



MirrorOp

USER'S MANUAL

2015 . 6

Welcome To Mirrorop

Thank you for choosing MirrorOp, the leader in screen mirroring and interaction technology.

MirrorOp is an industrial standard for realtime screen sharing and remote desktop operations. It has been widely adopted in the projector industry and also being introduced to more consumer products, including TV, smart phones and set-top boxes.

For more information, please visit www.mirrorop.com

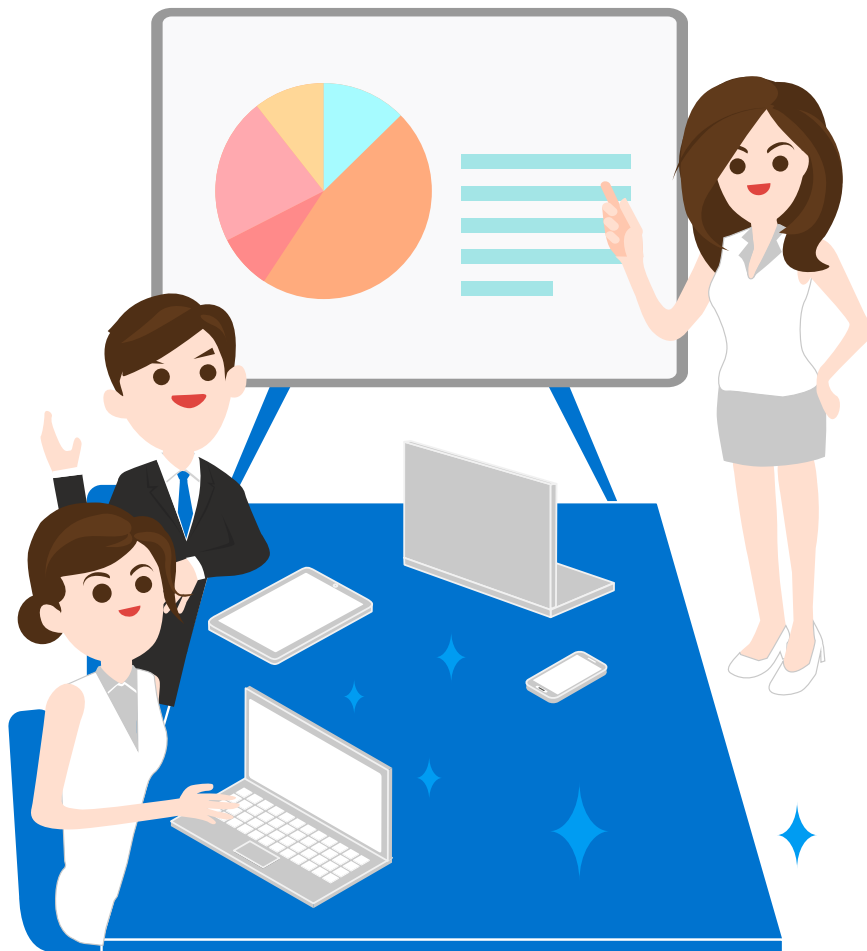


Table of Contents

Downloading MirrorOp software.....	4
Installation	5
Activation.....	6
Using MirrorOp.....	8
Finding receivers to use	9
Info Panel.....	11
Mini Panel.....	12
Using Favorites.....	13
Start Mirroring	16
Disconnecting from a receiver	17
Advanced Features	18
Split Screen	19
Extended Screen	20
Video Streaming	21
Multiple Display (Broadcasting)	22
PresentSense	25
Setting Preferences.....	26
General Preferences	27
Favorites Preferences	29
Advanced Settings	30
Setting Hotkeys.....	32
About MirrorOp.....	33

Downloading MirrorOp software

MirrorOp software can be download from the following sources:

1. Download from mirrorop.com (Windows):
Open the link http://mirrorop.com/product_Windows_Sender.html in your browser. Click "Try" to download and try, or click "Buy" to purchase a registration key if your receiver does now include a valid license key.
2. Download from mirrorop.com (Mac):
Open the link http://mirrorop.com/product_Mac_Sender.html in your browser. Click "Try" to download and try, or click "Buy" to purchase a registration key if your receiver does now include a valid license key.
3. Download from the hardware receiver product that offers MirrorOp in the package. For detailed information please refer to the user's manual of the product you purchased.

Installation

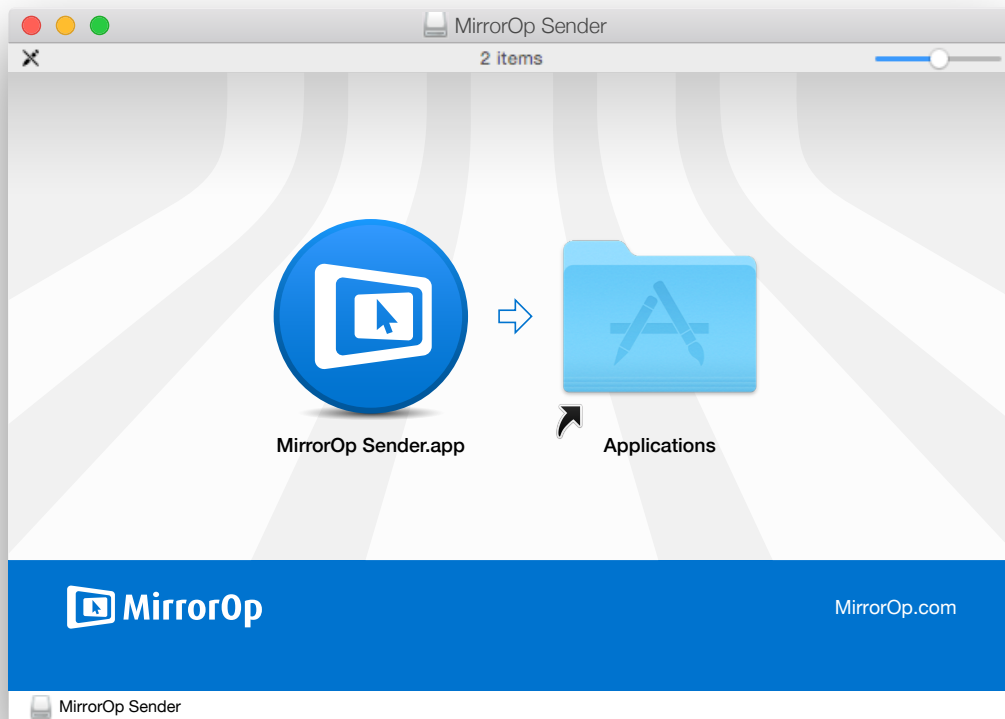
Windows:

After download the installer from website or device, double click the installer to start installation. Follow on-screen instructions to complete installation. Once installed, you should find the MirrorOp application in your Program Files folder.

Mac:

After downloading from app store, you should find MirrorOp in your Applications folder. If you downloaded the software from a device or website, drag the MirrorOp application to your Applications folder.

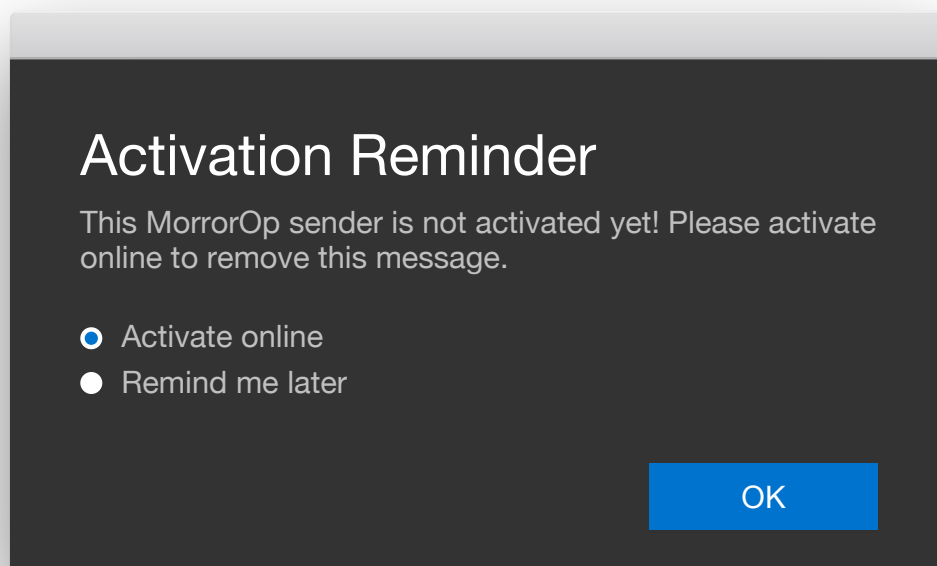
Note: For some advanced features, additional driver(s) may be required. In such cases, you will see a hint message when selecting such features. Follow the information on the messages to download and install additional drivers if you want to use such features.



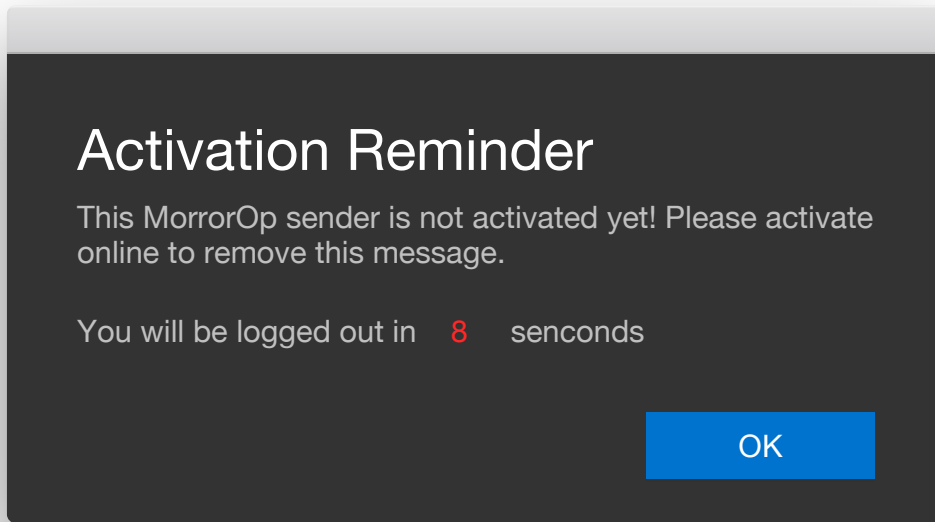
Activation

This MirrorOp application can be used with many different receivers. For example, hardware receiver devices such as wePresent or ClickShare, or software receivers for Windows, Mac, Android or iOS.

Depending on which receiver the MirrorOp application is connected to, different features will be enabled based on the capabilities of the receiver. In most cases if you use this application with a hardware device that already includes a valid license for this software, activation is not required. However, if you use this application with a receiver that does not include a valid license, for example a Windows receiver, you should activate the application with a valid registration key.

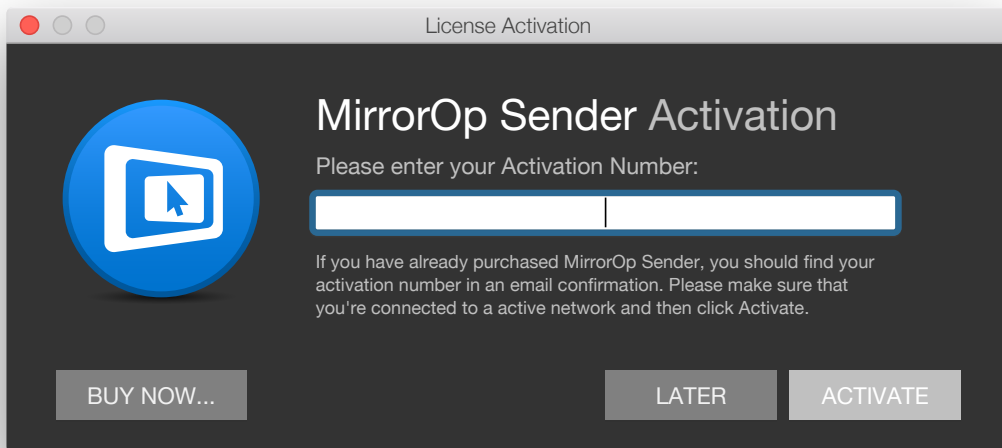


When this application is used without a valid license, that is, no valid license on receiver and not activated with a key, it will show a warning message every 5 minutes and disconnect from the receiver.



A registration key can be purchased in the application. Look for Buy Now button on the Activation window to find purchase options.

Once you have a registration key, enter the key in the Activation window (including all the dashes "-") to the box and click the Activate button. Make sure you're connected to internet when activating.

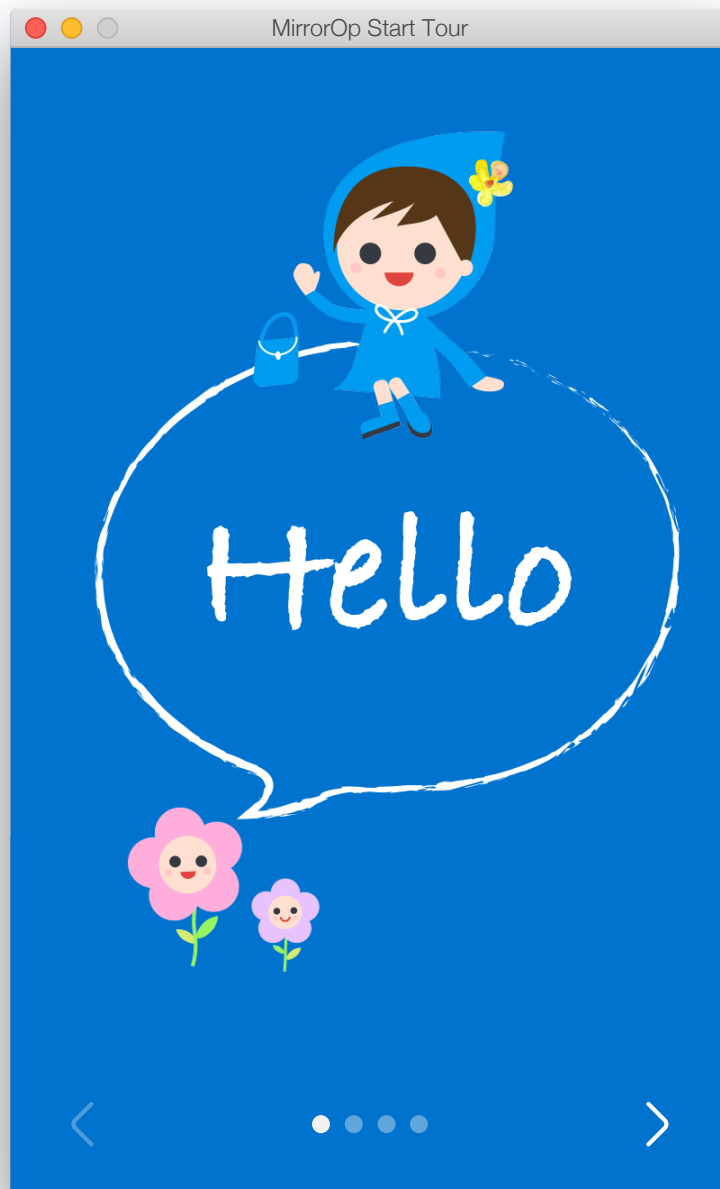


Note: One registration key is valid for one computer only unless otherwise specified when you purchase. Using the same key on second computer will make the first computer activation invalid.

Using MirrorOp

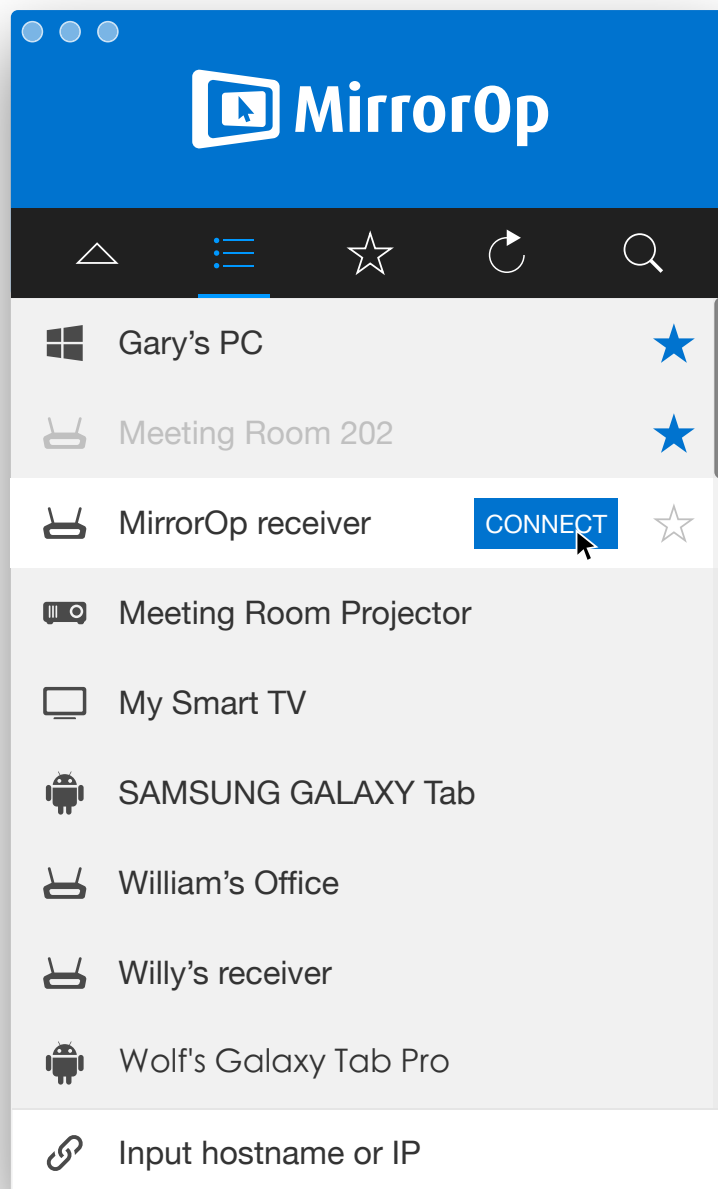
To use MirrorOp, first you should connect your computer to the same network where the receiver is connected to. Then, find the MirrorOp application and launch it.

The first time you launch MirrorOp, a series of start guides will be displayed to give a glance on this application. You can revisit this guide later from the About dialog.



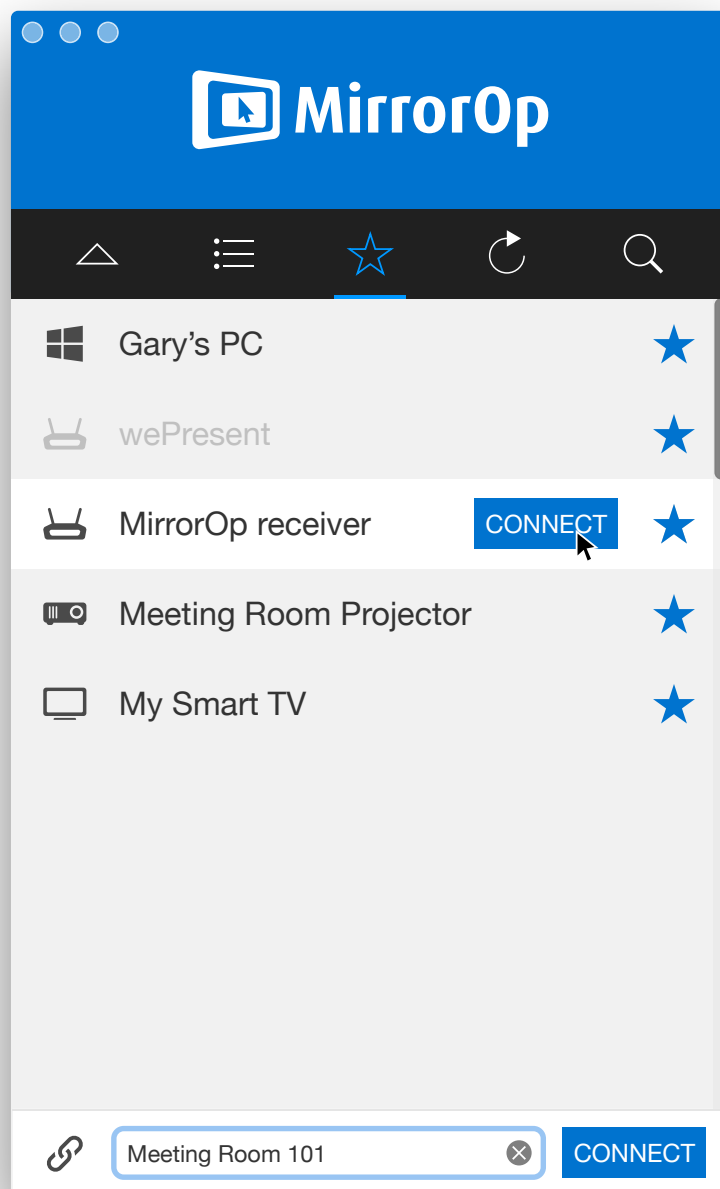
Finding receivers to use

Once launched, MirrorOp will look for receivers on the network and generate a list. Move your mouse to the receiver you want to use and click "CONNECT" to connect to the receiver.



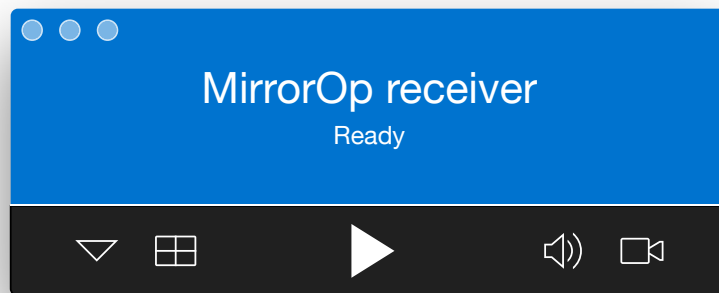
You can also choose to save receiver(s) you use frequently to Favorites and tell MirrorOp to start from Favorites next time. For using Favorites please refer to [Using Favorites](#) section.

The discovery only works for receivers that resides on the same subnet (that is, the IP address of the receiver has the same first three sections as the computer). For those receivers not on the same subnet, which is more likely to happen in big corporate networks with different subnets, you can click on the "Input hostname or IP" row and input the IP address or hostname of the receiver you want to use. Once connected you can also save these receivers to Favorites to have the application remember the name and IP address without entering them again.



Info Panel

The receiver name and current status will be displayed on the Info Panel. When ever the status change, for example you change receiver, start displaying or streaming, the Info Panel will be automatically expanded. It will automatically collapse if no mouse movement inside the application area for 5 seconds.



You can also manually expand the Info panel by clicking the expand button.

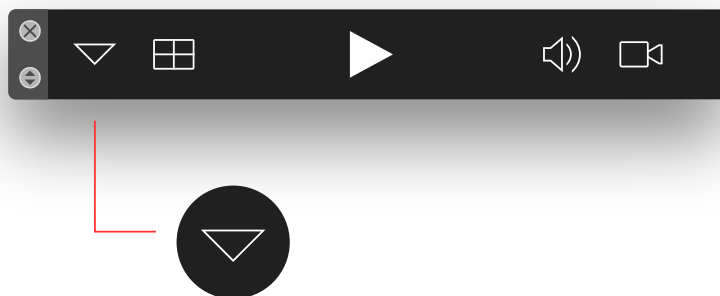


Mini Panel

To save space on screen when sharing your desktop, MirrorOp automatically minimises to the Mini Panel mode if no mouse movement in the application area for 5 seconds.



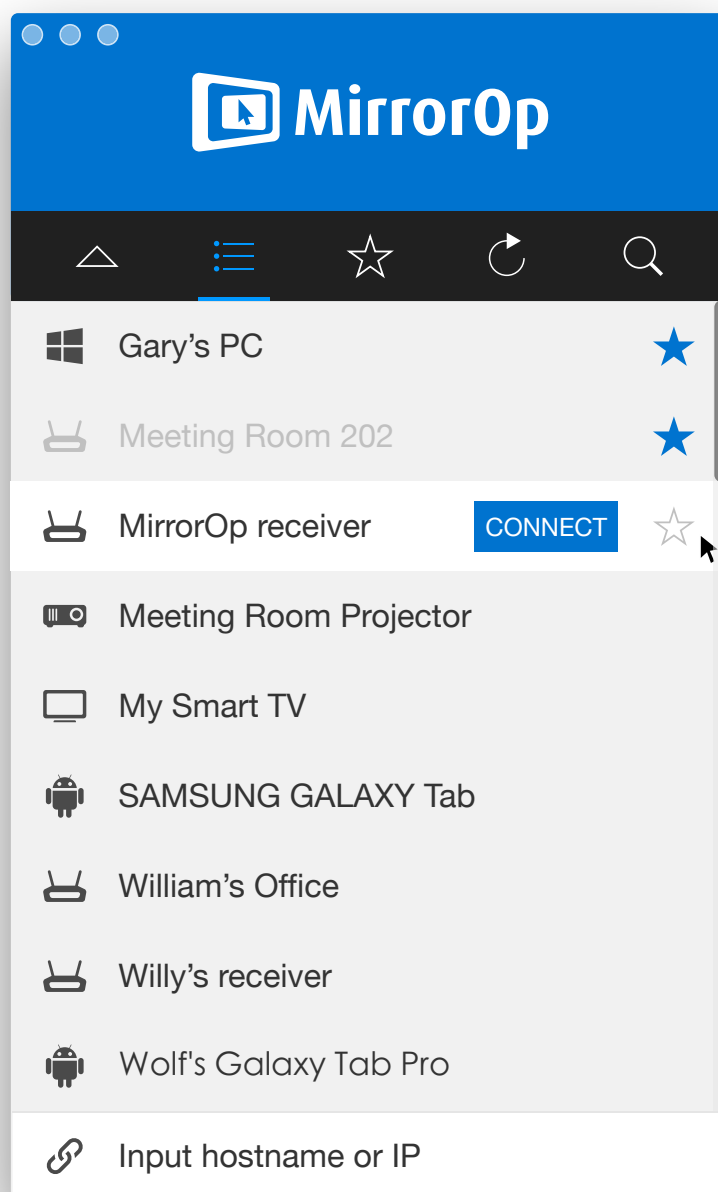
The Mini Panel contains most frequently used controls you need when sharing your screen. You can manually expand the device list to change receiver or disconnect from a receiver. To do so, click the triangle button on the mini panel.



Using Favorites

Favorites is a new design introduced into MirrorOp. Similar to the concept in most web browsers, Favorites are used to store destinations you visit often so that you can access them quickly. In this case, the receivers you use frequently are to be stored.

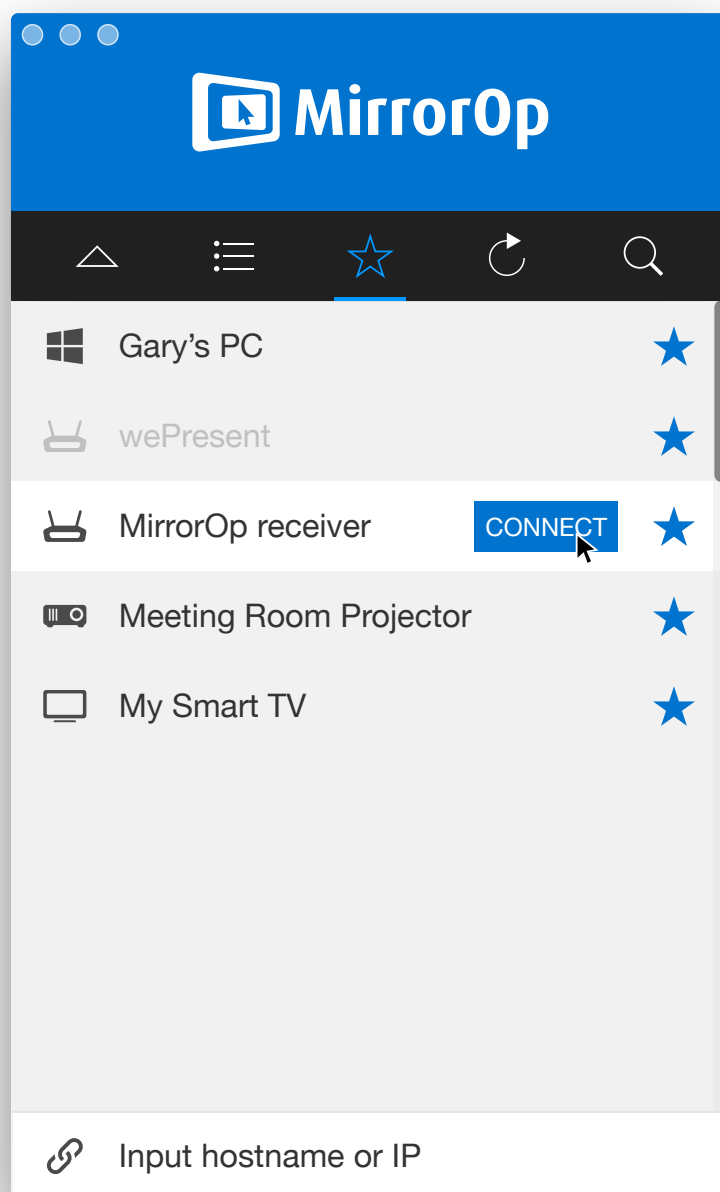
If you have many receivers around in your office, going through the complete list every time maybe time consuming and unnecessary. You can save the receivers you use most frequently as Favorites, and set the preference to directly launch the application from your Favorites list instead of going over the discovery process every time.



To save a receiver to your Favorites, move your mouse to the receiver you want to add. Look for the STAR icon on the right of the list, and click to add the receiver.

To remove a receiver from Favorites, move your mouse to the STAR of that receiver and click again.

Receivers in Favorites are always visible on the list. If a receiver can be discovered, its name is shown in black. If a receiver on the list cannot be discovered, its name is displayed in gray.



A receiver maybe not discovered but still connectable. For example, a receiver is on another subnet of the corporate network which your computer have access to. Or, some corporate network may block all UDP broadcasting packets thus prevents the discovery mechanism to find receivers. In such cases you can still connect to these receivers from the Favorites list. Simply move your mouse to the receiver you want to use, and click "CONNECT". MirrorOp will try to connect to that receiver with last known IP address. If it is not found on that IP address, MirrorOp will try to get the IP address from the DNS server with the receiver hostname. If the receiver hostname is found on another IP address, MirrorOp will connect with the new IP address and update the address to the list. If all these efforts failed, the receiver may be turned off or the network your computer is connected to cannot access that receiver.

Start Mirroring

To start mirroring to the receiver you selected, click the Play button. The screen image will be presented on the receiver side.



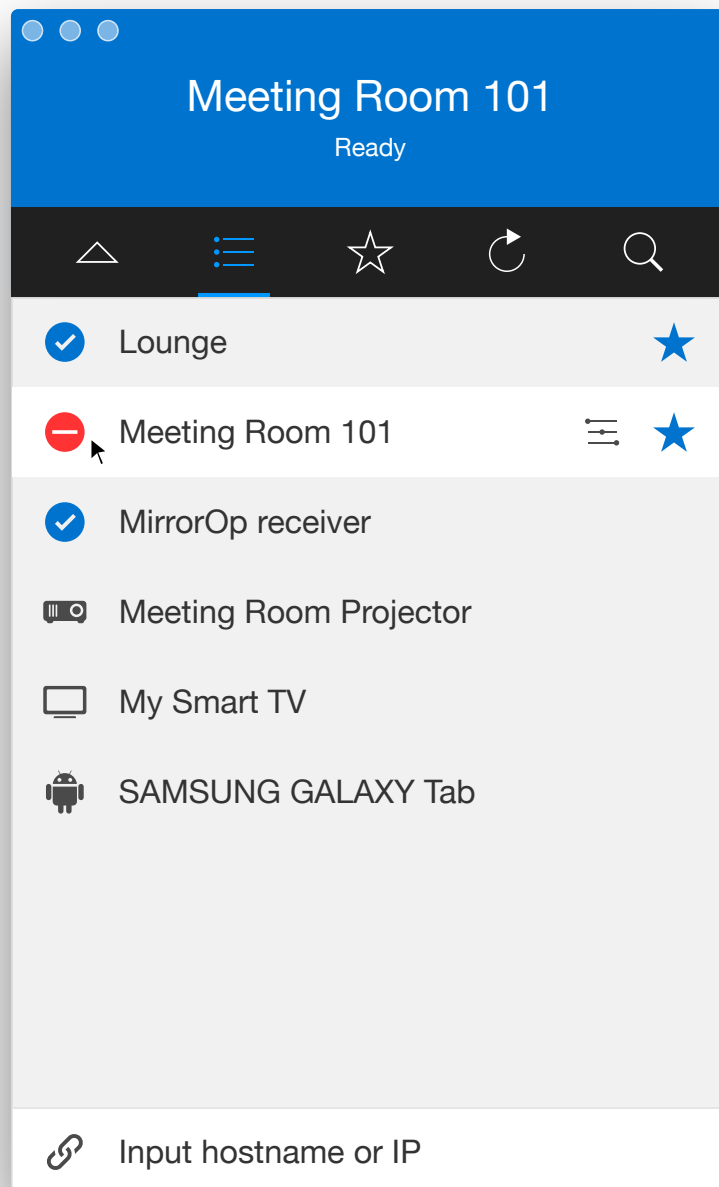
To stop mirroring, click the Stop button. The screen will return to the standby screen.

To pause mirroring, click the Pause button. The receiver screen will stay on the last image until Play button is clicked again or Stop button is clicked.



Disconnecting from a receiver

To disconnect from a receiver, move your mouse over the blue check mark in front of the receiver name in the list. It will change to a red STOP sign as shown in the figure below. Click on the STOP sign to disconnect from the receiver.



Advanced Features

Depending on the receiver you connect to, some advanced features can be enabled. For example, multiple screens can be shared to the same receiver at the same time (Split Screen), or you can also share one computer to multiple receivers (one-to-many).

Advanced features includes but not limited to the following:

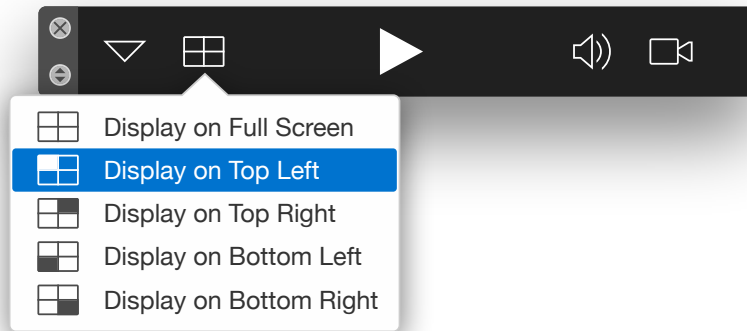
- Split screen
- Extended Desktop
- Video streaming
- One-to-many
- Universal multi-touch (UMT)
- Simulate remote USB input devices as local devices (USB over IP)
- Conference control

To know which advanced featured your receiver supports, please refer to the user's manual of your product.



Split Screen

Split screen is an advanced feature offered on most hardware receiver products. If the receiver supports split screen, the split button will be enabled.



Select full screen or one of the corners where you want to display on the receiver screen. When you click the Play button, the position selected on the split menu will be used. If you select the position while your screen is already displaying, the displayed screen will be changed immediately.

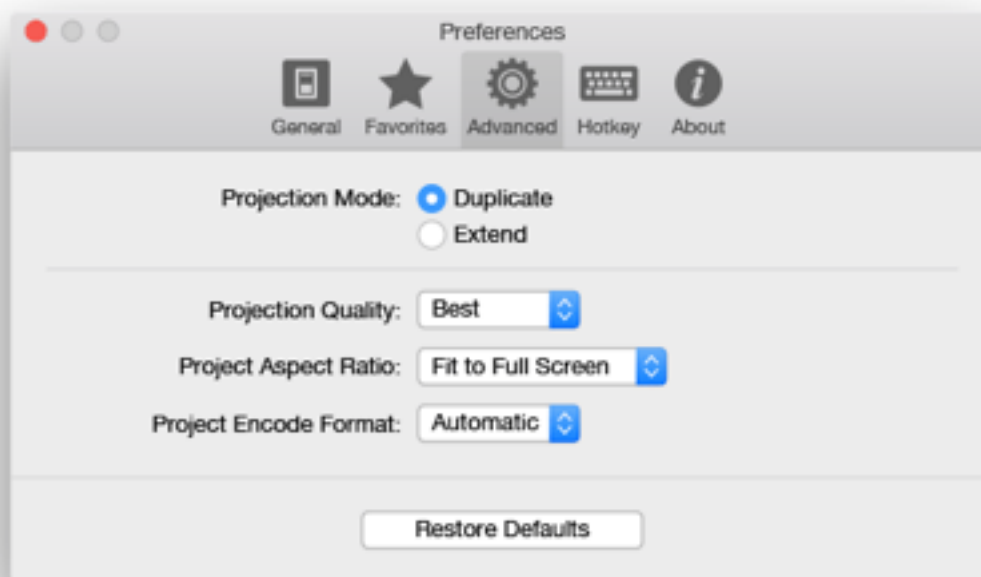
Extended Screen

Besides displaying your main desktop, it is also possible to display an extended desktop to the receiver. This is useful when you want to present a document to the audience while using your main desktop to read your notes or confidential data.

Extended screen can be enabled on most Windows 7 or Windows 8 PCs. However, depending on the driver support of your graphic card, additional driver may be required to turn on "virtual" extended screen. In this case the MirrorOp application will ask to download and install additional driver. You may decide whether to install.

For Mac computers, additional driver is always required to use virtual extended desktop.

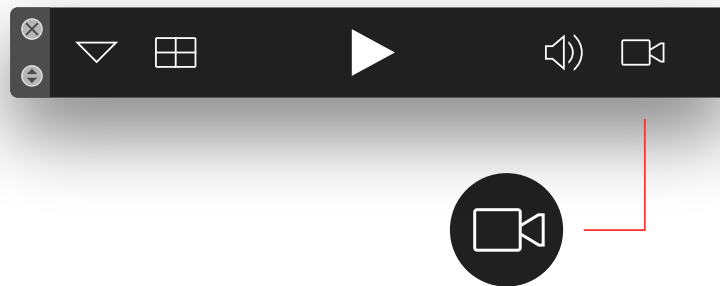
To use extended screen, choose "Extend" in the Preferences. To switch back to main screen, choose "Duplicate".



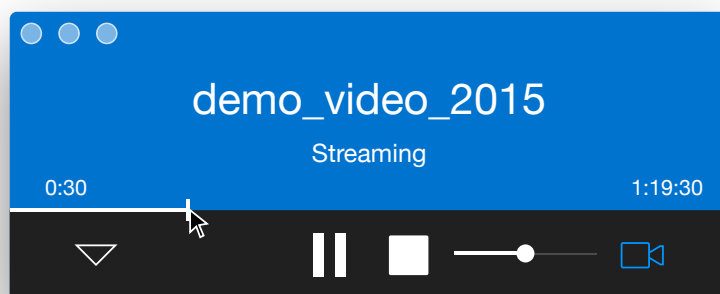
Video Streaming

Although screen mirroring serves most scenarios for presentation or teaching, sometimes the network performance or computer performance may not be good enough to provide smooth video experience. In this case, video streaming may be an alternative.

If your receiver supports video streaming, the video button will be enabled. Click on the video button to choose a video file you want to play. Similar to any video streaming solution, the video will be buffered to the receiver memory and played automatically once ready.



While streaming, you can use the playback control buttons to pause, stop, adjust volume or jump to certain position in the video. Note that split screen is not supported when

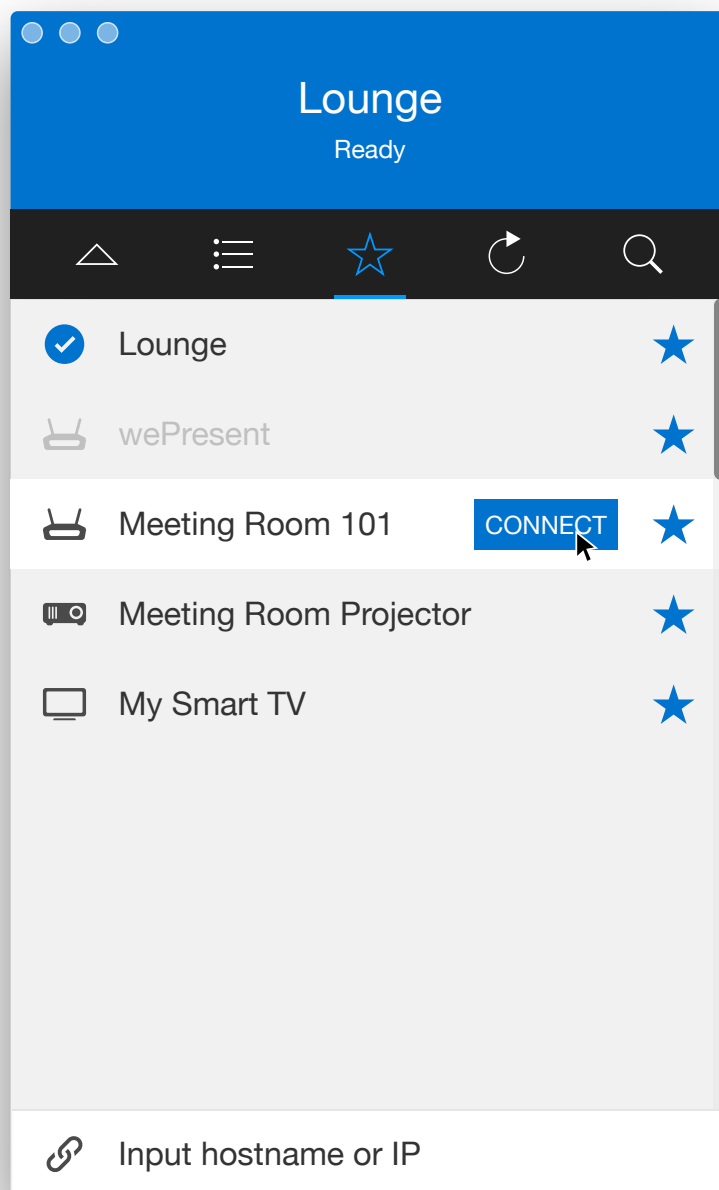


streaming a video.

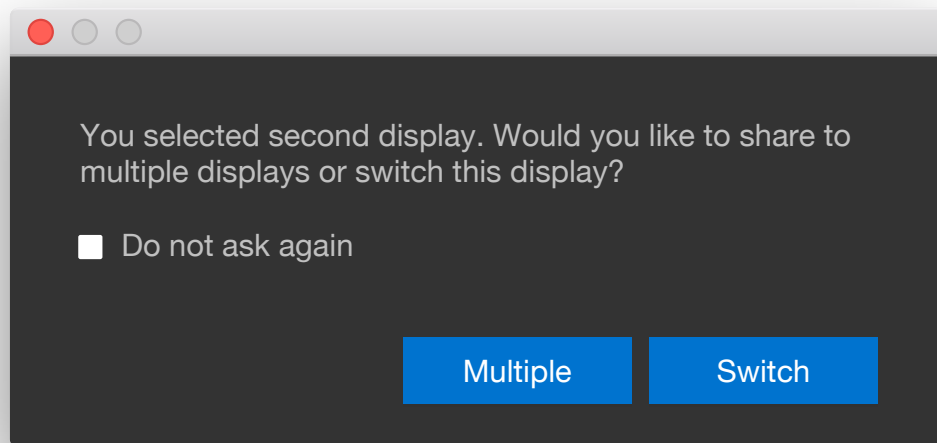
When the video ends, MirrorOp will automatically return to standby state. You can repeat the steps to choose another video, or directly click the Play button to display your screen

Multiple Display (Broadcasting)

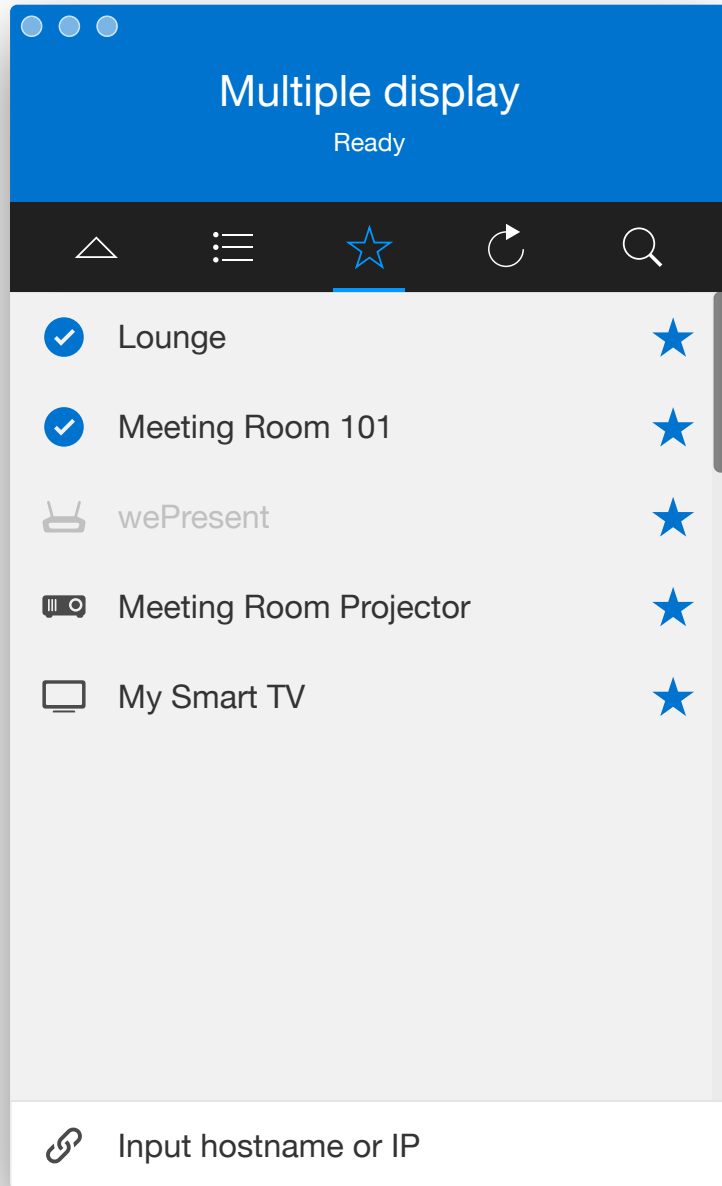
Multiple display (or broadcasting) is a special feature sometimes used in large conference rooms or classrooms. The idea is to send the same content to multiple receivers so that viewers on different displays can see the same content. This feature is only available on few receivers. To know whether your receiver supports this



A hint message will be displayed to confirm whether you want to switch to another display or enable multiple displays. Click "Switch" if you want to use the new display and disconnect from the previous one, or click "Multiple" if you want to enable multiple displays.



If you select "Multiple", MirrorOp will connect to the second receiver and keeps the connection with the first one. You can see there are two check marks on the list now. Repeat the procedure if you want to connect to more receivers simultaneously.



Note: More bandwidth will be required as more receivers are added. Performance may be decreased if you project to multiple displays.

PresentSense

PresentSense™ is a new design to help you pick the nearest receiver (and most likely the one you will use) instead of going through the receiver list every time. This design requires Bluetooth Low Energy technology (or BLE) support on both your sender devices and receiver devices. So far it is only enabled on the latest models or receiver products, but more will be added to the list.

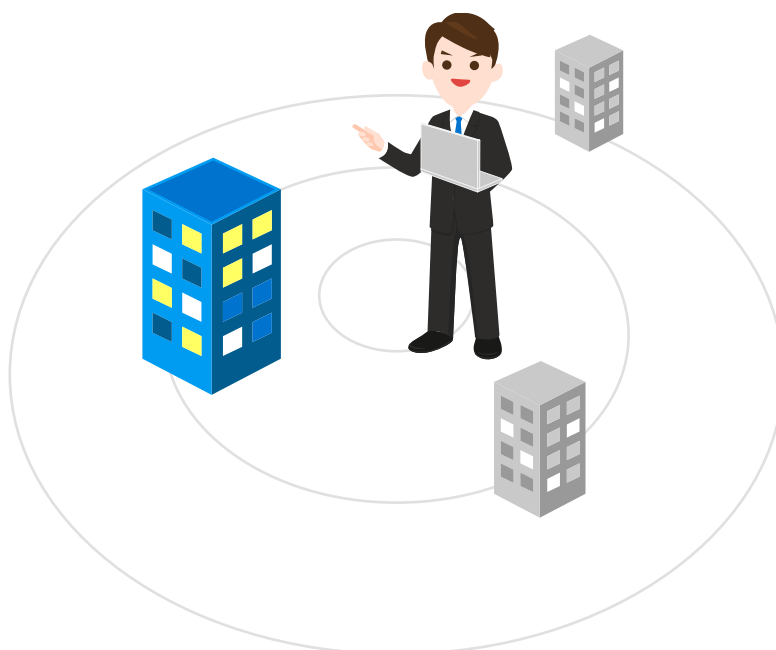
On the sender side, an additional PresentSense utility is used to run in the background and detects the BLE signals of receivers to decide whether there are receivers nearby. Currently it is available on Mac, and soon we will support Windows 10, Android and iOS devices.

To use PresentSense, download and run and PresentSense utility. It will stay on system tray and checks for BLE beacons periodically. If a receiver is found, the utility will read its connection information and sort it with other receivers to determine which is the nearest.

You can click on the PresentSense tray icon to see the list. Click on any one of the receiver to start connection. MirrorOp will be automatically launched and connect to the receiver you choose.

You can also let PresentSense running in the background and start by running MirrorOp. When PresentSense is running, MirrorOp will check if receivers are detected, and automatically connected to the most likely receiver.

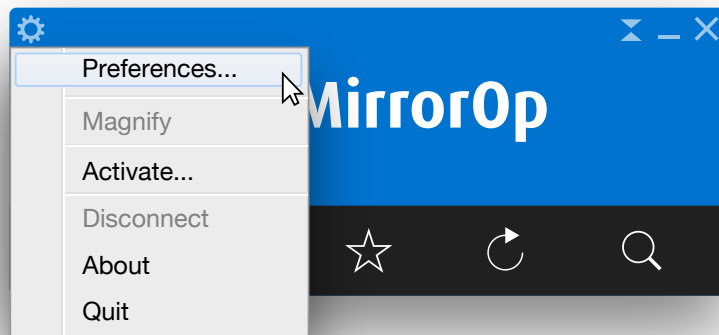
for more information please refer to www.mirrorop.com/presentsense/



Setting Preferences

Everyone has some preferences when using MirrorOp. For example, what name to be shown on the Conference Control list, start from discovery or favorites, even customised hot keys. You can make MirrorOp more friendly with settings you prefer, and the Preferences are the place to do so.

To set your preferences, open the Preferences dialog from the Preferences button (Windows) or the menu (Mac).



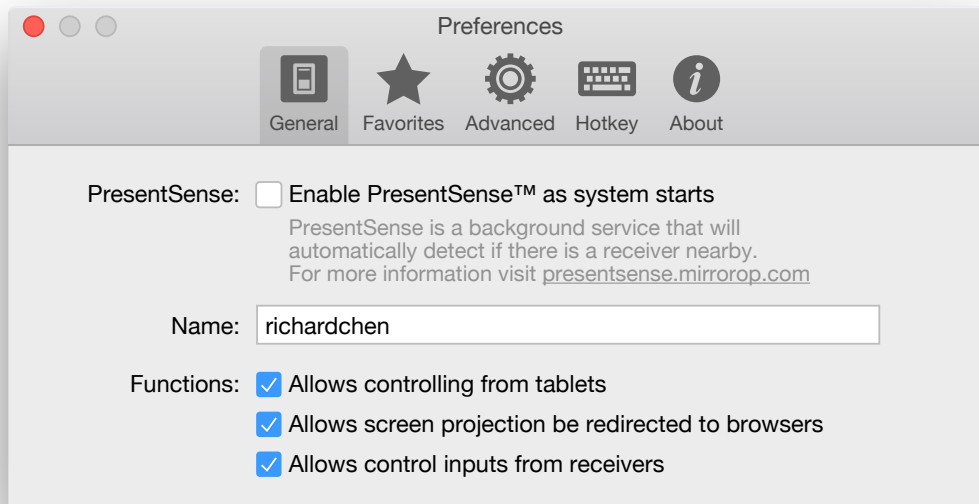
The Preferences are categorized into several tabs:

- General
- Favorites
- Advanced
- Hotkeys
- About

Click on the tab you want to modify to change setting in that tab.

General Preferences

This is where you set the following general preferences:



PresentSense: Enable PresentSense as system starts

When enabled, the PresentSense utility will be launched as system starts and keep running in the background. You can also manually launch the PresentSense utility when necessary if you don't want to run the utility every time your computer starts.

Name: The name which is shown on the Conference Control list used to identify this sender. You can use any character or numbers up to 32 characters.

Functions:

- Allows controlling from tablets:

When this option is enabled, you can use a special mobile app to connect to the receiver, and then see the screen of your computer and control it while it's displaying. This is useful if you want to move around when presenting and use a tablet to control your computer.

- Allows screen projection be redirected to browsers:

When turned on, when your screen is displaying on the receiver, users can also use any web browser to see your screen and save it as image files. This function must also be supported by the receiver device. Different receiver device may have different term to refer to this

function, for example WebSlides, Remote View, etc. Please refer to the manual of your receiver device to understand how to enable this function.

- Allows control inputs from receivers:

When turned on, you can control this computer with input devices (mouse, keyboard, touch panel) that are attached to the receiver. If you don't want to let user control you computer from the receiver side, turn this option off.

Others:

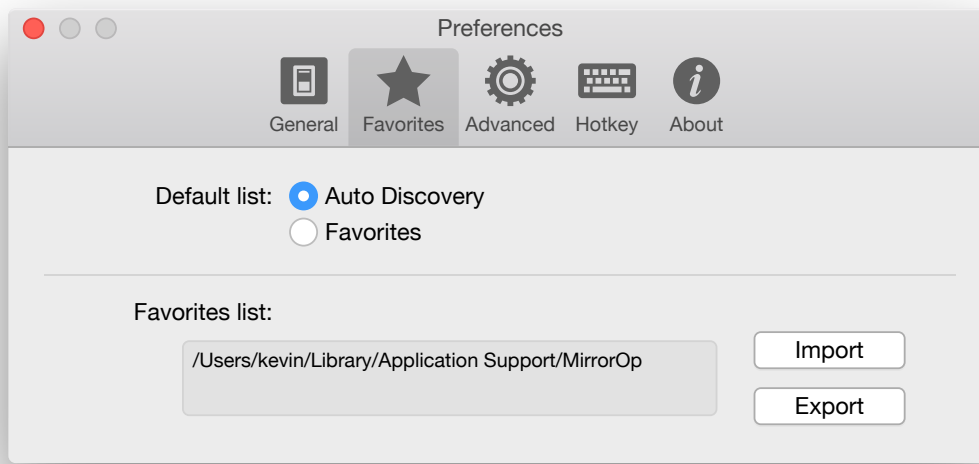
- Always on top:

When enabled, the MirrorOp window will always be placed on top of all windows so that you can always access it even when using other applications. Always on top may not work if other application is running as full-screen mode, for example some video players.

Favorites Preferences

Favorites list is useful if you mostly use the same receivers. You can tell MirrorOp to direct start from your favorites list without going through the discovery process.

If you like to start MirrorOp from your favorites list, choose "Favorites". If you like to start by searching for receivers, choose "Auto Discovery".



You can also import or export favorites list in order to exchange list with other computers or colleagues.

To export your list, click the "Export" button, and then select the folder to save it.

To import favorites from a file, click "Import" and then locate the favorites file. The contents of the external file will be copied to current list. The original contents of current list will be over written.

Advanced Settings

In most cases, you can skip this section. MirrorOp tries to use appropriate default settings chosen by the capabilities of your computer, network and receiver. However, if you want to adjust some settings to get better results yourself, you can do it here. You may want to make sure you know what you're doing before changing the settings. Usually it doesn't explode if a setting is inappropriate, though. :)

Mode:

Choose "Duplicate" if you want to see the same image as on your main desktop. Choose "Extend" if you want to use virtual extended desktop. Additional driver may be necessary to enable the extended mode. Please download and install the driver when prompted.

Quality:

Determines quality of transmitted image

- Best: Requires more bandwidth and computing power. More beautiful images on receiver side.
- Normal: Reasonable image quality on receiver side for most cases.

Aspect Ratio:

Determines aspect ratio on receiver screen when the aspect ratio of the computer and receiver display are different.

- Fit to full screen: Stretch image to fill the receiver display regardless of aspect ratio. Note that if the original aspect ratio of the computer and the receiver are very different, the resulted image may be obviously distorted.
- Keep aspect ratio: Keep the original aspect ratio of the computer. Stretch image to fit the receiver display so that it reaches horizontal or vertical edges. Note that if the original aspect ratio of the computer and the receiver are very different, there will be late black borders on the receiver display.

Encode format:

Set preferred format when encoding your screen. This is related to both computer capability and receiver capabilities. If chosen format is not supported by either side after negotiation, a different format might be automatically chosen.

- Automatic: Let the sender and receiver negotiate most appropriate format. This is the recommended setting for most users.

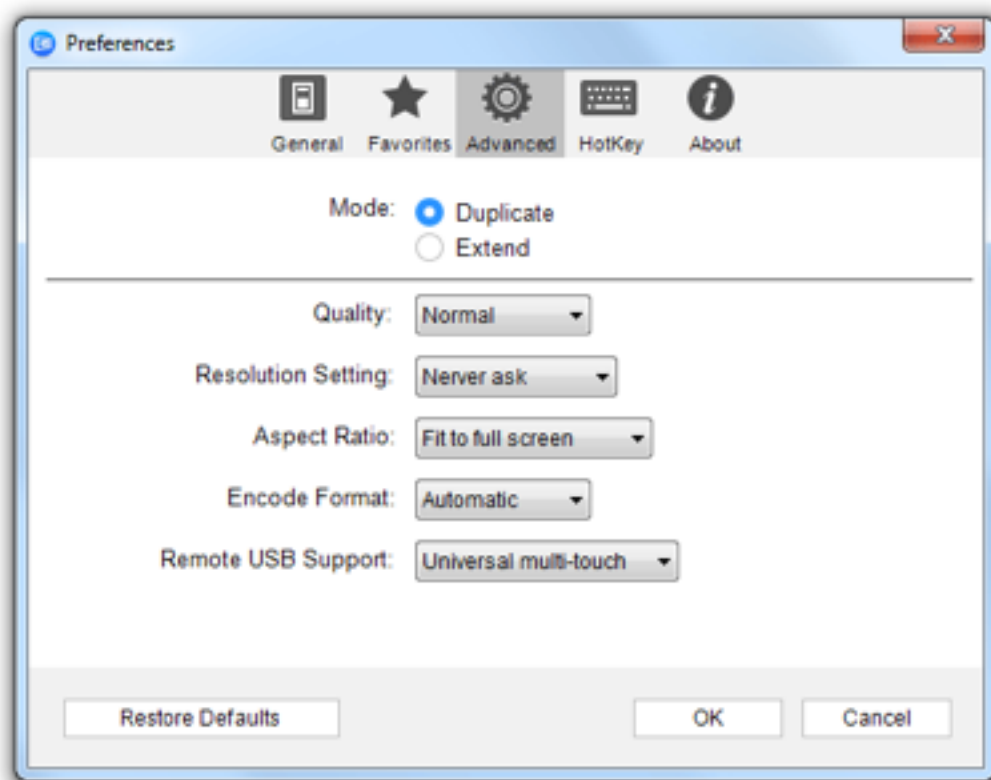
- JPEG: Prefers JPEG format. JPEG is a light weight compression format for still images. It is highly compatible and required light computing power to encode. However, when network is not optimal, the frame rate may drop if using JPEG format.

Advanced Capture:

- Enable: Enable special capture engine to capture Media Center, DirectX or AutoCAD contents. Performance may be dropped on some computers.
- Disable: Do not use advanced capture. Contents of few applications may be black.

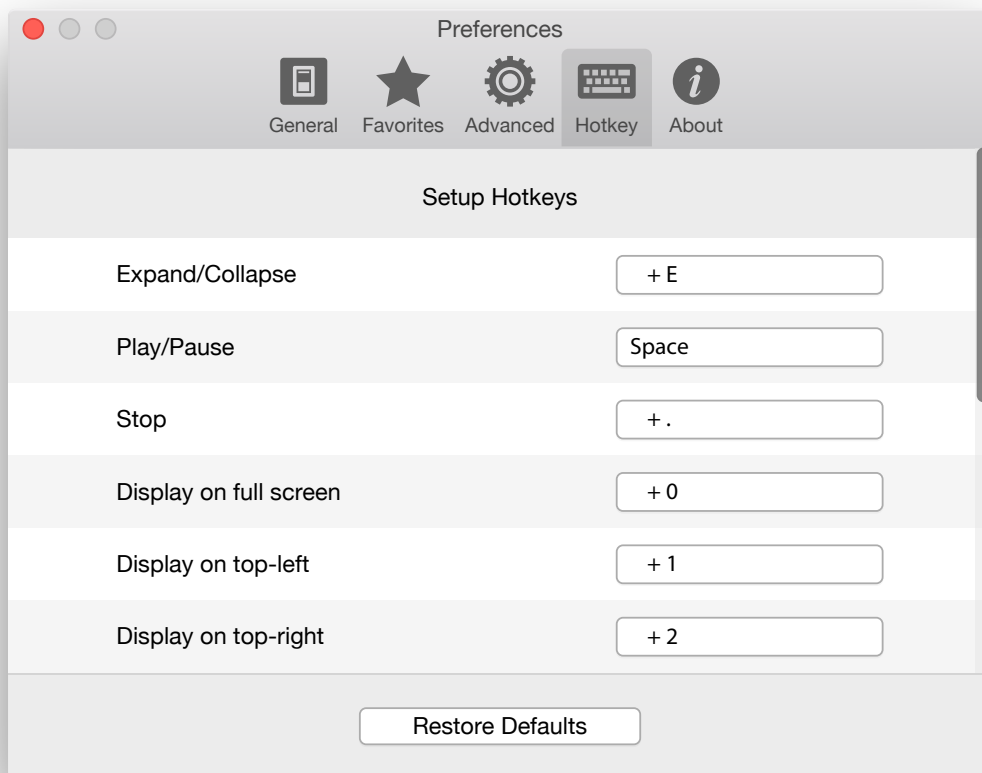
Remote USB Input: (Windows only)

- Universal multi-touch: Receives multi-touch commands from touch devices and translate into commands to fit sender OS. Please note that some special commands that require specific driver supports may not be supported.
- Simulate local USB: Simulate remote USB device as local device in Windows. Windows will recognise the remote device and use original driver of that device.



Setting Hotkeys

Hotkeys are handy if you use certain functions frequently. MirrorOp supports most system hotkeys, for example copy-paste to input or edit text. There are some MirrorOp-specific controls you can also trigger with hotkeys. The default hotkey definitions are listed on this tab. If you prefer to use your own definition, you can also change the definition here.



To change a hotkey, click in the edit box to the right of the control you want to change. Then, hot the key combination you want to use. The new definition should appear in the edit box. Please note that the definitions cannot conflict with other controls or system definitions, otherwise they may not work properly. If you enter a combination which is currently used by another control, the definition will be assigned to the current control you're editing, the the previous one will be cleared.

When you're done editing, simply click OK (Windows) or close the dialog. If you would like to restore to default definitions, click the "Restore Defaults" button.

About MirrorOp

On the About tab you can check the version number, access Help file, visit MirrorOp web site, or re-visit the Start Guide.

