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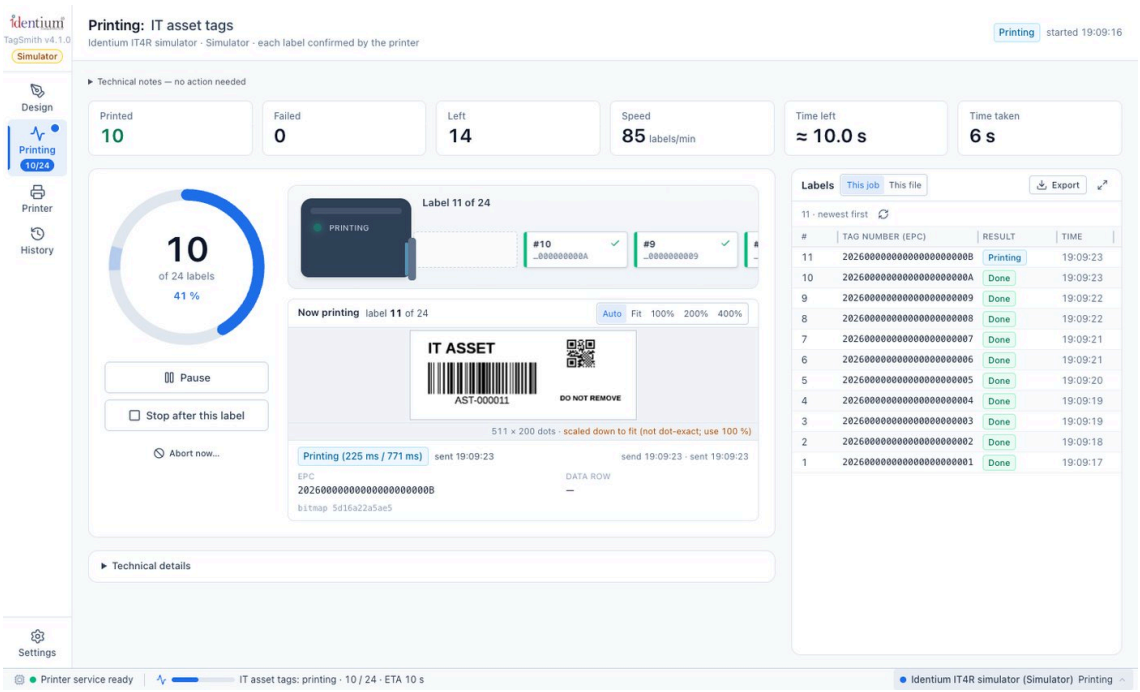
Creating identities for all

USER MANUAL

Identium TagSmith

RFID Label Design, Printing and Encoding Software

For the Identium IT4RL desktop RFID printer: install, design, calibrate, print and encode, history and troubleshooting



THIS MANUAL COVERS	VERSION	PLATFORM
Identium TagSmith	4.1.0	Windows 10/11 (64-bit) · macOS (Beta)
Identium IT4RL desktop RFID printer	–	USB · network (optional)

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Creating identities for all

Identium TagSmith is the label software for the Identium IT4RL desktop RFID printer and encoder. You design a label on screen, fill it from a spreadsheet or a counter, and TagSmith prints the label and writes a number into its UHF RFID tag in the same pass, one label at a time, with each label confirmed by the printer. A guided Calibrate screen sets the printer up for each roll, and a History keeps a record of every tag number used. This manual covers TagSmith 4.1.0: installing it, designing labels, numbering, calibrating a roll, printing and encoding, history, reading tags and fixing common problems. Until version 4.0.4 the app was called Identium Labelsoft.

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01/ System Requirements

Computer	Windows 10 or Windows 11, 64-bit
Mac	macOS on Apple silicon or Intel (Beta): works with printers on the network only
Printer	Identium IT4RL desktop RFID printer and encoder. On screen, TagSmith calls it "Identium IT4R".
Connection	USB cable (recommended); network (TCP/IP) where the printer has the network option
Data files	Excel (.xlsx) or CSV, optional
Label files	TagSmith designs (.ilabel); older Identium label files (.lsf) can be imported
Data folder	C:\ProgramData\Identium\TagSmith (settings, label types and the record of tag numbers)

NOTE

Use **one** label program per PC. Close any other label software before you start TagSmith, so that only one program talks to the printer.

02/ Install the Software

Windows

TagSmith comes as a **Setup** program (`Identium-TagSmith-Setup-4.1.0.exe`) and a **Portable** program (`Identium-TagSmith-Portable-4.1.0.exe`) that runs without installing. Use the Setup program on production PCs. Get the files from the Identium Resource Hub (identiumone.com/resourcehub) or from Identium support.

1. Download the Setup file. Right-click it, choose **Properties**, tick **Unblock** and press **OK**. This stops repeated Windows warnings.
2. Run the file. If Windows shows "Windows protected your PC", press **More info**, then **Run anyway**.
3. Follow the installer. Open TagSmith from the desktop shortcut or the Start menu.
4. Connect the printer with the USB cable and switch it on. Wait about 10 seconds. The printer appears in the status bar at the bottom of the window; if it does not, open **Printer** and press **Refresh**.

> **CAUTION**
> On a PC where Windows **Smart App Control** is on, the installer cannot run. Turn Smart App Control off for that PC (Windows Security › App and browser control), or ask Identium support.

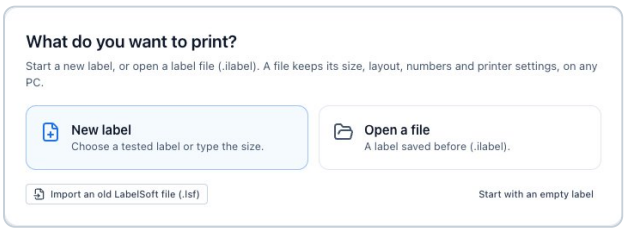
Updating from Identium Labelsoft

Close the old app and make sure nothing is printing, then run the TagSmith 4.1.0 Setup. It removes the old Identium Labelsoft and moves its data folder to `C:\ProgramData\Identium\TagSmith`, so your settings, label types and the record of tag numbers are kept. Never delete that folder: it is what stops a tag number being issued twice by mistake.

Mac (Beta)

1. Download the .dmg for your Mac: `-mac-arm64.dmg` for Apple silicon, `-mac-x64.dmg` for Intel.
2. Open it and drag **Identium TagSmith** into **Applications**.
3. The first time you open it, macOS may block it. Open **System Settings › Privacy & Security** and press **Open Anyway**.
4. On a Mac, add the printer by its network address: **Printer › Add network printer**. USB printers work on Windows only.

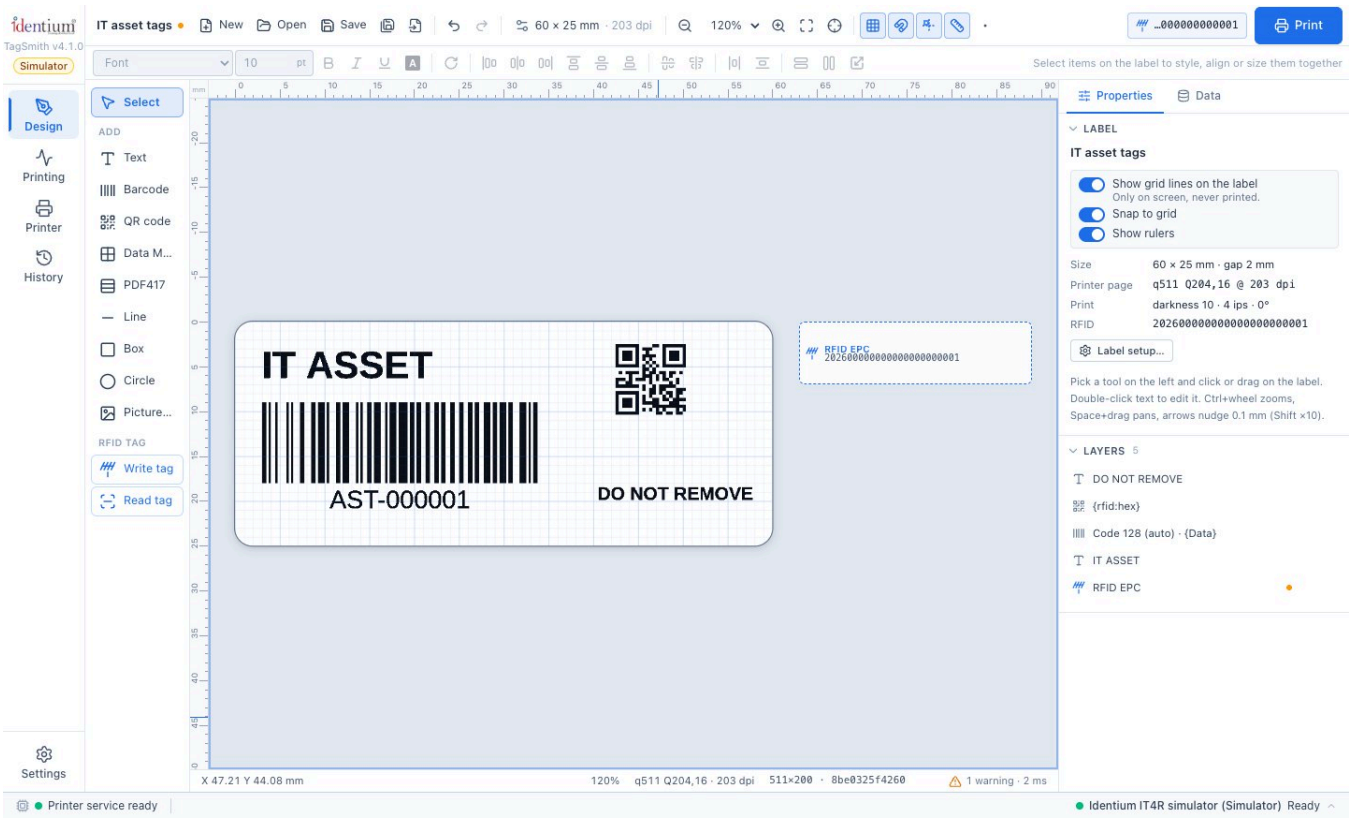
03/ Getting Started



The first question when TagSmith opens

When TagSmith opens it asks what you want to print:

- **New label**: start from a tested label type or type your own size.
- **Open a file**: a design saved before (.ilabel). The file keeps its size, layout, numbers and, after Calibrate, its printer settings.
- **Import** an older Identium label file (.lsf).
- **Start with an empty label** skips the question.

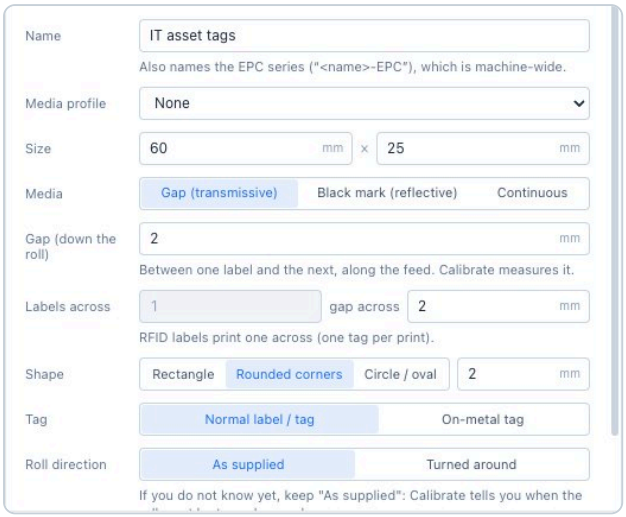


The Design page with an asset label: tools on the left, the label in the middle, Properties and Data on the right. The screens in this manual were taken with TagSmith's built-in printer simulator, so the printer shows as "Identium IT4R simulator".

The five pages

Page	What it is for
Design	Make and change labels: New, Open, Save, the tools (Text, Barcode, QR code, Data Matrix, PDF417, Line, Box, Circle, Picture, Write tag, Read tag) and the Properties and Data panels.
Printing	What the printer is doing now: progress, counters, Pause, Stop after this label, and Print more.
Printer	Is the printer ready; Feed one label, Calibrate, Print settings label, Printer Check, and Read tags.
History	Every job and every label with its tag number; Needs attention; Series; Export.
Settings	Machine-wide options and the log files.

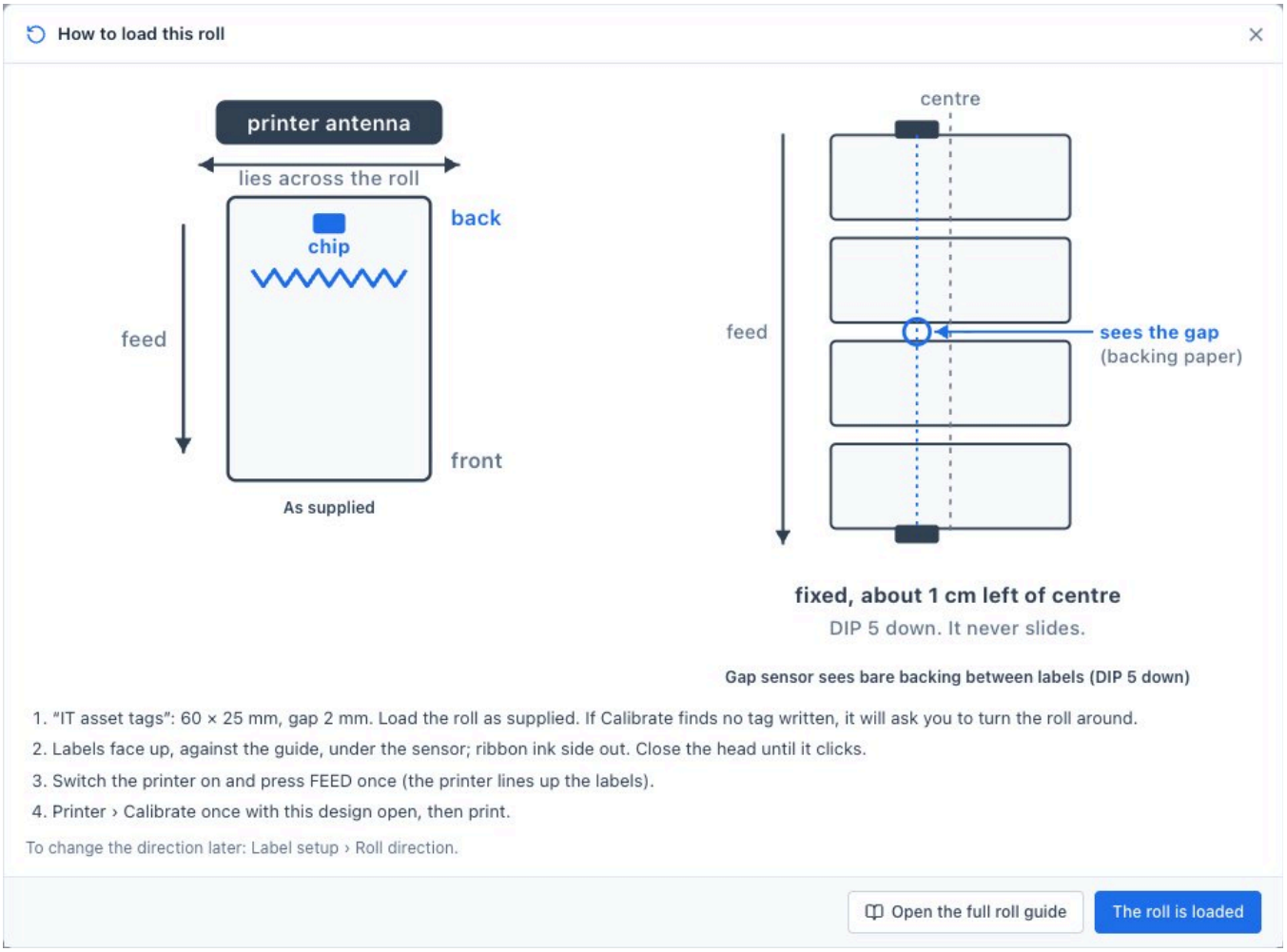
04/ Create a Label Design



New label design: your own size

1. Press **New** (Ctrl+N).
2. For a roll that Identium has tested, press its card under **Start from a tested label**: the size, gap, sensor and roll direction are filled in. Otherwise fill in the fields yourself.
3. Type a **Name**. It also names the design's tag-number series.
4. Enter the **Size** (width across the print head, height along the feed), the **Media** (Gap, Black mark or Continuous) and the **Gap** between labels.
5. Choose **Tag** (Normal label or On-metal tag) and **Roll direction**. Keep **RFID label** on to add the tag number.
6. Press **Create**.

Five tested label types are built in: a flexible anti-metal tag 62 × 26.5 mm, an on-metal foam tag 60 × 28.4 mm, a windshield tag 99 × 28 mm, an asset tag 45 × 18 mm and an RFID label 73 × 20 mm.

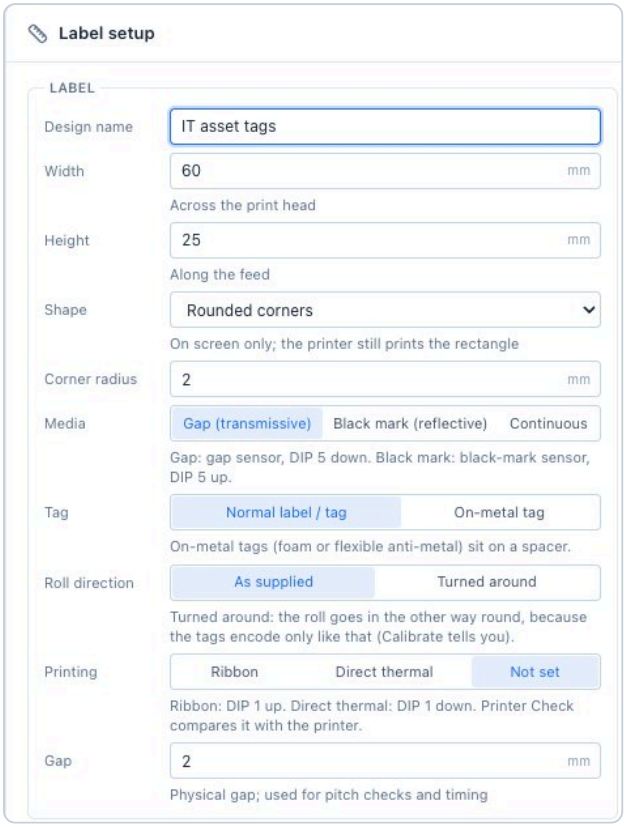


Every new design first shows how to load its roll: which way the tags face, and which label sensor to use.

TIP

Measure the label with a ruler on the liner: the width, the height along the feed and the gap between two labels. Calibrate measures the label pitch and tells you if the size in the design is wrong.

Label setup



Design › Label setup

Label setup (the button in the Properties panel) changes the label later:

- **Width, Height, Shape** and **Corner radius**. The shape is drawn on screen only; the printer prints the rectangle.
- **Media**: Gap uses the gap sensor (DIP switch 5 down); Black mark uses the black-mark sensor (DIP 5 up).
- **Tag** and **Roll direction**: some rolls encode only when loaded turned around. Calibrate tells you.
- **Printing**: Ribbon (DIP 1 up) or Direct thermal (DIP 1 down). Printer Check compares it with the printer.
- **Margins and offset** move the whole print; **Darkness** 0–20 and **Speed** set the print. Use 4 inch/s or slower for RFID labels.

05/ Text, Barcodes and Pictures

Pick a tool on the left and click or drag on the label. Double-click a text to edit it. Each item's settings are in the **Properties** panel on the right.

Tool	What it adds
Text	Text in any font installed on the PC, with size, bold, italic, underline and alignment. Its **Data source** can join fixed text, a serial number, the date and time, a spreadsheet column, a value asked when printing, or the label number.
Barcode	Code 128, GS1-128, Code 39, Code 93, EAN-13, EAN-8, UPC-A, UPC-E, ITF-14, Interleaved 2 of 5 and Codabar, with the readable text above, below or off. Bars are whole printer dots, never scaled.
QR code, Data Matrix, PDF417	Two-dimensional codes. **Use RFID EPC** makes the code carry the tag's own number.
Line, Box, Circle	Shapes
Picture	A logo or an image file
Write tag	The tag number written into the RFID tag (one per label). It is a command, not ink.
Read tag	Reads a tag's number into a value, for labels that print what the tag already holds

- Drag a corner handle to resize. For text, barcodes and QR codes the content scales with the box.
- The format bar under the toolbar sets font, size, style, alignment, rotation and equal spacing for everything selected.
- **Show printer dots** shows the exact dots the printer will print.
- Shortcuts: Ctrl+S save, Ctrl+P print, Ctrl+G group, Ctrl+Shift+G ungroup, Ctrl+' grid; the arrow keys move a selection 0.1 mm (with Shift, 1 mm).

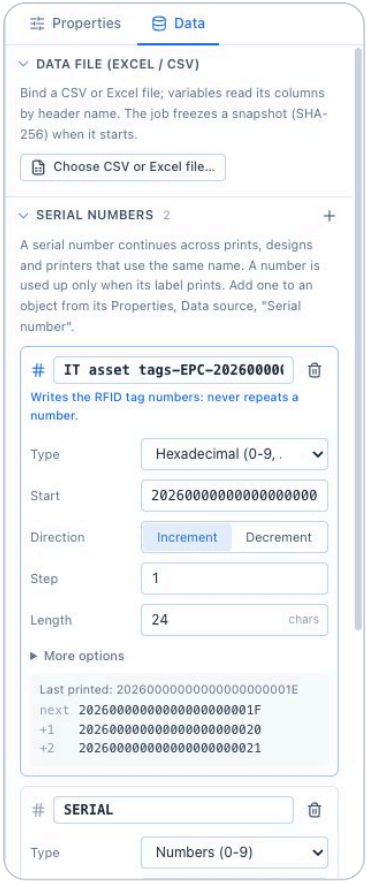
06/ Data, Serial Numbers and Tag Numbers

Excel or CSV data

1. Open the **Data** tab on the right and press **Choose CSV or Excel file**.
2. Select a text, barcode, QR code or the tag, and pick the spreadsheet **column** it should take its value from.
3. Print: each row of the file becomes one label. In the print window you can print all rows, a range of rows or one row.

Message	What to do
The spreadsheet has a formula instead of a value	In Excel, copy the column and paste it as values, save, then open the file again.
Excel changed a long number	Format that column as Text, type the numbers again and save.
A column used on the label is not in the data file	On the Data tab, choose the right column.
The data file has no rows	Choose a data file with rows.

Serial numbers



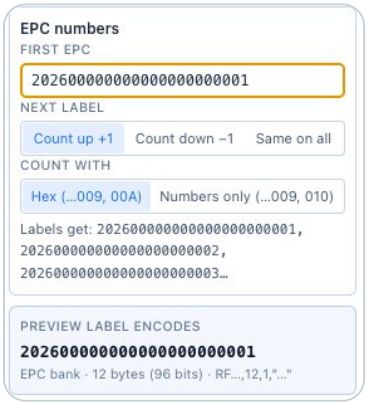
Data tab: the tag-number series and a serial number

To count on a label, select a text or barcode, open its **Data source**, press **Add a part** and choose **Serial number**. Add a **Fixed text** part in front for a prefix, for example `AST–` then `000001`.

Setting	Options
Type	Numbers, Letters, Numbers and letters, Hexadecimal or a Custom sequence
Start	The first value, for example 000001
Direction	Increment or Decrement
Step	How much each label adds
Length	The number of characters, padded with zeros

A serial number carries on across prints and designs that use the same name, and a number is used up only when its label prints. The Data tab shows the last value printed and the next ones.

Tag numbers (EPC)



The tag's EPC numbers card

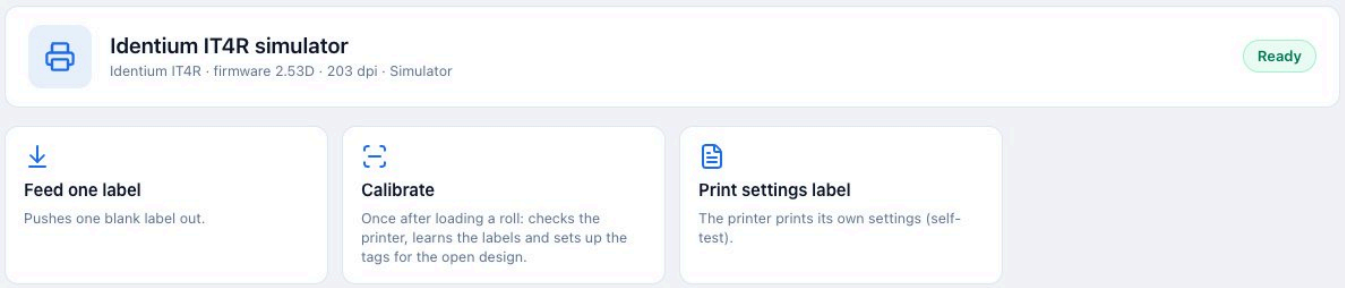
Select **RFID EPC** in the Layers list. Its **EPC numbers** card sets what each tag gets:

- **First EPC**: the first number of the series, for example `20260000000000000000000001` (24 hexadecimal characters fill a 96-bit tag).
- **Next label**: Count up +1, Count down −1, or Same on all (only for copies of one number).
- **Count with**: Hex (…009, 00A) or Numbers only (…009, 010).
- **Add QR of EPC** or **Add EPC text** prints the same number the tag receives, so the printed code and the tag always match.

Numbers printed before

TagSmith keeps a record of every tag number it has printed. A new design starts at its own first number. If this design printed a number before, the print window warns **"This tag number was printed before"**: tick the warning to print it again (destroy the old label first if it still carries a tag), or press **Continue after the last printed number** on the Data tab.

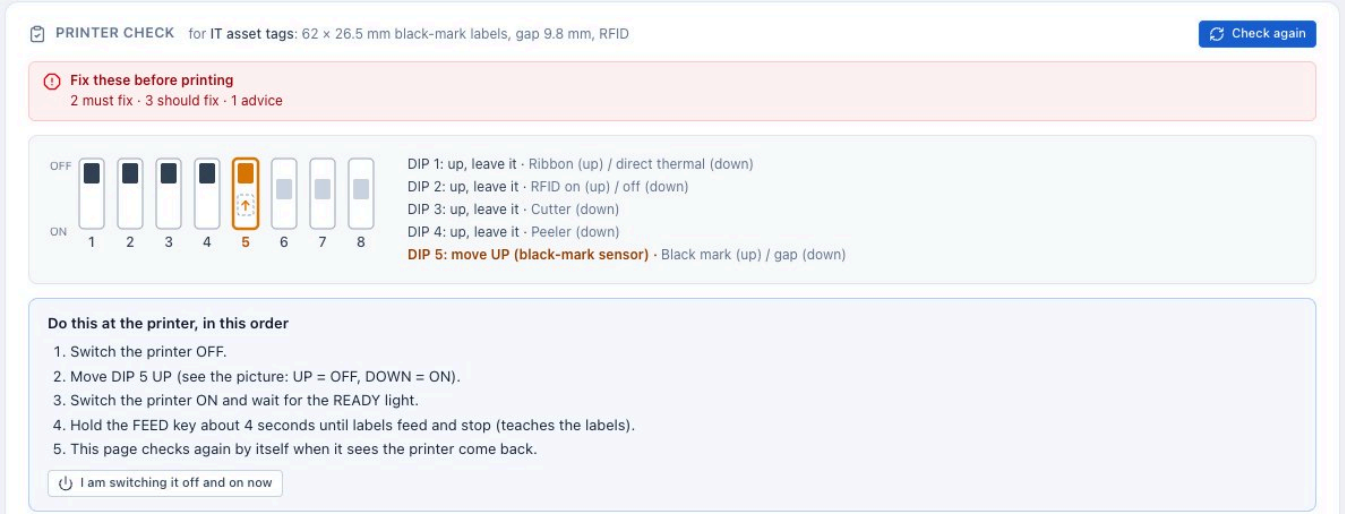
07/ The Printer Page and Printer Check



Printer page: the printer, its status and the three main actions

- **Feed one label** pushes one blank label out.
- **Calibrate** sets the printer up for the open design (next section).
- **Print settings label** makes the printer print its own settings.

Printer Check reads the printer's DIP switches, label sensor, learned label length and tag settings (nothing moves) and compares them with the open design. Each problem is listed as **must fix**, **should fix** or **advice**, with the steps to fix it and, where a switch is wrong, a picture of the DIP switches. Some items have **Apply fix**: it shows exactly what will be sent to the printer, then **Send to printer** applies it.

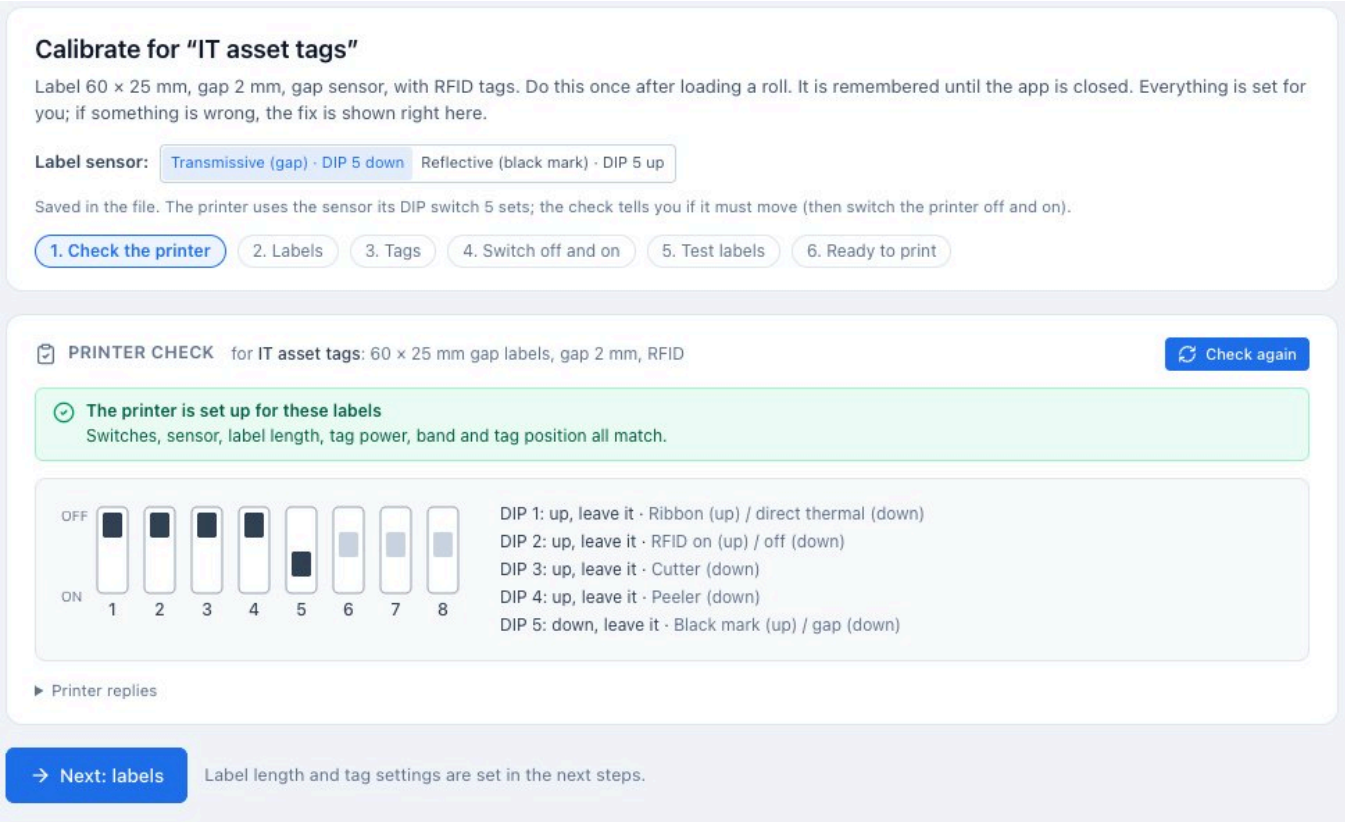


Printer Check on a black-mark design while the printer still uses its gap sensor: it says to move DIP switch 5 up and lists the steps in order.

> **CAUTION**
> Always switch the printer **off** before you change a DIP switch. The printer reads its switches only when it is switched on.

08/ Calibrate a Roll

Calibrate is one guided screen for the design that is open (**Printer › Calibrate**). Run it once after loading a roll, after changing the label size, gap or sensor, and whenever the print is shifted or tags are not written. The result is remembered until you close TagSmith. A design without RFID has three steps; an RFID design has six.



Step 1, Check the printer: everything matches, so the next step is Labels.

Step 1. Check the printer

Press **Check printer**. Fix every red item first (see the Printer Check above), then press **Next: labels**.

Step 2. Labels



Step 2: the measured labels match the design

Press **Teach labels**. The printer feeds a few blank labels and measures where each label starts. If the labels are a different length from the design, TagSmith says so and offers to keep your label height with the measured gap, or to keep your size. If it suggests a different **sensor level**, press it, switch the printer off and on, and teach again.

The blank labels can be used: open the head, roll them back, close the head and press FEED once.

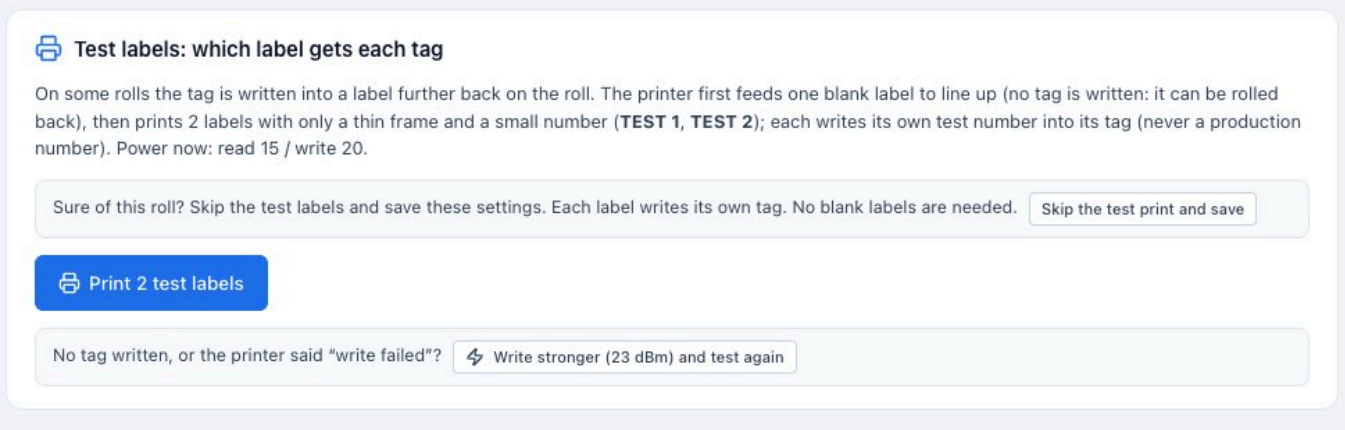
Step 3. Tags

- For a tested label type, press **Use the tested settings**. For a design you calibrated and saved before, press **Use the settings saved in this file** (new in 4.1). Both skip the tag map and save about 15 blank labels.
- Otherwise press **Calibrate tags**. The printer feeds about 15 blank labels and maps where the tags answer (up to 4 minutes; keep the head closed). TagSmith then sets the tag position, the power and the band (865.0 MHz), and writes only the tag over the antenna. Nothing is written into the tags yet.

Step 4. Switch the printer off and on

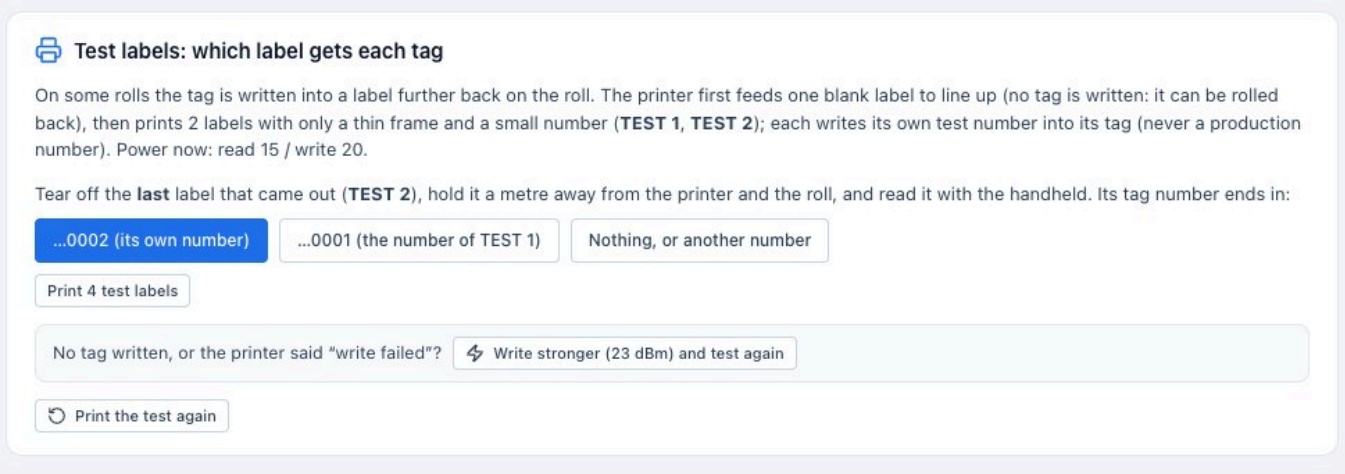
The new tag settings need one restart: switch the printer off, wait a few seconds and switch it on. TagSmith waits for the printer to come back.

Step 5. Test labels



Step 5: print two test labels, or (new in 4.1) skip the test print and save when you are sure of the roll.

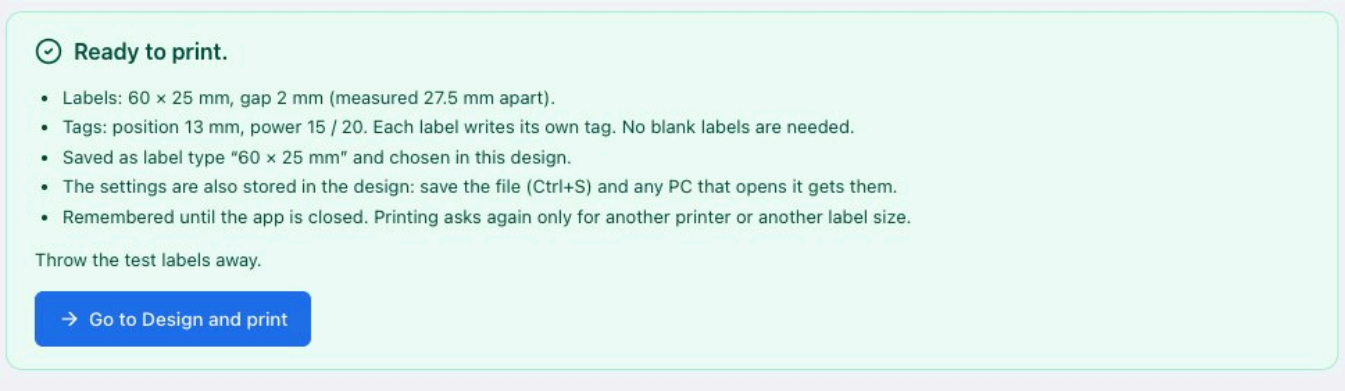
1. Press **Print 2 test labels**. The printer feeds one blank label to line up, then prints two labels with a thin frame and TEST 1 / TEST 2. Each writes its own test number into its tag.
2. Tear off the last label (TEST 2), hold it at least a metre from the printer and read its tag with a handheld reader.
3. Press the button that matches the end of the number: **its own number** (the tag is on its own label), **the number of TEST 1** (the tag lands one label ahead, so each print starts with a blank label), or **Nothing, or another number**.
4. Check the frame: it should sit about 1 mm inside every edge. Use **Up**, **Down**, **Left**, **Right** (0.5 mm per press) and **Print 1 label to check**, then press **The print is in place: finish**.



Which label received the test tag?

No tag written? Press **I have turned the roll around: test again** after loading the roll the other way round, or **Write stronger** (more write power) and test again. On-metal tags cannot be turned around: check the sensor position, then use Write stronger.

Step 6. Ready to print

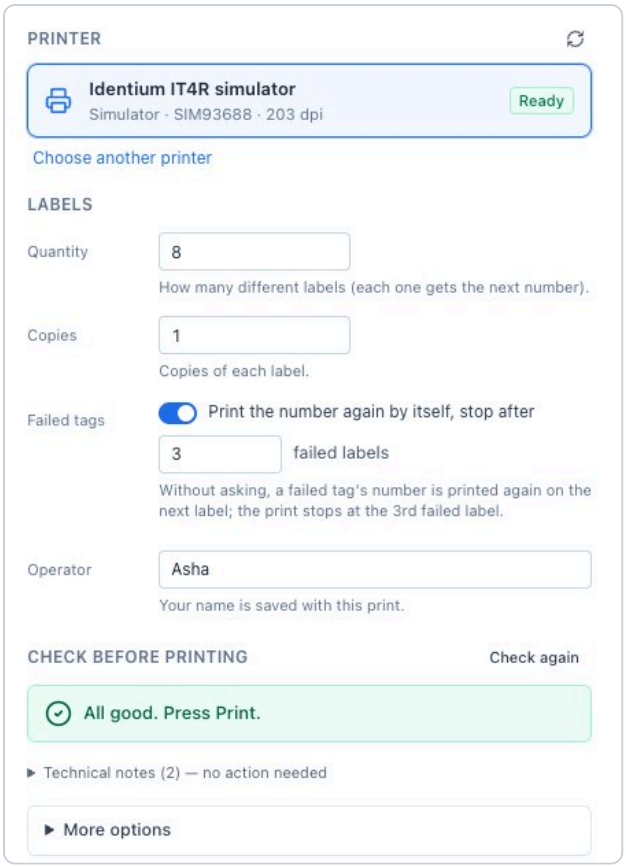


Step 6: the saved settings

The screen lists the label size, the measured pitch, the tag position, the powers and how many labels ahead the tag lands. They are saved as a **label type** and stored in the design. Press **Go to Design and print**, and throw the test labels away.

> **TIP**
> Save the design (Ctrl+S) after Calibrate. Any PC that opens the file gets its printer settings, and Calibrate offers **Use the settings saved in this file**.

09/ Print and Encode



The print window (right-hand side)

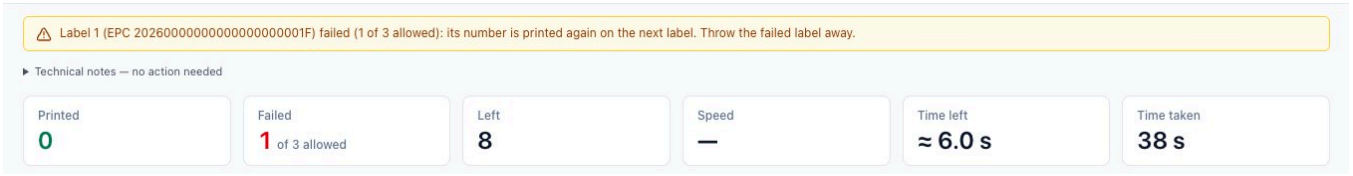
Press **Print** (Ctrl+P) in Design. The print window shows the first label and its tag number.

Part	What to do
Printer	The printer TagSmith will use and whether it is ready; **Choose another printer** to change it.
Quantity, Copies	How many different labels (each gets the next number) and copies of each.
Failed tags	New in 4.1: see below.
Operator	Your name, saved with every label of a production print.
Check before printing	TagSmith checks the printer and every label. Red items stop the print; tick each warning you have read. **Check again** repeats it.

Press **Print**.

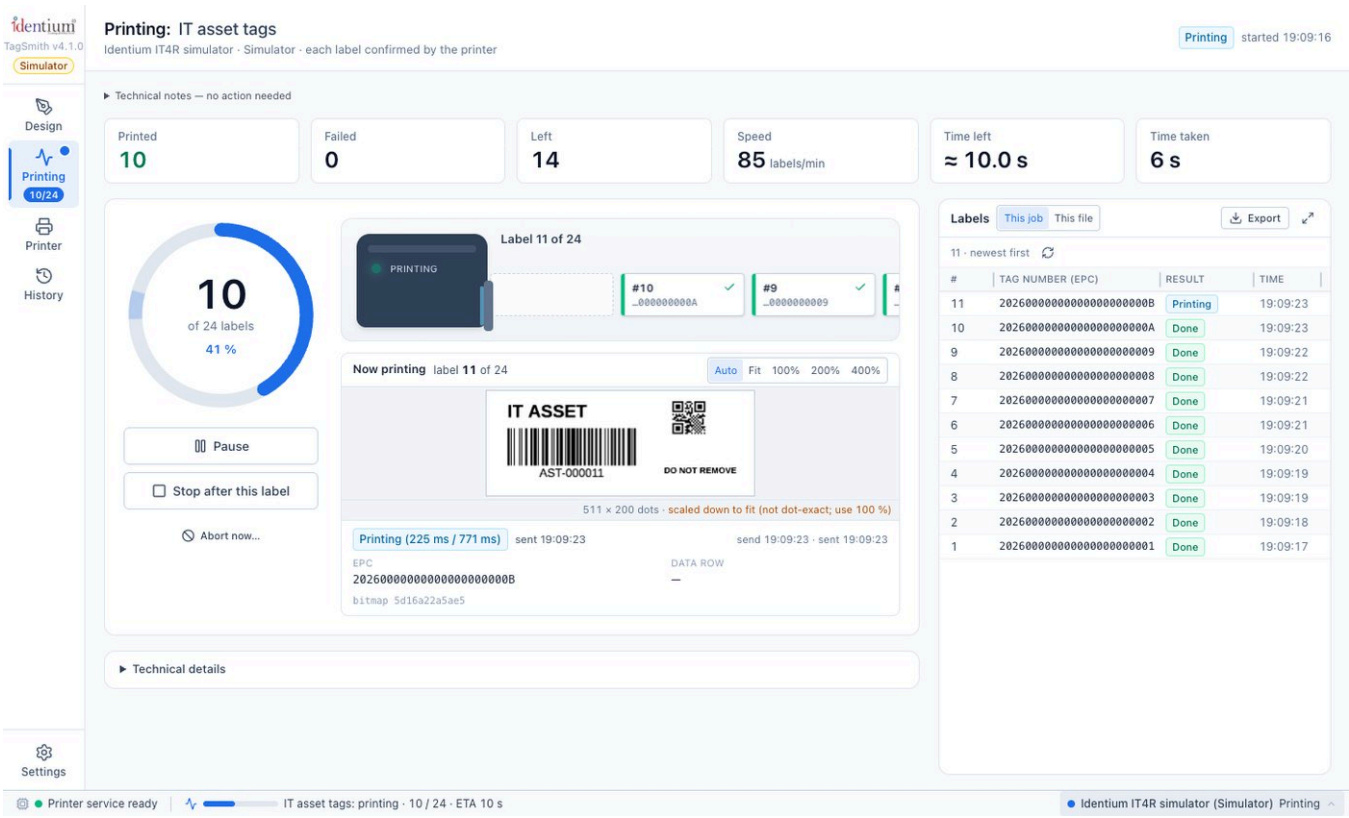
Failed tags are printed again by themselves (new in 4.1)

Turn on **Print the number again by itself, stop after N failed labels** (3 by default). When a tag cannot be written, the printer stops with READY and MEDIA flashing in turn: press **CANCEL** on the printer and set the failed label aside. TagSmith prints the same number on the next label and carries on, and the job stops at the Nth failed label. With the switch off, TagSmith asks you what to do each time (below).



A failed label: its number is printed again on the next label.

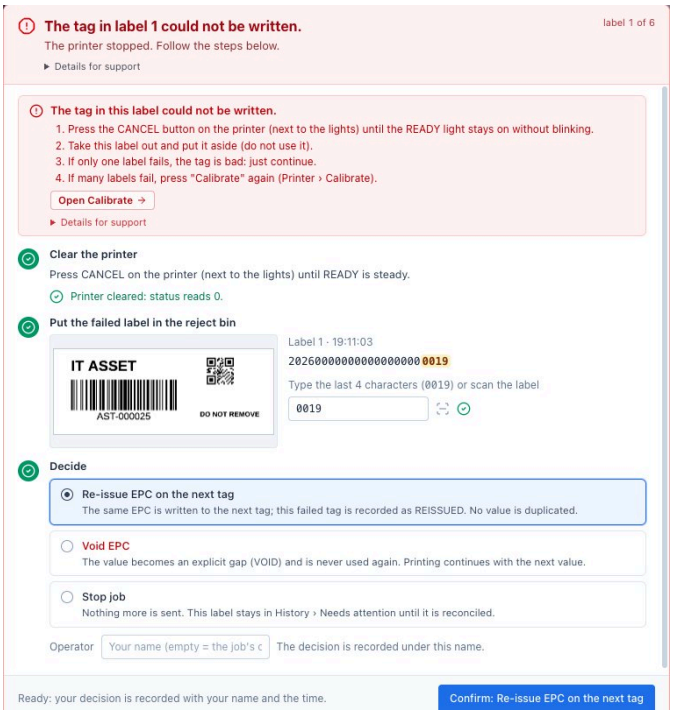
While a job runs



The Printing page: progress, counters, the label now printing and every label's tag number. Each label is confirmed by the printer before the next one is sent.

Control	What it does
Pause	Pauses; READY flashes on the printer. Press **Resume** to go on.
Stop after this label	Ends the job cleanly after the label at the printer now.
Abort now…	Stops at once, after you confirm. Use it only when the printer is stuck.
Print more	When the job has finished: prints the same design again with the same printer and options. Numbers carry on from the last label.
Export	The Labels list exports this job, or every label printed from this file, to Excel, CSV or text.

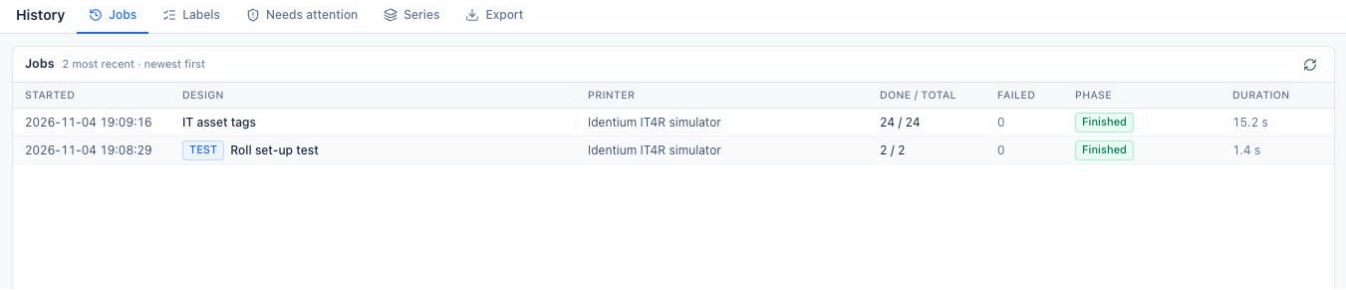
When TagSmith asks about a failed tag



A tag could not be written: TagSmith walks you through it

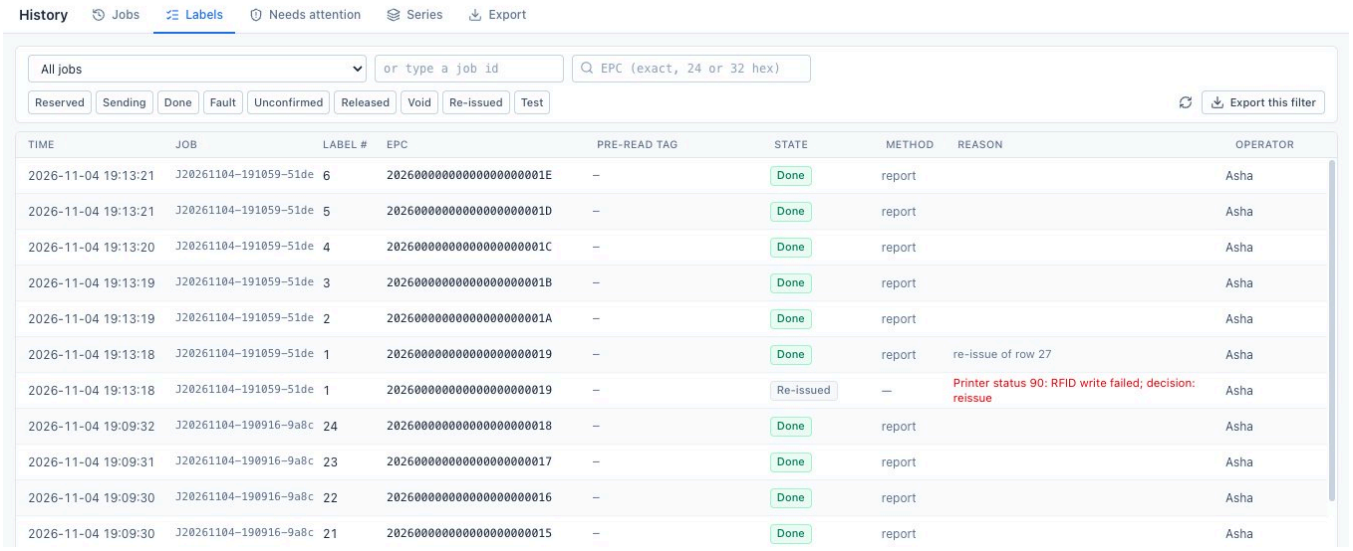
1. **Clear the printer**: press CANCEL on the printer until READY stays on. TagSmith ticks this step when the printer is ready.
2. **Put the failed label in the reject bin**: type the last 4 characters of its number, or scan the label.
3. **Decide**: **Re-issue EPC on the next tag** (the same number goes on the next label), **Void EPC** (the number is never used) or **Stop job** (the label waits in History › Needs attention).
4. Press **Confirm**. The decision is recorded with your name and the time.

10/ History and Export



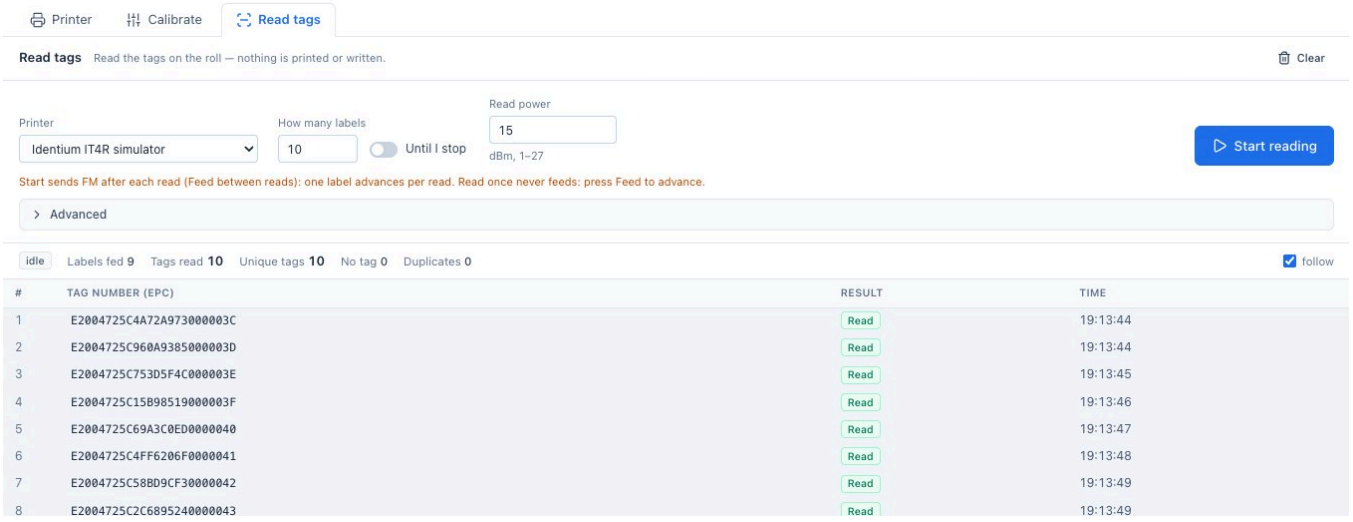
History › Jobs

Tab	What it shows
Jobs	Each print: when, which design and printer, done / total, failed, result and duration.
Labels	Every label with its tag number, state (Done, Fault, Void, Re-issued, Test…), operator and reason; filter and export.
Needs attention	Labels TagSmith could not confirm. Decide each one: print this number again, skip it, or mark it done if the label came out good. Until then its number is held.
Series	The tag-number and serial-number series and where each stands.
Export	Exports labels to Excel, CSV or text.



History › Labels: a failed tag shows as Re-issued, with the reason and the operator.

11/ Read Tags on a Roll



Printer › Read tags: ten tags read from a roll

1. Load the roll and open **Printer › Read tags**. Nothing is printed or written.
2. Choose **How many labels** (or Until I stop) and the read power.
3. Press **Start reading**. The printer reads the tag at the antenna, feeds one label and reads the next. The counters show tags read, unique tags, labels with no tag and duplicates.
4. Export the list to Excel, CSV or text, or press **Copy all EPCs**.

12/ Settings

Settings are machine-wide: they apply to every Windows user of the PC. Change only the ones below unless Identium support asks.

Setting	Default	What it does
RFID › Require a label type	Off	On: production RFID jobs need a saved, applied label type. Off: missing steps show as warnings.
RFID › Check each tag before writing it (pre-read)	Off	Keep it off on the IT4RL.
RFID › Already-encoded tag seen	Stop	Stop, or warn and continue
RFID › Write each tag one label ahead	Auto	Auto: short labels (30 mm with the gap or less) carry the next label's number. Always, or Never.
RFID › How many labels ahead	Set by Calibrate	Blank labels at the start of each print (0 to 3)
RFID › No tag at the antenna	Stop	Stop, or print a VOID label
UI › Require an operator name	–	Production prints need a name. Test prints never do.
UI › Alert sound	–	Beep and flash the taskbar when a job waits for you

13/ Troubleshooting

Problem	Likely cause	What to do
No tag is written	Roll loaded the wrong way, power too low, DIP 2 down	Printer Check (DIP 2 must be up). Calibrate › Step 5: Write stronger, or turn the roll around and test again.
The tag number is on the next or previous label	The tag lands ahead of the printed label	Calibrate › Step 5 and answer the test question; TagSmith sets the labels ahead.
The print runs across two labels or is shifted	The design size does not match the roll, or the sensor level	Calibrate › Step 2: accept the measured size, then set the sensor level if offered, and teach again.
READY and MEDIA flash together (labels not found)	Labels not under the guide or over the sensor; wrong sensor (DIP 5); dirty sensor	Check the label path, close the head, press FEED once, check DIP 5, clean the sensor window, teach again.
READY and MEDIA flash in turn (tag not written)	One tag could not be written	Press CANCEL, set the label aside. If many fail: Calibrate › Write stronger, or calibrate the tags again.
"The RFID band is set to …"	Another program changed the band	Printer Check › Apply fix (865.0 MHz), then Calibrate › Step 3.
"Calibrate the labels in the printer first"	Calibrate has not run for this printer and size since TagSmith started	Printer › Calibrate › Calibrate. Once per session.
"This tag number was printed before"	The number is already in the record	Tick the warning to print it again, or Data tab › Continue after the last printed number.
A00A instead of A010	The number counts in hexadecimal	EPC numbers › Count with: Numbers only.
Blank labels at the start of each print	The tag lands ahead, so blanks are needed	Normal for that roll; throw them away.
"The printer is busy with another task"	Calibrate or Read tags is still running, or another program holds the printer	Wait for it to finish; close other label software.
"The printer is not connected"	Power, USB cable, or another program	Check power and cable, close other label programs, press Refresh on the Printer page.
The settings label is not in English	The printer's factory language	Run Calibrate once, then Print settings label again.
The print is faint or has a white line	Darkness low, speed high, dirty head	Raise Darkness by 1–2, print at 4 inch/s or slower, clean the print head with alcohol.

If a print stops in the middle

1. Press CANCEL on the printer if its lights flash, and wait until READY stays on.
2. Set aside the labels that failed. Never reuse a label whose tag already has a number.

3. Decide each label in **History › Needs attention**.
4. If many labels failed, run Calibrate again before printing the rest, then use **Print more**.

> **NOTE**
> For support, open **Settings › Logs**: the log files help Identium find the cause quickly.

14/ Support

For help with installation, integration or a fault that the steps above do not clear, contact Identium. Please keep the product model, the software version shown in the app and a short description (or screenshot) of the problem ready.

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This product and its software are updated from time to time; screens and specifications may change without notice. Check the Resource Hub for the latest version of this manual.