

# MapBlender User Guide

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## 1. Scope

This user guide explains the basic features of MapBlender, our application that enables collaboration in cybercartography. For more details on the concepts behind MapBlender, please refer to our **short paper** (paper.pdf in the same ZIP archive this user guide). You may want to have a look at our **demo video**, first (named demo\_video.mp4 in this ZIP archive).

## 2. Prerequisites

The only requirement for running MapBlender is that you have a modern browser installed. We recommend you use it in **Google Chrome** or chromium-based alternatives like Chromium, Opera, or Brave.

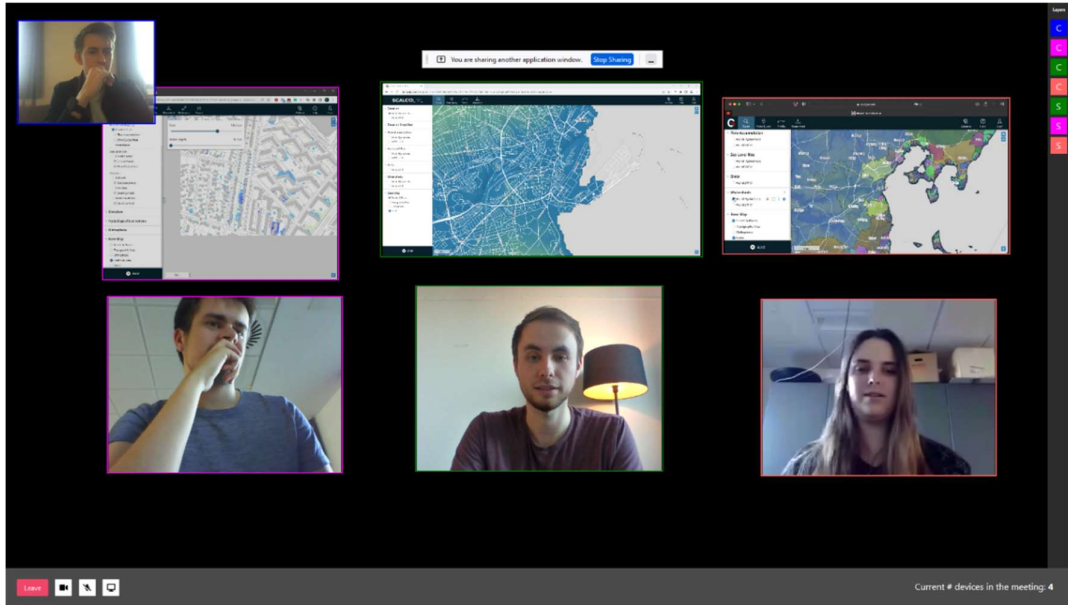
MapBlender is hosted remotely as a so-called webstrate, which is essentially a website that automatically and immediately shares all changes to its document object model (DOM) with every client that currently displays it. What this means for us is that **no further installation is necessary** to run MapBlender, neither for meeting hosts nor participants. It is also possible to [host your own instance of webstrates](#), which is however more involved.

Another benefit of it being built on webstrates is that the **source code** that produces MapBlender, is available (and dynamically editable!) to every client as well. Instructions for viewing MapBlender's source code editor can also be found in the webstrates documentation.

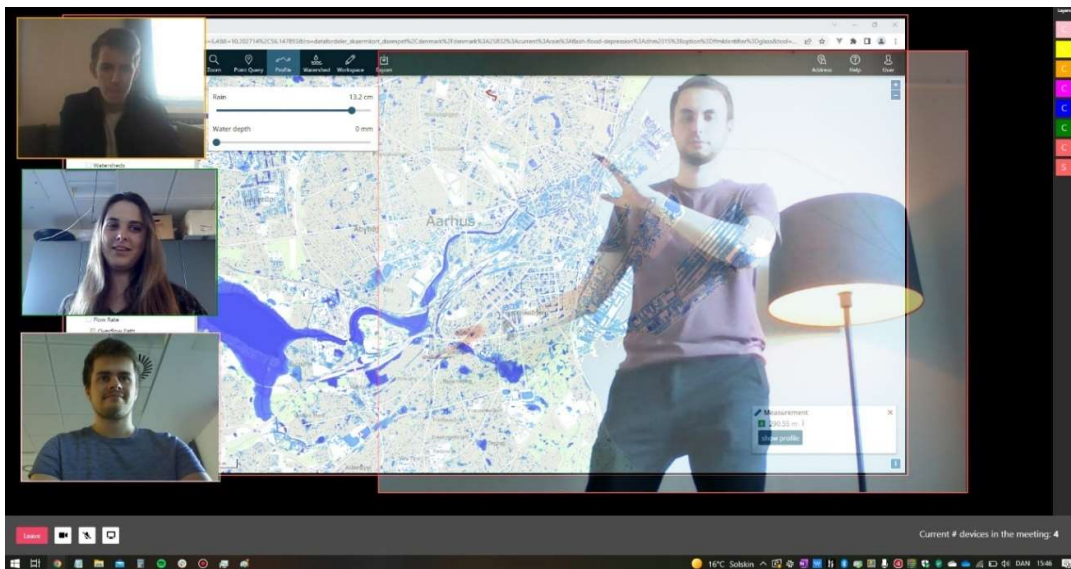
Please keep in mind, that **MapBlender is still a research prototype**, and therefore it is not yet optimized to handle a lot of clients at once. In our tests, we have found that MapBlender can fluently handle only up to a handful of participants in the same meeting.

### 3. Overview

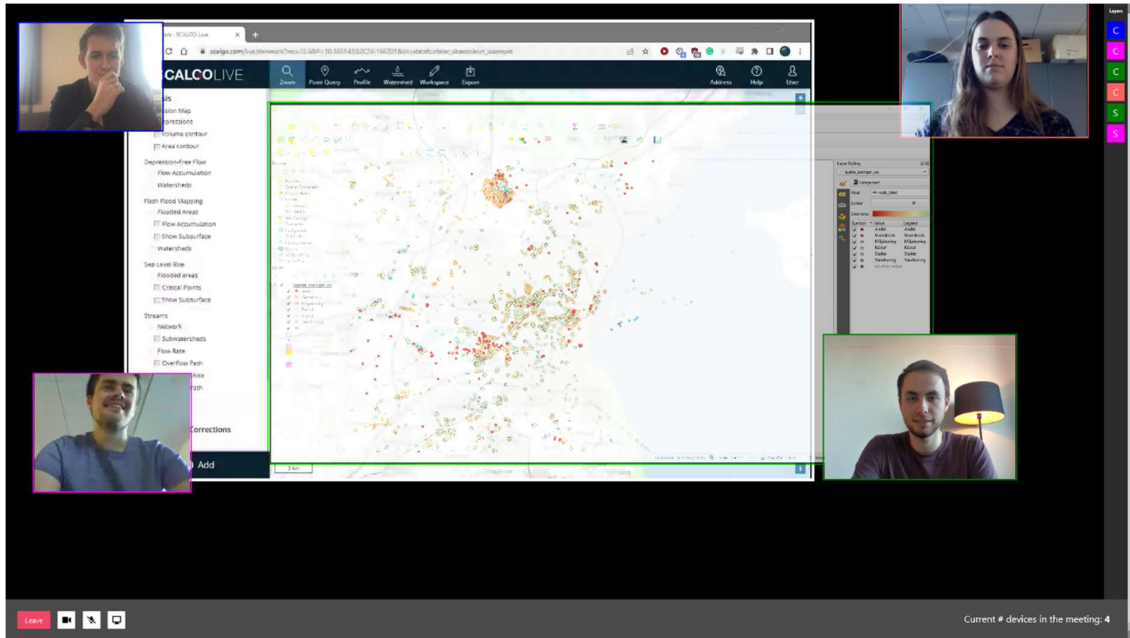
Before going into detail on how to use MapBlender, in this section, we want to give you some **inspirations** on what collaborative cybercartography in its interface can look like.



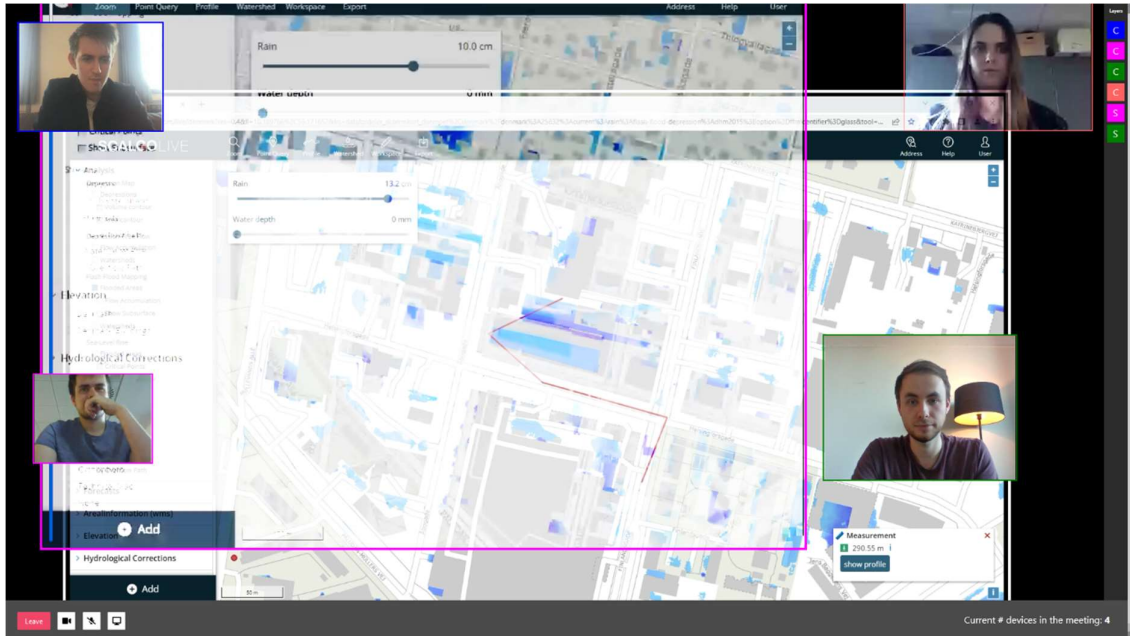
**Example 1:** MapBlender allows all collaborators in a session to adjust each other's windows to be able to flexibly account to what is needed in the collaborative at that moment. Here, three collaborators share their screens,, another in the top-left corner observes.



**Example 2:** By **blending shared windows**, collaborators can view the contents of both. For example, here, one collaborator blends his camera feed with a shared screen of a GIS tool, allowing him to use his body language and gestures to present a model his team developed to others.



**Example 3:** Blending allows collaborators to view the data **across different GIS tools**, for example when collaborators do their work in different tools, or have access to different data. Here, the flood risk assessment tool SCALGO live is blended with QGIS, allowing people to take both data into account.



**Example 4:** Collaborators can also blend **multiple instances of the same tool**, for example to better identify differences or to split work in the same tool between collaborators. In this example, two users share their progress while collaborating on a complex task in SCALGO live, while two other collaborators observe.

## 4. Using MapBlender for Collaborative Cybercartography

This section serves as a manual on how to use the different features of MapBlender to enable collaboration across GIS tools and workspaces. While it is possible to read this from front to back, we suggest you simply try out the interface yourself without any explanation or watch the demo video, first, and then refer back to this section for the details.

### 4.1 Getting Started

As a first step, you need to create a new MapBlender session, in which the meeting should take place. You can think of a session as the meeting room, in which you and all other participants can meet. Once created, everyone who knows the link to the session can enter the meeting. If you end the meeting at one point, the session remains and a new meeting can be started.

To **create a new session**, open the mapblender.html file, which is located in the same ZIP file as this user guide, and open it in an appropriate browser (see the Prerequisites section above). All that this file does is redirecting you to a new, unique URL. Others can now **join this session** by opening the URL you were redirected to in their browsers.

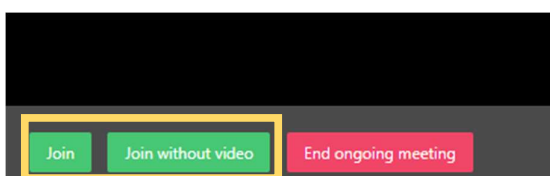
### 4.2 Starting a meeting

When opening a MapBlender session for the first time, you will be presented with a mostly dark screen, and in the bottom left corner, you can see a button that says “start meeting”. Click that button, to **start and join a new meeting**:



*Starting a new meeting after opening the MapBlender session in the browser.*

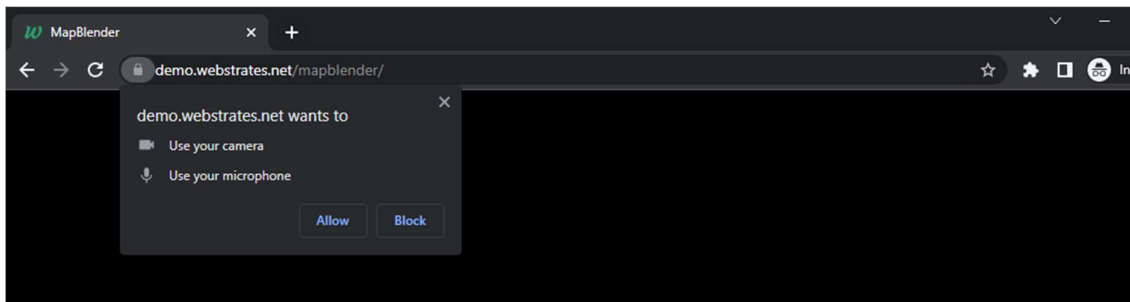
If you open a MapBlender session while there is a meeting already ongoing, you can join that by clicking the “**join meeting**” button. Alternatively, you can also **reset the session** by clicking the “end meeting” button:



*Joining an ongoing meeting with or without the webcam being shared on entry.*

### 4.3 Sharing your webcam feed

Once you are in the meeting, MapBlender automatically will try to share your webcam feed, to make sure that everybody can see each other. You need to give permission to MapBlender to access your webcam. Depending on what browser you are using, there will be a pop-up appearing somewhere on your screen. On Google Chrome, it looks like this:

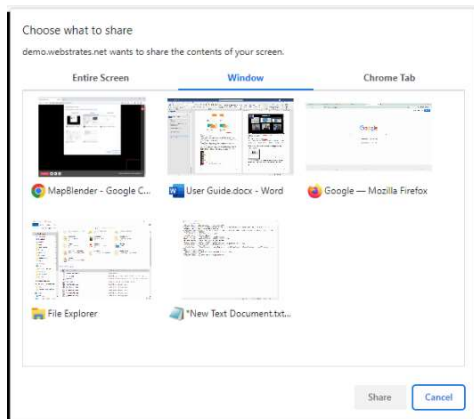


*Giving permission to share webcam with MapBlender in Google Chrome.*

### 4.4 Sharing your screens and windows

Another important aspect of MapBlender that enables geocollaboration is that we can **share either our screens or the window** that runs the tool we want to bring into the collaboration. To do so, click the button with the screen icon in the bottom left corner of the interface.

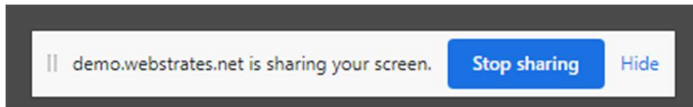
Again, a dialogue will open up that asks you for **permission to share a screen**, and again, depending on what browser you are running, that dialogue look slightly different. In Google Chrome, it looks like this:



*Menu for selecting a screen/window to share with others in Google Chrome.*

Select the window or screen you want to share with others. A new window will appear in the MapBlender workspace, you can **adjust it** just like windows with webcam feed. You can **share multiple windows/screens** by just clicking the same button as before, again.

To **stop sharing**, your browser will render a small pop-up window that says “stop sharing” on it. In Google Chrome, it looks like this:



*Using the pop-up to stop sharing a window/screen in Google Chrome.*

In case you can't find that pop-up, you can also remove the permission to share the content via the camera icon in the address bar of your browser, which looks like this in Google Chrome:

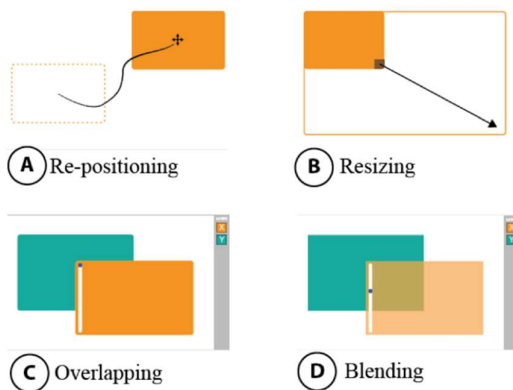


*Using the address bar widgets to stop sharing a window/screen in Google Chrome.*

## 4.5 Adjusting shared windows

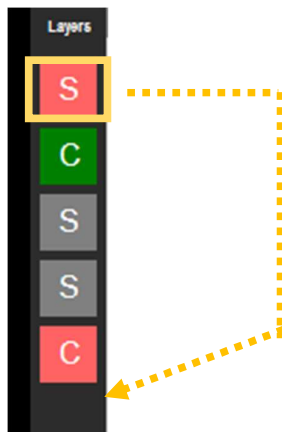
You can rearrange and resize all windows that appear in a MapBlender session. In fact, everyone in the session can rearrange and resize all windows at all times. This is because MapBlender follows the **What You See Is What I See principle**, which gives everyone in the meeting a common ground for discussion, and it also increases the flexibility of the workspace to account for different situations in the collaboration.

To **rearrange** windows, you can drag and drop them to new positions with your mouse, or, if you are using a touch screen, your finger. You can also **resize** a window, by dragging on their bottom right corners to grow or shrink them.



*Ways of adjusting windows shared in a workspace in MapBlender.*

Sometimes, you may also want to **adjust the order in which windows are layered**. You can do that in the stack on the right side of the interface: Every box there represents a shared window, and the order in the list is the order in which the windows are drawn. You can reorder windows by rearranging these boxes through drag-and-drop:



*Arranging the layers on the right side of the interface via drag-and-drop changes the ordering of shared video feeds in the workspace.*



## 4.6 Blending shared windows

Now that you and your team have shared one or multiple screens in the meeting, you can rearrange and resize them, so that all everybody and everything is visible. You can also blend windows with each other, so that you can see the content of both at the same time. Again, MapBlender follows the WYSIWIS principle, so others can see all changes you make and vice-versa.

For example, if you want to make sure that your webcam feed does not occlude anything in the tools you are using, you can use the slider on the left of your window to **make it translucent**.

You can also **adjust the way that windows are rendered**, like increasing contrast or turning the contents black and white, by using the blend mode presets at the top right of the windows. This is particularly helpful when you are working with busy maps.



*Closeup of a window on the MapBlender workspace. Using the slider on the left controls the translucency, the three buttons in the top-right corner affect the blend mode.*

Since your body and the gestures you make are now visible without occluding the content, and since what you see is what everybody else sees, you can also **point and gesture at the contents in your GIS tools**, just like a weather reporter on TV. This is particularly useful when you want to tell an engaging story about your GIS tool, or when using the mouse is not expressive enough in the conversation.

Another GIS-focused feature of MapBlender is that you can, well, blend maps: When you place two GIS tools on top of each other, you can adjust their blend modes and now see the data in both. You can use this feature to compare differences between two shared views of the same tool, or even to overlay the data from different tools with each other:



## 5. Tipps and Tricks

Make sure that the window you want to share is open and not minimized, otherwise MapBlender can't share its content.

In some cases, your OS will focus on the content once you share a window, moving the MapBlender window into the background. Just make sure you are looking at the right window, when talking to others.

Blending your webcam and shared screens works best if you place yourself in front of a white background, like a wall or a whiteboard in your office. Also, the "presenter" blend mode helps increase your visibility on a tool while translucent.