Navijin

USER MANUAL

NAVIJIN NETWORK VIDEO RECORDERS

NVR User Manual

Install, commission and operate a Navijin smart NVR: hard disks, setup wizard, live view and PTZ, playback and backup, AI analytics and face recognition, recording, alarms, storage, network and maintenance.

HDD install · Setup wizard · Live view & PTZ · Playback · AI analytics · Recording · Alarms · Network · Maintenance

Applies to
Navijin smart NVR series (2-bay and 8-bay models, single or dual network interface)

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ABOUT THIS GUIDE

About this manual

A Navijin smart NVR records IP cameras to internal hard disks and adds AI analytics: line crossing, intrusion, people counting, human and vehicle detection and face recognition. You operate it with a mouse on a local monitor (HDMI/VGA) or remotely. This manual follows a real installation: fit the disks, run the setup wizard, add cameras, then configure recording, analytics and alarms, and finally maintain the system. Menus are written as **Advanced CFG › Section › Page**. AI functions that depend on the camera are marked as such. Screens may differ slightly by model and firmware.

Conventions: menu paths are shown in **bold** (for example **Network** → **VLAN**); commands and values in `monospace`. Screenshots may differ slightly by firmware version.

Who this guide is for

- Installers commissioning CCTV systems
- Security managers and operators using the NVR every day
- IT administrators connecting the NVR to the network and remote clients

What you need

- A Navijin NVR with its power supply
- Surveillance-grade SATA hard disks recommended for the NVR
- A monitor (HDMI or VGA) and a USB mouse
- Navijin IP cameras, or ONVIF-compatible cameras, on the same network
- A USB flash drive for backups, firmware and configuration files

Factory defaults

Setting	Default
IP address	`192.168.1.189` (dual-NIC models: LAN1 `192.168.1.189`, LAN2 `192.168.2.189`)
User name	`admin`
Password	`888888` on older firmware; on current firmware you set it in the setup wizard
Setup wizard	Starts automatically after power-up
HDD grouping	Automatic

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SECTION 01

Safety and installation environment

Install the NVR where it stays cool, clean and dry. Most recorder faults come from heat, dust and power problems.

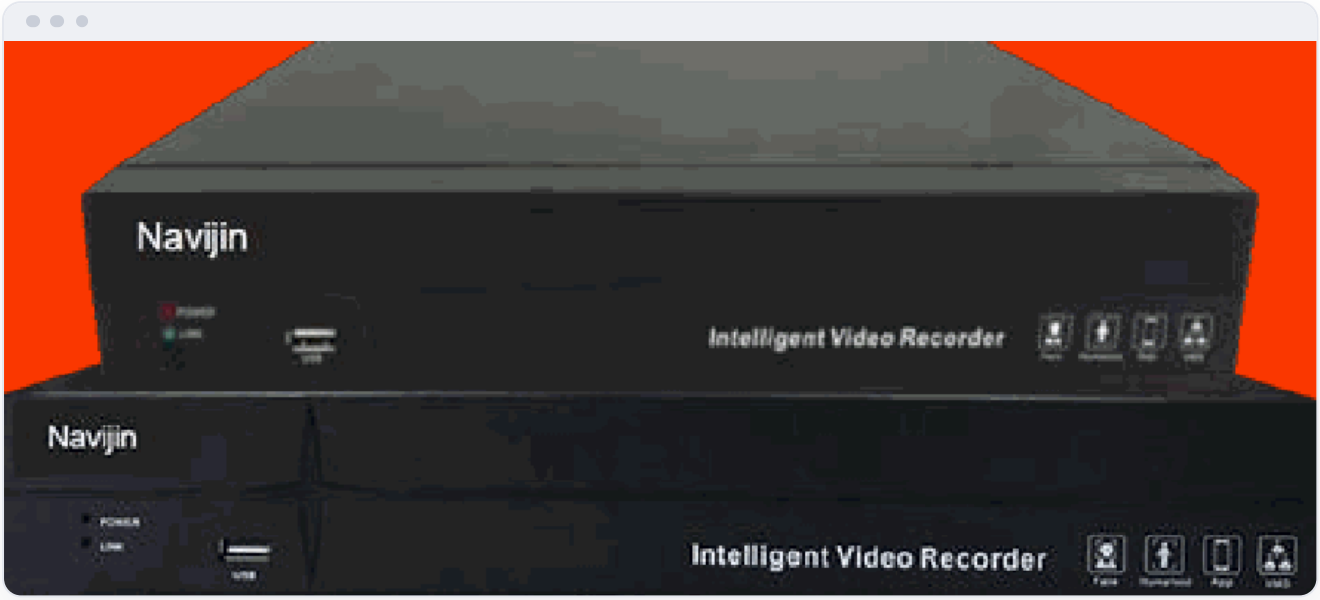


Figure 1. Navijin smart NVR, front panels of the 2-bay and 8-bay models.

Condition	Requirement
Location	Indoors only, in a well-ventilated, dust-free place, away from liquids
Temperature	−10 °C to +55 °C (+14 °F to +131 °F)
Humidity	10% to 90%, non-condensing
Power	Supply voltage must match the label; use a UPS for continuous recording
Disks	Surveillance-grade hard disks recommended for the NVR

IMPORTANT

Power down the NVR before you connect or disconnect disks, accessories or peripherals.

IMPORTANT

Replace the internal battery only with the same or an equivalent type. Dispose of used batteries according to local rules.

TIP

Rack- or shelf-mount the NVR with free space on both sides and the rear so the fans can move air.

SECTION 02

Install the hard disks

Fit the disks before the first start. The NVR records only to internal disks.

1 Disconnect power

Unplug the power cable and wait for the fans to stop.

2 Remove the top cover

Unfasten the top cover screws at the rear and sides with a cross-head screwdriver, then slide the cover off.

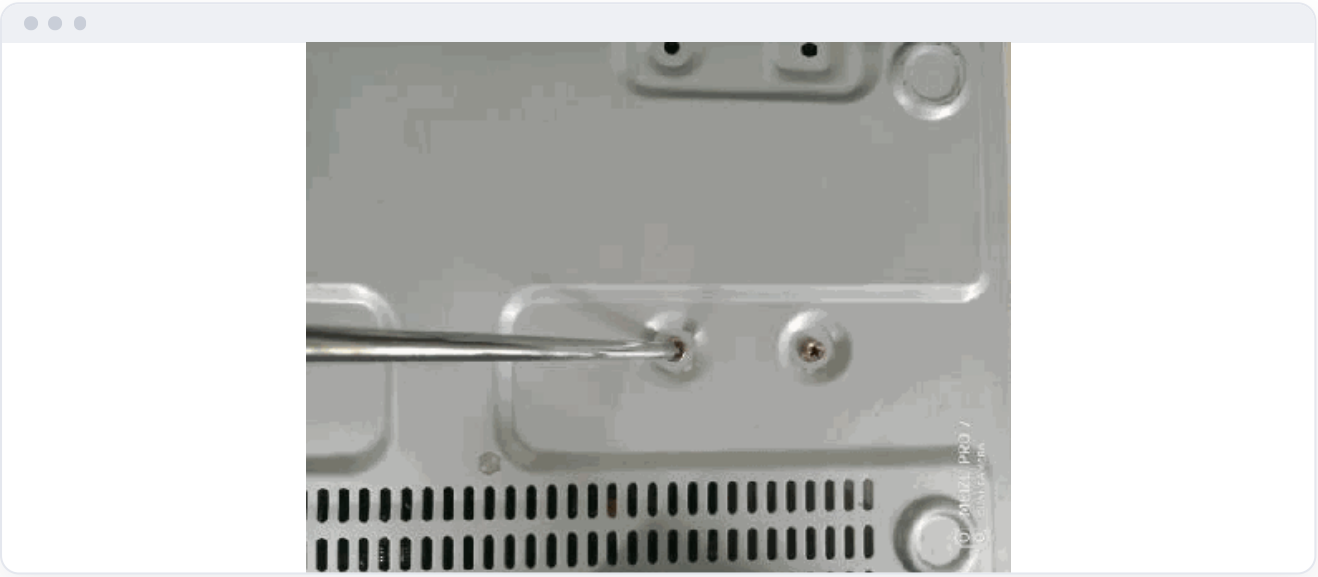


Figure 2. Remove the top cover screws.

3 Mount the disk

2-bay models: fasten the disk to the HDD bracket with four screws. **8-bay models:** remove the upper disk holder, place a disk in the lower holder and fasten it with four screws; repeat for each disk.

4 Connect the cables

Connect the SATA data cable and the power cable to each disk.



Figure 3. Disk mounted and connected with data and power cables.

5 Close the case

Slide the cover back and fasten all screws.



Figure 4. Rear panel: network, video outputs, USB, audio and alarm terminals (layout depends on the model).

> **TIP**
>
> Calculate storage before you buy disks: bitrate (Mbit/s) × 10.8 = GB per day per camera. Example: 16 cameras at 4 Mbit/s need about 690 GB per day, so 4 TB keeps about 5–6 days.

SECTION 03

First start and setup wizard

The setup wizard starts after power-up and takes you through the essential settings in about ten minutes.

1 Power on

Connect the monitor, mouse and network, then power on. On 2-bay models press the rear power switch; on 8-bay models also press the power button on the front panel.

2 General settings

Choose the language, device ID, monitor resolution, automatic logout time, system mode and the face recognition scenario, then click **Next**.

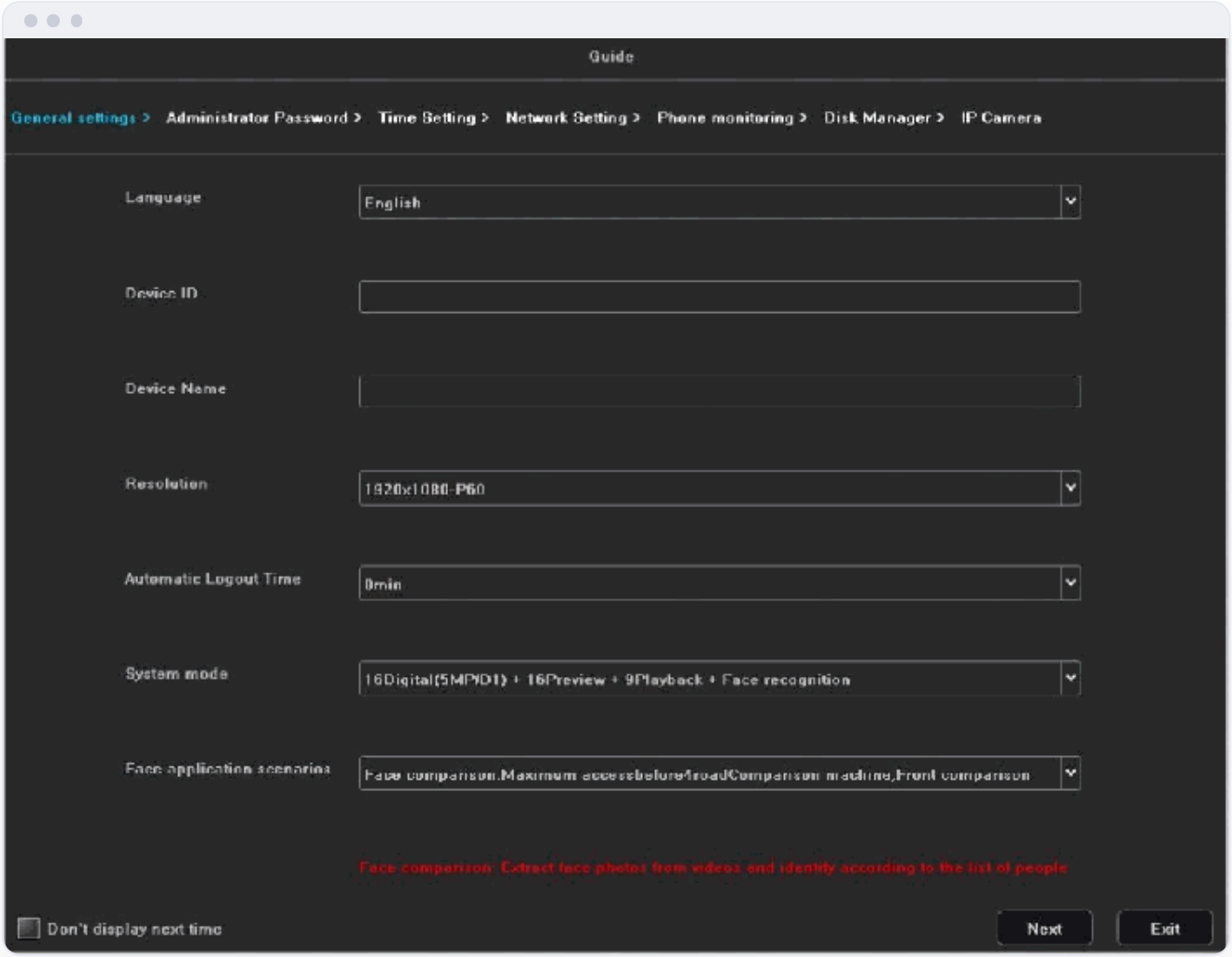


Figure 5. Wizard step 1: general settings.

3 Administrator password

Set a strong administrator password and click **Next**. Store it safely: it protects every camera and recording.

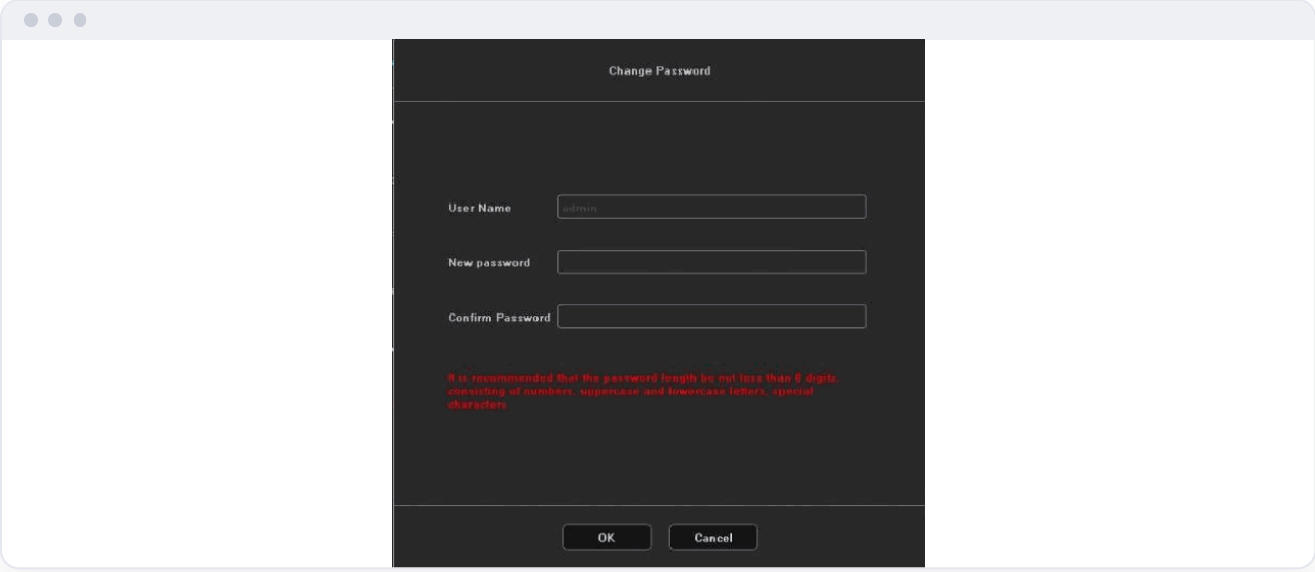


Figure 6. Set the administrator password.

4 Time

Set the time zone, date format, date and time, and enable NTP if the NVR has internet access.

5 Network

Set the IP address, mask, gateway and DNS from your plan, or enable DHCP.

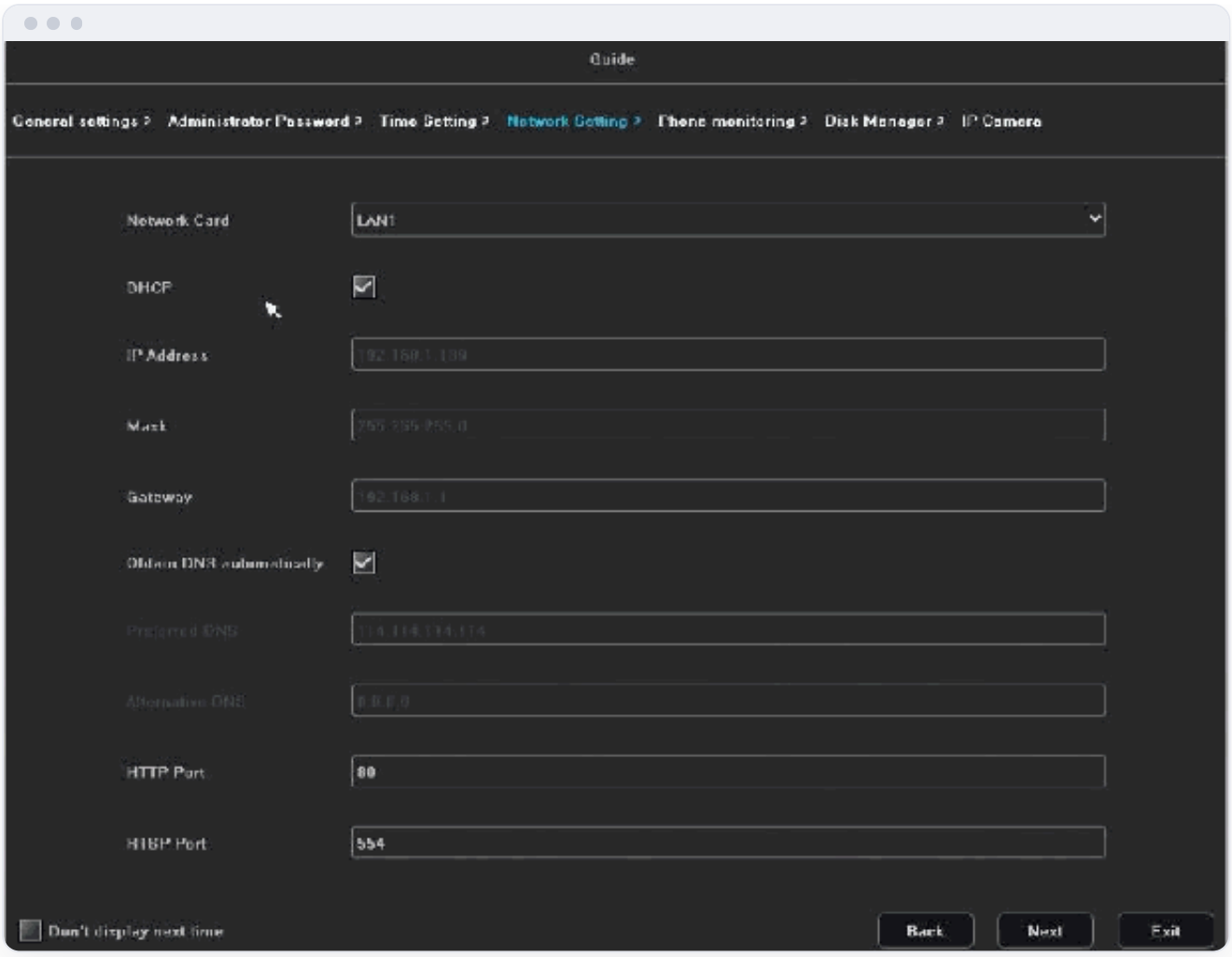


Figure 7. Wizard: network settings.

6 Initialise the disks

Select the new disks and initialise them.

> **IMPORTANT**
>
> Initialising erases everything on the disk. Never initialise a disk that holds recordings you need.

7 Add cameras

Click **Search Device**, select the cameras found on the network and click **Add**.

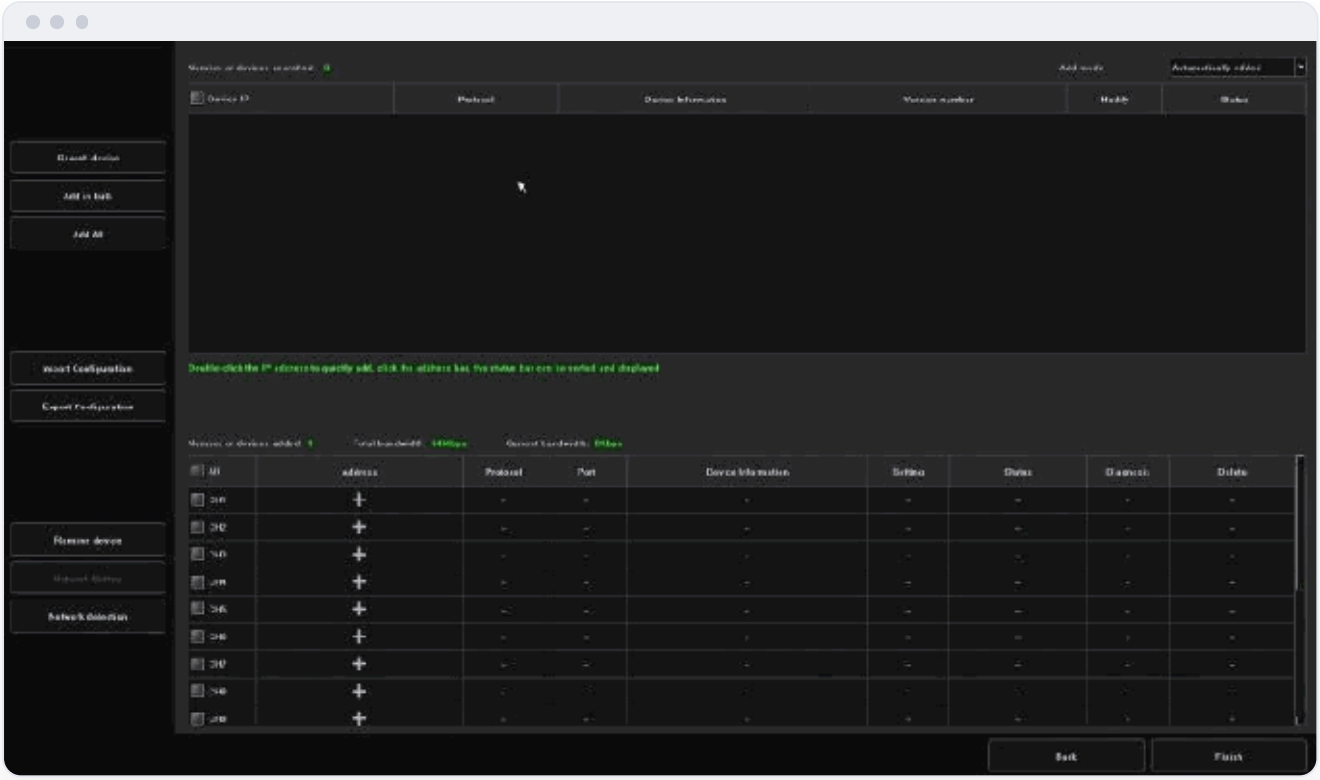


Figure 8. Wizard: search and add IP cameras.

8 Finish

Click **Finish**. The NVR opens the live view.

> **TIP**
> Skip the wizard with **Exit** only if you plan to configure everything from the menus. You can run the wizard again later.

SECTION 04

Live view

The live view shows all cameras in a split screen. Most daily tasks start here.



Figure 9. Live view with the menu bar at the top, the camera list on the right and the toolbar at the bottom.

Channel toolbar (click a channel)	Function
3D position	Click-to-zoom on PTZ cameras
Channel capture	Snapshot of this camera
Recording	Start or stop manual recording
Instant playback	Play the last five minutes of this camera
Smart AI rules	Show the analytics rules on the image
Two-way talk	Talk through the camera speaker
Audio	Listen to the camera microphone
Video setting	Image adjustments

Bottom toolbar	Function
Split screen	1, 4, 6, 8, 9 or 16 cameras
Auto-switch	Tour through the camera groups
Linkage preview	Pop up a camera when its alarm triggers
Face recognition / face search	Show recognised faces; search the face database
Back up	Quick export to USB

Hide OSD	Hide on-screen text
PTZ control	Open the PTZ panel
Previous / next screen	Page through the cameras
Capture / record	Snapshot or recording of all channels

Right-click anywhere in the live view for shortcuts: full screen, shut down (log out, power off or restart), IP cameras, split screen, tour, smart search, recording, snapshot, smart playback, backup, face recognition, behaviour analysis, people and vehicle detection, camera settings, system parameters and the **phone monitoring** QR code.

> **TIP**
> On control-room monitors, set a tour (auto-switch) so operators see every camera regularly without touching the mouse.

SECTION 05

PTZ control

Move PTZ cameras, store positions and automate patrols. The camera must support PTZ and be added correctly.

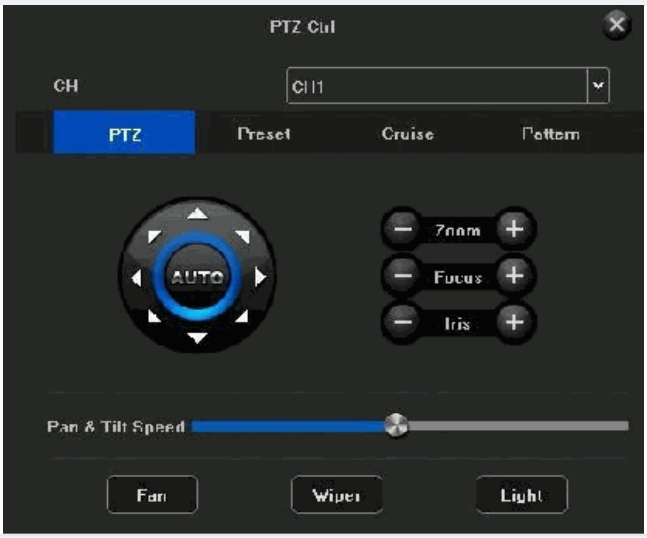


Figure 10. PTZ panel: direction pad, zoom, focus and iris, and pan/tilt speed.

1 Set a preset

Move the camera with the direction buttons, adjust zoom and focus, open **Preset**, select a number (1–255), enter a name and click **Setting**. **Clear** removes it.

2 Call a preset

Open **Preset**, select the number and click **Call**.

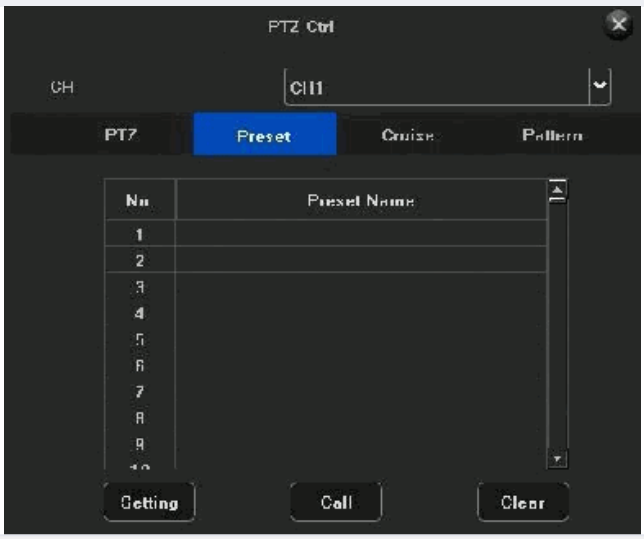


Figure 11. Preset list.

3 Set a patrol (cruise)

Open **Cruise**, select a patrol number and double-click it to name it. Click **Setting**, then **Add** a key point for each preset, with its speed and dwell time. Call it with **Call** and stop it with **Stop**.

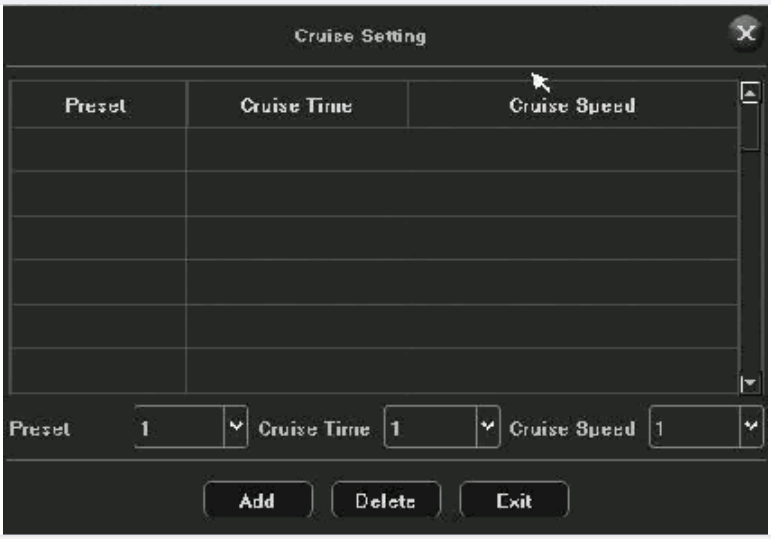


Figure 12. Cruise setting: presets, dwell time and speed for each key point.

4 Record a pattern

Open **Pattern**, select a number, click **Start Rec**, move the camera with the panel, then click **Stop**. Call the pattern to repeat the movement.

> **TIP**
>
> Link presets to alarms: a line-crossing alarm on a fixed camera can turn a PTZ camera to the gate automatically.

SECTION 06

Playback

Find and play recordings by camera, date and type, or play files from a USB device.

1 Instant playback

In live view, click a channel and click **Instant playback** to replay the last five minutes.

2 Search recordings

Go to **Playback**, select one or more cameras, choose the date in the calendar and click **Search**.

3 Play

Click **Play**. Use the toolbar to control playback.



Figure 13. Playback with camera list, calendar, timeline and toolbar.

Playback control	Function
Play / pause / stop	Control playback
Forward / reverse	Play backwards
Frame by frame	Step through single frames
30 s back / forward	Jump in 30-second steps
Slow / fast	Change the speed
Split / previous / next	Several cameras at once

Back up	Export the selected period
Capture	Snapshot from the recording
Add face template / retrieve face	Use a face in the recording for face search

4 Play a file from USB

Connect the USB device, go to **Playback**, click the external file icon at the top left, click **Refresh**, then select a file and play it.

SECTION 07

Add and manage cameras

Add cameras automatically from the network or manually by address.

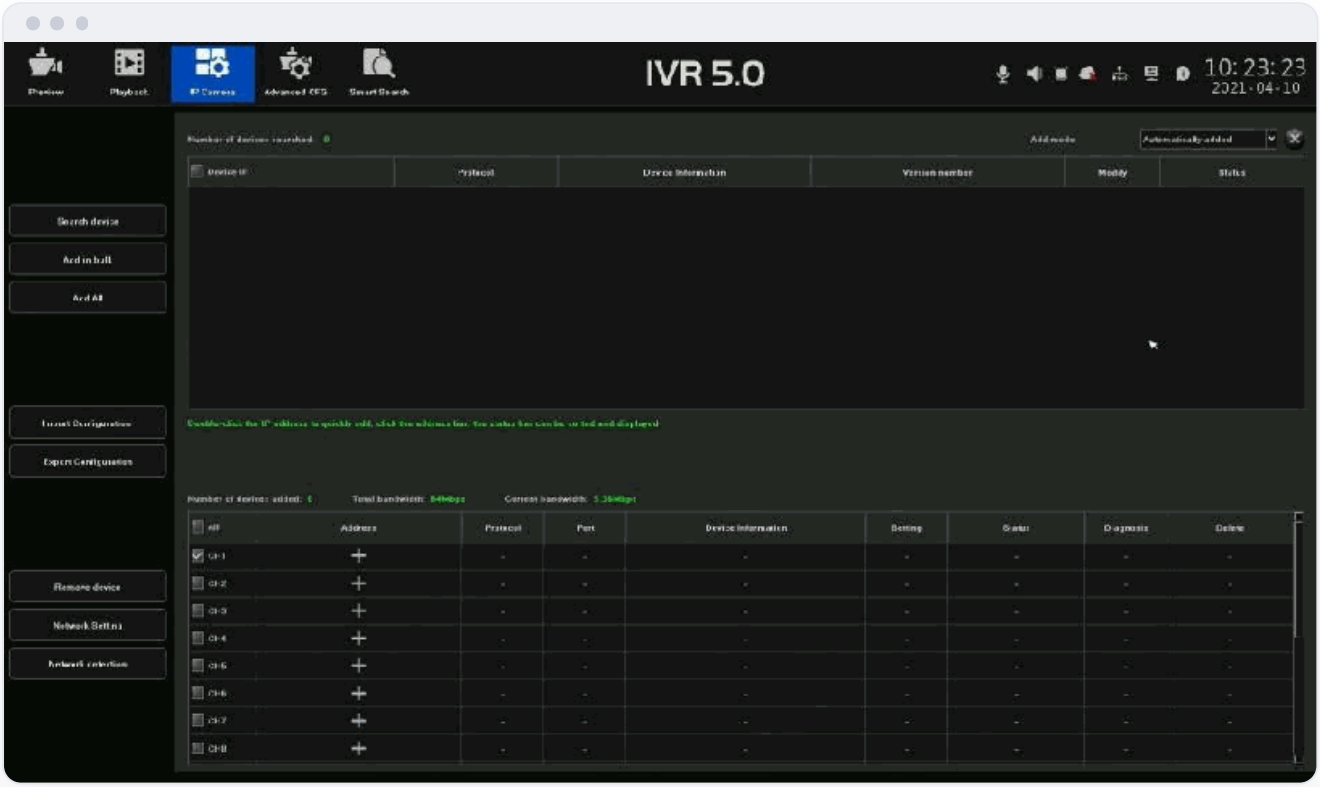


Figure 14. Camera management: added cameras and online devices.

1 Add found cameras

Click **IP Camera** in the top menu, open **Online Device**, select the cameras and click **Add**.

2 Add a camera manually

Click the add icon after a free channel. Choose the protocol (for example ONVIF for third-party cameras) and network type, enter the IP address, port, user name and password, and click **OK**.

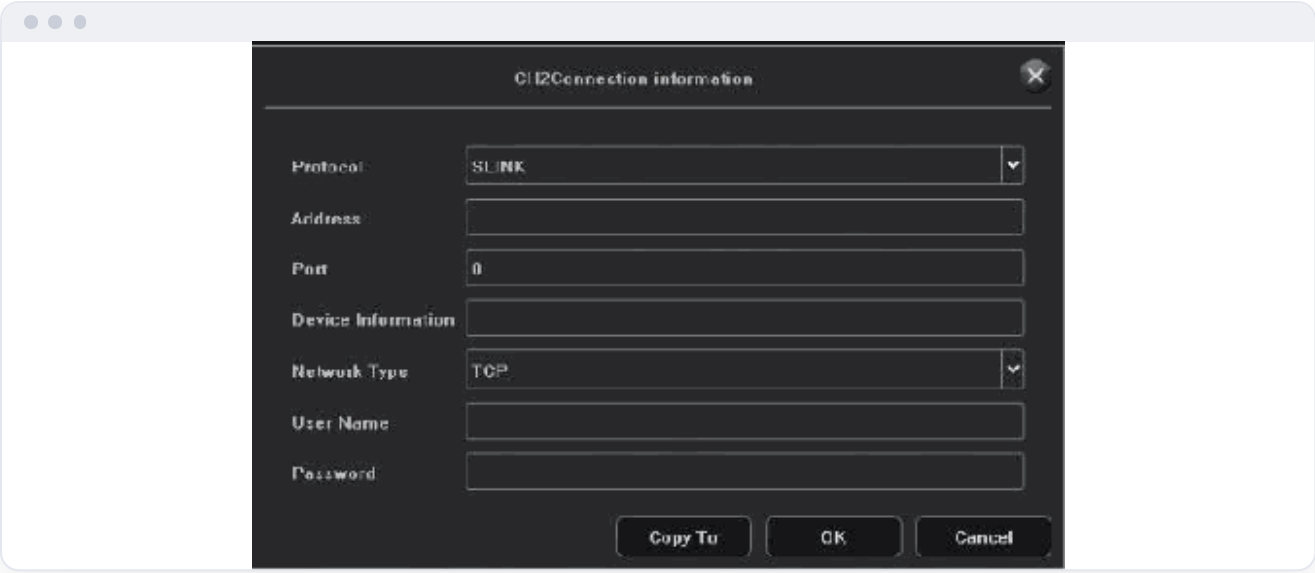


Figure 15. Add a camera manually.

TIP

Change each camera's default password and IP address before adding it, and add it with its new credentials. See the IP Camera User Manual.

NOTE

Use **Copy To** in the add dialog to apply the same credentials to several cameras.

SECTION 08

AI behaviour analysis

Behaviour analysis turns cameras into sensors: it counts, guards areas and detects objects left or removed. Every rule follows the same steps.

1 Open the rule

Go to **Advanced CFG › AI intelligence › Behavior analysis** and choose the function.

2 Select the camera and enable

Select the camera in the **CH** list and tick **Enable**.

3 Draw

Click and drag on the image to draw the line or area.

4 Set the parameters

Set the type, direction, target percentage and detection time.

5 Schedule and linkage

Set the arming schedule and the linkage actions, then click **Save**.

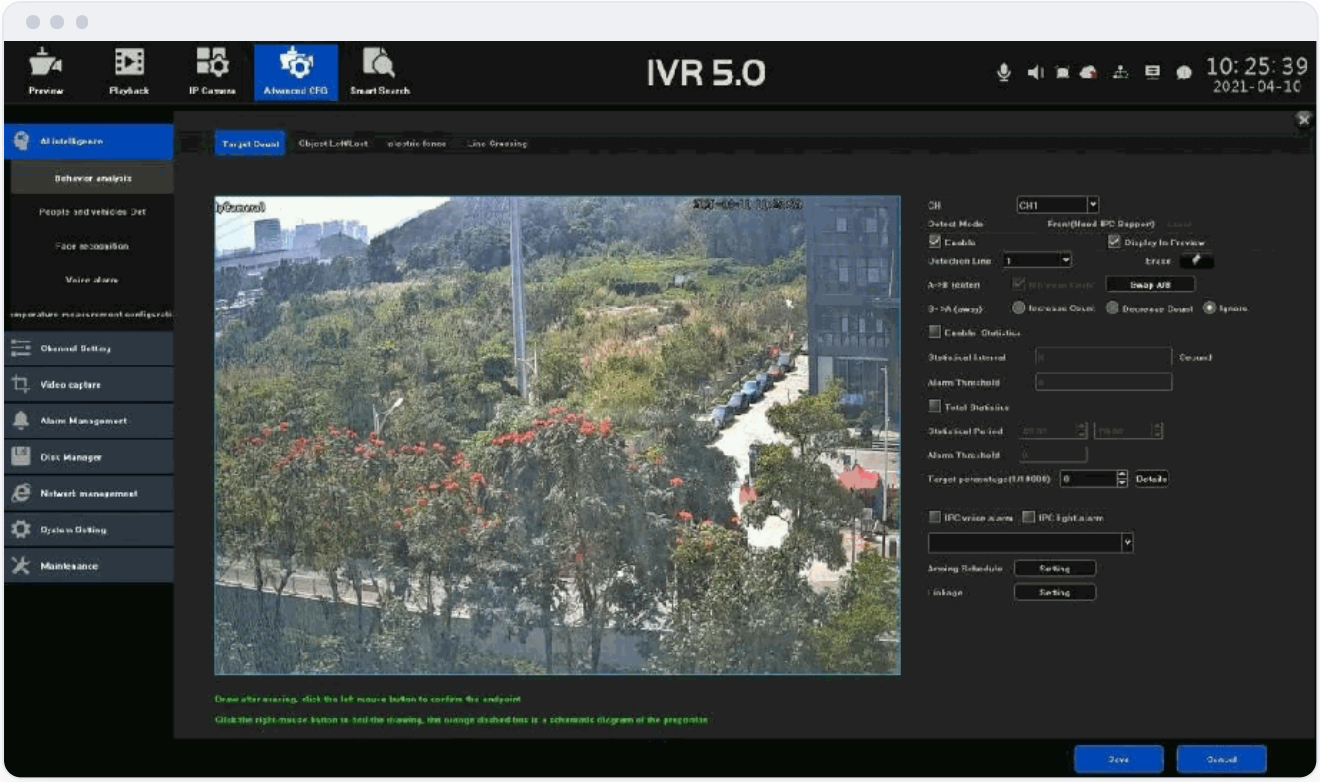


Figure 16. Target counting configuration.

Function	Detects	Typical use
Target count	Objects crossing a counting line, by direction	Footfall in shops, occupancy of rooms
Object left / lost	Items left in, or removed from, an area	Unattended bags, removed equipment
Electric fence (intrusion)	Targets entering a drawn area	Perimeters, restricted zones after hours
Line crossing	Targets crossing a line A→B, B→A or both	Fences, gates, one-way corridors

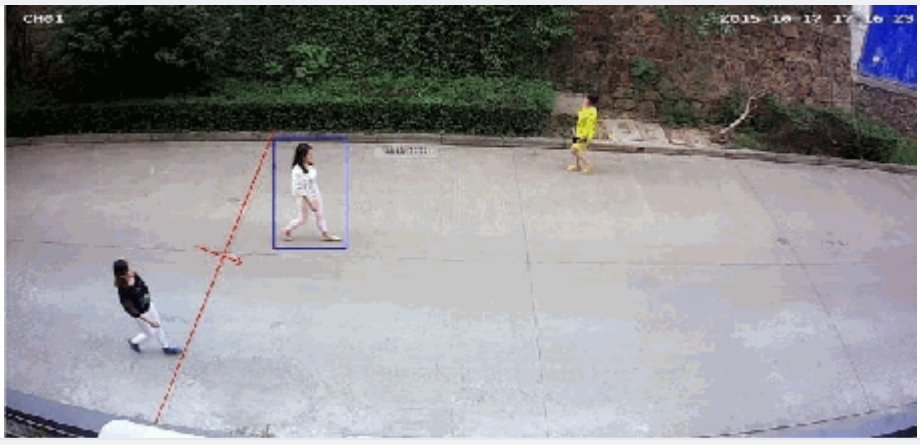


Figure 17. Line crossing: alarm when a person crosses the virtual line.

> **TIP**
>
> Draw lines and areas where targets are at least about 10% of the image height. Rules on tiny, distant targets cause missed and false alarms.

SECTION 09

People and vehicle detection

Detection rules that need a camera with the matching AI function.

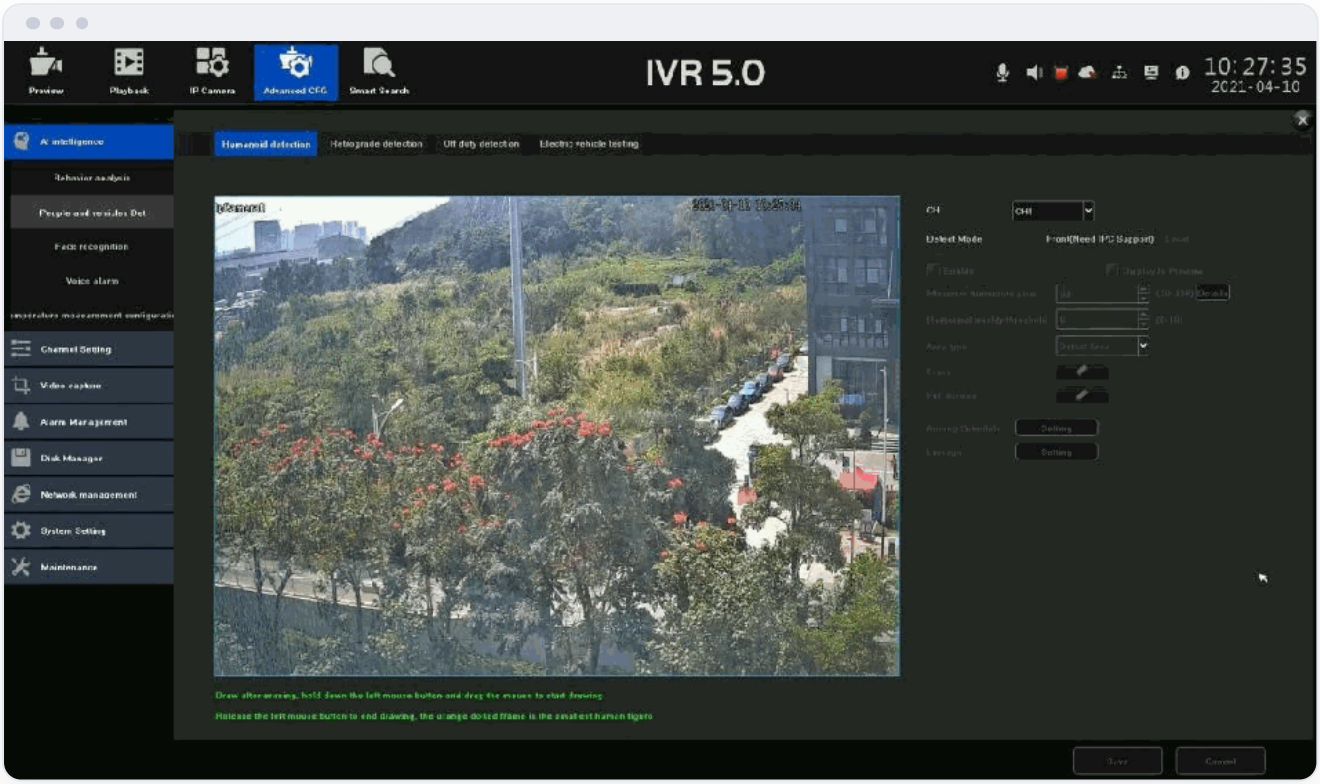


Figure 18. Humanoid detection with minimum target size and detection area.

Function	What it does
Humanoid detection	Detects and captures people in the area; set the minimum human size in pixels
Retrograde detection	Alarms on movement against the allowed direction
Off-duty detection	Alarms when nobody is present in a guarded post for the set departure time
Electric vehicle detection	Alarms when an e-bike or scooter enters a lane or lift lobby

Path: **Advanced CFG › AI intelligence › People and vehicles Det**. Select the camera, tick **Enable**, draw the area, set the size or sensitivity and target percentage, then set the arming schedule and linkage and click **Save**.

> **NOTE**
>
> If a function is greyed out, the selected camera does not support it.

SECTION 10

Face recognition

Compare faces captured by the cameras with your own face libraries, for example staff, VIP or blocklist.

1 Enable on a camera

Go to **Advanced CFG › AI intelligence › Face Recognition › Global Setting**, select the camera, tick **Enable**, set the face size proportion and similarity threshold, the arming schedule and linkage, and click **Save**.

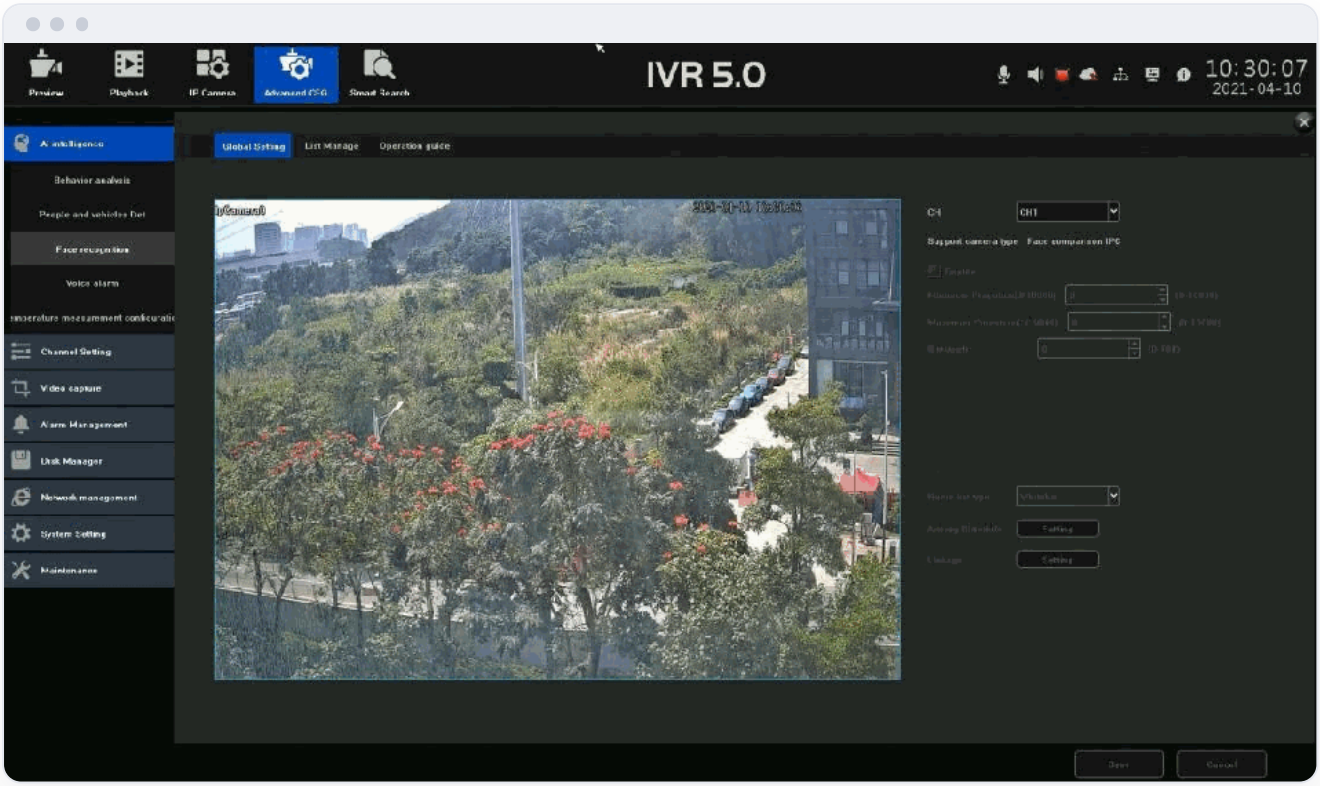


Figure 19. Face recognition global settings.

2 Create a library

Open **List Manage**, click **Create Group**, enter a name, choose the list type (for example allow list or block list), set the similarity and click **OK**.

3 Add faces

Click **Add Member** under the group. Add one picture with **Import Picture** and enter name, number and description, or import many pictures from USB with a file name rule.

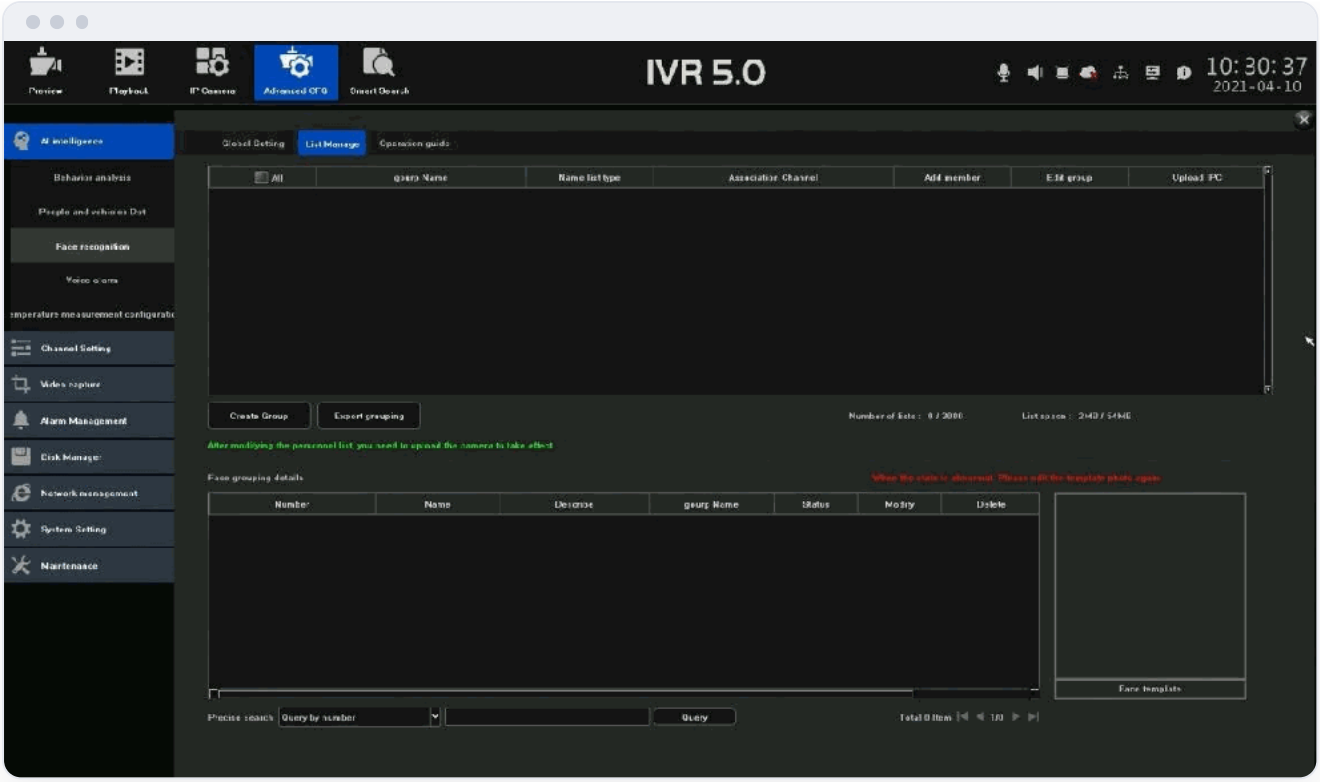


Figure 20. Face library management.

> **IMPORTANT**
>
> Face recognition processes biometric data. In the EU, UK and many other countries it needs a legal basis, signage and often a data protection impact assessment. Check the law and get consent where required before you enable it.

> **TIP**
>
> Use front-facing, well-lit photos for the library, and mount face cameras at eye height at entrances, not high on walls.

SECTION 11

Voice alarm and special detection

Additional AI features available with suitable cameras.

- **Voice alarm**: **Advanced CFG › AI intelligence › Voice Alarm › Broadcast Content**. Choose the message for each event and click **Apply**. The camera speaker plays it when the event triggers.
- **Body temperature measurement** (thermal cameras): set the alarm threshold, the measuring area, the face size and capture quality, target distance and unit.
- **Mask detection**: alarms when a person without a mask is detected.

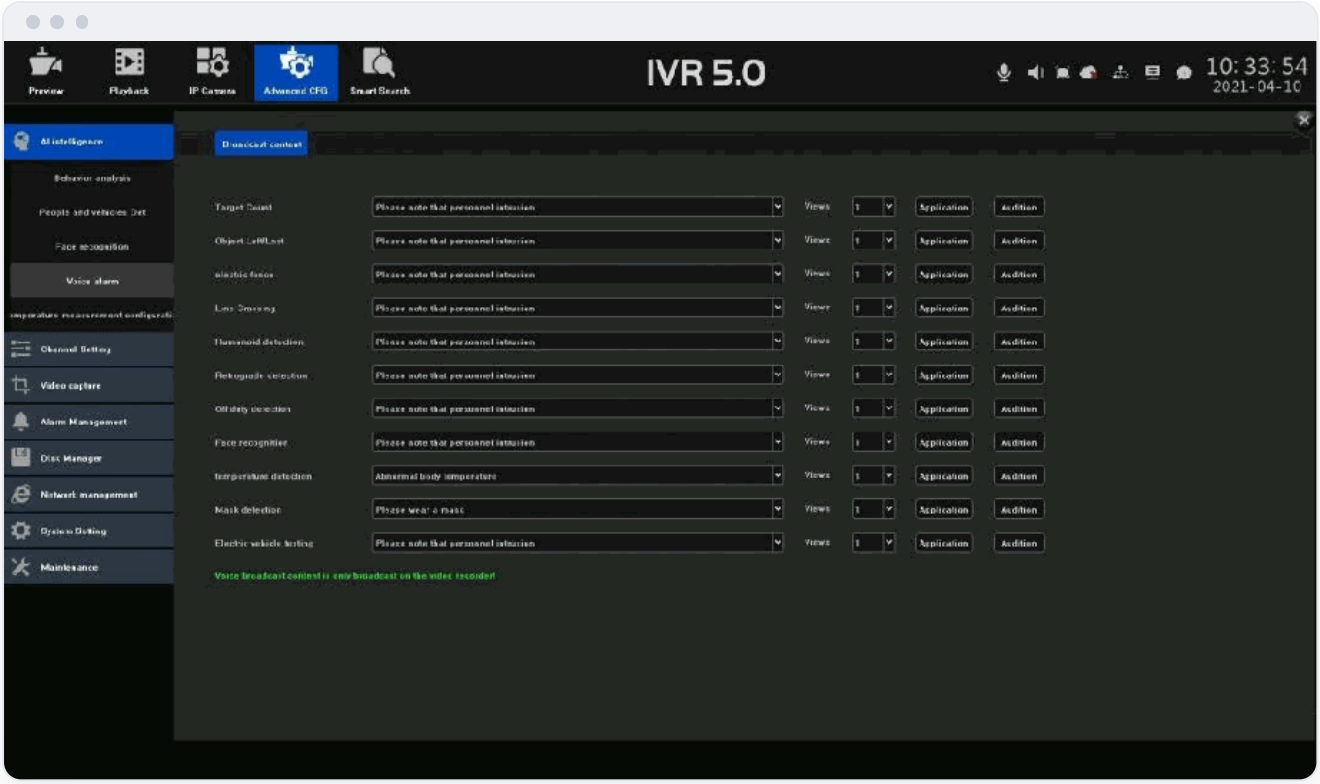


Figure 21. Voice alarm broadcast content.

SECTION 12

Camera image and encoding

Set the on-screen text and the stream quality of each camera from the NVR.

1 OSD

Advanced CFG › Channel Setting › Channel Parameter › Display Setting. Select the camera, edit the channel name, set the date/time format, choose what to show, set the text size and drag the text on the preview. Click **Save**.

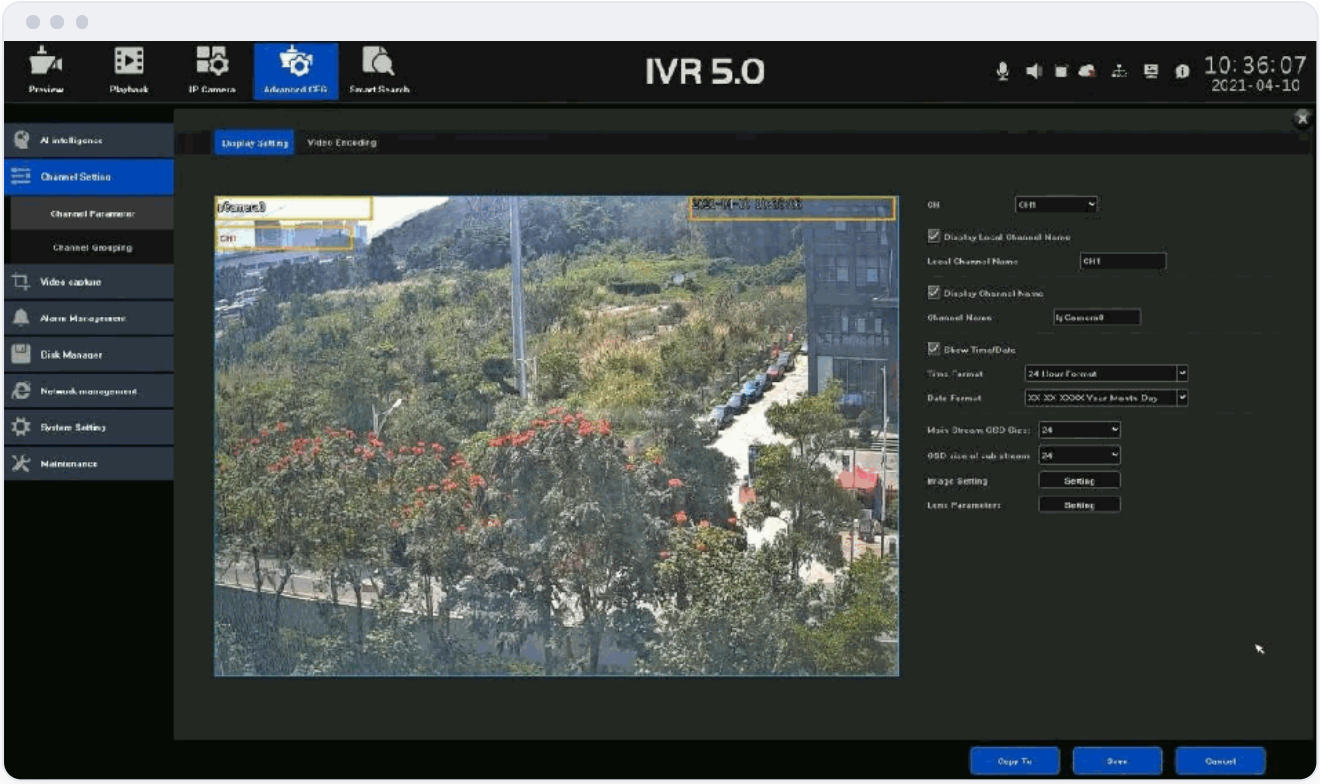


Figure 22. Channel display (OSD) settings.

2 Encoding

Channel Parameter › Video Encoding. Set stream type, video type, resolution, frame rate, codec and bitrate. Click **Save**, and **Copy To** to apply the same settings to other cameras.



Figure 23. Video encoding settings.

3 Groups and tours

Channel Setting › Channel Grouping. In **Structure** create groups (for example by floor); in **Tour** set which groups the live view cycles through.

> **TIP**
> Use H.265 on the main stream to roughly halve disk use, and keep the sub stream small for remote and multi-screen viewing.

SECTION 13

Recording and snapshots

Recording runs from a weekly schedule. Make sure every camera has one.

1 Recording schedule

Advanced CFG › Video Capture › Schedule Setting › Video Plan. Select the camera and the record mode (Timing, Alarm, Motion Alarm or Event), then drag on the time bar for each day. Click **Save**.

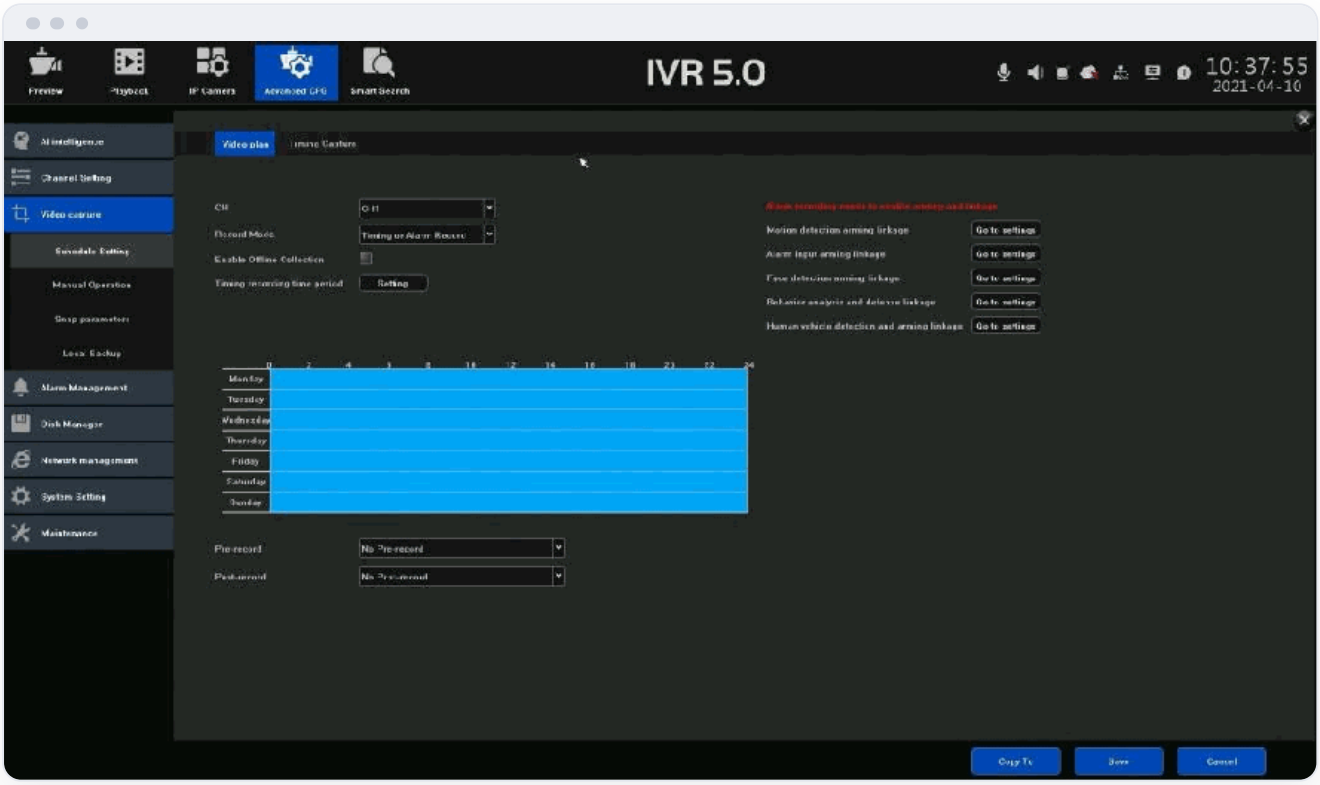


Figure 24. Weekly recording schedule.

Record mode	Records
Timing	Continuously in the scheduled hours
Motion alarm	Only when motion is detected
Alarm	Only when an alarm input triggers

Event	On AI and other events

- **Timing capture**: **Schedule Setting › Timing Capture** stores snapshots at a fixed interval.
- **Manual operation**: **Manual Rec** starts or stops recording per channel outside the schedule.
- **Snap parameters**: resolution and interval of snapshots.

> **TIP**
> A common setup: continuous recording on entrances and cash points, event recording on low-traffic areas. Check the retention in days after a week of operation.

SECTION 14

Back up recordings

Export footage to a USB drive, for example for the police or an insurer.

1 Connect a USB drive

Use a USB flash drive or USB disk with enough free space.

2 Search

Advanced CFG › Video Capture › Local Backup. Select the channels, search type, content and backup format, and set the time range.

3 Export

Click **Query File Size**, choose the destination and click **Start Backup**.

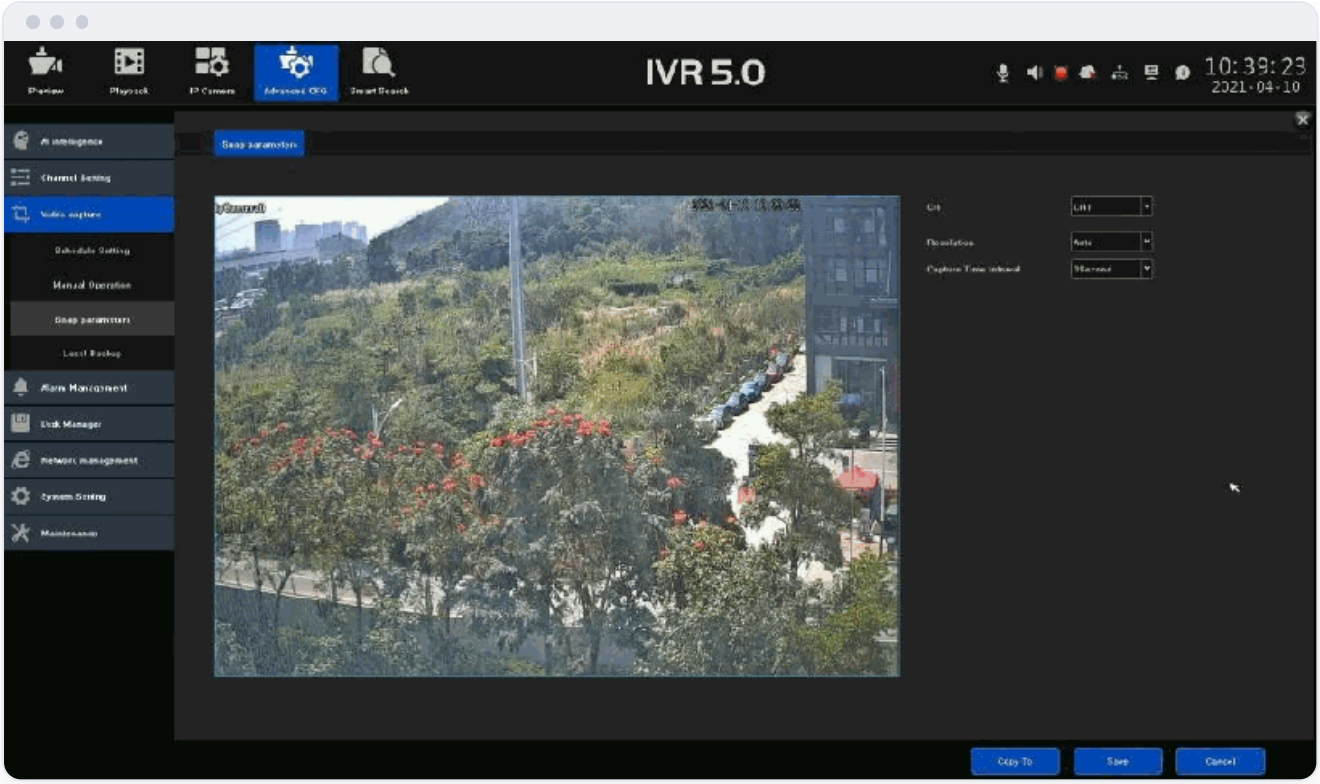


Figure 25. Local backup.

> **TIP**
> Write down the time difference between the NVR clock and real time when you export evidence, and keep the NVR on NTP so the difference stays zero.

SECTION 15

Channel events

Classic events detected on every camera: motion, video loss, tampering and privacy masking.

1 Motion detection

Advanced CFG › Alarm Management › Channel Event › Motion. Select the camera, tick **Enable Motion Detection**, set the sensitivity, choose **Full Screen** or draw custom areas, then set the arming schedule and linkage and click **Save**. Use **Copy To** for other cameras.

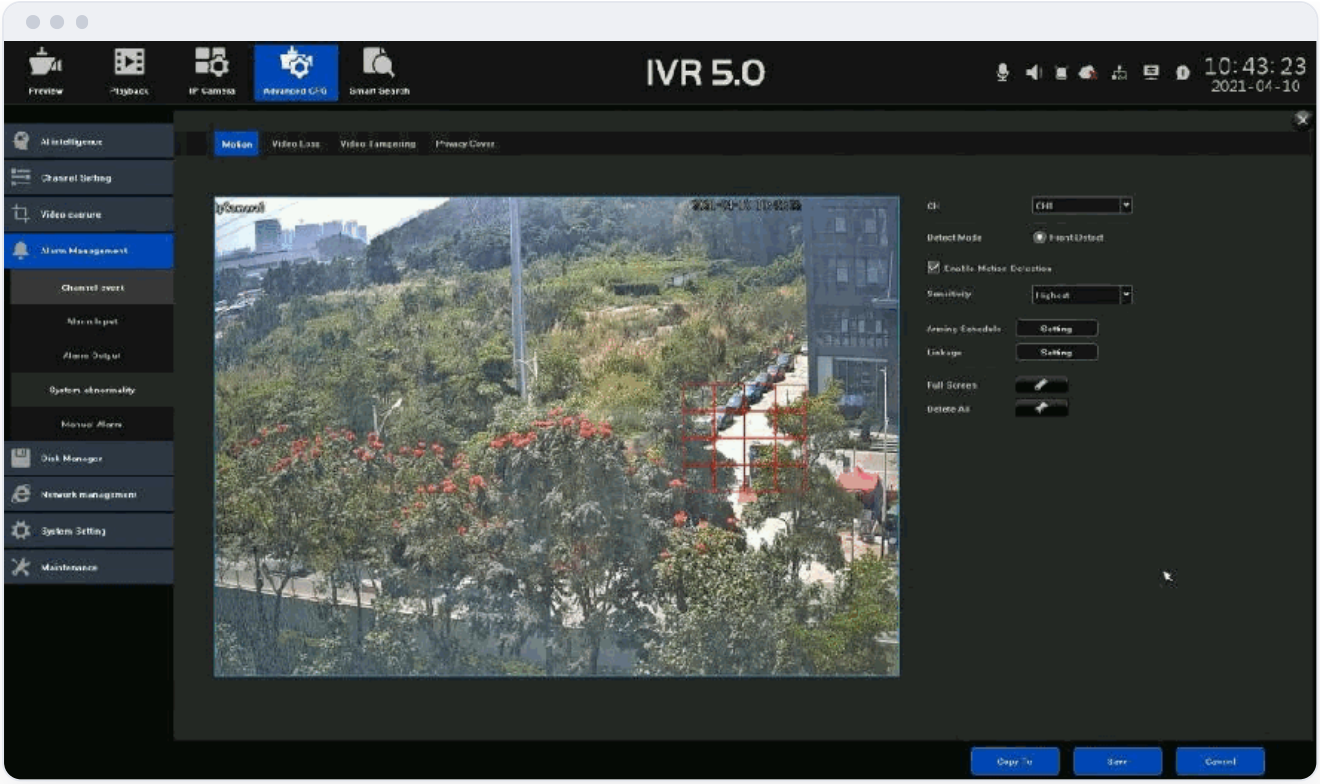


Figure 26. Motion detection with area, sensitivity, schedule and linkage.

- **Video loss**: alarms when a camera stops sending video. Enable it on every camera.
- **Video tampering**: alarms when the lens is covered. Set sensitivity and area.
- **Privacy cover**: draws masks that hide parts of the image in live view and recordings.

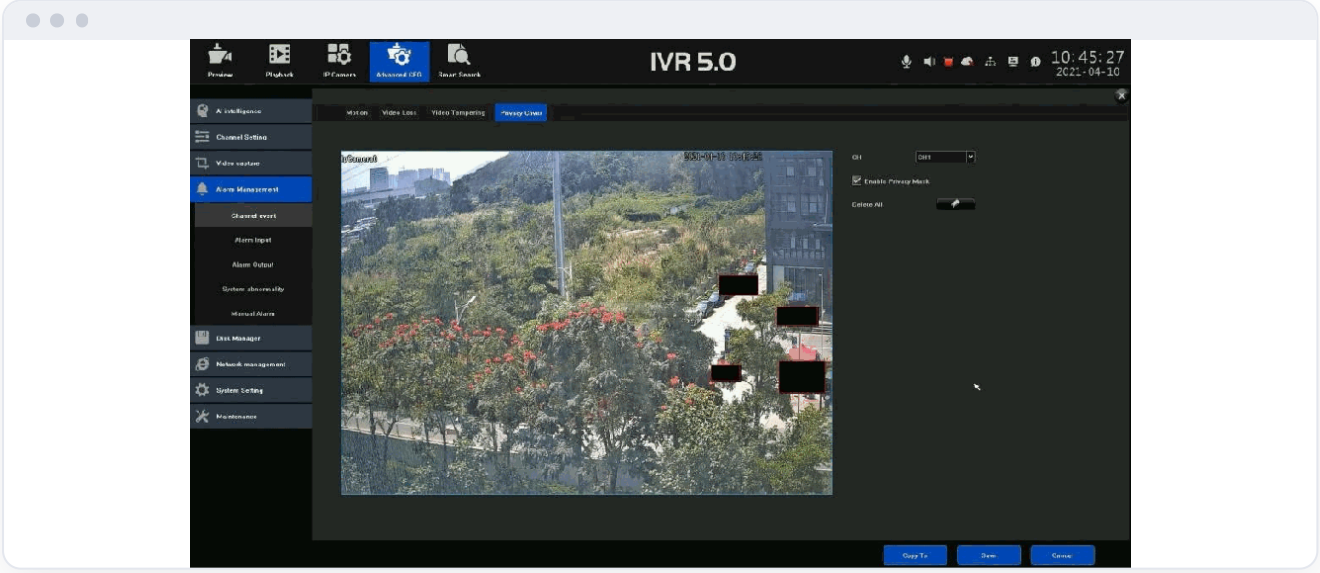


Figure 27. Privacy masks on a camera image.

Linkage action	Effect
Record	Record the camera, or other cameras, on the event
Snapshot	Store pictures of the event
Alarm output	Switch a relay: siren, light or door
Buzzer / popup	Local alert on the NVR monitor

Email	Send a notification with pictures
PTZ	Move a PTZ camera to a preset

SECTION 16

Alarm inputs, outputs and exceptions

Connect external sensors and sirens, and get warned when the system itself has a problem.

1 Alarm input

Advanced CFG › Alarm Management › Alarm Input. Select the input, set normally open or normally closed, name it, tick alarm handling, set the arming schedule and linkage and click **Save**.

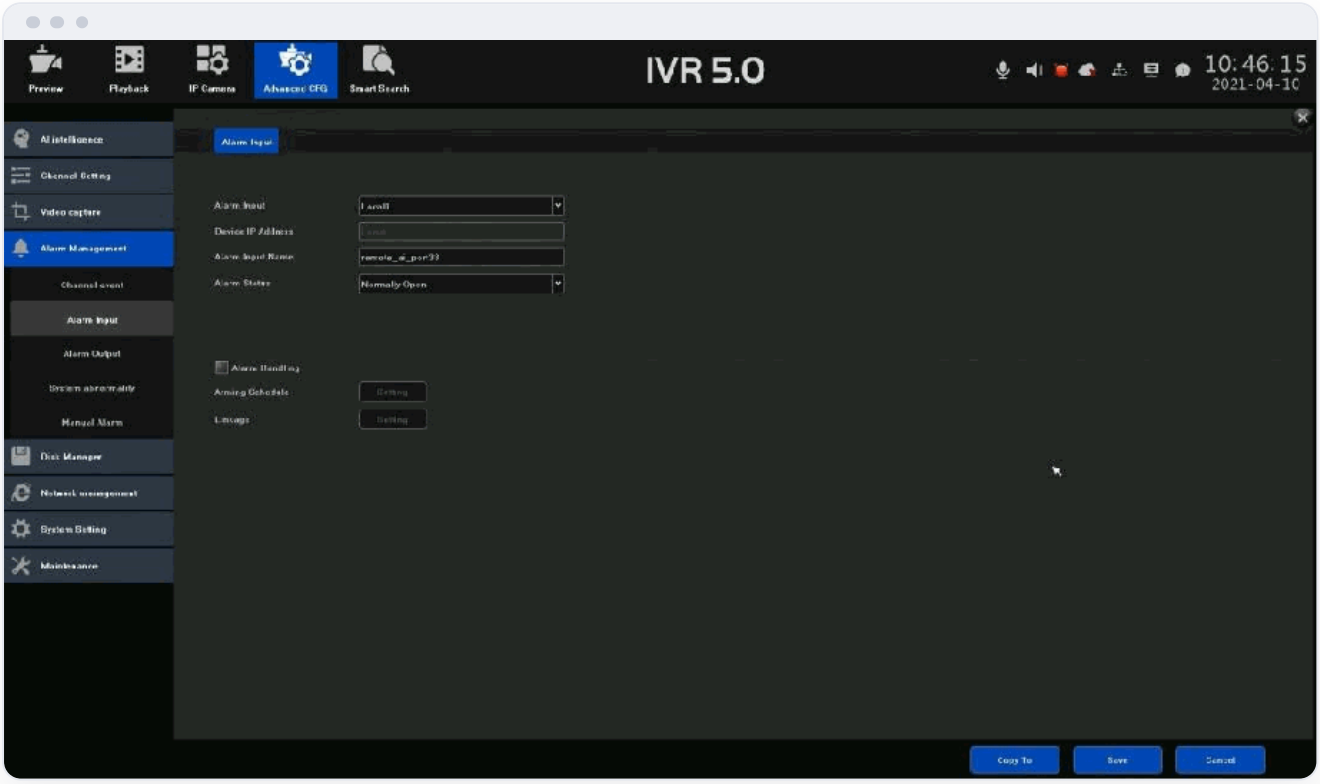


Figure 28. Alarm input.

2 Alarm output

Alarm Output. Select the output, name it, set the delay (how long it stays on after the alarm) and the schedule. Click **Save**.

3 System exceptions

System Abnormality. For each exception, choose how it is signalled. Click **Save**.

Exception (examples)	Why it matters
HDD full	Recording stops or overwrites

HDD error / no HDD	Nothing is being recorded
Network disconnected	Cameras and remote users lost
IP conflict	Another device uses the NVR address
Illegal login	Possible password attack

4 Manual alarm

Manual Alarm triggers outputs by hand for testing: **Trigger** or **Trigger All**, then **Delete All** to reset.

> **IMPORTANT**
> Always enable the HDD error and HDD full exceptions with a notification. A failed disk is otherwise discovered only when footage is needed.

SECTION 17

Storage

Check disk health and decide which cameras record to which disks.

Advanced CFG › Disk Manager lists the disks with status and capacity. By default the NVR groups disks automatically and all cameras record to all disks.

1 Manual grouping

In **Disk Grouping** tick **Manual Grouping**, create groups, add disks to each group and add the cameras that record to it. Click **Save**.

2 Quota per camera

Select a camera under a group, open the quota settings, tick **Enable Quota**, enter the capacity for the camera and click **OK**, then **Save**.

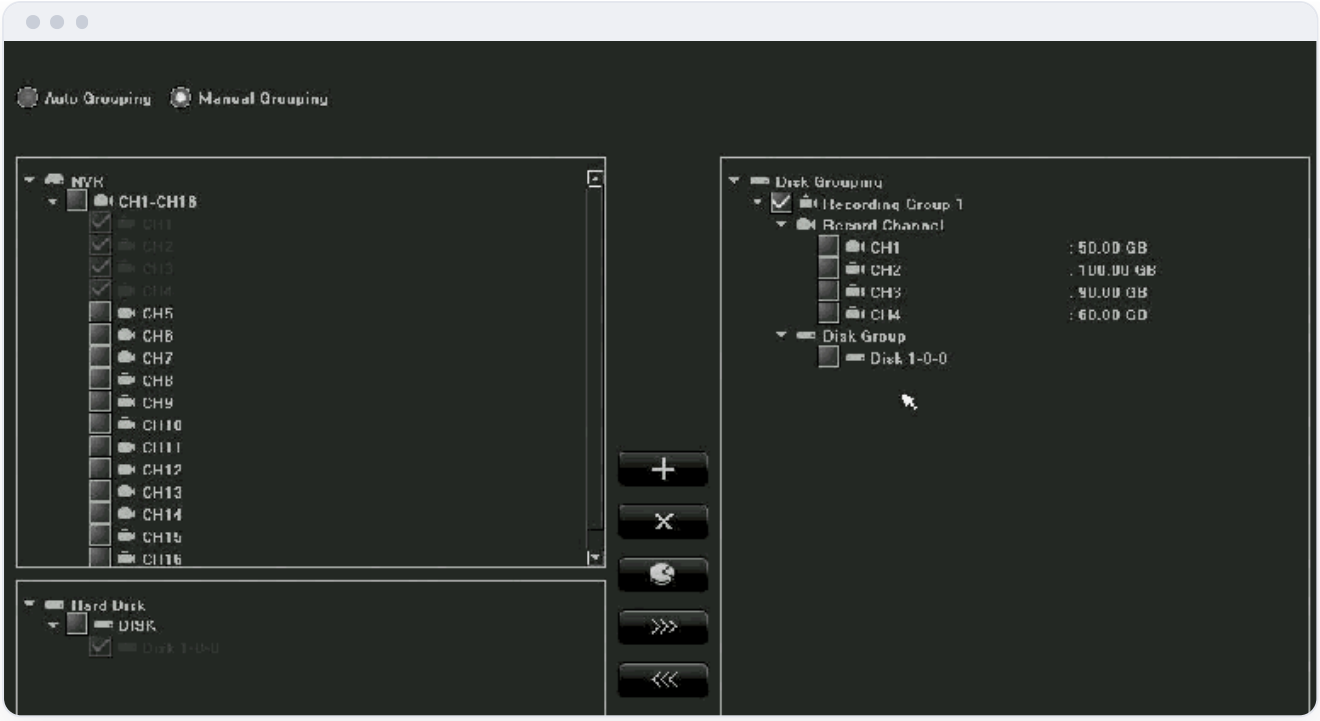


Figure 29. Disk grouping: disks and channels assigned to groups.

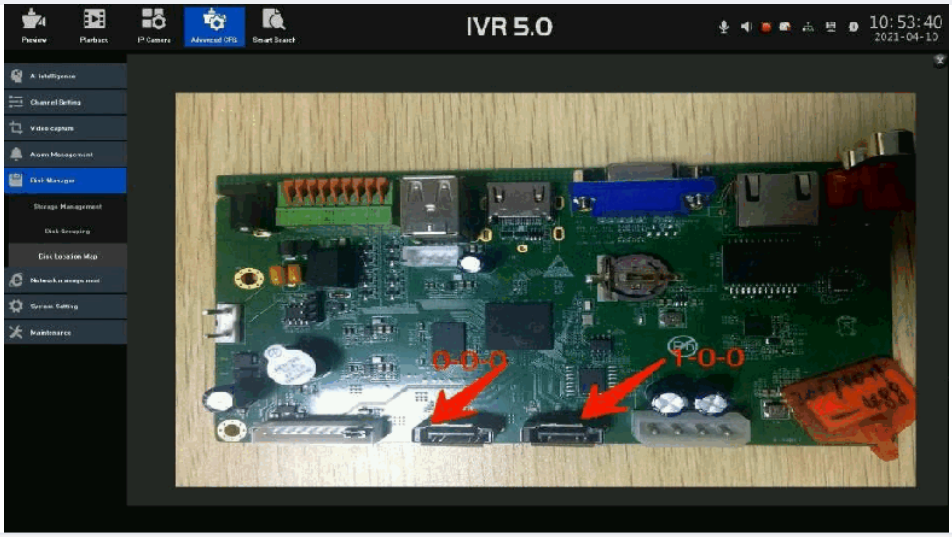


Figure 30. HDD map: physical position of each disk connector.

> **TIP**
>
> Use quotas to guarantee a minimum retention for important cameras, for example 30 days for entrances and cash points.

SECTION 18

Network

Connect the NVR to the network and to remote users safely.

1 IP settings

Advanced CFG › Network Management › Local Network › Basic Parameters. Set a static address or DHCP. On dual-NIC models choose **Multi-address** to configure LAN1 and LAN2 separately and select the default route. Click **Save**.

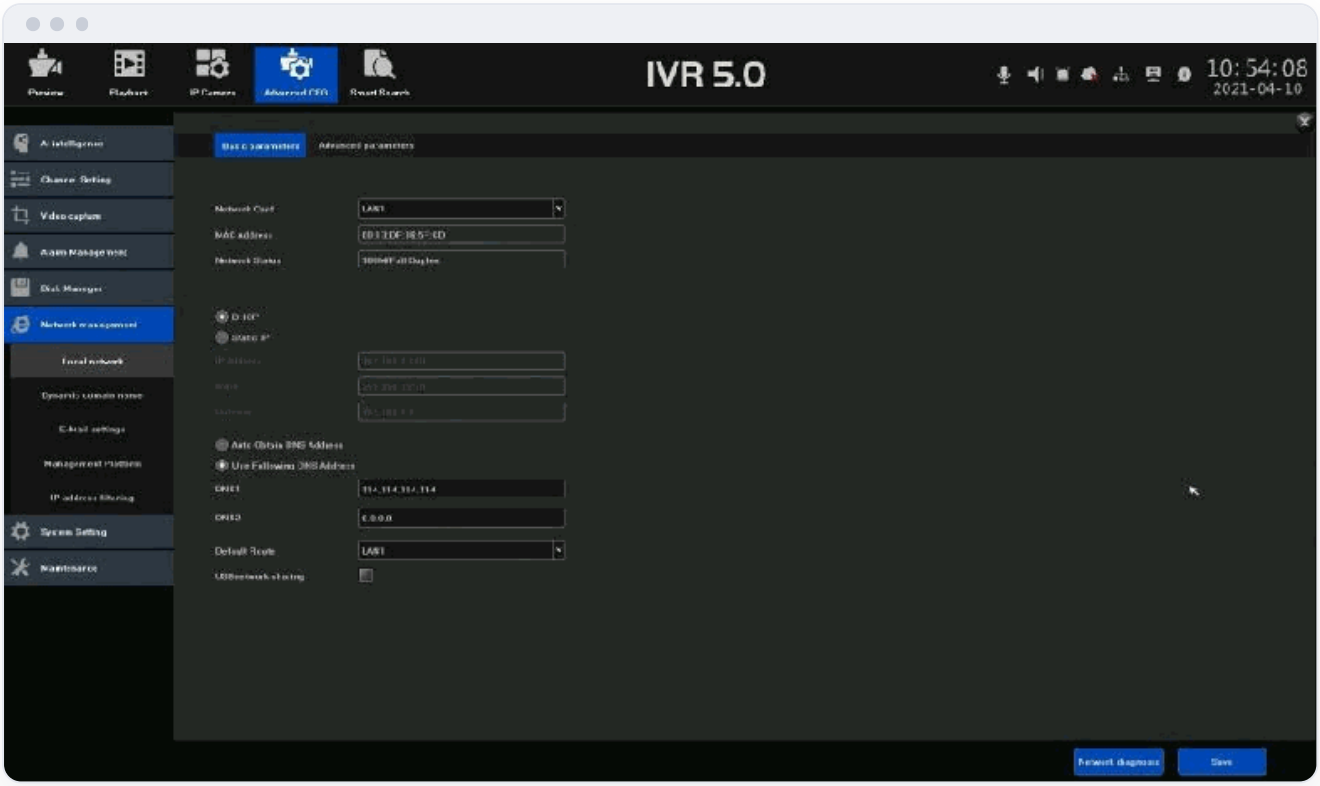


Figure 31. Basic network parameters.

Service	Path and notes
PPPoE	Local Network › Advanced Parameters. Only when the NVR dials the internet itself
DDNS	Dynamic Domain Name. DynDNS, No-IP and other providers; register the account first
Email	Email Settings. SMTP server, port (25, 465 or 587), SSL, sender and recipients
P2P	Management Platform › P2P service. Mobile app access by QR code
HTTP push	Management Platform › HTTP Push. Sends face pictures to a server
IP filter	IP address filtering. Allow or block lists of addresses

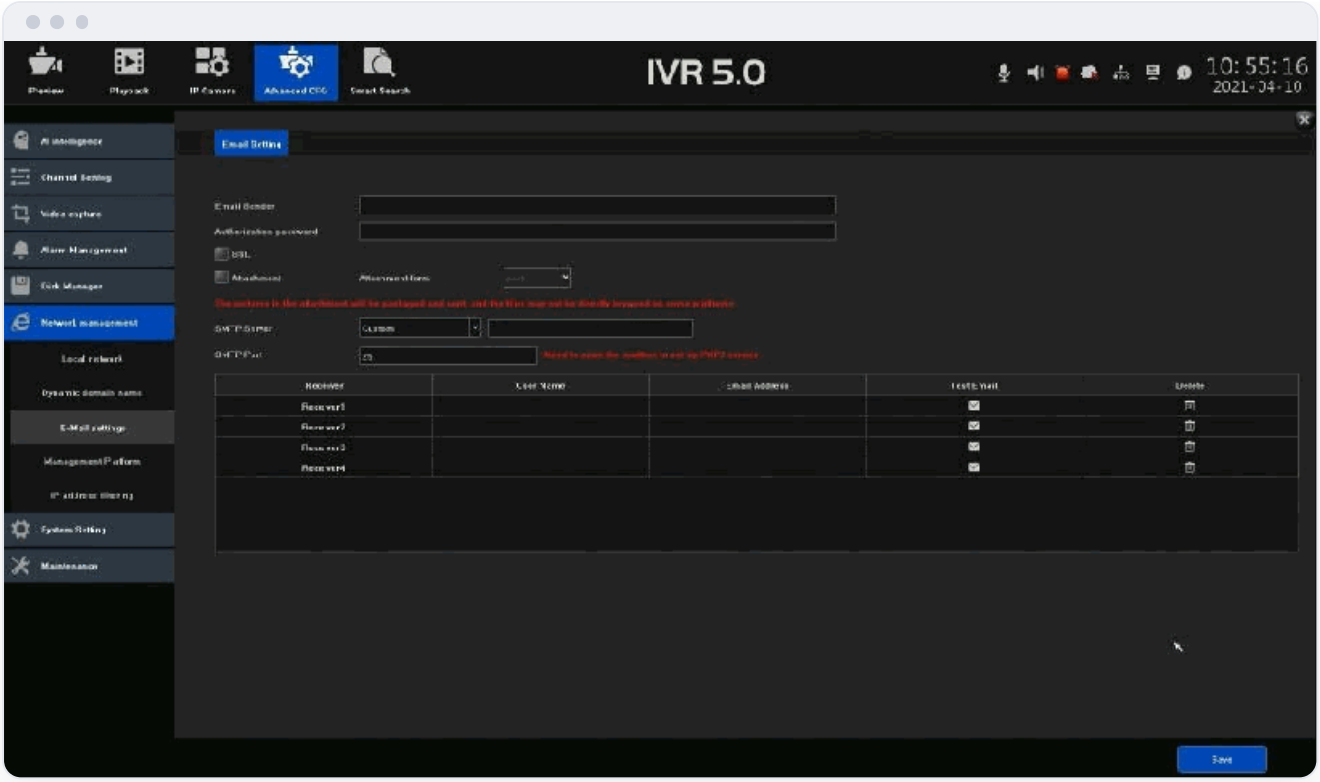


Figure 32. Email notification settings.

IMPORTANT

Do not forward NVR ports from the internet. For remote access use a VPN (for example WireGuard on a Navijin gateway) or the P2P service, and always with strong passwords.

TIP

On dual-NIC models, connect cameras to one interface (a closed CCTV network) and the office network to the other. Cameras then stay isolated from users.

SECTION 19

Time, users and device settings

Keep the clock correct, give each person their own account and name the device.

1 Device time

Advanced CFG › System Setting › Time Setting › Device Time. Set date, time and time zone, and NTP where available. Click **Save**.

2 Camera time

IPC Check Time makes the NVR set the clock of its cameras, so all recordings share one time base.

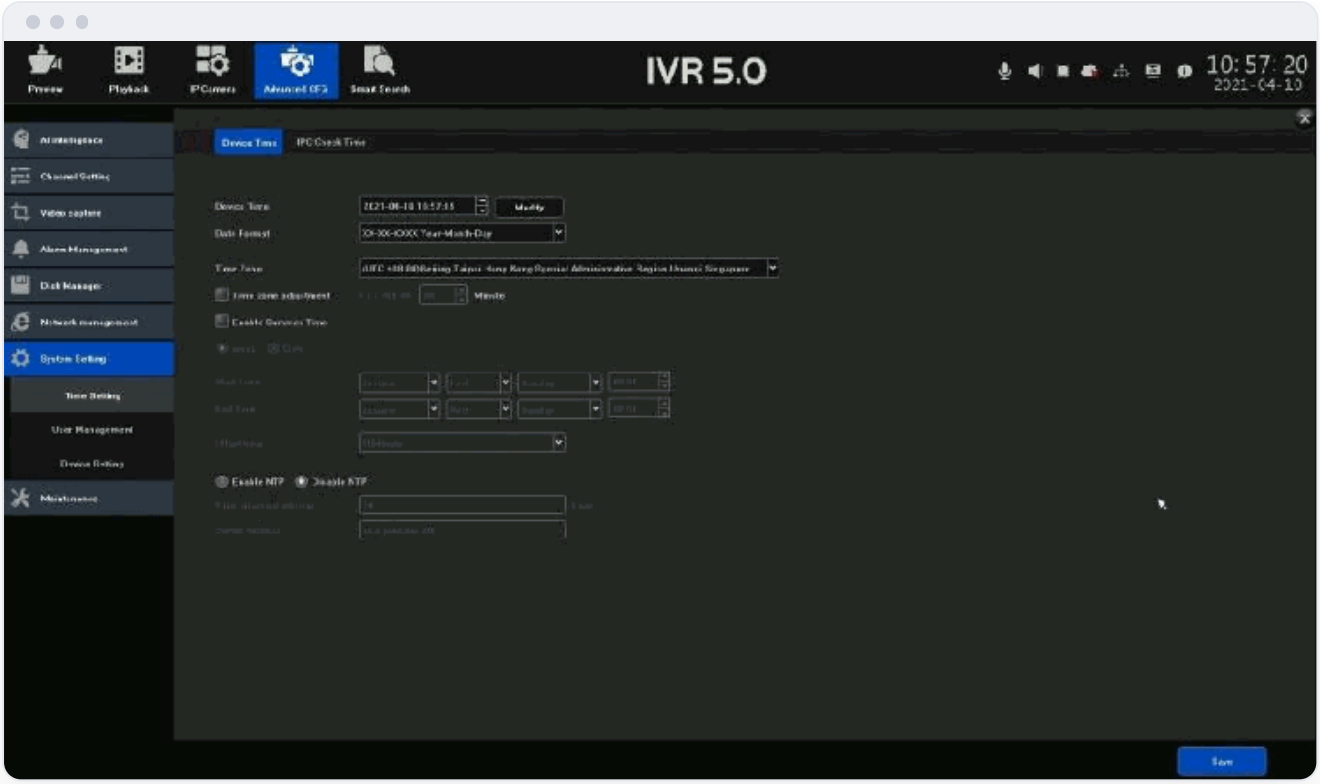


Figure 33. Time settings.

3 Add a user

System Setting › User Management › Add User. Enter a user name and password, choose the type (operator or guest) and click **OK**.

4 Set rights

Select the user and click **User Right**. Choose local, remote and per-camera permissions.

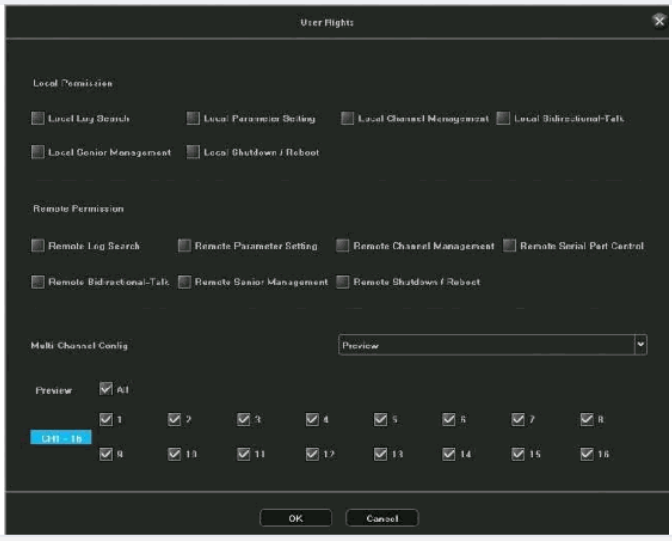


Figure 34. User rights: local, remote and per-camera permissions.

- **Modify User** changes password and type; **Delete User** removes operator and guest accounts.
- **Device Setting › Basic Settings**: device ID and name, language, monitor resolution and automatic logout time.
- **Advanced Settings** and **RS485 Device**: special parameters and serial PTZ or keyboard devices.

TIP

Give operators live view and playback only, on the cameras they need. Keep configuration, disk and user management for administrators.

SECTION 20

Maintenance

Logs, firmware, configuration backup and automatic maintenance.

- **System Information**: device information (model, serial number, firmware) and online users.
- **Log Information**: search operation, alarm, exception and information logs by time and type; export them to USB.

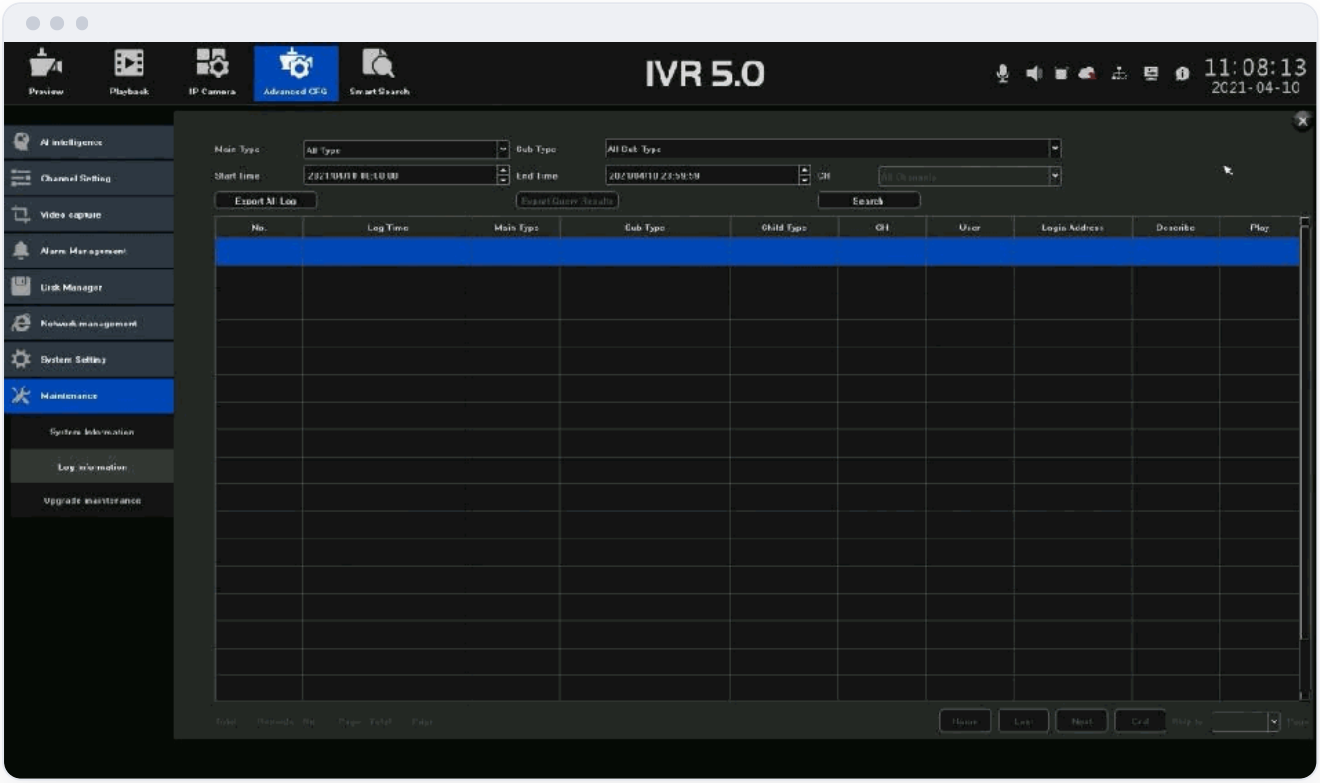


Figure 35. Log search.

1 Back up the configuration

Maintenance › Config Management › Export Configuration to a USB drive. The same file can configure other NVRs with **Import**.

2 Upgrade the firmware

Copy the firmware file to USB, connect it, go to **Maintenance › Upgrade maintenance › IVR upgrade**, click **Browse**, select the file and click **Upgrade**. The NVR restarts by itself.

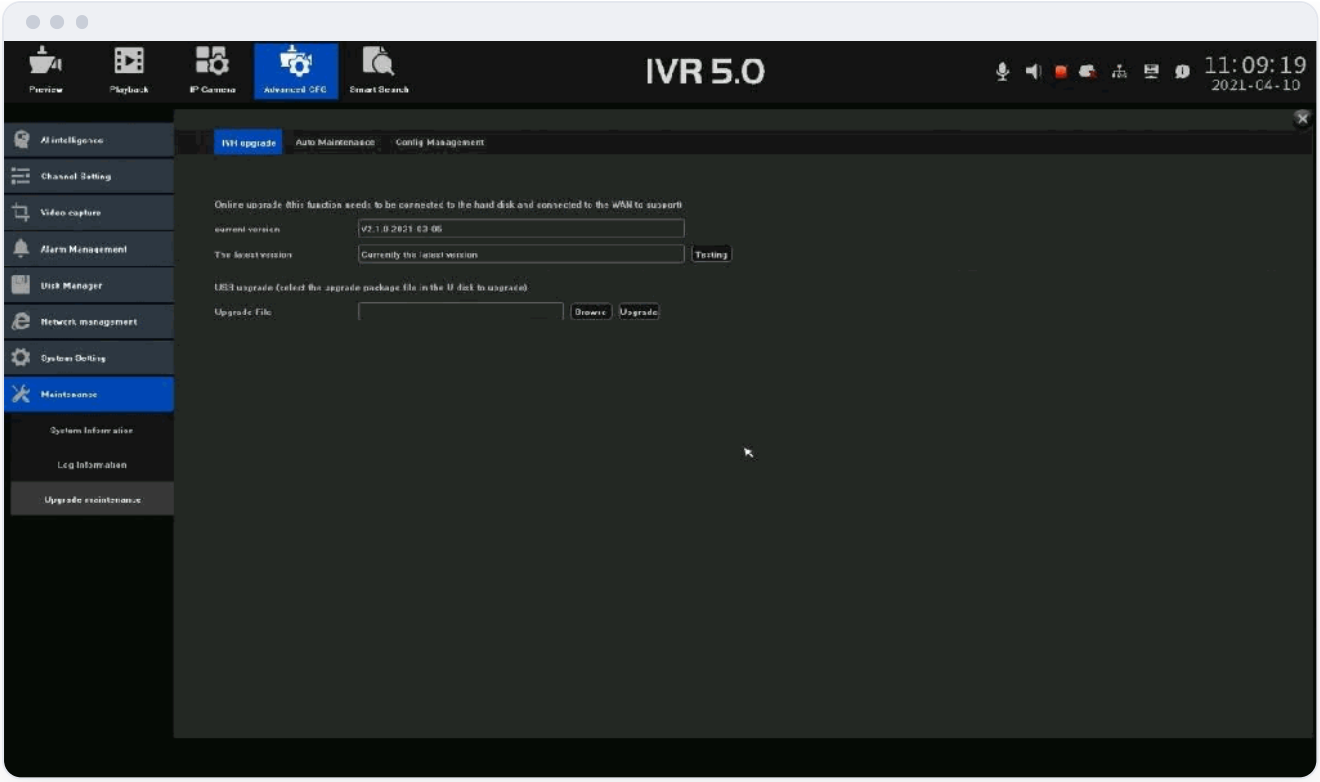


Figure 36. Firmware upgrade.

> **IMPORTANT**
>
> Do not power off the NVR during an upgrade. Use only firmware from Navijin for your exact model.

3 Automatic maintenance

Auto Maintenance: schedule a periodic restart at a quiet time.

4 Restore defaults

Config Management: choose the restore type. The NVR restarts afterwards. Export the configuration first.

SECTION 21

Smart search

Find people and events in hours of video in seconds.

Search	How
All face records	Smart Search › Face Search: channel, time range, **All Records**
By face list	**Member List**: list type, channel and time
By name or ID	**Local List**: similarity, query method and name or number
By photo	**External Photos**: import a picture from USB and set the similarity

Smart snapshots	Face Search › Smart Snapshot: by date or time and picture type
Playback snapshots	Face Search › Playback Snapshot
Events	Smart Search › Event Retrieval: time, channel and event type

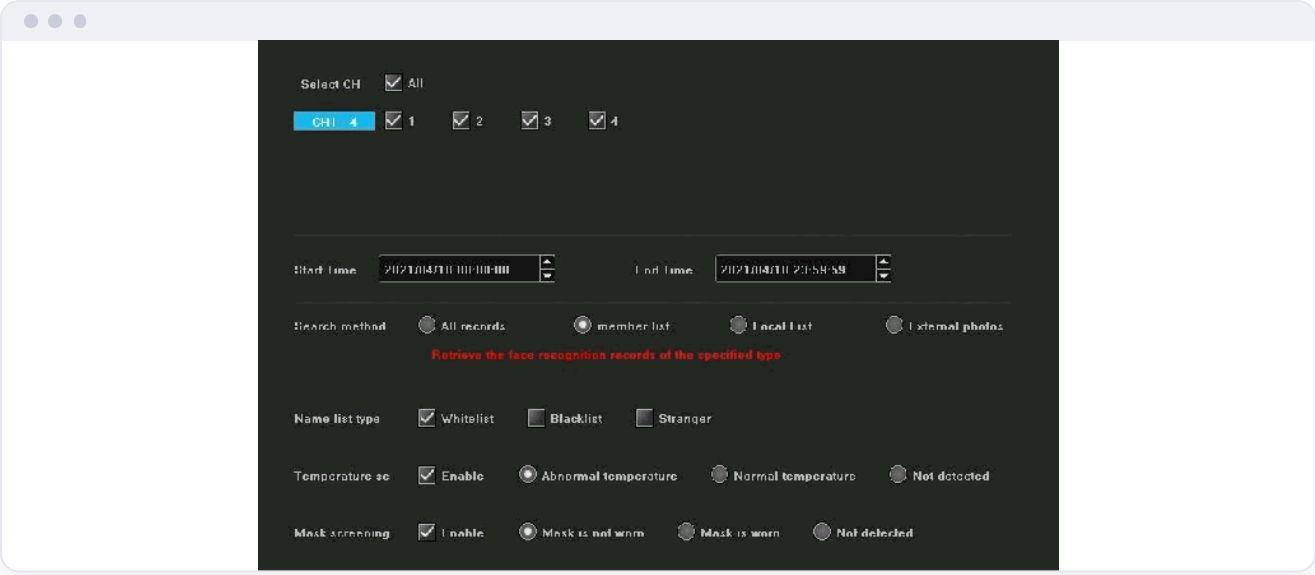


Figure 37. Face search by member list.

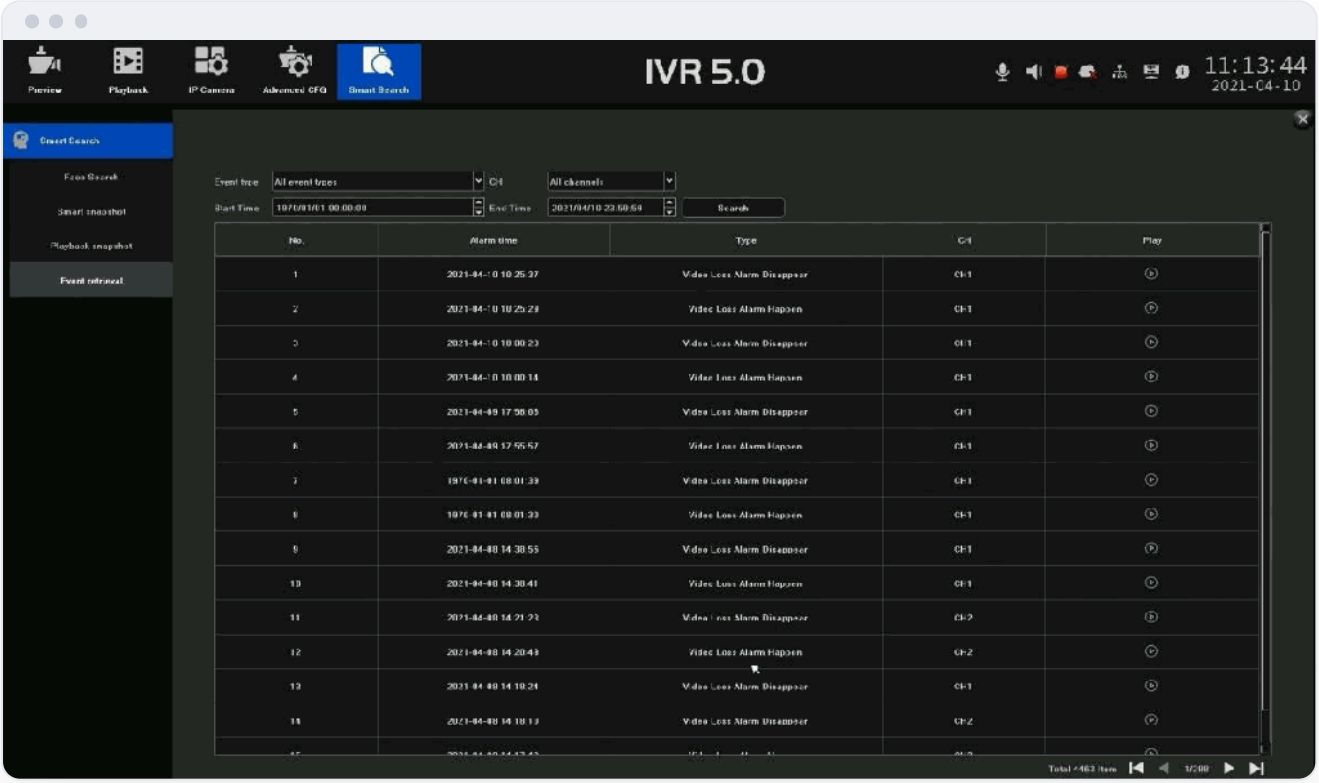


Figure 38. Event retrieval results.

> **TIP**
>
> Start with a low similarity (for example 70%) to find candidates, then raise it to confirm a match.

SECTION 22

Commissioning checklist

Complete every item before handing the system over.

Check	Done when
Disks	All disks initialised and shown as Normal
Password	Strong administrator password, recovery set up, operator accounts created
Time	Correct time zone, NTP on, IPC Check Time on
Cameras	All added with changed passwords; names follow the site plan
Recording	Schedule on every camera; retention checked after a few days
Analytics	Rules drawn, tested with a walk test, schedules set
Exceptions	HDD error, HDD full and network alarms notify someone
Network	Static IP; no port forwarding; VPN or P2P for remote access
Backup	Configuration exported and stored with the site documents
Handover	Operators trained on live view, playback and export

SECTION 23

Troubleshooting

Answers to the most common questions.

No picture on the monitor.

Check the HDMI/VGA cable and that the monitor supports the output resolution. Reset the resolution in Device Setting › Basic Settings from a remote client if needed.

The NVR does not find my cameras.

Put the cameras in the same subnet as the NVR, check the cables and PoE power, and try adding by IP with ONVIF if the camera is a third-party model.

A camera shows 'video loss'.

Check the network path and the camera password. If you changed the camera password, update it on the NVR.

Recording stops after a few days.

The disk is full and overwrite is off, or a disk failed. Check Disk Manager and the HDD exceptions.

Too many false analytics alarms.

Redraw rules where targets are larger, lower the sensitivity, raise the target percentage and exclude trees, roads and sky.

Face recognition misses people.

Mount the camera at eye height facing the walking direction, improve lighting and use better library photos.

I forgot the administrator password.

Contact Navijin support with the serial number of the NVR for a reset procedure.

Navijin

Need help?
We are here for you.

TECHNICAL SUPPORT
navijin.com/en/contact/technical

DOCUMENTATION & FIRMWARE
navijin.com/en/documentation

COMMUNITY TUTORIALS
navijin.com/en/tutorials

VERIFY YOUR PRODUCT
navijin.com/en/verification

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