iLink Professionals, Inc.
Norcross, Georgia, USA
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THE REGISTER'S RECEIPT, ON THE REGISTER'S CAMERA

iTIVO-IP™ and iTIVO-IP2

Owner's and installer's guide



See every sale, void and no-sale on the video of your register, find it again in seconds, and get an alert when it matters.

To order, or to see it working

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Support for owners and installers

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On the web

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In this guide

Part 1 is for the owner of the store: what the unit shows you and how to use it day by day. Part 2 is for the installer who connects it.

START HERE

1 What iTIVO-IP does

2 How it connects

PART 1: FOR THE OWNER

3 Signing in, in the store and from anywhere

4 The Dashboard at a glance

5 Watching live

6 Finding what happened: Search / Logging

7 Exception keywords

8 Alerts by e-mail and WhatsApp

9 Reports

10 Theft Review (BETA)

11 Users and passwords

12 Updates and support

13 When something looks wrong

PART 2: FOR THE INSTALLER

14 Before you start

15 Wiring: how to hook it up

16 First power-on

17 Network: one port, two addresses

18 Add the camera to iTIVO

19 Connect the register

20 Put iTIVO in the recorder, in place of the camera

21 Check your work

22 Hand over to the owner

23 Installer troubleshooting

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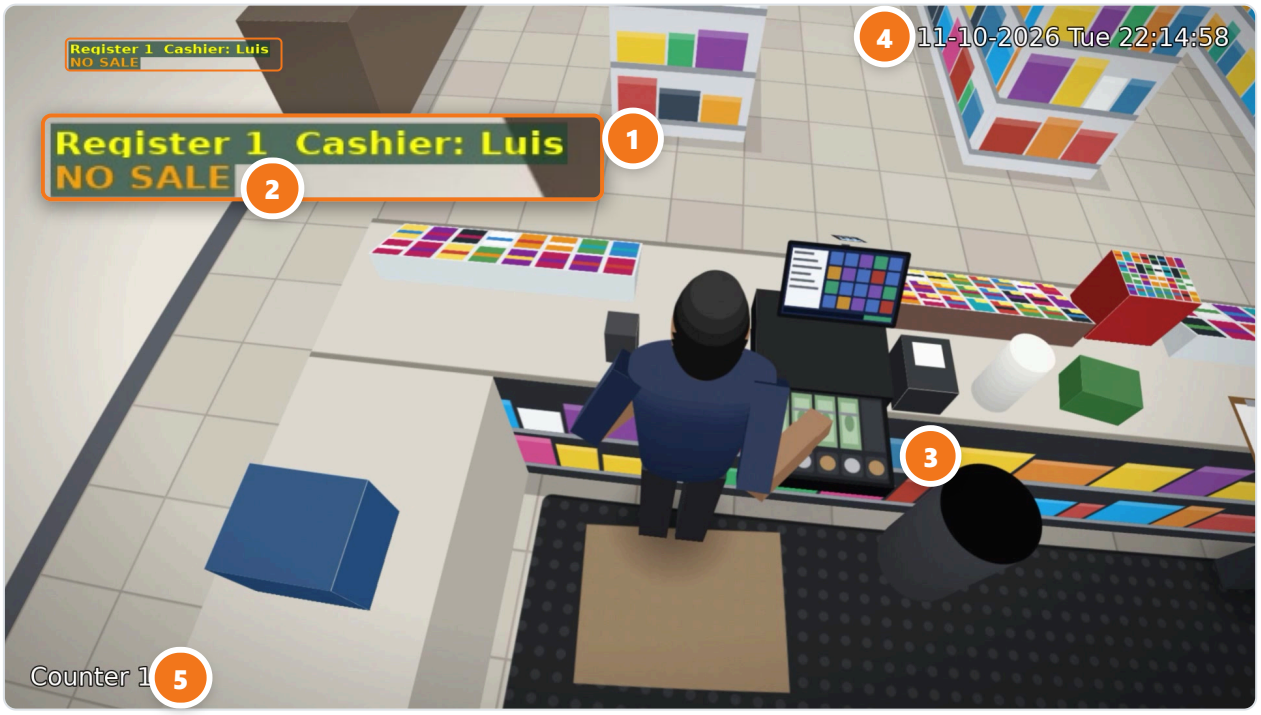
About the content

The store, the people and the sales shown in this guide are fictitious. Screens and specifications may change without notice as the product is improved.

1 What iTIVO-IP does

iTIVO-IP sits between the camera above your register and your recorder. It prints every line the register rings up onto that camera's video, as it happens, so the picture and the receipt can never be pulled apart. When somebody voids a sale, opens the drawer with no sale or pays cash out, the unit marks that moment, keeps a snapshot and a short clip of it, and can send you an alert.



What your recorder shows and records on the register camera, once iTIVO-IP is in line. Counter 1 at Cedar Fork Food Mart, a few seconds after the last customer left.

1. **The register's own text**, printed on the video as it is rung up. Here: register 1, cashier Luis.
2. **An exception keyword**, in its own color. `NO SALE` opened the cash drawer without a sale.
3. **What the camera saw in that second**: nobody at the counter, the drawer open, a hand on the bills.
4. **The camera's date and time**, as before.
5. **The camera's name**, as before.

Why owners buy it

Most cash that goes missing in a store does not leave through the front door at night. It leaves through the register, a few dollars at a time, in moves that look like ordinary work. A camera alone cannot tell them from honest ones, and a register report cannot show what really happened. The two together can:

On the register	What it can hide
`VOID`	The customer paid cash and left; then the sale is canceled and the cash is not counted.
`NO SALE`	The drawer is opened with no sale at all: to make change, or to take cash out.
`REFUND`	Money given back for goods that never came back, with no customer at the counter.
`PAID OUT`	Cash taken out for a lottery winner or a delivery that was never there.

The unit marks each of these the moment it happens, with a snapshot and a short clip that show the counter before and after. You look at the ones that matter in seconds, from the store or from your phone, instead of scrolling through hours of video.

Nearly all of these are honest, every day. iTIVO-IP does not accuse anybody: it puts the facts side by side, so that checking takes a moment, mistakes are cleared up as fast as thefts are found, and everybody behind the counter knows that the register and the camera now tell one story.

Where it is used

Gas stations and convenience stores
Fuel prepay, lottery, tobacco and a busy cash drawer, often with one person alone on the shift.

Liquor stores
High-value bottles, cash sales and voids after the customer has gone.

Vape and smoke shops
Small, expensive items that are easy to hand over without ringing up.

Restaurants and quick service
Cancelled tickets, discounts and comps at the counter or the bar.

Markets and groceries
Items passed around the scanner, price changes and refunds.

Any store that takes cash
Tire and auto shops, dollar stores, car washes: wherever a register and a camera meet.

Two models

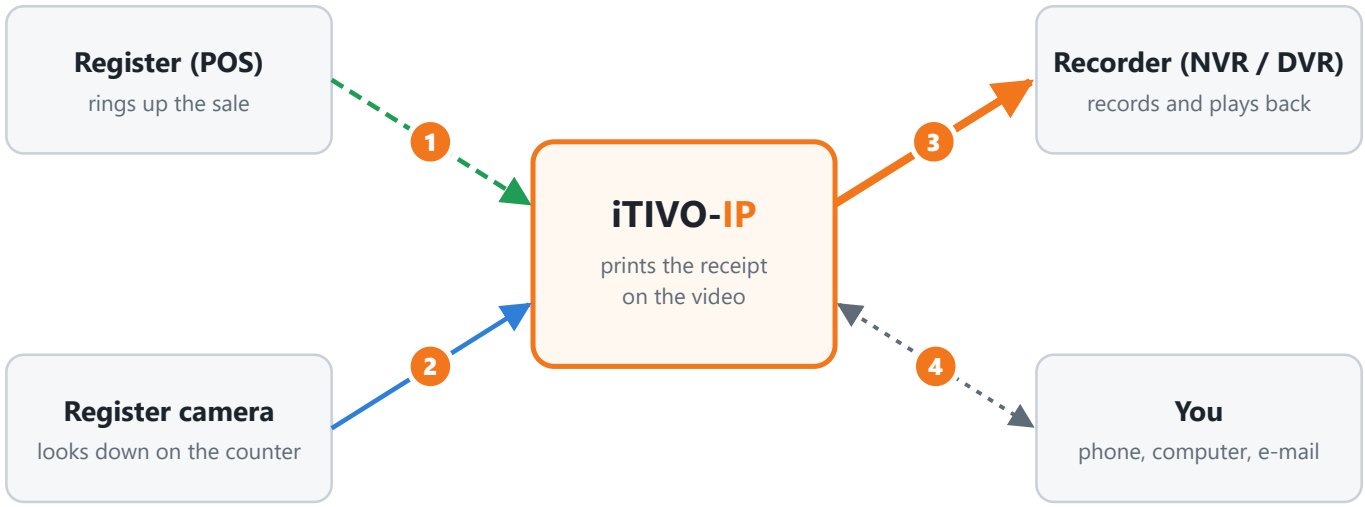
Model	Covers	Good to know
iTIVO-IP	1 register: one camera and one register's text.	Can be upgraded to an iTIVO-IP2 later with an activation code from iLinkPro Support, without changing the unit.
iTIVO-IP2	2 registers: two cameras and two registers' text.	The screens are the same; you simply see **Channel 1** and **Channel 2**.

Your recorder (NVR or DVR) keeps recording as it always did. The only difference is that the register cameras now arrive with the receipt on them. The unit itself keeps the exceptions: the text of every sale, and a snapshot and a clip for each keyword.

> **About the pictures in this guide**
> Cedar Fork Food Mart, its staff and its sales are made up, and the store scenes are drawings, so that no real customer or employee appears here. Everything the unit adds is real: the drawings were played into an iTIVO-IP2 as its two cameras, so the receipt text, the snapshots, the clips and every screen in this guide are that unit's own output. In your store you get your own cameras' picture, with the register's text printed on it in the same way.

2 How it connects

The unit is a small box that sits near your recorder or your register. Nothing is replaced: your camera, your register and your recorder all stay. The unit takes the camera's video and the register's text, puts them together, and hands the result to the recorder as if it were the camera.



One register, one camera, one unit. An iTIVO-IP2 does the same twice in one box: two registers, two cameras, and the recorder sees two cameras.

1. **The register's text.** Every line of the receipt, sent as it is rung up, over the store network or a serial cable.
2. **The camera's video.** Over the network. The camera stays where it hangs; no new cable to it.
3. **The video with the receipt on it.** The recorder sees the unit as a camera, and records and plays it like any other.
4. **The internet.** Sign in from anywhere, get alerts, receive updates. The unit connects outward by itself.

What changes, and what does not

Stays as it is

- Your cameras, and where they hang.
- Your register, and the way your staff use it.
- Your recorder, its recordings and its phone app.

New

- The receipt on the register camera's picture: live, and in every recording your recorder makes.
- The unit's own pages, in any browser: **Dashboard**, **POS Camera Live View**, **Search / Logging**, **Reports**.
- An alert by e-mail or WhatsApp when a keyword you chose is rung up.

What the unit needs

	What
Camera	A network (IP) camera that looks down on the register. Nearly every IP camera works: the unit reads it over ONVIF or RTSP, the two standard ways cameras offer their video.
Register	A register or point of sale that can send its receipt text, over the network or through a serial port. Most can. Your dealer will tell you how yours is hooked up.
Recorder	Any NVR or DVR that can add a network camera.
Network	One network cable, to the same network as the camera and the recorder.
Internet	For signing in from outside the store, for alerts and for updates. Nothing has to be opened or changed on your router.

Where the camera should look
The best register camera hangs above the cashier's side of the counter and looks down: the cashier's hands, the cash drawer, the counter and the customer, all in one picture. The receipt text sits in a corner of the picture that you choose, so it does not cover the drawer.

If the internet goes down
The text on the video and the recording do not need the internet, so they carry on. Signing in from outside the store and alerts need it, and work again when it is back.

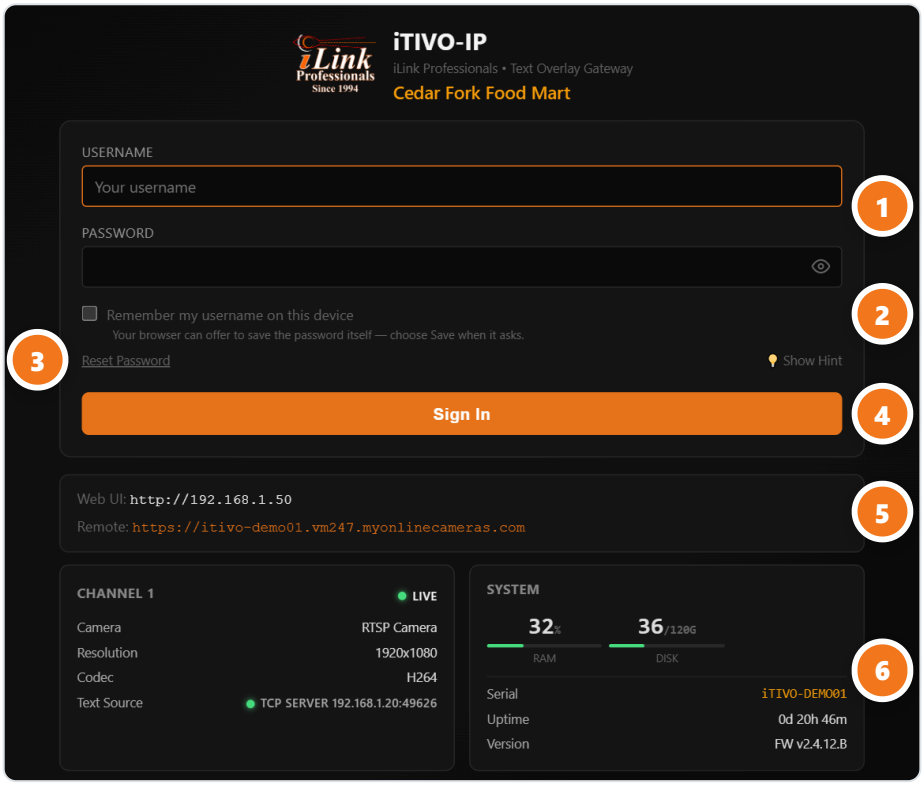
PART 1

For the owner

Signing in, watching live, finding what happened, alerts, reports and the people who may see them.

3 Signing in, in the store and from anywhere

The unit has no program to install. Its pages open in the browser you already use, on a computer, a tablet or a phone: on the store's own network, or from anywhere else through a private link that iLinkPro keeps open for your unit.



The sign-in page of the unit at Cedar Fork Food Mart.

1. **Your user name and password.** Your installer sets up the first account. Capital and small letters count in the password.
2. **Remember my username on this device** keeps the name only. Your browser may offer to keep the password; say yes only on a device that is yours.
3. **Reset Password** and **Show Hint**, for the day you forget it. See chapter 11.
4. **Sign In**.
5. **The unit's two addresses**: **Web UI** for inside the store, **Remote** for everywhere else.
6. **Is everything working?** Even before you sign in, the page shows each camera, the register link, the internet and the unit itself.

Two addresses, one unit

Where you are	What to type in the browser	Good to know
In the store	The **Web UI** address, for example **http://192.168.1.50**	Works on any device that is on the store's network, by cable or Wi-Fi. It also works when the internet is down.
Anywhere else	The **Remote** address, for example **https://itivo-demo01.vm247.myonlinecameras.com**	The same pages, from home or on the road. Nothing is opened or changed on the store's router, and no app is needed.

The six letters and numbers after **itivo-** are your unit's **Device ID**. It is the same ID you see as **iTIVO-DEMO01** on the sign-in page, on the **About** page and on a TV plugged into the unit. Your own unit has its own ID, so your Remote address is yours alone. The address printed in this guide is only an example and leads nowhere: read yours from the sign-in page of your own unit.

The quickest way is the QR sticker on the side of your unit. Point your phone's camera at it and tap the link that appears: it opens the Remote address of that unit, with nothing to type.

> **Do this once**
> Scan the QR sticker on the side of the unit with your phone while you are still in the store, sign in, and save the page: as a bookmark, or with your browser's **Add to Home Screen**, which puts an icon next to your other apps. Then send the address to yourself by e-mail, so that you have it on your computer at home as well.

The first time you sign in

1 Sign in with what your installer gave you

A new unit comes with one account, **admin**, and a starting password that every installer knows.

2 Make the password your own

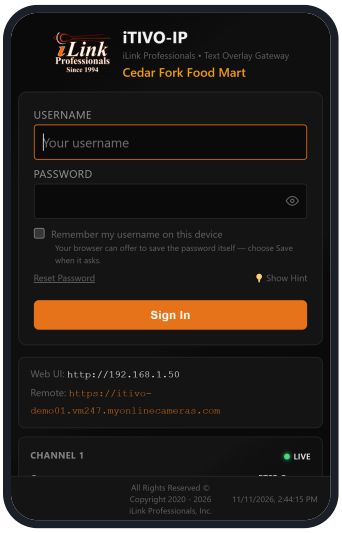
The unit reminds you with a banner and, after a few sign-ins, shows **Secure your iTIVO** and will not go on until you have chosen a new password of at least 8 characters. On the same page it asks for a recovery e-mail address and two security questions. Fill them in: they are how you get back in by yourself if you ever forget the password.

3 Give other people their own account

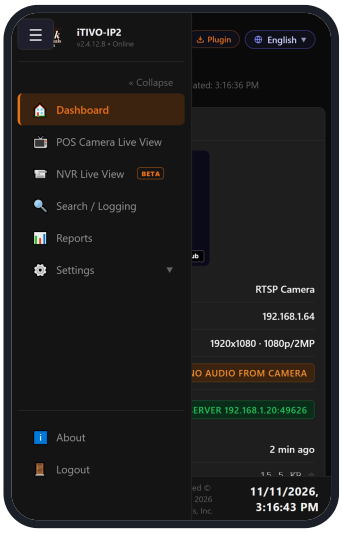
A manager who should only look, not change, gets a separate user name with fewer rights. That takes a minute; see chapter 11. Do not share the **admin** password.

> **Wrong password?**
> After a few wrong tries the page adds a small sum to solve (**Security check**), and after more of them it locks that account for a while: 15 minutes, unless this was changed. That stops somebody from guessing their way in. Wait, or use **Show Hint** and **Reset Password**.

On your phone



The sign-in page on a phone.



The menu, opened with the button at the top left.

Every page fits a phone. The menu that sits on the left of a computer screen is folded away behind the button with three lines, at the top left. Tap it, choose a page, and the menu closes again.

Pull the page down to refresh it.

Away from the store, the pages are the same. Two things are different:

- Live video takes a moment longer to start and may run a little behind, because it travels over the internet. A small tag on the picture, such as **P2P**, shows that you are watching from outside.
- If the store's internet is down, the Remote address cannot reach the unit. The unit keeps working, and everything it marked meanwhile is there when the internet is back.

For your safety the unit signs you out after 30 minutes without use. Sign in again to carry on.

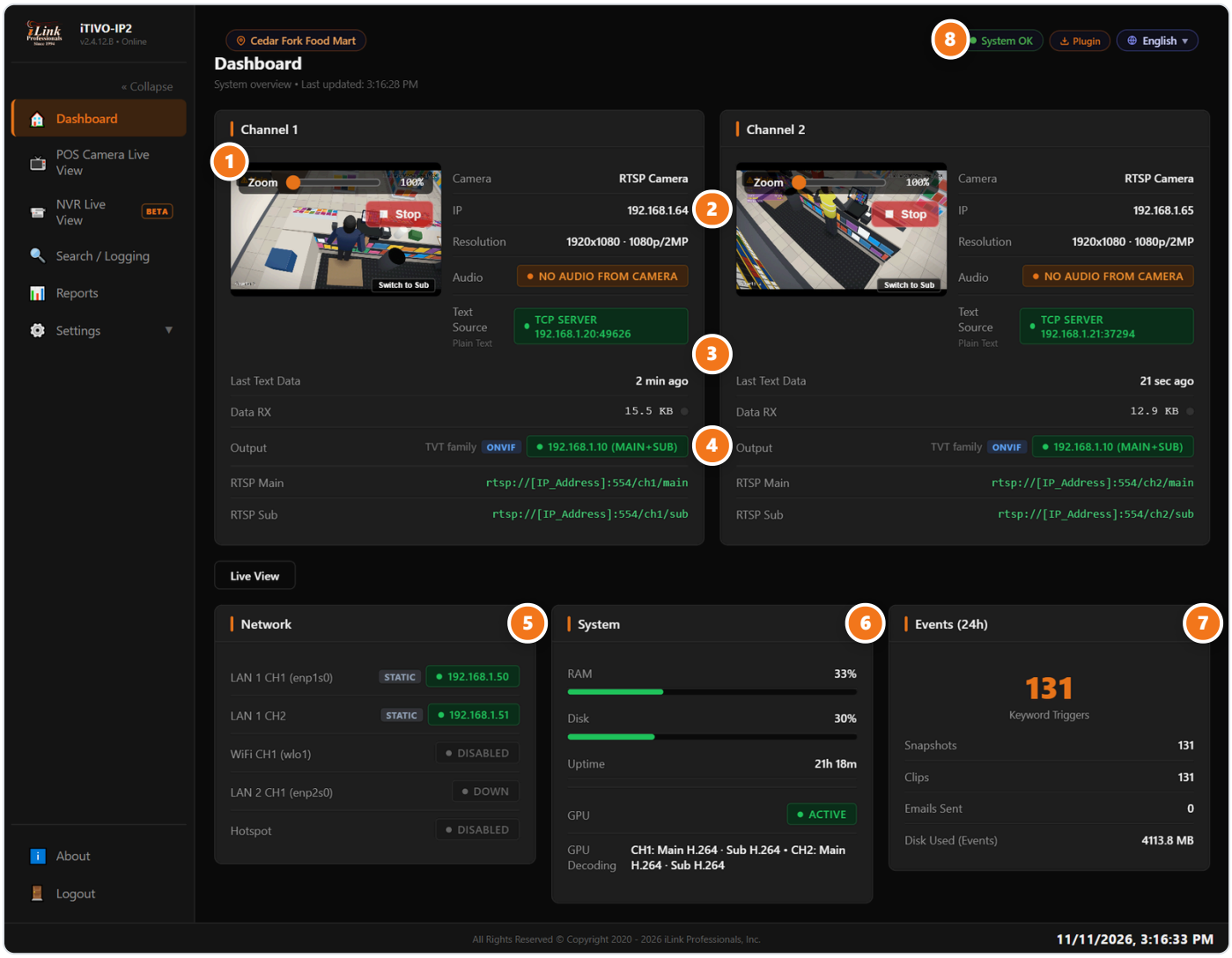
Finding your way

In the menu	What it is for	Chapter
Dashboard	One look: are the cameras, the registers, the recorder and the internet all connected?	4
POS Camera Live View	The register cameras, live, with the receipt text on them.	5
NVR Live View BETA	The other cameras of your recorder, if your installer has linked the recorder to the unit.	5
Search / Logging	Everything that happened: each exception with its snapshot and clip, every sale, every item sold.	6, 10
Reports	The same facts as charts and totals: by day, by hour, by cashier.	9
Settings	Opens a second list. An owner mostly needs **Exception Keywords**, **Notifications** and **Security & Users**. The rest belongs to the installer (Part 2).	7, 8, 11
About	Model, Device ID and software version: what iLinkPro Support asks for when you call.	12
Logout	Signs you out. Use it on any device that is not yours.	

The top of every page shows your store's name and a **green** **System OK** while the unit answers. A **Viewer** account sees only the Dashboard, Live View, Search and Reports, and cannot change anything.

4 The Dashboard at a glance

The Dashboard is the first page after you sign in. It answers one question in a few seconds: is everything connected and working right now?



The Dashboard of an iTIVO-IP2: one card for each register camera, and the unit's network, health and last 24 hours below. An iTIVO-IP shows one channel.

1. **The register camera, live.** Click the picture to play it. It is the picture your recorder receives, with the receipt text on it. Double-click for full screen.
2. **The camera**: what it is, its address, the size of its picture and whether it sends sound.
3. **The register.** A green **Text Source** means the register is connected. **Last Text Data** tells you how long ago its last line arrived.
4. **The recorder.** A green **Output** with an address means your recorder is taking this picture, text included. Click it to see every device that is watching.
5. **Network**: the unit's own addresses, one for each channel, on LAN 1 and, if it is used, on LAN 2; Wi-Fi if it is used.
6. **System**: memory, disk space and how long the unit has been running.
7. **Events (24h)**: how many exception keywords were rung up in the last 24 hours, and the snapshots, clips and e-mails they produced.
8. **System OK**: the page is talking to the unit.

Read it like a traffic light

Green is good everywhere on this page. These are the things worth a second look:

You see	It means	What to do
Last Text Data shows hours, while the store is open and selling	The register's text is not reaching the unit. The video is still recorded, but without the receipt, and no exceptions are marked.	Chapter 13, “No text on the video”. This is the one to act on the same day.
Text Source is not green, or says **Waiting**	The register is not connected to the unit: it is off, restarting or unplugged from the network.	Check the register. If it is running and selling, call your installer.
Output says **No NVR or Device Connected**	The recorder is not taking this channel's picture, so it is not being recorded with the text.	Is the recorder on? If it is, call your installer.
The preview stays dark, or the card says **Offline** or **Reconnecting…**	The camera's picture is not reaching the unit.	Check the camera's cable and power. Give it a minute after a power cut.
The **Disk** bar is **amber** or **red**	More than 70 % (amber) or 90 % (red) of the unit's storage is in use.	Nothing urgent: the unit makes room by removing its oldest snapshots and clips. You can keep them for fewer days; see chapter 7.
System OK turns into **API Offline**	This page has lost touch with the unit, most often because the internet between you and the store dropped.	Wait a moment and refresh the page.

EXAMPLE **The one-minute check before the morning rush**

Dana opens Cedar Fork Food Mart at 5:30. The owner is still at home. On the phone, the bookmark with the Remote address opens the Dashboard:

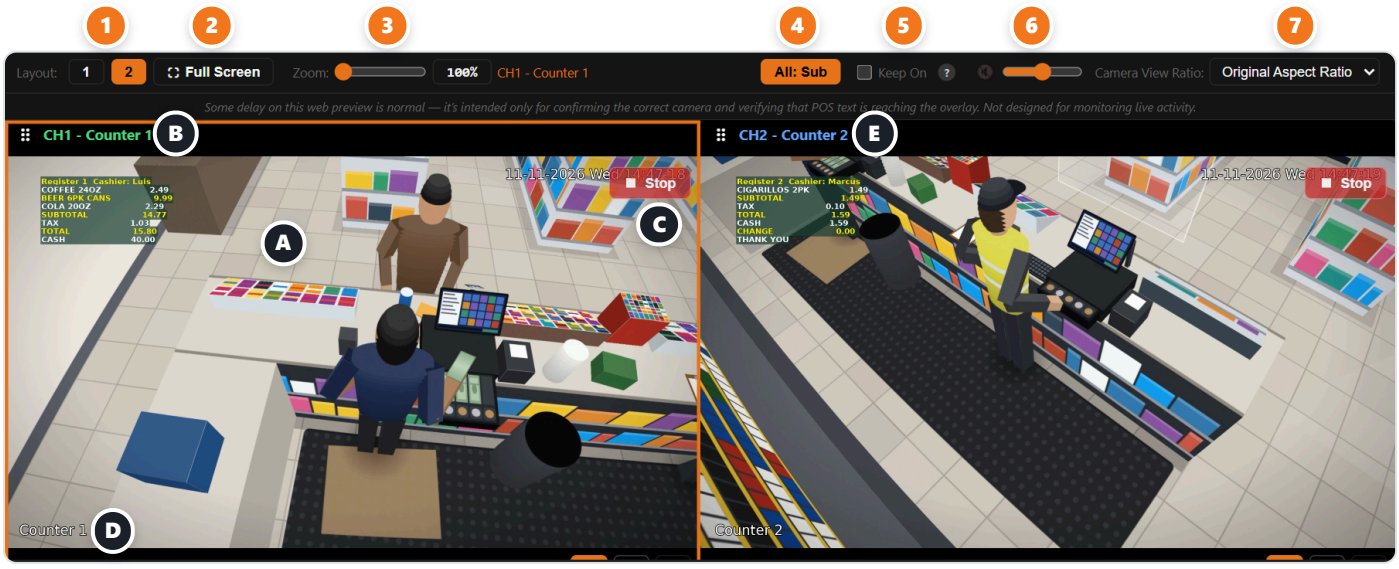
1. **System OK** is green: the unit is up and the store's internet works.
2. Both previews play, and show Counter 1 and Counter 2 the way they should look, not a camera that was bumped during cleaning.
3. After the first coffee is sold, **Last Text Data** on Channel 1 says a few seconds: the register is sending.
4. Both **Output** rows are green: the recorder is recording what the unit sends.
5. **Events (24h)** is about what it is every day. A number far above the usual is a reason to open **Search / Logging** (chapter 6) and see what yesterday's late shift rang up.

Good to know

- **The small preview is the camera's second, lighter stream.** It starts fast and is easy on a phone's data plan. **Switch to Main** shows the full-size picture and asks first, because that uses much more data.
- **No audio from camera** only means that the camera sends no sound: it has no microphone, or sound is switched off in the camera. The picture, the text and the recording are not affected. When a camera does send sound, the unit passes it on to the recorder unchanged.
- **Data RX** counts what the register has sent since the unit last started. It going up is one more sign that text is arriving.
- **RTSP Main** and **RTSP Sub** are for your installer: they are the addresses a recorder uses to take this channel's picture (chapter 20).
- The **Live View** button under the cards opens the page of the next chapter.
- On an **iTIVO-IP**, the Channel 2 card is locked and offers **Upgrade to iTIVO-IP2**. iLinkPro Support can unlock the second register on the same unit.

5 Watching live

POS Camera Live View shows your register cameras as they are right now, with the receipt building up line by line while the cashier rings. It is the quickest way to see that the right text is on the right camera, and to look in on the store from wherever you are.



Both registers of Cedar Fork Food Mart, live. On Counter 1 a customer is paying cash for three items; on Counter 2 the last sale has just ended.

- **A** **The receipt, as it is rung up.** Each new line appears under the last one. A while after the sale has ended, the text clears and the picture is free again.
- **B** **The camera's name.** Click a picture to select it: the orange frame shows which one the toolbar's **Zoom** and sound act on. Drag a picture by the dots next to its name to swap places.
- **C** **Stop** ends this one picture, for example to save data on a phone. Click the picture to play it again.
- **D** **The camera's own name and clock**, exactly as the camera sends them.
- **E** **The second register**, on an iTIVO-IP2.



Counter 1, closer. The cashier has rung up a coffee, a six-pack of beer and a cola; the customer is handing over two twenties.

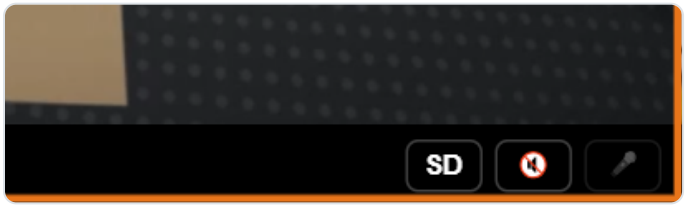
> **A few seconds behind is normal**
> The page says so itself. Live View in a browser runs a little behind real life, and a little more from outside the store. It is made for looking in and for checking the text, not for standing guard: your recorder and its monitor stay the place for that, and they receive the same picture with the same text.

The toolbar

The numbers are the ones above the picture on the page before.

	Control	What it does
1	**Layout** **1** **2**	One camera filling the page, or both side by side. With one camera, two arrows step from one register to the next.
2	**Full Screen**	Hides the menu and the browser's bars. Double-click a picture to give that one camera the whole screen. The Esc key brings everything back.
3	**Zoom**	Enlarges the selected picture, up to 4 times: to read the screen of the register, or to see what is in a hand.
4	**All: Main**	Switches every picture to the camera's full-size stream. It is sharper and uses much more data. The button then reads **All: Sub**, to go back.
5	**Keep On**	Normally the pictures stop by themselves after 30 minutes. Tick this to keep them playing, and to keep this screen awake, for as long as the page is open. It uses more data, and more battery on a phone.
6	Volume	For a camera that sends sound, once you have switched its sound on (below).
7	**Camera View Ratio**	**Original Aspect Ratio** shows the whole picture in its true shape. **Full Cell** fills the space, and **4:3** and **16:9** force a shape.

On each picture



The bottom right corner of each picture. On a small window, scroll down a little to see it.

SD / **HD**	This one picture in the light stream (SD) or the full-size one (HD).
Speaker	Sound from this camera on or off, if the camera has a microphone.
Microphone	Hold to talk through the camera's loudspeaker. Lit only for cameras that can do this.

EXAMPLE **Is the right receipt on the right camera?**

A register was replaced last week, and you want to be sure the text still lands where it should. Ask the cashier on register 1 to ring up a pack of gum while you watch Live View. The line must appear on **Counter 1**, within a second or two, and the items must be the ones you see on the counter. Do the same on register 2. If the text shows up on the other camera, or not at all, your installer has two cables or two settings to swap (chapter 19).

EXAMPLE **A look at the late shift, from home**

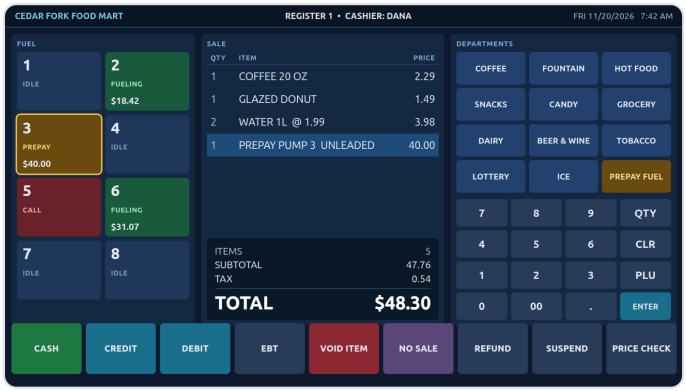
It is 10:40 at night. On your phone, the Remote address and **POS Camera Live View** show the counter, the cashier, and each sale as it is rung up: the items, the total, cash or card. You are not hunting for anything. A minute is enough to see that the store is open, the counter is staffed and sales are being rung up the way they should. For anything that already happened, do not wait in front of the live picture: **Search / Logging** finds it for you (next chapter).

The register's screen, on the recording too

The camera shows the hands, the cash and the counter. The register's own screen shows what was rung up, voided or changed. With the **Live Screen View** option, an **iScreen HDMI Capture USB 3.0** device with a loop-out HDMI port, iTIVO-IP also takes the picture of the register's screen, exactly as the cashier sees it, and puts it where you look anyway:



Inside the camera. Counter 1 with the receipt text at top left and the register's screen as a small picture at bottom right. The recorder keeps one picture with all three, on one channel.



As its own picture. The same screen as **Monitor 1**: a tile in Live View and its own camera on the recorder, without using a camera channel.

- **It is a picture, not text.** The unit does not read the screen. Alerts, Search / Logging, Reports and Theft Review still come from the register's text connection, as before.
- **One screen on iTIVO-IP, two on iTIVO-IP2** (**Monitor 1** and **Monitor 2**). Each needs its own capture device.
- **Sound too, if you want it.** When the register's screen carries sound, it can come along, one way only.

> **Not every register can do this**
> It may not work with some all-in-one POS systems that have no functional or active HDMI or DisplayPort output. Your installer checks your registers before you order it.

EXAMPLE **What did the screen say when the drawer opened?**

An alert says **NO SALE** on register 2 at 3:12 in the afternoon. The camera shows Marcus opening the drawer and closing it again. With the register's screen in the corner of the same picture, you also see what was on his screen at that moment: an empty sale, and no price check or refund waiting. One recording answers both questions: what the hands did, and what the register showed.

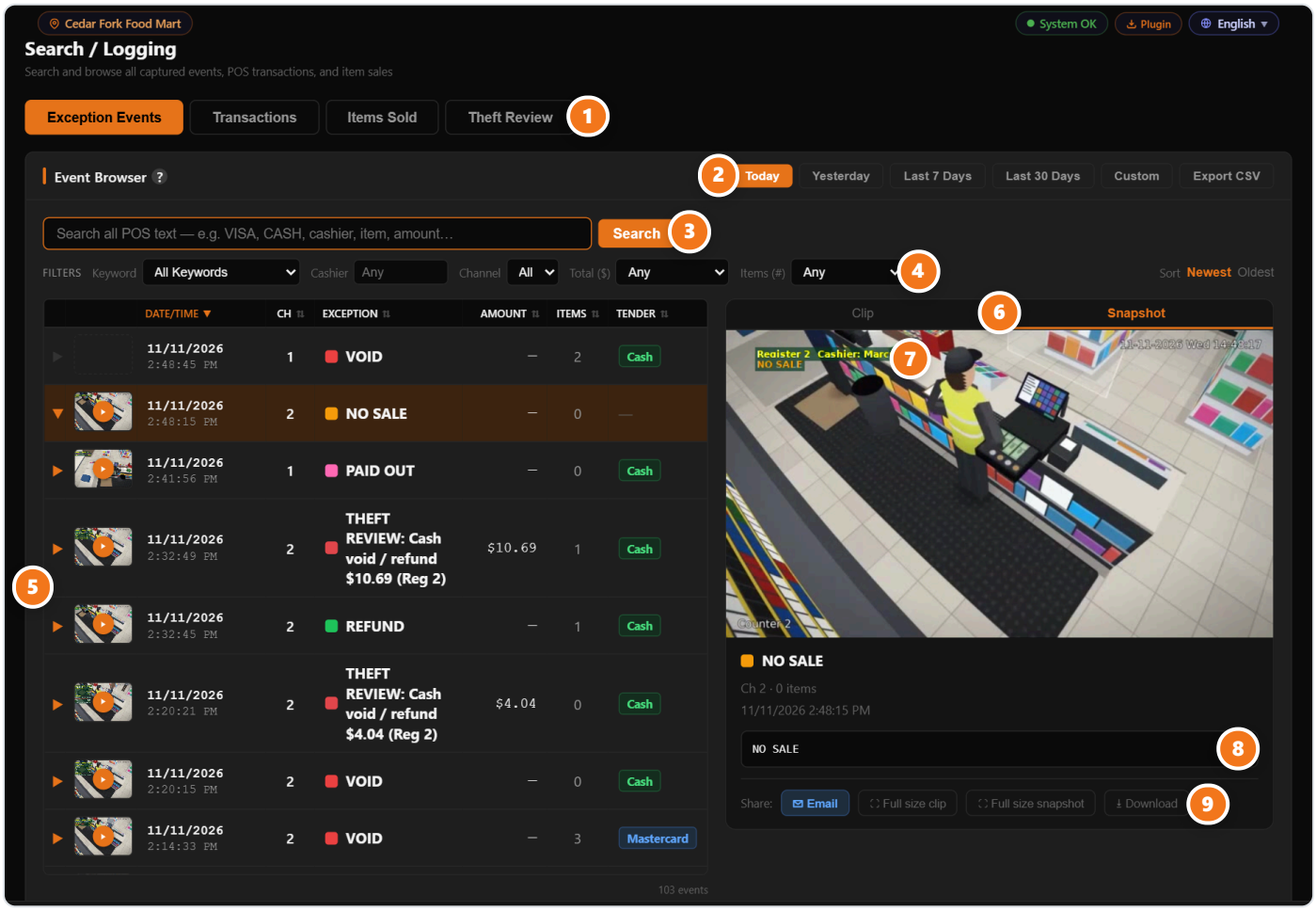
Your other cameras: NVR Live View

NVR Live View BETA shows the other cameras of your recorder on the same kind of page: the door, the aisles, the pumps. It works once your installer has given the unit the recorder's address and password, under **Settings** › **NVR Live & Playback**. The same link also lets **Search / Logging** play the recorder's own recording of a moment you picked (chapter 6).

> **A TV in the office**
> A TV or monitor plugged into the unit's HDMI socket shows these same pages. To keep both registers on that screen all day, open **POS Camera Live View** on it and tick **Keep On**. Without it, the screen goes dark after a few minutes without use and wakes at the touch of a key.

6 Finding what happened: Search / Logging

Everything the unit has seen is kept here, ready to be found again: every exception with its picture and clip, every sale with its items, and every item that was sold. You do not scroll through video. You pick the moment from a list, and the unit shows you the counter in that second.



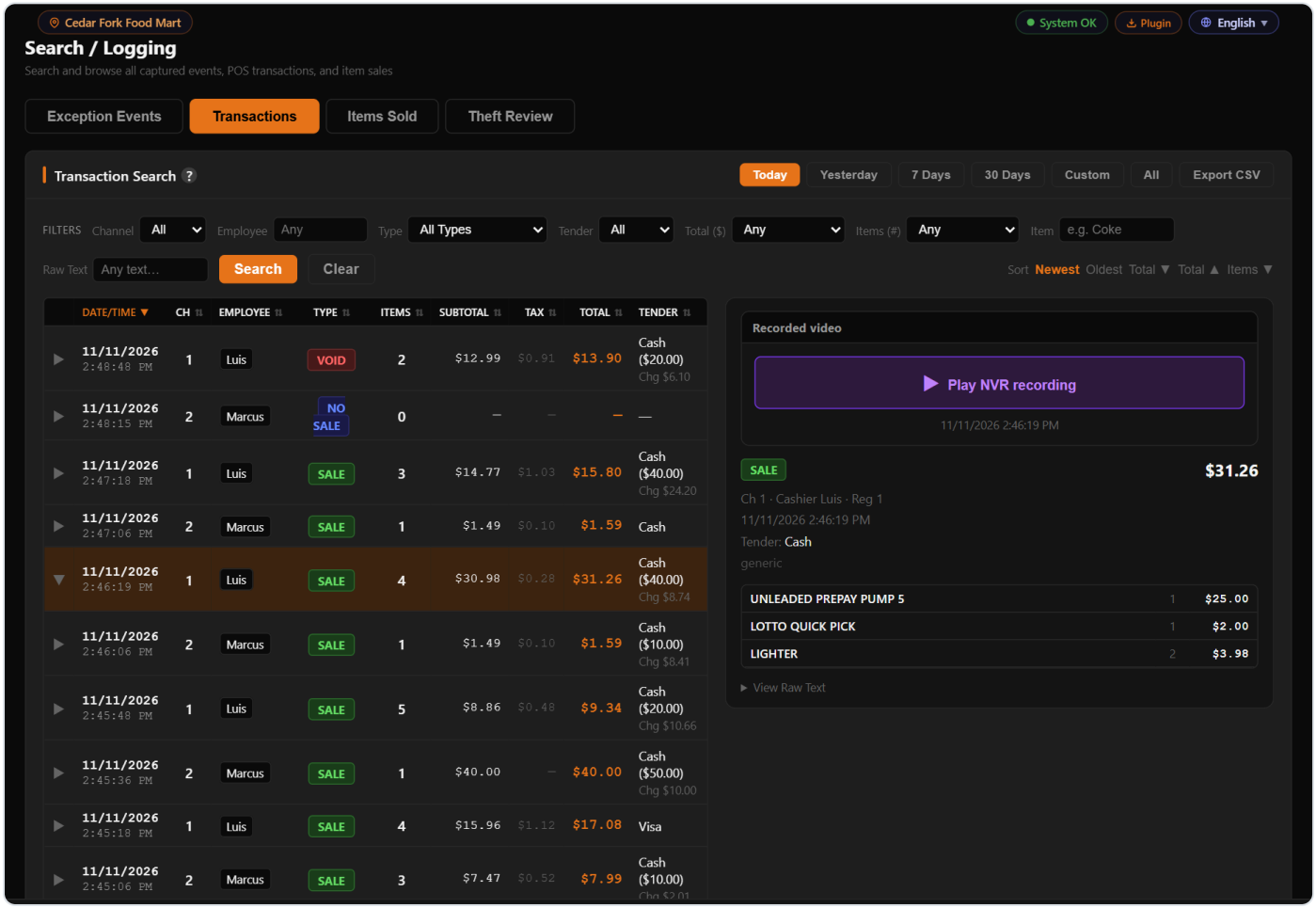
The exceptions of one day at Cedar Fork Food Mart. A no-sale on register 2 is opened: the drawer is open, the cash is in view, and there is no customer at the counter.

1. **Four lists**: exceptions, sales, items sold, and the Theft Review queue (chapter 10).
2. **The period.** `Today`, `Yesterday`, the last 7 or 30 days, or `Custom` for any dates. `Export CSV` saves the list as a file for a spreadsheet.
3. **The search box** looks through the text of every receipt: a card's last four digits, an item, an amount, a cashier.
4. **Filters** narrow the list: one keyword, one cashier, one register, a total above or below an amount, a number of items.
5. **One line for each exception**: when, on which register, what, how much. Click a line to open it on the right; click a column's heading to sort the whole period by it, across all pages.
6. `Clip` plays the seconds before and after the moment. `Snapshot` is the still picture of the moment itself.
7. **The receipt on the picture**, as the recorder has it too: which register, which cashier, and the keyword.
8. **The line that set it off**, as the register sent it.
9. **Share**: send it by e-mail, open the clip or the picture at full size, or download it to keep.

EXAMPLE **The drawer was short last night**

1. **Search / Logging**, **Exception Events**, **Yesterday**.
2. Under **Keyword** choose **NO SALE**. Six lines are left instead of sixty.
3. Click each one and look at the **Snapshot**. Five show a customer waiting for change. One shows an empty counter.
4. Play that one's **Clip**: the seconds before the drawer opened, and what happened to the cash after.
5. If you need it for a talk with the employee, **Download** the clip, or note the time and play the longer recording on your recorder.

Every sale: the Transactions list



Transactions, with a cash sale opened: $25 of fuel, a lottery ticket and two lighters. Above it are the next sales on both registers, a no-sale and a void.

While **Exception Events** lists only what a keyword caught, **Transactions** lists every sale the registers rang up, each with its cashier, its type, its total and how it was paid. The filters go further here:

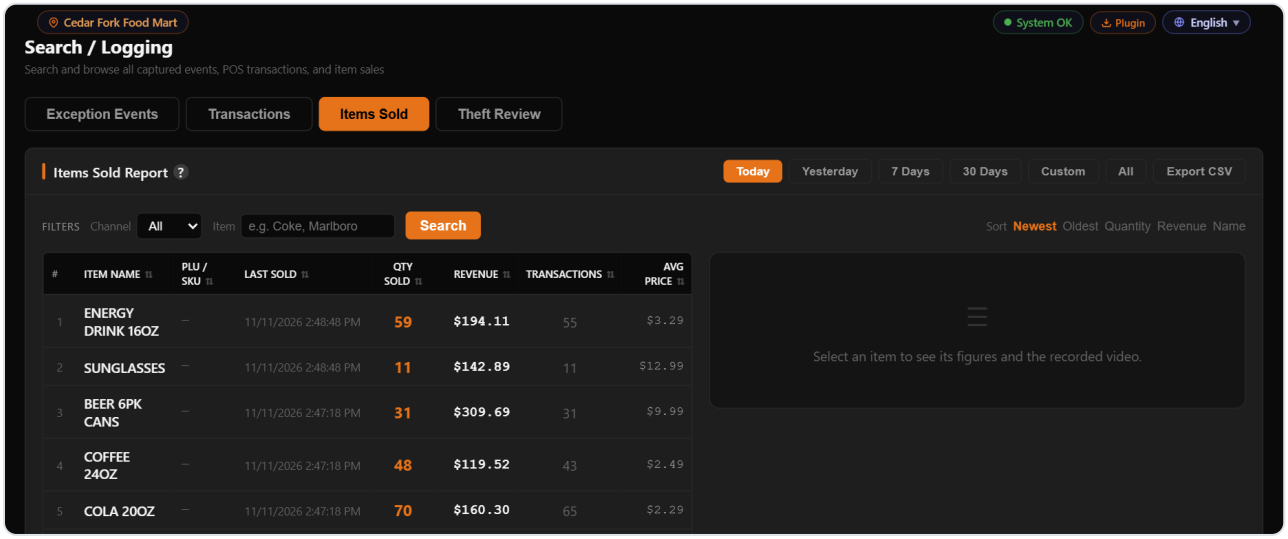
Filter	Finds
Employee	Everything one cashier rang up.
Type	Only sales, or only voids, refunds, no-sales, payouts, suspended or unfinished sales.
Tender	Cash, credit, debit, check, EBT or mobile payments.
Total ($), **Items (#)**	Sales above, below, equal to or between amounts; sales with many or few items.
Item, **Raw Text**	Sales that contain a certain item, or any text that was on the receipt.

Click a line and the right side shows what was sold, item by item. **View Raw Text** shows the receipt exactly as the register sent it. If your installer has linked the recorder (chapter 5), **Play NVR recording** plays the recorder's own video of that sale from 5 seconds before it, for as long as you want to watch.

EXAMPLE **A customer says she was charged twice**

1. **Transactions**, then **Custom** and the day she was in the store.
2. Type the last four digits of her card under **Raw Text**, or set **Total ($)** to **Equal To** the amount on her statement, and press **Search**.
3. One line, or two? Open each: the items, the time, the register, and the picture of the counter settle it in a minute.

What sold: the Items Sold list



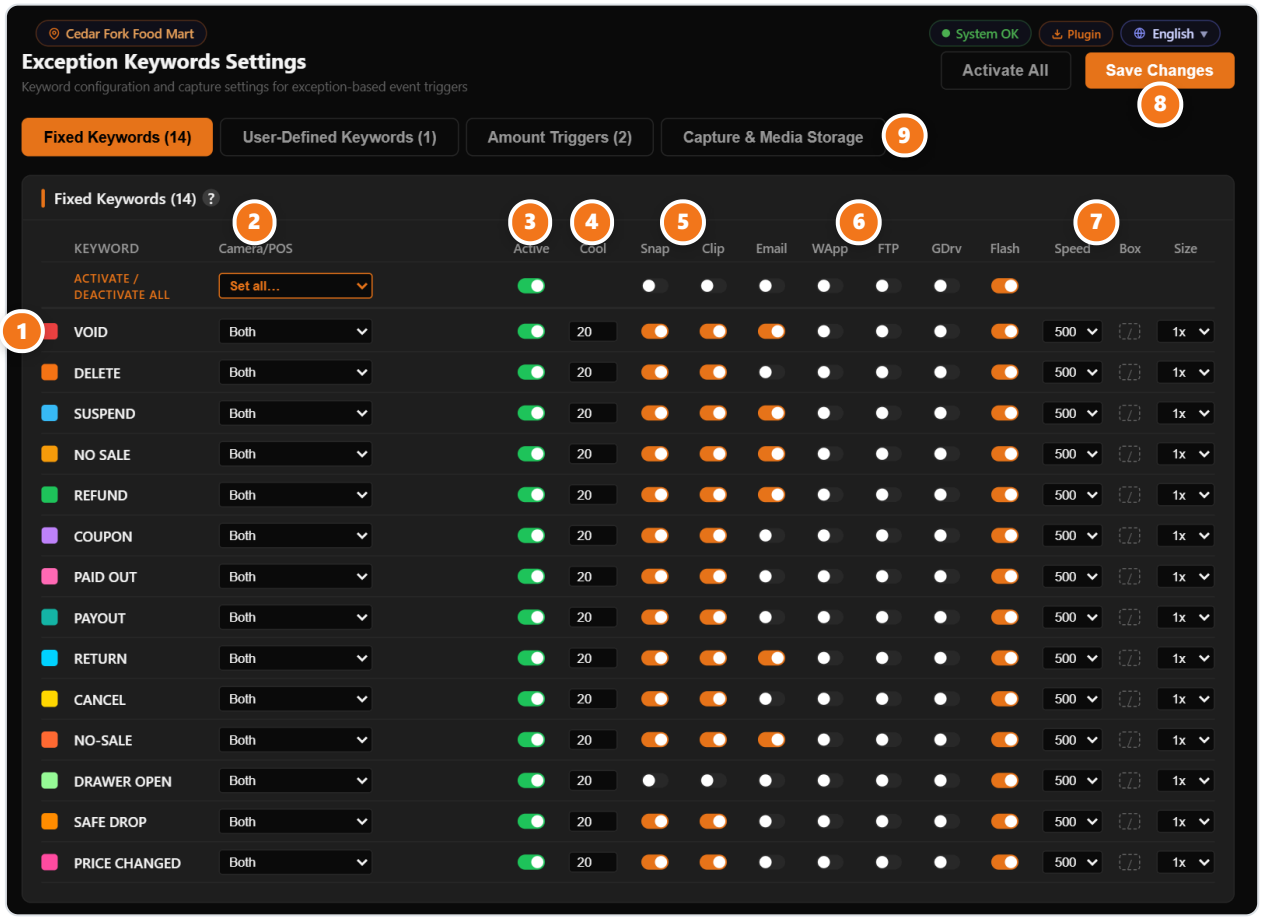
Items Sold for the same day: each item with how many were sold and what they brought in.

Items Sold adds the sales up by item for the period you choose: quantity, revenue, the number of sales it was part of, the average price and when it last sold. Type part of a name under **Item** to follow one product, and sort by **Quantity** or **Revenue** to see what moves. With the recorder linked, an item's **Play NVR recording** plays its last sale.

The lists of exceptions and sales reach back 180 days, as the unit is delivered. Snapshots and clips are kept for a shorter time (chapter 7); for anything older, the list still gives you the exact date and time to look up on the recorder.

7 Exception keywords

An exception keyword is a word on the receipt that you want to know about: `VOID`, `NO SALE`, `REFUND`. Every time the register sends that word, the unit colors the line on the video, keeps a snapshot and a clip of the moment, lists it in **Search / Logging** and, if you ask for it, sends you an alert. You decide which words count, under **Settings** › **Exception Keywords**.



The fourteen keywords every unit comes with, set the way a store typically has them.

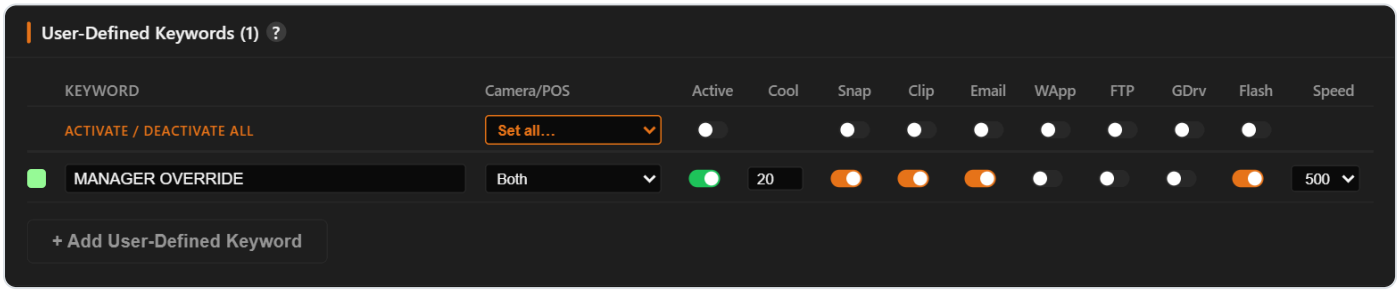
1. **The word, and its color on the video.** Click the colored square to choose another color.
2. **Camera/POS**: watch for the word on both registers, or on one only.
3. **Active**: switched off, the unit ignores the word.
4. **Cool**: how many seconds must pass before the same word on the same register counts again (15 to 300). It keeps one messy sale from becoming five alerts.
5. **Snap** and **Clip**: keep a picture, and a short video, of the moment.
6. **Email**, **WApp**, **FTP**, **GDrv**: also send it to you. Each works only after it has been set up once (chapter 8).
7. **Flash**, **Speed**, **Box**, **Size**: how the line looks on the video: flashing and how fast, a colored box behind it, larger letters.
8. **Save Changes**. Nothing on this page takes effect until you press it.
9. **Three more tabs**: your own words, amounts, and how long pictures and clips are kept.

What the words mean at the counter

Keyword	What happened at the register	Why you may want to see it
`VOID` `DELETE` `CANCEL`	An item, or a whole sale, was taken off after it was rung up.	The classic: the customer pays cash and leaves, then the sale disappears.
`NO SALE` `NO-SALE` `DRAWER OPEN`	The cash drawer was opened without a sale.	Making change is honest. A drawer that opens with nobody at the counter deserves a look.
`REFUND` `RETURN`	Money was given back.	Was there a customer? Did the goods come back?
`PAID OUT` `PAYOUT`	Cash left the drawer for a lottery prize, a delivery or a small purchase.	Is the winner, or the driver, in the picture?
`SUSPEND`	A sale was parked to be finished later.	A parked sale that is never finished is goods that left without payment.
`COUPON` `PRICE CHANGED`	The price was lowered by hand.	Discounts for friends.
`SAFE DROP`	Cash was moved from the drawer to the safe.	Usually just for the record: it shows the drop really took place.

Your register may use other words
The unit looks for each word exactly as written, in every line the register sends. One register prints `NO SALE`, another `NOSALE` or `DRAWER OPENED`. Look at what yours really prints: in **Search / Logging** › **Transactions**, open a sale and choose **View Raw Text**. If your register's wording is not in the list, add it as your own keyword.

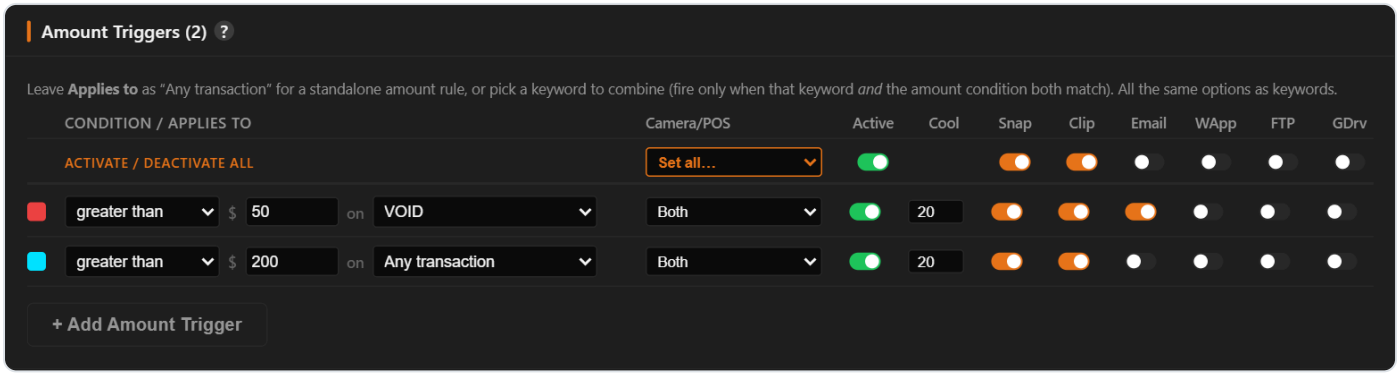
Your own keywords



The **User-Defined Keywords** tab, with one word the store added itself.

Press **+ Add User-Defined Keyword**, type the word or words in capital letters, choose its color and switches as above, and **Save Changes**. You can add up to 16. Good candidates are whatever your register prints when a rule is bent: `MANAGER OVERRIDE`, `PRICE OVERRIDE`, `EMPLOYEE DISCOUNT`, `AGE CHECK SKIPPED`.

Amount triggers

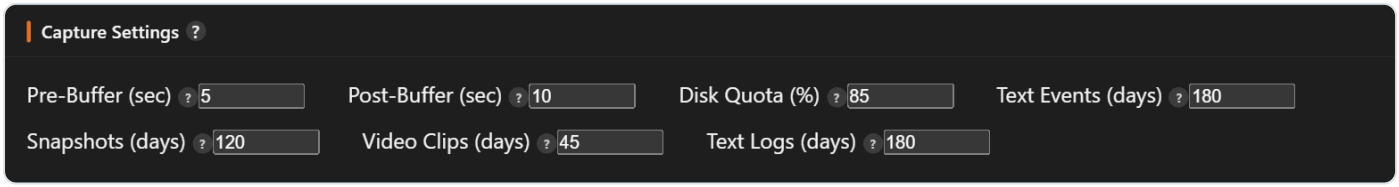


Two amount triggers: a void of more than $50, and any sale of more than $200.

An amount trigger watches the money instead of a word. Choose **greater than**, **less than** or **equal to**, an amount, and what it applies to:

- **Any transaction**: every sale above (or below) the amount. In **Search / Logging** it shows up as, for example, `AMOUNT > $200`.
- **A keyword**: only when that word and the amount come together. `VOID` greater than $50 leaves the small corrections alone and tells you about the large ones.

How much is kept, and for how long



The top of the **Capture & Media Storage** tab.

Setting	What it does
Pre-Buffer and **Post-Buffer**	How many seconds of video a clip holds before and after the keyword. With 5 and 10, each clip shows the 5 seconds that led up to the moment and the 10 seconds that followed.
Snapshots (days), **Video Clips (days)**	After this many days the unit removes them by itself, every night. A unit with larger storage keeps them longer: up to 120 days of snapshots and 45 days of clips, as it is delivered.
Text Events (days), **Text Logs (days)**	How long the list of exceptions and the text of every sale stay searchable: 180 days, as delivered.
Disk Quota (%)	The share of the unit's storage that snapshots and clips may fill. When it is reached, the oldest go first.

Your recorder keeps recording everything, as always. What the unit keeps is the short list that matters: for a moment older than its clips, note the date and time in **Search / Logging** and play that minute on the recorder.

EXAMPLE **A sensible start for a gas station**

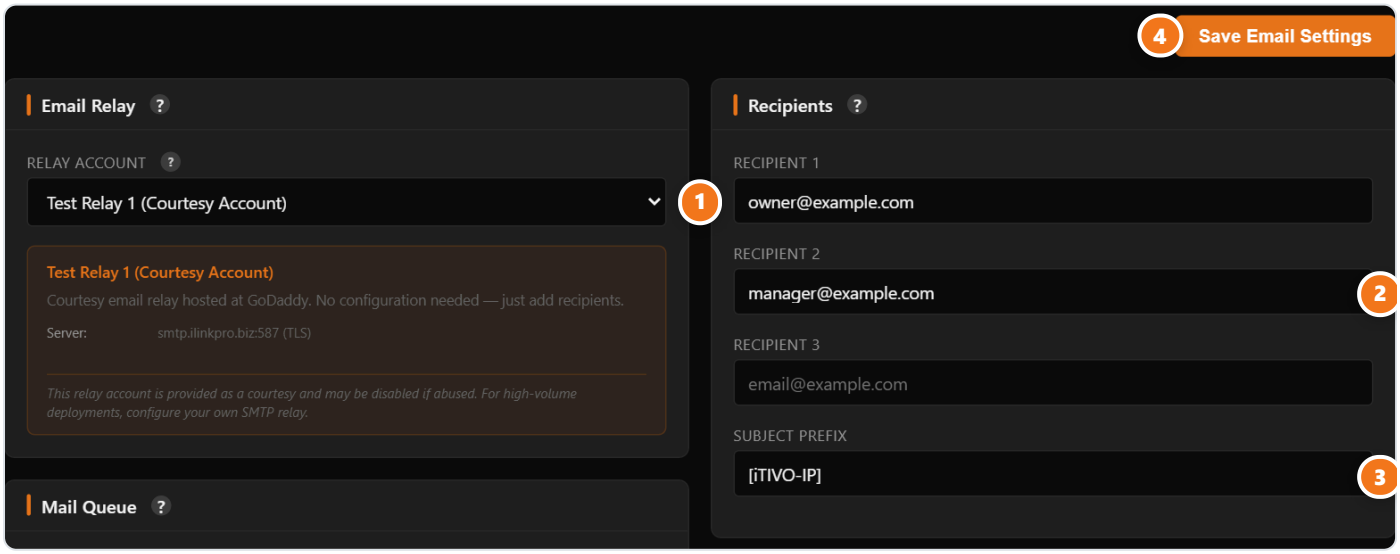
1. Leave all fourteen keywords **Active**, with **Snap** and **Clip** on. They cost nothing until you look at them.
2. Tick **Email** for three only: `VOID`, `NO SALE` and `REFUND`. Too many alerts are soon ignored.
3. Add one amount trigger, `VOID` greater than $20, with **Email** on, and after a week take **Email** off the plain `VOID` if it turns out to be too much.
4. **Save Changes**. Then ring a `NO SALE` yourself and see it arrive: on the video, in **Search / Logging**, and in your inbox.

In the still pictures of this guide the keyword lines are shown steady, so that they can be read. On your video they flash, unless you switch **Flash** off for that keyword.

8 Alerts by e-mail and WhatsApp

An alert tells you about a keyword within minutes, wherever you are: an e-mail with the snapshot attached and a button that plays the clip. Three things must be in place: a way to send mail, somebody to send it to, and the **Email** switch on the keywords you care about.

E-mail, set up in a few minutes



Settings › **Notifications**, the **Email** tab.

1 Send through your own e-mail account

Choose your e-mail provider in the list (Gmail, Microsoft 365 or another) and enter the details of an account of yours. Gmail asks for an **App Password**, not your normal one; the page links to where Google creates it. Your alerts then go out through an account you control. **Test Relay 1 (Courtesy Account)**, which a new unit is set to, is there for a quick test only: to see an alert arrive on the first day, before your own account is entered. It is a free service with no guarantee that it works every time. **Do not use it for your store's day-to-day alerts.**

2 Say who gets the alerts

Up to three addresses: yours, a partner's, a manager's.

3 Put the store's name in the subject

Subject Prefix starts every alert's subject line. With `[Cedar Fork]` instead of `[iTIVO-IP]` you see at once which store it is, and your mail program can sort the alerts into a folder of their own.

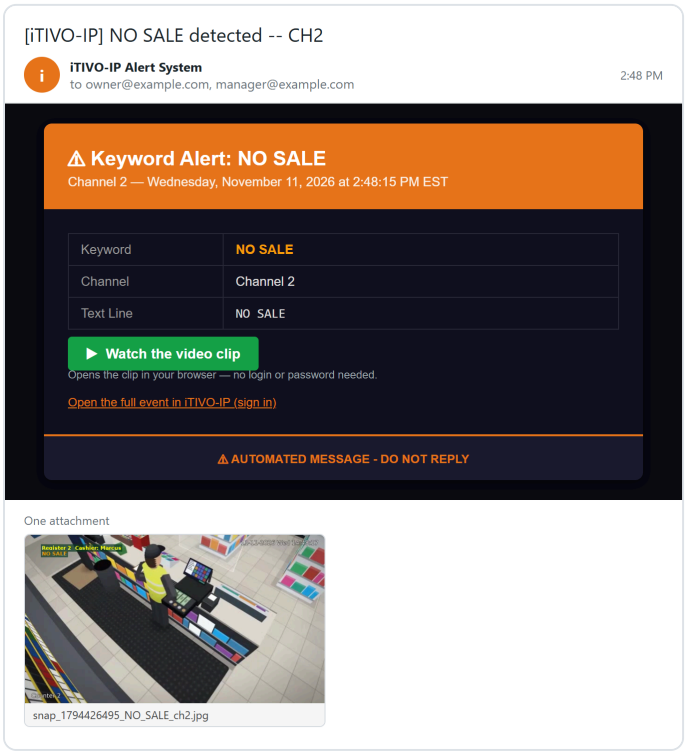
4 Save, then test

Save Email Settings, then **Send Test Email**. Find the test in your inbox. If it landed in the spam folder, mark it as “not spam” once, so that real alerts are not hidden later.

5 Switch on the keywords

An alert is only sent for a keyword whose **Email** switch is on, under **Exception Keywords** (chapter 7).

What an alert looks like



An alert in a mail program. The unit's own e-mail, shown here for a made-up event; nothing was sent to anybody.

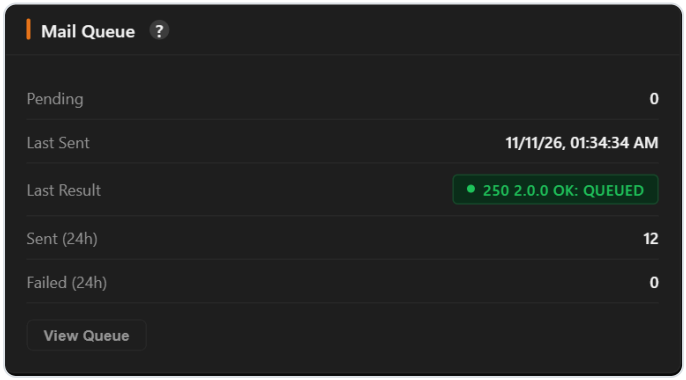
The subject names the keyword and the channel, so you can judge it from the list of your inbox. Inside:

- **Keyword, channel and the line** exactly as the register printed it, with the date and time of the store.
- **The snapshot**, attached: the counter in that second, with the receipt on it.
- **Watch the video clip** plays the clip in your browser, straight away and without signing in.
- **Open the full event in iTIVO-IP** takes you to the unit's **Search / Logging** page, after signing in.

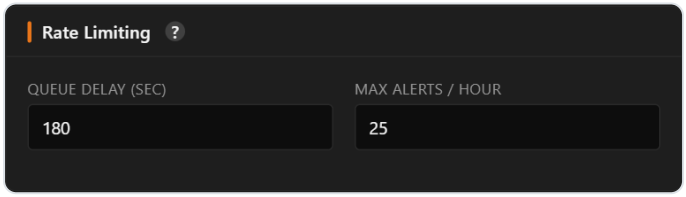
> **Forward with care**
> The clip button needs no password, so that it works with one tap on your phone. It also works for anybody you forward the e-mail to.

Under **Exception Video Clips** you choose how the clip travels. **Link (recommended)** keeps the e-mail small, so it arrives reliably. **Attach video clip to the email** puts the file in the e-mail itself; some mail services delay or refuse e-mails of that size.

Not too many, and none lost



Mail Queue: what was sent, and what is waiting.



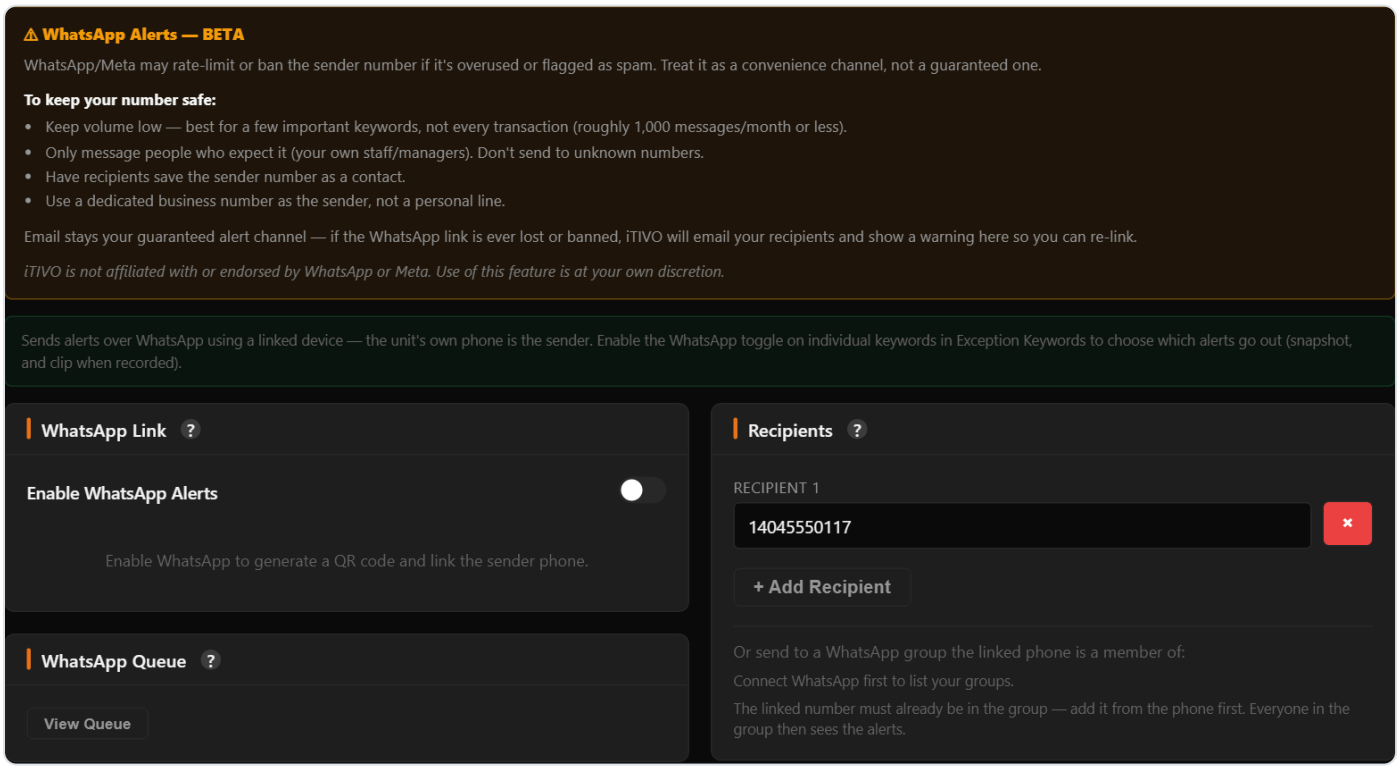
Rate Limiting: how often the unit may write to you.

On the page	What it tells you, or does
Mail Queue	**Last Result** in green means the mail service accepted the last alert. **Pending** counts alerts that are waiting their turn. **Failed (24h)** above zero means alerts could not be handed over: press **View Queue** to see why.
Queue Delay (sec)	The shortest time between two alerts for the **same keyword**. With 180, three voids within a minute become one alert now and the next ones three and six minutes later, each with a note saying how long it waited.
Max Alerts / Hour	The most alerts the unit sends in one hour, all keywords together. The rest wait. An alert that has waited six hours is dropped; the event itself is never lost and stays in **Search / Logging**.

EXAMPLE **No alert arrived. Where did it get stuck?**

1. Is the event there at all? Look in **Search / Logging**. If it is missing, the keyword is switched off, or the register words it differently (chapter 7).
2. Is **Email** on for that keyword, and did you press **Save Changes**?
3. Does **Send Test Email** arrive? If not, check the addresses, then the spam folder. If the unit still sends through the courtesy account, set up your own account (step 1 above).
4. Is **Pending** above zero? Then it is on its way, held back by the limits above.
5. Was the store's internet down? Alerts need it. They go out when it is back.

WhatsApp BETA



The **WhatsApp** tab before a phone is linked.

The unit can also send each alert as a WhatsApp message, with the snapshot and the clip. It sends through a phone of yours that you link once:

1. Switch on **Enable WhatsApp Alerts**. The page shows a QR code.
2. On the phone that will be the sender, open WhatsApp, choose **Linked devices** and **Link a device**, and point it at the code.
3. Under **Recipients**, add the numbers that should get the alerts, each with its country code and no spaces or signs (a US number starts with 1). Or choose a WhatsApp group that the sender phone belongs to: everybody in the group then sees the alerts.
4. **Save WhatsApp Settings**, then **Send Test Message**.
5. Switch on **WApp** for the keywords you want, under **Exception Keywords**.

Read the note at the top of the tab before you start. WhatsApp is a service of its own: whether a message goes out and arrives depends entirely on WhatsApp, its availability and its rules, which iLinkPro neither controls nor supports. WhatsApp may block a number that sends too much, so keep this for the few keywords that matter, use a business number and not your personal one, and send only to your own people. E-mail stays the dependable way; switch on **Email me if the WhatsApp link drops** and the unit tells you when the phone needs to be linked again.

Copies to your own server or Google Drive

The **FTP / SFTP** and **Google Drive** tabs let the unit copy each snapshot and clip to a place of your own, where they stay for as long as you like. They are set up once, usually by your installer or whoever looks after your computers, and then switched on keyword by keyword with **FTP** and **GDrv**.

9 The day in numbers: Reports

Search / Logging shows you one moment at a time. Reports adds the moments up: how many exceptions there were and at which hours, how much was sold and how it was paid, and who was at the register. Look at it for a minute at the end of the day, or let the unit send it to you.



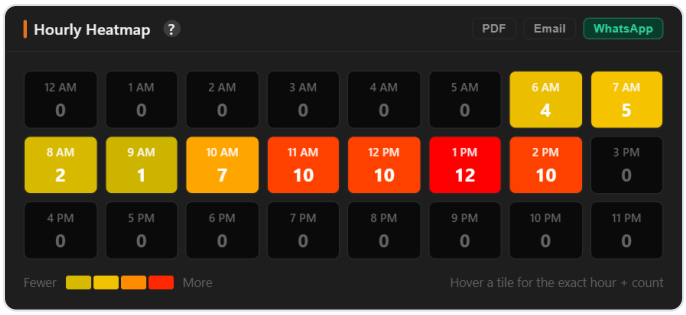
Reports › **Overview** at Cedar Fork Food Mart, part of the way through the day.

1. **The period.** **Today**, **Yesterday**, **This Week**, **This Month**, or **Custom** for any dates. Everything on the page follows it.
2. **Six tabs**, from the summary to the detail. The table below says what each one answers.
3. **Total Events**: every exception your keywords caught in the period.
4. **Top Keywords**: the three that came up most.
5. **The sales of the period**: the total, the average sale, tax, cash against cards, the best hour, and the number of items sold.
6. **Hourly Event Trend**: the exceptions of each hour of the day. Under it, the same for sales.
7. **PDF**, **Email**, **WhatsApp**, on every card: save or send just that card.

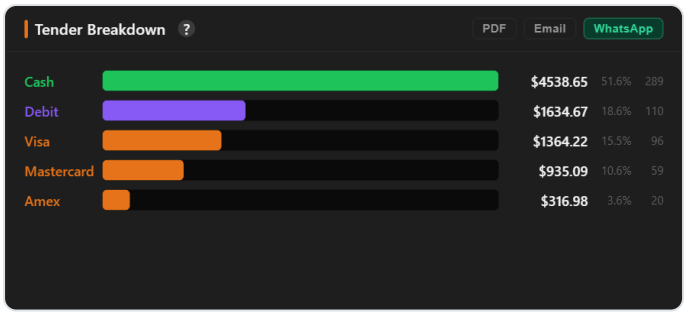
> **Where the numbers come from**
> The sales figures are added up from the receipts your register sends to the unit. They are there to show you what is unusual. Your register's own reports stay the record for your books.

Tab	What it answers
Overview	How was the day? Exceptions and sales at a glance, hour by hour.
Events	Which exceptions, how many of each keyword, on which day and at which hour, and when the store is busiest.
Sales	Sales by hour, how customers paid, the 20 items that sold most, sales by category, and fuel and store sales by the way they were paid.
Employee / By Time	Sales and exceptions for each cashier, whose share of exceptions stands out, and the latest voids, refunds and no-sale drawer openings with the cashier's name. **By Time** gives the day hour by hour.
AI Predictions	What the unit expects for the rest of today and the next seven days, from the store's own past weeks.
Recommendations	The comparison put into words: staffing, a loss-prevention watch, business health, and a cash-risk score.

Reading it with theft in mind



Events › **Hourly Heatmap**: the exceptions of each hour. The redder the tile, the more there were.

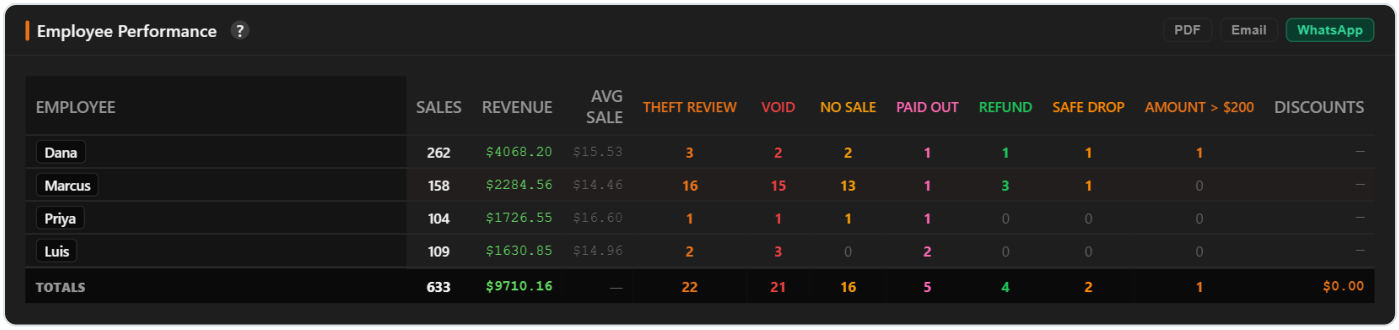


Sales › **Tender Breakdown**: how customers paid, with the share and the number of sales of each.

- **When do the exceptions happen?** Exceptions should follow the customers: many in the rush, few when the store is quiet. Hold the heatmap next to **Sales** › **Hourly Sales**. An hour with few sales and many voids or no-sales is the hour to open in **Search / Logging**.
- **How much of it is cash?** Cash is where a loss at the register happens. A store's cash share is steady from week to week. If it slides down while the store is as busy as before, that is worth a closer look.
- **Is one day different?** **Events** › **Events by Day** with **This Week** or **This Month** shows the days side by side. Look at who worked on the day that stands out.

Who was at the register

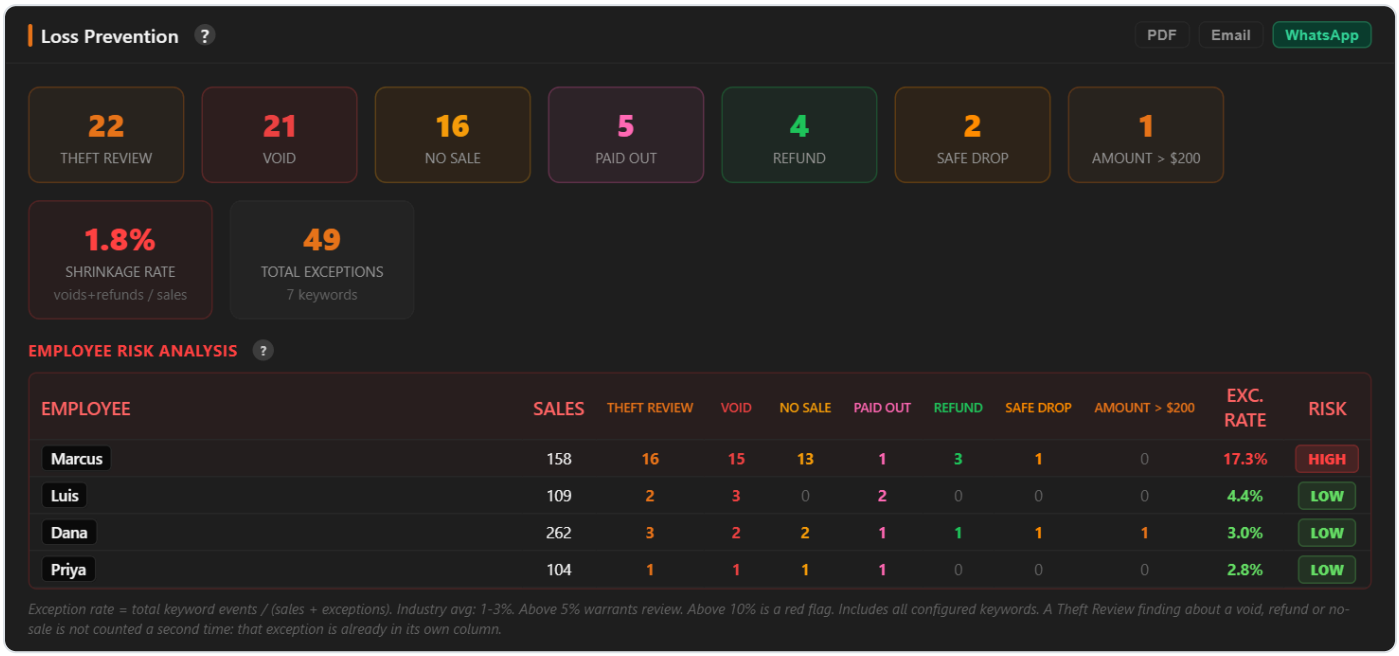
Employee / By Time has one line for each cashier: the number of sales, the total and the average sale, and next to them how often each of your keywords came up while that cashier was signed in at the register. An exception is counted for the cashier whose receipt it belongs to.



EMPLOYEE	SALES	REVENUE	AVG SALE	THEFT REVIEW	VOID	NO SALE	PAID OUT	REFUND	SAFE DROP	AMOUNT > $200	DISCOUNTS
Dana	262	$4068.20	$15.53	3	2	2	1	1	1	1	–
Marcus	158	$2284.56	$14.46	16	15	13	1	3	1	0	–
Priya	104	$1726.55	$16.60	1	1	1	1	0	0	0	–
Luis	109	$1630.85	$14.96	2	3	0	2	0	0	0	–
TOTALS	633	$9710.16	–	22	21	16	5	4	2	1	$0.00

Employee Performance: sales and exceptions for each cashier, for the period you chose. **THEFT REVIEW** counts the findings of chapter 10.

A cashier who rings up 300 sales will have more voids than one who rings up 80. What counts is the share, and **Loss Prevention**, the next card, works it out: under **Employee Risk Analysis** the cashier with the highest share of exceptions is at the top, with the exception rate and a mark, LOW, MED or HIGH. The page's own rule of thumb: 1 to 3 in a hundred is ordinary, more than 5 is worth a look, more than 10 is a red flag. A Theft Review finding about a void, a refund or a no-sale is not counted a second time in the rate: that exception is already in its own column.



EMPLOYEE	SALES	THEFT REVIEW	VOID	NO SALE	PAID OUT	REFUND	SAFE DROP	AMOUNT > $200	EXC. RATE	RISK
Marcus	158	16	15	13	1	3	1	0	17.3%	HIGH
Luis	109	2	3	0	2	0	0	0	4.4%	LOW
Dana	262	3	2	2	1	1	1	1	3.0%	LOW
Priya	104	1	1	1	1	0	0	0	2.8%	LOW

Exception rate = total keyword events / (sales + exceptions). Industry avg: 1-3%. Above 5% warrants review. Above 10% is a red flag. Includes all configured keywords. A Theft Review finding about a void, refund or no-sale is not counted a second time: that exception is already in its own column.

Loss Prevention: the day's exceptions by keyword, and the cashiers in the order of their exception rate. Three of the four are at 3 or 4 in a hundred. One is at 17.

Read a high rate as a reason to look, never as a verdict. A new cashier makes more mistakes, and the cashier at the lottery counter pays out more. Further down the same card are the latest voids, refunds and no-sale drawer openings, each with its time, its amount and the cashier. The time is all you need to find the picture and the clip in **Search / Logging**.



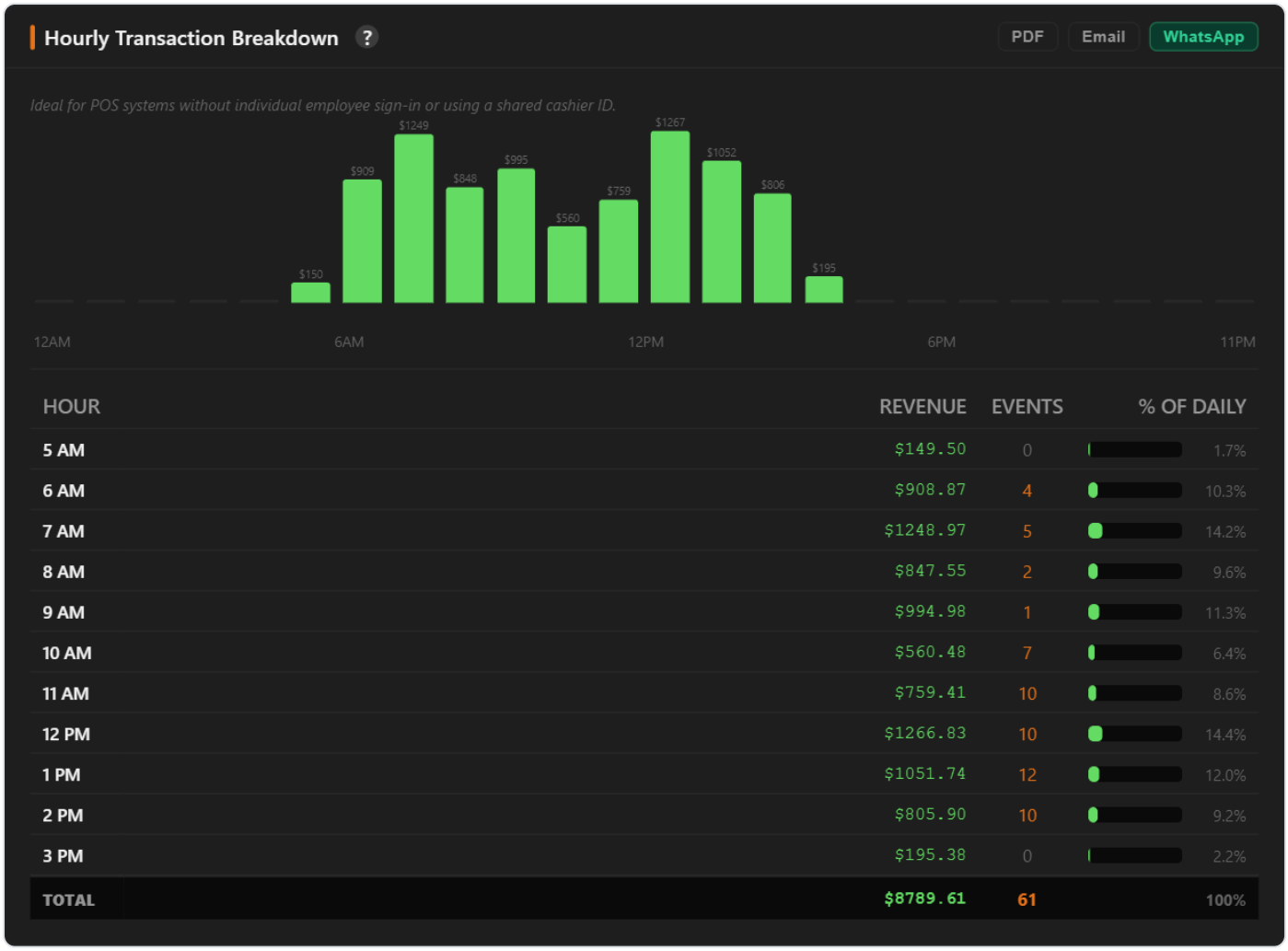
The latest voids, refunds and no-sale openings, each with the cashier's name.

EXAMPLE **Who opens the drawer without a sale?**

1. **Reports**, **This Week**, **Employee / By Time**.
2. In **Employee Performance**, read down the **NO SALE** column. A drawer is opened for change now and then by everybody. One number that is several times the others is different.
3. Open **Search / Logging** › **Transactions**, set **Employee** to that name and **Type** to no-sale, for the same week.
4. Click each line and look at the picture: was a customer at the counter, and where did the cash go?

One sign-in for everybody at the register?

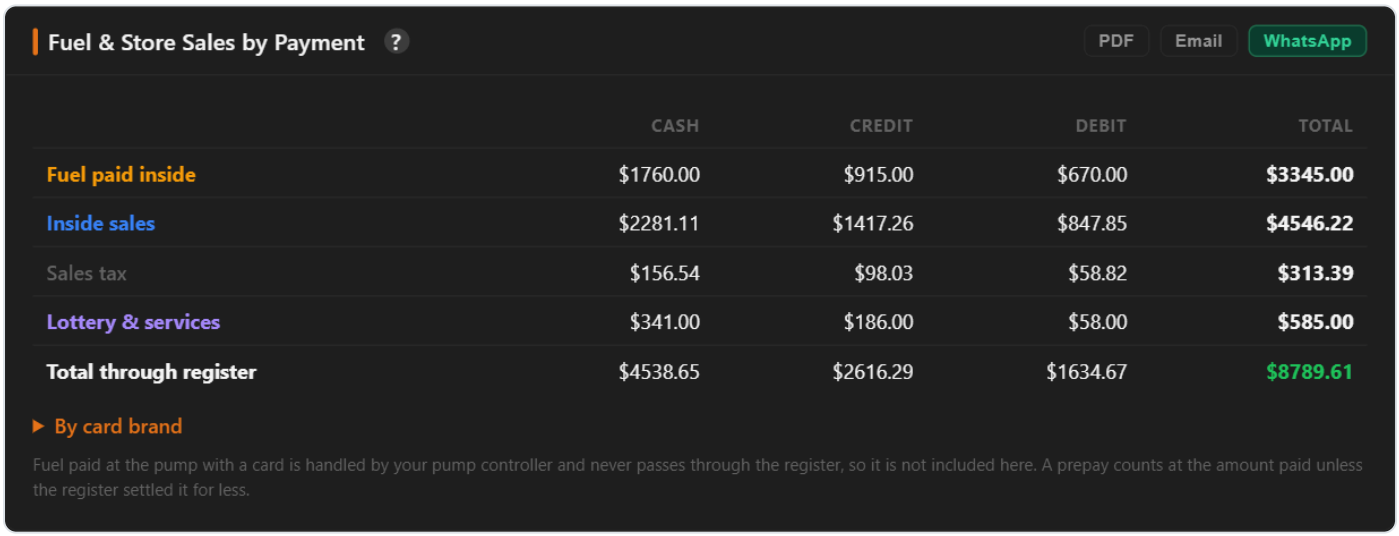
The unit takes the cashier's name from the receipt. If all your cashiers use the same sign-in, every line carries the same name and the unit cannot tell them apart. And where a register prints no cashier at all, the line reads **Unknown**. Use **By Time** then: it shows sales and exceptions hour by hour, and your shift plan tells you who stood there. Better still, ask your register dealer to give each cashier a sign-in of their own.



HOUR	REVENUE	EVENTS	% OF DAILY
5 AM	$149.50	0	1.7%
6 AM	$908.87	4	10.3%
7 AM	$1248.97	5	14.2%
8 AM	$847.55	2	9.6%
9 AM	$994.98	1	11.3%
10 AM	$560.48	7	6.4%
11 AM	$759.41	10	8.6%
12 PM	$1266.83	10	14.4%
1 PM	$1051.74	12	12.0%
2 PM	$805.90	10	9.2%
3 PM	$195.38	0	2.2%
TOTAL	$8789.61	61	100%

Employee / By Time › **By Time**: sales and exceptions for each hour, for stores where the cashiers share one sign-in.

For a gas station: fuel and store sales



	CASH	CREDIT	DEBIT	TOTAL
Fuel paid inside	$1760.00	$915.00	$670.00	**$3345.00**
Inside sales	$2281.11	$1417.26	$847.85	**$4546.22**
Sales tax	$156.54	$98.03	$58.82	**$313.39**
Lottery & services	$341.00	$186.00	$58.00	**$585.00**
Total through register	$4538.65	$2616.29	$1634.67	**$8789.61**

▶ By card brand

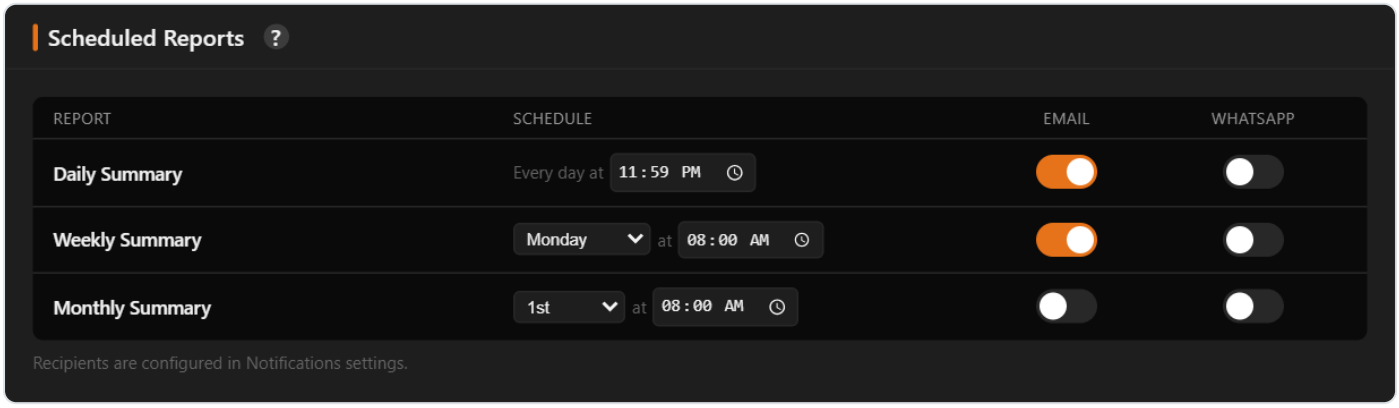
Fuel paid at the pump with a card is handled by your pump controller and never passes through the register, so it is not included here. A prepay counts at the amount paid unless the register settled it for less.

Sales › **Fuel & Store Sales by Payment**.

The **Sales** tab keeps fuel and the store apart: fuel paid inside, sales inside the store, sales tax, and lottery and services, each split into cash, credit and debit. **Sales by Category** above it shows what the store lives on: fuel,

cigarettes, lottery, beer, snacks and so on. Fuel that a customer pays for at the pump with a card does not pass through the register, so it is not in these numbers.

Have it sent to you



Scheduled Reports, at the bottom of each tab.

You do not have to open the page to read it. At the bottom of each tab:

- **Export PDF**, **Email Now** and **WhatsApp Now** save or send the tab as it is on the screen, for the period you chose.
- **Scheduled Reports** sends it by itself: every day at the time you set, every week on the day you choose, or every month. Switch on **Email**, **WhatsApp** or both for each one.

Each tab has its own three schedules, so you can have the summary every night and the employee report once a week. The reports go to the people you entered under **Settings** › **Notifications** (chapter 8).

> **A good start**
> The daily summary at closing time, and the weekly employee report on Monday morning. Two messages you can read on your phone in a minute, and you know where to look.

Predictions and recommendations

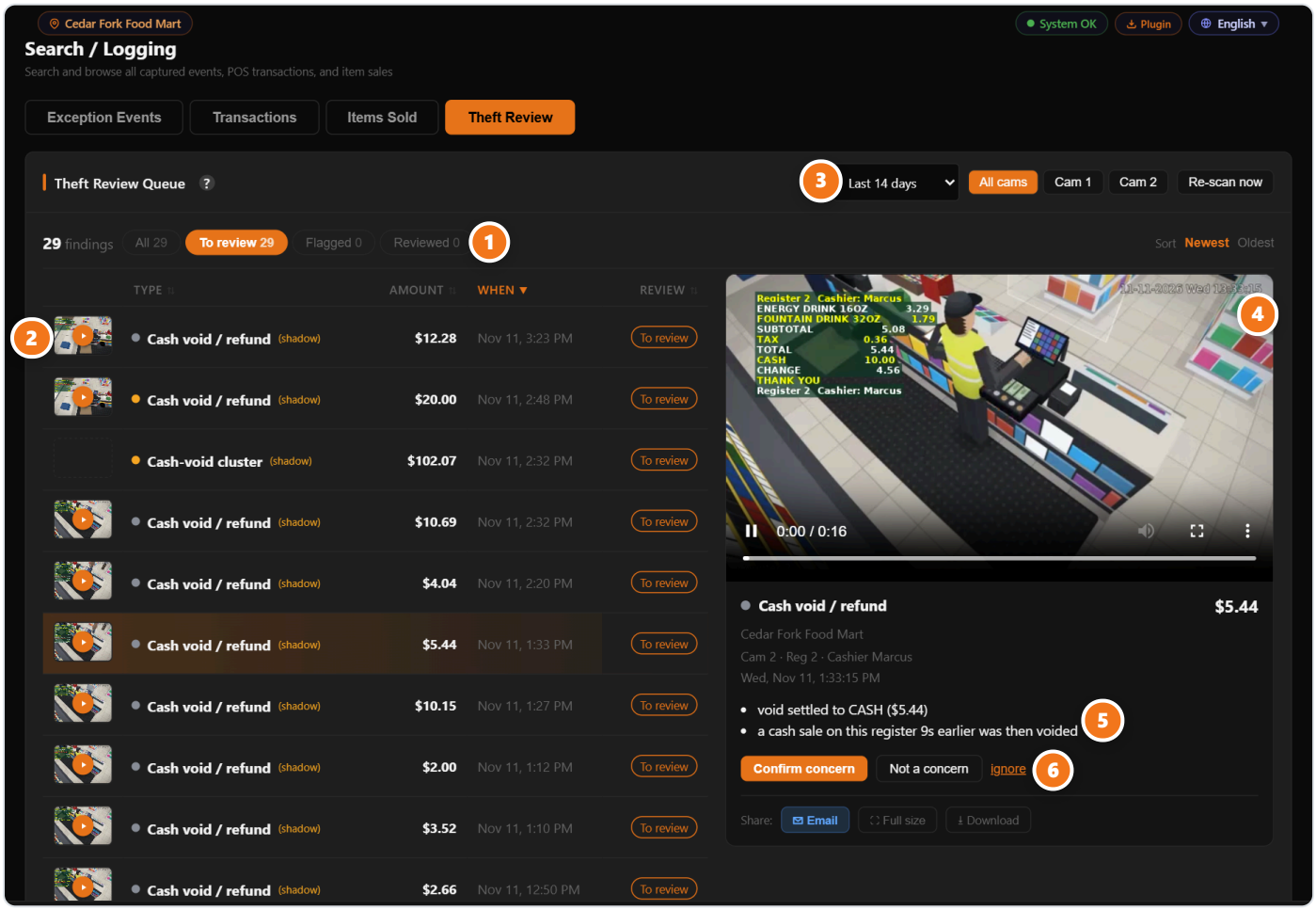
These two tabs compare the store with its own past, so they need a few weeks of history before they are worth reading; the page itself recommends four weeks or more.

- **AI Predictions** shows what the unit expects for the rest of today and for the next seven days: sales by hour, the items it expects to sell, and how many exceptions of each kind would be normal for the day.
- **Recommendations** puts it into words. A **staffing plan** shows the hours that need more people. The **loss-prevention watch** tells you when a keyword runs well above your usual rate, with a **Review footage** button next to it. **Business health** compares sales and the average sale with the period before. The **cash-risk score**, from 0 to 100, sums up how many voids, refunds and no-sales there were for every 100 sales, against what is usual for your store.

Read both as a pointer to where to look. What happened is in the picture and the clip, never in a score.

10 Theft Review BETA

Exception keywords tell you that a void or a no-sale happened. Theft Review goes one step further: the unit looks at what happened around it, picks out the ones that fit a known pattern of cash theft, and puts them in a short queue for you to look at. It is a feature in testing, switched off as delivered, and available on units whose hardware supports it.



Search / Logging › **Theft Review**. One finding is opened: a $5.44 cash sale on register 2 that was voided seconds after it was rung up.

1. **The queue.** **To review** is what you have not looked at yet. **Flagged** and **Reviewed** are what you have decided on.
2. **One line for each finding**: what kind, how much, when. The dot shows how much weight the unit gives it: gray for low, orange for medium, red for high.
3. **How far back**, and which camera. **Re-scan now** lets the unit go through the period again.
4. **The clip** of the moment, with the receipt on it: the sale, and under it the void of the same amount.
5. **Why the unit picked it**, in plain words.
6. **Your verdict.** **Confirm concern** keeps it under **Flagged**. **Not a concern** moves it to **Reviewed**.

What it looks for

Finding	What the unit saw
Cash void / refund	A cash sale was completed, and shortly afterwards the same amount was voided or refunded in cash on the same register.
Refund without a sale	A cash refund with no matching sale before it.
Drawer opened with no sale	The cash drawer was opened although nothing was being rung up.
Nobody at the counter	On a unit set up for it, the camera's picture is taken into account as well: a void or a refund while no customer is standing at the counter weighs more.
Cash going to a pocket	On a unit set up for it, and with a camera that shows the cashier from the counter to the waist: a hand that goes from the open drawer to a pocket.
After hours	Movement at the register at a time when the store should be closed.
More items than rung up	On a unit set up for it, with a camera looking down on the counter and a **Scanner** line drawn across the scanner: the unit counts the items that pass the scanner, fast scanning included, and sets aside a hand that passes empty. When at least two more items crossed than that register rang up for the sale, the sale goes into the queue. It compares only with the sales of the register that camera watches. A single missed item is not picked, to keep miscounts out of the queue.

A reason to look, not an accusation
Every one of these happens for honest reasons every day: a customer changes her mind, a card is declined and the sale is rung up again, a manager corrects a mistake. The unit cannot know that. It only makes sure that the few moments worth thirty seconds of your attention do not drown among hundreds of ordinary sales. Look at the clip before you draw any conclusion, and treat what you see as you would any other personnel matter.

EXAMPLE **Ten minutes on Monday morning**

1. Open **Search / Logging** › **Theft Review** and set the period to **Last 7 days**.
2. Go down the **To review** list. For each line: read why it was picked, play the clip, and decide. Most take a few seconds: the customer is standing right there, and you press **Not a concern**.
3. What is left under **Flagged** at the end is your list for the week. If the same cashier, the same hour or the same register keeps coming up, the Reports page (chapter 9) will show the pattern in numbers.
4. An empty queue says: **Nothing to review in this window. That is the normal, healthy state.**

Switching it on

Theft Review is set up per camera, under **Settings** › **Camera(s)** › **Theft Detection**. The tab is there on units that support the feature. Your installer marks the areas of the picture that matter (the cash drawer, the counter, where the customer stands), and the page has placement tips for the camera. For the item count, the installer also draws a **Scanner** line and chooses under **Scanner line belongs to** which register that camera watches; on **Automatic** the unit learns it from the sales first, and picks nothing for the item count until it knows. While the feature is in testing it is free to use; the page states that it is planned as a paid feature once it is released.

Two ways of working are offered. As delivered, findings are only collected in the queue, quietly; such findings carry the mark `(shadow)`. With `Live Alerts` switched on, a finding also shows up on the screen as it happens and is sent the same way as your other alerts. Start quietly: after two weeks you will know how many findings a normal week brings in your store, and whether you want to hear about each one at once.

11 Users and passwords

Everybody who looks at the unit should sign in with a name and a password of their own. Then a manager can do a manager's work without being able to change the setup, and when somebody leaves, you remove one name and nothing else changes. All of it is under **Settings** › **Security & Users**.

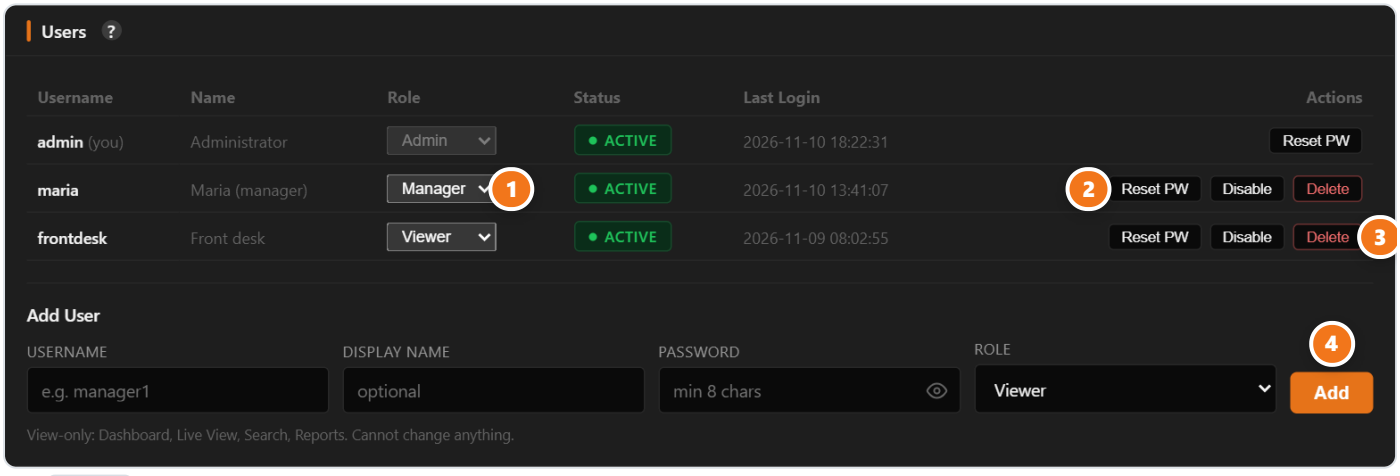
Three kinds of account

Role	Can see and do	Give it to
Admin	Everything, including the other users and all settings.	Whoever is responsible for the setup: the owner, the dealer or the IT team. As few people as possible.
Manager	Dashboard, Live View, Search and Reports, and the day-to-day settings: **Exception Keywords**, **Notifications**, **Date/Time**. No cameras, network or other setup.	A store manager who also decides which keywords count and who gets the alerts.
Viewer	Dashboard, Live View, Search and Reports. Cannot change anything.	Everybody who should see everything and change nothing: the client of a dealer who looks after the unit, managers, an accountant, a screen in the back office.

Recommended: a Viewer account for everybody who only needs to look

A **Viewer** sees all of it: the live cameras, every exception with its snapshot and clip, the text of every sale and all the reports. A Viewer cannot change a single setting, so nothing can be switched off or broken by accident.

- **Dealers and installers:** when you hand a unit over, create a Viewer account for your client. The client can look at everything from the first day, and the setup stays the way you left it.
- **Owners and IT teams:** do the same for your managers.



The **Users** card at Cedar Fork Food Mart: the owner, the store manager and a view-only account for the office.

1 **Role.** Change it here at any time. You cannot change your own.

2 **Reset PW** gives that person a new password when they have forgotten theirs.

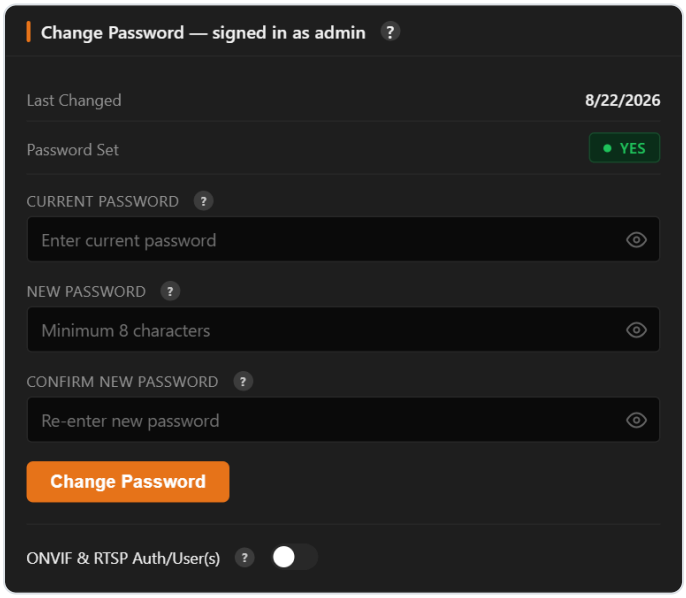
3. **Disable** locks an account without removing it, for somebody on leave. **Delete** removes it for good.

4. **Add User**: a user name, the person's name, a first password of at least 8 characters, a role, and **Add**.

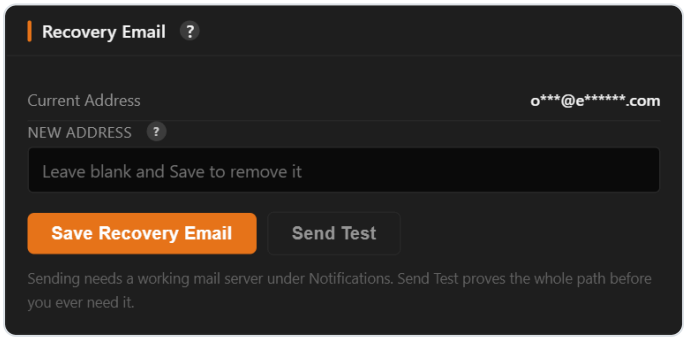
EXAMPLE **A cashier with a key to the office leaves**

1. The same day, **Delete** their user, or **Disable** it if they may come back.
2. If they ever saw you type the **admin** password, change it now (below).
3. Look at **Notifications**: is their e-mail address among the recipients? Take it out.

Your own password, and the way back in



Change Password always changes the password of the account you are signed in with.



Recovery Email: where a reset code is sent. Only part of the address is shown.

To change your password, type the current one, the new one twice, and press **Change Password**. A good password is long rather than clever: three unrelated words are easier to remember and harder to guess than one word with a number.

Then prepare for the day you forget it. The same page has three helpers; set them up while you still know the password:

Helper	What you set up	How it helps on the sign-in page
Password Hint	A few words that remind you, and only you. Never the password itself.	**Show Hint** displays it.
Security Questions	Three questions and your answers. All three must be set.	**Reset Password** asks them, then lets you choose a new password.
Recovery Email	An address that is yours. Press **Send Test** once to see that mail really arrives.	**Reset Password**, then **Email me a reset code instead**, sends a 6-digit code to it.

If none of them works, another **Admin** can sign in and use **Reset PW** on your name. If you are the only one, call your dealer or iLinkPro Support (chapter 12): they can let you back in without losing any settings or recordings.

Login security

Setting	As delivered	What it does
Max Login Attempts	5	After this many wrong passwords in a row, the account is locked for a while.
Lockout Duration (min)	15	For how long. Nobody can keep guessing, and you only have to wait.
Session Timeout (min)	30	A page left open and unused signs itself out after this time.

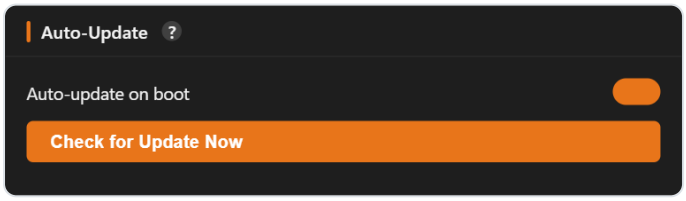
One switch to leave alone

ONVIF & RTSP Auth/User(s), under the password boxes, puts a name and password on the video the unit sends to your recorder. It is an installer's setting: if it is switched on and the recorder is not given the same name and password, the recorder loses the register cameras. Ask your installer before you touch it (chapter 20).

12 Updates and support

The unit looks after itself: it installs its own updates at night and keeps a private line open so that you, and iLinkPro Support when you ask for it, can reach it from anywhere. This chapter shows where to see that, and what to have at hand when you call.

Updates install themselves



Settings › **Support** › **Firmware Update**: the **Auto-Update** card.

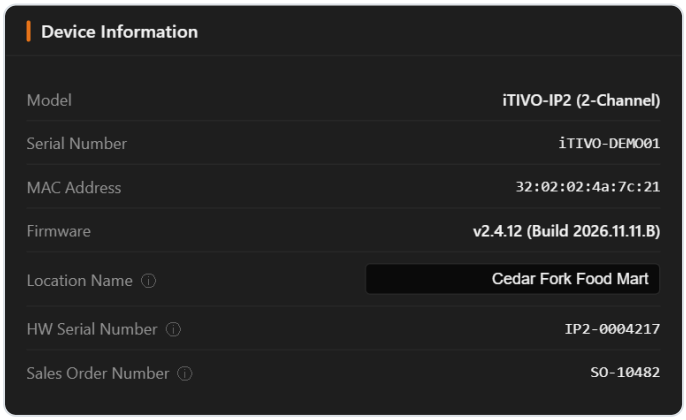
With **Auto-Update** on, as it is when the unit is delivered, the unit checks for new software every night and installs it between 2:00 and 4:15 in the morning, store time. You do not have to do anything.

An update takes a few minutes. The unit does not switch off; it restarts its own programs, so the register cameras may drop out of the recorder for a minute or two and then come back by themselves.

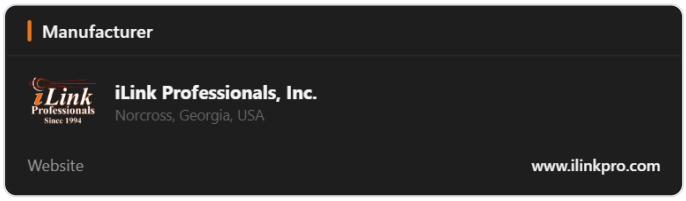
To update by hand, for example because iLinkPro Support asked you to: press **Check for Update Now**. The page answers **Up to date**, or offers **Download & Install** with the new version number. It then shows each step, from **Downloading update...** to **Restarting services...**, and reloads by itself when the unit is back.

> **Do not unplug the unit during an update**
> Everything of yours is kept through an update: all settings, the license, your keywords, the events with their snapshots and clips, the network setup and the unit's identity.

What to have at hand when you call



About: which unit this is.



About: where to reach iLinkPro.

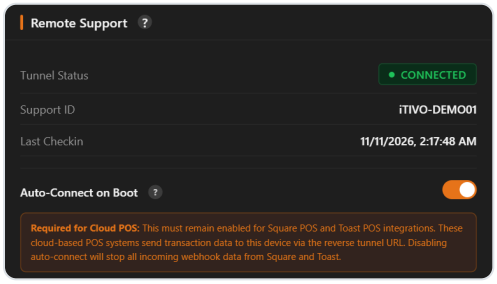
Open **About** and read out, or send a picture of, the **Device Information** card. Support needs three lines of it:

- **Serial Number**: your Device ID, such as `iTIVO-DEMO01`. With it, support finds your unit at once.
- **Firmware**: the software version the unit runs.
- **Model**: iTIVO-IP (one register) or iTIVO-IP2 (two).

Your first call is your dealer or installer, who knows your store, your cameras and your register. iLink Professionals stands behind them: **678-971-9999**, or the contact form at **www.ilinkpro.com/contact**.

Location Name on the same card is the store name shown at the top of every page and on the sign-in page. Click it to change it, for example after the store has been renamed.

The private line: Remote Support



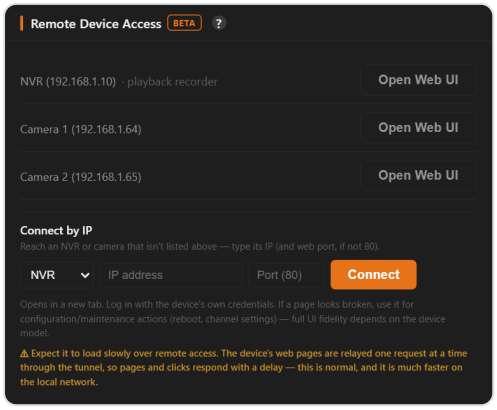
Settings › **Support**: **Remote Support**.

The unit itself opens a protected connection out to iLinkPro's servers and keeps it open. That one connection is what makes your Remote address work (chapter 3), and it is how a support technician can look at the unit with you on the phone. Nothing is opened on your router, and nobody can come in from the internet any other way.

- **Tunnel Status** **CONNECTED**: the line is up.
- **Last Checkin**: when the unit last reported to iLinkPro.
- **Auto-Connect on Boot**: leave it on. Without it, the Remote address stops working after the next restart, and a cloud register such as Square or Toast can no longer send its sales to the unit.

If **Tunnel Status** is not connected, the store's internet is the first thing to check.

The recorder's or a camera's own page: Remote Device Access

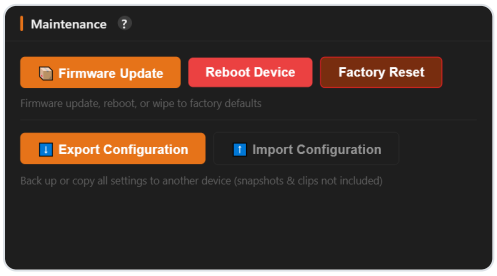


Settings › **Support**: **Remote Device Access** BETA.

The same protected line can open the own settings page of your recorder or of a register camera, from anywhere, without opening anything on the store's network. The card lists the recorder and the cameras the unit knows; **Open Web UI** opens one in a new tab. For a device that is not listed, **Connect by IP** takes its address, its web port if that is not 80, and whether it is a recorder, a camera or something else.

- Sign in there with that device's own user name and password.
- The settings pages work: a reboot, a channel setting, the time. The device's own live video player may not show through it.
- Only **admin** accounts and iLinkPro support see this card.

Maintenance



Settings › **Support** : **Maintenance** .

Firmware Update	The update page described above.
Reboot Device	Restarts the whole unit, after you confirm by typing the word it asks for. It is back in a few minutes; the recorder finds the cameras again by itself.
Export Configuration	Saves all settings in one file. Do it once the installation is finished and keep the file: with it, a replacement unit is set up in minutes. Snapshots and clips are not in it.
Import Configuration	Puts the settings of such a file back.
Factory Reset	Erases all settings. Only together with your installer or iLinkPro Support.

Scheduled Auto Reboot , next to it, can restart the unit at a quiet hour every day or on chosen days. It is off as delivered, and most stores never need it.

> **The right time on everything**
> Every time you see in Search, in Reports and in an alert is the store's own time. It follows **Settings** › **Date/Time** › **Timezone** . If the times look wrong by a whole number of hours, the time zone there is not your store's: choose the right one and press **Apply Timezone** .

13 When something looks wrong

Most things an owner runs into have a short answer. Find what you see in the left column. If the answer ends with your installer, tell them what the Dashboard shows: it saves them a trip.

The video and the text

What you see	Look here first	Then
No text on the video, on one register or both	**Dashboard** : is **Text Source** green, and does **Last Text Data** show a recent time after a sale?	Not green: the register is off, restarting or off the network. Green but old: ring up a sale and watch **Data RX** . If it does not move, the register has stopped sending: call whoever looks after the register, or your installer.
The text is there, but on the wrong camera	Ring up one item on register 1 and watch **POS Camera Live View** .	Your installer swaps the two registers under **Text Device(s)** (chapter 19).
The text is cut off, too small or in the way		Your installer can move it, size it and choose how many lines stay on, under **Camera(s)** (chapter 18).
Strange characters in the text	**Search / Logging** › **Transactions** › **View Raw Text** shows what the register really sends.	The register's type is set wrongly on the unit. Your installer picks the right **Protocol** under **Text Device(s)** .
The recorder shows no picture from a register camera	**Dashboard** : does the unit's own preview play? Is **Output** green?	Preview plays, **Output** not green: the recorder has lost the unit. Restart the recorder; if that does not help, call your installer. Preview dark: the camera is not reaching the unit; check the camera's cable.
Live View runs behind, or stops after a while		Both are normal (chapter 5). Tick **Keep On** to keep it playing.
The TV on the unit is dark, or shows the sign-in page		The screen sleeps after a few minutes without use and signs out after 30. Press a key and sign in; for an always-on screen, open Live View there and tick **Keep On** .

Exceptions and alerts

What you see	Look here first	Then
A void or no-sale is missing from Search	**Exception Keywords** : is the keyword **Active** ? Does your register print that exact word?	Check the wording under **Transactions** › **View Raw Text** and add it as your own keyword (chapter 7).

An event has no snapshot or no clip	Are **Snap** and **Clip** on for that keyword? Is the event older than the days snapshots and clips are kept?	For an older moment, note the date and time and play it on the recorder.
No alert e-mails	**Notifications**: **Send Test Email**.	The five steps in chapter 8.
Alerts arrive late	**Notifications**: **Pending**, **Queue Delay**, **Max Alerts / Hour**.	Fewer keywords with **Email** on, or a shorter delay (chapter 8).
Too many alerts	Which keyword sends most of them?	Switch **Email** off for it and use an amount trigger instead, such as voids above $20 (chapter 7).
All times are off by one or more whole hours	**Settings** › **Date/Time** › **Timezone**.	Choose your store's time zone and press **Apply Timezone**.

Signing in and reaching the unit

What you see	Look here first	Then
The Remote address does not open	Is the store's internet working? Does the Web UI address open on a device inside the store?	Works inside but not from outside: **Support** › **Tunnel Status** should say connected and **Auto-Connect on Boot** should be on (chapter 12). Otherwise call your installer.
The page says API Offline, or parts stay empty		The page has lost touch with the unit for a moment. Wait and refresh. From outside the store, a weak phone signal is the usual reason.
"Account locked"		Too many wrong passwords. Wait 15 minutes, then use **Show Hint** or **Reset Password** (chapter 11).
I forgot my password		**Reset Password** on the sign-in page; or another Admin; or your dealer or iLinkPro Support (chapter 11).
The bottom of a page is cut off on my phone	**About**: which **Firmware**?	Older software had this fault. Let the unit update (chapter 12).
The Disk bar is red	**Exception Keywords** › **Capture & Media Storage**.	Keep snapshots and clips for fewer days. Nothing is at risk: the unit removes the oldest ones by itself.

Before you call
Have three things ready: the Device ID from the **About** page, what the **Dashboard** shows for the channel in question (camera, **Text Source**, **Output**), and since when it has been like this. With those, most problems are solved on the first call.

PART 2

For the installer

From the box to a recorder that shows the receipt on the register cameras: wiring, first power-on, camera, register, recorder, and the hand-over.

14 Before you start

The unit comes ready to use: iLinkPro has already set it up as the model that was ordered. An installation goes quickly when a few things are known before you open the box. Most return visits come from one of them being found out on site.

	Have ready	Why
The camera	Its IP address, a user name and password, and ONVIF switched on in the camera. Main stream at 4K (8 MP) or less.	The unit reads the camera over ONVIF, or over an RTSP address if the camera has no ONVIF. Some brands need a separate ONVIF user to be created in the camera first.
The recorder	The administrator's sign-in, and the channel each register camera is on today.	You will take the camera off that channel and put the unit there instead (chapter 20).
The register	How it gives out its receipt text: over the network, through a serial (RS232) port, or from the cloud. And who can switch that on: usually the register's dealer.	This is the part that most often waits for somebody else. Arrange it before the day.
The network	Two free addresses on the camera's network for an iTIVO-IP2, one for an iTIVO-IP. A free port on the switch. Internet access going out.	The unit is one address per channel (chapter 17). The internet is for remote access, alerts and updates; nothing has to be opened on the router.
A small PoE switch	Only if the register cameras are plugged into the recorder's own camera ports: a 4-port Gigabit PoE switch with an uplink port, and two network cables.	Those cameras must move to a network the unit can reach (chapter 15).
On the day	A laptop or a phone on the same network. A TV or monitor with HDMI is handy, not required.	The whole setup is done in a browser. The TV shows the unit's address the moment it has started (chapter 16).

What is in the box, and what is on it

- The unit and its power supply.
- An **iTIVO-FC** adapter on each COM port: one on an iTIVO-IP, two on an iTIVO-IP2. It turns the 9-pin serial port into an RJ45 socket.
- A **POS adapter** for each register, made for the register model. Not for registers that work over the network, such as Clover and Square: they need none.
- The wiring sheet (it is also at the end of the next chapter).

- With the **Live Screen View** option: an **iScreen HDMI Capture USB 3.0** device with a loop-out HDMI port for each register screen to be recorded (chapter 18).

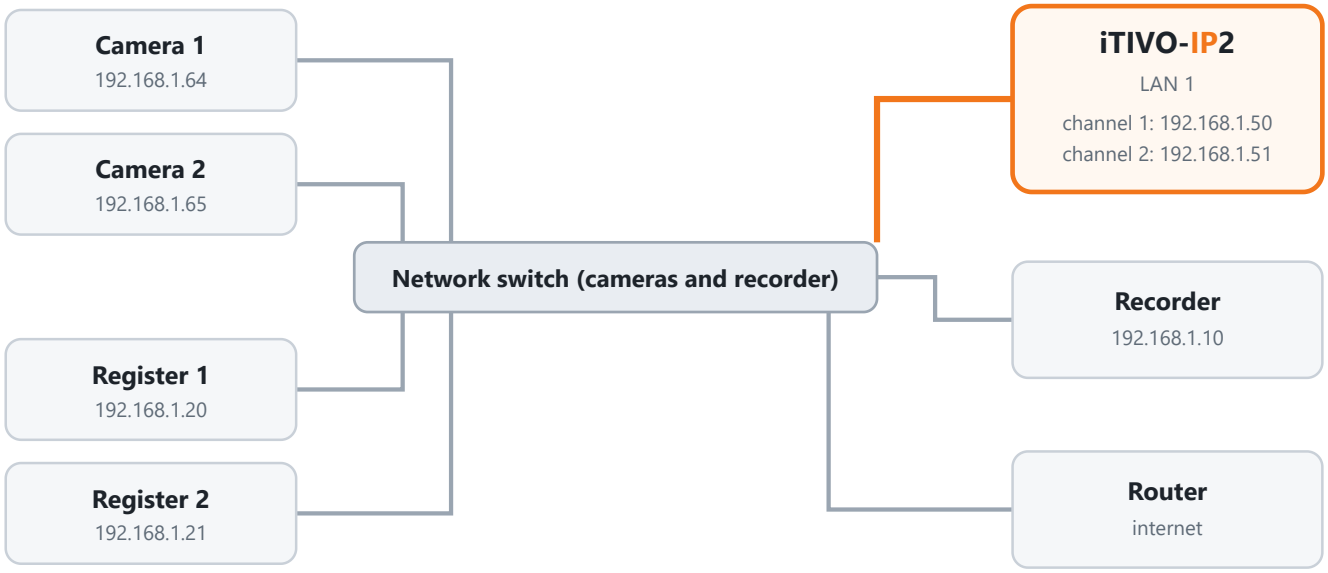
On the unit	Used for
LAN 1	The network cable. On one network cable the unit answers on two addresses, one per channel.
LAN 2	A second network, when cameras and store network are kept apart (next chapter). Leave it empty otherwise.
HDMI	A TV or monitor: it shows the unit's address when you start, and later the unit's pages or Live View on a screen in the office.
COM 1, COM 2	The two 9-pin serial ports, for registers that send their text over a serial (RS232) line: COM 1 for register 1, COM 2 for register 2. The iTIVO-FC adapter on each lets you run an ordinary network cable (CAT5/6) to the POS adapter at the register, in place of a thick serial cable (chapter 19).
USB	Keyboard and mouse for that screen. A USB-to-serial adapter, on a unit without COM ports. A USB capture stick when the “camera” is a register's own screen.
Wi-Fi	The unit's own hotspot for setup without a network, or joining the store's Wi-Fi where no cable can be pulled. A cable is always the better choice for video.

15 Wiring: how to hook it up

The unit does not sit in the camera's cable. It is one more device on the network: it fetches the camera's video over the network and offers the finished picture to the recorder over the same network. So in most stores the network wiring is a single cable.

Where to put the unit
Next to the recorder. There it is out of the employees' reach, the recorder is at hand when you put the unit in the camera's place (chapter 20), and the internet router or modem is usually in the same room. From there, one cable runs to each register that sends its text over a serial line (chapter 19).

Layout 1: everything on one network



The usual layout. One cable from the unit's LAN 1 port (orange) to the switch the cameras and the recorder are on. The addresses are the ones of the example store in this guide.

Camera, recorder and unit must be able to reach each other, and the registers must be able to reach the unit. Nothing is unplugged: the cameras stay on their cables and the recorder stays where it is. What changes is in the recorder's settings only: it no longer takes the picture from the camera, but from the unit (chapter 20).

Layout 2: cameras on their own network



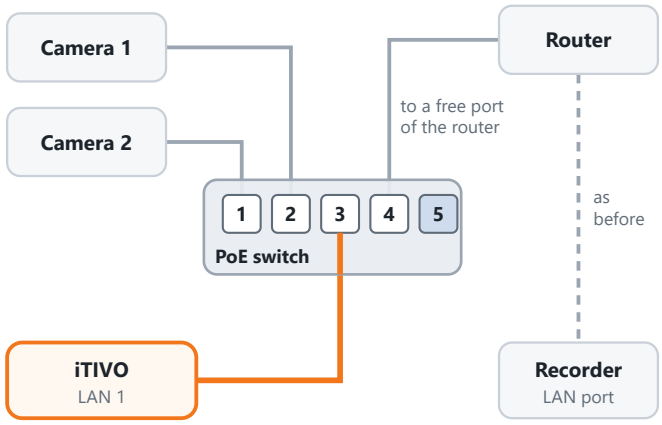
Two networks. LAN 2 (blue) goes to the cameras, LAN 1 (orange) to the store network with the registers, the recorder and the internet.

Use this where the cameras are kept on a network of their own. The unit fetches the cameras through LAN 2 and serves the recorder, the registers and the internet through LAN 1. The recorder may be on either side: give it the unit's two addresses of the side it is on (chapter 17).

When the cameras are plugged into the recorder itself

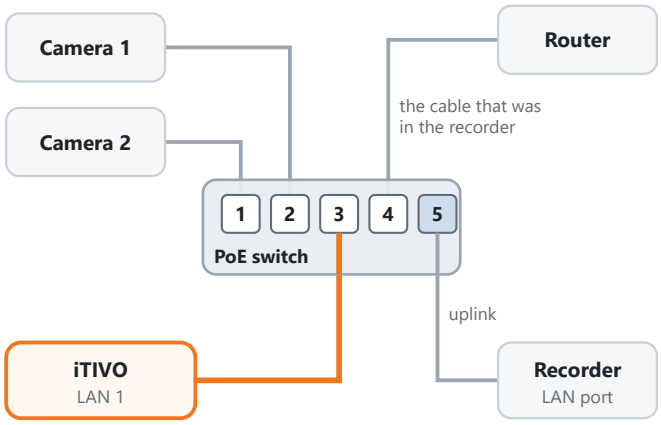
Many recorders power their cameras from camera ports of their own (built-in PoE). Cameras on those ports live on a private network inside the recorder, where the unit cannot reach them. The answer is a small switch: a **4-port Gigabit PoE switch with a fifth, uplink port**. The two register cameras move from the recorder to that switch, and the unit joins them there. All other cameras stay on the recorder as they are.

A · the router has a free port



Cameras into ports 1 and 2, the unit's LAN 1 into port 3, and one cable from port 4 to the same router the recorder's LAN port is on.

B · the router has no free port

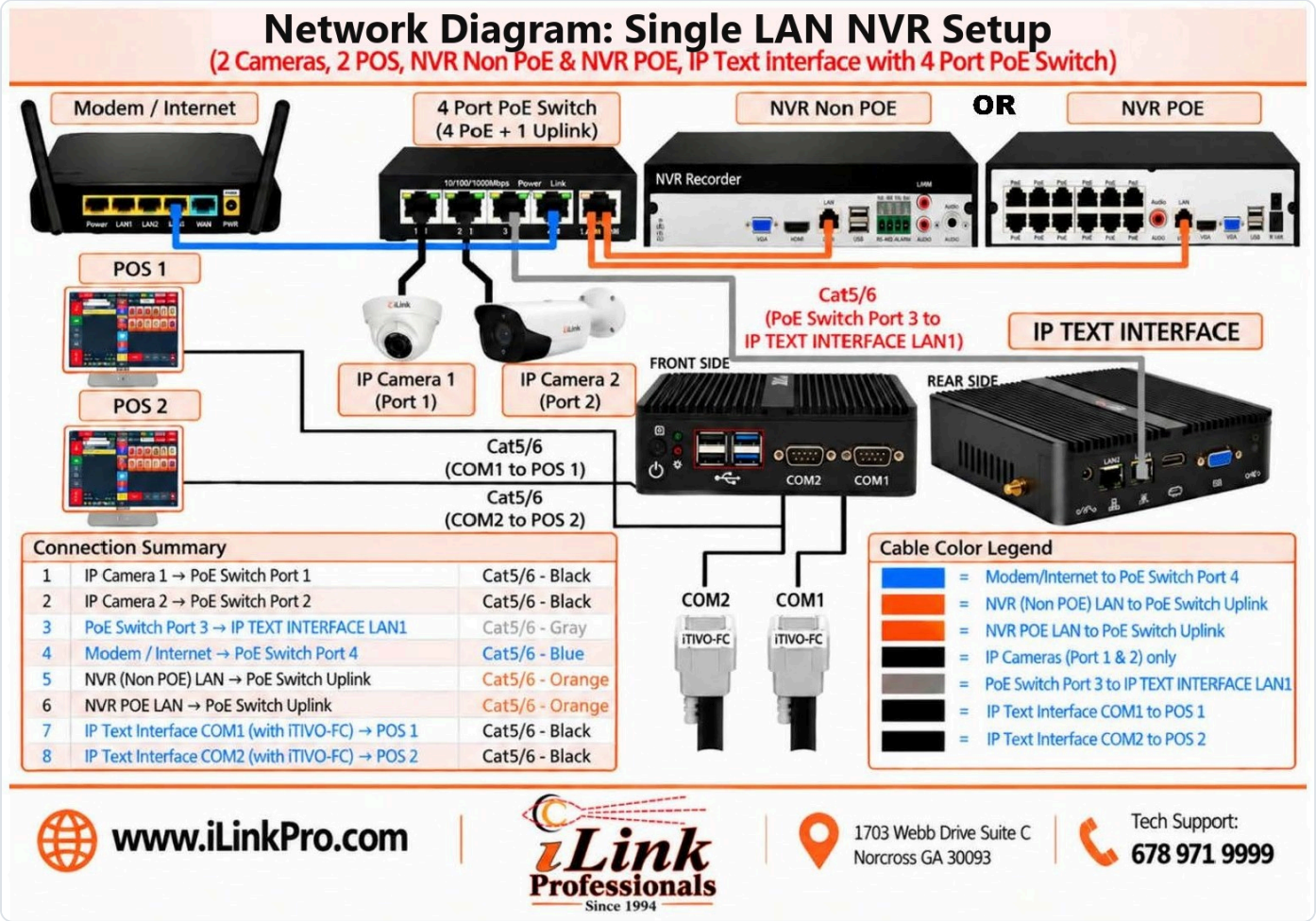


The cable that ran from the router to the recorder's LAN port goes into port 4 instead, and a new cable runs from the uplink port to the recorder's LAN port.

Switch port	What goes in
1 and 2	The two register cameras, moved over from the recorder's camera ports. The switch powers them. With an iTIVO-IP and one register camera, port 2 stays free.
3	The unit's **LAN 1**. The unit has its own power supply.
4	The internet modem or router. **A:** a new cable to a free port of the modem or router the recorder's LAN port is connected to. **B:** if it has no free port: the cable that is in the recorder's LAN port now. Unplug it there and plug it into port 4.
5 (uplink)	**A:** stays free. **B:** a new cable to the recorder's LAN port.

The wiring sheet that comes in the box with every unit shows the same connections in colour. Either way the cameras, the unit and the recorder's LAN port end up on one network, which is layout 1. From here on everything is as described in the next chapters: add each camera to the unit, then give the recorder the unit's two addresses in place of the cameras.

> **The cameras get new addresses**
> On the recorder's own ports, a camera had an address of the recorder's private camera network. Once the switch is connected to the router, most cameras pick up a new address from the router by themselves. Some do not: give such a camera a free address of the store's network by hand, in the camera's own settings. **Discover Cameras** on the unit (chapter 18) then finds it under its new address.



The wiring sheet for a recorder with one LAN port (Single LAN NVR setup): two cameras, two registers on COM 1 and COM 2, a recorder with or without camera ports of its own, and the 4-port PoE switch. On the sheet the unit is called the IP Text Interface.

When the recorder has two LAN ports

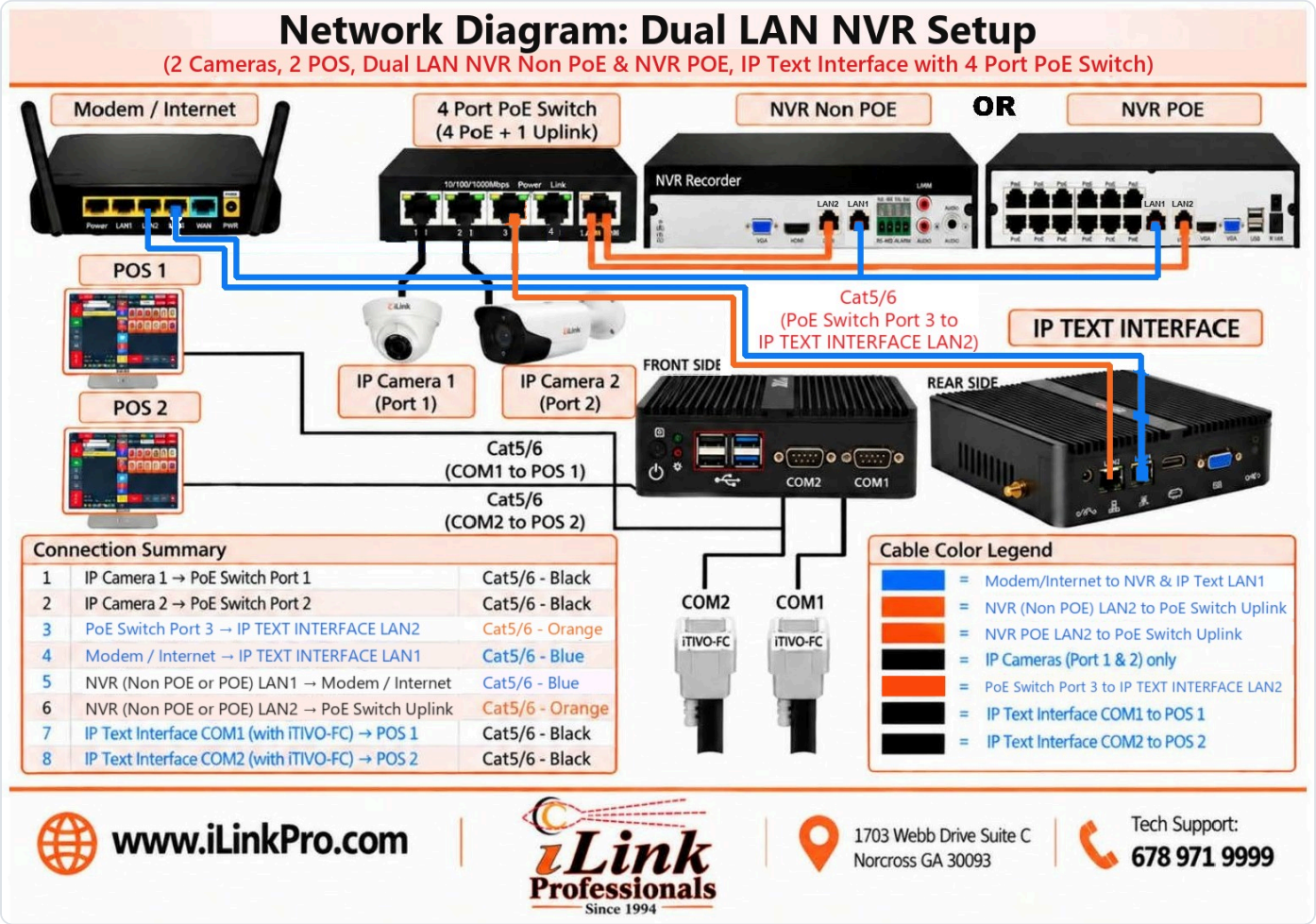
Some recorders have two network ports, LAN 1 and LAN 2. Then the cameras get a network of their own on the PoE switch, as in layout 2, and the switch is not connected to the modem or router at all.

Switch port	What goes in
1 and 2	The two register cameras. The switch powers them. With an iTIVO-IP and one register camera, port 2 stays free.
3	The unit's **LAN 2**.
4	Stays free.
5 (uplink)	The recorder's **LAN 2**.

The recorder's **LAN 1** and the unit's **LAN 1** each go to a free port of the modem or router, for the internet and the registers. The recorder takes the picture from the unit on the camera side: give it the unit's two LAN 2 addresses in place of the cameras (chapter 17).

No cable between the switch and the modem

In this setup the switch must not be connected to the modem or router. If it is, the unit's LAN 1 and LAN 2 end up on one network, and the whole network slows down or stops.



The wiring sheet for a recorder with two LAN ports (Dual LAN NVR setup): LAN 1 of the recorder and of the unit to the modem (blue), LAN 2 of both to the PoE switch with the cameras (orange).

Three wiring mistakes that cost a second visit

- **Both ports into the same network.**
  LAN 1 and LAN 2 on one switch, or on two switches that are linked, make a loop: the whole network slows down or stops. If there is only one network, use LAN 1 and leave LAN 2 empty.
- **The same address range on both sides.**
  LAN 2 must use a range that is different from the store's. The unit warns you when they collide (chapter 17).
- **Judging too early.**
  After the unit restarts, a recorder can take a few minutes to pick the cameras up again. Wait before you change anything.

16 First power-on

The unit arrives ready to use. iLinkPro sets it up before it ships, as an iTIVO-IP or an iTIVO-IP2, the way it was ordered. On site you plug it in, find its address and sign in.

1 Plug it in

The network cable from the switch into **LAN 1**, then the power. A TV or monitor on the HDMI socket is not required, but it is the quickest way to see the unit's address.

2 Give it two minutes

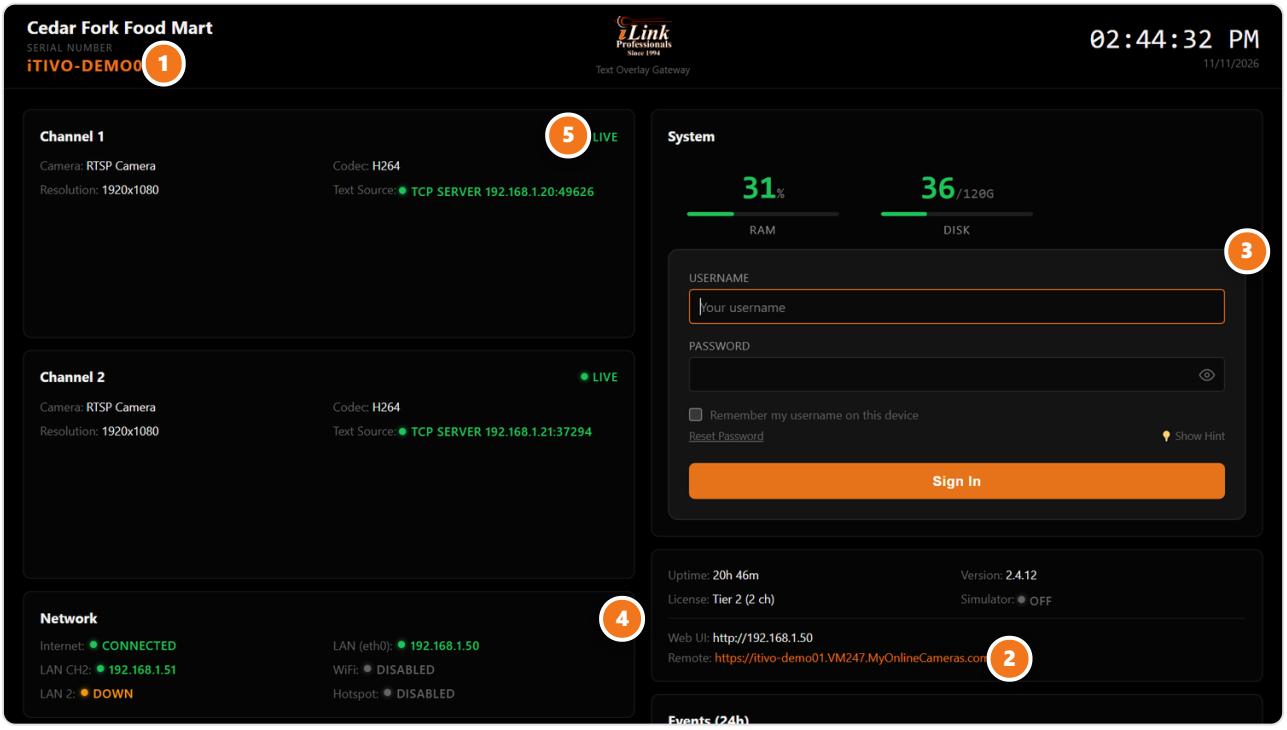
The unit starts by itself. With the network's automatic addressing (DHCP) it picks up its addresses on its own.

3 Find its address

On the TV, read the **Web UI** line of the console. Without a TV, look for the device named after its Device ID (`iTIVO-` and six characters, printed on the unit's label) in the list of connected devices of the router, or use the hotspot described below.

4 Open it in a browser and sign in

On a laptop or phone on the same network, type the address, for example **http://192.168.1.50**, and sign in with the starting user name and password that iLinkPro gives its dealers. The rest of the installation is done in these pages; the TV is no longer needed.



The unit's console, as a TV on its HDMI socket shows it. Here the example store's unit, after the installation is finished.

1. **The store's name and the Device ID.** The ID is the same as on the unit's label.
2. **Web UI**: the address to open in a browser inside the store. **Remote**: the address that works from anywhere (chapter 3).
3. **Sign-in.** With a keyboard and mouse on the unit, the same pages can be used right here on the TV.
4. **Network.** The unit's addresses: one for each channel on LAN 1, and LAN 2, Wi-Fi and hotspot if they are in use.
5. **Each channel at a glance**: camera, picture size and the register's link. On a unit that was just unpacked, these are still empty.

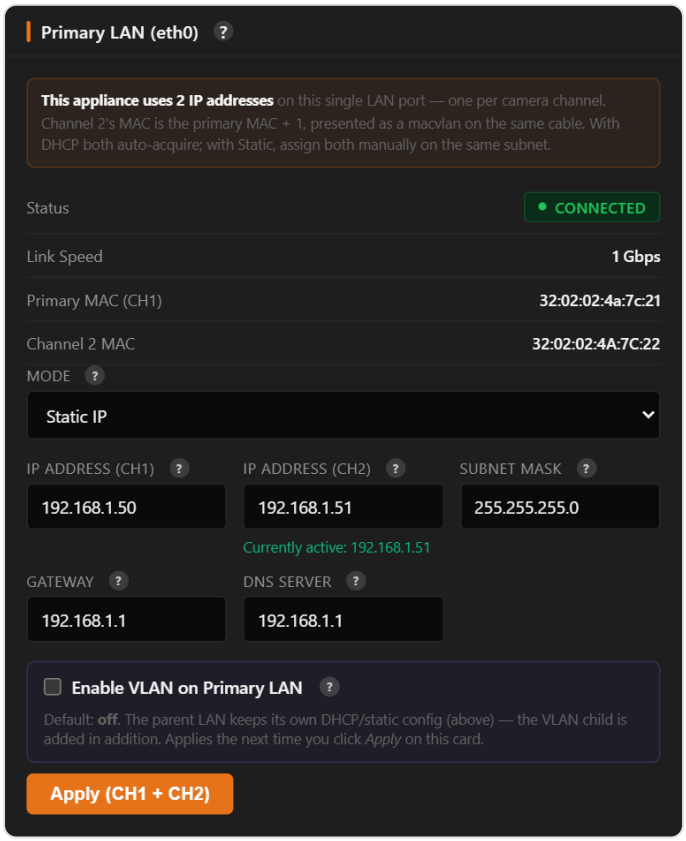
> **No network yet? Use the unit's hotspot**
> When the unit cannot reach its network, it starts a Wi-Fi hotspot of its own after a short while. The hotspot is named after the Device ID, and the console shows its name, its password and the address to open. Join it with a phone or a laptop and you have the same pages, for example to give the unit a fixed address before the store's network is ready. When the unit is online again, the hotspot switches itself off.

Good to know on the first day

- **The starting password.** For the first few sign-ins a banner reminds you that the password is still the starting one; after that the unit insists on a new one. Agree with the owner who will hold the administrator's password, and set it at the hand-over (chapter 22).
- **Updates.** A unit that has been in a box for a while updates itself during its first night online. To do it right away, use **Settings** › **Support** › **Firmware Update** › **Check for Update Now** (chapter 12). Do it before the rest of the installation, not in the middle.
- **The screen goes dark.** The TV output sleeps after a few minutes without use. Press a key or move the mouse.
- **One register or two.** The model is set by iLinkPro as it was ordered. An iTIVO-IP shows one channel. If the store needs the second register after all, iLinkPro Support can unlock it on the same unit.

17 Network: one port, two addresses

To a recorder, an iTIVO-IP2 is two cameras. So it answers on two addresses over its one network cable: one for channel 1 and one for channel 2. An iTIVO-IP has one. You find and set them under **Settings** › **Network**, and you will need them again when you add the unit to the recorder.



The **Primary LAN** card: the LAN 1 port, here with fixed addresses.

On the card	What it is
Status, **Link Speed**	The cable is in and the switch answers.
Primary MAC (CH1), **Channel 2 MAC**	The hardware addresses of the two channels. Channel 2's is channel 1's plus one. A router or recorder that lists devices shows the unit twice, once under each.
Mode	**DHCP (Automatic)**, as delivered, or **Static IP**.
IP Address (CH1), **IP Address (CH2)**	The two addresses. With DHCP they are filled in by the network; with **Static IP** you type them, both in the same range.
Subnet Mask, **Gateway**, **DNS Server**	As for any device on that network. Gateway and DNS are what gives the unit its way out to the internet.
Apply (CH1 + CH2)	Sets both channels at once. If channel 1's address changes, the page tells you and moves to the new address by itself after a few seconds.

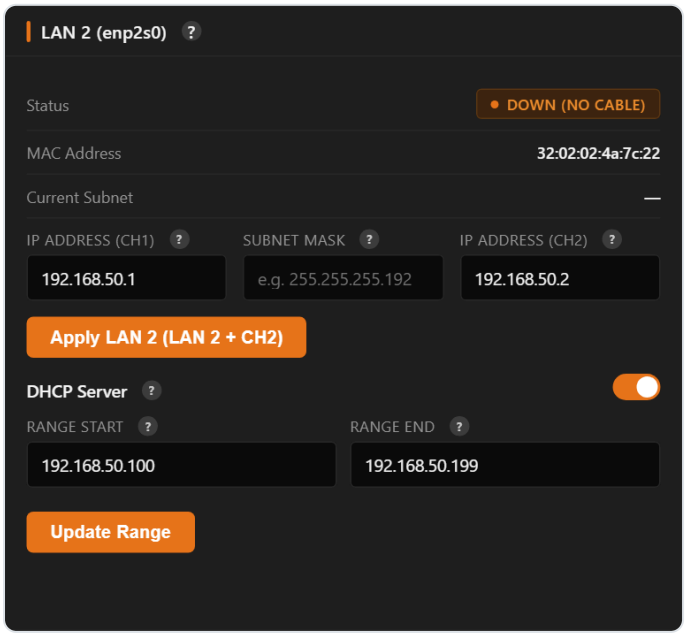
Automatic or fixed?

The recorder finds the unit by its addresses. If they change, the recorder loses both register cameras until somebody corrects them. So the addresses should not move:

Choice	How	When
DHCP with a reservation	Leave **Mode** on **DHCP (Automatic)**, and in the store's router reserve an address for each of the two MAC addresses shown on the card.	When you manage the router. The addresses stay in one place, the router's list.
Static IP	Choose **Static IP** and enter two free addresses outside the range the router hands out, with the network's mask, gateway and DNS.	When you cannot touch the router, or the cameras have fixed addresses too.
Plain DHCP	Nothing to do.	Only for a test on the bench. After a router restart the addresses may be different.

> **Write the two addresses on the unit's label**
> Channel 1 and channel 2, as they are after this step. Whoever services the store next will look for them first.

LAN 2, for the second layout



The **LAN 2** card, here with nothing plugged in and its DHCP server switched on.

LAN 2 always has a fixed address of its own: it never takes an address from another device on that network. As delivered it is **192.168.50.1**. Only use this port when the cameras are on a network of their own (chapter 15, layout 2).

- **IP Address (CH1)** and **Subnet Mask**: the unit's address on the camera network, for channel 1. Choose one in the cameras' range.
- **IP Address (CH2)**: the address of channel 2 on this side, so a recorder on the camera network finds both channels, as on LAN 1. It is filled in with the address after CH1; change it if another device uses that one. **Apply LAN 2** refuses an address that another device or CH1 already uses, and when LAN 2 moves to another network, CH2 moves with it.
- **DHCP Server**: switched on, the unit hands out addresses (as delivered .100 to .199) to cameras plugged into this network. It is off as delivered. Switch it on only if nothing else on that network hands out addresses.
- **Status** says **CONNECTED**, **DOWN (NO CABLE)**, or that the port is not there on this model.

The two sides must use different ranges. If the store's network happens to use the range LAN 2 is set to, the unit moves LAN 2 to a free range and tells you on this card.

> **Cameras on LAN 2 and the internet**
> Cameras on LAN 2 can reach the internet through the unit's LAN 1 or Wi-Fi: for their clock (NTP), for name lookups (DNS) and for their own phone apps (P2P). Give each camera the unit's LAN 2 address (CH1) as its gateway and a DNS server such as 8.8.8.8; the built-in DHCP server sets both by itself. Nothing on the store's network can reach the cameras through the unit.

> **A store cable in the wrong port**
> If the unit has had no network for 5 minutes and a cable is plugged into LAN 2, it lets that port take an address again, so a unit whose store cable was moved into the second port does not stay offline. The **LAN 2** card then says **LAN 2 is getting its address … from another device's DHCP server**, the Dashboard shows the row **LAN 2 (from another DHCP server)**, and the built-in DHCP server stays off. Move the store cable back to LAN 1.

Wi-Fi and hotspot

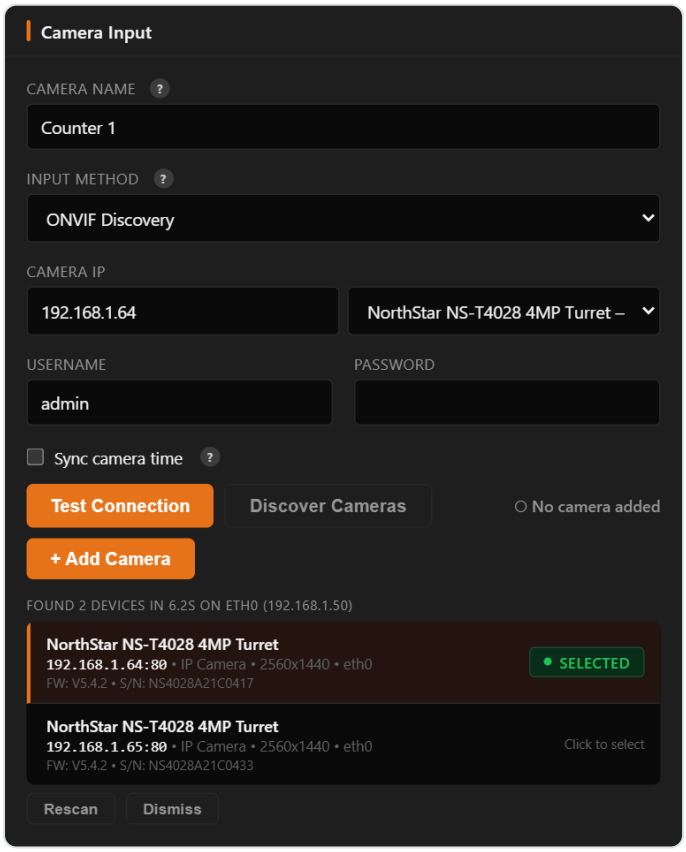
The **WiFi** card joins the unit to the store's wireless network: **Scan Networks**, pick the network, enter its password, tick **Reconnect automatically after a reboot or if the connection drops**, and **Connect**. Use it only where no cable can be pulled: two video streams in and four out are a lot for Wi-Fi.

The **Hotspot** card shows the name and the password of the unit's own hotspot (chapter 16). As delivered it comes on by itself when the unit has lost its network, and goes off when the network is back.

> **After changing addresses**
> Wait two minutes, then look at the **Dashboard**: both cameras live, **Text Source** green, and, once the recorder has been set up, **Output** green. If the recorder was already taking the unit's picture, it now has to be given the new addresses (chapter 20).

18 Add the camera to iTIVO

First the unit must receive the camera's picture. You do this once for each register camera, under **Settings** › **Camera(s)**: channel 1 for the first register, channel 2 for the second. The camera itself is not changed, and it stays in the recorder until the unit's picture is ready to take its place.



The **Camera Input** card of channel 1, after **Discover Cameras** has found the two register cameras of the example store.

1 Open the channel

Settings › **Camera(s)**, tab **Channel 1**. Give the camera a name the owner will recognize, such as `Counter 1`.

2 Find the camera

With **Input Method** on **ONVIF Discovery**, press **Discover Cameras**. After a few seconds the cameras on the network are listed. Click the right one, or type its address under **Camera IP**.

3 Sign in to it

Enter the camera's own **Username** and **Password**.

4 Test

Test Connection must answer **Pass — ONVIF + RTSP OK**. It also shows what the unit found: the model, the size of the picture and the two video addresses it will use.

5 Add

+ Add Camera. The button turns into a green **Live**, and the preview at the top of the page plays.

6 The second register

Tab **Channel 2**, and the same five steps with the other camera.

What the test tells you

Line in the result	Meaning, and what to do
Pass — ONVIF + RTSP OK	The unit signed in to the camera and its video plays. Go on.
Fail, with an error about signing in	The user name or password is wrong, or ONVIF is switched off in the camera, or the camera needs a separate ONVIF user. If the password is certainly right, look at the next line.
Camera Clock, in orange	The camera's clock is far from the right time. Cameras refuse an ONVIF sign-in when the clocks disagree. Tick **Sync camera time** (it is kept as soon as you tick it) and test again: the test then sets the camera's clock first, and so does every connect after it. Or set the clock in the camera.
Unit capability	Green: the camera's picture is within what the unit handles. Amber or red: the main stream is too large. Set the camera's main stream to 4K (8 MP, 3840 x 2160) or less; a 12 MP stream works only at a low frame rate, and anything larger is refused.

A camera without ONVIF, or a camera that comes from a recorder

Set **Input Method** to **RTSP URL**. Choose the **Manufacturer**, enter the address, user name and password, and the page builds the two video addresses for you: **Main Stream URL**, the full picture for the recorder, and **Sub Stream URL**, the small one for previews. With **Custom URL** you type them yourself. **Test Connection** opens that link itself and answers **Pass — RTSP stream plays**, or says plainly why not (no answer, wrong path, wrong password); then **+ Add Camera**. The Dashboard shows the address the video really comes from: for a camera taken from a recorder, the recorder's.

> **UniFi Protect cameras**
> Choose **UniFi Protect RTSP (Ubiquiti)** and enter both links that Protect offers for the camera: the High one as main stream and the Low one as sub stream. With only the High link the previews are slow. Set the High stream to 15 frames per second in Protect.

Where the receipt sits on the picture

The same page decides how the text looks on this camera. The cards on the right apply as you change them, and **Text Overlay Preview** shows the result:

Card	What you set
Overlay Position	Where the text block starts, from the left and from the top. Put it over a part of the picture nobody needs: a wall, a shelf, the floor. Never over the cash drawer, the cashier's hands or the customer.
Font Settings	Size, style and color. **Alternating Line Colors** gives every second line another color, which makes long receipts easier to read.
Background	A box behind the text and how see-through it is. On a bright or busy picture the text needs it.
Text Display	How many lines stay on screen, how long a line may be, and after how many seconds without a new line the text clears.

Reset Defaults, at the top of the page, puts these text settings back to the way the unit was delivered. It does not touch the camera.

The register's screen: Live Screen View

With the **Live Screen View** option the unit also takes the picture of the register's screen. The device sold for it is the **iScreen HDMI Capture USB 3.0 w/ Loop-out HDMI Port**. The unit receives the screen as a picture only: nothing on it is read as text, and the text still comes from the register connection (chapter 19).

> **Check the register first**
> The register needs a working video output that shows the cashier's screen. It may not work with some all-in-one POS systems that have no functional or active HDMI or DisplayPort output. A register with DisplayPort only needs a DisplayPort-to-HDMI adapter, which has not been tested with the unit: try it before you promise it. A video output that is copy-protected (HDCP) gives no picture.

1 Wire it

The register's HDMI output into the capture device's HDMI input. The device's **loop-out** HDMI port to the cashier's monitor, so the cashier keeps the same screen without a splitter. The device's USB cable into a **USB 3.0** port of the unit.

2 Open Monitor 1

Settings › **Camera(s)**, tab **Monitor 1**. The capture device is listed under **Capture Device**; if not, check the USB port and press **Rescan**.

3 Set the size

Capture Resolution: the resolution the register's screen really runs at, usually 1920x1080. Asked for less, small text on the picture turns soft. A **Frame Rate** of 15 is plenty for a register screen. Tick **Capture HDMI audio** only if the register's sound should come along.

4 Start it

Use This Device. The **Live Preview** shows the register's screen within a few seconds, and **Monitor 1** appears in Live View and on the Dashboard.

5 Give it to the recorder

The card **Add to your NVR/Hybrid DVR** shows how: the recorder finds it by ONVIF search as **<unit>-Monitor-1**, or add it by the unit's address with port **8083** (Monitor 2: 8084). It records it like one more camera.

Inside a camera instead. When the recorder has no free channel, or the owner wants one picture, put the screen inside a register camera. On the camera's tab (**Channel 1** or **Channel 2**), card **Picture-in-Picture (PIP)**: choose the **Capture Device** and tick **Show a captured screen inside this camera**. **Size**, **Position across**, **Position down** and **Snap to** place the inset; keep it clear of the receipt text and of the cashier's hands. **Transparency** lets the camera picture show through it. The recorder gets one combined picture on the camera's own channel, with the receipt text as before.

In place of a camera. A channel can also show the screen alone: **Input Method** **Monitor Capture (HDMI)** on that channel's tab. That channel then has no camera and no receipt text.

> **One device, one job**
> A capture device works as Monitor 1, or inside one camera, or as one channel, never two at once. The page says which part of the unit holds it; disconnect it there first. **Monitor 2** is available on an iTIVO-IP2, with a second capture device.

The page says	What to check
No capture device found	The USB cable, and that it is a USB 3.0 port. Then **Rescan**.
No HDMI signal from the PC	The HDMI cable from the register, and that the register's video output is switched on.
PC screen is black	The capture works; the register is showing a black screen (screen saver, sleep, or a second display left empty). Set the register to show its screen on that output.

The other tabs of the page

- **Advanced**: the camera's own stream settings (picture size, frames per second, bit rate), changed through the unit for cameras added with ONVIF. **Save & Reconnect** applies them.
- **Health Alerts**: an e-mail when a camera stops or comes back, and when the recorder stops or resumes taking a channel. Worth switching on for the owner, once e-mail is set up (chapter 8).
- **Theft Detection** BETA: chapter 10.

> **Remove Camera acts at once**
> The button takes the camera off the channel without asking again, and the recorder loses that picture a few seconds later. To put it back, add the camera again as above.

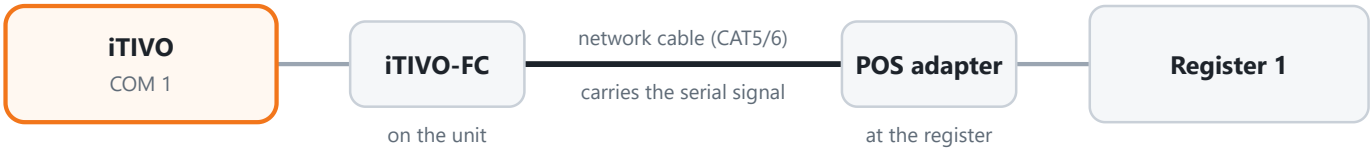
19 Connect the register

The unit needs the text of each receipt as the register produces it. A register gives it out through a serial port, over the network, or from the cloud. All three are set up under **Settings** › **Text Device(s)**, one tab for each channel: register 1 belongs to channel 1, the camera above it.

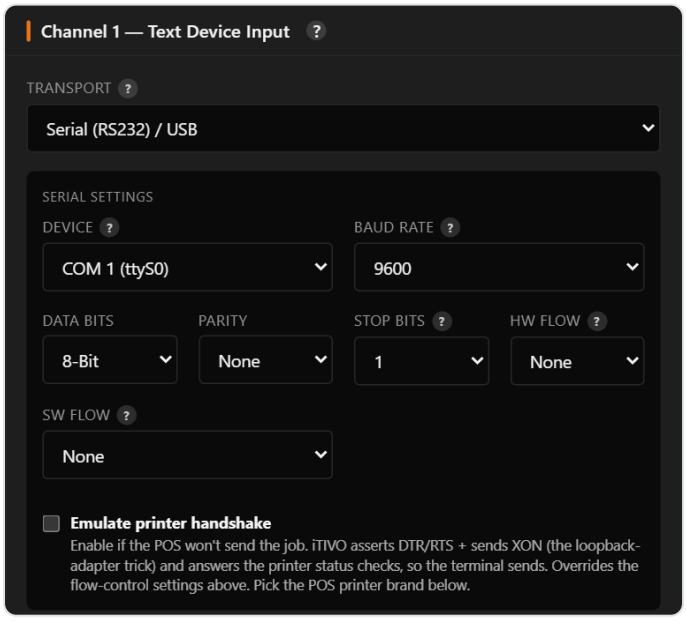
> **The register's own settings belong to its dealer**
> Some steps here, and some notes iLinkPro Support may send you, describe settings that are made on the register (POS) itself, not on the iTIVO unit. We share them as a courtesy, to save you time. The register is another company's product: iLinkPro cannot support it or warrant it, and is not responsible for its configuration. Before anything is changed on the register, we strongly recommend calling the register's dealer or its maker's support, and letting them make or confirm the change.

By cable: the serial port

This is the connection the unit comes prepared for. Each COM port of the unit carries an **iTIVO-FC** adapter: one on an iTIVO-IP, two on an iTIVO-IP2. It turns the 9-pin port into an RJ45 socket, so the run to the register is an ordinary network (CAT5/6) cable in place of a thick serial cable, and it can be longer. At the register, the cable ends in the **POS adapter** that came with the unit. It is made for the register model and plugs into the register.



COM 1 goes to register 1, COM 2 to register 2. The wiring sheet in the box shows both.



Channel 1, set up for a register on COM 1.

1 Run the cable

From the iTIVO-FC on COM 1 to the POS adapter at register 1, and the POS adapter into the register. COM 2 for register 2.

2 On the unit

Transport **Serial (RS232) / USB**, **Device** **COM 1** for channel 1 and **COM 2** for channel 2. A channel that was never set up already stands this way.

3 Match the register

Baud Rate, **Data Bits**, **Parity** and **Stop Bits** as the register sends. 9600, 8-Bit, None, 1 is the most common.

4 Choose the register's language

Protocol tells the unit how to read what arrives. **Plain Text** fits most registers. Pick the register's own entry if it is in the list.

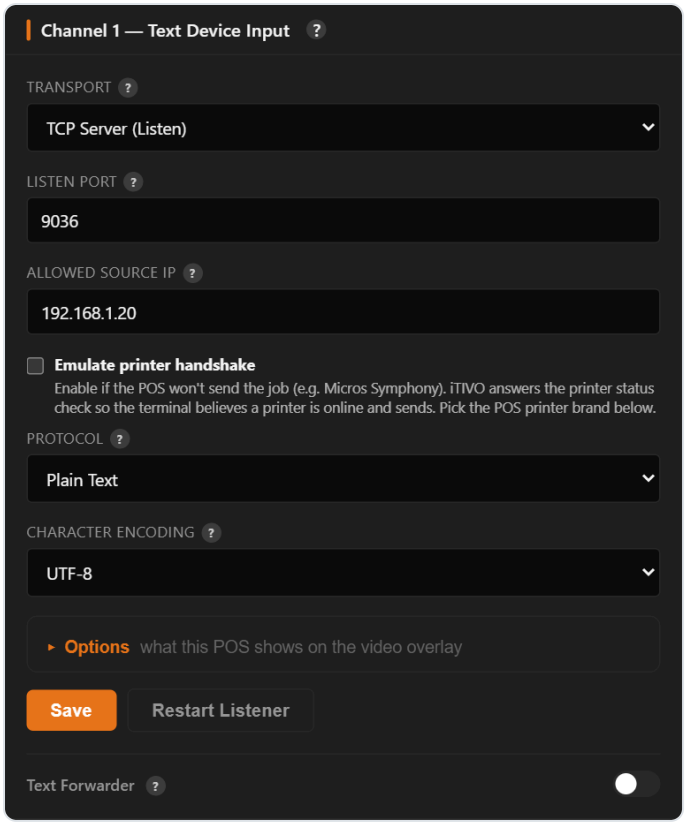
5 Save

Save, then ring up a sale.

> **This cable is not a network connection**
> The CAT cable between the iTIVO-FC and the POS adapter carries the register's serial signal. Run it straight from one to the other. Never plug either end into a network switch, a PoE port or a wall jack that leads to one.

Over the network

A register that works over the network, such as Clover, needs no adapters: it sends its receipts to the unit's address.



Channel 1, set up for a register that sends its receipts over the network.

1 On the unit

Transport **TCP Server (Listen)**: the unit waits for the register to call. Note the **Listen Port**: 9036 for channel 1, 9037 for channel 2.

2 Say who may send

Enter the register's address under **Allowed Source IP**. The unit then accepts text from that one device only, and refuses everybody else.

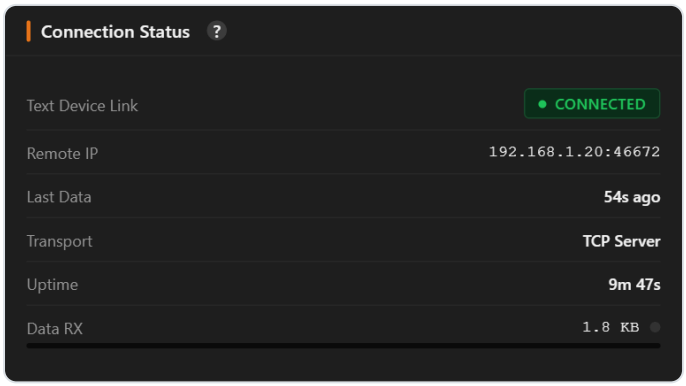
3 Protocol, then Save

Plain Text, or the register's own entry (Verifone, Gilbarco, NCR, Clover, Epson receipt printer format and others). **Save**: the unit starts listening at once.

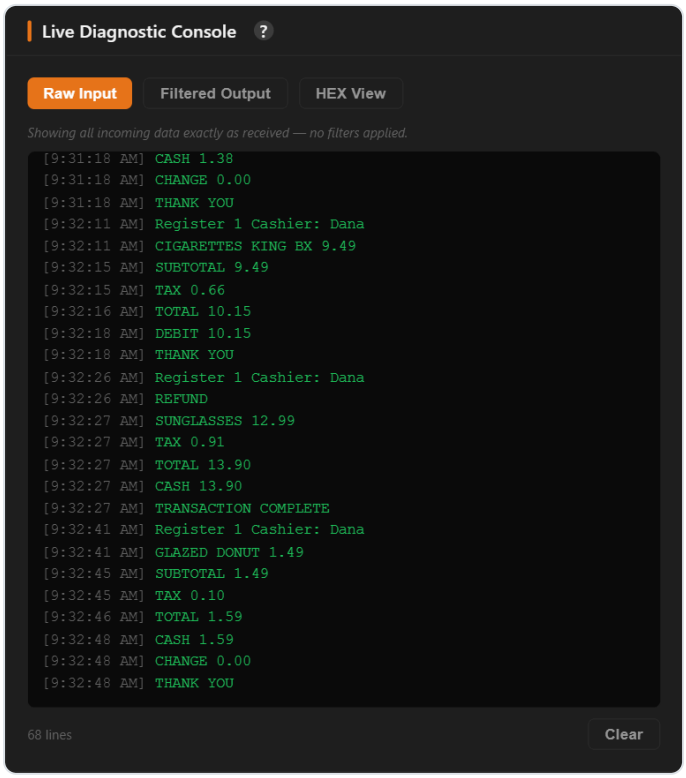
4 On the register

In the register's own setup, switch on sending the receipt or journal over the network, to the unit's address and the port from step 1. This is the register dealer's part.

Is it arriving?



Connection Status, on the same page.



Live Diagnostic Console: what the register sends, line by line.

You see	It means
Text Device Link CONNECTED	The line is open. Ring up a sale: its lines appear in the console under **Raw Input**, and on the camera in Live View.
Nothing under **Raw Input** on a serial line	Check that the cable is on the right COM port and that the speed matches the register. If the register sends only when a printer answers, see the table below.
Text Device Link LISTENING	Network: the unit is waiting, and the register has not called. Check the address and port on the register. Some registers call only when a sale is rung up.
Rejected connection from ... in the console	A device that is not the **Allowed Source IP** tried to send. If that device is the register, its address is not the one you entered.
Lines under **Raw Input**, nothing on the video	The text arrives but is filtered out, or the channel is set not to show text. Compare **Filtered Output**, and look under **Options**.
Unreadable characters	The wrong **Protocol** or, on a serial line, the wrong speed. A register may also send printer control codes. **HEX View** shows exactly what arrives; **Text & Character Filtering** can strip codes and separator lines.

Other ways a register can be connected

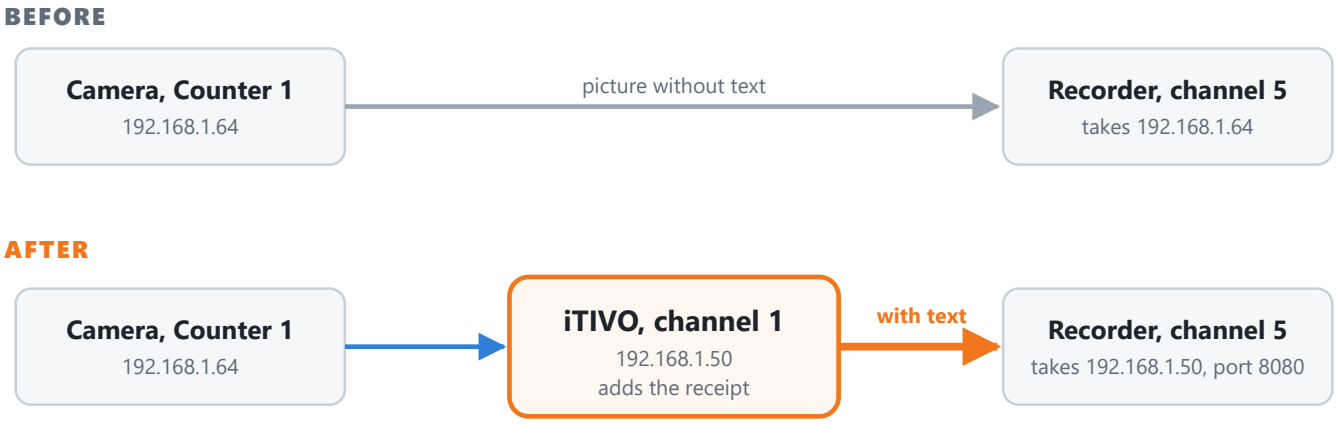
The register	Set on the unit
Sends only when a printer answers	Tick **Emulate printer handshake** and choose the printer brand. The unit answers the register's "are you ready?" the way the printer would.
Wants the unit to call it	**Transport** **TCP Client (Connect Out)**, with the register's address and port.
Is a cloud register (Square, Toast)	**Protocol** **Square POS - API** or **Toast POS**, and the cloud section of the page. No cable and no adapter. The sales come in over the unit's remote link, so **Auto-Connect on Boot** must stay on (chapter 12).
Already feeds another device	**Text Forwarder** passes a copy of everything the unit receives on to that device, so both keep working.
Is on a unit without COM ports	A USB-to-serial adapter in a USB port takes the place of the COM port. It appears under **Device**.

No register on the day? Test without one
Settings › **Tools** has two helpers. **POS Data Tester** sends a sample receipt into a channel, line by line. **Text Data Simulator** keeps sending made-up sales until you stop it. With either you can place the text on the picture, try the keywords and show the owner the result. Switch the simulator off before you leave: its sales are stored like real ones.

Text for the records, but not on the picture
Some owners want the search, the alerts and the reports, but a clean picture on the recorder. Under **Options**, tick **Do not display POS text overlay on the camera** for that channel.

20 Put iTIVO in the recorder, in place of the camera

This is the step that makes the receipt show up in the recordings, and the one most often left out. Until now the recorder takes the register camera's picture straight from the camera. It must take it from the unit instead: remove the camera from its channel in the recorder, and add the unit there.



The camera keeps its place and its address. Only the recorder's channel changes where it takes the picture from.

1 Check the unit first

On the unit's **Dashboard**, the channel's preview plays and shows the receipt text when a sale is rung up (chapters 18 and 19). Write down the unit's two addresses from **Settings** › **Network** : **IP Address (CH1)** and **IP Address (CH2)** .

2 Find the camera in the recorder

In the recorder's camera list, find the register camera and note which channel it is on.

3 Remove it there

Delete the camera from that channel of the recorder. Only from the recorder: the camera itself stays connected, because the unit now takes its picture.

4 Add the unit on the same channel

Add a camera by hand, with these four entries:

The recorder asks	First register camera	Second register camera
Protocol or type	**ONVIF**	**ONVIF**
IP address	The unit's **IP Address (CH1)** , in the example **192.168.1.50**	The unit's **IP Address (CH2)** , in the example **192.168.1.51**
Port	**8080**	**8080**
User name, password	As delivered, the unit does not ask the recorder for a password: the recorder's usual entries will do. If **ONVIF & RTSP Auth/User(s)** has been switched on in the unit (chapter 11), enter the name and password that were set there.	

5 Look at the result

The recorder's live picture of that channel now shows the counter, and the receipt as soon as a sale is rung up. On the unit's **Dashboard**, the **Output** row turns **green** and shows the recorder's address with **(MAIN+SUB)**: the recorder is taking both the full picture and the small one.

6 Check the recording

Ring up a test sale, wait a minute, and play that minute back on the recorder. The receipt must be in the recording, not only in the live picture. Recording schedule and motion settings of the channel stay the way they were.

Port 8080, not 80
Port 80 is the unit's web pages. The unit answers the recorder on port 8080. A recorder that is given port 80 reports that it cannot add the camera, with messages that differ from brand to brand; a Dahua recorder, for example, says “Service Returned message error”.

If the recorder will not add it with ONVIF

Every recorder that can add a camera by its video address (RTSP) can use these. They are shown on the unit's Dashboard as **RTSP Main** and **RTSP Sub**:

	Full picture (for recording)	Small picture (for the live grid)
First register camera	**rtsp://[CH1 address]:554/ch1/main**	**rtsp://[CH1 address]:554/ch1/sub**
Second register camera	**rtsp://[CH2 address]:554/ch2/main**	**rtsp://[CH2 address]:554/ch2/sub**

Notes for some recorders

Recorder	Good to know
Dahua, Amcrest, Lorex	Choose ONVIF as the manufacturer and set the port to 8080 before you save.
Hybrid recorders (XVR) of the TVT family	Do not edit the old camera entry. Delete it and add the unit as a new camera.
Uniview	Tells cameras apart by their hardware (MAC) address. The unit's two channels have two different ones, so both can be added.
UniFi Protect	Add the unit as a third-party (ONVIF) camera.

When Output stays gray
Open **Settings** › **Tools** › **NVR Connection Check**, enter the recorder's address and press **Check Now**. The unit shows whether it can reach the recorder and whether the recorder has asked it for video. And give it time: after the unit or the recorder restarts, a recorder can take a few minutes to pick the picture up again.

21 Check your work

Ten minutes with this list before you leave save the second visit. Do it with a real sale on each register, not only with what the pages say.

- [ ] **Both cameras play on the unit.** **Dashboard**: each channel's preview plays and shows the right counter.
- [ ] **Both registers send.** Ring up one item on each. **Text Source** is green and **Last Text Data** shows a few seconds.
- [ ] **The right text is on the right camera.** **POS Camera Live View**: the sale of register 1 appears on the camera above register 1, and it does not cover the drawer or the cashier's hands.
- [ ] **The recorder takes the unit, not the camera.** **Output** is green on each channel, with the recorder's address and **(MAIN+SUB)**.
- [ ] **The receipt is in the recording.** Play the test sale back on the recorder.
- [ ] **An exception is caught.** Ring up a no-sale or a void. The line stands out on the video, and within a minute the event is in **Search / Logging** with its snapshot and clip.
- [ ] **The clock is the store's.** **Settings** › **Date/Time**: the right time zone. The time at the bottom of the page is the time on the wall.
- [ ] **The addresses will not move.** Fixed or reserved (chapter 17), and written on the unit's label.
- [ ] **The Remote address works from outside.** Scan the QR sticker on the side of the unit with a phone that has Wi-Fi switched off: the sign-in page of this unit must open.
- [ ] **Mail arrives.** **Notifications** › **Send Test Email** to the owner's address.
- [ ] **The software is current.** **Firmware Update** › **Check for Update Now** says **Up to date**.
- [ ] **Nothing of the test is left running.** The **Text Data Simulator** under **Tools** is off.
- [ ] **A copy of the setup exists.** **Support** › **Export Configuration**, and the file is kept with the job's papers.

22 Hand over to the owner

A unit that works is half the job. The other half is an owner who can open it on a phone, knows what the Dashboard should look like, and has found one exception by themselves.

Accounts

- [ ] **Agree who holds the administrator's password**: the owner, or you on the owner's behalf. Set it now, in place of the starting one, together with the recovery e-mail address, the password hint and the security questions (chapter 11).
- [ ] **Create a Viewer account for the client.** iLinkPro recommends it for every installation where the dealer keeps the administrator's account: the client signs in with it, sees the live cameras, every exception with snapshot and clip, the sales text and all reports, and cannot change the setup.
- [ ] **A Manager account** for a store manager who should also choose keywords and alert recipients.

Show the owner, on the owner's own phone

- [ ] **The Remote address**: show them the QR sticker on the side of the unit, have them scan it with their own phone, save it as a bookmark or on the home screen, and sign in with their own account.
- [ ] **The Dashboard**: what green looks like, and the one-minute check (chapter 4).
- [ ] **Live View**: both counters, with a sale being rung up.
- [ ] **Search / Logging**: let the owner find the test no-sale and play its clip (chapter 6).
- [ ] **Alerts**: which keywords send an e-mail, and to whom (chapters 7 and 8). Start with few.
- [ ] **Part 1 of this guide.**

Leave behind

- [ ] On the unit's label: the Device ID and the two addresses.
- [ ] With the owner: your name and number, and where the unit, the recorder and the register cameras are plugged in.
- [ ] With your own papers: the exported configuration file, the channel numbers in the recorder, and how the register was set to send.

23 Installer troubleshooting

What goes wrong on site, in the order of the installation. Chapter 13 has the owner's version.

What you see	Likely cause, and what to do
Discover Cameras finds nothing, or not the camera you want	The camera is on another network than the unit, or ONVIF is switched off in the camera. Type the camera's address by hand; if it has no ONVIF, use **RTSP URL** (chapter 18).
A camera that was moved off the recorder's own port cannot be reached	It still has an address of the recorder's private camera network. Set the camera to automatic addressing (DHCP) or to a free address of the store's network (chapter 15).
Test Connection fails although the password is right	The camera's clock is wrong: tick **Sync camera time**. Or the camera wants a separate ONVIF user: create it in the camera.
The picture stutters with a 12 MP camera	Above 8 MP the unit works at a low frame rate. Set the camera's main stream to 4K (8 MP) or less.
A UniFi Protect camera is blurry or slow	Only the High link was entered. Add the Low link as sub stream and set High to 15 frames per second (chapter 18).
Text Device Link stays on LISTENING	The register is not calling: wrong address or port on the register, or the register's network cannot reach the unit. A **Rejected connection** line in the console means the address under **Allowed Source IP** is not the register's.
The text is on the wrong camera	The two registers send to each other's port. Swap the ports on the registers (9036 for the first, 9037 for the second), or swap the cameras between the channels.
The text is garbled	The wrong **Protocol**. Look at **HEX View**, try the register's own protocol, then strip what is left with **Text & Character Filtering** (chapter 19).
The recorder will not add the unit	Port 8080, not 80. The address of the right channel. If **ONVIF & RTSP Auth/User(s)** is on, the same name and password in the recorder. Otherwise use the RTSP addresses (chapter 20).
The recorder adds the first channel but not the second	The second address is not reachable. On the **Network** page, **Currently active** under **IP Address (CH2)** shows what channel 2 really has; with **Static IP**, both addresses must be in the same range.
Output stays gray although the recorder shows the picture	The recorder is still taking the camera directly: the old camera entry was not removed, or the new one points at the camera's address instead of the unit's.
The recorder's picture is gone after the unit restarted	Wait a few minutes: recorders retry slowly. If it does not come back, restart the recorder, or delete and add the channel again.
Cameras on LAN 2 show the wrong time, or their phone app says offline	The camera's gateway is not the unit. Set its gateway to the unit's LAN 2 address (CH1) and give it a DNS server such as 8.8.8.8; with the built-in DHCP server both are set by themselves (chapter 17).
The register's screen shows nothing (Live Screen View)	Read what the **Monitor 1** tab says and follow the table in chapter 18. An all-in-one register without a working HDMI or DisplayPort output cannot be captured.

The whole network became slow after the installation	LAN 1 and LAN 2 are plugged into the same network. Unplug LAN 2 (chapter 15).
The pages are very slow, the Remote address drops out	The store's network uses the same address range as LAN 2, or its DNS does not answer. Look at the **LAN 2** card and at **DNS Server** on the **Network** page (chapter 17).
The Remote address does not open	**Support** › **Tunnel Status** must say connected and **Auto-Connect on Boot** must be on. If not: the store's internet, then the gateway and DNS of the unit.
The TV on the unit is dark	The screen sleeps when it is not used. Press a key.

> **When you call iLinkPro Support**
> Have the Device ID ready, and stay on site if you can: with the unit online, support can look at it with you. **678-971-9999**, or the contact form at **www.ilinkpro.com/contact**.