

Newline Cast user guide

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Streaming with Cast	6
Present to Cast using Windows or Mac.....	7
Additional options.....	7
Present to Cast using the web	8
Present to Cast using iPhone and iPad	9
How to mirror your screen from an iPhone or iPad:	9
Requirements	10
Present to Cast using Android.....	10
How to mirror your screen from an Android device:	10
Requirements	11
Using touchback on Windows	11
Requirements for touchback:.....	11
How to use touchback.....	11
Present to Cast using Airplay.....	12
Present with AirPlay from an iOS device:	12
Considerations.....	12
Present to Cast using Google Cast	13
What is Google Cast?.....	13
How to stream with Google Cast from a Chrome browser:.....	13
How to use on Android devices:.....	13
Note on performance:.....	13
Tools for teachers.....	14
Using Moderator Mode.....	14
How to use 'present a stream' using Moderator Mode:	14
How to use 'disconnect a stream' using Moderator Mode:	14
Using Grid View	15
How to view multiple streams using Grid View	15
Removing a user from Grid View	15
Removing from the session when in Grid View.....	15

Using the Cast Whiteboard	15
To use the Cast Whiteboard	15
Capturing and sharing the Whiteboard	16
2-Way Annotation on a whiteboard	16
Section 3: Collaboration tools.....	17
Presentation view.....	17
Sharing files during a session	17
Uploading and sharing files	18
Uploading and sharing videos.....	18
Uploading and presenting URLs	18
Using the Floating ID	18
Section 4: Deploying Cast.....	19
Quick start.....	19
Presenting to Cast.....	19
System requirements.....	20
Supported Operating Systems for Cast Windows receiver	20
Supported Operation systems for DisplayNote attendee app	20
System recommendations for DisplayNote attendee app.....	20
Installing Cast	20
DisplayNote guest app	21
Connecting without an app.....	21
Native streaming	21
Web browser	22
Considerations.....	22
Network configuration	22
Network infrastructure	22
Azure.....	23
Amazon AWS.....	23
Network features	24

Cloud connectivity and local-only sessions.....	24
Meeting ID and PIN	24
Software updates.....	25
Firewall and proxies	26
Proxy support.....	27
Security	27
Changing languages	28
Changing the name of your Cast receiver	28
Deployment checklist	29
Installing Cast Windows receivers on your screens or host PCs.....	29
Section 5: Product releases, roadmap, and changelog.....	30
Releases and changelog	30
Version 4.2.3 (Jan 2021).....	30
Version 4.2.2 (November 2020)	30
Version 4.2 (June 2020)	31
Version 4.1 (March 2020)	31
Version 4.0 (Nov 2019)	32
Downloads	32
Section 6: Tips and tricks.....	33
How to change the resolution on devices.....	33
Test your WebRTC connection.....	33
Section 7: Frequently asked questions	35
What is Cast?	35
The Cast receiver	35
Display Note apps	35
Do I need an app to present?.....	36
Can I play movies?	36
Does Cast support 4k?	36
Can I try Cast?	37

Section 8: Technical help and troubleshooting	38
What is the difference between 6-digit and 10-digit session ID?	39
I have a 10-digit session ID on my home screen. Why can I not get a 6-digit session ID?	39
My 10-digit session ID cannot be changed. Why?	39
A file has been added to Shared items, but I cannot download it from the main screen.....	39
When I share my screen, there is a delay to the main display. What actions can I take to improve this?	39
How to share logs from your device.	40
I am not able to connect to the receiver from my client device.	40
Airplay is not detecting the room name when I search.	40
I have a 10-digit session ID, but my browser will only accept 6-digits.....	40
Can I change the resolution/streaming quality on my device?	41
My Newline panel is showing “ <i>Authorisation error</i> ” when I open Cast.	41
When updating, I received an error in the screen and cannot use Cast any longer.....	41
I cannot connect to a Cast session when using Chromebook.....	43
Updating Chrome	43
How to collect general Chrome device logs	44
How to collect Network Logs	44

Streaming with Cast

A no-fuss guide to streaming with Cast. Including streaming from computers, web, and mobile devices.

- Present to Cast using Windows or Mac
- Present to Cast using web
- Present to Cast using iOS
- Present to Cast and Android
- Present to Cast from Airplay
- Present to Cast from Google Cast
- Touchback with Windows

Present to Cast using Windows or Mac

Sharing your computer screen is the same for both Windows and MacOS. Simply follow the on-screen instructions:

1. Go to displaynote.com/join and download the DisplayNote app for Windows or Mac.
2. Enter the session ID shown on the Cast home screen.
3. Enter your name.
4. Connect.

If you are the first person to connect, press *Share my screen*.

Additional options

Pin code Connect

This feature ensures that only users with an additional 4-digits can connect and start streaming.

6-digit ID versus 10-digit session ID

A 6-digit session ID means that Cast is connected to the internet, allowing a connection across any network. A 10-digit session ID means Cast will allow local connections only. Read more here. (link to related article)

Pausing a stream

To pause your stream, click the pause icon. This will hide a user's stream and notify other users that the stream is paused.

Annotating over a stream

Additional to presenting from your Windows device to a Cast receiver, you can emphasize or add context to the stream by annotating on top of the content.

1. While you are sharing your screen, tap on the menu button at the top.
2. Select the pen tool.
3. Draw.
4. Tap on the eraser icon to erase part of the annotation.

5. Tap on the trash can icon to clear all drawings.

Taking a screenshot when presenting

1. While sharing your screen, tap on the camera icon.
2. A PNG of your capture will now be available in shared items.

Present to Cast using the web

How to share your screen from Chrome:

1. Go to displaynote.com/join and choose **Connect via Web**.
2. Enter the session ID shown on the Cast home screen.
3. Enter your name.
4. Press **Connect**.
5. If you are the first person to connect, press **Share my screen**.
6. Choose to select your entire window or an application window.
7. Share your screen.

Note on performance

Using the web to connect has some benefits, easier connection, and more reliability. However, the web also brings more variables into play, such as your network and bandwidth.

You should, therefore, not expect the same quality connecting via the web as you would when connecting by the dedicated DisplayNote applications. For the video stream, you can expect 16-17 FPS. For static images or presentations, you can expect 20 FPS with medium quality

Present to Cast using iPhone and iPad

Cast comes with two dedicated apps for iOS, DisplayNote app for iPhone and DisplayNote app for iPad both of which enables iOS mirroring across different networks.

How to mirror your screen from an iPhone or iPad:

1. Download and open the DisplayNote iOS app. Get for iPhone. Get for iPad.
2. Enter the Session ID.
3. Enter your name.
4. Press **Connect**.
5. If you are the first person to connect, tap the present button
6. You now have two options:
 - a. Become a presenter and share your screen.
 - b. Present a video from your phone gallery.

Become a presenter and share your screen

1. Press 'Become a presenter and share your screen'
2. Choose the displaynote app option
3. Tap the Start broadcast button
4. You will see a 3 second countdown at the end of which you will begin mirroring. You will see a red pill around the time in the top-left corner (or a red bar on top of the screen on older iPhones and iPads). This means that you are now sharing your device's screen. If it does not work on the first try, stop the screen sharing and try again).
5. While mirroring you can pause and resume the stream at any time
6. Tap the red circle to stop screen sharing.

Present a video from your device gallery

1. Present
2. Select a video to upload it
3. Select choose
4. Present a video

Requirements

To be able to use the screen mirroring feature, you must meet the following requirements:

- The iOS device (iPhone or iPad) requires iOS 13 or newer to be installed and has the latest screen recording feature enabled.
- You have an active Cast session running on another PC or big screen.

Note on iOS screensharing

When you are screen sharing, you'll see a red pill around the time in the top-left corner (or a red bar on top of the screen on older iPhones and iPads).

This means that you are now sharing your device's screen using the iOS broadcast feature. Even though it can look like you are recording your screen, you are not, and nothing is stored on your device.

If screen share feature it does not work on the first try, stop the screen sharing and try again).

Present to Cast using Android

Cast comes with a dedicated app for Android and enables mirroring across different networks.

How to mirror your screen from an Android device:

Download and open the DisplayNote Android app from Google Play Store.

1. Enter the Session ID.
2. Enter your name.
3. Press Connect.
4. If you are the first person to connect, tap the present button.
5. You now have two options:
 - a. Share your screen
 - b. Present a video from your phone gallery

Share your screen

1. Choose **Share my screen**
2. Allow android to start casting
3. Press **Start now**

Present a video

1. Tap **Present a video**
2. Choose a video from your gallery
3. Once uploaded tap **Present video**
4. Your video will play on the main display
5. Press **Stop presenting** to end the video stream

Requirements

To mirror your Android screen, you will need DisplayNote app running on an Android phone version 5+ and connected to a live Cast session.

Using touchback on Windows

The key benefit of touchback is that presenters can now use the touchback functionality of their interactive displays when presenting via the DisplayNote Windows App.

Requirements for touchback:

- Cast receiver software
- Windows desktop application

How to use touchback

- Follow the steps to present from a Windows device
- Use your touch screen to interact with Windows desktop

Present to Cast using Airplay

The AirPlay protocol lets you use the screen sharing functionality that is already built into MacOS and iOS devices, eliminating the need to install the DisplayNote Desktop app or iOS app.

Note: To use Airplay, both the Cast receiver and the iOS/Mac device must be on the same network.

Present with AirPlay from an iOS device:

1. On your iPad or iPhone, swipe down from the top-right corner of your screen to open the Control Centre.
2. On an iPhone X or later, swipe down from the top-right corner of your screen. On an iPhone SE (2nd generation), iPhone 8 or earlier, swipe up from the bottom edge of any screen.
3. Tap **Screen Mirroring**.
4. Tap on the name of the Cast receiver from the list.
5. Enter the session ID, and press **Connect**.
6. On the Cast receiver, tap on the iOS device name.
7. To stop mirroring your iPhone or iPad, open the Control Centre again, tap **Screen Mirroring**, then tap **Stop Mirroring**.

Considerations

Media playback/casting is supported via AirPlay, except for content protected by digital rights management (e.g., Netflix).

Streaming via AirPlay is supported at 30fps, but this depends on the bandwidth available on your network. When casting video content, the video timecode progress bar might not be reflected.

Present to Cast using Google Cast

What is Google Cast?

With Google Cast, you can fully mirror your screen from your Android devices and Chrome OS, and when casting via the Chrome browser from any operating system, without the need for the DisplayNote app.

How to stream with Google Cast from a Chrome browser:

1. Open Chrome.
2. At the top right, select More (the three dots in the upper right-hand corner of your Chrome Browser) -> **Cast**.
3. Click on **Cast**.
4. Choose whether you'd like to share your current tab in Chrome (**Cast tab**) or your whole screen (**Cast desktop**).
5. Select the name of the Cast receiver. When you are done and wish to stop sharing select **Stop**.

How to use on Android devices:

The steps to mirror from your Android might vary depending on your device. The most common ways are either using **Smart view**, **Screen mirroring**, **Quick Connect**, or through the Cast settings on your phone.

Note on performance:

The latency for Google Cast on Cast is around 650 ms under good network conditions.

Maximum bitrate can be as high as 20 Mbps, but average bitrates will be significantly lower.

Most Android devices encode Google Cast at a resolution of 720p at 30 fps, but Chrome OS and casting from the Chrome browser and a few devices offer higher resolution.

Note – Googlecast is currently in a closed beta with a public release targeted for April 2021.

Tools for teachers

A no-fuss guide to getting the most out of Cast in the classroom and meeting room. In this section we cover:

- Using Moderator Mode
- Presenting in Grid View
- Using the Cast Whiteboard

Using Moderator Mode

Moderator Mode feature gives teachers and presenters the ability to choose and disconnect which devices share on the screen.

To get started, ensure you are using Cast Version 4.2 and above.

How to use 'present a stream' using Moderator Mode:

1. Go to settings.
2. Choose moderator settings.
3. Toggle Moderator Mode to **ON**.
4. Present to Cast using any device client device.
5. You will see that the user appears in the list of connected attendees.
6. Tap or click on the user's name on the Cast home screen.
7. Invite to present.

How to use 'disconnect a stream' using Moderator Mode:

1. Tap or click on a device name on the Cast home screen.
2. Press **Disconnect**.
3. Select **Yes, disconnect**.
4. The user will be moved and will receive a notification in their DisplayNote application that they have been disconnected.

Note: Turning Moderator Mode on will create a new 6-digit session ID (except when running sessions with no internet)

Using Grid View

Grid View allows up to 4 attendee streams to be seen on-screen at the same time.

How to view multiple streams using Grid View

1. Enable Moderator Mode.
2. On the Cast home screen, tap **Grid View**.
3. Ask users to connect to your session.
4. On the Cast home screen, invite the user to share.
5. The user will receive a notification inviting them to share their screen, which they can accept or reject.

Removing a user from Grid View

1. Press the invite button.
2. Remove the user from the list of connected devices.

Removing from the session when in Grid View

1. Press the x button on any connected user in grid view.

Using the Cast Whiteboard

As well as being a streaming solution, Cast can also be used as a Whiteboard to improve the meeting and teaching experience.

To use the Cast Whiteboard

1. Press the whiteboard icon on the Cast home screen.
2. Begin writing on the whiteboard.
3. To change pen colour, delete or erase - press the Menu button for annotation options.

Capturing and sharing the Whiteboard

1. Open the whiteboard draw on it.
2. Press the **Menu** button.
3. Pressing the camera/capture icon will capture the whiteboard and save it as a PNG in the shared items folder.
4. Connected users can now view and download the PNG on their device.

2-Way Annotation on a whiteboard

Cast also enables 2-Way Annotation between the Cast receiver and connected user devices.

1. Press the Whiteboard icon on the Cast home screen.
2. Begin writing on the Whiteboard.
3. On a user-device, select the pen icon.

Section 3: Collaboration tools

A no-fuss guides to all the smart collaboration tools included with Cast.

In this section we cover:

- Presentation view
- Sharing files during a session
- Using the Floating ID

Presentation view

Presentation View enables users to view another user's stream on their own device.

1. Connect to a Cast session with a client device
2. When another user is presenting, press the **session** button to view their stream.

Note: presentation view is only available on Window receivers.

Sharing files during a session

Shared items enable connected users to upload and share files and links with each other during a Cast session. This is achieved via the shared items folder, which acts as a central repository for files and links shared during the session.

File types supported:

- Audio: mp3, wav
- Document: doc, docx, xls, xlsx, ppt, pptm, pptx, ppsx, txt, odt, ods, odp
- Image: jpg, png
- PDF: pdf
- Video: avi, mov, mp4
- ZIP: zip

Uploading and sharing files

1. On a user device, click on **Shared items** on the left toolbar.
2. Press the **+Add** button.
3. Press the **Share a file** button to open the file viewer.
4. Select a file and open it.
5. This file is now available on all attendee devices to download or delete.

Uploading and sharing videos

1. On a user device, click on **Shared items** on the left toolbar.
2. Press the **+Add** button.
3. Press the **Share a file** button to open the file viewer.
4. Select a video file and open it.
5. This file is now available for everyone to present or delete.

Uploading and presenting URLs

1. On a user device, click on **Shared items** on the left toolbar.
2. Press the **+Add** button.
3. Press the **Share a link** button.
4. Type the link and press the add link.
5. This file is now available for everyone present and shares with the Cast home screen.
6. To stop presenting, press the stop presenting button on the user device.

Using the Floating ID

The Floating ID keeps your Cast session ID always on screen. This allows you to open and interact with other applications on your touch screen and stream user's devices simultaneously.

1. Minimize the Cast home screen.
2. To return to the Cast home screen, press the **Minimize** icon.

Section 4: Deploying Cast

Install, configure settings, implement on your network, and deploy to all users.

- Quick start
- Recommended specs
- Installing Cast
- Cast for guests - helping your guests present
- How to enable local network sessions
- How to enable cloud sessions
- Deploying the Cast MSI
- Setting Session IDS and Pins
- Running Cast in a different language
- Changing your room name
- Connecting to a proxy
- Network guide
- Opening ports and firewalls

Quick start

Creating your first Cast session:

When you first launch Cast, a 6-digit session ID will be automatically generated. You can create a new session by clicking or tapping New session on the home screen.

Presenting to Cast

While each device is a little different, the steps to presenting are broadly the same:

1. Go to displaynote.com/join and download the DisplayNote app.
2. Open the app.
3. Enter the on-screen session ID.
4. Enter your name.
5. Press Connect.

System requirements

Supported Operating Systems for Cast Windows receiver

- System recommended for Cast Windows application.
- OS Windows® 8 (minimum), Windows® 10 (recommended).
- CPU Intel® i5 4th generation (minimum)
- RAM. 8GB (minimum).
- GPU. Intel® HD Graphics 4000 or Intel® HD Graphics 2500 with latest drivers (minimum).

Supported Operation systems for DisplayNote attendee app

- Windows, MacOS. iOS, Android, Chrome.

System recommendations for DisplayNote attendee app

- Windows 10
- MacOS 10.14
- iOS 13+
- Android 5+

Installing Cast

Double click the **setupCast.exe** file and follow the prompts to complete the installation. Once the installation has completed, open **DisplayNote Cast** from your installed applications. To activate the application, enter the required details on the **Activate Cast** screen, including the license key you have been provided.

Regular installer

This is the standard install 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 installs the app on numerous company laptops at once.

DisplayNote guest app

For one-time users and users who do not have admin rights on their PC, we have developed the DisplayNote guest app for Windows OS.

This version of the app does not require any installation nor administrator privileges. The user simply must run the file to be able to stream to the desired Cast receiver.

MacOS users without administrator rights can use the same version/file as the regular app for MacOS but should run the DisplayNote app without dragging it to the application folder.

Guests can find the application for their OS on our website. Alternatively, as a host, you can download each file and store them on a USB pen for easily providing guests and external users.

Note that you should keep the app updated as we release new versions.

Connecting without an app

Native streaming

Guests and one-time users can also take advantage of our native streaming protocols – Airplay and Google Cast(beta). Native casting makes it easier for users to present as they won't have to worry about administrative rights or installing software.

They can use Google Cast to stream the full screen of Android. For MacOS and iOS devices, they can use AirPlay.

Web browser

All users can use the DisplayNote web page to connect without any need to download and install any app or software. Visit www.displaynote.com/join/login

Considerations

Using the web to connect has some benefits such as easier connection and more reliability. However, the web also brings more variables into play, such as your network and bandwidth.

You should not expect the same quality as a dedicated DisplayNote application. For the video stream, you can expect 20 FPS with 500ms of latency.

Network configuration

It is common to have guests and external users connect to a separate network than your internal users. This means there will be two different networks in your environment – an internal and a guest network.

DisplayNote supports such a configuration. Users can be connected to two networks simultaneously, enabling guests to connect and present while maintaining network security.

No action is needed for cross-network connectivity.

Network infrastructure

All inbound and outbound data from our backend layer is encrypted and transmitted over TLS or DTLS, with 2048-bit asymmetric encryption and 256-bit symmetric encryption using certificates from third-party credited authorities.

Network communication is protected using the latest in technology to secure all video, audio, and data. Using the TLS and DTLS cryptography protocols, previously referred to as SSL, we provide protection using a 2048-bit asymmetric key in conjunction with a 256-bit symmetric session key. More information on network ports used can be found further within this document.

The backend tier provides four public services:

- REST API
- XMPP and
- STUN / TURN

Cast uses a combination of Azure and Amazon services to provide a resilient and redundant backend while delivering the lowest latency possible.

Azure

Azure's data centres are geographically dispersed and comply with ISO/IEC 27001:2005, SOC 1, and SOC 2 and have a CSA STAR certification.

These data centres are managed and operated by Microsoft. Microsoft has decades of experience building enterprise software and running some of the world's most extensive online services.

Using Azure's Network Security Groups (NSG), access to virtual machines hosting our services is limited to those ports configured within the NSG only.

All our virtual machines are located within the same virtual LAN, and communication between virtual machines is via private network interfaces behind the Azure firewall.

Amazon AWS

We also use Amazon AWS to host and support the services we offer to our clients. Amazon AWS is a well-known cloud service managed by Amazon, a trusted provider of cloud services that provide geographical dispersion - allowing us to have a server closer to the end-user, which reduces latency in cloud connectivity.

All our cloud services running on Amazon AWS are running under a Virtual Private Cloud (VPC). Each environment has its own virtual network protected by Amazon's availability zone and firewall.

Amazon AWS servers are geographically dispersed and have many certifications and third-party assessments, including ISO/IEC 27001:2005, SOC 1 and SOC 2, and CSA STAR certification. Further information can be found in their security whitepaper.

Network features

The Cast software consumes a REST API provided by our SaaS layer, which is credential secured. All communication with the REST API and our XMPP services are over TLS (port 443) with 2048-bit asymmetric encryption and 256-bit symmetric encryption.

For video calls, STUN is used to establish a peer-to-peer connection. If this fails, the client will attempt to use our relay service using the TURN protocol.

In addition to DTLS encryption, we also encrypt data through Secure Real-Time Protocol, which safeguards IP communications from hackers. This ensures your video and audio data are kept private point-to-point.

Cloud connectivity and local-only sessions

If Cast has access to the cloud, it can allow devices to connect from outside of its local network. E.g., A Chromebook client on a remote network and a Windows client connected on another network within your organization.

This can be restricted by deactivating access to the cloud in Cast settings.

Meeting ID and PIN

For each meeting, a unique meeting ID is generated. This is mediated from our SaaS layer, which is used for clients to connect to that specific meeting. If there is an internet connection, this meeting ID will be 6-digits long.

If no internet is available (or local connections only), the Meeting ID will be 10-digits long. This 10-digit meeting ID is generated using the device IP address, enabling connection from different subnets on the same network.

If devices connect using the 6-digit meeting ID, a connection is attempted locally. If this is not possible, the connection is made via XMPP. The host can also specify a PIN, configured at the box directly, and on each client connecting would request confirmation of the PIN.

Software updates

The Cast receiver and DisplayNote app checks for software updates regularly. If there is an update available, you will get a notification when you open the app.

Click Update, and the application will install the latest update.

You can also download and install the latest version from our website, which will replace your previous version. Mobile and web versions update automatically with no need to install or run updates. MSI versions of the app will need to be updated manually.

Note: An internet connection is required for updates. The updates are downloaded over a secure connection (using port 443) and are installed on demand.

A notification will appear in the Cast user interface to indicate an available update that the user can install.

The clients and boxes are authenticated on our servers using a 4-step authentication process with SASL. At any time, administrators can remove a client or box from the authorized zone temporarily or permanently.

All data transferred between the user's device and Cast is peer-to-peer (P2P) and is over TLS or DTLS with 2048-bit asymmetric encryption and 256-bit symmetric encryption. If a P2P connection fails to connect between the client and Cast, the software will relay the data via our TURN server over TLS TCP port 443.

Firewall and proxies

For remote connections, both receiver and clients need to be able to access the internet through these ports:

- TCP 80
- TCP 443
- UDP 53

For local connections (i.e., clients on the same network or connecting through Cast Access Point), the following ports are used:

- TCP 1-65535 (It will be selected from available ones)
- UDP 1025 – 65535
- TCP 4700, 7000, 7100 (For Airplay connections)

If there is Layer 7 filtering or proxy with protocol filtering on these ports, then the following protocols will need to be allowed:

- HTTP
- HTTPS
- DTLS
- XMPP
- Bonjour protocols
- SRTP
- DNS
- STUN
- TURN
- ICE

Our SaaS provides services at the following FQDNs:

- netcheck.joinCast.com
- Cast.displaynote.com
- xmpp.displaynote.com
- stunturn-prod-ireland.displaynote.com
- stunturn-prod-mumbai.displaynote.com
- stunturn-prod-singapore.displaynote.com
- stunturn-prod-virginia.displaynote.com
- stunturn-prod-california.displaynote.com

Proxy support

The Cast Windows/OSX software support proxy configuration. The following proxy types are supported.

- HTTP Proxy (with or without authentication)
- SOCKS 5 (with or without authentication)
- Proxy with Auto-Configuration File (PAC). Windows only.
- System proxy. Windows only.

Security

The clients and receivers are authenticated on our servers using a 4-step authentication process with SASL. At any time, administrators can remove a client or receiver from the authorized zone temporarily and permanently.

All data transferred between the user's device and Cast is peer-to-peer (P2P) and is over TLS or DTLS with 2048-bit asymmetric encryption and 256-bit symmetric encryption. If a P2P connection fails to connect between the client and Cast, the software will relay the data via our TURN server over TLS TCP port 443.

Changing languages

Cast supports the following languages:

- Chinese: simplified and traditional
- Japanese
- English UK
- Swedish
- Danish
- Finnish
- French
- German
- Spanish
- Czech
- Polish
- Russian
- Slovenian
- Dutch
- Italian

Languages can be changed in the settings tab of Cast receivers. Windows and Mac clients will change with system settings in mobile and web apps.

Changing the name of your Cast receiver

By default, Cast will use the same name as the host PC it's deployed on. You can change the word via the settings tab.

Note: once changed, devices connecting using native protocols will see this name in the discovery stage.

Deployment checklist

Installing Cast Windows receivers on your screens or host PCs

Software deployment:

- Download and install the Cast Windows application to screens and host PCs.
- Deploy the Displaynote client application MSI to all company computers.
- Guests and users without admin rights can download the windows guest application.

If running on a PC, connect your Host PC device to your network via one of the following:

- PoE (if supported)
 - Ethernet.
 - 5 GHz (recommended) with an RSSI of -60 dBm.
 - 2 GHz with an RSSI of -50 dBm.
1. Perform a ping test to confirm that your network is stable (recommended to be below 50 ms, preferably below 10 ms).
 2. Disable any unused access points to minimize Wi-Fi interference.
 3. Setup inter-VLAN routing from all intended VLANs to the PCs VLAN
 4. Confirm that you have the required network ports open.

Testing streaming image quality and calibrating your display:

1. Perform a test stream from your device to your Cast receiver. We recommend streaming for a longer period to ensure stability.
2. Perform a test stream with audio (Windows and iOS) to confirm that it is working properly.
3. Disable overscan on your screen or projector to avoid a cropped picture.

Section 5: Product releases, roadmap, and changelog.

Stay up to date with product releases

- Releases and changelog
- Downloads and installs

Releases and changelog

Version 4.2.3 (Jan 2021)

New features

- Floating ID
- Dedicated iPad app

Fixes and improvements

- Fixed an issue that was stopping iPhone 8 users from playing some videos.
- Made an improvement to stop the Android receiver from stopping when in the background.
- Support for Mac Big Sur.
- Improved Airplay audio casting for iOS.

Version 4.2.2 (November 2020)

Fixes and improvements

- Improved audio support for Apple Airplay: Users can now stream video and audio with Apple's native Airplay protocol.

- Support for Czech, Danish, Finnish, Italian, Dutch, Slovenian, Swedish, and Hungarian languages.
- Full support for the latest version of iOS 14.

Version 4.2 (June 2020)

New features

- Grid View
- 1080p streaming from the web

Fixes and improvements

- Fixed an issue that occurred when zooming-in on the Chrome UI over 125%, and the **Connect** button cannot be pressed.
- Solved issue that occurred when using Chrome browser of an iOS, meaning a user could not reach the website of session code UI.
- Fixed an issue that was preventing proxy details from being saved.

Version 4.1 (March 2020)

New Features

- Moderator Mode

Improvements

- Android 10 compatibility for Android client.
- MacOS Catalina 10.15 compatibility for MacOS client.
- Adaptive UI for an iOS client.
- Include notarization for MacOS clients.

Bug fixes

- Mobile client not being able to present again when presenting a video.
- Wrong status in desktop client when receiver presents a video.
- An empty box in web client following some steps.
- Buttons are moved along the bar when a shared item is downloaded via a web client.

Version 4.0 (Nov 2019)

Improvements

- Pixel erases support on the Cast Whiteboard.
- Support for Chrome 76.
- Improved file handling.
- Support for Android 64 bit.
- YouTube playback support.

Downloads

- [Cast Windows Receiver \(requires licence key\)](#)
- [DisplayNote for Windows](#)
- [DisplayNote for Mac](#)
- [DisplayNote for iPhone](#)
- [DisplayNote for iPad](#)
- [DisplayNote for Android](#)
- [DisplayNote for Web](#)

Section 6: Tips and tricks

Getting the most from Cast

- How to change the resolution on devices
- How to check web connections

How to change the resolution on devices

To reduce the load on your network, you may need to change the resolution image quality.

How to change the resolution:

1. From the DisplayNote Windows, Mac, and web app.
2. In Windows and Mac apps, go to **Settings** and select **Streaming quality**.
3. In the web version, go to displaynote.com/join/login and select stream quality.
4. Select **720p** or **1080p**.
5. Finish by clicking **OK** or **Confirm**.

Test your WebRTC connection

DisplayNote's cloud connectivity is built using Webrtc. Web Real-Time Communications (WebRTC) is an open-source project created by Google to enable peer-to-peer communication in web browsers and mobile applications through application programming interfaces. This includes audio, video, and data transfers.

If you want to get an overview of your Webrtc connection, you can use the Webrtc trouble-shooter <https://test.webrtc.org>

1. Go to <https://test.webrtc.org/>.
2. Allow camera and microphone.
3. Press **Start** to run the test.
4. The test will automatically check your microphone, camera, network, connectivity, and throughput.
5. To add your STUN and TURN servers, click on the settings icon.

Section 7: Frequently asked questions

A collection of frequently asked questions and answers. In this section we look at:

- What is Cast?
- Do I need an app to present?
- What latency can I expect?
- Can I play movies?
- Does Cast support 4K streaming?
- Can I try Cast?
- Can I buy Cast?
- What are the requirements for using Cast?

What is Cast?

Cast is a software-only wireless presentation solution that allows educators and students to wirelessly share their devices to the main screen. They can stream to the main screen from any device and across any network.

Cast is made up of 2 parts:

The Cast receiver

Windows or Android software which can be installed onto a PC, Mini PC, Computing Device or Slot-in PCs - which are typically connected to a large screen or projector.

Display Note apps

An application for a personal device that lets users wirelessly stream what is on that device to the Cast receiver. Applications are available for Windows, Mac, iOS, Android, and the web. Users with a mobile device can use Apple Airplay or Google Cast to mirror what is on their device to the Cast receiver.

Do I need an app to present?

While there are dedicated apps available, users can present their screen via native protocols such as Airplay and Google Cast and via their browser at displaynote.com/join.

Can I play movies?

Cast is capable of streaming video files from your computer to an external screen.

However, various factors need to be considered. If streaming movies from Amazon Prime, Netflix etc is the main use-case, perhaps, Cast may not be the right device. It is designed for business/education-oriented environments, where the main focus is presentations, collaboration, occasional videos, and similar use-cases related to meetings and classes.

If watching movies is the main use-case, other devices can do this more conveniently.

Does Cast support 4k?

Cast supports resolutions up to 1920x1080p, which is full HD. The device will work on 4k screens, but the image will be downscaled to match 1080p resolution. If a computer's screen resolution is higher than 1920x1080, the image will also be downscaled to 1080p.

The main reasons why Cast has not been designed to support 4K yet are that:

The bandwidth and network power required to stream your computer in 4k resolutions are very heavy. 4K image is much more demanding and puts much more pressure on your network; therefore, we chose not to support it now.

Cast captures a computer's screen in full, meaning we transfer the exact number of pixels. 4K computer screens are not that common yet, which reduces the practicality of offering 4K.

Can I try Cast?

Yes. Please contact your local dealer or AV reseller to start your 14 day trial.

Section 8: Technical help and troubleshooting

A collection of common support queries and technical FAQs.

- What is the difference between 6-digit and 10-digit session ID?
- I have a 10-digit session ID on my home screen. Why can I not get a 6-digit session ID?
- My 10-digit session ID cannot be changed. Why?
- When I share my screen, there is a delay to the main display. What actions can I take to improve this?
- How to share logs from your device.
- I am not able to connect to the receiver from my client device.
- Airplay is not detecting the room name when I search.
- I have a 10-digit session ID, but my browser will only accept 6-digits.
- Can I change the resolution/streaming quality on my device?
- My Newline panel is showing "*Authorisation error*" when I open Cast.
- When updating, I received an error in the screen and cannot use Cast any longer.
- Update via USB
- I cannot connect to a Cast session when using Chromebook.
- How to collect general Chrome device logs

What is the difference between 6-digit and 10-digit session ID?

When connecting using a 6-digit session ID, users can connect from anywhere. They do not need to be on the same network. A 10-digit session ID requires each device to be on the same network.

I have a 10-digit session ID on my home screen. Why can I not get a 6-digit session ID?

A 10-digit session ID is shown when Local connections only are enabled; this can be found in the settings menu – Setting – Security – Local connections only.

Another reason may be that the Cast receiver cannot communicate with the DisplayNote server. This could be due to no internet connection being available or a security restriction on the network. Please refer to our network security guide for firewall requirements.

My 10-digit session ID cannot be changed. Why?

The 10-digit session ID is generated using the computer IP address; this cannot be manually changed. If you have security concerns, please set a PIN. This can be achieved in **Settings – Security – Require PIN to connect**.

A file has been added to Shared items, but I cannot download it from the main screen.

Files can only be downloaded to client devices joined to the Cast session. This ensures the privacy of documents on a shared device.

When I share my screen, there is a delay to the main display. What actions can I take to improve this?

For best performance, we recommend connecting the main display via ethernet. Client devices can use either a cabled or wireless connection. If all the devices are on the same network, you can choose **local-connections-only settings**, which will ensure the best performance.

How to share logs from your device.

Logs are stored on the device. For the receiver these can be found in the directory: C:\ProgramData\DisplayNoteTechnologiesLtd\Cast\log.

The DisplayNote app logs are stored in the directory - C:\ProgramData\DisplayNoteTechnologiesLtd\DisplayNoteApp\log.

I am not able to connect to the receiver from my client device.

Users can run a test via URL - <https://test.webrtc.org/> to ensure their device has the required access.

If you are using the DN app, please ensure you are running the latest version. If using a browser, you will need to ensure you have cleared the browser cache then reload displaynote.com/join.

On Windows client devices, ensure your firewall is allowing connections.

Airplay is not detecting the room name when I search.

If your device is not finding the Cast receiver, go to Settings – Network & Connections, ensuring Airplay Receiver is switched to **On**.

If using Cast on a Windows receiver, you will need to ensure the Bonjour service is running. You can check this by typing **Services.msc** into the search bar on your Windows taskbar.

In the new window, Bonjour should be listed, and status should state Running.

If Bonjour is not listed, you will need to install it. Users should also confirm Bonjour services are allowed across the network, including ports TCP 4700, 7000, 7100

I have a 10-digit session ID, but my browser will only accept 6-digits.

Unfortunately, we do not support a 10-digit session ID when connecting via a web browser.

Can I change the resolution/streaming quality on my device?

Users can change the resolution on the DN app by going to **Settings – Select streaming quality**. There are two options: 1080p and 720p.

My Newline panel is showing “*Authorisation error*” when I open Cast.

The error shows the application cannot communicate with our server to perform activation. To ensure your panel can communicate, please follow the network requirements.

When updating, I received an error in the screen and cannot use Cast any longer.

Sometimes when updating software, the installer will download incorrectly and cause a failure. If this happens, you will need to contact support, who will walk through the update process using a USB stick.

Update via USB

- Download the zipped file from the link and then unzip.
- Add to the root of a USB flash drive, hht828X9_Upgrade.bin, VCTL_OVS....config, and Update_signed.zip (do not unzip this file). Ensure the USB flash drive is formatted to FAT32 and has a file size between 2 - 16GB.
- To start, make sure the panel is powered OFF. Plug the USB flash drive into the front USB 2.0 port and then turn ON the panel.
- After the blue loading screen reaches 100%, the panel will turn off. Leave the USB flash drive plugged in and power ON the panel.
- The panel may or may not show a split-screen, but the update process is running in the background. Please wait until the process has finished and the screen will turn OFF.
- Turn the panel ON. Wait for the Touch to start screen to load.
- Touch screen to enter the homepage. The system will notify you that it will upgrade the configuration file. Ignore the *Import Version Config* message. After 10 seconds, the system will automatically upgrade the configuration file.
- After the upgrade process has finished, the panel will turn off again. Turn ON the panel and wait until it takes you back to the homepage.
- When you're on the panel's homepage, click **2,5,8,0** on the remote to access the Design Menu.
- Select **Common function** and then **Upgrade Update Signed**.
- **Restart** the panel after it shuts down.
- When at the homepage of the panel, remove the thumb drive to complete the firmware process.

I cannot connect to a Cast session when using Chromebook.

To solve this issue, the first thing to check do is that all updates have been applied to your Chromebook.

Updating Chrome

Normally updates happen in the background when you close and reopen your computer's browser. But if you haven't closed your browser in a while, you might see a pending update:

- On your computer, open Chrome.
- At the top right, look at More More.
- If an update is pending, the icon will be colored:
- Green: An update was released less than 2 days ago.
- Orange: An update was released about 4 days ago.
- Red: An update was released at least a week ago.

To update Google Chrome

- On your computer, open Chrome.
- At the top right, click More More.
- Click Update Google Chrome.
- Important: If you can't find this button, you're on the latest version.
- Click Relaunch.

The browser saves your opened tabs and windows and reopens them automatically when it restarts. Your Incognito windows will not reopen when Chrome restarts.

If you would prefer not to restart right away, click Not now. The next time you restart your browser, the update will be applied.

Next, clear the browser cache and reopen the browser. If your session still does not connect, please follow the below steps to collect logs.

How to collect general Chrome device logs

- On the affected device, enter `chrome://network` in the address bar.
- At the top, click Network logs.
- Under Options, select the following checkbox options
- Include a `policies.json` file with policy configurations. Include all log files collected by debug as a separate archive. Include Chrome log files in the archive.
- Click Store system logs.

How to collect Network Logs

Sometimes, the issue you reproduce is not captured in the general logs. You need to capture the issue by enabling the correct type of debugging.

1. On the affected device, enter **chrome://network** in the address bar.
2. At the top, click **Network logs**.
3. Under Network debugging, select the **correct debug mode**.
4. Open a new tab and reproduce the issue.
5. Once completed, go back to the original tab.
6. Under **Options**, select the following checkbox options.
Include the `system_logs.txt` file sent in feedback reports.
Include all log files collected by debug as a separate archive
(Optional) Under Options, select additional checkbox options - if needed.
7. Click **Store System Logs**.