altii decit cei specificati aici), acestia nu vor fi utilizati fara a modifica aplicatia (de asemenea riscati sa induceti erori in cod)
- pentru datele calendaristice in celulul Excel a se utiliza formatul standard de data ( date ) si modificati formatul de afisare in formatul dorit pe factura tiparibila

### 10.0.0.1 DEFAULT\_SUPPLIER\_COUNTRY

## NOTE: "pattern-uri" (sabloane) de identificare si regasire a datelor folositi de

 $\_$  comanda x12json reprezentind functionalitatea de extragere a datelor din Excel si exportul lor in formatul JSON (modulul `rdinv) $\_$ 

# 11 Idxml

ldxml: modul de incarcare a facturii in sistemul ANAF E-Factura

### Identification:

- code-name: ldxml
- copyright: (c) 2023 RENWare Software Systems
- author: Petre Iordanescu (petre.iordanescu@gmail.com)

### Specifications:

• document cerinte initiale: 110-SRE-api\_to\_roefact\_requirements.md section Componenta xl2roefact

- INTRARI: fisier f-XML
- IESIRI: raport cu validarea si identificatorul incarcarii

# 12 libutils

general utilities library for all x12roefact components and modules.

Identification:

- code-name: libutils
- copyright: (c) 2023, 2024 RENWare Software Systems
- author: Petre Iordanescu (petre.iordanescu@gmail.com)

### Components:

- complete\_sexe\_file() -> bool: Rename and move resulted exe file (called from build\_sexe script)
- dict\_sum\_by\_key(dict, str) -> float:Sum a dictionary for a given key at all depth levels
- find\_str\_in\_list(list, list) -> int: Search more strings (ie, a list) in list of strings
- invoice\_taxes\_summary(list[dict]) -> dict: Calculates invoice taxes summary as required by ROefact requirements
- isnumber(str) -> bool: Test a string if it could be used as number (int or float)

### 12.0.0.1 complete\_sexe\_file

```
def complete_sexe_file() -> bool
```

Rename and move resulted exe file. This function is dedicated only to development phase, so various objects are hard coded.

- Specs: file to process .../dist\_sexe/x12roefact\_to\_update\_name.exe --> `.../dist/xl2roefact-version-win64.exe
- NOTE: all function code suppose that current directory is root of x12roefact, ie where is located pyproject.toml of package

### Returns:

bool - True if file was found, renamed and moved with no error

## 12.0.0.2 invoice\_taxes\_summary

```
def invoice_taxes_summary(invoice_lines: list[dict]) -> list
```

Calculates invoice taxes summary as required by ROefact requirements.

### Arguments:

invoice\_lines - section with item lines from 'big' invoice dictionary

### Returns:

list - usable for "cac\_TaxSubtotal" key

## 12.0.0.3 dict\_sum\_by\_key

```
def dict_sum_by_key(search_dict: dict | list[dict], sum_key: str) -> float
```

Sum all dictionary (or list off dictionaries) items, at all levels, for a given key.

### **Arguments:**

- search\_dict dictionary to be searched for
- sum\_key key to be searched

### Returns:

• float - with required sum

#### 12.0.0.4 isnumber

```
def isnumber(a_string: str) -> bool
```

test if a string is valid as any kind of number.

## **Arguments**:

• a\_string - input string.

### Returns:

• True - if input string is valid as any kind of number, orherwise False.

## 12.0.0.5 find\_str\_in\_list

```
def find_str_in_list(list_of_str_to_find: list, list_to_search: list) -> int
```

find a substring from list\_of\_str\_to\_find in elements of list\_to\_search.

### **Arguments**:

- list\_of\_str\_to\_find list of strings to search for.
- list\_to\_search liste where to search for substrings.

#### Returns:

• index - the index of list item which contains str\_to\_find (first found) or None if not found.

# 13 rdinv

rdinv: modul de procesare a fisierului Excel ce contine factura si colectare a datelor aferente.

Formatul acceptat fisier Excel este XLSX.

#### Identification:

- code-name: rdinv
- copyright: (c) 2023 RENWare Software Systems
- author: Petre Iordanescu (petre.iordanescu@gmail.com)

### Specifications:

- document cerinte initiale: 110-SRE-api\_to\_roefact\_requirements.md section Componenta xl2roefact
- INTRARI: fisier format XLSX ce contine factura emisa (cod: f-XLSX)
- IESIRI: fisier format JSON imagine a datelor facturii (cod: f-JSON)

#### 13.0.0.1 rdinv

```
def rdinv(file_to_process: str,
    invoice_worksheet_name: str = None,
    *,
    debug_info: bool = False) -> dict
```

read Excel file for invoice data.

Produce a dictionary structure + JSON file with all data regarding read invoice: canonical KV data, meta data, map to convert to XML and original Excel data.

#### Arguments:

- file\_to\_process the invoice file (exact file with path).
- invoice\_worksheet\_name the worksheet containing invoice, optional, defaults to first found worksheet.
- debug\_info key only, show debugging information, default False.

### Returns:

• dict - the invoice extracted information from Excel file as dict(Invoice: dict, meta\_info: dict, excel\_original\_data: dict) TODO subject of documentation update.

NOTE ref important variables: \* db: pylightxl object: EXCEL object with invoice (as a whole) \* ws: pylightxl object: WORKSHEET object with invoice

### 13.0.0.2 get\_excel\_data\_at\_label

get "one key Excel values", like invoice number or invoice issue date.

### **Arguments**:

- pattern\_to\_search\_for for example for inv number, will pass the PATTERN\_FOR\_INVOICE\_NUMBER\_LABEL.
- worksheet the worksheet containing invoice (as object of pyxllight library).
- area\_to\_scan area of cells to be searched, default whole worksheet.
- targeted\_type what type expect (will try to convert to, if cannot will return str), default str.
- down\_search\_try establish if DOWN search method is tried, default True.

#### Returns:

None if not found OR dictionary containing: \* "value": int | float | str - the value found covenred to requested targeted\_type if possible or str otherwise; if "out of space" then returns None \* "location": (row, col) - adrees of cell where found value

#### Notes:

• normal scan order is 1.RIGHT, 2.DOWN (if allowed), 3.IN-LABEL only in given area and pattern.

### 13.0.0.3 mk\_kv\_invoice\_items\_area

```
def mk_kv_invoice_items_area(invoice_items_area_xl_format) -> dict
```

transform invoice\_items\_area in "canonical JSON format" (as kv pairs).

## **Arguments**:

• invoice\_items\_area\_xl\_format - invoice items area in Excel format (ie, DataFrame with row, col, data).

### Returns:

invoice\_items\_area\_xl\_format - dictionary with invoice items in Excel format (ie, rows, columns).

### Notes:

• for ROefact XML model (& plan) see invoice\_files/\_\_model\_test\_factura\_generat\_anaf.xml.

### 13.0.0.4 get\_invoice\_items\_area

get invoice for invoice\_items\_area, process it and return its Excel format.

Process steps & notes: \* find invoice items subtable. \* clean invoice items subtable. \* extract relevenat data. \* NOTE: all Excel cell addresses are in (row, col) format (ie, Not Excel format like "A:26, C:42, ...")

## **Arguments**:

- worksheet the worksheet containing invoice (as object of pyxllight library).
- invoice\_items\_area\_marker string with exact marker of invoice items table.
- NOTE this is the UPPER-LEFT corner and is determined before calling this procedure.
- wks\_name the wroksheet name (string) of the worksheet object.

#### Returns:

• invoice\_items\_area - dictionary with invoice items in Excel format (ie, rows, columns).

# 14 wrxml

wrxml: modul de generare a fisierului format XML

### Identification:

- code-name: wrxml
- copyright: (c) 2023 RENWare Software Systems
- author: Petre Iordanescu (petre.iordanescu@gmail.com)

## Specifications:

- document cerinte initiale: 110-SRE-api\_to\_roefact\_requirements.md section Componenta x12roefact
- INTRARI: fisier f-JSON
- IESIRI: fisier format XML conform cerintelor si sistemului ANAF E-Factura (cod: f-XML)

xl2roefact.main: Python package standard file to assure run as python -m xl2roefact.

### Identification:

- code-name: \_\_main\_\_
- copyright: (c) 2023 RENWare Software Systems

• author: Petre lordanescu (petre.iordanescu@gmail.com)

### Deployments:

- Windows: MSI installer with EXE application.
- Linux: x12roefact executable shell as wrapper for x12roefact.py.

### Specifications:

- command general format: python -m x12roefact [OPTIONS] COMMAND [ARGS]....
- help: python -m xl2roefact --help.

# 17 \_\_version\_\_

xl2roefact version info.

```
####### ####
             ####### #####
# ## # # #
             # ##
## ## #
            ### ### # ## #
## ## # #
             # # # ## #
              # #
  ## # #
                 # ## #
##
# ## # # #####
                 # ## #
# ## # # #
              # #
                 ##
####### ######
             ####
                  ######
             ####### ###### ##### ##### ######
#######
    ######
            # # # # ## ## ## ## ##
  # ## # # # # # # # # #
                   # #
                         # # ##### # #
# # # ## ##
                 # # #
                     # ## # ## ## ## #
          ####### #### ###### ######
####
  # ######
                                ####
```

## 17.0.0.1 normalized\_version

```
def normalized_version(raw_version: str = __version__) -> str
```

transform version string in canonical form.

```
Usage:- import x12roefact - x12roefact.__version__.normalized_version()
```

### **Arguments**:

raw\_version (str): a raw version string. Defaults to package current version string.

## Returns:

str: canonical version string

# V. invoice template

Copyright (C) RENware Software Systems

## 18 invoice template

- · invoice template
  - Instalarea sablonului de factura emisa
  - Recomandari in utilizarea sablonului
  - Descarcare (download) sablon factura
  - License

versiune curenta 0.1.20 formate suportate XLSX

#### 18.1 Instalarea sablonului de factura emisa

Aceasta componenta consta dintr-un director (ce nu necesita instalare speciala ci simpla copiere locala acolo unde va fi utilizat). Acest director contine:

- fisierul pentru factura invoice\_template\_CU\_tva.xlsx ce este disponibil pentru descarcare aici
- directorul released\_packages/ ce contine versiuni anterioare de sablon ce sunt inca suportate
- · prezentul document

#### 18.2 Recomandari in utilizarea sablonului

Aceasta sectiune se refera la modul in care ar trebui "tratat" continutul fisierului Excel cu factura *in conditiile in care se intentioneaza ca aceasta sa fi procesata ulterior cu sistemul INVOICEtoROeFact*. Acest sablon este general valabil (este un fisier Excel ca oricare altul) deci in acest caz este important a "constientiza" faptul ca informatia aferenta facturii din Excel va fi cautata, identificata si gasita in scopul de a fi salvata in formatele de factura electronica (utilizarea acestui sablon de factura Excel impreuna cu sistemul INVOICETOROeFact ESTE O VARIANTA DE LUCRU RECOMANDATA, dar nu obligatorie).

Astfel se recomanda ca acest sablon sa fie utilizat asa cum este livrat, fara a efectua modificari majore in structura sa cum ar fi:

- modificarea formatelor (de tip de date) celulelor in scopul unei afisari "mai frumoase"
- adaugarea de informatii prin concatenare de siruri de caractere sau orice alte metode de a altera continutul vizibil al celulelor in scopul unei afisari "mai frumoase"
- modificarea locatiilor celulelor prin inserarea sau stergerea de linii, coloane sau celule noi

In general trebuie facuta diferenta intre datele facturii si modul in care aceasta va fi tiparita (va aparea la tiparire / previzualizare).

#### **DETALII TEHNICE:**

Continutul informational al facturii nu trebuie nici confundat si nici mixat cu **formatul de afisare al acesteia** (layout). Pentru acesta din urma se recomanda a fi folosite cu precadere *regulile de formatare* din Excel si nu cele stocare a datelor. Un exemplu este un numar zecimal oarecare unde:

- una este valoarea introdusa intr-o celula (de ex cu 3 zecimale) si
- alta este valoarea afisata (cu 2 zecimale) aceasta din urma trebuie obtinuta prin formatarea celulei respective de a afisa 2 zecimale prin rotunjire insa valoarea efectiva trebuie sa fie cea originala cu 3 zecimale, lucru (diferenta) care se poate vedea la editarea continutului celulei.

## 18.3 Descarcare (download) sablon factura

office Excel XLSX

#### 18.4 License

VI. Help

## VI.I Manuale web2roefact



#### **INVOICEtoROefact System**

(c) 2023 RENware Software Systems

## 19 Catalogul manualelor de utilizare

#### **Cuprins:**

- Catalogul manualelor de utilizare
- ...

# INVOICE to RO E-Fact to ACTivent Soldier

#### **INVOICEtoROefact System**

(c) 2023, 2024 RENware Software Systems

## 20 Catalogul manualelor de configurare si administrare

#### **Cuprins:**

- Catalogul manualelor de configurare si administrare
- •

## VI.II Cerintele sistemului

#### **RENware Software Systems**

## 21 Propunere tehnica

#### **Cuprins:**

- · Propunere tehnica
  - Aria de cuprindere
  - Considerente generale de securitate
  - Considerente generale privind bazele de date proprii sistemelor
  - · Considerente generale privind auditarea informatiilor
- Client: n/a not public
- Data: 2023-Noiembrie
  - **1**

#### Codificarea documentelor

• codificarea numelor documentelor si a proceselor este facuta in conformitate cu metodologia RENware SDEVEN (http://sdeven.renware.eu)

#### **Cuprins:**

- · Propunere tehnica
  - · Aria de cuprindere
  - · Considerente generale de securitate
  - Considerente generale privind bazele de date proprii sistemelor
  - · Considerente generale privind auditarea informatiilor

## 21.1 Aria de cuprindere

Solutiile propuse prin aceasta propunere tehnica sunt:

- INVOICEtoROefact (code-name api\_to\_roefact) integrare Sistemul National de Facturi Emise RO e-Factura descriere si cerinte aici
- PayValidaBoa (code-name payments\_validation\_board) Flux aprobare facturi primite pentru ordonantare la plata descriere si cerinte aici

In continuare se prezinta o serie de considerente generale valabile pentru toate sistemele din aria de acoperire.

## 21.2 Considerente generale de securitate

- (RSEC-01) fisierele de configurare a sistemelor (fiind format text UTF-8) vor avea ca owner un utilizator dedicat sistemului respectiv sau utilizatorul root. Numai acesti doi utilizatori pot avea acces RW la aceste fisiere
- (RSEC-02) toate documentele de provenienta externa sistemelor vor fi "purtatoare" ale unui certificat digital ce atesta validitatea documentelor. Acest certificat va fi de preferinta de tip "semnatura electronica" dar nu obligatoriu calificata. Este suficient un simplu certificat (cheie) tip RSA generat intern si distribuit utilizatorilor autorizati sa emita documentele respective. O copie a certificatului (sau a certificatelor daca se vor emite mai multe) ce atesta validitatea unui document va sta pe server in locatii ce sunt conforme cu RSEC-01

## 21.3 Considerente generale privind bazele de date proprii sistemelor

- (DBS-01) bazele de date vor contine o cheie primara "real primara" (adica avind toate caracteristicile tehnice pentru PK in sensul uzual cunoscut din teoria bazalor de date). Aceasta cheie va fi de tip Char (32) reprezentind tipul uuid4 (cunoscut si ca guid) convertit la sir de caractere UTF-8 si reversibil ca transformare din string in uuid4. Aceasta cheie va fi generata automat si intretinuta de sistem deservind scopuri pur tehnice de referentiere si relationare a datelor. Modificarea manuala nu este permisa putind genera situatii de hazard.
- (DBS-02) bazele de date vor contine si o alta "cheie primara uman recongnoscibila" ( AK in teoria bazelor de date) utilizata in scop de recunoastere si regasire a informatiei de catre utilizatori. Aceasta cheie va avea urmatoarele catacterisrici:
  - va fi unica, tip Char (10) (limitarea lungimii se va aplica la introducerea datelo si nu in baza de date)
  - agnostic case, nu se va face diferenta intre litere mari sau mici (pentru a evita confuziile)
  - obligatorie iar daca utilizatorul "nu o doreste" se va default-a la PK-ul anterior
- (DBS-03) bazele de date vor fi intr-unul din formatele: (a) relational sau (b) JSON standard. Pentru bazele de date in format relational va fi preferata o solutie de SGBD tip open source matura, intretinuta in urmatoarea ordine de aplicare:
  - 1. SQLite (https://www.sqlite.org/index.html) pentru baze de date ce nu vor depasi 10,000 de inregistrari
  - 2. PostgreSQL (https://www.postgresql.org/) pentru baze de date ce se esttimeaza ca vor depasi 10,000 de inregistrari
  - 3. MariaDB (https://mariadb.org/) pentru baze de date ce se esttimeaza ca vor depasi 10,000 de inregistrari
  - prima varianta va fi preferata datoritra "portabilitatii datelor"
  - a treia varianta este enumerata ca optiune preferata a utilizatorului la varianta 2.
- (DBS-04) bazele de date vor folosi numai cimpuri formate standard, clasice si elemetare:
  - sir de carectere ( CHAR sau VARCHAR )
  - numere intregi cu semn ( INTEGER )
  - numere reale cu semn (FLOAT)

- numere combinate a caror valoare poate fi intreg sau real ( NUMBER )
- valori logice sub forma intreg cu semn astfel: 1 pentru TRUE si 0 sau NULL pentru FALSE
- valori logice sub forma de caracter astfel: prima litera din lista [Y, y, D, d, T, t] pentru TRUE si orice altceva inclusiv NULL pentru FALSE
- (DBS-05) in cazul bazelor de date relationale, integritatile referentiale vor fi evitate la maximum prin intretinerea datelor numai cu ajutorul aplicatiei sau in cazull necesitatii modificarii manuale a datelor, aceasta modfica re sa fie efectuata numai de personal calificat
- (DBS-06) informatiile de tip data-timp (data, ora, etc...) vor fi stocate de preferinta sub forma de String in formatul ISO: YYYY-MM-DD HH:MM:SS.nnnnn.
- (DBS-07) informatii de data-timp vor fi stocate avind valori agnostice de "Time Zone" adica vor fi considerate

  UTC lucru care va permite comparabilitatea acestora indiferent de locatia /zpna de timp de unde au fost
  generate.

## 21.4 Considerente generale privind auditarea informatiilor

- Cimpurile de audit ce indica utilizatori:
  - (AUD-01) pentru informatiile CONSTIENT GENERATE DE UTILIZATORI (adica generate prin activarea unor controale vizuale, prin lansarea manuala a unei aplicatii, etc), aceste cimpuri vor contine numele tip username al utilizatorului folosit pentru autentificarea in sistem
  - (AUD-02) pentru informatiile GENERATE DE SISTEM la rulari automate, periodice, de verificare, de validare, etc, aceste cimpuri vor contine textul system (pentru a evita confuzii cu utilizatori reali la nivel de sistem de operare)
- (AUD-03) Cimpurile de audit ce indica date calendaristice vor respecta standardul ISO fiind in formatul maximal YYYY-MM-DD hh:mm:ss

# INVOICE to RO E-Fact to #Chares Software Coules

#### **INVOICEtoROefact System**

(c) 2023 RENware Software Systems

## 22 Propunere tehnica sistem INVOICEtoROefact

#### **Cuprins:**

- Propunere tehnica sistem INVOICEtoROefact
  - Objective
  - Vedere de ansamblu a solutiei
  - Componenta xl2roefact
    - Diagrama logica de functionare a componentei
  - Componenta WEB\_DASHB
  - Componenta SYSTEM\_DB
- p/n: 0000-0095
- code-name: api\_to\_roefact
- commercial name: INVOICEtoROefact
- url propunere tehnica: http://apitoroefact.renware.eu/commercial\_agreement/110-SRE-api\_to\_roefact\_requirements.html
- git: https://github.com/petre-renware/api\_to\_roefact

### **Cuprins:**

- Propunere tehnica sistem INVOICEtoROefact
  - Objective
  - · Vedere de ansamblu a solutiei
  - · Componenta xl2roefact
    - Diagrama logica de functionare a componentei
  - Componenta WEB\_DASHB
  - Componenta SYSTEM\_DB

#### 22.1 Objective

Acest sistem va asigura incarcarea facturilor emise in sistemul ANAF E-Factura (https://www.anaf.ro/anaf/internet/ANAF/despre\_anaf/strategii\_anaf/proiecte\_digitalizare/e.factura) cu respectarea reglementarilor publicate in acest sens (lista contine si legaturi catre fisierele publicate de catre ANAF):

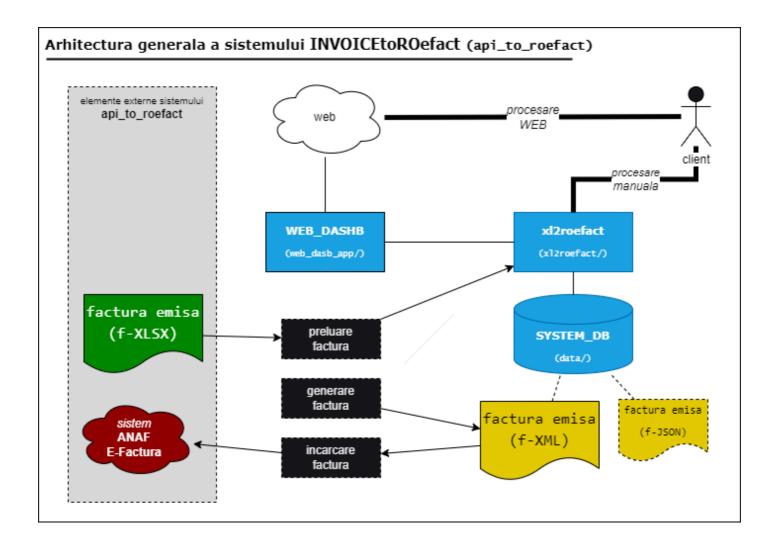
- Conformarea la modificarile legislative si utilizarea sistemului (https://static.anaf.ro/static/10/Anaf/Informatii\_R/Informatii\_modificare\_CIUS\_RO.pdf)
- Informatii de interes referitoare la implementarea sistemului național privind factura electronică RO e-Factura (https://static.anaf.ro/static/10/Anaf/Informatii\_R/Comunicat\_e-factura\_aprilie2022\_v2\_050422.pdf)
- Instrucțiuni de utilizare
   (https://static.anaf.ro/static/10/Anaf/Informatii\_R/API/Oauth\_procedura\_inregistrare\_aplicatii\_portal\_ANAF.
   pdf)

### 22.2 Vedere de ansamblu a solutiei

Solutia api\_to\_roefact consta din urmatoarele componente:

- api\_to\_roefact . x12roefact aceasta componenta are rolul de a implementa efectiv obiectivele principale ale sistemului INVOICEtoROefact. Componenta este capabila sa ruleze atit "standalone" (ca linie de comanda CLI) dar si prin utilizarea ei de catre componenta WEB\_DASHB si astfel utilizarea ei in varianta de sistem prezentat "over internet / intranet". Prezentarea detalita a acesteia se gaseste aici.
- api\_to\_roefact . WEB\_DASHB aceasta componenta are rolul de agrega componentele si de a prezenta solutia INVOICEtoROefact "over internet / intranet". De asemenea componenta asigura modulele UI necesare pentru administrarea sistemului. Prezentarea detalita a acesteia se gaseste aici.
- api\_to\_roefact . SYSTEM\_DB .Aceasta componente reprezita baza de date a sistemului INVOICEtoROefact atit partea relationala dar si partea no-sql a acesteia (utilizata pentru eventuale sincrnizari provenite din utilizarea CLI a componentei x12roefact ). Prezentarea detalita a acesteia se gaseste aici.

Figura urmatoare prezinta schematic rolul general al componentelor precum si interactiunea acestora cu mediul exterior sistemului api\_to\_roefact.



## 22.3 Componenta xl2roefact

- (RDINV) modul de procesare a fisierului format XLSX ce contine factura si colectare a datelor aferente
  - INTRARI: fisier format XLSX ce contine factura emisa (cod: f-XLSX)
  - IESIRI: fisier format JSON imagine a datelor facturii (cod: f-JSON)
- (WRXML) modul de generare a fisierului format XML
  - INTRARI: fisier f-JSON
  - IESIRI: fisier format XML conform cerintelor si sistemului ANAF E-Factura (cod: f-XML)
- (CHKXML) modul de validare a facturii in sistemul ANAF E-Factura
  - INTRARI: fisier f-XML
  - IESIRI: raport cu eventualele erori de validare <sup>1</sup>
- (LDXML) modul de incarcare a facturii in sistemul ANAF E-Factura
  - INTRARI: fisier f-XML
  - IESIRI: raport cu validarea si identificatorul incarcarii 1
- (CHKISLD) modul de verificare a starii de incarcare a unei facturi emise

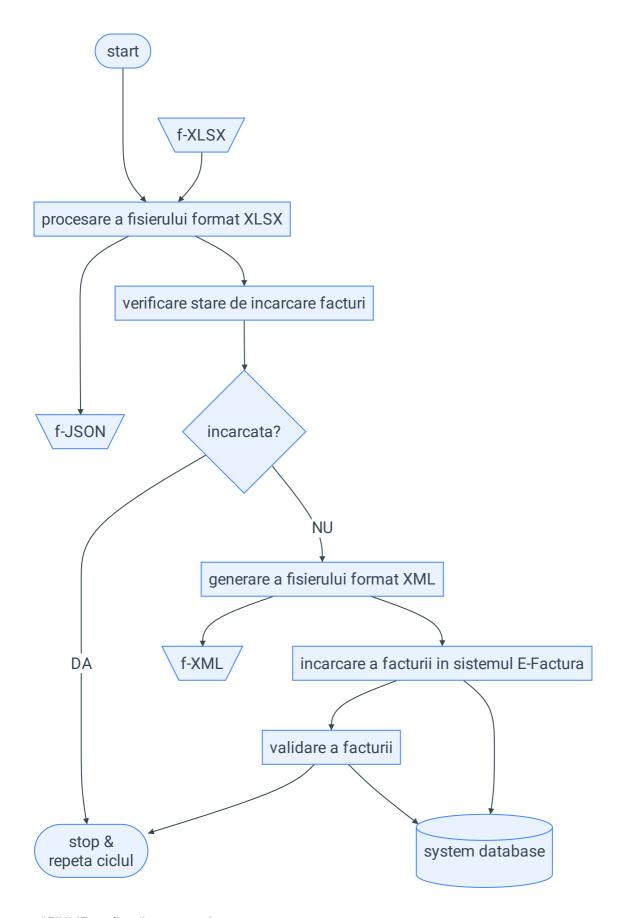
- INTRARI: fisier f-XLSX sau numarul / cheia / codul facturii
- IESIRI: valoarea echivalent TRUE daca factura a fost deja incarcata sau valoare echivalent FALSE daca factura nu a fost incarcata 2



#### Formatul fisierelor Excel cu factura

XLSX este sigurul format de fisier acceptat

## 22.3.1 Diagrama logica de functionare a componentei



...#FIXME explicatii necesare?...

## 22.4 Componenta WEB\_DASHB



...INCOMING...

## 22.5 Componenta SYSTEM\_DB



...INCOMING...

- 1. raportul se scrie in baza de date a sistemului si in fisierul f-XLSX intr-un worksheet separat dedicat acestui scop ← ←
- 2. in cazul valorii echivalent TRUE se poate intoarce identificatorul incarcarii daca este disponibil 🗠

#### **RENware Software Systems**

## 23 Propunere tehnica sistem PayValidaBoa

#### **Cuprins:**

- · Propunere tehnica sistem PayValidaBoa
  - Objective
  - Vedere de ansamblu a solutiei
  - · Cerinte functionale generale
  - Componenta xxx
- p/n: 0000-0094
- code-name: payments\_validation\_board
- · commercial name: PayValidaBoa
- url propunere tehnica: http://apitoroefact.renware.eu/commercial\_agreement/110-SRE-payments\_validation\_board\_req.uirements.html
- git: n/a

#### **Cuprins:**

- · Propunere tehnica sistem PayValidaBoa
  - Objective
  - · Vedere de ansamblu a solutiei
  - · Cerinte functionale generale
  - Componenta xxx

### 23.1 Objective

Acest sistem asigura prezentarea unui "dashboard" cu lista facturilor primite si starea lor de **verificare si aprobare interna** in vederea ordonantarii lor la plata.

### 23.2 Vedere de ansamblu a solutiei

Sistemul payments\_validation\_board consta din urmatoarele componente:

• INV\_TOPMNG\_BOARD - aceasta componenta prezinta pentru MANAGEMNTul tip CFO lista facturilor primite si starea lor referitor la validarea si aprobarea lor finala si un control pentru APROBARE FINALA sau BUN DE PATA.

- INV\_CHK\_BOARD aceasta componenta prezinta pentru VERIFICATORI si APROBABTORI lista fa/turilor primite si diverse controale pentru aprobarea si scrierea de diverse note si observatii.
- INV\_NOTIF\_BOARD aceasta componenta prezinta notificari referitoare la diversele OBSERVATII si NOTE facture asupra facturilor primite in diverse stadii de aprobare de catre persoanele care efectueaza verificari asupra lor (prin componenta INV\_CHK). Notificarile sunt disponibile atit in interfata aplicatiei iar unele din ele pot fi transmise prin mail.
- INV\_LD\_FOR\_APPRV aceasta componenta permite incarcarea facturilor in fluxul de aprobare. Optiuni de incarcare:
  - manuala (dintr-un board al aplicatiei)
  - · automata dintr-un director
  - dintr-o baza de date externa sistemului (cu "marcarea" facturilor ce vor trebui incarcate)
  - la incarcare (indiferent de metoda) vor trebui specificati (sau dedusi din alte informatii) DESTINATARII ce primesc documentul
- ADMIN\_CFG aceasta componenta permite pentru ADMINISTRATORI diverse OPTIUNI DE CONFIGURARE:
  - lista utilizatorilor ce fac parte dinfluxul de aprobare
  - · adresele e-mail ale utilizatorilor
  - rolul utilizatorilor in accea ce priveste fluxul de aprobare facturile primite
  - certificate si semnaturile de certificare a "semnaturilor" de aprobare
  - ...

Figura urmatoare prezinta schematic rolul general al componentelor precum si interactiunea acestora cu mediul exterior sistemului payments\_validation\_board.



...IN PROGRESS...

## 23.3 Cerinte functionale generale



...INCOMING...

## 23.4 Componenta xxx



...INCOMING...

**RENware Software Systems** 

## 24 Optiuni tehnice

#### **Cuprins:**

- · Optiuni tehnice
  - · Optiuni sistem INVOICEtoROefact
    - Recomandari sistem INVOICEtoROefact
  - · Optiuni sistem PayValidaBoa
  - Optiuni generale de implementare

Acest document prezinta posibilele optiuni tehnice la cele doua sisteme, optiuni care vor trebui agreate si (preferabil) planificate cel putin din punct de vedere al prioritatii.

## 24.1 Optiuni sistem INVOICEtoROefact

### Forma de utilizare si interactionare

- 🗆 (INVOICEtoROefact-RQ-01) varianta CLI (command line) cu utilizare "individuala"
- 🗆 (INVOICEtoROefact-RQ-02) varianta WEB cu utilizare centralizata

## Configurabilitate

- [INVOICEtoROefact-RQ-03] varianta in care se prelucreaza un model de fisier Excel in care sunt "fixate si blocate" locatiile celulelor ce contin date relevante
- [INVOICEtoROefact-RQ-04] varianta in care structura si formatul fisierului Excel contin "cuvinte cheie" ce determina regasirea date relevante (de exemplu textul "Client:" intr-o celula semnifica inceperea unei zone cu datele clientului de la acea celula in jos si pina prima celula necompletata ce va fi gasita)

#### 24.1.1 Recomandari sistem INVOICEtoROefact

- varianta (INVOICEtoROefact-RQ-01) este recomandata ca fiind "aproape obligatorie" deoarece chiar si in varianta WEB ea va trebui scrisa intr-o forma neutilizabila direct (sub forma de functie a sistemlui).
   Transformarea acestei functii in varianta CLI va permite o executie portabila ("la purtator") si offline (in situatii extreme se poate folosi doar fisierul XML generat si acesta va putea fi manual incarcat in ANAF-SPV).
   Informatia privind "starea de incarcare a facturii" va fi oricum salvata si in fisierul Excel aferent facturii si va putea fi preluata de catre varianta WEB pentru centralizarea informatiilor- a se vedea si modulul LDXML si notele de subsol aferente
- optiunea (INVOICEtoROefact-RQ-03) este recomandata ca varianta de start deoarece va permite realizarea unei variante OPERATIONALE (de lucru curent si testare) intr-un termen mai scurt, urmind ca aceasta optiune sa fie gradat extinsa si cu optiunea (INVOICEtoROefact-RQ-04). Aceasta "linie de lucru" nu va induce probleme, avind in vedere ca orice optiune / varianta aleasa ca varianta de start si planificata a fi extinsa va implica si MIGRAREA datelor deja produse la momentul extinderii ei

## 24.2 Optiuni sistem PayValidaBoa

## Д

#### Framework standardizat de orchestrare

- 🗆 (PayValidaBoa-RQ-01) utilizarea unui framework specializat de orchestrare si integrare cu alte sisteme "externe"
  - Implicatii: poate mari durata de implementare
  - Avantaje: utilizarea ulterioara pentru integrare intre sisteme ce prezita interfata standardizata (REST, SOA, NTFS, EXT4, OAuth, ...)

## Д

#### Semnare electronica a facturilor verificate

- (PayValidaBoa-RQ-02) utilizarea de certificat tip "semnatura electronica" pentru autentificarea verificarii facturilor EMBEDDED IN FACTURA
- (PayValidaBoa-RQ-03) utilizarea de certificat tip "semnatura electronica" pentru autentificarea verificarii facturilor adiacet facturii disponibil pentru consultare numai in sistemul PayValidaBoa
- (PayValidaBoa-RQ-04) verificarea facturilor nu necesita certificat tip "semnatura electronica" ci simpla informatie existenta in sistemul PayValidaBoa este suficienta



#### Baza de date 'interna / specifica' sistemului PayValidaBoa

• a se vedea documentul "Considerente tehnice generale", sectiunea "Considerente generale privind bazele de date proprii sistemelor", item "(DBS-03)" pentru opptiuni privind baza de date ce va fi utilizata "pentru operatiuni interne si specifice" de catre sistemul PayValidaBoa

## 24.3 Optiuni generale de implementare

Sistemele tip infrastructura ce vor fi utilizate
• (general-RQ-01) - server web-HTTP pentru aplicatiile de tip WEB (ATENTIE: sistemele WEB ce vor fi implementate necesita interfata / mod de operare standard WSGI)
• 🖂 (general-RQ-02) - sistem de autentificare utilizat (intern aplicatie, Google, Identity Management propriu,)
• 🗆 (general-RQ-03) - sistemele vor rula pe infrastructura proprie sau aceastea vor rula in infrastructuri gazduite
Alte optiuni 'ad-hoc' (in sedinta)
•
•
•
•
•

**RENware Software Systems** 

## 25 Descarcare resurse (downloads)

## 25.1 Format biblioteca Python

#### 25.1.1 Pachetul xl2roefact pe PyPi

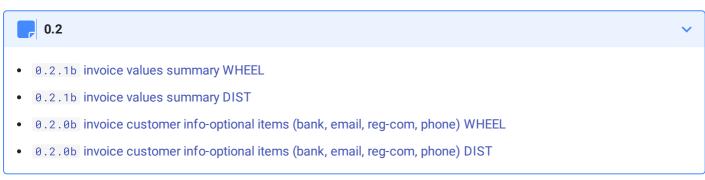
Versiunea de pe pe repository-ul public PyPi permite instalarea directa in mediul Python local astfel:

```
pip install xl2roefact
```

In acest mod va fi instalata automat ultima versiune publicata pe *PyPi* (https://pypi.org/project/xl2roefact/) . Accesati linkul anterior pentru a putea accesa alte versiuni publicate pe *PyPi* si modul de instalare a acestora.

#### 25.1.2 Pachetul xl2roefact python library format sursa





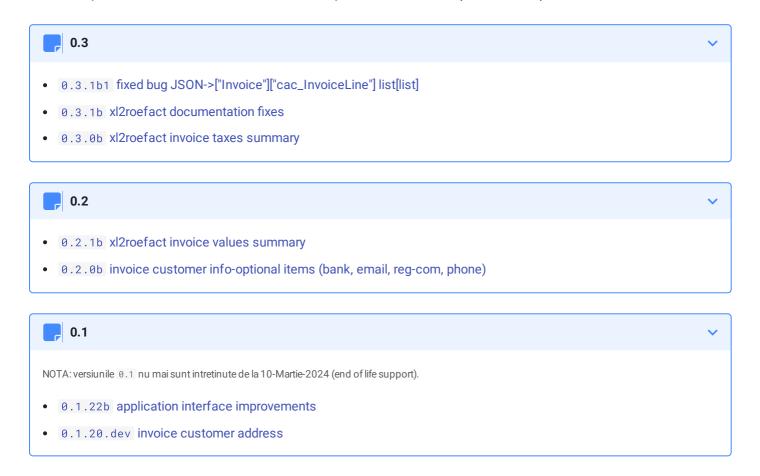


### 25.1.3 Pachetul web2roefact pe PyPi

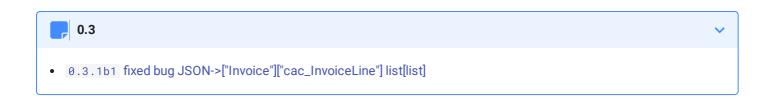
Nici o resursa disponibila.

#### 25.2 Format executabil Windows x64

#### 25.2.1 Aplicatia xl2roefact linie comanda pachet instalare (win64-msi)



### 25.2.2 Aplicatia xl2roefact linie comanda executabil portabil (win64-exe)



## 25.2.3 Aplicatia web2roefact pachet instalare (win64-msi)

Nici o resursa disponibila.

### 25.3 Format DEB instalare Linux

Nici o resursa disponibila.

## 25.4 Sablon template factura



VII. About

#### GNU GENERAL PUBLIC LICENSE Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. https://fsf.org/ (https://fsf.org/) Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

#### Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

#### TERMS AND CONDITIONS

#### 1. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To "modify" a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a "modified version" of the earlier work or a work "based on" the earlier work.

A "covered work" means either the unmodified Program or a work based on the Program.

To "propagate" a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To "convey" a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays "Appropriate Legal Notices" to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

#### 1. Source Code.

The "source code" for a work means the preferred form of the work for making modifications to it. "Object code" means any non-source form of a work.

A "Standard Interface" means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The "System Libraries" of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

#### 1. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

1. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

#### 1. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

1. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

- a) The work must carry prominent notices stating that you modified it, and giving a relevant date.
- b) The work must carry prominent notices stating that it is released under this License and any conditions added under section7. This requirement modifies the requirement in section 4 to "keep intact all notices".
- c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.
- d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an "aggregate" if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

1. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

- a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.
- b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.
- c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.
- d) Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.
- e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

#### 1. Additional Terms.

"Additional permissions" are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material) supplement the terms of this License with terms:

- a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or
- b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or
- c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or
- d) Limiting the use for publicity purposes of names of licensors or authors of the material; or
- e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or
- f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered "further restrictions" within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

#### 1. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

#### 1. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

#### 1. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

#### 1. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

#### 1. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

1. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

#### 1. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

#### 1. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

#### 1. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### 1. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

```
END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Programs
```

If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively state the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

```
<one line to give the program's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <https://www.gnu.org/licenses/>.
```

Also add information on how to contact you by electronic and paper mail.

If the program does terminal interaction, make it output a short notice like this when it starts in an interactive mode:

The hypothetical commands show w' and show c' should show the appropriate parts of the General Public License. Of course, your program's commands might be different; for a GUI interface, you would use an "about box".

You should also get your employer (if you work as a programmer) or school, if any, to sign a "copyright disclaimer" for the program, if necessary. For more information on this, and how to apply and follow the GNU GPL, see <a href="https://www.gnu.org/licenses/">https://www.gnu.org/licenses/</a> (<a href="https://www.gnu.org/licenses/">https://www.gnu.org/licenses/</a>).

The GNU General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License. But first, please read https://www.gnu.org/licenses/why-not-lgpl.html (https://www.gnu.org/licenses/why-not-lgpl.html).

# VII.I Despre INVOICEtoROefact

#### **RENware Software Systems**

#### **INVOICEtoROeFact** Project

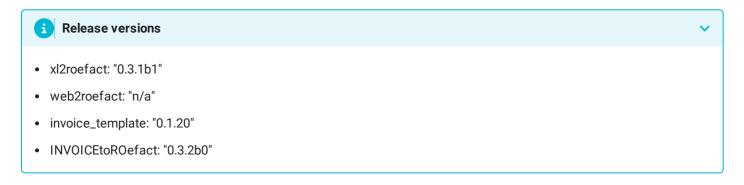
- CHANGELOG
  - 0.3
    - wip... 0.3.2b0 single EXE version (...date\_here...)
    - 0.3.1b1 fixed bug JSON->["Invoice"]["cac\_InvoiceLine"] list[list] (230306 h19:30)
- Archived CHANGELOGs
  - 0.3 version
  - 0.2 version
  - 0.1 version

## 26 CHANGELOG

- · For version code structure meaning see SDEVEN methodology document
- with (F) are marked those changes that are features in order to be copied in a RELNOTE file and with (B) bug fixes from versions released
- publishing is made under publishing branch
- <PROJECT\_ROOT>/doc\_src/ is the default starting location in a file path (if not clear from context) (ATTN in production environment is docs/)
- <WEB\_ROOT>/ is the HTTP server root directory, as default docs/ and supposed if no other parent is specified

### 26.10.3

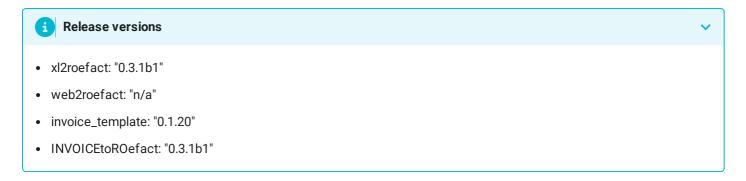
#### 26.1.1 wip... 0.3.2b0 single EXE version (...date\_here...)



- 240311piu02 run script build\_doc to update ref libutils.py module. Update & publish site.
- 240311piu01 update downloads.md to include single exe resource starting with last stable version = 0.3.1b1

- 240308piu00 update app\_cli, option --version to get normalized version string
- 240308piu01 make single EXE with pyinstaller
  - 1. ck & install pyinstaller in local environment. Update it if necessary
  - 2. adhoc try to execute it. Make a command for (build\_sexe) RESULTS: .../x12roefact/dist/x12roefact/.. with exe & various files
  - 3. created a PDM script for command build\_sexe
  - ✓ 4. result produced in ...dist/x12roefact/dist/ a little bit unacceptable but ok for that step
  - ✓ 5. adjust command build\_sexe to produce a single file EXE RESOLUTION: up here resulted one file x12roefact.exe in .../dist/ directory
  - ✓ 6. adjust command build\_sexe to produce exe in other-temp directory for name processing (req here in nxt item-step)
  - √ 7. installed packaging package and updated x12roefact.\_\_version\_\_ module with function normalized\_version(raw\_version: str) -> str
  - 8. adjust command build\_sexe to produce right file name as x12roefact-0.3.1.b1-win64.exe and move it in .../dist/ dir. Specs:
    - in pyproject.toml make post\_build\_sexe entry of call type {call =
       "x12roefact.libutils:complete\_sexe\_file()"}
    - ✓ update \_\_version\_\_ modules to accommodate this function
    - skeleton rdy libutils module for function complete\_sexe\_file() that rename and move resulted exe file: .../dist\_sexe/xl2roefact\_to\_update\_name.exe --> .../dist/xl2roefact-version-win64.exe`
    - finalize & test code of complete\_sexe\_file() ==> PASS
  - 9. in pyproject.toml include build\_sexe cmd in build\_all
  - ✓ 10. build single exe for current stable version of xl2roefact = 0.3.1b1. Updated tech doc DLD (xl2roefact API Reference)
  - ✓ 11. FIX: single exe not work. FIX: Must to HAVE DIFFERENT NAME THAN DIRECTORY x12roefact/. Created copy x12roefact\_copy\_for\_sexe.py for xl2roefact.py to be used by pyinstaller in build\_sexe script. This file should be kept on as a perfect copy of original (as sym-link doesn't work).
- 240307piu01 xl2roefact pdm environment created a script for **build PyPi** operation. PDM run script CAN be used from local development environment but CANNOT be used in build\_pypi automation, at execution raise error that cannot execute mkdir on branch NOT ANALYZED, just reverted workflow to previous one
- 230406piu08 updated downloads.md ref end-of-life date of all 0.1... versions: 10-March-2024

26.1.2 0.3.1b1 fixed bug JSON->["Invoice"]["cac\_InvoiceLine"] list[list] (230306 h19:30)



- 230406piu07 release version:
  - 1. update xl2roefact version
  - 2. build new app
  - 3. update downloads.md doc
  - 3. build site
  - 4. publish on PyPi
- 230406piu06 FIXED 240306piu05 ref JSON->["Invoice"]["cac\_InvoiceLine"] list[list] bug by transforming in 1-dimensional list using strategy from TO FIX -> item 3. TEST PASS.
- 240306piu05 TEST POINT: converted online the invoice JSON file to XML ==> Fact\_Petrom\_11017969.xml.

#### **RESOLUTIONS:**

- ATTN: the usable part is strict those related to "Invoice" key, any other information is not relevant and will not be included in application generated XML
- TO FIX: JSON generated key "cac\_InvoiceLine" is list[list] the first list being obsolete (just item 0 which is the effective list). Proposals:
  - a. at XML generation to preserve only <code>cac\_InvoiceLine[0]</code> pro: SIMPLE, REASONABLE, LATERAL EFFECTS FREE cons: JSON file remain for this key as "non-intuitive" information
  - a. re-engineer rdinv.py to generate right info structure for this key pro: right and intuitive JSON information presentation cons: a lot of lateral effects, there is "a lot of code" that already extract only item 0 and this code could be in functions out of rdinv.py module, for example in libutils.py
  - a. update module rdinv.py to preserve only index 0 when create key cac\_InvoiceLine, line ~408 so:
    - b. ACTUAL value: "cac\_InvoiceLine": copy.deepcopy(tmp\_InvoiceLine\_list),
    - c. DESIRED value:

```
"cac_InvoiceLine": copy.deepcopy(tmp_InvoiceLine_list)[0],
```

240306piu04 archived 0.3.0b & 0.3.1b versions

## 27 Archived CHANGELOGs



## 27.1 0.3 version

- 0.3.1b promote v0.3.0b0 deliverables: WHEEL, TRA.GZ, MSI to 0.3.1b
- 0.3.0b xl2roefact invoice taxes summary



### 27.2 0.2 version

- 0.2.2.dev project development environment improvements
- 0.2.1b invoice grand totals
- 0.2.0b xl2roefact invoice customer info-optional items (bank, email, reg-com, phone)



### 27.3 0.1 version

- 0.1.22b xl2roefact application interface improvements
- 0.1.21.post3 cleaned system documentation and site
- 0.1.21.post2 xl2roefact app detailed section with commands & options "--help" like
- 0.1.21.post1 fixed missing links in site root index page
- 0.1.21 rollout news in system portal invoicetoroefact.renware.eu
- 0.1.20.dev invoice customer address
- 0.1.19.dev invoice customer and partial invoice total values calculations
- 0.1.18.dev invoice customer CUI partial invoice total values calculations
- 0.1.17.dev fixed all application & package running standard ways
- 0.1.16.dev improving Excel kv-data search with "IN-LABEL" method
- 0.1.15 updated solution portal http://invoicetoroefact.renware.eu/
- 0.1.14.dev invoice issue date
- 0.1.13.dev invoice currency
- 0.1.12.dev invoice number
- 0.1.11.dev packaging improvements for app & xl2roefact package
- 0.1.10.dev command interface improved, msi package building, invoice template & updated documentation
- 0.1.9.dev x12roefact.RDINV running executable and distribution kit
- 0.1.8.dev improved application structure and first executable release
- 0.1.7.dev x12roefact.RDINV invoice items & metadata + OPEN ISSUES
- 0.1.6.dev commercial agreement OPTIONS document
- 0.1.5.dev init component xl2roefact for CLI application
- 0.1.4.dev Create system backbone structure
- 0.1.3.dev Enhancing payments\_validation\_board technical proposal
- 0.1.2.dev Enhancing APItoROefact technical proposal
- 0.1.1.dev Elaborating technical proposal
- 0.1.0.dev System raw backbone