

EuroTCL 2019 – Part 1

Barcode Interface to an existing ERP system
using TCL

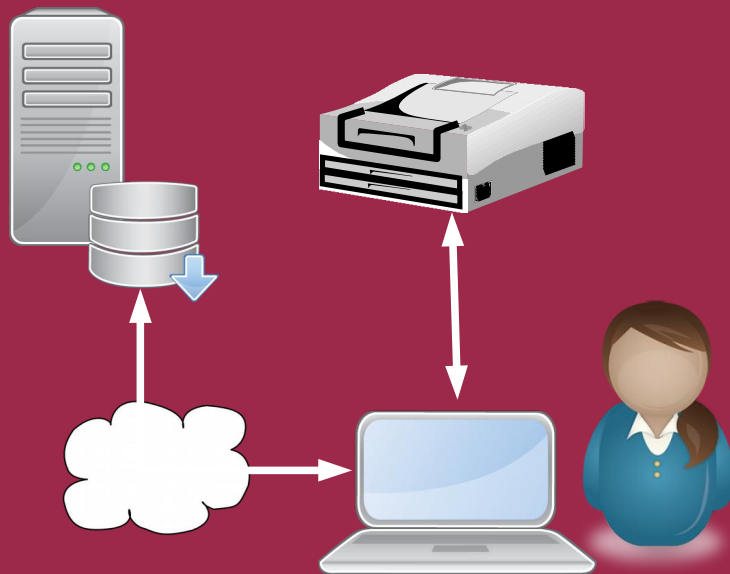


Gerhard Reithofer
2019-06-29, Nuremberg

Overview

- Basic situation
- Extended requirements
- Barcode management
 - Barcode database
 - Barcode Label Printer
 - Barcode and price labels
- Invoice Support
 - Barcode hand scanner (virtual keyboard)

Basic setup



- Old Java based web application (Java Server Faces) and PHP
- Remote access via web browser, no database access, no API
- Local printing off server side generated invoices PDF files.
- Large article stock requires much product and background knowledge



Object:
„fädelschaf“

Invoicing – the Story

Live Show



1. Search supplier
2. Search article
3. Add user data
4. Put it onto invoice

1.

kundendaten
suche

artikelname

lieferant

artikel id

artikelvariation id

artikelliste

lamprecht ag

lamy

leander

leander böblingen

Leonardo Specials bv

les jouets libres

les rêves d'anais (böblingen)

leschi

lexon über klein+more

Liebes von Priebs (Böblingen)

2.

rechnung erstellen

system-zeit : 23.06.2019 17:14:4

anzeigerdatei_96_idjsp160 "suchen" 0.4850s phpscript laufzeit : 0.0010

online-kasse aktiviert

kundendaten
suche

artikelname

lieferant

artikel id

artikelvariation id

artikelliste

Bitte Artikel auswählen

erstes legespiel animal blocks

fädelschaf

pictocraft

runny run run

time to play - spiele für unterwegs

3.

rechnung

menge	artikel	farbe	größe	material	preis
4	fädelschaf	graue wolke			92,00 €

betrag: 92,00 €

gutschein (euro): 0,00

gutschein id:

gutscheincode neu:

rabatt (%): 0,00

gutschrift einl./rabatt: 0,00

endbetrag: 92,00 €

mwst.: enthaltene mwst 19% 14,69€

anzahlung (euro): 0,00

zahlungsart:

bemerkung:

4.

rechnung erstellen

system-zeit : 23.06.2019 17:03:07

online-kasse aktiviert

kundendaten
suche

artikelname

lieferant

artikel id

artikelvariation id

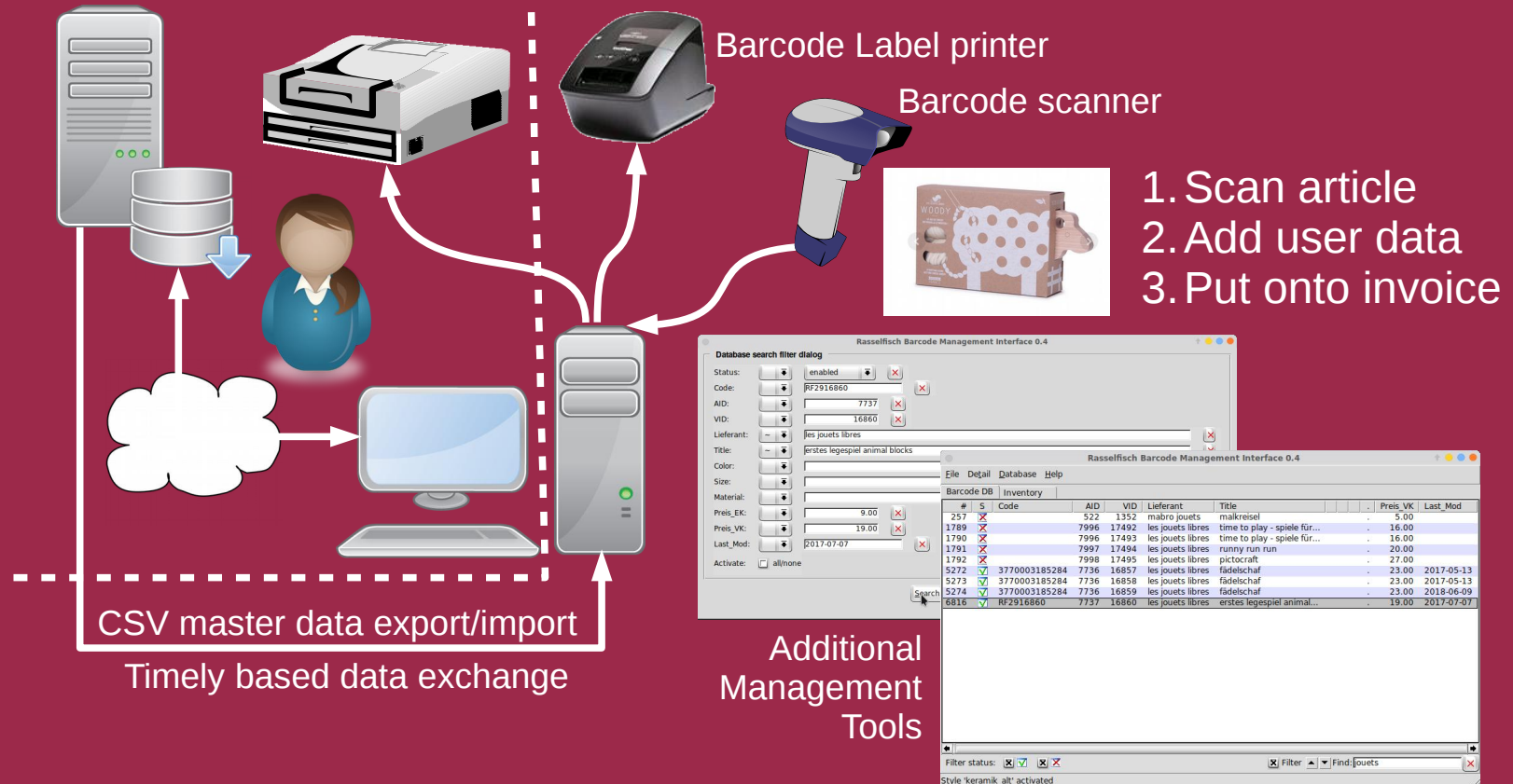
artikelliste

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Extended setup

Live Show



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Interface - Database

Master data (import) and barcode data (local DB)

Tables: **Inventory:** CVS import (copy of master data)
Barcode: Additional barcode information

View: **Bcode_View:**
Joined table for convenient displaying data in GUI



Table "inventory"

Aid	numeric(10,0)
Vid	integer
Lieferant	character varying(255)
Title	character varying(255)
Color	character varying(255)
Size	character varying(255)
Material	character varying(255)
preis_ek	numeric(10,2)
preis_vk	numeric(10,2)

Table "barcode"

status	numeric(2,0)
code	character varying(13)
vid	integer
last_mod	date



Barcode Programming

Many barcode standards exist

Label printer

CODABAR
CODE128
CODE39
CODE93
EAN-8
EAN-13
GS1-128(UCC/EAN-128)
ITF(I-2/5)
POSTNET
RSS symbols
UPC-E
UPC-A
UPC/EAN EXTENTION

Hand scanner

Code11
Code128
Code39
Code39(ASCII code)
Code93
Cross
Code25 IT 25
Coda bar
EAN-13
EAN-8 ISBN/ISSN
MSI/Plessey
UCC/EAN128
UPC-A
UPC-E

Zbar interface

CODABAR
CODE128
CODE39
CODE93
DATABAR
DATABAR_EXP
EAN8
EAN13
I25
ISBN10
ISBN13
QRCODE
UPCE
UPCA

„Code 39 (also known as Alpha39, Code 3 of 9, Code 3/9, Type 39, USS Code 39, or USD-3) is a variable length, discrete barcode symbology.“
(Wikipedia)

„The International Article Number (also known as European Article Number or EAN) is a standard describing a barcode symbology and numbering system...“
(Wikipedia)

Barcode printer

Live Show

Requested tasks for a label printer: [Label examples](#)

1. Creation of barcode labels (29 different label and paper formats)
2. Labelling products with price and other meta data (identification)

Brother QL-720NW – specification

Printing method	Direct thermal printing via thermal head
Print head	300 dpi/720 dot
Max. printing width	2.3" (59 mm)
Max. printing length	39.37" (1 m)
Min. printing length	0.5" (12.7 mm)
Cutter	Durable automatic cutter
Interfaces:	RS-232C, USB Full speed, Ethernet 10BASE-T/100BASE-TX, Wireless Network
Driver support:	Windows, Mac OS, MacOS X, Linux (RPM, DEB incl. Raspberry), Android, iOS
Printer languages:	P-touch, Raster, ESC/P (used)



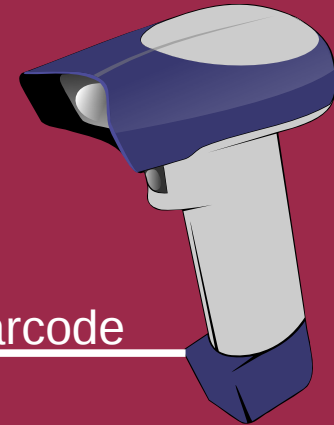
Hand held scanner (1)

Live Show

The hand held scanner is a barcode laser scanner, the USB device becomes registered as keyboard.

Keyboard driver written in C:

<http://www.ibuyopenwrt.com/index.php/15-yun-compatible/hardware-yun/39-interface-barcode-scanner>



X11 input stack

xinput --list --short

```
Virtual core pointer          id=2 [master pointer (3)]
└─ Virtual core XTEST pointer id=4 [slave pointer (2)]
  └─ Logitech USB Keyboard    id=10 [slave pointer (2)]
    └─ USB OPTICAL MOUSE      id=11 [slave pointer (2)]
      └─ Logitech K400 Plus    id=13 [slave pointer (2)]
Virtual core keyboard         id=3 [master keyboard (2)]
└─ Virtual core XTEST keyboard id=5 [slave keyboard (3)]
  └─ Power Button            id=6 [slave keyboard (3)]
    └─ Video Bus              id=7 [slave keyboard (3)]
      └─ Power Button          id=8 [slave keyboard (3)]
        └─ Logitech USB Keyboard id=9 [slave keyboard (3)]
          └─ Logitech USB Keyboard id=12 [slave keyboard (3)]
            └─ Logitech K400 Plus id=14 [slave keyboard (3)]
```

Identifier

Barcode

xinput --float 14
xinput --reattach 14 3

```
Virtual core keyboard         id=3 [master keyboard (2)]
└─ Virtual core XTEST keyboard id=5 [slave keyboard (3)]
  └─ Power Button            id=6 [slave keyboard (3)]
    └─ Video Bus              id=7 [slave keyboard (3)]
      └─ Power Button          id=8 [slave keyboard (3)]
        └─ Logitech USB Keyboard id=9 [slave keyboard (3)]
          └─ Logitech USB Keyboard id=12 [slave keyboard (3)]
            └─ Logitech K400 Plus id=14 [floating slave]
```

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Hand held scanner (2)

Live Show

The next problem is how to get the „scanning“ result into the Web-GUI of the ERP system.

X11 Event calls

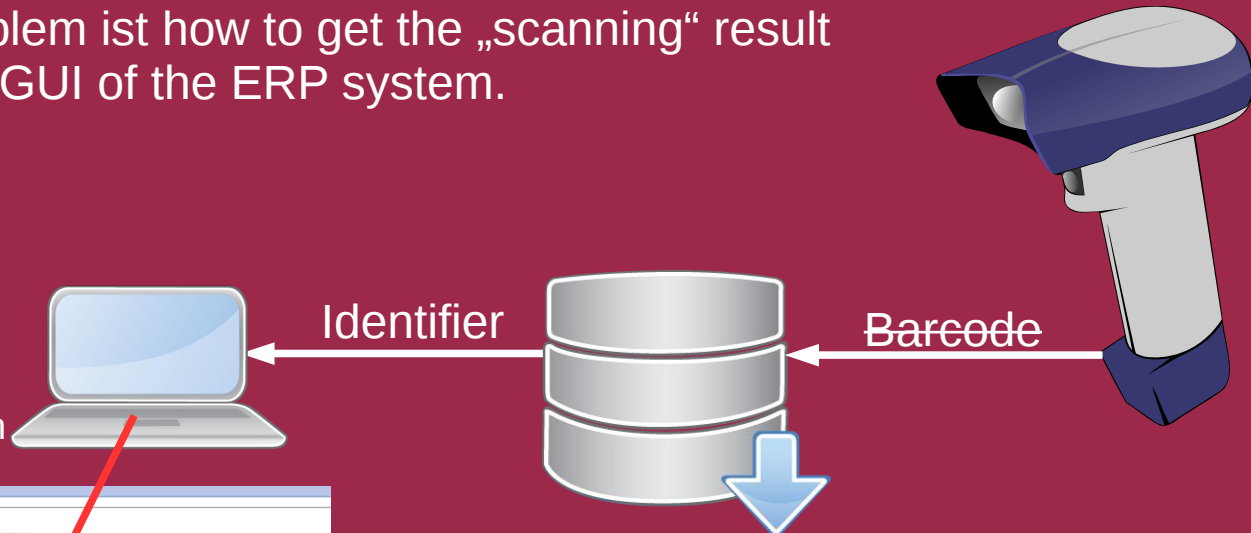
xdotool

```
value=16858  
xdotool type $value  
xdotool key Tab Return
```

rechnung erstellen
system-zeit : 23.06.2019 17:03:07
online-kasse aktiviert

kundendaten
suche

artikelname	<input type="text"/>	suchen
lieferant	bitte lieferant auswählen	suchen
artikel id	<input type="text"/>	suchen
artikelvariation id	<input type="text"/>	suchen
artikelliste	<input type="text"/>	anzeigen



1. Emulate the reception of '3770003185284' ...
2. Searching database for ID ... found 16858.
3. Entering the VID value 16858 in the web GUI ...
4. Switch to 'Search' button and press 'Return' ...

Open Questions?



1. Scan article
2. Add user data
3. Put onto invoice

rechnung erstellen

system-zeit : 23.06.2019 17:03:07

online-kasse aktiviert

kundendaten

suche

artikelname

lieferant

artikel id

artikelvariation id

artikelliste



rechnung erstellen

system-zeit : 23.06.2019 17:25:37

anzeigedauer_96_idjsp233 "auf die rechnung" : 0.6200s phpscript laufzeit : 0.0010s

online-kasse aktiviert

kundendaten

suche

artikelname

lieferant

artikel id

artikelvariation id

artikelliste

eingabe

menge	artikel	größe	farbe	material	mwst	neuer preis	normalpreis
0	fädelschaf	braune wolle			19 %	0,00	23,00 €
4	fädelschaf	graue wolle			19 %	0,00	23,00 €
0	fädelschaf	weiße wolle			19 %	0,00	23,00 €

auf die rechnung

rechnung

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