



The Airtame device works best if it utilizes the existing network setup of your organization. An Airtame device is able to join different network setups with different securities. This deployment guide summarizes our recommendations for an optimal setup.

This is the Airtame 2 deployment guide

 Installation and Powering Airtame	2
 Application	3
 Network Integration	4
 Airtame Cloud	7
 Display Calibration	8
 Audio & Video streaming	9
 Device Management & Features	10
 Airtame's Homescreen	11
 Updating Software and Firmware	12
 Airtame & Security	13
 Test & Validate your Airtame setup	14



Airtame Advice

- With Airtame, a compressed video stream is sent from your machine (computer or mobile device). This compression means the picture is not necessarily as sharp as with an HDMI cable, but when set up right it is an inclusive, seamless way to meet presentation needs.
- Streaming performance is determined by both the network and computer being used. Relying on your existing network means we assume it exceeds Airtame's minimum requirements (found in "Network Integration & Setup").
- Ethernet is best, followed by 5GHz (>-60dmb), 2.4GHz (>-50dbm), and Airtame's AP, respectively.
- To deal with the varying load from increased network traffic during meetings and presentations, an excess of bandwidth or QoS on the AP in the room is expected. This is especially relevant in educational environments.
- Lag/delay is caused by a loss of data during transmission. Loss of data could be due to poor signal strength, packet drops and/or bottlenecks.
- Make sure to follow our advice on optimal physical placement for Airtame, in order to get the best signal and streaming experience.
- Insufficient power can negatively impact performance. The Aircord needs to be used at all times and it can not be extended.
- Password protect your Airtame's settings!
- Airtame support is always ready to help. Visit airtame.com to find our live chat and help center. It is friendly, effective, enjoyable and useful to avoid frustration with the Airtame device, so please don't hesitate to reach out!



Installation and Powering Airtame

- Airtame is powered via Aircord, which is plugged into the device's USB-C port.
- Airtame needs 2.5 Amps of power to work.
- It can not be powered using over cables or USB ports.
- To extend Aircord, the Airtame Infinity Cable must be used.
- You can use VGA and DVI adapters, as well as HDMI extenders with Airtame.

Powering

- Only use the power adapter that comes in the box.
- Aircord cannot be extended to provide additional length, the Airtame Infinity cable must be used.
- Airtame 2 is compatible with the Airtame PoE Adapter.

Mounting Airtame

Airtame 2 provides flexible mounting options for both permanent and non-permanent installations. When choosing a spot to place Airtame, remember to:

1. Place the Airtame as close to line of sight with the nearest AP as possible.
2. Place Airtame within 50 feet of an AP.
3. Use an HDMI-in that is in the direction of the nearest AP.
4. Avoid placing Airtame 2 behind WiFi blockers such as the TV or furniture.
5. Keep the cabling out of sight by using the adhesive strip.

Permanent vs. Non-Permanent

- Permanent installations use the adhesive strips of the wall mount and Aircable to secure the Airtame 2 to a non-magnetic TV, projector or the wall beside it.
- Non-permanent installations only use the magnetism of the wall mount to fix the Airtame to a metallic surface of the TV or projector. In such cases, *remember to leave the seal on the adhesive pads.*



Application

Computer App

Windows, MacOS, Linux and Chromebook all use the same Airtame app, with the same functionality and appearance.

- Click the “Share screen” button next to device name in the app (or type in the IP address) to start streaming your screen or selected window.
- If you want to stream to multiple Airtame devices simultaneously, click “Start” next to all of them within the app.
- Application preferences allow you to manually change settings that affect streaming (e.g. frames per second).
- The device settings (under the name of each Airtame), is specific to an individual device (e.g. its background image).

△ Chromebook app does not allow for the initial setup of an Airtame device. Setup needs to be done with the app running on Windows or MacOS.

△ Mac OS users must allow Soundflower to be installed when installing Airtame app for Audio streaming.

App Deployment

The Airtame application can be downloaded from airtame.com/start:

- [Regular Installer](#): This is a normal installer of the app. It requires admin rights.
- [Windows Guest app](#): This is perfect for one-time users such as guests. It does not require installation nor admin rights. It opens with just a click.
- [Windows Mass deployment installer \(MSI\)](#): This is a version of the app used to pre-configure and install the app on numerous company laptops at once.

Android Mobile App

For Android mobile devices, we have created a Presentation app which lets you show photos, documents and presentations. Such content can be stored locally, on a cloud platform or imported from another mobile app. The app is available on the Android Store.

iOS Mobile Devices

As AirPlay functionality is integrated in Airtame, you can use direct “screen mirroring” to Airtame from iPhones and iPads. If your network does not support Airplay, you can also use Airtame’s Presentation app which allows you show photos, documents and presentations (static images).



Network Integration

- Airtame supports connections via WiFi as well as Ethernet.
- Best connection options: Ethernet > 5GHz > 2.4GHz > Airtame's AP.
- The default gateway is determined in the same order as above.

Network Requirements

- "Client Isolation" or "NAT Mode" must be disabled
- To use the Airtame.cloud online management platform, an NTP server must be accessible - internal (DHCP) or external
- 802.11n/ac router and/or access points (5GHz Recommended)
- WPA or WPA2 ([802.1x SSL Supported](#))
- RSSI -40dBm to -65dBm
- Stable network with low response time for optimal performance ([Internal Ping](#) below 10ms is good)
- ⚠ Not Supported: Proxy networks, Captive-Portal Login Networks and WEP

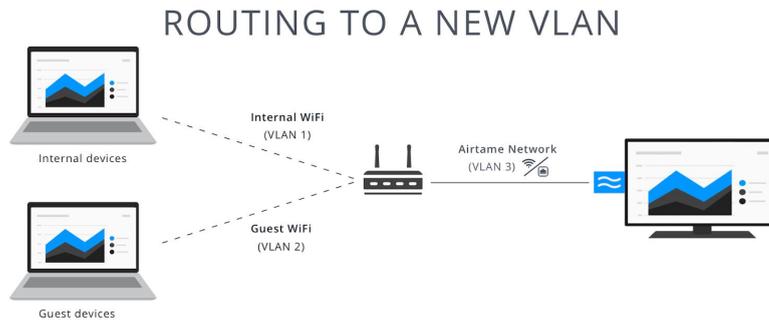
Airtame port diagram

Port	Type	Direction	Function
8002	UDP	PC to Airtame	Video + Audio Streaming
1986	TCP	Both	Mobile Streaming
8080	TCP	PC to Airtame	PIN code (Request)
8080	TCP	Both	Airtame Settings
80	TCP (HTTP)	Both	Firmware updates
80	TCP (HTTP)	Both	Software Updates
1900+1901	UDP	Both	Airtame Discovery
A123	UDP	Both	Time Sync (NTP)
443	TCP (HTTPS)	Internet	Cloud (Web Socket)



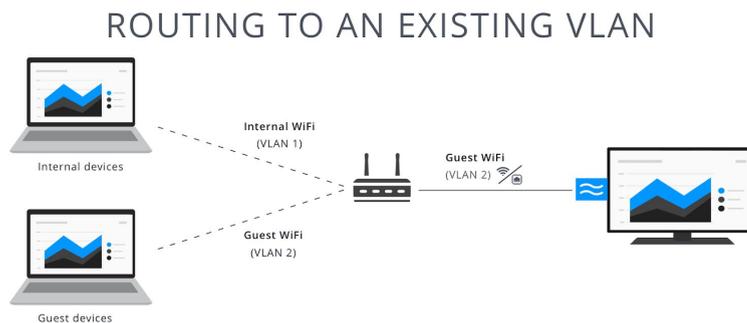
Network Integration examples

1. New VLAN for Airtames only in a Demilitarized zone (DMZ)



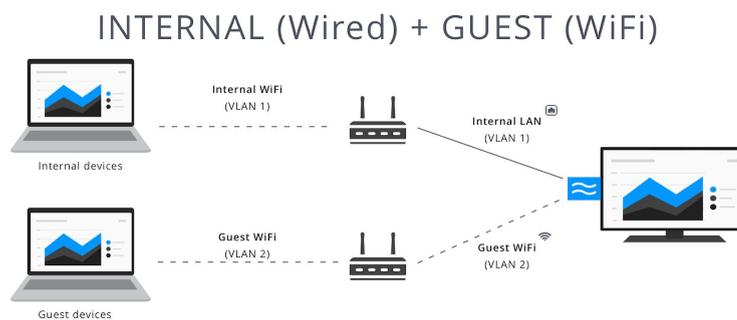
This is the best way to connect Airtame to more than one network. It is the most secure as it is all handled by your firewall; it will give great performance as all traffic flows through ethernet or 5GHz, and it simplifies the network administration. Learn more [here](#).

2. Routing to an existing VLAN



Alternatively, the Airtames can be placed on the guest network with routing the specific ports from the internal network to the guest network. This will allow internal and guest users to stream without giving guests access to the internal network.

3. Using Wifi and Ethernet connections



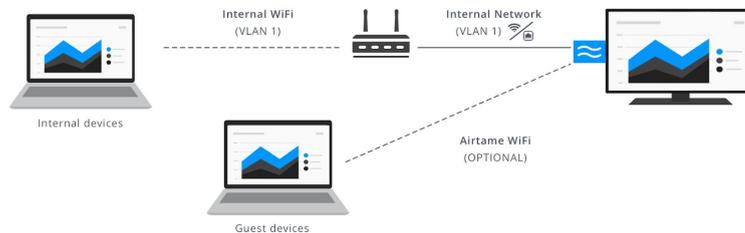


Airtame can handle one WiFi connection and one Ethernet connection simultaneously. This setup is more accomplishable and maintains security. The only drawback is that the guest WiFi may not provide the same quality as the wired internal connection.

When using this setup, you must [customize the on-screen instructions](#) for your internal and guest users.

4. Using Airtame's own WiFi for guests

ONE NETWORK + GUEST ACCESS



This is the least recommended setup for the following reasons:

1. Guests will lose internet connection unless "WiFi Forwarding" is enabled.
2. "WiFi Forwarding" can be a security vulnerability since it opens a portal to your network to forward the internet connection.
3. Airtame's own WiFi doesn't perform as well as your expensive network. Again, 5GHz WiFi will perform better than 2.4GHz for streaming.

This setup is good for SMEs that only have one WiFi network. The Airtame can create a network inside the room for guests to connect to for streaming and internet access.

Automatic Discovery

The Airtame app can detect and list all nearby Airtame devices that are on the same network. The protocol used is SSDP/UPnP. Therefore, to get this functionality to work, Multicast needs to be enabled on the network and all VLANs used for streaming.

Setting up discovery across various VLANs is a little more complicated so we have made [this separate guide](#) that summarizes the necessary steps.

In case you are using a simplified solution, the Service ID is:
'urn:airtame-com:device:airtame:1'



Airtame Cloud

<https://airtame.cloud>

- Check on the status for each device (online, offline, streaming)
- View Network connection status (SSID or Ethernet) and RSSI
- Check the firmware version running on your Airtames
- Create groups of devices. Expand, collapse, and rearrange the groups
- Select the orientation of your Homescreen to either landscape or portrait mode
- Get a visual overview of your Airtames' status and what they are showing on their Homescreen (does not show what content people are streaming)
- Use Airtame apps for more advanced ways to use your screens
- Perform a "Reboot" or "Update"
- Manage all your Airtames' settings and perform bulk changes.

Requirements

Some network requirements are needed for Airtame Cloud to work with your Airtames:

1. Your Airtames must have internet access. Port: 443
2. Your Airtames must be able to synchronize their time with either your NTP server or an external NTP server. Port: 123
3. Your network must allow communication with servers in Germany since we host Airtame.cloud on AWS in Germany.

Get started:

1. Navigate to airtame.cloud
2. Fill out "Organization name" and press "Next"
3. Fill out your email address and choose a password
4. Press "Create account"
5. Hover your mouse over "Add Airtame"
6. Select the group you would like to add your Airtame to
7. Click the "Copy" button or manually copy the code token in the box
 - a. *Note: Generate a new code for each Airtame)*
8. Add the code to your Airtame:
 - a. Open the [Airtame settings](#)
 - b. Paste the token under "Cloud token"
 - c. Click the "Apply changes" button



Display Calibration

Image quality is defined by the PC and TV resolution, PC and network performance, and display calibration.

- Image quality depends on screen calibration.
- Overscan causes the picture to be cropped on all edges (i.e. to not fit into screen).
- The picture shown on the TV is the resolution of your computer screen scaled to your TV screen's resolution.
- The aspect ratio of a TV is usually 16:9, and some computers use 16:10 which will be fitted. This may result in black bars on the side of the image on the TV screen. To avoid this, change the computer's resolution to 16:9.

Display Calibration

- To achieve the best image quality, start streaming to the screen and open an Excel style spreadsheet. This includes different gray scales in the rows/columns and the menu bar, which serve as as guidelines for the adjustments. Next, follow these steps:

1. Find the best looking standard mode (can be named Natural) or reset all adjustments
2. Reduce contrast until all the lines in the spreadsheet are visible (often around 70-80% of max value)
3. Reduce sharpen until the text looks good and is easy to read (Often 0-20% of maximum)

- A setting called "Black levels" in advanced settings can be useful for getting the light gray tones to look good.

- Disabling 100 Hz and other image processing settings will remove latency caused by the TV. This will make Airtame appear more responsive. The downside will be that, when playing video, it can look less fluent because the TV doesn't process extra frames.

Resolution

The resolution shown on the TV is the resolution of your computer screen scaled to the resolution of your TV screen. This means that if your computer has a 720p monitor, the image streamed to your TV will also be 720p even though the TV is 1080p.



Audio & Video streaming

Latency and Network Consumption

- Sharing with sound OFF: 400 - 800 milliseconds latency (1-5Mbit/s Bandwidth)
- Sharing with sound ON: 1-second set latency (2-7Mbit/s Bandwidth)
- Sharing with highest quality settings in manual mode: Depends on user and network (up to 13Mbit/s Bandwidth)

Streaming Modes

Default - Instant Mode

This is the default streaming mode for basic screen sharing.

- **Priority:** Minimum delay between the computer screen and Airtame's screen.
- **When to use:** Everything that doesn't require audio, such as when showing work being done, presentations, images, and documents.
- **Stream parameters:** Quality: 2/5 (Medium), FPS: 20
- **Disadvantages:** Does not recover lost frames, does not transmit audio, slightly lower picture quality.

Video Mode - Share screen with Audio

This mode is enabled by clicking the audio  button in the app.

- **Priority:** Better video quality, fluid playback, and audio-video synchronization.
- **When to use:** Streaming content with sound (adds 1s buffer).
- **Stream parameters:** Quality: 3/5 (Higher), FPS: 24.
- **Disadvantages:** Set buffer of 1 second, the TV picture will be 1 second behind your computer's screen.

Manual Mode

You can enable this mode by going to the app Settings → Toggle On Manual mode.

- **Priority:** Flexibility resulting in maximum quality (5/5).
- **When to use:** When higher quality streaming is needed and both the network and the computer allow it.
- **Streaming parameters:** Manually adjustable.
- **Disadvantages:** Highly dependent on computer performance and network stability. Can give worse results than default modes.



Device Management & Features

- Device Settings is where you change any settings of an individual Airtame device.
- You can access the settings through the [Airtame app](#) or through [Airtame Cloud](#)
- Airtame Cloud will allow you to change settings for multiple devices at once. It will ease up deployment and allow you to perform all the changes faster.
- Setting up an Airtame involves giving it a name and connecting it to a network.

What can Device Settings do?

- Change the name of your device
- Connect Airtame to an existing WiFi network
- Change the settings of Airtame's own WiFi network (for direct connections)
- Select which antenna (2.4 GHz or 5 GHz) to use for different connections
- Set a password for Airtame's WiFi
- Enable/Disable WiFi forwarding (Routing network access to Airtame's own WiFi)
- Decide if you want to show the name of Airtame's AP on the Homescreen Overlay or not
- Set the Homescreen Overlay (Guide, Guide left, Minimal, None)
- [Select Homescreen Background](#) (default image, custom image, URL/Dashboard)
- Override your WiFi's SSID name which is visible for users
- Name the Ethernet connection, usually the WiFi SSID which routes to this Ethernet connection to show users which WiFi to use for streaming
- Disable or enable the LED light on the Airtame device
- Disable or enable PIN code connect, used to prevent anyone streaming from outside of the room
- Manually override the HDMI output resolution
- Enter the "cloud token" in order to add a device to [Airtame.cloud](#)
- Reboot the device
- [Update](#) the device to the GA or Beta release of Airtame firmware
- Disable or enable automatic updates (if enabled, the device will automatically update after being idle for 15 min)
- [Download a log file from the Airtame device](#) (this file is used for troubleshooting any issues occurring on the device)
- Add a password in order to lock the Device Settings panel (this way only users with the password will be able to change device settings) *For more details, please check out [Airtame & Security](#)*



Airtame's Homescreen

- You can change the background shown when the device isn't being streamed to by uploading a custom image or pasting in a web URL.
- You can change the guide placement: Guide, Guide Left, Minimal or none.
- Change the text shown on the screen.
- Use Homescreen apps via Airtame cloud console - this will let you turn your screens into useful information displays or just make your office nicer!

Show Images

Appropriate for branding, showing stock images or company logos. The image should have a resolution of 1920x1080 pixels and cannot exceed 2MB.

Show Websites

Show company KPI metrics, meeting room agendas, slideshows, presentations, and much more.

Current limitations:

- Video playback and high demanding graphics cannot be displayed
- Java, Flash, Silverlight, Flexbox and WebGL are not supported
- Websites that require a login are not yet supported, as Airtame currently lacks a way for credentials to be inputted

Change The Homescreen Layout

Airtame's homescreen can have four different overlays depending on the purpose of the screen. You can [fully edit](#) "Guide left" and "Guide" by changing the text, color and transparency of the different overlay layouts.

- Guide left: By default, this layout will show a 3-step guide to help new users get streaming with Airtame.
- Guide: Here, you can see the same information as in Guide left in a more concise manner.
- Minimal: This layout will show the name of your Airtame device and its IP address.
- None: No layout is shown on the screen.

Change The Homescreen Overlay Text

You can fully customize the text shown on the homescreen. This is useful if you want to add your organization name, show relevant network information, have tailored welcome message, etc.

You can find a comprehensive guide on how to do so, as well as some examples you can copy, [here](#).



⚙️ Updating Software and Firmware

Airtame periodically receives product improvements and new features through software and firmware updates. By default, your device and app are set to update automatically. This can be changed if you would prefer to [manually update](#) them via the device settings or from [Airtame Cloud](#).

Firmware Updates

Firmware updates can be triggered from within the Airtame app or from your [Airtame Cloud](#) account

1. Open [Device Settings](#)
2. If an update is available, you will see an update button at the bottom of the window.
👉 Automatic updates can be disabled on the same page

Software Updates

The Airtame app checks for software updates regularly. If there is an update available, you will see a green bar at the top of the app. Simply click on the "Install" button and the application will restart and install the new update.

You can also download and install the latest version from airtame.com/download and it will replace your previous version.

MSI and Portable versions of the app will need to be updated manually by downloading the new app version.



Airtame & Security

Cyber Security

- When you stream using Airtame, the stream itself never leaves your network, meaning that it will never be on the internet. Additionally, Airtame will not collect or store any information regarding the content of the stream.
- The Airtame stream is not encrypted within your network but it is encrypted by your network. This means that no one off of the network can capture your stream, but if someone is already on the network, they could pose a threat if they take the time to snoop the network traffic and reverse engineer Airtame's protocol.
- Airtame supports two networks on one device. One is via Ethernet and the other via WiFi. Usually, the internal network would be connected via Ethernet and Guest - via WiFi. These two connections come via separate interfaces and therefore they cannot be bridged.
- Airtame's settings panel can be locked with a password from within the device's settings.
- When applying settings, HTTP encryption is used between the managing computer and the Airtame being managed.

Airtame Cloud Security

- Airtame Cloud sends information over the internet. Extra security measures are taken to ensure no information is ever at risk, in addition to passwords and web URLs never being sent to the cloud.
- The Airtame Cloud solution is hosted on Amazon Web Services. Airtame uses the AWS datacenter in Germany. User account information and passwords are stored on the server and are bcrypt-hashed for maximum security.
- All communication between a user's device, the cloud portal, and Airtame devices are SSL encrypted (HTTPS). Communication between the airtame device and cloud portal uses standard WebSocket communication established by the device.
- The information sent is restricted to non-sensitive information such as basic device settings, which means that no passwords are ever sent over the internet.
- Images are only sent to cloud accounts that have enabled "Homescreen".
- You can disable sharing images of devices homescreen per-device.
- The images are stored in AWS.
- Each Image sent is stored for one minute then deleted permanently.

Physical Security

Airtame 2 is equipped with different physical security features than its predecessor:

- Airtame 2's Kensington lock slot means being able to secure devices in classrooms or big meeting rooms that have a lot of traffic.
- The magnetic wall mount keeps the device hidden behind the TV screen and makes it harder to physically remove.
- The non-removable adhesive allows Airtame and the magnetic wall mount to be permanently attached to the wall, thus making it harder or impossible to use it elsewhere.



Test & Validate your Airtame setup

Deployment Validation Checklist

This checklist is meant to help you test and validate your Airtame setup to ensure the best possible experience and readiness for roll-out

Checklist:

Installation and powering:

- Aircord must be used: at least 5V and 2,5 Amps.
- Router/AP placed less than 30 feet (10 m) away from Airtame
- Fewer than two walls between your router and the Airtame device

Airtame fully integrated into your network:

- Choose the best WiFi: Use 5GHz instead of 2.4GHz
- Ping test is stable and preferably below 10ms (should not be over 50ms)
- Disable unused Access Points on Airtame to minimize network interference
- Have all necessary ports open
- Optional: Auto-Discovery is working - Available devices showing in the app
- Optional: AirPlay enabled and showing on your iOS device
- All devices are added to Airtame Cloud

Test streaming and calibrate the display

- Check if updates are available for both your Airtame device (firmware) and app.
- Stream from desired devices. We recommend streaming for a longer period to ensure stability.
- Streaming with audio is working correctly.
- Optional: Stream using AirPlay from iOS devices.
- Colors are correct: Reduce contrast until all the lines in the spreadsheet are visible (often around 70-80% of max value).
- Clear text: Reduce sharpness until the text looks good and is easy to read (Often 0-20% of maximum).
- Disable overscan to avoid a cropped picture.
- Avoid black bars: Change aspect ratio on your computer to match TV (16:9) or Projector (16:10).



Software deployment

- ❑ Users have downloaded and installed the app from www.airtame.com/download
- ❑ Guests and users without admin rights can use the Windows Guest app
- ❑ Users know how to use Airtame (mirroring their screen, sharing a window, streaming in audio mode)
- ❑ For large roll-outs: Mass deploy the software using our MSI

Additional useful steps:

- ❑ Customize your Airtame's Homescreen with relevant information for users to connect. [Here](#)
- ❑ Use our customizable and printable guides. [Here](#)
- ❑ Customize the Homescreen background to brand your organization.
- ❑ Airtame is placed securely to avoid theft. Use Kensington lock if desirable.
- ❑ For larger roll-outs: Have at least one Airtame and Computer on the latest beta version of the application, to stay on top of changes and ensure stability.
- ❑ [Get help](#) from an Airtame expert to evaluate setup.