

NVR H series device user manual

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NVR H is a network video recorder with HDMI output for home and office video surveillance. You can connect [Ajax video devices](#) and third-party IP cameras to the device.

Users can view archived and live footage in Ajax apps or on a display connected via the HDMI output. NVR H records the received data with corresponding settings and a hard disk drive or solid-state drive (not included). If the storage device is not installed, the video recorder is used only for integrating third-party IP cameras into the Ajax system. NVR H provides users with video alarm verification.

To set up NVR H, an internet connection is required. The video recorder connects to the Ajax Cloud service via Ethernet using the corresponding connector.

The device is available in several versions:

- NVR HAC (8-ch);

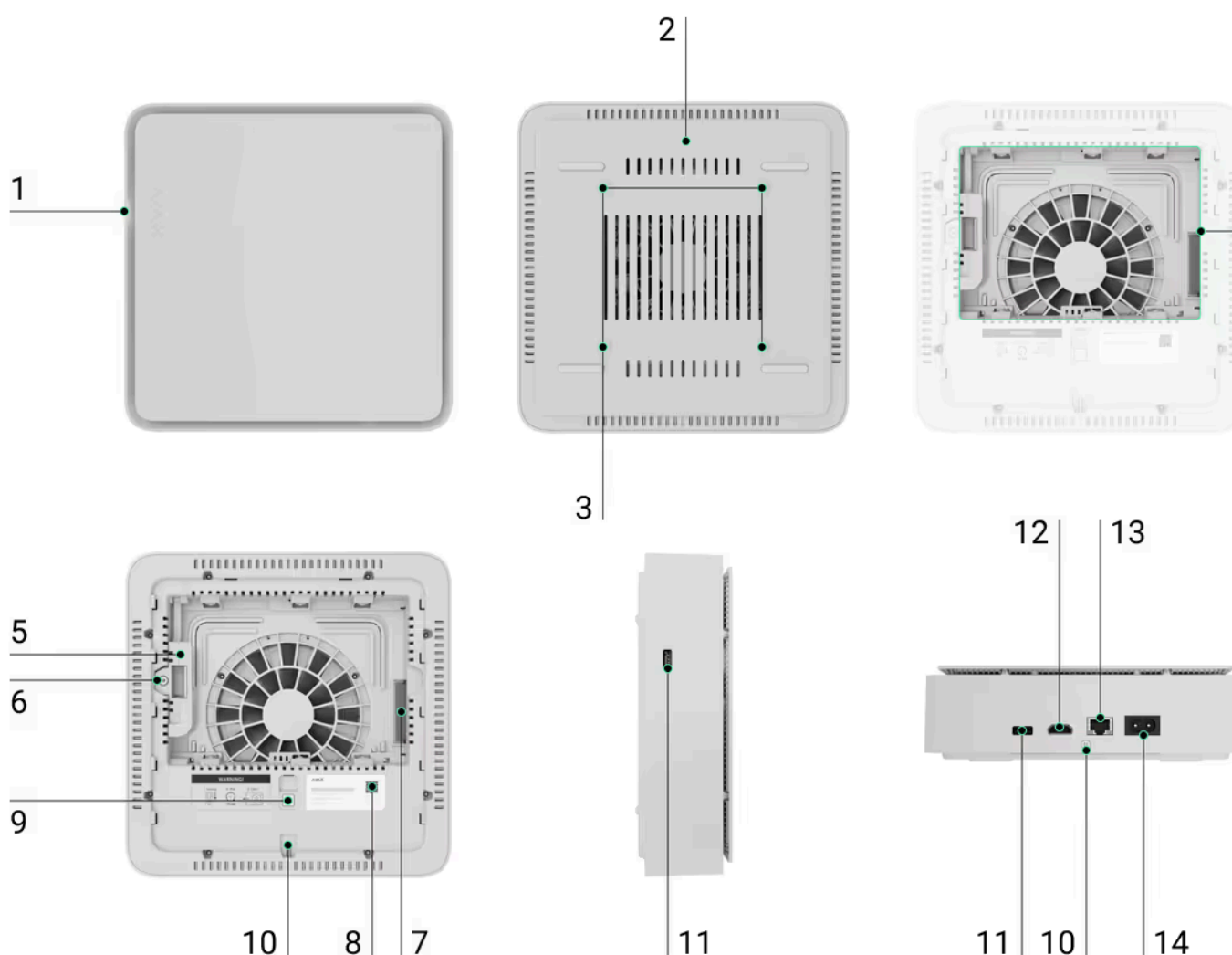
- NVR HAC (16-ch);
- NVR HDC (8-ch);
- NVR HDC (16-ch).

➤ Buy a network video recorder of NVR H series

Functional elements

NVR HAC models

NVR HDC models



1. LED indicator.

2. SmartBracket mounting panel.

3. Holes for attaching the SmartBracket mounting panel to the surface.

4. Place to install a storage device (HDD/SSD). Use a 2.5" to 3.5" mounting adapter to securely install an SSD.

5. 3.5" drive latch.
6. A screw for attaching a 3.5" drive latch.
7. Connector for the storage device.
8. QR code with the device ID. Used to add NVR H to an Ajax system.
9. Button to reset parameters.
10. Holding screw. It is used to fix the device on the SmartBracket mounting panel.
11. USB 2.0 connector.
12. HDMI connector.
13. Ethernet connector.
14. Power supply connector.

Operating principle

NVR H is a video recorder for connecting third-party IP cameras that have ONVIF and RTSP protocols and [Ajax video devices](#). Allows you to install a storage device with a memory capacity of up to 16 TB (not included in the NVR H series package). Also, NVR H can work without a storage device.

How to choose a storage device

NVR H series features an HDMI output that allows video from connected cameras to be viewed on a display, even when the video recorder is not connected to the internet.

NVR H has two USB 2.0 (Type-A) ports for connecting a keyboard, mouse, or USB flash drive. The maximum output current is **500 mA** per port. If the connected device requires more power to operate, provide an external power supply for that device.

The video recorder has a built-in accelerometer that detects if the device has been moved. When the accelerometer is activated in the settings and detects any change in the NVR's position, the system sends a notification that the device has been moved. This feature can be configured in the **Tampering attempt notifications** device settings.



Using the [video storage calculator](#), you can calculate the NVR H required storage capacity and estimated recording time based on the settings.

NVR H series enables users to:

1. Add and configure IP cameras (camera resolution, brightness, contrast, etc.).
2. Watch video from added cameras in real-time, both locally and in Ajax apps, with the ability to zoom.
3. Watch and export videos from the archive locally and in Ajax apps, navigating by the recording chronology and calendar (if the storage device is connected to the video recorder).
4. Choose how to detect motion in the frame — on the camera or on the NVR H.
5. Configure motion detection on NVR H (detection zones, sensitivity level).
6. View the Video wall that combines images from all connected cameras.
7. Create video scenarios that send a short video from the selected camera to the Ajax app when the detector is triggered.
8. Configure connection via ONVIF to integrate the device with video management systems (VMS) such as Milestone, Genetec, Axxon, and Digifort.
9. Create local users and manage their access to the cameras and recorded videos.
10. Watch videos in real-time and playback recorded videos locally on a display connected to the video recorder via the HDMI output.



The video recording segments downloaded from NVR H have the **Ajax digital signature** that verifies the integrity of the exported video. To verify the authenticity of the downloaded video recordings, use the **Ajax Media Player** software.

[Learn more about Ajax Media Player](#)

[How to download videos from the archive in Ajax apps](#)

[How to configure temporary camera video access](#)

[How to configure ONVIF authorization](#)

NVR H is designed for indoor installation. We recommend installing the video recorder on a flat horizontal or vertical surface for better heat exchange of the storage device. Do not cover it with other items.

Selecting the device location



It is advisable to choose an installation site where NVR H is hidden from prying eyes, for example, in the pantry. It will help to reduce the likelihood of sabotage. Note that the device is intended for indoor installation only.

The device is housed in a compact casing with active cooling. If NVR H is installed in insufficiently ventilated rooms, the operating temperature of the memory drive may be exceeded. Choose a hard, flat horizontal or vertical surface for mounting the casing, and do not cover it with other items.

Follow placement recommendations when designing the Ajax system for an object. The security system should be designed and installed by professionals. The list of authorized Ajax partners is [available here](#).

Where not to install NVR H

1. Outdoors. This may cause the breakdown of the video recorder.
2. Inside premises with temperature and humidity values that do not correspond to the operating parameters.

Installation



1. Remove SmartBracket from the video recorder by pulling down the back panel.
2. Secure SmartBracket to a hard, flat surface with the bundled screws. Use all fixation points.
3. Lift the 3.5" drive latch.



When replacing the hard disk drive (HDD), wait 10 seconds after disconnecting the device from the power source. The HDD contains rapidly rotating platters. Sudden movements or impacts can disable the mechanism, leading to physical damage and data loss.

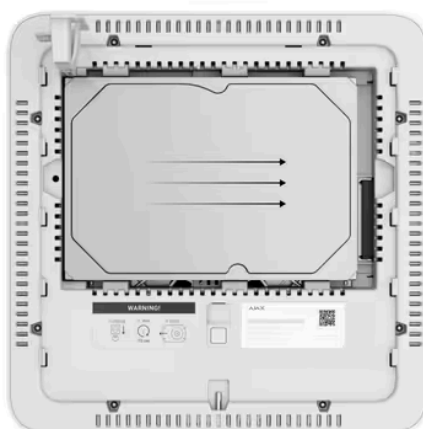
Do not move or flip NVR H until the HDD has stopped spinning.



Note that NVR HAC (8-ch and 16-ch) is not intended for disassembly or board replacement.

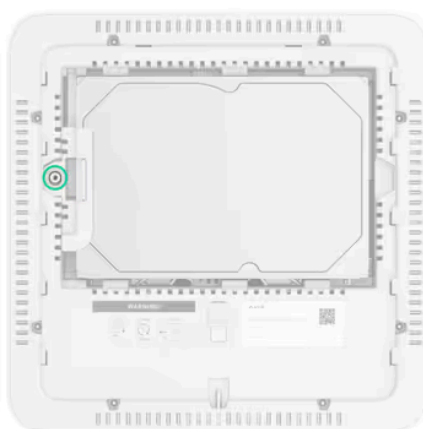


4. Install the storage device in the NVR H enclosure so that the connectors match.



5. Lower the 3.5" drive latch.

6. Secure the storage device in the NVR H enclosure with the bundled screw, using the location for fixation.



7. Connect external power supply and Ethernet connection. Turn on the power supply.
8. Add the device to the system.
9. Insert the video recorder into SmartBracket.

The LED indicator lights up yellow and turns white after the connection to the Internet. If the connection to Ajax Cloud server fails, the LED indicator lights up red.

Adding to the system

Before adding a device

1. Install an Ajax app.
2. Log in to your account or create a new one.
3. Select a space or create a new one.
4. Add at least one virtual room.
5. Ensure the space is disarmed.



Only a PRO or a space admin with the rights to configure the system can add the device to the space.

Types of accounts and their rights

Adding to the space

1. Open the Ajax app. Select the space to which you want to add NVR H.
2. Go to the **Devices**  tab and tap **Add device**.
3. Scan the QR code or enter it manually. Find the QR code on the back of the enclosure under the SmartBracket mounting panel and on the packaging.
4. Assign a name to the device.
5. Select a virtual room.
6. Tap **Add**.

7. Make sure that the video recorder is powered on and has access to the Internet.
The LED indicator should light white.
8. Tap **Add**.

The connected device will appear in the list of devices in the Ajax app.

NVR H only works with one space. To connect the video recorder to the new space, remove NVR H from the device list of the old one. This must be done manually in the Ajax app.

Adding an IP camera to NVR H

You can calculate the number of cameras and NVRs that can be added to the space using the [video device calculator](#).

To add an Ajax camera: To add a third-party IP camera automatically: To add a third-p

1. Open the [Ajax app](#). Select the [space](#) with NVR H added.
2. Go to the **Devices**  tab.
3. Find the video recorder in the list, and tap **Cameras**.
4. Tap **Add device** and wait until the network scan is complete and the available devices connected to the local network are displayed.
5. Select the camera. You will see the live image from the device.
6. Make sure the video matches the desired camera. Tap **Add**.

The IP camera connected to the video recorder will appear in the list of NVR H cameras in the Ajax app.



Note that one camera can be paired with several video recorders in one space at the same time.

Managing NVR H via HDMI connection

Logging in

To start using NVR H with a display connected via the HDMI output, you must log in to your Ajax account. There are two login options: as a local user or with a cloud account.

How to create a local user



Logging in with a cloud account requires an internet connection. If NVR H is not connected to the internet, you can only log in as a local user.

To log in as a local user:

1. Select the login option **As local user**.
2. Enter the local **Username** and **Password** in the corresponding fields.
3. (*Optional*) Enable **Automatically log in to this account on restart**.
4. Tap **Log in**.

To log in with a cloud account:

There are two ways to log in with a cloud account: using account credentials or scanning a QR code.

Using account credentials:

1. Ensure NVR H is connected to the internet.
2. Select the login option **With cloud account**.
3. Select an account type.
4. Enter your **Email** and **Password** in the corresponding fields.
5. (*Optional*) Enable **Automatically log in to this account on restart**.
6. Tap **Log in**.

Using a QR code:

1. Ensure NVR H is connected to the internet.
2. Select the login option **With cloud account**.
3. Open an Ajax app on your mobile device and go to:
 - **Menu** →  **App settings** → **Sessions**
4. Scan the QR code on the display.

Video wall and slideshow

The **Video wall** feature allows you to create custom layouts, manage cameras, watch live video streams, access archived footage, and more — all in a single interface.

What features are available in the video wall*

**This article describes the features available in Ajax Desktop apps. The video wall on the HDMI-connected display does not include some features related to searching for spaces, channels, and channel organization.*

Using the video wall, you can view archives from **up to 4 cameras** simultaneously directly on the display connected via HDMI. The simultaneous playback feature is supported by devices with firmware version **2.547** or later.



You can stream video from the cameras directly to your smart TV using the **Ajax TV** app. With **Ajax TV**, you can monitor multiple cameras simultaneously, switch between devices, and open any camera in full-screen mode on smart TVs or TVs connected to smart TV set-top boxes.

[Learn more about the Ajax TV app](#)

NVR H features keyboard shortcuts to quickly and simply navigate the video wall. These shortcuts give you instant access to key features and help you work within the video wall. The complete set of keyboard shortcuts is available on devices with firmware version **2.557** or later.



A keyboard should be connected to the NVR H to use keyboard shortcuts.

Keyboard shortcuts to manage the video wall

Keyboard shortcut	Description
1	0.5x playback speed
2	1x playback speed (by default)
3	1.5x playback speed
4	2x playback speed

Space	Play/pause
<, >	Previous/next frame
←, →	Seek -5/+5 seconds
F	Open/close full-screen mode
Esc	Return from player mode to grid layout
Tab	Archive entry/exit
Ctrl + N	Create a new tab
Ctrl + D	Delete current tab
Alt + right arrow	Next tab
Alt + left arrow	Previous tab

Keyboard shortcuts to manage the slideshow

Keyboard shortcut	Description
Ctrl + N	Create a new slideshow
Space	Play/stop
F	Open/close full-screen mode
Esc	Return from player mode to grid layout
Alt + right arrow	Move to the next slideshow tab
Alt + left arrow	Move to the previous slideshow tab

Keyboard shortcuts to control PTZ cameras

Keyboard shortcut	Description
P	Open/close PTZ mode
Left/right arrow	Pan left/right
Up/down arrow	Tilt up/down
+ (plus key)	Zoom in
- (minus key)	Zoom out
Shift + left arrow	Focus near

Shift + right arrow	Focus far
H	Go to PTZ default settings

Exporting an archive via USB

The NVR H series devices can export video recordings to an external storage device connected to the USB port. This allows users to download videos directly from the video recorder connected to the display via HDMI. No Ajax apps or internet connection are required.



Exporting video recordings via the USB port is supported by video recorders with firmware version **2.547** or later.

[Learn more about exporting an archive via USB](#)

Settings

To open the **Settings** tab, select it from the top toolbar.

Parameter	Description
Overview	
Overview	Displays the video recorder states and allows the admin to format the storage device or reboot the video recorder if specific issues occur. Learn more in the State section
Connection	
Connection type	The setting of the connection type of the video recorder to Ajax Cloud service via Ethernet. Available connection types: • DHCP • Static
Archive	

Hard drive	Shows the states and settings of the storage device. Learn more in the Archive settings section
Archive settings	Shows the current archive depth and archive settings. Learn more in the Archive settings section
Audio	
Audio output	Selecting which audio output device to use. The option shows all connected devices that can play sound.
Output volume	Adjusting the audio output device's speaker volume.
Test volume	This option allows you to test the audio output device's speaker volume.
Audio input	Selecting which microphone to use based on the connected devices.
Microphone gain	Configuring the microphone sensitivity level.
App settings	
Language	Selects the language of the interface.
Measurement system	Sets the system for displaying measurements in the app: • Metric – measurements are displayed in °C and meters. • Imperial/US customary – measurements are displayed in °F and feet.
Screen resolution	Sets the screen resolution for the display connected to the HDMI port.  To reset the screen resolution, reboot the video recorder and, once it boots, press and hold the right and left mouse buttons simultaneously for 5 seconds.
Display area alignment	Manually adjusts the interface placement on the screen.

Logging out

To log out of your account:

1. Click the profile icon or user image in the upper-right corner of the interface.

2. Select **Sign out**.

After logging out, you will see the login screen.

Resetting to the default settings

To reset NVR H to the default settings:

1. Turn it off by disconnecting the power supply.
2. Press and hold the reset button.
3. Power NVR H while the reset button is pressed, and wait until the LED indicator lights up violet. This will take about 50 s.



The NVR H LED indicator lights up yellow for 20 s after powering the video recorder with a pressed reset button. Then it turns off for 30 s and lights up violet. This means that NVR H has been restored to the default settings.

4. Release the reset button.

Icons

The icons show some device statuses. You can view them in Ajax apps:

1. Select a space in the Ajax app.
2. Go to the **Devices**  tab.
3. Find **NVR H** in the list.

Icon	Meaning
	The storage device is connected.
	The storage device is not connected or in Read-only mode.

	The storage device is being formatted or has periodic malfunctions. If formatting does not start, replace the storage device.
	The storage device malfunctions have been detected. Rebooting NVR H or formatting the storage device is recommended.
	A firmware update is available. Go to the device states or settings to find the description and launch an update.
	Firmware update in progress: downloading/installing the latest version.
	New firmware installation has failed.
	The device connection via ONVIF is enabled. Learn more
	The device has lost connection with the Ajax Cloud server.

States

The **States** section displays information about the device and its operating parameters. You can view the video recorder's states in Ajax apps or on a display connected via HDMI.

To view states in Ajax apps:

1. Open an [Ajax app](#) and select a [space](#).
2. Go to the **Devices**  tab.
3. Select **NVR H** from the list of devices.

Parameter	Meaning
Firmware update	The field is displayed when the firmware update is available: • New firmware version available — the new firmware is available for download and installation. • Downloading... — firmware downloading is in progress. It is displayed as a percentage. • Installing... — the firmware is being installed. • Failed to update firmware — the new firmware could not be installed.

	Tapping on ⓘ opens more information about the device's firmware update.
Ethernet	NVR H connection status to the Internet via Ethernet: • Connected – NVR H is connected to the network. Normal state. • Not connected – NVR H is not connected to the network. Check your wired internet connection. Tapping the icon ⓘ displays the network parameters.
CPU usage	Displayed from 0 to 100%.
RAM usage	Displayed from 0 to 100%.
Hard drive	Storage device connection status to NVR H: • OK – the storage device is communicating with NVR H. Normal state. • Error – an error occurred when connecting the storage device to the NVR H. Check the connection and compatibility of the memory drive and video recorder. • Formatting required – storage device formatting is recommended. If the drive contains data, it will be permanently deleted. • Formatting... – the storage device is being formatted. • Not installed – the storage device is not installed in the NVR H.
Built-in fan state	Built-in fan speed status: • Off – the fan is turned off to eliminate unwanted noise. • OK – the fan is operating normally. • Error – the fan issue is detected, which may lead to overheating or device malfunction. Check if nothing is blocking the blade movement. Contact Ajax Technical Support if the issue persists.
Hard drive temperature	The temperature of the storage device.
Cameras (online / total)	The number of cameras connected to the video recorder.
Current archive depth	The depth of storage device recording. Shows how many days from the first record.
ONVIF integration	Shows the current status of the device's ONVIF integration. This state is displayed only when ONVIF integration is enabled.
Uptime	NVR H operating time since the last reboot.
Firmware	Firmware version of the NVR H.
Device ID	NVR H ID/Serial Number. Also available on the back part of the casing under the SmartBracket mounting panel and the packaging.

Settings

To change video recorder settings in an Ajax app:

1. Go to the **Devices**  tab.
2. Select **NVR H** from the list.
3. Go to **Settings** by tapping on the gear icon .
4. Set the required parameters.
5. Tap **Back** to save the new settings.

Additionally, the **Connection** and **Archive** settings can be configured via HDMI connection.



An Ajax system enables PROs to apply multiple preconfigured settings to multiple video devices simultaneously via setting templates.

[Learn more about settings templates](#)

Settings	Meaning
Name	Video recorder name. Appears in the list of devices and notifications in the events feed. To change the video recorder name, tap on the text field. The name can contain up to 12 Cyrillic characters or up to 24 Latin characters.
Room	Selection of the NVR H virtual room. The room name is displayed in the text of notifications in the events feed.
Tampering attempt notifications	Allows enabling the Notify on device movement option. When enabled, the system notifies the user if the device is moved or its position changes.
Firmware update	NVR H firmware version.
Ethernet	The setting of the connection type of NVR H to Ajax Cloud service via Ethernet. Available connection types: • DHCP; • Static.
Archive	Opens a menu with Archive settings. Learn more

Audio	Opens the menu with the Audio settings. Learn more
Local users	Opens the menu for managing local user accounts on the device. Local users can access the device even without an internet connection. Learn more
Service	Opens a menu with Service settings. Learn more
Monitoring	 The setting is available in Ajax Pro apps. Allows a PRO with rights to configure the system to set up Zone number for CMS events – unique identifier of the device in events it reports to CMS. For cameras connected to NVR H, the Send events on detections to CMS option can be set up additionally. This option defines whether the camera will send notifications on motion or object detection to CMS. To do this, open the settings of the connected camera and click the Monitoring menu.
Report a problem	Allows to describe a problem and send a report.
User manual	Opens the NVR H series device user manual.
Delete device	Unpairs NVR H from the space.

Archive

Settings	Meaning
Hard drive	
Hard drive	Displays the storage device connection state to the video recorder: • OK – the storage device is communicating with the video recorder. Normal state. • Error – an error occurred when connecting the storage device to the video recorder. Check the connection and compatibility of the memory drive and video recorder. • Works with errors – the storage device is working with errors. It is recommended to either reboot the device or format the storage device.

	• Requires formatting — storage device formatting is recommended. If the drive contains data, it will be permanently deleted. • Formatting... — the storage device is being formatted. • Not installed — the storage device is not installed in the video recorder. • Read-only — the storage device is in Read-only mode. New recordings will not be saved to the disk.
Storage (used / total)	Displays the current usage of the installed storage device. The first value shows the amount of occupied space, and the second value indicates the total storage capacity.
Access mode	Selects permissions to interact with the installed storage device: • Read & write — allows the NVR to record new footage and read existing files. • Read-only — restricts access to viewing and playback only. New recordings will not be saved to the disk.
Eject	Allows for safe ejecting of the storage device. Recording to the disk is paused until it is reinserted and recognized by the system.
Format	Allows formatting the storage device.
Archive settings	
Current archive depth	Displays the current archive depth.
Max archive depth	Selection of the maximum archive depth. It can be set in the range of 1 to 360 days or can be unlimited.

Audio

Settings	Meaning
Audio output	Allows selecting which audio output device to use. The option shows all connected devices that can play sound.
Output volume	Allows adjusting the volume of the audio output device's speaker.
Audio input	Allows selecting which microphone to use based on the connected devices.
Microphone gain	Allows configuring the microphone sensitivity level.

Service

Settings	Meaning
Time zone	Time zone selection. Set by the user and is displayed when viewing video from IP cameras.
LED brightness	The brightness level of the LED indicator of the device is adjusted with a scrollbar.
Built-in fan	The speed of the built-in fan in NVR H. Setting the fan's speed helps regulate the device's internal temperature. Available operating modes are: • Disabled — the fan is turned off to eliminate unwanted noise. • Auto — the fan speed adjusts automatically based on the device's operating conditions to prevent overheating. • Preset — manual speed control. Available speed values are: ◦ Low ◦ Medium ◦ High
Cloud connection	
Delay of cloud connection loss alarm, sec	The delay is required to reduce the risk of a false event about the lost connection with the server. The delay can be set in the range of 30 to 600 seconds.
Cloud polling interval, sec	The frequency of polling the Ajax Cloud server is set in the range of 30 to 300 seconds. The shorter the interval, the quicker the cloud connection loss will be detected.
Get notified of server connection loss without alarm	If enabled, the app uses a standard notification sound instead of a siren alert.
Connection via ONVIF	
Connection via ONVIF	Configuring the device's connection via ONVIF to third-party VMSs. Learn more
Security certificates	
Security certificates	Allows downloading the security certificate to use it in the third-party sys to secure the connection between the Ajax video device and the third-party video management system.

Managing local users

Local users are accounts saved directly on the video recorder that can be used to access NVR H even without an internet connection. Up to 50 local users can be created on a single NVR H. Each user has a username, password, and a role — either **Administrator** or **Operator**. The assigned role determines the local user's access rights to cameras, the archive, and device settings.

Local user accounts can be created, managed, and deleted only via [Ajax apps](#), and only when NVR H is connected to the internet.

Creating a local user

To create a local user in Ajax apps:

1. Select a space.
2. Go to the **Local users** menu in the NVR H settings:
 - **Devices**  → **NVR H** → **Settings**  → **Local users**
3. Tap **Add**.
4. Fill in the required fields:
 - a. Enter a **Username**. Each username must be unique.
 - b. Enter a **Password** and confirm it in the **Password confirmation** field. The password must be at least six characters long and include uppercase and lowercase letters, digits, and special characters.
5. Select the local user role. Note that the **Administrator** role has full access to the cameras and settings.
6. If the **Operator** role is selected, set the required access rights.
7. Tap **Save** to finish creating a local user.

Modifying parameters and permissions

To modify a local user's name, role, permissions, or password in Ajax apps:

1. Select a space.
2. Go to the **Local users** menu in the NVR H settings:

- **Devices**  → **NVR H** → **Settings**  → **Local users**
3. Select the required local user.
 4. Modify the following parameters as necessary:
 - a. **Username**.
 - b. **Role**.
 - c. **Access rights** (only for the **Operator** role).
 - d. **Password**.
 5. Tap **Save** to apply the changes.

Deleting a local user

To delete a local user in Ajax apps:

1. Select a space.
2. Go to the **Local users** menu in the NVR H settings:
 - **Devices**  → **NVR H** → **Settings**  → **Local users**
3. Select the required local user.
4. Tap **Delete account**.
5. Tap **Delete** to confirm the action.



Note that once a local user is deleted, they will no longer be able to log in with their credentials, and all active sessions will be terminated.

Indication

Event	Indication	Note
NVR H boots after connecting to power.	Lights up yellow.	If NVR H is connected to Ajax Cloud, the color indication changes to white.
NVR H has power and is connected to the Internet.	Lights up white.	

NVR H is not connected to the Internet or there is no communication with the Ajax Cloud server.	Lights up red.	
- NVR H does not have a storage device installed. - The storage device is installed but does not work correctly. For example, when formatting, if it has errors, or when it needs to be formatted.	Flashes white or red every second, depending on the status of the connection with the Ajax Cloud server.	The indicator flashes until one of the following conditions is met: - The storage device is formatted/installed. - All cameras added to NVR H are configured not to record video to the NVR's storage device.

Maintenance

The device does not require maintenance.



Note that NVR HAC (8-ch and 16-ch) is not intended for disassembly or board replacement.

Technical specifications

[Technical specifications of NVR HAC \(8-ch\)](#)

[Technical specifications of NVR HAC \(16-ch\)](#)

[Technical specifications of NVR HDC \(8-ch\)](#)

[Technical specifications of NVR HDC \(16-ch\)](#)

[Compliance with standards](#)

Warranty

Warranty for products of Limited Liability Company "Ajax Systems Manufacturing" valid for 2 years after purchase.

If the device does not function correctly, please contact Ajax Technical Support first. In most cases, technical issues can be resolved remotely.

[Warranty obligations](#)

[User Agreement](#)

Contact Technical Support:

- [email](#)
- [Telegram](#)

Manufactured by "AS Manufacturing" LLC

