



Libretto 2 manual

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About this manual

This manual is intended as a end-user manual for daily operations of the **Libretto 2** sorter and accompanying software.

There are separate, more in-depth manuals available for some parts of the device, such as the sorting editor and receipt layout editing.

This manual applies to Libretto 2 version **2.0.5744.15550** .

Updated **07.10.2015** .

Installed components

The sorter is constructed out of several different kinds of modules. These modules have a specific task in checking in and sorting the material. A minimum configuration of modules is one front end-module and one sorting module or a single Compact sorter module. There is no maximum number of modules; the only real limit is the space available.

The most interesting module is the front end (also referred to as inlet). A front end handles the checking in of the material and controlling the rest of the sorter for where to sort a specific item. A front end contains a computer with LibRetto 2 software.

Software environment

The sorter comes with several software components. These are

- **Libretto 2:** The main user interface and controlling application of the device. Contains also an administration mode which is used to activate backdate return mode or to shut down the software.
- **Management utility:** This application is used to manage various settings and configurations of the device.
- **Sorting editor:** A graphical user interface for defining sorting rule sets for the device.
- **Language editor:** A graphical user interface for changing on-screen language texts.
- **Receipt editor:** A graphical tool for creating / modifying receipts; both end-user receipt and hold/transfer receipts.
- **Reporter:** A reporting tool for obtaining sorter statistics; returned items and patron counts.

All of these should be pre-installed on the computers operating the sorter. This manual covers only the basic aspects of each application; there are separate, more in-depth manuals available for all software.

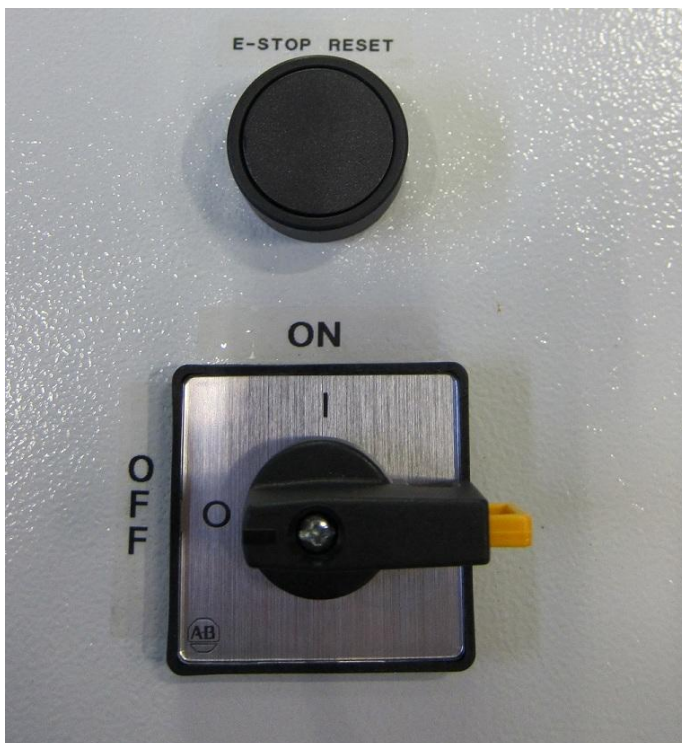
Note that settings are read in Libretto 2 after startup, so in order for any changes to take effect, the Libretto 2 software must be closed and re-started. This includes language texts, receipt printout texts and operational settings configured via the Management utility.

Starting, shutting down and restarting the sorter

Before starting up the device, make sure that all the inlets, modules and conveyors are clear of any books or other objects.

Starting the sorter

- Make sure all the E-Stop buttons are up, rotating the button clockwise will release a E-stop button
- Turn on the main power
- Press the E-Stop Reset button
- Press Stop
- Press Start, you should now see and hear the sorter do a test run
- Turn on the computer and wait for Windows to start
- Double click the Libretto 2 icon on the desktop and wait for the program to start
- Now you are ready to start returning items into the unit.



E-stop reset button (top) and main power switch on a sorter



Start and stop buttons on a sorter

Restarting the sorter

If there has been an incident that has required the push of an E-Stop button or a similar circumstance that has caused the machine to stop, follow these steps. (In case it has been a power outage look for the sequence from chapter Starting a sorter.)

- Check that none of the E-Stop buttons are down, rotating the button clockwise will release a E-stop button
- Press the E-Stop Reset Button
- Press Stop
- Press Start
- If LibRetto 2 application has not been closed, you should see the program in working order after the machine has run its test sequence. If the application is not running, start it by double-clicking on its icon on the desktop.

Shutting down the sorter

- Type Exit and press Enter on the keyboard. Note that this keyword may have been changed in configuration, so check with your administrator first.
- Press the Exit to Windows button from the screen (use mouse)

- Shutdown the computer as you would any Windows computer, under the Windows Start icon
- Now turn off the main power for the sorter

In case of emergency you can shut down a sorter by pushing the red and yellow Emergency shutdown button.

Starting compact sorter

- Make sure all the E-stop buttons are up, rotating the button clockwise will release a E-stop button
- Turn on the main power
- Press E-stop reset button
- Press Start Button; there should now be a green light in the Stop button
- Start the computer and wait for Windows to start
- Double click the Libretto 2 icon on the desktop and wait for the program to start
- Now you are ready to start returning items



Compact sorter power and reset buttons

Restarting compact sorter

If there has been an incident that has required the push of an E-Stop button or similar circumstance that has caused the machine to stop, follow these steps. (In case it has been a power outage look for the sequence from chapter Starting a sorter.)

- Check that none of the E-Stop buttons are down, rotating the button clockwise will release a E-stop button
- Press the E-Stop Reset button
- Press Start

If LibRetto 2 application has not been closed, you should see the program in working order after the machine has run its test sequence. If the application is not running, start it by double-clicking on its icon on the desktop.

Shutting down compact sorter

- Type Exit and press Enter on the keyboard
- Press the Exit to Windows button from the screen (use mouse)
- Shutdown the computer under the Windows Start icon
- Now turn off the main power for the sorter
- In case of emergency you can shut down a sorter by pushing the red and yellow Emergency shutdown button

Starting the computer

To start the computer you need to push the power button on the computers case. The button is relatively small but can be found with the help of picture below. Also remember to put the power on in the monitors.

NOTE! There can be a slight delay before anything shows on the monitor. But if there is nothing within 10 seconds push the power button again.



Computer panel where the power switch is located

In case of emergency you can shut down a sorter by pushing the red and yellow Emergency shutdown button. This will not shut down the computer.

In most cases the Libretto2 software environment will start up automatically when the computer starts up. If it doesn't, you can start it manually by double-clicking on the Libretto 2 icon on the desktop.

Cleaning instructions

The unit should be dusted once every 2 months. The frequency should be determined by the library staff depending on how dirty the surfaces get in this time period.

Dusting should be done while the unit is shut down. This way you can place your duster where ever you want without any danger. Special concern should be taken if a front end has a barcode reader. The readers lens and possibly the mirror by the lens (see picture) should be cleaned more carefully so that the item identification will remain at its best.

Areas to dust are

- Outside panels:



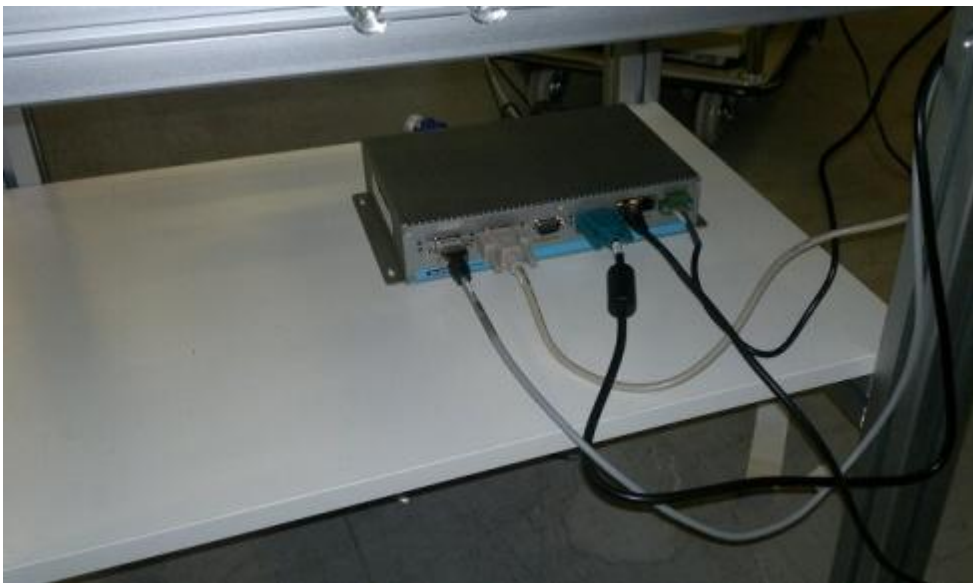
Side panels - blue in this picture

- Inside the front end cabinet:



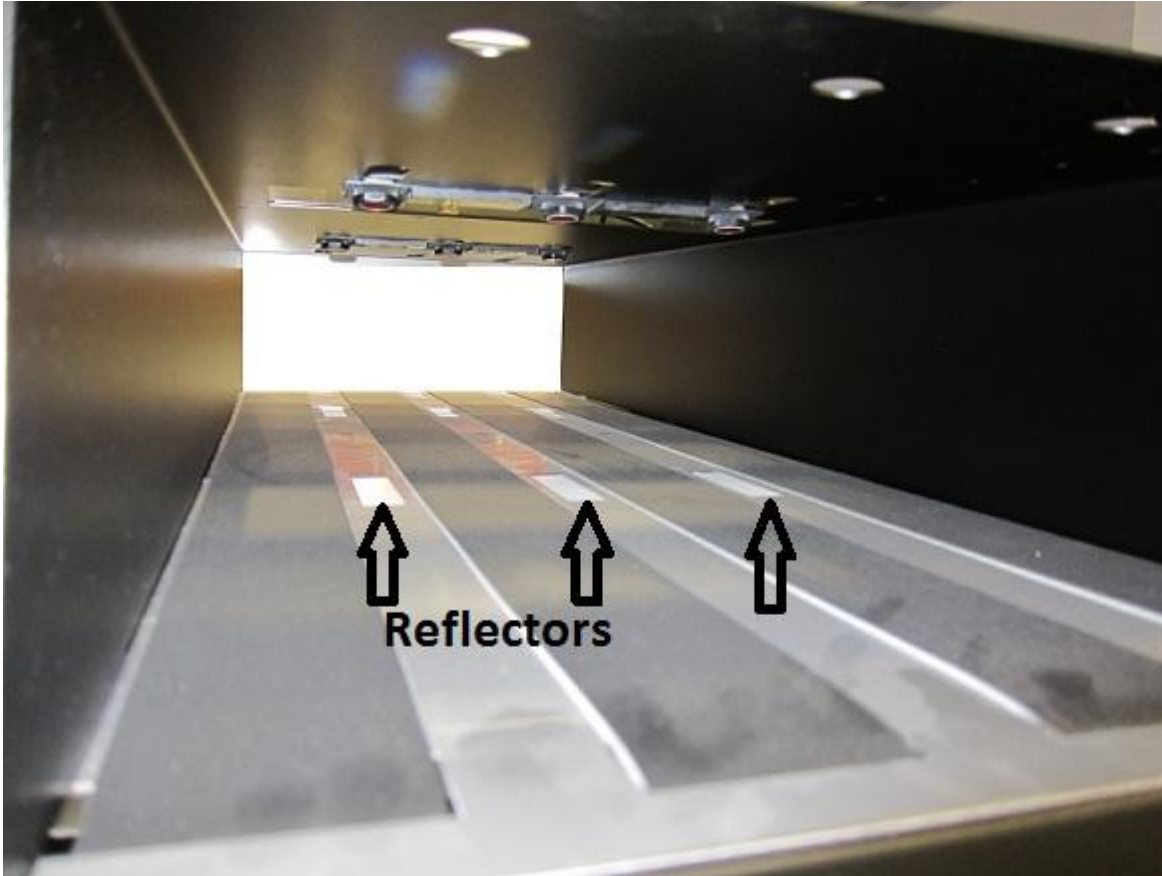
Inside a front end cabinet

- Computer shelf in compact sorter:



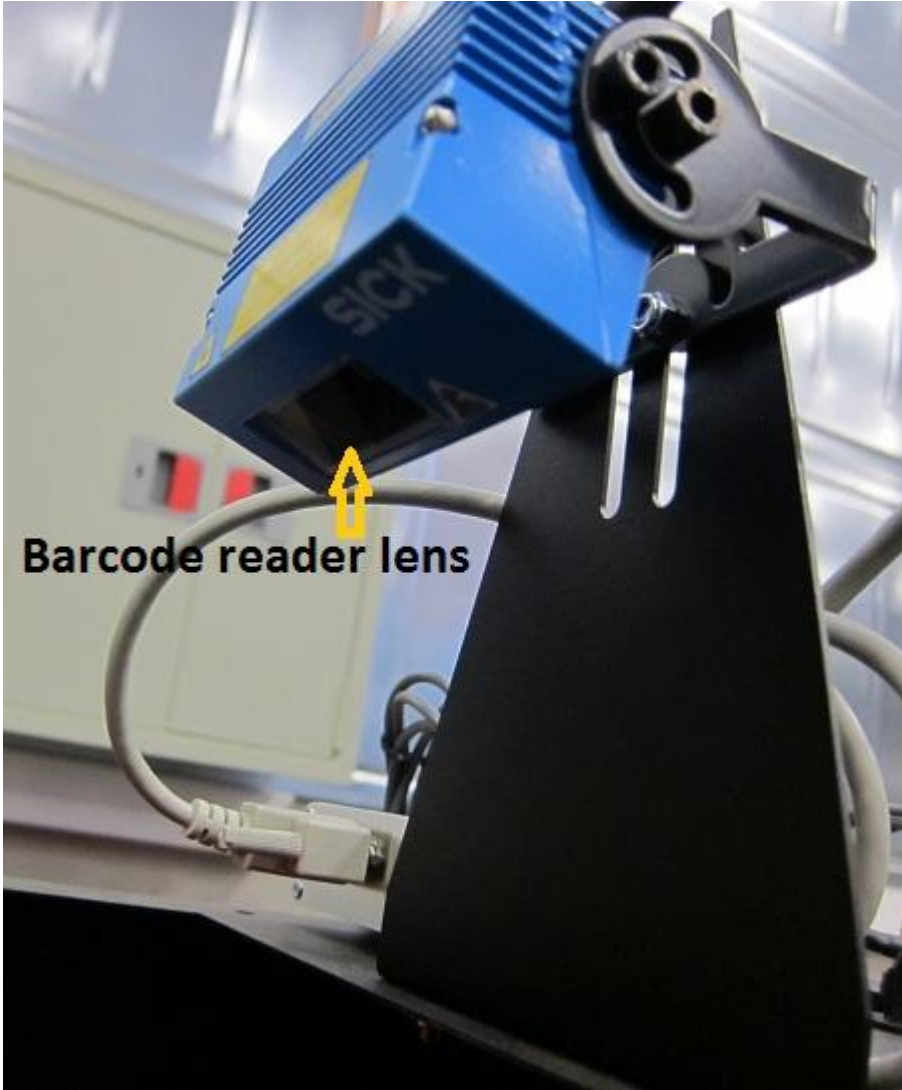
Computer shelf in compact sorter

- Front end tunnel
- Reflectors inside the tunnel:

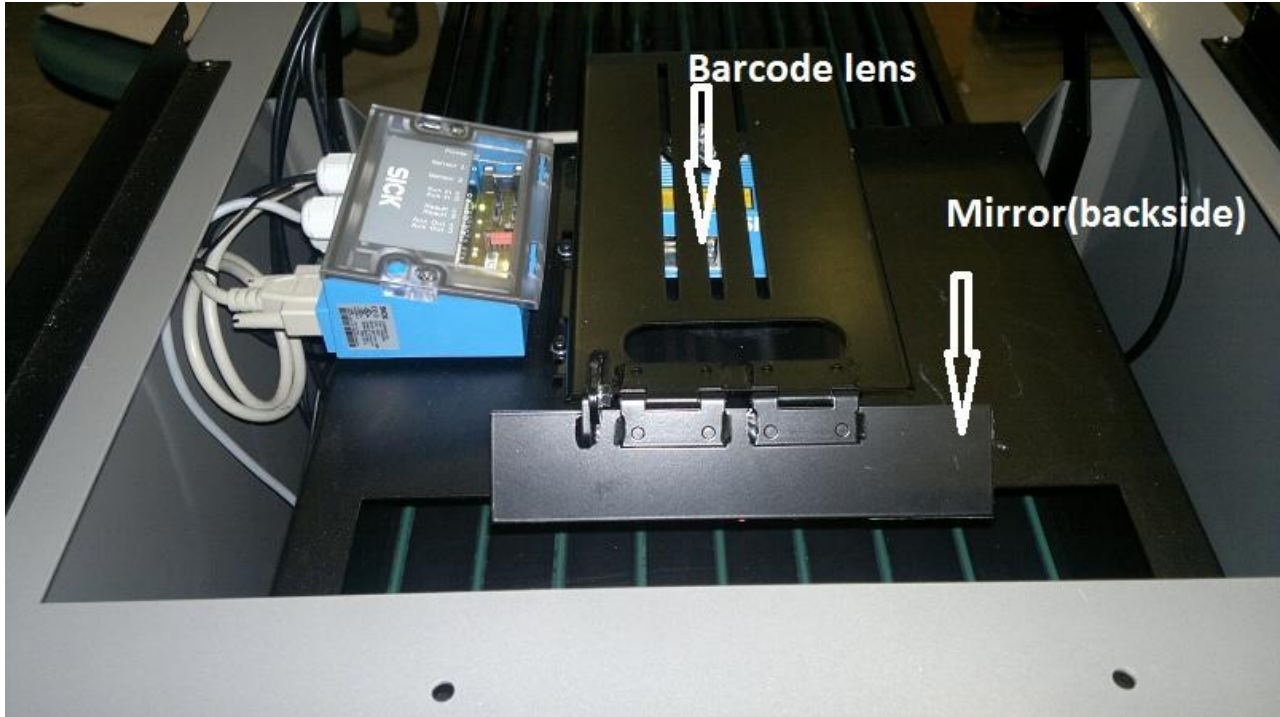


Reflectors inside a front end tunnel

- Barcode reader lens and mirror in Compact sorter reader stand:



Front end barcode reader

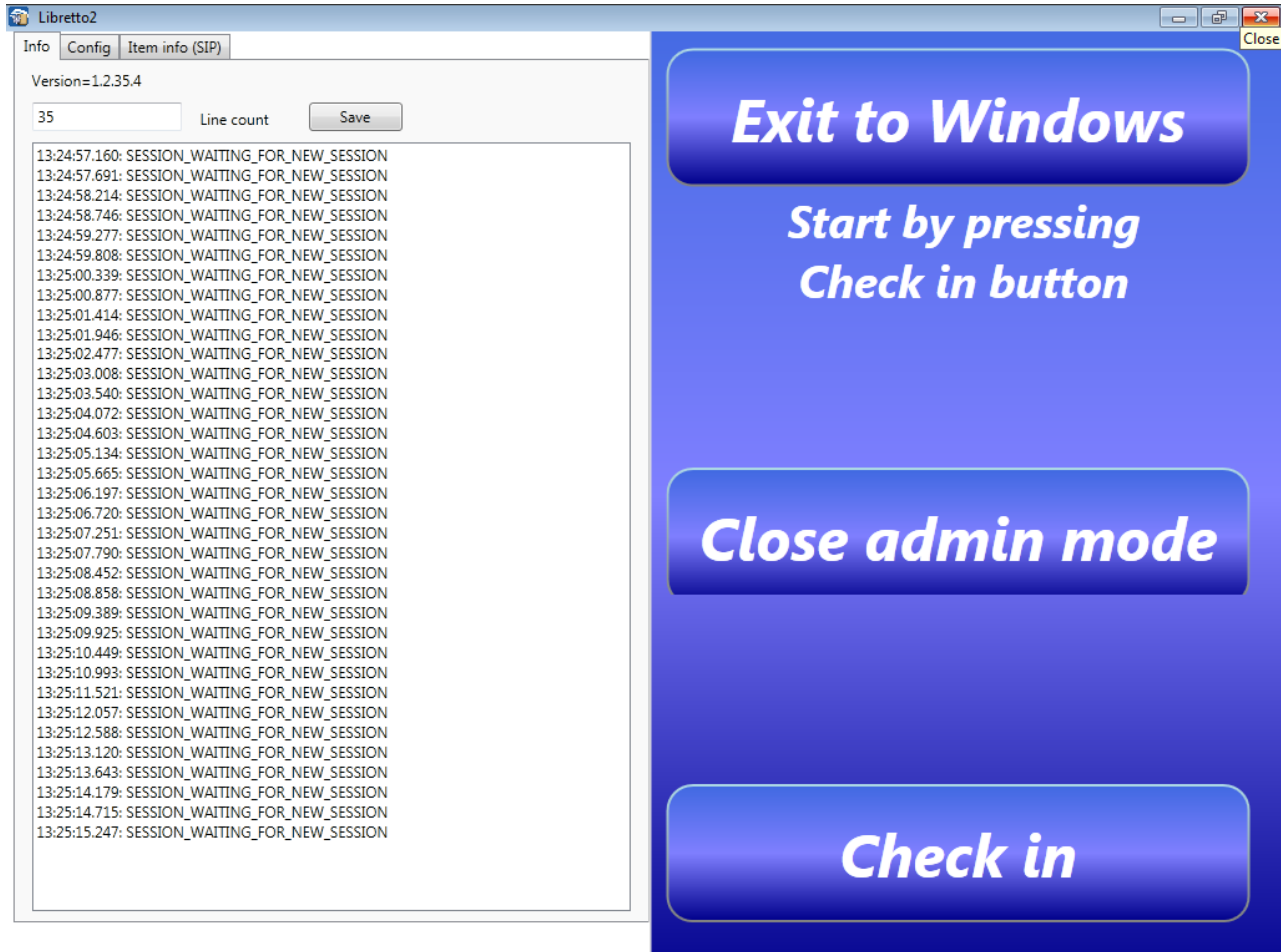


Compact sorter barcode reader

Administration mode

To enter Administration mode in Libretto 2 UI, type the word `exit` followed by Enter key, from the keyboard connected to the computer inside the device. Note that this is the default word; it can be changed in the Management Utility. In most cases there is no reason to change it.

The Administration mode looks like this:



Admin mode main view

In the upper left corner you can see the software version number (1.2.35.4 in the image above). Should you need to contact support, you should always give this version number as part of your support request.

The left side is a rolling display of logging information. It allows you to see what's happening while the system is being used - you can return items while in Administration mode, just like you would in normal operations mode.

Shutting down Libretto 2 software is done by clicking the **Exit to Windows** button, top right.

To return back to normal operations mode, click on the **Close admin mode** button, middle right.

The **Check in** button at lower right starts a normal checkin session.

Logging

Libretto 2 writes four (4) kinds of logs into text files, on the PC it (the inlet) is running on. It is possible to control which ones of these - if any - are written. You can find the setting in **Management utility**, under **Libretto2 / Logging** section.

Typically these logs should not be kept on for extended periods of time unless there is reason to do so, because they take up quite a bit of space on the hard disk. Logging should usually only be enabled fully if there is reason to believe something is not working as it should, or there is a specific problem that is being worked on. The logs provide extremely valuable information to P.V. Supa personnel in troubleshooting, so if you have any reason to believe there is something wrong with the device, you should turn on logging and inform P.V. Supa of it.

The log files are by default stored in **C:\temp\logs** directory, and named by using the current date as part of the log file name. This makes it easy to find logs from any given date. The different logs are:

- **Application log** (<date>.lbr2.log): this log stores information about the main functionality of the Libretto 2 software, such as sorting and possible errors.
- **Device log** (<date>.dev.log): stores the communication information between the hardware (inlet) and software (PC).
- **SIP log** (<date>.SIP.log): stores information about communications between Libretto 2 software and the library system, SIP messages.
- **UI log** (<date>.UI.log): Libretto 2 user interface log.

If you are asked to provide these logs to a P.V. Supa technician, please compress the files before sending them as they can get very large over time. You should also monitor the hard drive available space when logging is enabled, to prevent it from filling up.

Backdate returns

Backdate return allows you to check in items on a different date than current date. This is typically used by library staff to check in items returned in book drops or to another branch where automatic check in functionality has not been available.

In normal operation mode, the device uses the current date from the computer, in the SIP check in messages. In Backdate mode, it uses the selected date in the SIP messages. It is not possible to select a date in the future.

To initiate backdate return mode, enter the Administration mode (type **exit** followed by **Enter** key from the keyboard; see more information above), then select the **Config** tab from the available tabs:

Info Config Item info (SIP)

Save Load Visible Reset Hide

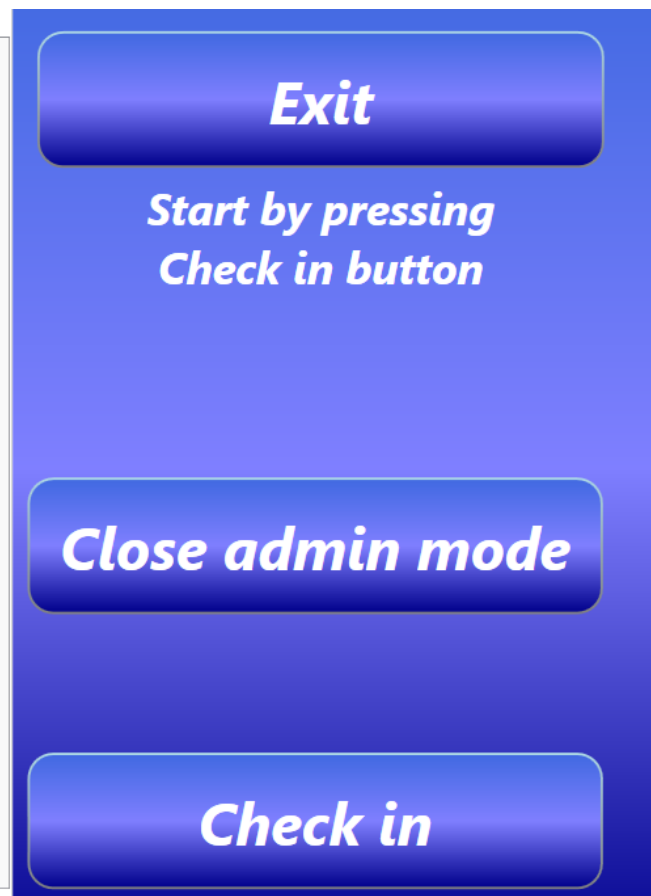
-100 100 Slider min/max

Current back date is 12.11.2013

Backdate... Enable back date

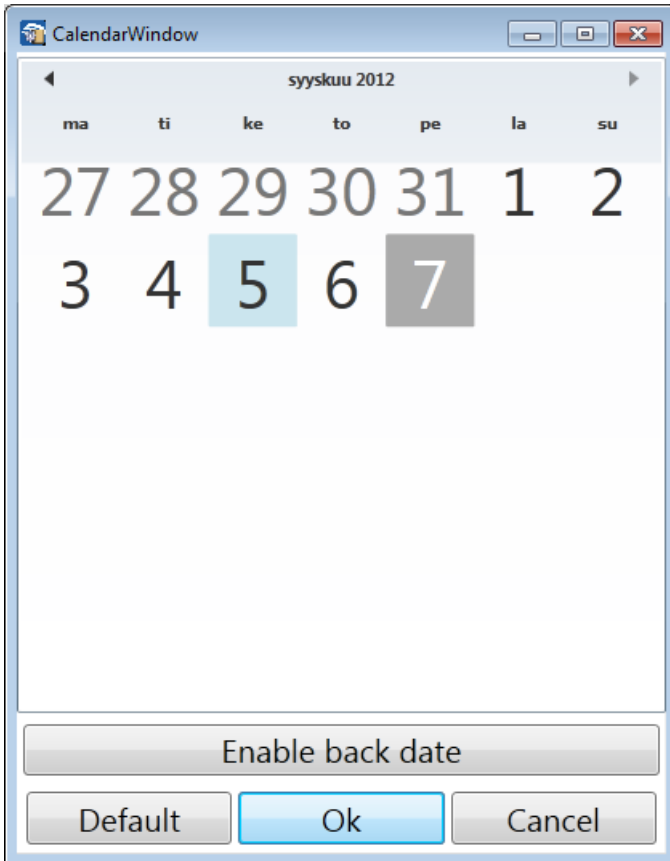
Change to alternate sorting

Restart Print test



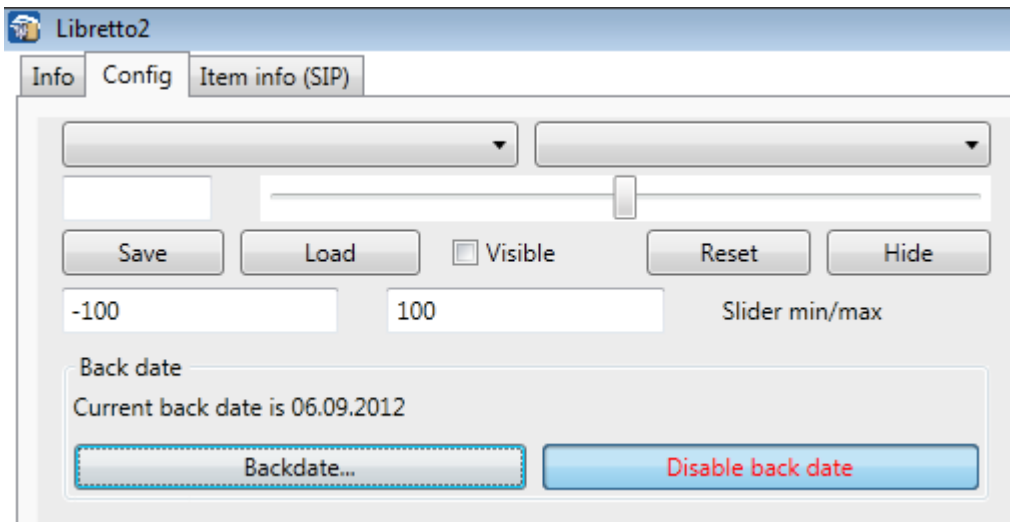
Backdate return in admin view

To select the date to be used for check in, click on the **Backdate...** button. This will bring up a calendar which allows you to set the date to use:



Selecting the backdate return date

Click on a date you wish to use and then click on the **Enable back date** button. You can always see the backdate selected in the Administration mode:

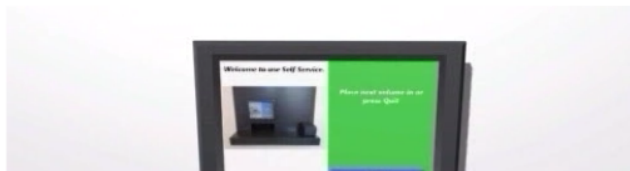


Backdate return activated, admin view

To disable backdate (i.e. return to using current date as the return date), click on the **Disable back date** button.

If you close the Administration mode while the backdate functionality is enabled, there will be a note displayed on screen, to prevent accidentally forgetting the backdate is on:

***Welcome to use
self service***



Back date: 06.09.2012

***Start by pressing
Check in button***

Backdate return, user view

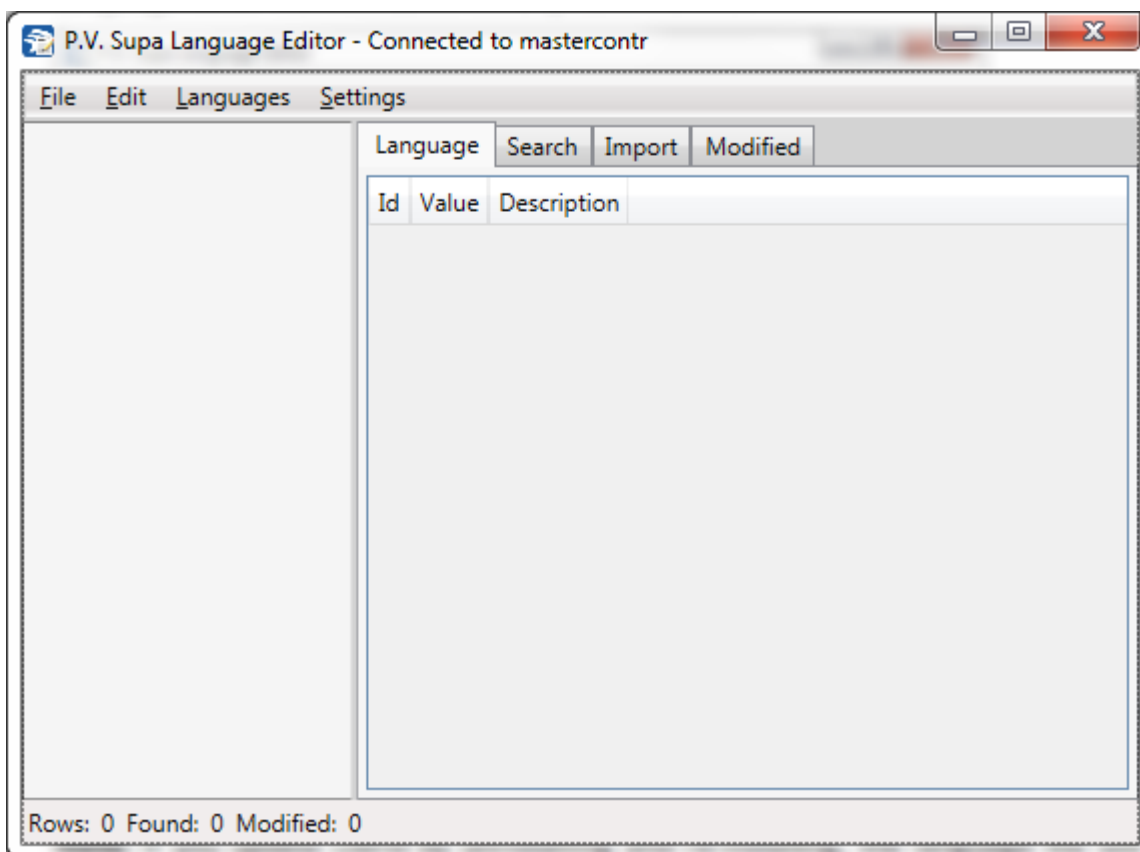
Language editor

Language editor is a tool for working with screen texts - texts visible on-screen in Supa software such as Librid or Libretto - and in some cases receipt texts. Receipt texts can be modified with Language editor in Librid 2 and Librid 3; in Libretto 2, receipt texts are modified using a separate tool, Receipt editor.

This chapter describes the use of Language editor briefly. There is a separate complete manual available for Language editor with more details.

Working with language files

Language editor main screen initially looks like this:

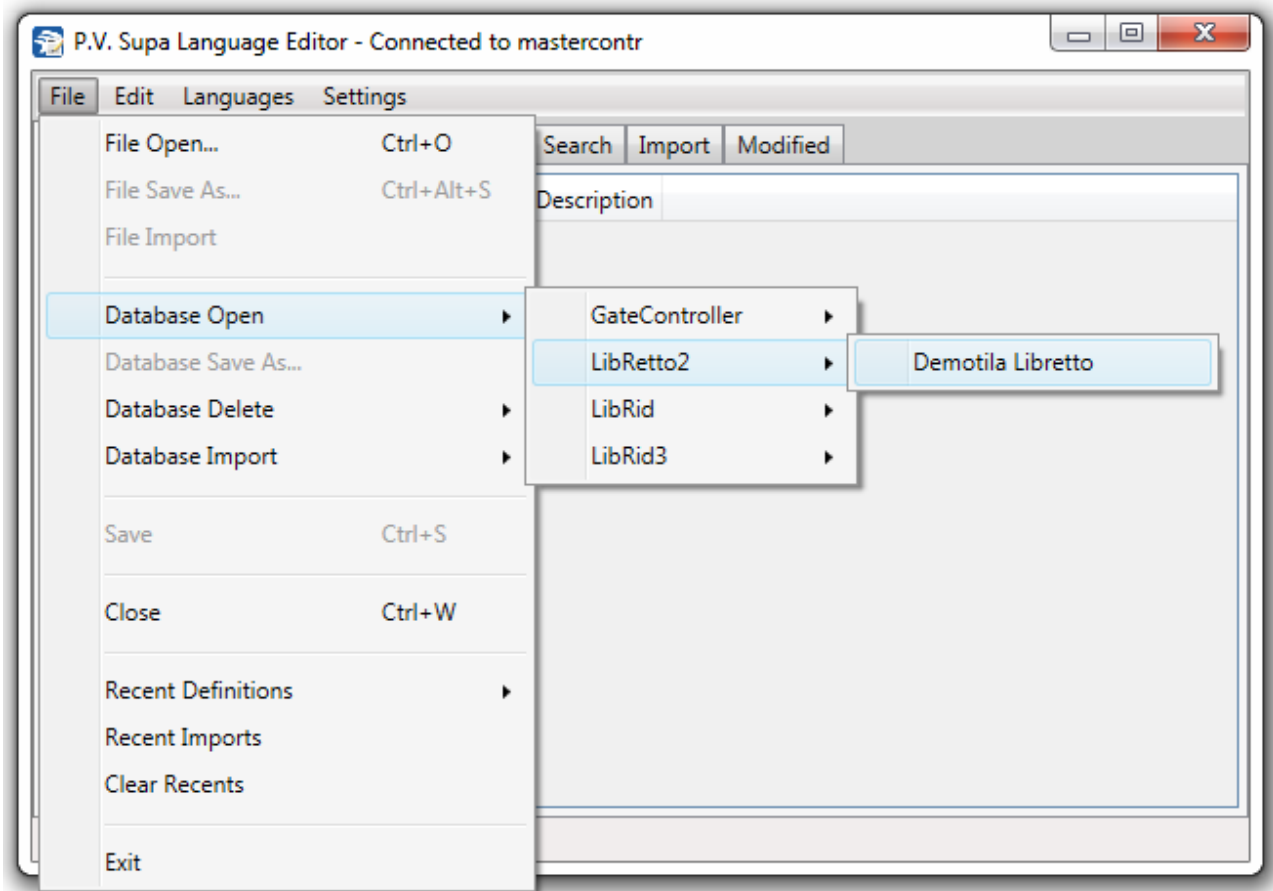


Main window of Language editor

By default, all language files should be saved to the database. For a new setup this may not be the case - default language files are delivered with installation packages as XML files, located under the program folder. If that is the case, please refer to the Language editor full user manual - this introduction assumes that the language file has already been stored in the database.

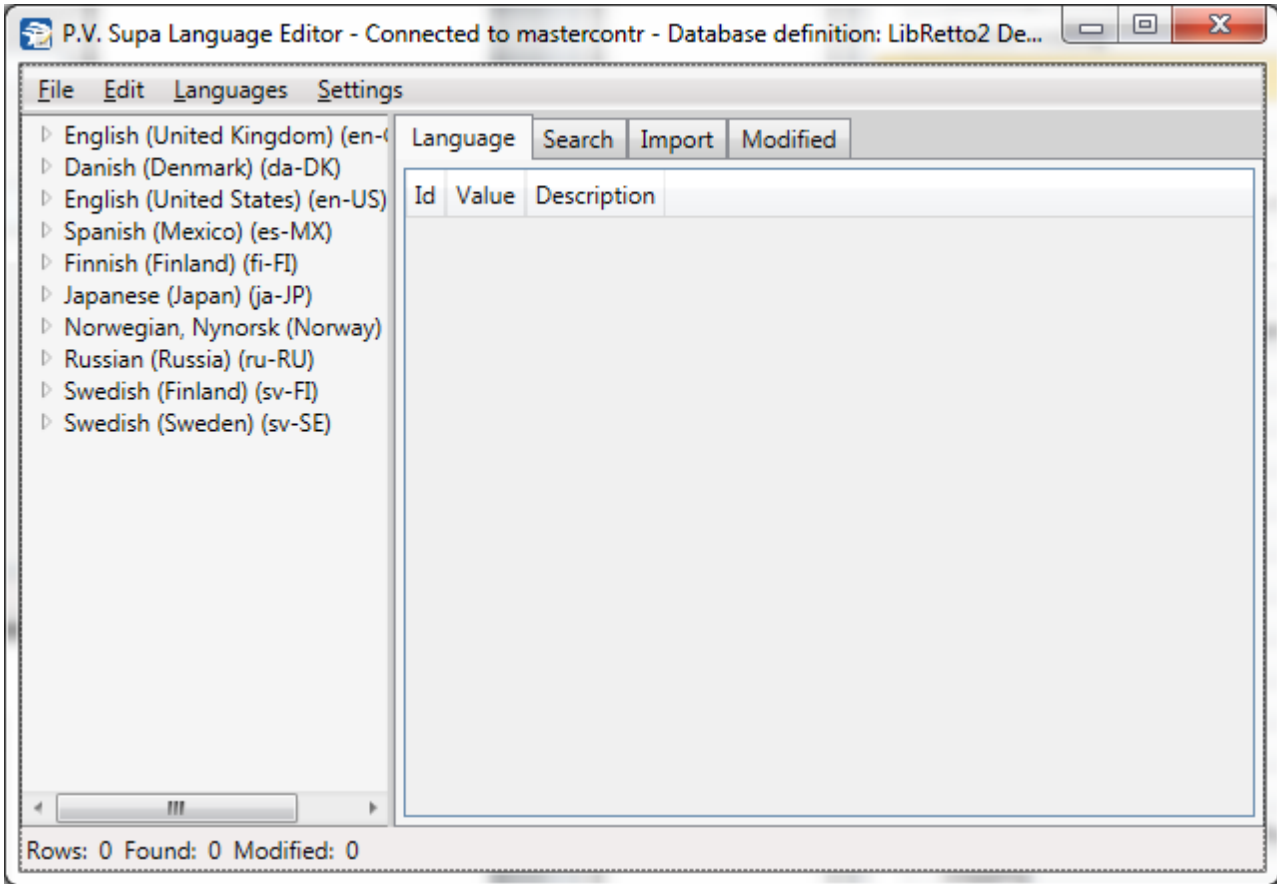
To open the language file, select **File** menu, then **Database Open** sub-menu entry. This will open a sub-menu listing all software that has language files stored in the database. Select the correct software, for example **Libretto2** or **Librid3**, depending on which software you are working with. Then, yet another sub-menu will appear with all available translation files for it. There may be more than one file for each software, allowing different devices in the library to have different

texts - for example a self-check unit at a children's department might have different translations than one used by adults.



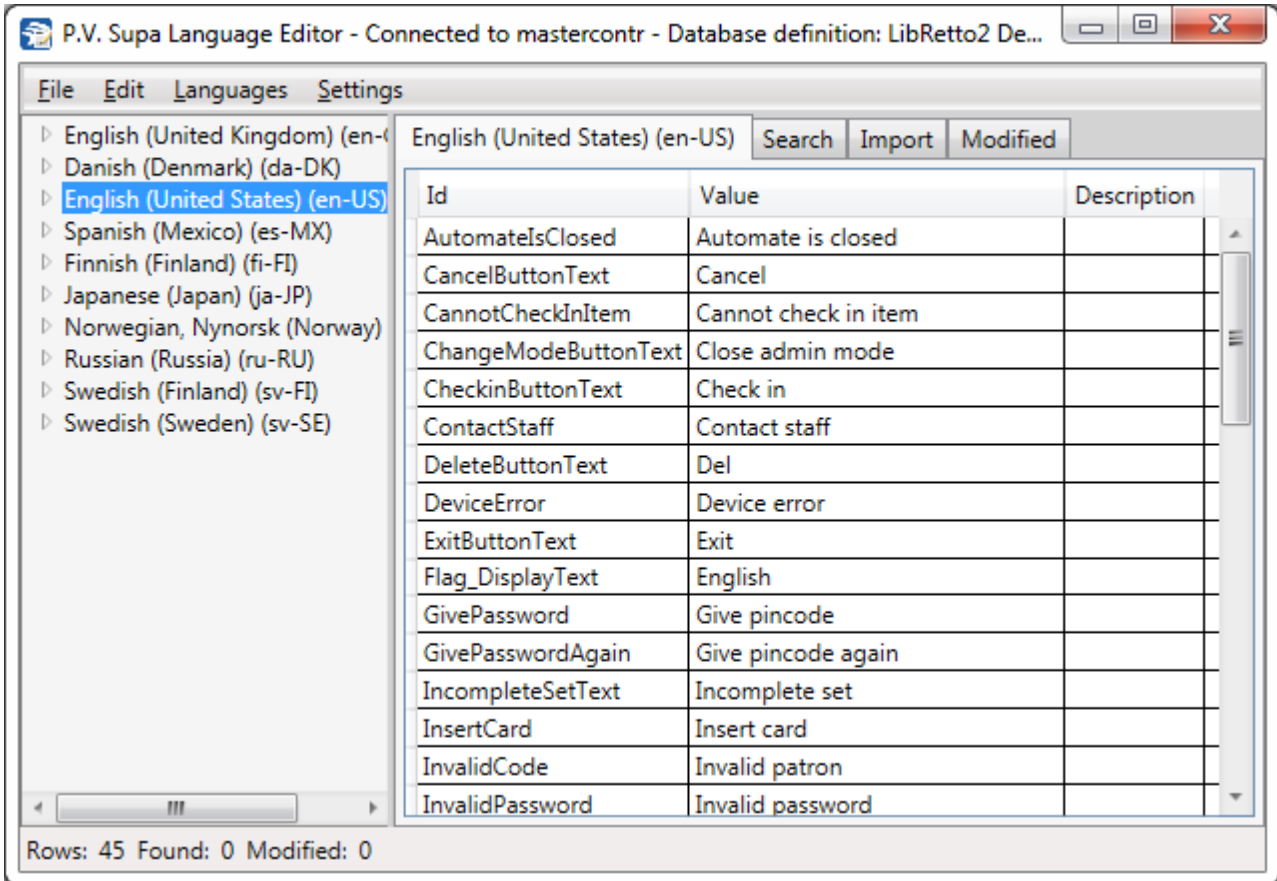
Opening a language file from database

After a language file is opened, a list of languages can be seen on the left hand side of the main window:



List of languages from a language file

Selecting a language from the list will show translations of that language:

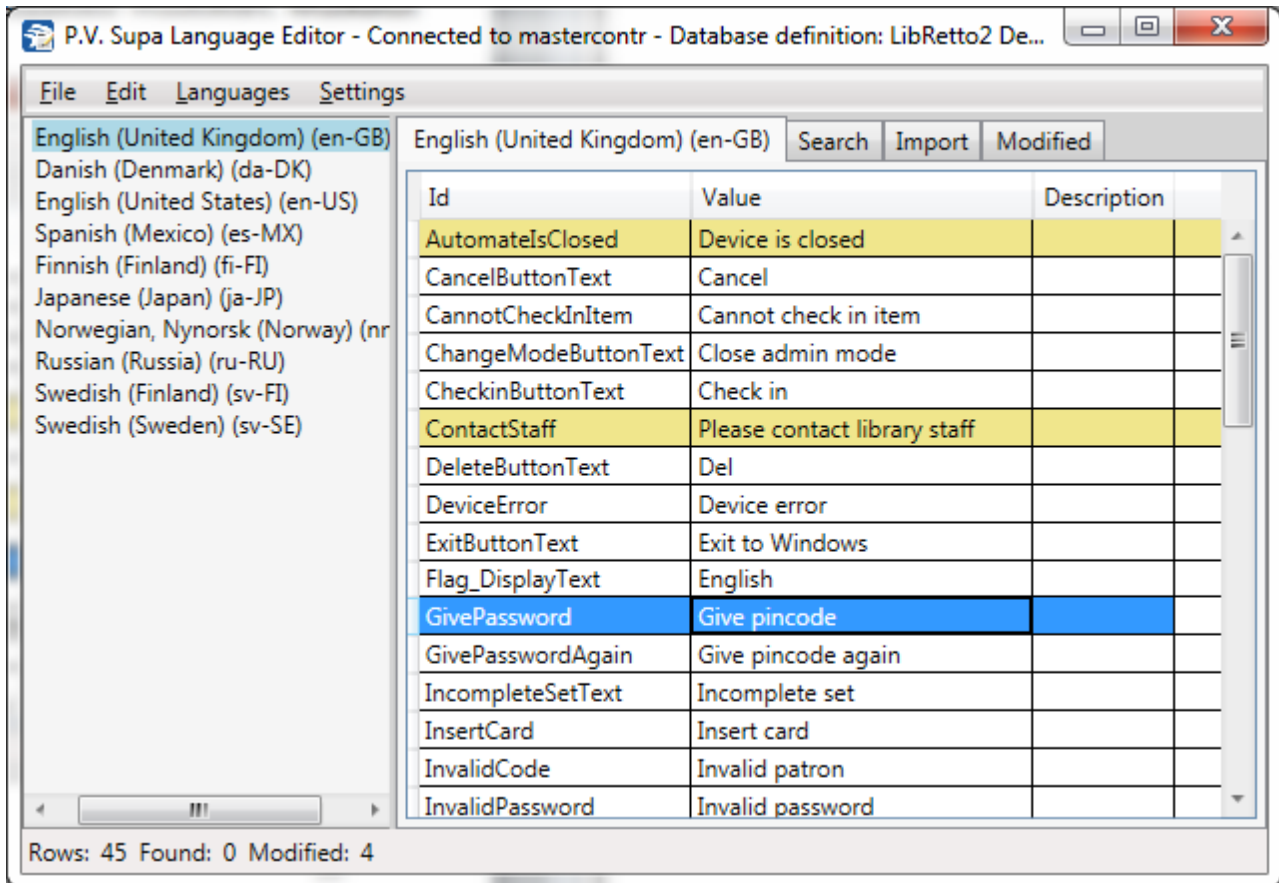


Main working view

This is the main working view of Language Editor. In this mode you can edit the strings that are used in the system.

The first column (Id) indicates the context of a string, i.e. where it belongs to. You cannot change these.

The next column (Value) is where you can modify the texts. Click on any string you wish to edit and write a new string or modify the existing one. When you are done, click on anywhere else in the application to end editing mode. Modified texts are displayed with yellow background color:



Some translations have been modified

When you are done, save changes by selecting **File** -> **Save** from the main menu.

Adding new languages

You can add a new language to the languages file in Language Editor by selecting **Languages** -> **Add language** from the main menu. This will display a list of all languages known to Libretto 2; you can choose any of these.

Make note of the abbreviation of the languages, in parenthesis (for example **en-US** for US English). You need these to enable the languages in Management Utility (see below).

The newly added language will get values from default (English) texts; you need to provide correct translations for all texts.

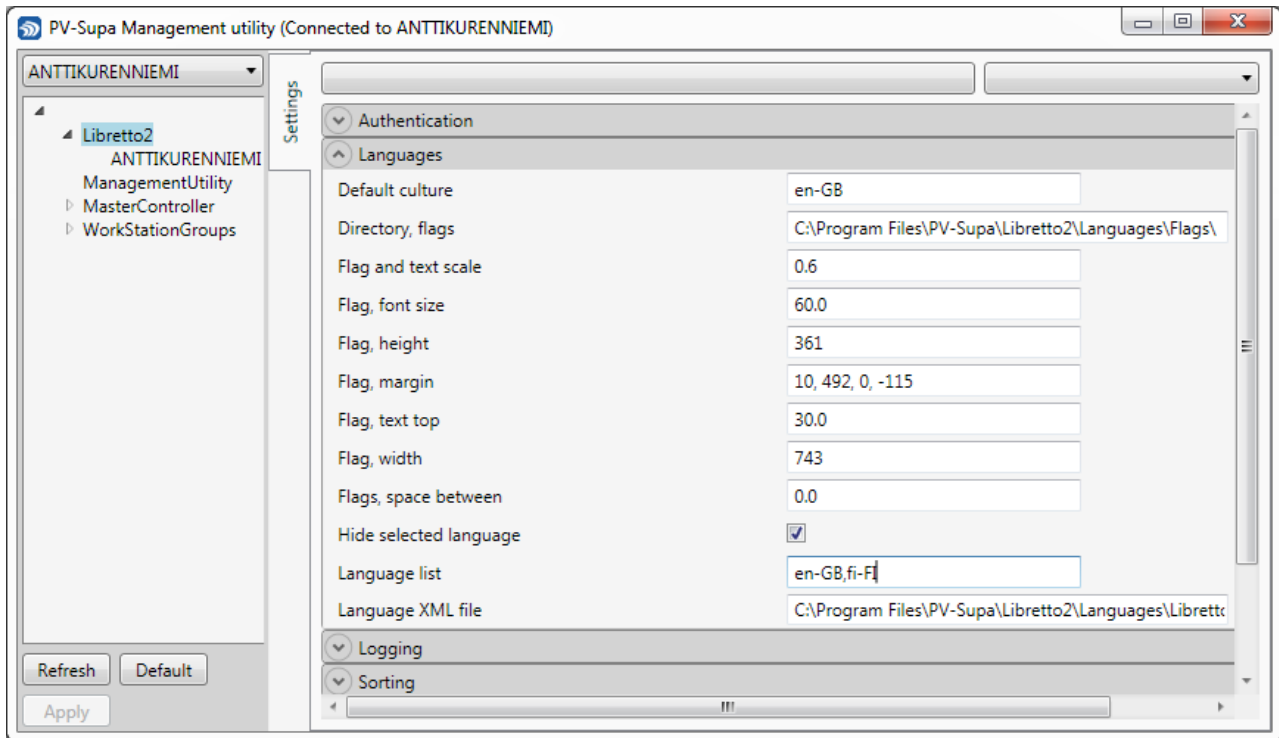
After you have translated the new language, save changes by selecting **File** -> **Save** from the main menu.

Using texts in Supa software

After you have changed any texts and saved the language file, you must restart the Supa application (Librid, Libretto) for the changes to take effect.

If you have added new languages, you need to select the languages using the Management Utility application. Select the Supa software section from the treeview on the left, and then expand the

Languages section. You will see a window like this (Libretto2 selected here - choose the correct software for your need):



Selecting the languages to use

In this window, the languages available to users are defined in the **Language list** field, near the bottom. Enter the language short codes here, separated by commas (,). For example in the screen shot above, British English (**en-GB**) and Finnish (**fi-FI**) are available. These will be shown as available choices to users of the device.

Sorting editor

Sorting rules are created and modified with a separate software, **Sorting Editor**. A sorting rules file is stored in database and selected to each sorting end in Management Utility. A separate sorting rules file can be selected to each front end, or a single sorting rule can be selected to multiple front ends.

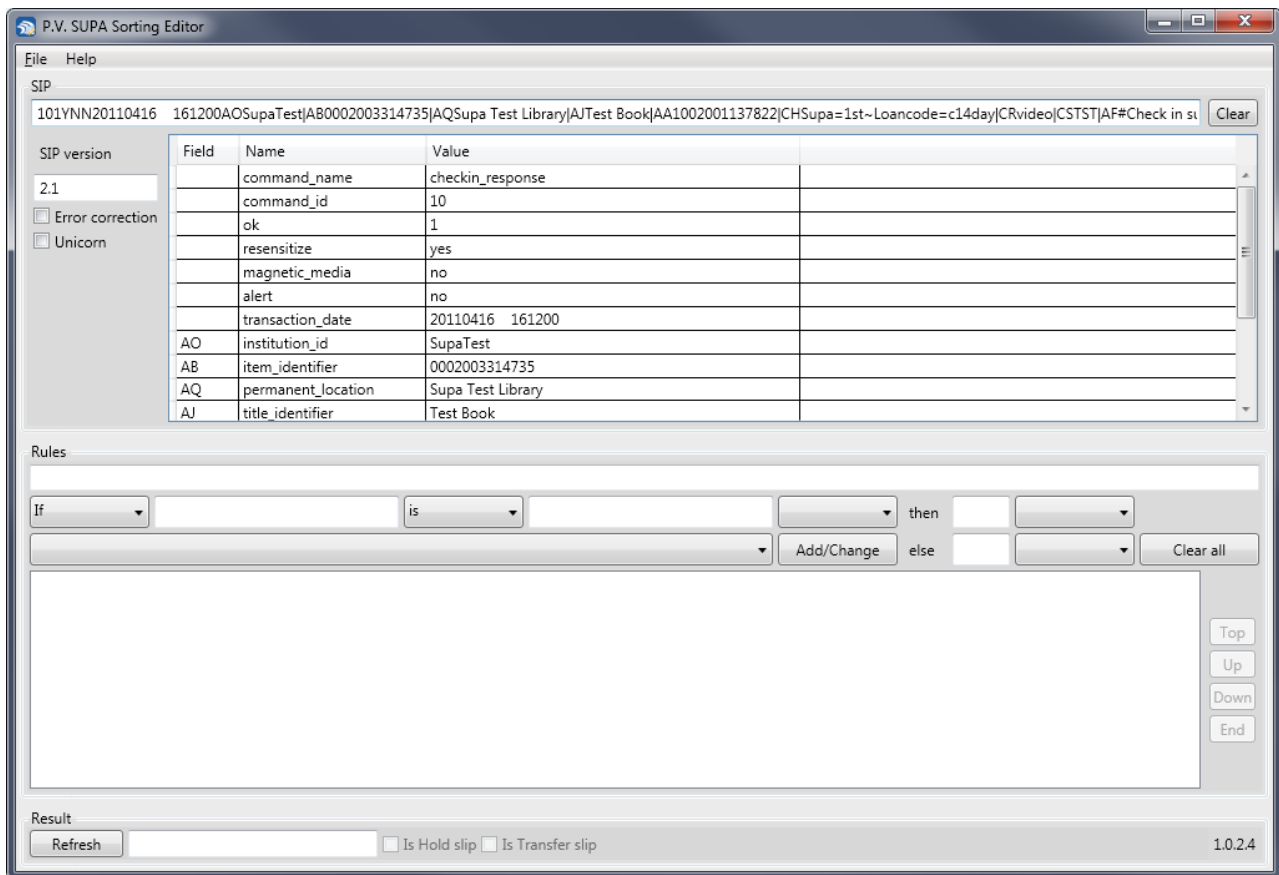
Sorting editor is used to manage sorting rules for **Libretto 2** and **Librid 3** software. The usage is similar for both.

To start Sorting editor, double-click on its icon on the computer desktop:



Working with the sorting editor

The main interface looks like this:



Sorting editor main window

At the top there is a SIP field where you can paste a SIP 10 (check in) message from your library

system. Clear the field by clicking the **Clear** button at the right, and then paste your own SIP 10 message (Ctrl + V). Alternatively you can use the sample provided with the software.

Double-clicking the SIP message field will break it into pieces and display the information in the grid below the message field. This grid shows each field and the value in each field separately. Any of these fields can be used to trigger the sorting of an item.

Below the grid are rule choices. To create a new rule, double-click on a field in the grid. The field will be displayed in the rule choices area, for example the AJ (title_identifier) field which contains the Title of an item, would look like this:

Working on a single sorting rule

To create a rule, select **comparison** from the second drop down (showing "is" in the image above). You can choose to match the given value exactly, or a part of it by selecting **is_like** for example. **is_like** compares if a given value matches any part of the rule, such as part of a name. Typically you would do comparisons like

"if item_properties is_like 'Video' then 2"

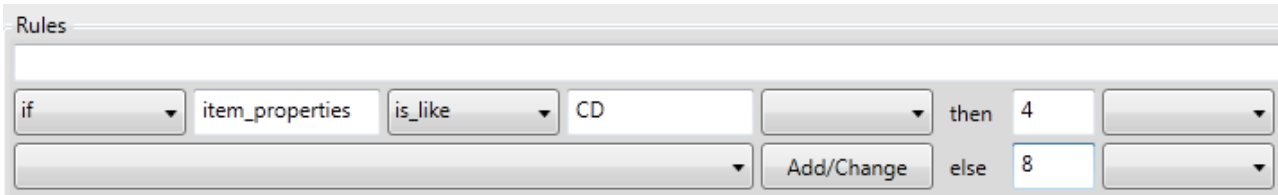
This would sort any items where the field **item_properties** contains the string **video**, into bin number **2**. Bin number is given in the far right text field.

To add the rule into the sorting, click on the **Add/Change** button. This would include the rule to the rules list at the bottom like this:

Sorting rule displayed as text

You can create as many rules as necessary. When there are multiple rules, the first one that matches an item will be used.

To add a final "catch all" rule that will be used when nothing else matches, write the final bin number in the text field labeled **else**, for example like this:



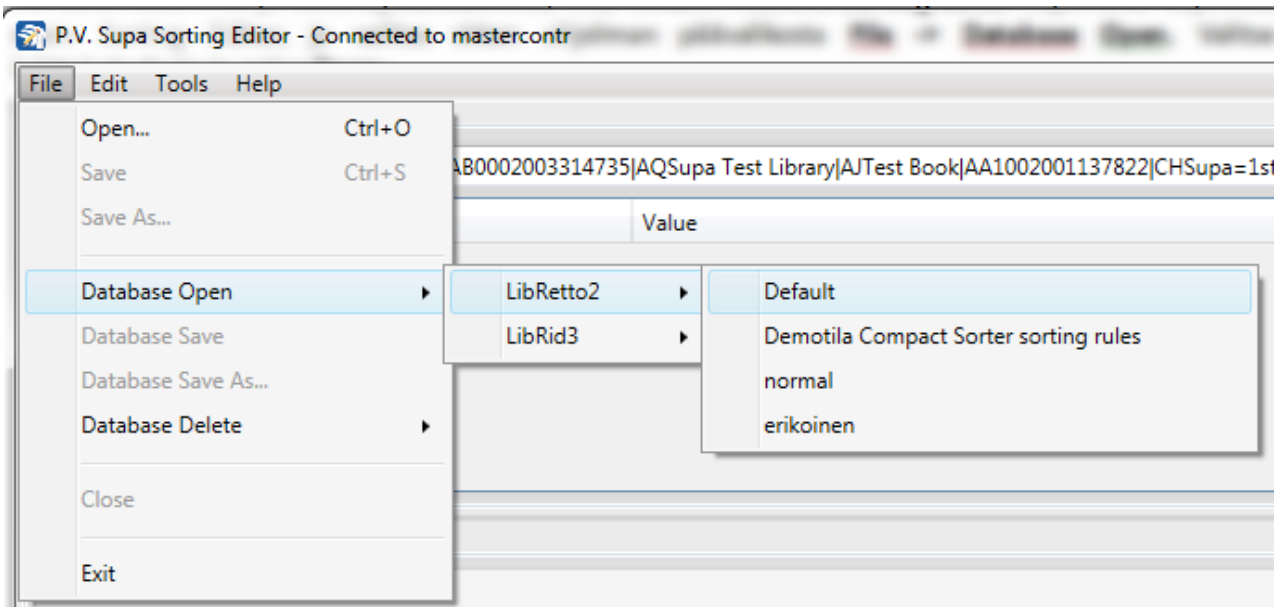
Sorting rule with 'Else' condition

This has to be the last rule in the rules listing, and there can be only one else rule.

Once you have created all the rules, save the rules by selecting **File -> Save** from the menu and select them in Management Utility, in settings section *Sorting rules*.

Changing existing rules

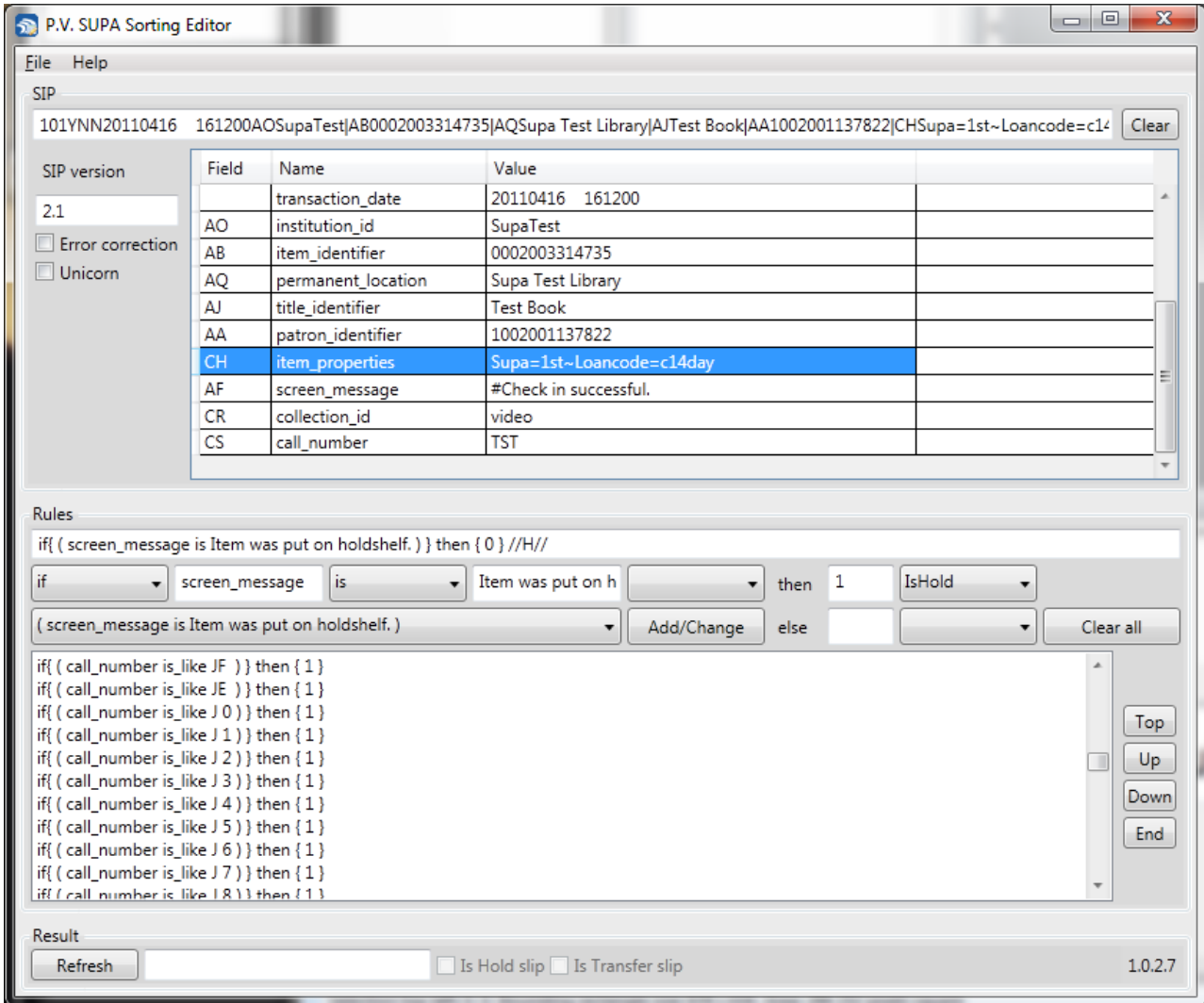
If you already have a rules file you can edit individual rules in it by opening the rules file in the **sorting editor**. Select **File -> Database Open** and select the desired sorting rules file from the correct software - for example in the following picture, from **Libretto2** files:



Opening sorting rules for Libretto 2

If you are working on sorting rules for Librid 3, select the rules file to open from under the **Librid 3** section.

The rules will display in the editor:



Sorting rules opened

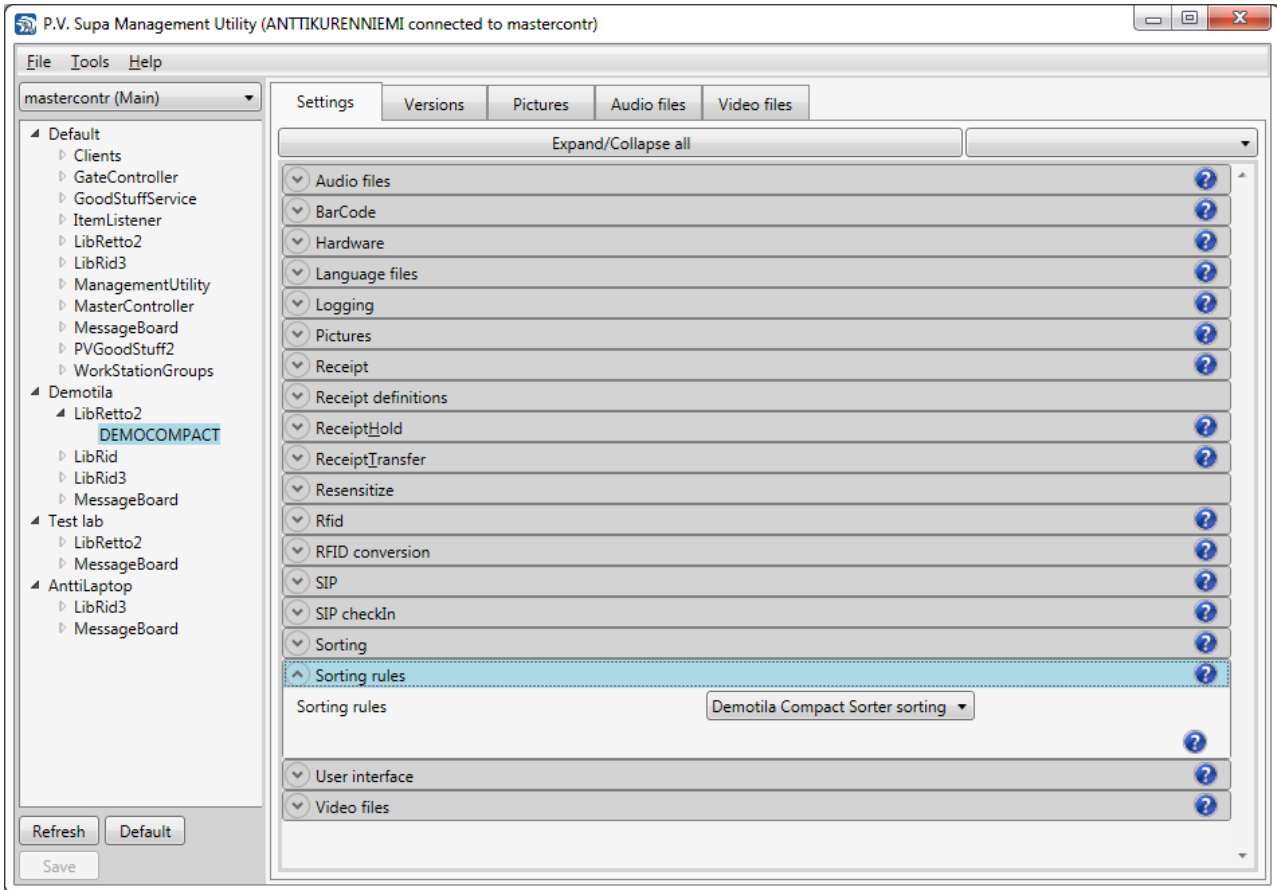
You can then edit a single rule by double-clicking on it in the rules list at the bottom. This will bring the rule fields in the rule choices area where you can make changes. To apply the changes, click on the **Add/Change** button.

You can also change the order of the rules by using the buttons (Top, Up, Down, Bottom) at the right side of the rules list.

Remember to save the rules file after modifying it. Also note that changes will not take effect until the software to which the rules apply is restarted.

Selecting sorting file to use

To select a sorting file to use, open **Management Utility** and select the correct software section from the left hand side. Then expand the **Sorting Rules** section under a desired machine - the following image shows sorting rules selection for **Libretto 2**:



Selecting sorting rules - Libretto 2

Select the sorting rules from the drop-down list. Save the changes by clicking on **Apply** at the bottom left of the **Management Utility** window. Note that the rules file is only read during startup of the software (Libretto 2 or Librid 3); if the software is already running, you must close it and then start again for the changes in sorting to take effect.

Further reading

A more detailed explanation of how the **Sorting editor** works and what kind of sortings can be achieved, is available in a separate manual: **Sorting editor user guide**.

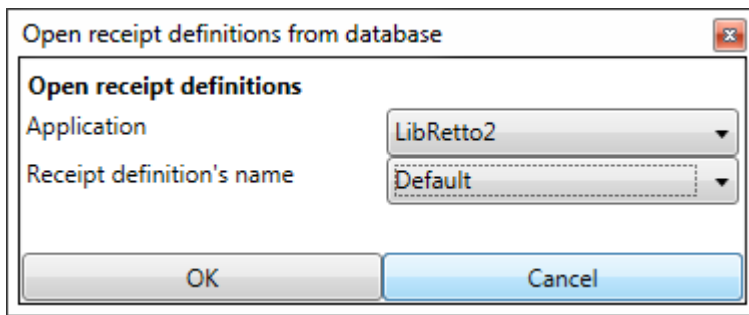
Receipt editor

All texts on receipts are stored in database as receipt definitions. Editing receipts is done with a separate tool, **Receipt Editor**.

This chapter gives brief introduction to working with Receipt editor, and the actual layout of the receipt definition file.

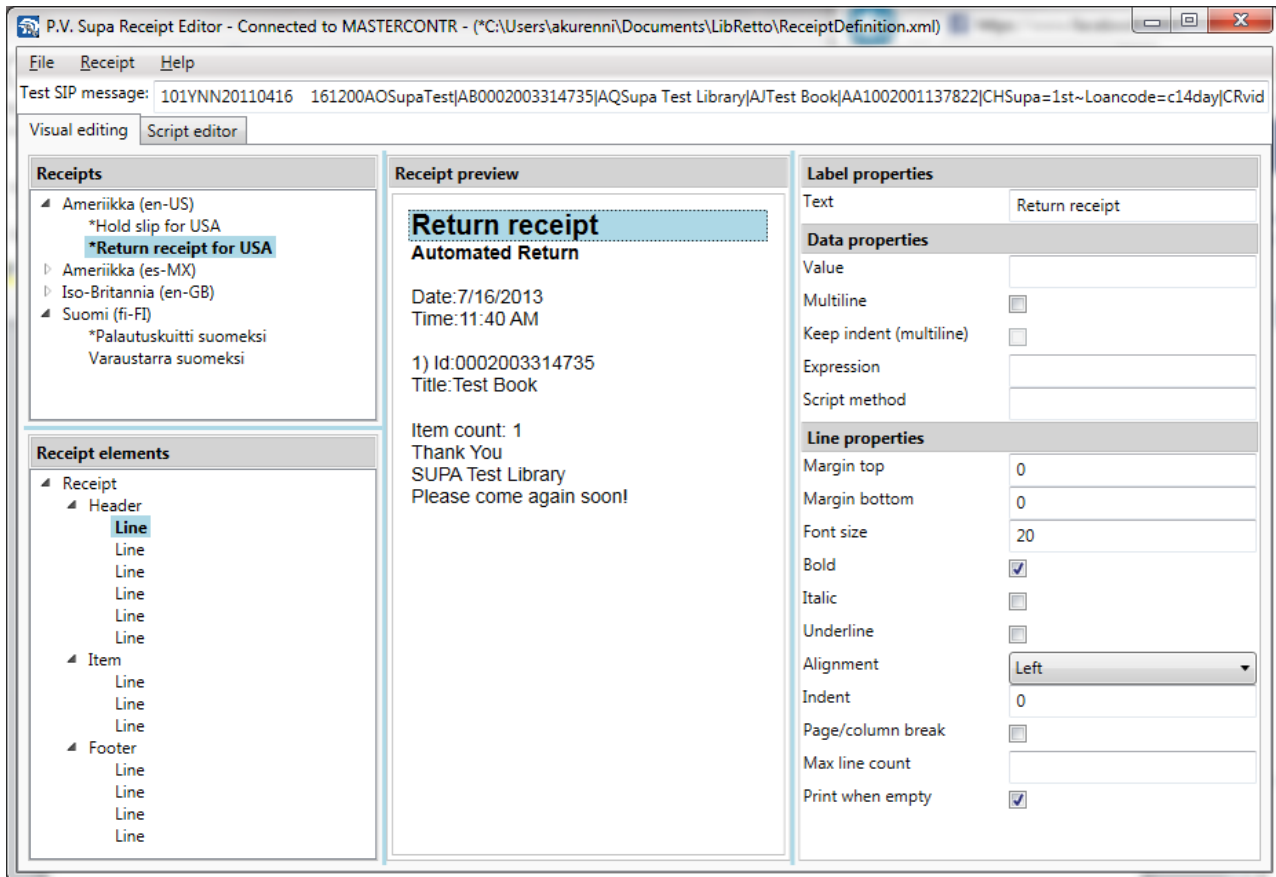
Using receipt editor

Receipt Editor is a separate software used for visually editing receipts. It can be used to edit existing receipts, add new receipts and add new languages. Start the editor and select **File -> Open From Database** from the main menu. In the dialog that opens, select the application you wish to edit receipts for, for example **Libretto 2** - and then the receipt definition file you wish to edit:



Opening receipt definition file - Libretto 2

The main window of the receipt editor looks like this:



Receipt editor main window

On the left hand side, top, is the **Receipts** section. It lists all receipts available, in all languages, within the current file. In the picture above, a **Return receipt** in **US English** has been selected.

Selecting a receipt brings it to the preview window and fills the bottom left part of the window with available **Receipt elements**. These are all the sections (header, item, footer) of the receipt, as well as all lines within the sections. You can select elements from the **Receipt elements** or from the preview in the middle of the main window. Only lines can be selected from the preview, though. To select sections or the full receipt, you have to use the Receipt elements window.

After selecting an element or a line, it will be highlighted in the preview and all settings related to the selection are shown at the right side of the main window. In the picture above, a **Line** has been selected, and on the right side you can see the settings related to the line; **Label properties**, **Data properties** and **Line properties**. Modifying these settings updates the preview, for example to change the static "Return receipt" text on the receipt, type a new value in the **Text** field of the **Label properties**.

Once you have made all the modifications, save the receipt definition file by selecting **File -> Save to Database**. This function saves the receipt definition to database. Any front ends using the receipts definition will need to be restarted for the changes to take effect.

Receipt definition file format

The file contains definitions of all receipts in all languages. There are 3 types of receipts: Return receipt, Hold slip and Transfer slip. Each of these can be modified and the texts can be changed.

To locate the different types of receipts, look for lines beginning with **printout** element:

```
<printout
  type="returnReceipt"
  ...
```

This element begins a new printout, which in this case is a return receipt. It should also contain language code, for example for US English, there would be an attribute like this:

```
languageCode="en-US"
```

You will find a returnReceipt for each language used in the device.

Within each **printout** there are several sections. These are header, item and footer. They begin on lines like this:

```
<section
  type="header">
```

The above would begin a header section in a receipt. Header and footer are simply the header and footer parts of a receipt, and the **item** section is a repeating part for each item. For example in a patron receipt, the **item** section will be printed once for each item the patron has checked in.

Each section can contain more than one line of text. A line of text is always inside a **line** element, starting and ending tags. For example the following segment would print a **line** with the text "Return receipt":

```
<line>
  <label text="Return receipt" />
</line>
```

Note that XML requires all elements to have a defined beginning and ending. In this example, the `<line>` element begins a new line, and it ends in `</line>` - the forward slash being the only indicator that the latter tag is an ending tag. A tag can also consist of only a single like, as the `<label... />` tag shows, by ending in a forward slash / before a closing angle bracket.

Each line can have either no text at all (in which case it is an empty line used to space out other lines), a simple static label of text, dynamic data (usually information from a SIP message) or both data and dynamic content. The example above contains only a static label. Following is a line with a label and a dynamic part; the name of an item:


```
<line>
  <label text="Item name:" />
  <data value="{ITEM:NAME}" />
</line>
```

This would print the label "Item name:" on a line of text, followed by the name of a returned item, for example:

```
Item name: Great Expectations
```

Changing text

To modify a text in a receipt, locate the text you wish to change and edit it to your liking. For example you could change the "Item name:" to "Book name:" by modifying the lines to look like this:

```
<line>
  <label text="Book name:" />
  <data value="{ITEM:NAME}" />
</line>
```

To make the new receipt text appear, you have to close down and restart the Libretto 2 software.

Note: all text must be enclosed in double quotes "like this".

Adding languages

To add a new language you need to copy the receipt XML and change the languageCode attribute. For example to add Finnish language, you would copy from <printout... starting tag to </printout> ending tag. Then change the languageCode to "fi-FI" to mark the receipts as Finnish language receipts:

```
<printout
  type="returnReceipt"
  languageCode="fi-FI"
  ...
...
...
</printout>
```

Then translate all strings within that receipt definition to the new language.

Only the return receipt uses the language of the user interface; all other receipts use the default language, so there is no need to copy all receipts. If you wish to change the default language of the system, then you need to make sure that you have the hold slip and transfer slip receipts in that language, too.

Special characters

There are characters which are not allowed in XML documents, as text. These are for example the double-quote "", because it means the start and end of a string. If you want to use such characters in your text, you need to use special markup.

For example to print a double-quote character, you would use markup " as follows:

```
<label text="Book &quot;actual&quot; name:" />
```

This would print out in a receipt as

```
Book "actual" name:
```

Other special characters and their markup are:

Markup	Character	Name
<	<	Lesser than -sign
>	>	Greater than -sign
&	&	Ampersand
'	'	Apostrophe, or single-quote
"	"	Double quote

Checking for errors

XML document is a technical document and as such must conform to very specific rules. If there is anything wrong, the document cannot be parsed by Libretto 2 software and no receipt printouts can be produced.

There are two simple ways to check that a receipt definition file is valid and functioning. First, if Libretto 2 logging is enabled, there will be a line in the **libr2** log file that looks like this:

```
13:53:44.785 : PRT : 'ReceiptDefinition.xml' is ok
```

If there is an error in the receipt definition file, the error will be shown instead:

```
14:28:50.826 : PRT : Following errors found in 'ReceiptDefinition.xml'  
14:28:50.827 : PRT : Name cannot begin with the '1' character, hexadecimal value 0x31. Line 287,
```

The error tells you where the problem is - this particular one means a missing ending quote just before the place where the problem is.

A second possibility is to open the receipt definition XML document in Internet Explorer. Internet Explorer has built-in support for validating the document, and will also show the error very clearly.

More information

A separate manual for Receipt editor is available with more detailed information on how to use it, including advanced topics such as scripting.

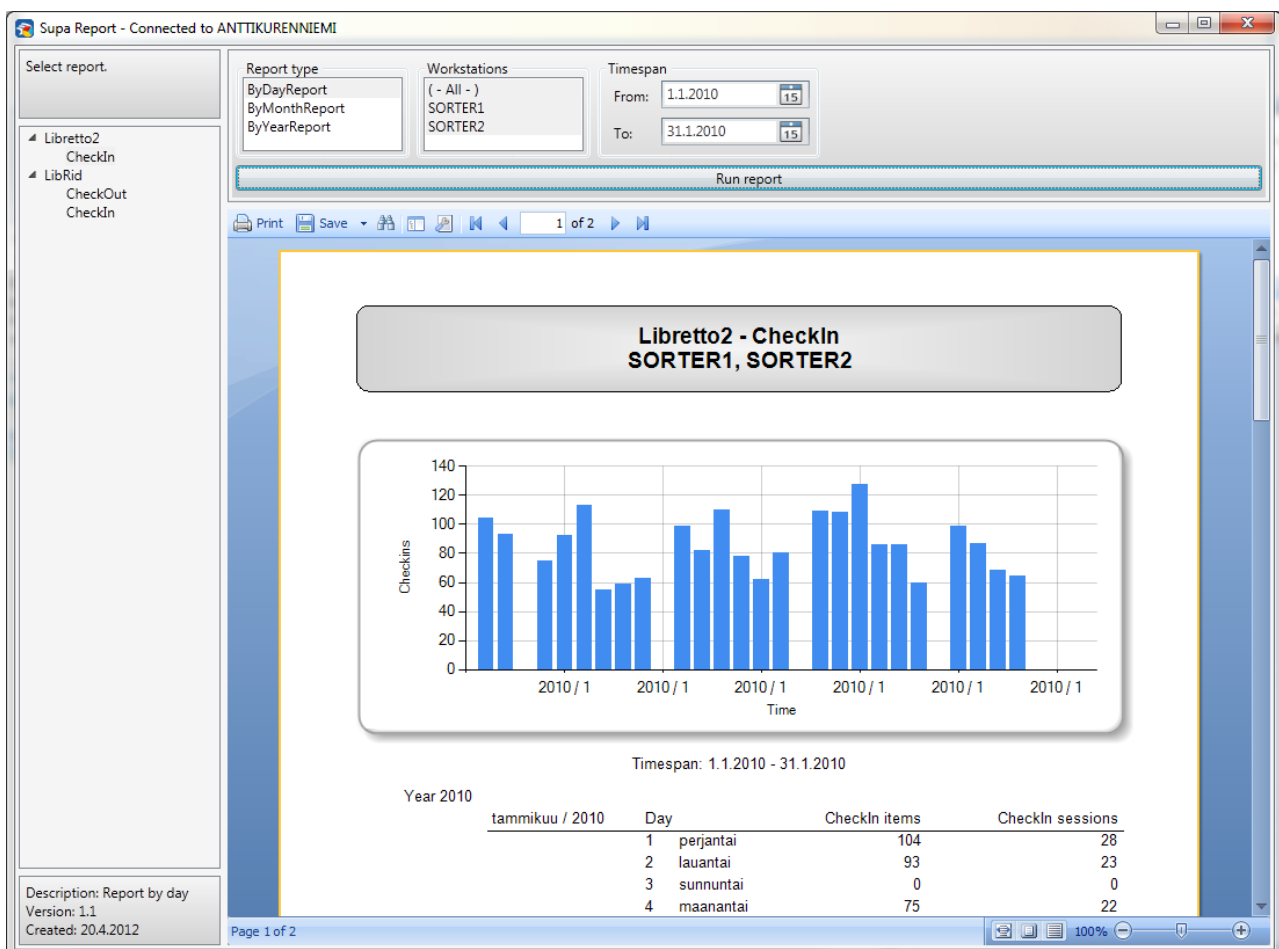
Statistics

Statistics from every Supa software can be generated with a separate tool, **Supa Reporter**. This tool allows you to create graphical reports, either from a single device or many devices if a centralized system is being used. It is also possible to generate the reports from a separate computer, for example a staff station, rather than directly from a device itself.

The reports can be exported into various different formats, such as MS Excel files or PDF documents.

Supa reporter

The main screen of Supa Reporter looks like this:



Supa reporter main screen

On the left is a report selection panel. The contents of this panel depend on installed Supa software (other Supa devices store report data in the same database, making it possible to create statistic reports from all of the using one tool). In this example, there are **Libretto2 -> CheckIn** reports and **Librid -> CheckIn** and **CheckOut** reports available.

To begin, select the report from the left side panel (click on the line with the desired report on it). Then select the desired report type from the **Report type** list. The contents of this list also vary,

depending on what device type and report is selected. For example for **Libretto 2**, there are separate reports for daily, monthly and yearly reports, as well as many others.

The next list box to the right contains a list of all available computers from which data is available. If you have a centralized system, all your devices will be listed here, otherwise just the device you are currently on will be shown. Note that for sorters, there are separate entries for each inlet as each inlet has its own computer.

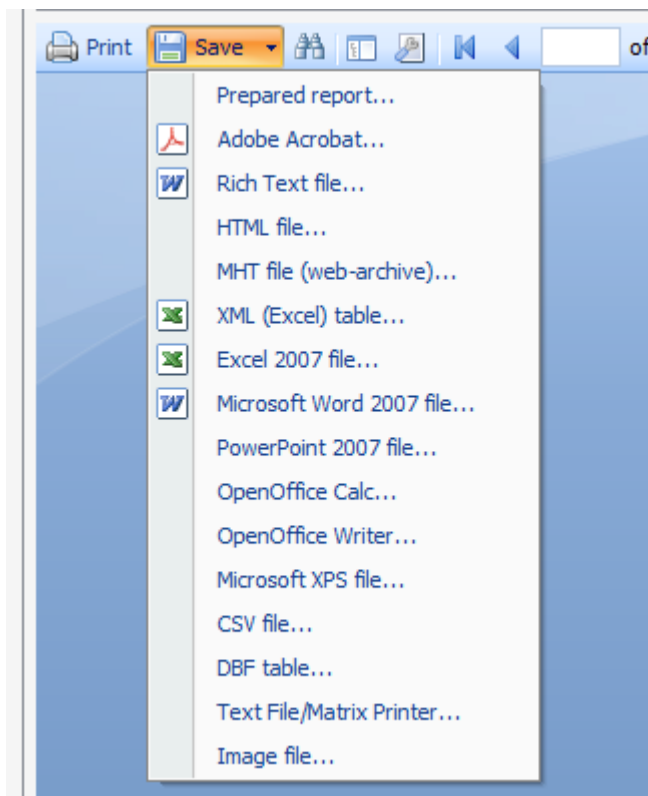
You can select multiple devices by keeping the **control** button on your keyboard pressed while clicking on the computer names. If you select more than one computer, the numbers of these will be added up and the report will thus show total numbers of all selected computers.

Finally you need to select the timespan. You can choose freely, for example everything from the beginning of the current year up until the present day, or just some months, or the previous year.

Once you have made your selections, click on the **Run report** button. This will start the report generating process. If you have a very long time period, it may take a while until the report appears.

The report itself will be shown below the selections. You can scroll the report display to see more of it.

To export the report, select the **Save** button just above the report display. This will open a menu with various export formats to select from:



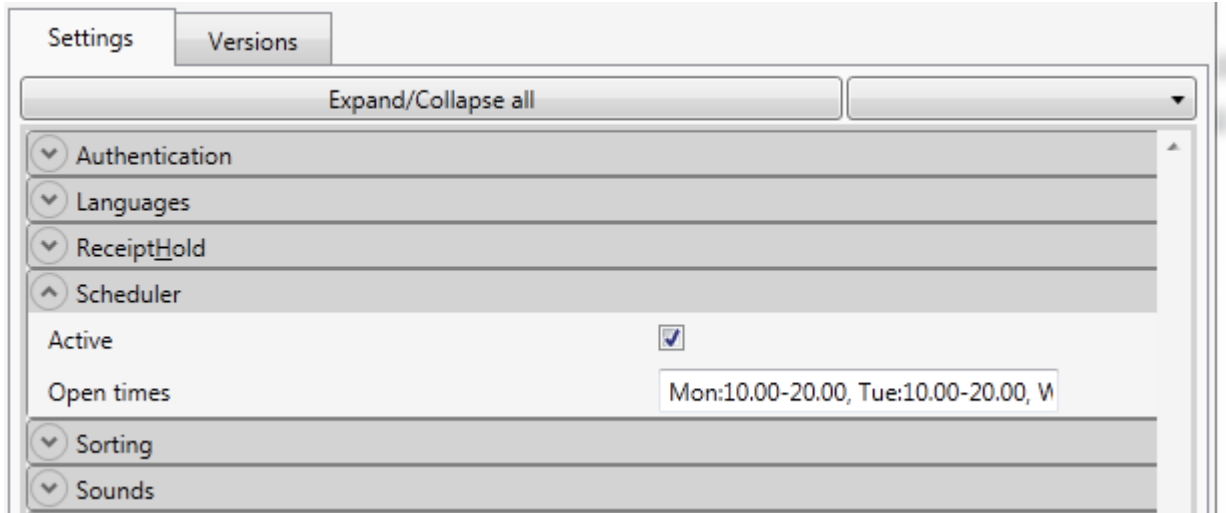
Various formats in which a report can be saved

More information

There is a separate manual available for **Supa reporter** with more detailed information about using it.

Setting device availability schedule

It is possible to define times when the device is available for patrons. This is done by using the scheduler section of settings, in Management Utility.



Availability schedule in Management Utility

There are only two things in the scheduler settings; **Active** checkbox to either use or not use the schedule, and **Open times** text box where the schedule is defined.

Open times is defined as a text. The string is in format

```
<day of week>:<start time>-<end time>[|<start time>-<end time>], <day of week>...
```

Day of week needs to be English short day name (Mon, Tue, Wed, Thu, Fri, Sat, Sun)

Time needs to be in format xx.xx (separated by dot, not colon), 24-hour clock, for example 15.00

Start time and **End time** are separated by a hyphen (minus sign)

Several **Times** can be given for a single day, separated by a bar character (|)

Days are separated by a comma (,)

For example the following string would indicate that the device is available on weekdays (Mon - Fri) from 8 in the morning until 4 in the afternoon:

```
Mon:08.00-16.00, Tue:08.00-16.00, Wed:08.00-16.00, Thu:08.00-16.00, Fri:08.00-16.00
```

The following would indicate an opening on Tuesdays, for two hours in the morning and then two more hours in the evening:

```
Tue:08.00-10.00|18.00-20.00
```

It is usually easiest to construct the string in a text editor, such as Notepad for example, and then copy-paste the string into Management Utility as a whole.

Basic troubleshooting and error situations

The following chapters discuss some basic troubleshooting and error situations that may occur with Supa sorters and Libretto 2 software.

Logging

If you have or suspect there are problems with the sorter, log files may provide valuable information for troubleshooting. You may also be asked to send over log files to P.V. Supa support staff; please compress (zip) the files before sending them over, to reduce size.

Libretto software does not start

Check the **Application log** first; it contains information about the startup sequence, and may have an error message indicating the exact cause why the software fails to start. This can be for example an RFID reader that is configured incorrectly, or library system access problems.

Incorrect sorting

Check the **Application log**, it has information about sorting as it happens in the software. You can see the sorting bins that the software assigns to items:

```
11:03:58.061 : SYS : Sending itemID ABC123456 (bin: 1)
```

The above line would indicate that an item with ID **ABC123456** is sent to bin **1**. If it does not reach bin 1 but goes to some other bin, then there may be a problem with the device hardware configuration.

You can also see in the application log whether or not the sorting rules file has been correctly loaded. There will be a line showing when a sorting file could not be found.

Barcodes not read

There should be a clearly visible red beam of light when the reader is scanning for barcodes. If there is no beam, make sure the device is plugged in correctly and powered on.

Since the barcode reader is an optical device, it can be obstructed by dust and other particles. Check first that there is nothing blocking the reader beam. You can clean the reader lens and mirrors by swiping them with a clean cloth.

Barcode readers mounted under the device typically gather more dust and should be cleaned regularly.

If the barcodes are still not working, check with a few different samples. Barcodes can become more difficult to read over time as they wear out and wrinkle, so check whether all barcodes are not working or just some, before contacting Supa support.

RFID reader not working

Make sure you are using items with properly programmed RFID tags. A utility program, **Supa Reader Test** is available for testing the RFDI reader functionality. You need to shut down all other applications that might be using the reader, before running Reader Test.

Reader Test should display information directly from RFID tags. If it can read the tags but Libretto still doesn't read them, make sure the RFID reader option is turned on in Management Utility, and that correct type of RFID reader is selected.

Receipts not printing

Check that the receipt printer is turned on, connected to the computer and has paper. You can test the receipt printer by printing to it from another program, for example Notepad.

If another program can print to the receipt printer by Libretto still doesn't print receipts, there may be a problem with the ReceiptDefinition.xml file. You can see the status of the receipt definition file in the Application log, near the start of the application:

```
13:00:33.592 : PRT : 'ReceiptDefinition.xml' is ok
```

If there is an error with the file, it will be displayed instead of the "ok" line:

```
11:35:07.942 : PRT : Following errors found in 'ReceiptDefinition.xml'  
11:35:07.942 : PRT : Name cannot begin with the '<' character, hexadecimal  
value 0x3C. Line 13, position 4.
```

This should help you locate the point where there is a problem in the receipt definition file.

Administrator guide

Topics in this section cover more technical aspects of the Libretto 2 software, not commonly needed for daily operations.

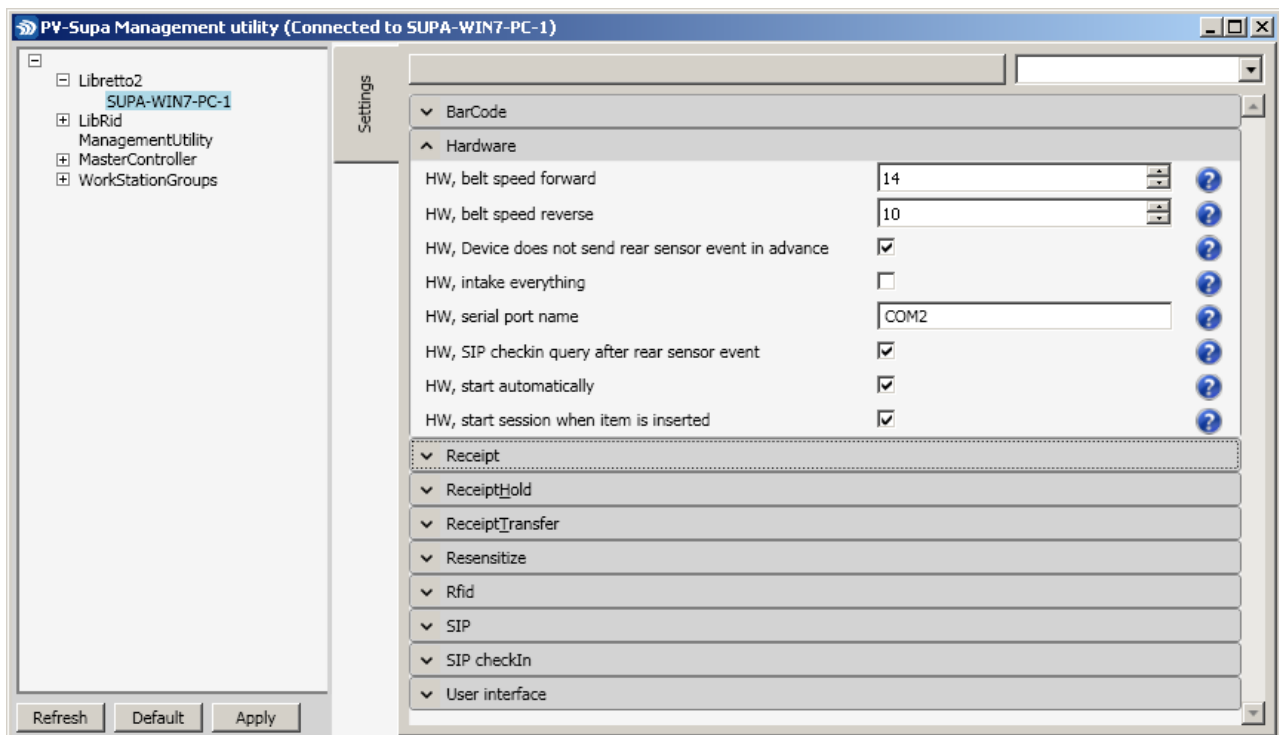
Management Utility

The settings of Libretto 2 are defined with **Management Utility** software. It saves settings in an SQL database. Libretto reads the settings from the database during startup. If settings are changed, Libretto needs to be restarted for the changes to take effect.

The settings are defined during system installation and usually it's not required to change any settings after that. However, there are some settings which the library staff may have to change.

There is a small "+" box in the left panel of the Management Utility. The list of installed P.V. Supa software opens by clicking the box.

The settings are divided in two groups. Common settings are located under the Libretto2 title. Computer specific settings are located under the title which shows the computer name (e.g. SUPA-WIN7-PC-1, in the screenshot below). If there are more than one Libretto2 systems in a library and the centralized management option was enabled during installation, the common settings are valid for every Libretto2 system.



Management Utility main window

Click a title (e.g. "Hardware") to show individual settings.

Click on the **Apply** button to save settings to a database.

Click **Default** to restore default settings. NOTE: Libretto is restored to factory default settings and

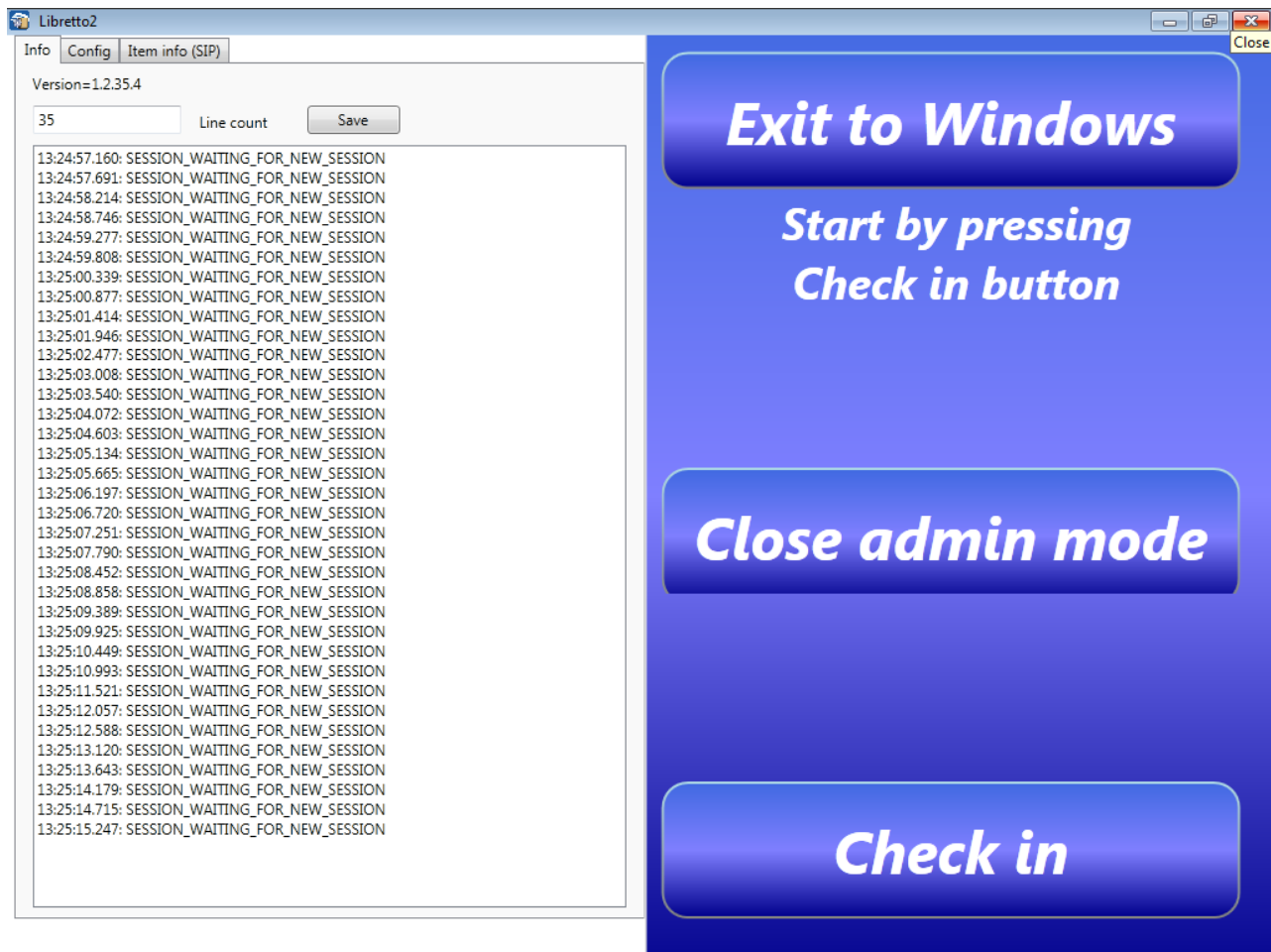
it's not possible to use the system until at least the settings related to readers and a library system are defined again.

Additional information about using Management Utility is available in separate manual.

Administration mode

Libretto 2 contains an **Administrator mode**. It can be accessed by typing a password and pressing enter. The default password is "exit", but it can be changed in **Management Utility**. Please note that sometimes you may have to try this twice, because there might be letters in the keyboard buffer and the password may not be recognized correctly the first time.

Administrator mode looks like this:



Administration mode

The sorter can be used in Administrator mode normally, checking in items just like in patron mode.

There are buttons for **Exit** and **Close admin mode** in the right side panel. Exit closes the Libretto software and returns to Windows desktop, while Close admin mode button returns Libretto to normal operating mode.

There are three (3) tabs in the left side panel (four in older versions):

- **Info:** Status of the device and error messages.

- **Config:** User interface configuration (this is usually configured during system installation).
- **Item info (SIP):** Latest SIP message received from the library system.

Info tab

This tab shows a continuously rolling list of log messages. It is possible to operate the device, checking in books while observing the log in this screen.

Config tab

In Config tab, the Patron UI can be configured using the controls at the top of the screen.

Note: These will not be explained in detail as the configuration system is expected to change completely in the future.

Item info tab

This tab shows detailed information about each item as they are processed. SIP check in response messages will be parsed and displayed here. It is possible to operate the device, checking in items while this tab page is visible, and observe the details.

Error messages

If there is an error situation which prevents using the system normally, a **Contact staff** message (red background) is shown on the screen. The actual error message content can be seen in the administrator mode (Info tab).

Following is a list of some possible errors.

Device error

The connection between the sorter device and the computer is lost.

- Check that the main power switch is ON and the Start button has been pressed
- Check that cables are tightly connected
- Check that E-stop is deactivated

SIP error

The connection between the computer and the library system is lost.

- Check that Windows network connection status in “connected”
- Check if there is a connection to the library systems from other workstations
- Check that the library system settings are valid in Management Utility

It is possible to use Libretto 2 in offline mode. For that, see reference of settings later in this

document.

RFID error

The connection between the computer and the RFID reader is lost.

- Restart the RFID reader by unplugging/plugging the power cable and restart the Libretto software.

Barcode reader

There is no error message related to the barcode reader. If a red light beam can be seen below the reader during a check-in session, the barcode reader is working normally.

Delayed startup

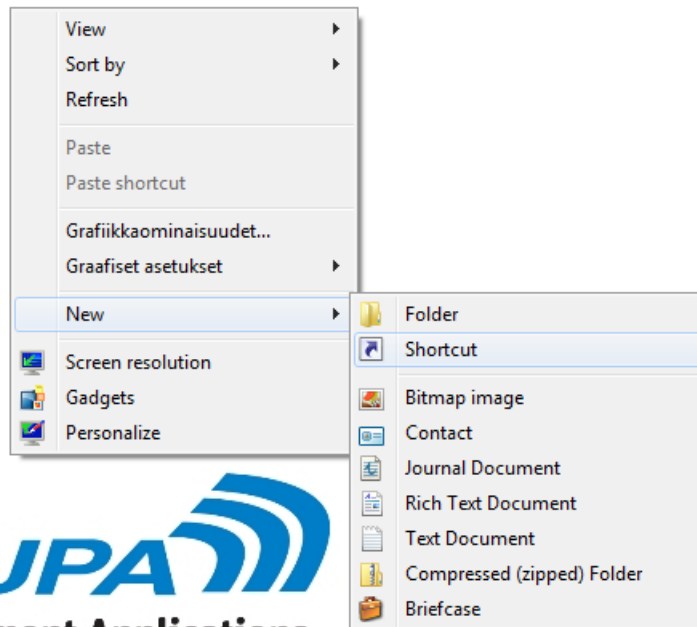
It is possible to start Libretto with a delay. This can be useful if other devices or services connected to the same computer are slow to start. Delaying Libretto's startup means that Libretto will start, but delay initialization of devices and connections for a configured period of time.

To set the delay, modify the Libretto startup shortcut's properties in Windows, adding the following command parameter:

```
-delay:xx
```

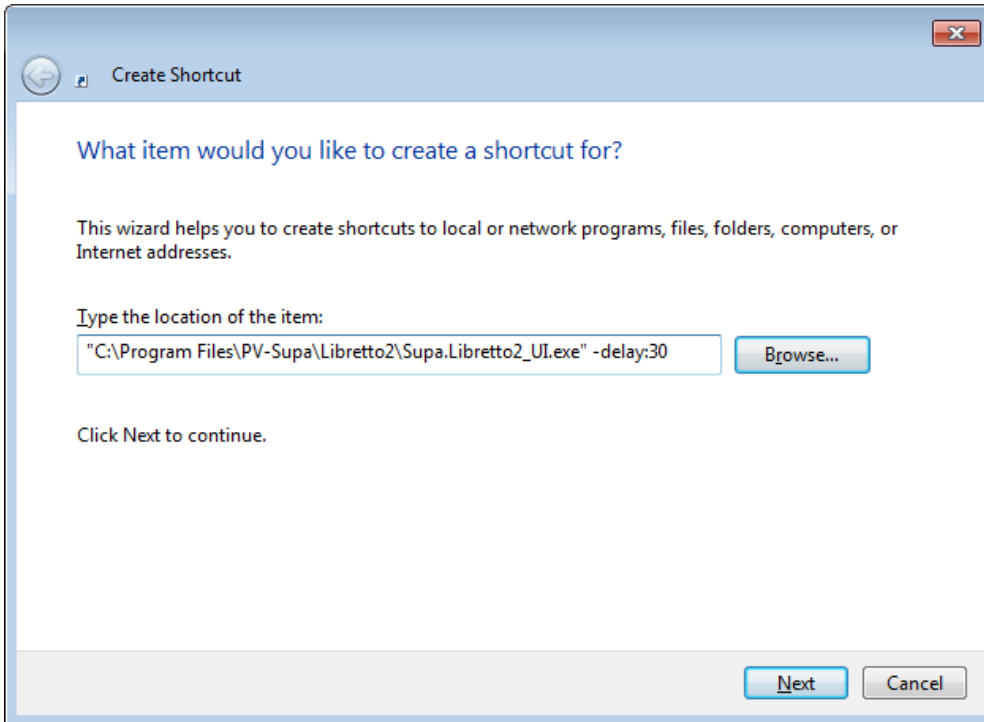
Where xx is the desired number of seconds to delay the startup.

Note: in Windows 7 machines, it may be necessary to create a new shortcut as the default one can not always be modified. To do this, right-click on the desktop and select **New** -> **Shortcut**:



In the Create shortcut dialog, select **C:\Program files\PV-Supa\Libretto2\Supa.Libretto2_UI.exe**

as the target, and append the delay parameter to it:

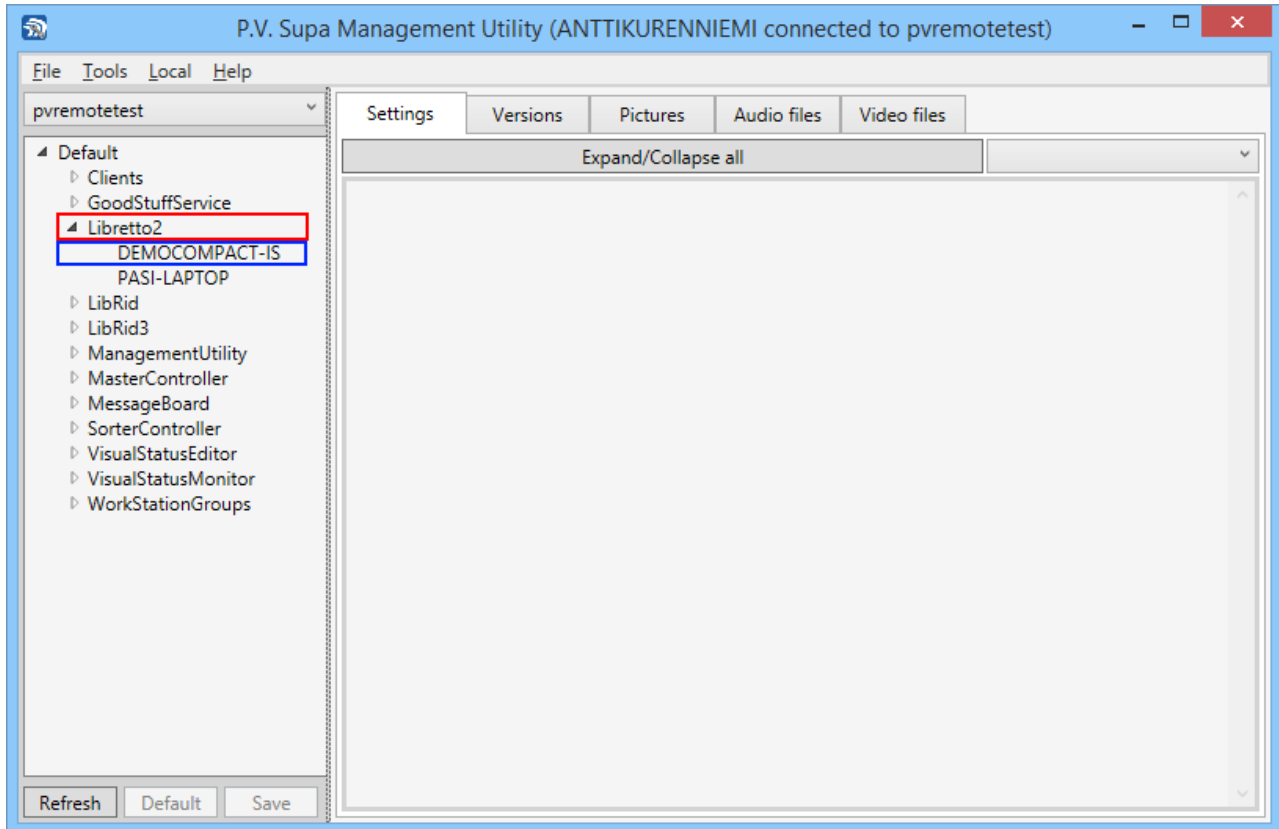


Selecting target and setting delay parameter for new shortcut

Settings reference

This chapter contains a full reference of all settings in Libretto 2 software. The reference is divided into two parts: global settings and local settings.

Global settings (red square in the picture) are settings that are shared by a group of Libretto 2 instances. Local settings (blue square in the picture) only apply to a single instance.



Global settings (red) and Local settings (blue) in Management Utility

Global settings

This section lists all available settings from Management Utility that are related to LibRetto 2 at the global level, i.e. for all Libretto devices connected to the same MasterController and settings group.

Account info

These settings are related to Account Info functionality. Account info allows the patrons to see their loans and renew them, and also to print out a receipt with all information.

Account info functionality requires that the patron is identified, i.e. login must be enabled. In addition, the setting [Use account info](#)^[65] must be selected.

Account info receipt print mode

Determines how the account info receipt is printed, if account info functionality is enabled. Possible values are:

ACS: Receipt contents is printed directly from the ACS SIP messages.

Normal: Receipt is generated by Libretto software.

Normal + ACS: Combination of the two.

Due date style

Font style for due dates in account info receipt. Has no effect if ACS receipt is used.

Footer print font

Select the font to use to print the footer of receipts.

Footer print font size

Select the font size to use to print the footer of receipts.

Header print font

Select the font to use to print the header of receipts.

Header print font size

Select the font size to use to print the header of receipts.

Print data

This dropdown allows selecting what data is to be printed on account info receipts. Note that this only applies to receipts when generated by Libretto software, not on ACS receipts.

NOTE: Not all of these apply to Libretto account info receipt; they exist because the functionality is shared with other Supa software.

Date: Prints the current date on the receipt.

Time: Prints the time on the receipt.

PatronId: Prints the patron identifier.

PatronName: Prints the name of the patron.

Phone: Patron's phone number, if available.

Email: Patron's email address, if available.

Address: Patron's address, if available.

ItemCount: Prints the total number of items on the receipt.

AlwaysFineInAccountInfo: If checked, the account information receipt will also contain any fines

(total fine amount) the patron may have.

SummaryInAccountInfo: This selection will print a summary of items - number of items on hold, number of items on loan and so on - in the account information receipt.

RenewFailedItems: Will print a list of items that were attempted to renew, but renewal failed, in the renew check out receipt.

RenewBeforeItems: Will print a list of items that are on loan but were not attempted to renew, on the renew checkout receipt.

Text print font

Plain text font selection.

Text print font size

Plain text font size.

Alerts

It is possible to send alerts from Libretto software using SMS (text messaging) or emails. These settings control how the alerts are sent.

Email alerts are sent directly from the computer where Libretto is running. Thus, it needs access to the SMTP server through firewalls. SMS alerts are sent through Master Controller; the computer where Master Controller is running must have a GSM modem connected to it.

Phone numbers for SMS alerts

List of phone numbers to send alerts to, separated by commas. For example

555-12345,555-43321,555-98765

Recipients of email alerts

List of email addresses to send alerts to, separated by commas. For example

jack.nicholson@shininghotel.com,tom.cruise@missionimpossible.com,moomin.troll@moominville.com

Authentication

These settings are related to user authentication, pincode and patron identifier.

Activate administrator mode (accept admin pass)

This setting allows a special book or library card to be used, which will trigger the administrator mode in Libretto. It must contain the same password as the Admin password setting (see below). If a book or library card is inserted in the device and the password is recognized, Administrator mode is activated and the item is returned to the user.

Admin password

A password to enter the administrator mode. The default password is "exit" but it can be changed. Note that this affects all Libretto devices in the same group.

Auto ok on max digits

This setting relates to external PIN pad or on-screen buttons. If selected, Libretto will automatically append an Enter key press to a PIN code when it reaches the maximum length (set by Max pincode length setting).

Max patron card length

Maximum number of characters in a patron code.

Max pincode length

Maximum number of characters in a PIN code.

Min patron card length

Minimum number of characters in a patron code.

Min pincode length

Minimum number of characters in a PIN code.

Start at administrator mode

If this setting is selected, then Libretto software will enter Administrator mode automatically when it is started.

Email

Settings related to sending email messages from Libretto.

Port

Port number to use to connect to the email server. Default SMTP server port is 25, or 587 for SSL secured connections.

Server

Email server name or IP address.

SMTP password

Password used to send email through the server.

SMTP user

User name used to send email through the server.

Use authentication

Enable this setting if authentication needs to be used in the email server. If the server allows sending email without authenticating the sender, this can be disabled.

Use SSL

Enable this setting if the email server requires a secured SSL connection.

Languages

User interface languages related settings.

Change to default immediately after session

If selected, Libretto will return to default language immediately after a session ends. If not selected, then a normal timeout is started when session ends, and the default language will only be returned after the timeout elapses.

Default culture

Language code of the default language to use, for example en-GB. This language must be included in the Language list (see below).

Hide selected language

If selected, the currently selected language (name and flag) will not be shown on the screen, only the other languages.

Language list

The language options shown on the Libretto display. Each language is defined with a culture code (e.g. en-US = english / USA). Corresponding language texts must be defined in the languages file. Separate multiple languages with a comma, for example "en-US,sv-SE,fi-FI".

A full list of available language codes is available at the end of this document, in chapter *Language codes*.

Show flags

If selected, flags will be available on screen next to language names. If not selected, only language names will be shown.

Note that this does not apply to Hatch Mode. In Hatch Mode there is only a single button to toggle through available languages, and no flags or language names are shown.

Message board messages

These settings control which messages are sent to Messageboard from Libretto.

Messages to send to message board

This dropdown list allow selecting which messages are sent to Messageboard. Not all messages are relevant in all cases, so they can be disabled here. Available choices are:

Sorter CRC errors: These messages are sent when a check number calculation reveals an error in the communication between Libretto software and the sorter controller board. These messages should always be selected as any such errors may indicate a potentially important problem in a sorter. The messages can be turned off temporarily, for example when such a case is reported to Supa support but maintenance has not yet checked the cause of the problem.

ReceiptHold

Hold receipt related settings. Hold receipts are printed when an item is determined by sorting rules to have a reservation for it.

Due date for hold receipt

This setting allows library staff to set a specific due date in hold slips. Whatever is written here can be printed on a hold slip by using a placeholder SYSTEM:HOLDDATE in ReceiptDefinition file.

An item is recognized as hold-item based on sorting rules. Sorting rules are created and maintained with a separate tool, Sorting editor. In the sorting rules, any information available from the SIP check in response can be used to determine the hold status of an item, for example a piece of text in a message field (AF).

Scheduler

The scheduler is used to control when the device can be used. If used, the device will not accept any new patron sessions outside the defined open hours, and will instead display a message stating that the device is closed.

The message to display on screen when the device is not available can be found in the LanguageTexts.xml file, and can be edited with Language Editor just as any other on-screen texts.

Active

If selected, the schedule will be active.

Open times

A text string with time slots when the device is available. The string is in format

```
<day of week>:<start time>-<end time>[|<start time>-<end time>], <day of week>...
```

Day of week needs to be English short day name (Mon, Tue, Wed, Thu, Fri, Sat, Sun)

Time needs to be in format xx.xx (separated by dot, not colon), 24-hour clock, for example 15.00

Start time and **End time** are separated by a hyphen (minus sign)

Several **Times** can be given for a single day, separated by a bar character (|)

Days are separated by a comma (,)

For example the following string would indicate that the device is available on weekdays (Mon - Fri) from 8 in the morning until 4 in the afternoon:

```
Mon:08.00-16.00, Tue:08.00-16.00, Wed:08.00-16.00, Thu:08.00-16.00, Fri:08.00-16.00
```

The following would indicate an opening on Tuesdays, for two hours in the morning and then two more hours in the evening:

```
Tue:08.00-10.00|18.00-20.00
```

It is usually easiest to construct the string in a text editor, such as Notepad for example, and then copy-paste the string into Management Utility as a whole.

Sorting

Sorting related settings.

Alternate sorting card

Enter an ID that is stored to a barcode or RFID tag. Inserting an item with this identifier into the sorter, Libretto changes to using an alternate sorting rules file (or switches back to using the default sorting rules file, if alternate rules were in use).

Default sort bin

Number of bin to use for default sorting, when no other sorting information is available.

Item read fail, item identifier

When an unknown item is accepted in the sorter (if configured to do so), this is what will be used as item identifier. This identifier can then be used in receipts.

Item read fail, name

When an unknown item is accepted in the sorter (if configured to do so), this is what will be used as item name. This text can then be used in receipts, and is also displayed on screen to the patron.

Timers

These timers control several aspects of how the sorter functions.

Do not change these without good reason! Incorrectly set timers may result in unwanted behaviour.

Default language set (seconds)

How many seconds will the device have to be idle, before the user interface is reverted to default language. Idle time is only measured when the software is in the startup screen, not during a session.

Error show (seconds)

How many seconds will an error message be displayed on screen.

Receipt print timeout (seconds)

Maximum time to wait for the printer to respond, before returning to idle state. This should normally not be changed.

Receipt prompt timeout (seconds)

How many seconds will the receipt prompt be displayed to the user.

Session timeout (seconds)

Time in seconds to wait for the next item to be inserted, before the session is automatically closed.

SIP query timeout (seconds)

Time to wait for SIP server to respond, before attempting to resend the check in message.

Note: This value should be **less** than Tag processing timeout, otherwise the device might not wait long enough for the SIP message to return before rejecting an item.

Status check (seconds)

Interval at which the Libretto software will check with the sorter hardware, if communications are ok. This should usually not be changed.

Tag processing timeout (seconds)

Maximum time to wait for an item to reach rear sensors. If this timeout is reached and item is not yet at reading stage, the item will be returned to the patron.

Tag read timeout (seconds)

Maximum time to wait for Barcode / RFID reader to return item ID, before rejecting the item. For Barcode readers this can be set to quite low (2 seconds) for faster operations, but for RFID readers it should not be set too low to allow the reader to get a proper reading of tags.

Timeout for opening SIP connection

Maximum time in seconds to wait for the SIP connection to be established, on application startup.

User interface

This section has color settings for different states of the user interface. The four background colors have a format of three colors, separated by bar (|) character. These are the top part of screen, middle part and bottom part:

<top color>|<middle color>|<bottom color>

All color values can be expressed as written constants (for example "Red"), or as hexadecimal Alpha-RGB values. These are in the form of

#<alpha value><Red value><Green value><Blue value>

for example #FF0000FF would be a solid basic blue color.

For a complete list of available color constants, see chapter *Color codes* later in this document.

Background color error (red)

Color for the background when in error state. Default value is #FFFF0000|#FFF5F5F|#FFF0000 (red)

Background color normal (blue)

Color for idle state background. Default value is #FF4169E1|#FF7F7FFF|#FF00008B (blue)

Background color ready (green)

Color for ready state, during a session when the device is ready to accept new items. Default value is #FF00A000|#FF4FCF4F|#FF00A000 (green)

Background color wait (yellow)

Color for background when the device is processing an item. Default value is #FFFFE5D| #FFFFFF94|#FFFFE5D (yellow)

Hide mouse cursor

If selected, mouse cursor will not be visible in Libretto user interface during normal patron usage.

Selected text color for language

Color to use for the currently selected language name.

Show item id in checkin list

If selected, the list of checked in items on screen will show the item ID (barcode) as well as the name of the item.

Text color for language

Color for language names that are not selected.

Local settings

These settings apply to a single Libretto frontend computer.

Account info

Local account info related settings.

Timeout for account info (seconds)

Number of seconds after which the session is terminated, if the patron does nothing when the account info screen is visible.

Use account info

If selected, account info functionality is used in this Libretto inlet.

Alerts

Settings related to what alerts are sent as email or SMS from Libretto, and how.

Send email alerts for

For which events should Libretto send email alerts. Email address recipient addresses are defined in global settings, section [Recipients of email alerts](#)^[58]. Possible selections in the dropdown list are:

Library service error: Email is sent when the library server SIP connection is lost.

Printer error: Email is sent when the printer goes to an error state, for example it runs out of paper.

Printer warning: Email is sent if the printer alerts that it is low on paper. Note that this requires that the printer has a paper-near-end sensor, and that the correct drivers (POS drivers) are used.

Reader error: Email is sent when an RFID reader or barcode reader goes into error state. This could mean power loss on the reader, or the reader communications stop responding.

Sorter device error: Email is sent when the sorter hardware controller goes into error state. This is also shown on screen as "Device error" (red screen).

Note that the library service error is caused by a network failure, it may not be possible to send email messages either.

Send SMS alerts for

For what events are SMS alerts sent. SMS messages are sent through a GSM modem connected to Master Controller. Thus, connection to the computer running Master Controller must be available for the SMS messaging to work.

Recipients of the SMS messages are defined in global settings, in [Global settings](#)^[56] / [Alerts](#)^[58] / [Phone numbers for SMS alerts](#)^[58].

Library service error: Email is sent when the library server SIP connection is lost.

Printer error: Email is sent when the printer goes to an error state, for example it runs out of paper.

Printer warning: Email is sent if the printer alerts that it is low on paper. Note that this requires that the printer has a paper-near-end sensor, and that the correct drivers (POS drivers) are used.

Reader error: Email is sent when an RFID reader or barcode reader goes into error state. This could mean power loss on the reader, or the reader communications stop responding.

Sorter device error: Email is sent when the sorter hardware controller goes into error state. This is also shown on screen as "Device error" (red screen).

Note that the library service error is caused by a network failure, it may not be possible to send email messages either.

Sender address for email alerts

Sender of alert email messages (email address). This can be set per device, which allows identifying the sending sorter inlet by the sender.

Audio files

These are sound files, played when a given event occurs. The files are stored in the database, and are managed by using Management Utility. All the dropdown lists in this section display all sound files uploaded with Management Utility, for Libretto 2.

Error sound file

File to play when an error happens. This could be a device error, an unknown item or a SIP error.

Insert item sound file

Sound to play when an item is inserted. Triggered by the device's front sensors.

Item read sound file

Sound to play when an item has been successfully read, either by Barcode or RFID reader.

Audio messages

Settings to control audio messages.

Use audio messages for errors

If selected, the audio messages system will be used. Audio messages are different from audio files; audio messages allows for localized messages to be played in the language currently selected in the user interface.

Audio messages are based on WAV files in the local file system. The WAV files are to be placed in directy structure which identifies the language used, and each file has to be named with a number to identify the actual message.

The folder structure is

```
Program Data\PV-Supa\Libretto\Audio\{language code}\
```

Where {language code} must match that of the languages set in languages setting. For example for Finnish language, the folder would be:

```
Program Data\PV-Supa\Libretto\Audio\fi-FI\
```

Under this folder are the uncompressed WAV files for each message that should be played. The messages are numbered as follows:

ItemFailed	=	104.wav
SetIncomplete	=	105.wav
ItemNotAccepted	=	106.wav
ItemInsertedTooFast	=	107.wav
TooManyItems	=	108.wav
InvalidPatron	=	109.wav
InvalidPassword	=	110.wav
WrongOrientation	=	111.wav
ContactStaff	=	112.wav

Only the messages which should be played need to exist - if you do not want some message to be played, simply leave it out. Thus, for a Finnish language message when only the WrongOrientation (barcode system, item inserted in wrong orientation), the following file should exist:

```
Program Data\PV-Supa\Libretto\Audio\fi-FI\111.wav
```

To test the system, you can use any wav file available in Windows, for example the "ding" sound. Just rename the file according to what situation you want to test.

Supa does not provide audio files for all languages, you need to record your own messages.

Barcode

Barcode reader related settings.

Most of the settings here should not be changed; if the barcode reader works correctly, do not change any of these settings. A single incorrect setting will very likely cause the reader to not work.

Accept different item id from RFID

If selected, the device accepts a different item identifier from RFID reader and barcode reader at the same time. In such case, the identifier that is read from RFID tag is used as item identifier, and the one from barcode reader is ignored.

Always send stop before starting

If enabled, a stop command is sent to barcode reader before starting to read from it. This is only needed for some setups with two DataLogic readers connected.

Baud rate

Baud rate to use in Barcode reader connection.

Databits

Data bits settings for serial port connection.

Only allow barcode in right direction

If selected, the device will expect barcode items to be inserted in the correct way around. Requires that settings Read Orientation character and Valid orientation character are also set. If items are inserted the wrong way around, the device will reject them.

Orientation character

If barcode reader is enabled and settings Only allow barcode in right direction and Valid orientation character are set, the device expects items to be inserted in the correct way around. This character defines the expected orientation character, from the barcode reader.

Port name

COM port to use for barcode reader, usually COM1.

Read orientation character

Barcode reader can be configured to send an orientation character. If it is configured to do so, this setting must be enabled for Libretto software to be able to remove the orientation character from the Item ID. Misconfiguration here will result in none of the returned items being recognized.

Type

Select the barcode reader type from the dropdown list.

Use reader

Enable this setting to use barcode reader; disable to not use barcode reader. Either barcode reader or RFID reader (or both) has to be enabled, otherwise the device will not identify any items.

Hardware

This section contains settings related to the actual sorter hardware (frontend, or inlet), and the connection between the sorter hardware and Libretto software.

Belt speed forward

Speed of belts when moving items forward. Allowed values are from 1 to 15, 15 being fastest. It is not advisable to simply set the fastest possible value, as it means that when stopping the belts, items may slide more than they should. Sliding when stopping may result in items being off of the optimal RFID reading area, or EM resensitizing area.

Belt speed reverse

Speed of belts when moving backwards, when items are returned to the patron. Allowed values are from 1 to 15, 15 being fastest.

Device does not send rear sensor event in advance

When disabled, the device hardware sends a "item on rear sensors" event to Libretto software as soon as possible, even before the item actually has reached the rear sensors.

When enabled (default), the device hardware sends "item on rear sensors" event only when it actually happens.

Note: This setting should NOT be disabled in normal operation!

Intake everything

When this setting is enabled, the device will accept items that it cannot recognize. This could be barcode items with the barcode on the wrong side, RFID items where the reading fails, or simply items that do not even belong to the library.

Note that if an item can be read (barcode or RFID) but is not found from the ILS database by SIP request, is NOT considered an unknown item. It will be rejected, unless the setting "SIP, take in everything" is also enabled.

Note: If the setting *Sorting: Take Item: use fail counter* is selected, it will not function with this setting also selected when an item is unidentified. This setting (intake everything) will cause an unidentified item to be always taken in at the first time.

Serial port baud rate

Baud rate to be used in serial port connection between the computer and sorter hardware. 38400 for new devices with new firmware, 115200 for older devices. Do not change this if the device is working; an incorrect value will leave the sorter unusable.

Serial port name

Name of the serial port in which the sorter hardware is connected to, on the computer. Usually COM2; change this value only if the setup of the device and computer is changed.

SIP check in query after rear sensor event

When enabled, Libretto sends SIP check in query when the device reports that the item has reached rear sensors (device state is IDENTIFYING). If disabled, the SIP check in query will be sent immediately when the item ID has been read.

Note: This setting should be *enabled* in normal operation. Do not disable unless there is a specific reason to do so.

Start delimiter byte

Character used to define start of message in connection between the device hardware and Libretto software. Do not change this! Incorrect value will make the device not work correctly.

Start session when item is inserted

If enabled, the device will start a new check in session when an item is inserted on to the front sensors. If this setting is disabled, the session has to be manually started from the touch screen or hatch button.

Unique identifier for sorter device

Sorter machine identifier, can be a name or something similar. This is used to filter duplicate messages from SMS and/or email alerts, to prevent different front-ends from sending the same message of the same event.

Use feeder belt (no discarding)

Use this setting when the front-end has a separate feeder belt in front of it. The feeder belt allows multiple books to be placed on it, and then feeds those to the actual inlet automatically. In this case the front-end is not allowed to reject any items, as that would conflict with the other items on the feeder belt and there is not likely to be anyone there to take the discarded book away. Selecting this setting makes the device never send any items back, even in "too fast" or "too many" cases.

Use sensors

This setting should be disabled on RFID only Staff Compact inlet; it operates without sensors and is always started manually, from a button. For all other inlet types this setting should be enabled, otherwise the device will not work correctly.

Language files

Language files are the user interface translation files, stored in database.

Language texts

Select the language texts stored in database to use for translations. These files are stored in database using Language Editor. One file can be selected to multiple inlets, in which case changes to that file will affect all Libretto devices using that same file.

Logging

Log file generating settings.

Path for text logging

This is the folder in which the log files are stored. Use fully qualified path name.

Save log

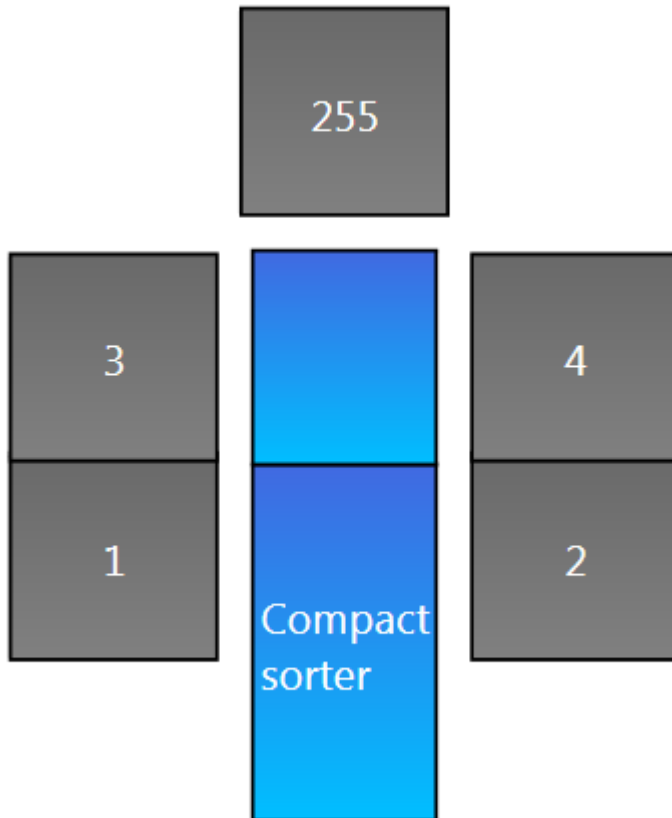
Select what types of logs are to be saved. Note, that *Debug* and *Device* logging may create a lot of log data, so they should not be left selected when there is no real need for that kind of log data.

Model layouts

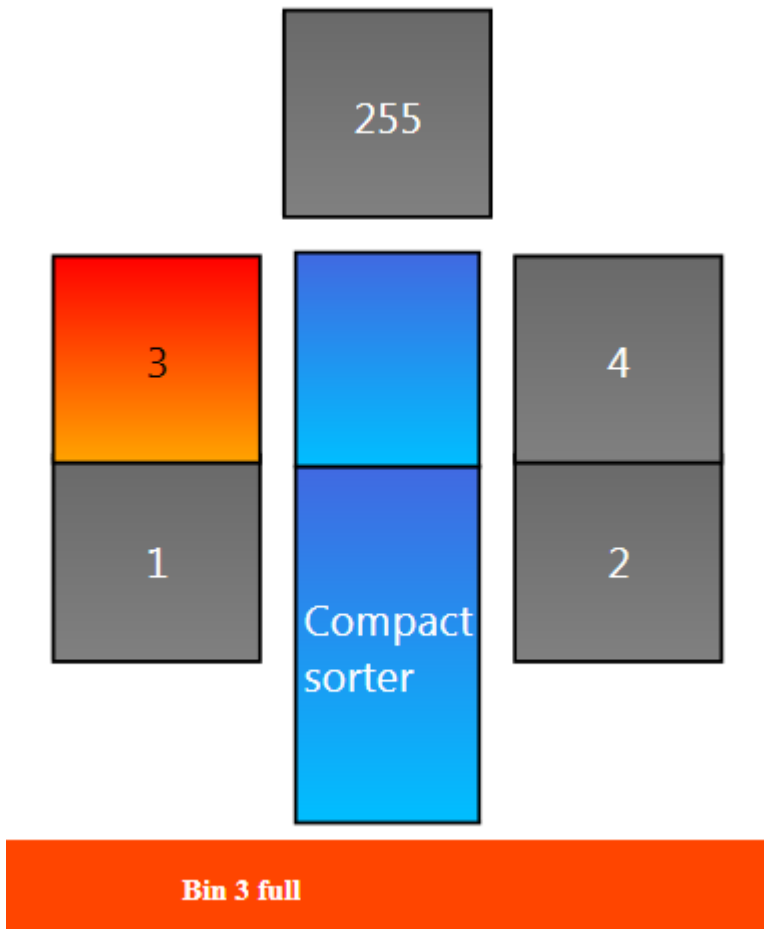
These settings are related to the visual status monitoring system. Visual status monitoring enables a visual representation of a sorter to be displayed on a separate screen. Any problems, errors and other events that require attention will be indicated visually. Typically used for large sorters, where the complete sorter is not easily seen at a glance.

Visual status monitoring requires additional software and some setup work which is outside the scope of this documentation. Please contact Supa if you would like to know more.

A sample of a small, 5-way sorter model looks like this:



With a bin full, the same model looks like this:



Device configuration

Select the model of sorter that this sorter should send information to; i.e. select the layout of this sorter. Layouts must exist in the database, they are stored there from *Visual Status Editor* software.

In a sorter with multiple inlets, this setting should be made only on the "Master" front-end; this is where the sorter device sends the status messages.

Monitoring

Settings for remote monitoring with the Visual Status Monitor system. See also section [Model layouts](#)^[72].

Report only status changes

If this setting is enabled, the system will only update the visual monitors by sending status change events, not any events all the time. Combined with [Use status polling](#)^[74], this setting can cause a fair amount of network traffic and can be disabled if it seems to affect other network use.

If disabled, the system will constantly send status update events to the model even when nothing

has changed. This makes the status monitoring slightly more robust at the expense of increased network traffic.

Normally this setting should be enabled.

Start status polling with a delay

When this setting is enabled, status polling is started only after one round of [Status polling interval \(seconds\)](#)^[74] has elapsed. This should usually be selected, to prevent unnecessary status events that may not be correct, when the device is started up.

Status polling interval (seconds)

At how many seconds interval is the device status polled, when [Use status polling](#)^[74] setting is also enabled. Default value is 150 (2½ minutes); minimum value is 60 seconds. Normally this value should not be set to very low without a specific reason, to prevent unnecessary load on the device communications channel.

Status polling timeout (seconds)

After how many seconds should Libretto stop waiting for a module to respond to a status request.

Use status polling

If selected, all the modules - including front-ends, sorting modules and conveyors - are polled at regular intervals to query their status. If not selected, only the status events sent by the sorter control unit are received.

Polling allows more reliable and complete status of the device to be displayed, for example a sorting module does not send any information if it is not available - only by polling the module is it possible to determine, that the module is not available. However, polling also causes traffic in the control channel of the sorter and should only be used if such accuracy is needed in the Visual Status Monitor system.

Pictures

All pictures are stored in the database. Each dropdown list here shows all picture files uploaded by Management Utility, for Libretto 2.

Account info image

If selected, this image will replace the *Account info* button.

Email image

If selected, this image will replace the *Email* button in receipt choice.

Language selection image

If selected, this image will replace the *Language* select button.

Logo file

Image file to use as a logo, in the Libretto main user interface.

Paper receipt image

If selected, this image will replace the *Paper* button in receipt choice.

Print image - no

If selected, this image will replace the *No* button in receipt prompt.

Print image - yes

If selected, this image will replace the *Yes* button in receipt prompt.

Start image

If selected, this image will replace the *Start* button.

Stop image

If selected, this image will replace the *Stop* button.

Receipt

Settings in this category refer to patron receipts. There are separate setting categories for Hold and Transfer receipts, see below.

Ask for printing of receipt

If this setting is enabled, Libretto will ask the patron if he/she wants a receipt printed. If this is disabled, a receipt will be automatically printed after each session.

Can patron decline receipt

If this setting is enabled, Patron has the possibility to answer "No" to a receipt prompt. If not selected, the patron will always get a receipt.

Character set for plain text printing

Character set to use for paper receipt, when using a non-formatted receipt.

Pos printer name

If specific Pos printer drivers are used, this is the name of the Pos printer as seen in Windows printers. Pos printer drivers typically allow "paper near end" sensor to be used, unlike standard Windows printer drivers.

Print receipt on receipt prompt timeout

If this setting is enabled, a receipt will be printed if the patron does not respond to the receipt prompt and it times out. If disabled, the prompt will just timeout and not print anything. This should normally be disabled, as if the patron does not respond to the prompt they are likely to have already left the device.

Printer name

Name of printer on the computer. You can find this name from the Printers dialog in Windows.

Printing style (formatted or plain text)

Määrittää miten kuittitulostuksessa käytetään muotoiluja.

Normal: Käytetään kuittimäärityksen mukaisia muotoiluja.

Plain text: Muotoilut poistetaan ja käytetään vain tekstiä. Tätä voidaan käyttää jos muotoillun tekstin tulostamisessa on ongelmia, esimerkiksi jos tulostin tai tulostinajuri ei kykene tulostamaan kaikkea muotoilua oikein, tai jos muotoillun tulosteen muodostaminen kestää liian kauan.

Receipt print mode when hardware goes error state

If there is a hardware error, this setting controls how the patron receipt is printed. Possible values:

No: No receipt is printed, the device will simply end the session.

Ask: The patron is shown a prompt "Do you want a receipt", with yes and no buttons.

Always: Receipt will be printed automatically, always.

Sender address for email receipts

Sender address to use in email receipts.

Use email receipt

If selected, email receipts can be used. Requires that the email settings in [Email](#) ⁵⁹ section are set, and that the library system sends the patron's email address in SIP messages.

Use printer

If enabled, receipt printer is used and all other receipt printer settings are available. If this setting is disabled, there will be no prompts for the patron to print a receipt, and no errors are displayed if the receipt printer is not available or out of paper.

Receipt definitions

Receipt definitions stored in database.

Receipt definition

A list of available receipt definitions from database. This list shows all receipt definitions saved to database using the Receipt Editor. You can select the same definition for multiple Libretto front ends, or a different one for each.

ReceiptHold

This section contains settings for the Hold Slip printer. It can be the same printer as patron receipt printer (this would be the case for staff inlets). Typically, though, it would be a separate printer in staff area in the library.

An item is recognized as hold-item based on sorting rules. Sorting rules are created and maintained with a separate tool, Sorting editor. In the sorting rules, any information available from the SIP check in response can be used to determine the hold status of an item, for example a piece of text in a message field (AF).

Printer name

Name of printer on the computer to use. You can find this name from the Printers dialog in Windows.

Use printer

If enabled, hold receipt (hold slip) printer is used.

ReceiptTransfer

This section contains settings for the Transfer Slip printer. It can be the same printer as patron receipt printer (this would be the case for staff inlets). Typically, though, it would be a separate printer in staff area in the library, usually the same as Hold Slip printer.

An item is recognized as a transfer-item based on sorting rules. Sorting rules are created and maintained with a separate tool, Sorting editor. In the sorting rules, any information available from the SIP check in response can be used to determine the transfer status of an item, for example a piece of text in a message field (AF).

Printer name

Name of printer on the computer to use. You can find this name from the Printers dialog in Windows.

Use printer

If enabled, transfer slip printer is used.

Resensitize

These settings control resensitizing the EM security strips; Colinear or 3M strips. The media type is recognized from the SIP 10 check in response message.

Audio tape

If enabled, Audio tapes are resensitized.

Book

If enabled, Books are resensitized.

Book with audio tape

If enabled, Books with audio tapes are resensitized.

Book with cd

If enabled, Books with cd's are resensitized.

Book with diskette

If enabled, Books with diskettes are resensitized.

Bound journal

If enabled, Bound journals are resensitized.

CD/DVDRom

If enabled, CD's and DVD's are resensitized.

Diskette

If enabled, Diskettes are resensitized.

Magazine

If enabled, Magazines are resensitized.

Other

If enabled, Other media types are resensitized.

Video tape

If enabled, Video tapes are resensitized.

Rfid

These settings control the RFID reader in the device, if one is installed.

Allow invalid tags when using also barcode

If this setting is enabled, the device will accept items with invalid RFID tags when there is also barcode present and recognized. This is especially useful during a conversion to RFID, when not all tags are programmed (i.e. tags are blank).

During normal operation this setting should be disabled, as it can slow down the device.

Allow sets with 0 as set index

If selected, the device will allow set index of an item to be 0 (zero). This is normally an error; set index should always start from 1, but in some cases libraries may have tags with set index 0 indicating for example that there are multiple items, but not all of them have a separate tag. Without this setting enabled, such index would normally cause an error.

Check set(s)

When enabled, the RFID reader will check the set information from the tags and reject any items that do not contain a full set of tags.

Reader id

Identifier of the item reader in this device. This is typically 1, but can be something else if the same computer is used to control a Staff Belt inlet for example. The number refers to the reader identifiers in the reader INI file in the local computer.

Reader type

Type of reader installed in the device. Do not change unless the actual reader device is changed.

Use Libretto in Retro-mode

This setting enables some different logic in the internal working of Libretto, when used with older hardware converted from Festo-operated to a new control board operated system. Only use this setting with such devices!

Use reader

If enabled, the RFID reader is used. It is possible to disable this setting if the device has a barcode reader, but one or the other must be used for the device to work.

RFID conversion

Libretto 2 has functionality to convert item information read from barcodes, to RFID tags, automatically during check in. These settings control how the conversion should happen.

Note: RFID conversion functionality requires a separate license.

Bin for successfully converted

This sorting bin is used when conversion is successful. Leave to 0 (zero) to use normal sorting rules for converted items.

Bin for unsuccessfully converted

This sorting bin is used when conversion fails. Leave to 0 (zero) to use normal sorting rules for converted items.

Convert only empty tags

If this setting is enabled, only tags that are empty will be programmed during conversion.

If this setting is disabled, tags with different data model than what is set to be used, will be re-programmed with data from the barcode. Thus, it is possible to use this conversion to re-program existing programmed tags to a new data model.

Country code

Country code to use in RFID data.

Data model

Data model selection. This is the data model that will be used when converting tags.

Enable conversion during check in

If enabled, barcodes are converted to RFID tags when an empty tag is found, and a barcode can be read.

Library ID type

Library ID type selection. Used with ISO-28560-2 data model. Available values are **International**, **National** or **Not standardized**.

Owner library ID

Library identifier to write to RFID tags.

Set security mode

How the security bit should be written: **Activate**, **Deactivate** or **Do nothing**.

Type of usage

Usage type of items to write to RFID tags.

SIP

This section has settings related to SIP connection and message handling.

Abort after checkin has been sent

If selected, this makes it possible for the device to return an item to patron even after a SIP check in message has been sent to library system. In such case, the item may be checked in to the system but still be at the hands of patron. This should be disabled in normal use.

Checkin query, delay (ms)

Amount of milliseconds the check in query is delayed, before it is sent to the library system. Normally this is 0 (zero). Only use some value if there is reason to suspect the library system needs more time between items.

Code page for receiving

Code page / character encoding to use with SIP server when reading messages.

Code page for sending

Code page / character encoding to use with SIP server when sending messages.

Ignore supported messages

This dropdown list allows ignoring when library system reports certain SIP messages as not supported. Sometimes the information is not entirely true, and messages can be used even when the library system reports them as not available.

Mark any / all messages in the list with a checkbox, if you want to ignore how the library system reports the availability of those messages.

ItemID must match

If enabled, the response message to a Check In request must contain the exact same Item ID that was sent by the device, otherwise the message is rejected and consequently the item will be rejected, too.

Keep alive (seconds)

The frequency at which a keep-alive message (SIP 99) is sent to the library system. Default value is 60 (seconds), change only if there is reason; for example the library server requires a shorter interval.

Library system

Select what type of library system is used. Please make sure to select the correct one if available. This determines many things in the SIP communications, as different library systems use slightly different dialects of SIP messaging.

Login location code

Location code in Libray System to be used in SIP login message. Only use if library system requires this information. Default value is empty.

Note that this is different from the SIP: CheckIn, current location (see below).

Login user name

Login name for SIP server connection.

Login user password

Password for SIP server connection.

Offline is allowed

If enabled, the device will continue to function if the SIP connection is lost. If disabled, the device will show an error message on patron display and not allow any new sessions or items.

When offline mode is enabled and SIP connection is lost, Libretto will store all Item ID's to a local text file. Patrons do not see any change in the functionality of the device. Once the connection is restored, Libretto will make a new connection and send check in messages with the ID's in the local text file.

Note: During an offline situation, there is no way to check if items can be checked in to library system, so everything that has an ID will be taken in. If the device is configured to accept even items that cannot be read (setting HW: intake everything is enabled), then those items will also be taken in.

When offline items are sent to library system, Libretto writes the results in files. There is a separate file for each day, and separate files for successfully returned and rejected by library

system. These files are stored under the Program Data folder (by default “C:\Program Data\PV-Supa\Libretto2\”) as

`OfflineOk_<yyyyMMdd>.txt` for successfully returned and
`OfflineFailed_<yyyyMMdd>.txt` for items rejected by library system

Protocol version

SIP protocol version to use.

Protocol version (status)

SIP protocol version to report in server connection status. It can sometimes be different from the actual SIP connection, but in normal cases these two versions should be the same.

Renew mode

There are two options to use Renewal function:

Default: This option uses normal Renew SIP messages (29-30 and 65-66 message pairs). Always use this if the library system supports these messages.

Use check out: This option creates separate Check in messages and Check out messages for all renewed items. It can be used if the library system does not support the standard renew messages. Note: this may not work as expected, as the check in and check out messages arrive in very quick succession, and not all systems allow that.

Send an empty item to end session

If selected, the device will send an empty checkin message (SIP 09) without item identifier, to indicate to the library system that the return session has ended.

Send SIP 19 message with DEST, after sorting

If selected, a separate SIP 19 message (item status update) is sent after sorting an item. This information can be used by a library system for other needs, for example a central sorter might use this information to estimate how much books need to be transferred to other locations.

Server IP address

IP address (or computer network name) of the SIP server.

Server port

Port number to use in SIP server communications. This port must have TCP traffic allowed through any firewalls in order for the device to function correctly.

Starting sequence number

SIP messages starting sequence number; some library systems may require SIP messages to have a certain sequence numbering, and this setting can be used to control where the numbering starts from.

Take in everything

If enabled, the device will accept and sort items that the library system either does not know or does not accept (rejects).

Unicorn

If enabled, the SIP communication will use the Unicorn extension.

Use BL and CQ fields for patron authentication

This is an alternative method to use, for authenticating patron ID and PIN-code. Use this if the library system requires.

Use connection

If enabled, SIP connection is used. If this setting is disabled, the device may technically be used in offline mode, but nothing is checked in to the library system. This should only be used in testing.

Use error correction

If enabled, a checksum will be calculated and added to each sent SIP message. It depends on the library system whether or not this should be used.

Use login

Enabling this causes Libretto to log on to the SIP server. It depends on the library system is this needed or not.

Use sip message 63

Alternative message pair 63-64 will be used to retrieve patron information, if this setting is enabled. Enable this if the library system returns patron information in 64 message, otherwise leave disabled.

SIP checkin

Settings related to SIP Check In messages (SIP 09)

Current location

Location code (AP field in SIP 09 message) to use. Enter this information if the library system requires it.

Institution ID

Institution ID (AO field in SIP 09 message).

Terminal password

Terminal password (AC field in SIP 09 message) to use in check in messages.

SIP over Telnet

These settings cover the use of Telnet connection to SIP server, instead of the more typical TCP/IP connection.

Connection timeout in seconds

Timeout in seconds when connecting to SIP server using Telnet.

Log debug messages

If selected, all debug-type messages regarding Telnet connectivity will be logged. Only select this if there is specific need, for example the connection is not stable, to prevent too much log messages from being generated.

Substitute CR with CR + LF

If enabled, all carriage return (CR) characters will be converted to carriage return + line feed (CR + LF) pairs.

Telnet login password

Password for Telnet connection.

Telnet login password prompt

Password prompt to wait for, when forming a Telnet connection.

Telnet login prompt

Login prompt to wait for, when forming a Telnet connection.

Telnet login script, prompt 1

First prompt text to wait for after Telnet login.

Telnet login script, prompt 2

Second prompt text to wait for after Telnet login.

Telnet login script, prompt 3

Third prompt text to wait for after Telnet login.

Telnet login script, prompt 4

Fourth prompt text to wait for after Telnet login.

Telnet login script, response 1

Response to send to first prompt.

Telnet login script, response 2

Response to send to second prompt.

Telnet login script, response 3

Response to send to third prompt.

Telnet login script, response 4

Response to send to fourth prompt.

Telnet login username

Username for Telnet connection.

Telnet terminal command prompt

Prompt character to wait for, after a Telnet session has been initialized.

Use binary transfer

If enabled, binary 8-bit transfer mode is used. If disabled, the normal 7-bit transfer mode is used.

Use SIP over Telnet

If enabled, SIP connection is formed over Telnet.

Sorting

Sorting related settings.

Activation failed bin

This sorting bin is used if RFID activation fails.

Ignore security errors

If enabled, the [Activation failed bin](#)⁸⁷ setting is not used; items are sorted normally even if setting the security fails.

Offline bin

Separate bin to sort when device is operating in offline mode. This can be used for example if the library wants to separately make sure all offline items are correctly checked in. Default value is 0 (zero), meaning no specific sorting is used during offline.

Take item: fail count

How many times will an item be rejected before it is finally taken in, even if it cannot be read. This setting requires the Take item: use fail counter to be enabled.

Fail counting will be reset to 0 (zero) every time a valid item is taken in.

Take item: use fail count

If enabled, the device will count how many times an item is rejected and then finally takes it in. Note that there is no way to know that the same item is being rejected, it is entirely possible that a patron tries another item which will then be taken in because the fail count is reached.

Sorting rules

Sorting rules files stored in database.

Alternate sorting rules

An alternate sorting rules file. This can be used to define a secondary sorting, for example for offloading items received from another library. Activate in Admin mode or by using an alternate sorting rules card as defined in setting *Alternate sorting card*.

Normal sorting rules

The default sorting rules file to use. Sorting rules are stored to database using Sorting Editor, and can then be assigned to different Libretto inlets without actually visiting the devices.

Transfer query

It is possible to display a prompt to the user to accept a transfer fee, if the library charges a fee for books that are returned and belong to another library. These settings control that functionality.

Prompt for transfer fee

If this setting is enabled, the customer will be shown a prompt on-screen to accept a transfer fee when such a fee applies to an item. The patron has a possibility to either accept or decline; if the patron declines, the item will be returned back to the patron.

SIP value for transfer items

The value from the CV field in the SIP checkin response that indicates / triggers the transfer fee prompt. For example a value "2" in this field would mean "CV2" value in SIP 10 response message, to trigger the prompt.

Timeout for transfer query

How many seconds will the transfer fee prompt be shown to the patron.

Transfer sum

The amount of transfer fee per item to charge the patron.

User interface

Software user interface related settings.

Authenticate patron

If the device requires the patron to be identified before a session can be started, this selection controls how authentication is done. Using authentication also requires that there is a patron card reader and a way for the patron to enter their pin code. Available choices are:

None: No authentication, anyone can start a session and return books.

Keyboard: There is a separate physical keyboard and a patron card reader. PIN-code is entered in the keyboard. Patron code can also be entered using the keyboard.

Screen: PIN-code is entered by using buttons shown on the touch screen. Patron card is read using a card reader.

Authenticated functions

If patron authentication is used, this setting controls what functionality requires authentication.

Account info: Account info functionality, including loan renewal, is available after logging in. Return is possible from front page without authentication.

Check-in: Returning of items is available after logging in. Typically used in return hatches.

Both: Both account info and returning of items are available after logging in.

Component property values

Deprecated - please do not rely on this setting.

Full path and file name for the user interface XML settings. This file controls the size and placement of all elements in the patron user interface. A file can be generated in the admin mode, using the Save button on the Config page.

Component property values from database (restore)

Deprecated - please do not rely on this setting.

If enabled, the UI settings are restored from database. This setting should not normally be used, it is intended mainly for internal testing.

Hatch mode

If enabled, the patron UI will be arranged differently by default; there will be only two buttons at any given time on the screen, and they are located at the bottom of the screen, near the physical buttons on the hatch itself.

Keep Libretto on top of other windows

If enabled, Libretto will stay top-most all the time. If disabled, operating system notifications may appear on top of libretto. This is normally always enabled, and only disabled in testing or staff use.

Must remove card

If the inlet has a patron card reader with Freecode functionality, then this setting can be used to control how the session ends. If selected, the session will only end when the patron card is removed from the reader.

PIN code authentication type

None: Pin code is not checked and not even prompted from the patron.

Mandatory: Pin code is required and prompted from the patron.

Optional: Some library systems may allow login without pin code. This option makes Libretto first attempt to login with just the patron ID. If the library system responds with an OK, then the patron can carry on checking out books. If the library system denies login, Libretto will then proceed to prompt for a pin code.

Video files

Settings related to the video running on the user interface.

Idle video


Video file to show when the device is in idle state, waiting for the next patron. Video files are uploaded to database using *Management Utility*.

Color constants

The following list of color names can be used in Supa software settings.

Color	Name	RGB Value
	AliceBlue	#F0F8FF
	AntiqueWhite	#FAEBD7
	Aqua	#00FFFF
	Aquamarine	#7FFFD4
	Azure	#F0FFFF
	Beige	#F5F5DC
	Bisque	#FFE4C4
	Black	#000000
	BlanchedAlmond	#FFEBCD
	Blue	#0000FF
	BlueViolet	#8A2BE2
	Brown	#A52A2A
	BurlyWood	#DEB887
	CadetBlue	#5F9EA0
	Chartreuse	#7FFF00
	Chocolate	#D2691E
	Coral	#FF7F50
	CornflowerBlue	#6495ED
	Cornsilk	#FFF8DC
	Crimson	#DC143C



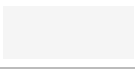


	Cyan	#00FFFF
	DarkBlue	#00008B
	DarkCyan	#008B8B
	DarkGoldenrod	#B8860B
	DarkGray / DarkGrey†	#A9A9A9
	DarkGreen	#006400
	DarkKhaki	#BDB76B
	DarkMagenta	#8B008B
	DarkOliveGreen	#556B2F
	DarkOrange	#FF8C00
	DarkOrchid	#9932CC
	DarkRed	#8B0000
	DarkSalmon	#E9967A
	DarkSeaGreen	#8FBC8F
	DarkSlateBlue	#483D8B
	DarkSlateGray / DarkSlateGrey†	#2F4F4F
	DarkTurquoise	#00CED1
	DarkViolet	#9400D3
	DeepPink	#FF1493
	DeepSkyBlue	#00BFFF
	DimGray / DimGrey†	#696969
	DodgerBlue	#1E90FF
	FireBrick	#B22222

	FloralWhite	#FFFAF0
	ForestGreen	#228B22
	Fuchsia	#FF00FF
	Gainsboro	#DCDCDC
	GhostWhite	#F8F8FF
	Gold	#FFD700
	Goldenrod	#DAA520
	Gray / Grey†	#808080
	Green	#008000
	GreenYellow	#ADFF2F
	Honeydew	#F0FFF0
	HotPink	#FF69B4
	IndianRed	#CD5C5C
	Indigo	#4B0082
	Ivory	#FFFFFF0
	Khaki	#F0E68C
	Lavender	#E6E6FA
	LavenderBlush	#FFF0F5
	LawnGreen	#7CFC00
	LemonChiffon	#FFFACD
	LightBlue	#ADD8E6
	LightCoral	#F08080
	LightCyan	#E0FFFF

	LightGoldenrodYellow	#FAFAD2
	LightGreen	#90EE90
	LightGray† / LightGrey	#D3D3D3
	LightPink	#FFB6C1
	LightSalmon	#FFA07A
	LightSeaGreen	#20B2AA
	LightSkyBlue	#87CEFA
	LightSlateGray / LightSlateGrey†	#778899
	LightSteelBlue	#B0C4DE
	LightYellow	#FFFFE0
	Lime	#00FF00
	LimeGreen	#32CD32
	Linen	#FAF0E6
	Magenta	#FF00FF
	Maroon	#800000
	MediumAquamarine	#66CDAA
	MediumBlue	#0000CD
	MediumOrchid	#BA55D3
	MediumPurple	#9370DB
	MediumSeaGreen	#3CB371
	MediumSlateBlue	#7B68EE
	MediumSpringGreen	#00FA9A
	MediumTurquoise	#48D1CC

	MediumVioletRed	#C71585
	MidnightBlue	#191970
	MintCream	#F5FFFA
	MistyRose	#FFE4E1
	Moccasin	#FFE4B5
	NavajoWhite	#FFDEAD
	Navy	#000080
	OldLace	#FDF5E6
	Olive	#808000
	OliveDrab	#6B8E23
	Orange	#FFA500
	OrangeRed	#FF4500
	Orchid	#DA70D6
	PaleGoldenrod	#EEE8AA
	PaleGreen	#98FB98
	PaleTurquoise	#AFEEEE
	PaleVioletRed	#DB7093
	PapayaWhip	#FFEFD5
	PeachPuff	#FFDAB9
	Peru	#CD853F
	Pink	#FFC0CB
	Plum	#DDA0DD
	PowderBlue	#B0E0E6

	Purple	#800080
	Red	#FF0000
	RosyBrown	#BC8F8F
	RoyalBlue	#4169E1
	SaddleBrown	#8B4513
	Salmon	#FA8072
	SandyBrown	#F4A460
	SeaGreen	#2E8B57
	Seashell	#FFF5EE
	Sienna	#A0522D
	Silver	#C0C0C0
	SkyBlue	#87CEEB
	SlateBlue	#6A5ACD
	SlateGray / SlateGrey†	#708090
	Snow	#FFFAFA
	SpringGreen	#00FF7F
	SteelBlue	#4682B4
	Tan	#D2B48C
	Teal	#008080
	Thistle	#D8BFD8
	Tomato	#FF6347
	Turquoise	#40E0D0
	Violet	#EE82EE

	Wheat	#F5DEB3
	White	#FFFFFF
	WhiteSmoke	#F5F5F5
	Yellow	#FFFF00
	YellowGreen	#9ACD32

Language codes

The following list contains all language codes and date formats that can be used with Supa software.

Language code	Language name	Date format
af	Afrikaans	yyyy/MM/dd
af-ZA	Afrikaans (South Africa)	yyyy/MM/dd
am	Amharic	d/M/yyyy
am-ET	Amharic (Ethiopia)	d/M/yyyy
ar	Arabic	dd/MM/yy
ar-AE	Arabic (U.A.E.)	dd/MM/yyyy
ar-BH	Arabic (Bahrain)	dd/MM/yyyy
ar-DZ	Arabic (Algeria)	dd-MM-yyyy
ar-EG	Arabic (Egypt)	dd/MM/yyyy
ar-IQ	Arabic (Iraq)	dd/MM/yyyy
ar-JO	Arabic (Jordan)	dd/MM/yyyy
ar-KW	Arabic (Kuwait)	dd/MM/yyyy
ar-LB	Arabic (Lebanon)	dd/MM/yyyy
ar-LY	Arabic (Libya)	dd/MM/yyyy
ar-MA	Arabic (Morocco)	dd-MM-yyyy
arn	Mapudungun	dd-MM-yyyy
arn-CL	Mapudungun (Chile)	dd-MM-yyyy
ar-OM	Arabic (Oman)	dd/MM/yyyy
ar-QA	Arabic (Qatar)	dd/MM/yyyy
ar-SA	Arabic (Saudi Arabia)	dd/MM/yy
ar-SY	Arabic (Syria)	dd/MM/yyyy
ar-TN	Arabic (Tunisia)	dd-MM-yyyy
ar-YE	Arabic (Yemen)	dd/MM/yyyy
as	Assamese	dd-MM-yyyy
as-IN	Assamese (India)	dd-MM-yyyy
az	Azeri	dd.MM.yyyy
az-Cyrl	Azeri (Cyrillic)	dd.MM.yyyy
az-Cyrl-AZ	Azeri (Cyrillic, Azerbaijan)	dd.MM.yyyy

az-Latn	Azeri (Latin)	dd.MM.yyyy
az-Latn-AZ	Azeri (Latin, Azerbaijan)	dd.MM.yyyy
ba	Bashkir	dd.MM.yy
ba-RU	Bashkir (Russia)	dd.MM.yy
be	Belarusian	dd.MM.yyyy
be-BY	Belarusian (Belarus)	dd.MM.yyyy
bg	Bulgarian	d.M.yyyy 'r.'
bg-BG	Bulgarian (Bulgaria)	d.M.yyyy 'r.'
bn	Bengali	dd-MM-yy
bn-BD	Bengali (Bangladesh)	dd-MM-yy
bn-IN	Bengali (India)	dd-MM-yy
bo	Tibetan	yyyy/M/d
bo-CN	Tibetan (PRC)	yyyy/M/d
br	Breton	dd/MM/yyyy
br-FR	Breton (France)	dd/MM/yyyy
bs	Bosnian	d.M.yyyy
bs-Cyrl	Bosnian (Cyrillic)	d.M.yyyy
bs-Cyrl-BA	Bosnian (Cyrillic, Bosnia and Herzegovina)	d.M.yyyy
bs-Latn	Bosnian (Latin)	d.M.yyyy
bs-Latn-BA	Bosnian (Latin, Bosnia and Herzegovina)	d.M.yyyy
ca	Catalan	dd/MM/yyyy
ca-ES	Catalan (Catalan)	dd/MM/yyyy
co	Corsican	dd/MM/yyyy
co-FR	Corsican (France)	dd/MM/yyyy
cs	Czech	d.M.yyyy
cs-CZ	Czech (Czech Republic)	d.M.yyyy
cy	Welsh	dd/MM/yyyy
cy-GB	Welsh (United Kingdom)	dd/MM/yyyy
da	Danish	dd-MM-yyyy
da-DK	Danish (Denmark)	dd-MM-yyyy
de	German	dd.MM.yyyy
de-AT	German (Austria)	dd.MM.yyyy

de-CH	German (Switzerland)	dd.MM.yyyy
de-DE	German (Germany)	dd.MM.yyyy
de-LI	German (Liechtenstein)	dd.MM.yyyy
de-LU	German (Luxembourg)	dd.MM.yyyy
dsb	Lower Sorbian	d. M. yyyy
dsb-DE	Lower Sorbian (Germany)	d. M. yyyy
dv	Divehi	dd/MM/yy
dv-MV	Divehi (Maldives)	dd/MM/yy
el	Greek	d/M/yyyy
el-GR	Greek (Greece)	d/M/yyyy
en	English	M/d/yyyy
en-029	English (Caribbean)	MM/dd/yyyy
en-AU	English (Australia)	d/MM/yyyy
en-BZ	English (Belize)	dd/MM/yyyy
en-CA	English (Canada)	dd/MM/yyyy
en-GB	English (United Kingdom)	dd/MM/yyyy
en-IE	English (Ireland)	dd/MM/yyyy
en-IN	English (India)	dd-MM-yyyy
en-JM	English (Jamaica)	dd/MM/yyyy
en-MY	English (Malaysia)	d/M/yyyy
en-NZ	English (New Zealand)	d/MM/yyyy
en-PH	English (Republic of the Philippines)	M/d/yyyy
en-SG	English (Singapore)	d/M/yyyy
en-TT	English (Trinidad and Tobago)	dd/MM/yyyy
en-US	English (United States)	M/d/yyyy
en-ZA	English (South Africa)	yyyy/MM/dd
en-ZW	English (Zimbabwe)	M/d/yyyy
es	Spanish	dd/MM/yyyy
es-AR	Spanish (Argentina)	dd/MM/yyyy
es-BO	Spanish (Bolivia)	dd/MM/yyyy
es-CL	Spanish (Chile)	dd-MM-yyyy
es-CO	Spanish (Colombia)	dd/MM/yyyy

es-CR	Spanish (Costa Rica)	dd/MM/yyyy
es-DO	Spanish (Dominican Republic)	dd/MM/yyyy
es-EC	Spanish (Ecuador)	dd/MM/yyyy
es-ES	Spanish (Spain, International Sort)	dd/MM/yyyy
es-GT	Spanish (Guatemala)	dd/MM/yyyy
es-HN	Spanish (Honduras)	dd/MM/yyyy
es-MX	Spanish (Mexico)	dd/MM/yyyy
es-NI	Spanish (Nicaragua)	dd/MM/yyyy
es-PA	Spanish (Panama)	MM/dd/yyyy
es-PE	Spanish (Peru)	dd/MM/yyyy
es-PR	Spanish (Puerto Rico)	dd/MM/yyyy
es-PY	Spanish (Paraguay)	dd/MM/yyyy
es-SV	Spanish (El Salvador)	dd/MM/yyyy
es-US	Spanish (United States)	M/d/yyyy
es-UY	Spanish (Uruguay)	dd/MM/yyyy
es-VE	Spanish (Bolivarian Republic of Venezuela)	dd/MM/yyyy
et	Estonian	d.MM.yyyy
et-EE	Estonian (Estonia)	d.MM.yyyy
eu	Basque	yyyy/MM/dd
eu-ES	Basque (Basque)	yyyy/MM/dd
fa	Persian	MM/dd/yyyy
fa-IR	Persian	MM/dd/yyyy
fi	Finnish	d.M.yyyy
fi-FI	Finnish (Finland)	d.M.yyyy
fil	Filipino	M/d/yyyy
fil-PH	Filipino (Philippines)	M/d/yyyy
fo	Faroese	dd-MM-yyyy
fo-FO	Faroese (Faroe Islands)	dd-MM-yyyy
fr	French	dd/MM/yyyy
fr-BE	French (Belgium)	d/MM/yyyy
fr-CA	French (Canada)	yyyy-MM-dd
fr-CH	French (Switzerland)	dd.MM.yyyy

fr-FR	French (France)	dd/MM/yyyy
fr-LU	French (Luxembourg)	dd/MM/yyyy
fr-MC	French (Monaco)	dd/MM/yyyy
fy	Frisian	d-M-yyyy
fy-NL	Frisian (Netherlands)	d-M-yyyy
ga	Irish	dd/MM/yyyy
ga-IE	Irish (Ireland)	dd/MM/yyyy
gd	Scottish Gaelic	dd/MM/yyyy
gd-GB	Scottish Gaelic (United Kingdom)	dd/MM/yyyy
gl	Galician	dd/MM/yyyy
gl-ES	Galician (Galician)	dd/MM/yyyy
gsw	Alsatian	dd/MM/yyyy
gsw-FR	Alsatian (France)	dd/MM/yyyy
gu	Gujarati	dd-MM-yy
gu-IN	Gujarati (India)	dd-MM-yy
ha	Hausa	d/M/yyyy
ha-Latn	Hausa (Latin)	d/M/yyyy
ha-Latn-NG	Hausa (Latin, Nigeria)	d/M/yyyy
he	Hebrew	dd/MM/yyyy
he-IL	Hebrew (Israel)	dd/MM/yyyy
hi	Hindi	dd-MM-yyyy
hi-IN	Hindi (India)	dd-MM-yyyy
hr	Croatian	d.M.yyyy.
hr-BA	Croatian (Latin, Bosnia and Herzegovina)	d.M.yyyy.
hr-HR	Croatian (Croatia)	d.M.yyyy.
hsb	Upper Sorbian	d. M. yyyy
hsb-DE	Upper Sorbian (Germany)	d. M. yyyy
hu	Hungarian	yyyy.MM.dd.
hu-HU	Hungarian (Hungary)	yyyy.MM.dd.
hy	Armenian	dd.MM.yyyy
hy-AM	Armenian (Armenia)	dd.MM.yyyy
id	Indonesian	dd/MM/yyyy

id-ID	Indonesian (Indonesia)	dd/MM/yyyy
ig	Igbo	d/M/yyyy
ig-NG	Igbo (Nigeria)	d/M/yyyy
ii	Yi	yyyy/M/d
ii-CN	Yi (PRC)	yyyy/M/d
is	Icelandic	d.M.yyyy
is-IS	Icelandic (Iceland)	d.M.yyyy
it	Italian	dd/MM/yyyy
it-CH	Italian (Switzerland)	dd.MM.yyyy
it-IT	Italian (Italy)	dd/MM/yyyy
iu	Inuktitut	d/MM/yyyy
iu-Cans	Inuktitut (Syllabics)	d/M/yyyy
iu-Cans-CA	Inuktitut (Syllabics, Canada)	d/M/yyyy
iu-Latn	Inuktitut (Latin)	d/MM/yyyy
iu-Latn-CA	Inuktitut (Latin, Canada)	d/MM/yyyy
ja	Japanese	yyyy/MM/dd
ja-JP	Japanese (Japan)	yyyy/MM/dd
ka	Georgian	dd.MM.yyyy
ka-GE	Georgian (Georgia)	dd.MM.yyyy
kk	Kazakh	dd.MM.yyyy
kk-KZ	Kazakh (Kazakhstan)	dd.MM.yyyy
kl	Greenlandic	dd-MM-yyyy
kl-GL	Greenlandic (Greenland)	dd-MM-yyyy
km	Khmer	yyyy-MM-dd
km-KH	Khmer (Cambodia)	yyyy-MM-dd
kn	Kannada	dd-MM-yy
kn-IN	Kannada (India)	dd-MM-yy
ko	Korean	yyyy-MM-dd
kok	Konkani	dd-MM-yyyy
kok-IN	Konkani (India)	dd-MM-yyyy
ko-KR	Korean (Korea)	yyyy-MM-dd
ky	Kyrgyz	dd.MM.yy

ky-KG	Kyrgyz (Kyrgyzstan)	dd.MM.yy
lb	Luxembourgish	dd/MM/yyyy
lb-LU	Luxembourgish (Luxembourg)	dd/MM/yyyy
lo	Lao	dd/MM/yyyy
lo-LA	Lao (Lao P.D.R.)	dd/MM/yyyy
lt	Lithuanian	yyyy.MM.dd
lt-LT	Lithuanian (Lithuania)	yyyy.MM.dd
lv	Latvian	yyyy.MM.dd.
lv-LV	Latvian (Latvia)	yyyy.MM.dd.
mi	Maori	dd/MM/yyyy
mi-NZ	Maori (New Zealand)	dd/MM/yyyy
mk	Macedonian (FYROM)	dd.MM.yyyy
mk-MK	Macedonian (Former Yugoslav Republic of Macedonia)	dd.MM.yyyy
ml	Malayalam	dd-MM-yy
ml-IN	Malayalam (India)	dd-MM-yy
mn	Mongolian	yy.MM.dd
mn-Cyrl	Mongolian (Cyrillic)	yy.MM.dd
mn-MN	Mongolian (Cyrillic, Mongolia)	yy.MM.dd
mn-Mong	Mongolian (Traditional Mongolian)	yyyy/M/d
mn-Mong-CN	Mongolian (Traditional Mongolian, PRC)	yyyy/M/d
moh	Mohawk	M/d/yyyy
moh-CA	Mohawk (Mohawk)	M/d/yyyy
mr	Marathi	dd-MM-yyyy
mr-IN	Marathi (India)	dd-MM-yyyy
ms	Malay	dd/MM/yyyy
ms-BN	Malay (Brunei Darussalam)	dd/MM/yyyy
ms-MY	Malay (Malaysia)	dd/MM/yyyy
mt	Maltese	dd/MM/yyyy
mt-MT	Maltese (Malta)	dd/MM/yyyy
nb	Norwegian (Bokmål)	dd.MM.yyyy
nb-NO	Norwegian, Bokmål (Norway)	dd.MM.yyyy
ne	Nepali	M/d/yyyy

ne-NP	Nepali (Nepal)	M/d/yyyy
nl	Dutch	d-M-yyyy
nl-BE	Dutch (Belgium)	d/MM/yyyy
nl-NL	Dutch (Netherlands)	d-M-yyyy
nn	Norwegian (Nynorsk)	dd.MM.yyyy
nn-NO	Norwegian, Nynorsk (Norway)	dd.MM.yyyy
no	Norwegian	dd.MM.yyyy
nso	Sesotho sa Leboa	yyyy/MM/dd
nso-ZA	Sesotho sa Leboa (South Africa)	yyyy/MM/dd
oc	Occitan	dd/MM/yyyy
oc-FR	Occitan (France)	dd/MM/yyyy
or	Oriya	dd-MM-yy
or-IN	Oriya (India)	dd-MM-yy
pa	Punjabi	dd-MM-yy
pa-IN	Punjabi (India)	dd-MM-yy
pl	Polish	yyyy-MM-dd
pl-PL	Polish (Poland)	yyyy-MM-dd
prs	Dari	dd/MM/yy
prs-AF	Dari (Afghanistan)	dd/MM/yy
ps	Pashto	dd/MM/yy
ps-AF	Pashto (Afghanistan)	dd/MM/yy
pt	Portuguese	dd/MM/yyyy
pt-BR	Portuguese (Brazil)	dd/MM/yyyy
pt-PT	Portuguese (Portugal)	dd-MM-yyyy
qut	K'iche	dd/MM/yyyy
qut-GT	K'iche (Guatemala)	dd/MM/yyyy
quz	Quechua	dd/MM/yyyy
quz-BO	Quechua (Bolivia)	dd/MM/yyyy
quz-EC	Quechua (Ecuador)	dd/MM/yyyy
quz-PE	Quechua (Peru)	dd/MM/yyyy
rm	Romansh	dd/MM/yyyy
rm-CH	Romansh (Switzerland)	dd/MM/yyyy

ro	Romanian	dd.MM.yyyy
ro-RO	Romanian (Romania)	dd.MM.yyyy
ru	Russian	dd.MM.yyyy
ru-RU	Russian (Russia)	dd.MM.yyyy
rw	Kinyarwanda	M/d/yyyy
rw-RW	Kinyarwanda (Rwanda)	M/d/yyyy
sa	Sanskrit	dd-MM-yyyy
sah	Yakut	MM.dd.yyyy
sah-RU	Yakut (Russia)	MM.dd.yyyy
sa-IN	Sanskrit (India)	dd-MM-yyyy
se	Sami (Northern)	dd.MM.yyyy
se-FI	Sami, Northern (Finland)	d.M.yyyy
se-NO	Sami, Northern (Norway)	dd.MM.yyyy
se-SE	Sami, Northern (Sweden)	yyyy-MM-dd
si	Sinhala	yyyy-MM-dd
si-LK	Sinhala (Sri Lanka)	yyyy-MM-dd
sk	Slovak	d. M. yyyy
sk-SK	Slovak (Slovakia)	d. M. yyyy
sl	Slovenian	d.M.yyyy
sl-SI	Slovenian (Slovenia)	d.M.yyyy
sma	Sami (Southern)	yyyy-MM-dd
sma-NO	Sami, Southern (Norway)	dd.MM.yyyy
sma-SE	Sami, Southern (Sweden)	yyyy-MM-dd
smj	Sami (Lule)	yyyy-MM-dd
smj-NO	Sami, Lule (Norway)	dd.MM.yyyy
smj-SE	Sami, Lule (Sweden)	yyyy-MM-dd
smn	Sami (Inari)	d.M.yyyy
smn-FI	Sami, Inari (Finland)	d.M.yyyy
sms	Sami (Skolt)	d.M.yyyy
sms-FI	Sami, Skolt (Finland)	d.M.yyyy
sq	Albanian	yyyy-MM-dd
sq-AL	Albanian (Albania)	yyyy-MM-dd

sr	Serbian	d.M.yyyy
sr-Cyrl	Serbian (Cyrillic)	d.M.yyyy
sr-Cyrl-BA	Serbian (Cyrillic, Bosnia and Herzegovina)	d.M.yyyy
sr-Cyrl-CS	Serbian (Cyrillic, Serbia and Montenegro (Former))	d.M.yyyy
sr-Cyrl-ME	Serbian (Cyrillic, Montenegro)	d.M.yyyy
sr-Cyrl-RS	Serbian (Cyrillic, Serbia)	d.M.yyyy
sr-Latn	Serbian (Latin)	d.M.yyyy
sr-Latn-BA	Serbian (Latin, Bosnia and Herzegovina)	d.M.yyyy
sr-Latn-CS	Serbian (Latin, Serbia and Montenegro (Former))	d.M.yyyy
sr-Latn-ME	Serbian (Latin, Montenegro)	d.M.yyyy
sr-Latn-RS	Serbian (Latin, Serbia)	d.M.yyyy
sv	Swedish	yyyy-MM-dd
sw	Kiswahili	M/d/yyyy
sv-FI	Swedish (Finland)	d.M.yyyy
sw-KE	Kiswahili (Kenya)	M/d/yyyy
sv-SE	Swedish (Sweden)	yyyy-MM-dd
syr	Syriac	dd/MM/yyyy
syr-SY	Syriac (Syria)	dd/MM/yyyy
ta	Tamil	dd-MM-yyyy
ta-IN	Tamil (India)	dd-MM-yyyy
te	Telugu	dd-MM-yy
te-IN	Telugu (India)	dd-MM-yy
tg	Tajik	dd.MM.yy
tg-Cyrl	Tajik (Cyrillic)	dd.MM.yy
tg-Cyrl-TJ	Tajik (Cyrillic, Tajikistan)	dd.MM.yy
th	Thai	d/M/yyyy
th-TH	Thai (Thailand)	d/M/yyyy
tk	Turkmen	dd.MM.yy
tk-TM	Turkmen (Turkmenistan)	dd.MM.yy
tn	Setswana	yyyy/MM/dd
tn-ZA	Setswana (South Africa)	yyyy/MM/dd
tr	Turkish	dd.MM.yyyy

tr-TR	Turkish (Turkey)	dd.MM.yyyy
tt	Tatar	dd.MM.yyyy
tt-RU	Tatar (Russia)	dd.MM.yyyy
tzm	Tamazight	dd-MM-yyyy
tzm-Latn	Tamazight (Latin)	dd-MM-yyyy
tzm-Latn-DZ	Tamazight (Latin, Algeria)	dd-MM-yyyy
ug	Uyghur	yyyy-M-d
ug-CN	Uyghur (PRC)	yyyy-M-d
uk	Ukrainian	dd.MM.yyyy
uk-UA	Ukrainian (Ukraine)	dd.MM.yyyy
ur	Urdu	dd/MM/yyyy
ur-PK	Urdu (Islamic Republic of Pakistan)	dd/MM/yyyy
uz	Uzbek	dd/MM/yyyy
uz-Cyrl	Uzbek (Cyrillic)	dd.MM.yyyy
uz-Cyrl-UZ	Uzbek (Cyrillic, Uzbekistan)	dd.MM.yyyy
uz-Latn	Uzbek (Latin)	dd/MM/yyyy
uz-Latn-UZ	Uzbek (Latin, Uzbekistan)	dd/MM/yyyy
vi	Vietnamese	dd/MM/yyyy
vi-VN	Vietnamese (Vietnam)	dd/MM/yyyy
wo	Wolof	dd/MM/yyyy
wo-SN	Wolof (Senegal)	dd/MM/yyyy
xh	isiXhosa	yyyy/MM/dd
xh-ZA	isiXhosa (South Africa)	yyyy/MM/dd
yo	Yoruba	d/M/yyyy
yo-NG	Yoruba (Nigeria)	d/M/yyyy
zh	Chinese	yyyy/M/d
zh-CHS	Chinese (Simplified) Legacy	yyyy/M/d
zh-CHT	Chinese (Traditional) Legacy	d/M/yyyy
zh-CN	Chinese (Simplified, PRC)	yyyy/M/d
zh-Hans	Chinese (Simplified)	yyyy/M/d
zh-Hant	Chinese (Traditional)	d/M/yyyy
zh-HK	Chinese (Traditional, Hong Kong S.A.R.)	d/M/yyyy

zh-MO	Chinese (Traditional, Macao S.A.R.)	d/M/yyyy
zh-SG	Chinese (Simplified, Singapore)	d/M/yyyy
zh-TW	Chinese (Traditional, Taiwan)	yyyy/M/d
zu	isiZulu	yyyy/MM/dd
zu-ZA	isiZulu (South Africa)	yyyy/MM/dd

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