

weConnect admin guide

DATE 9/10/2020



Table of content

Introduction	3
System introduction and background information - [KB7709]	3
Simplified connectivity overview – [KB7710]	4
Summary of network connections and bandwidth loads – [KB7706]	6
Upgrade methodology – [KB7711]	9
Administration interface overview – [KB7712]	10
General menu in the admin interface - [KB7713]	11
Manager menu in the admin interface - [KB7714]	11
Authentication menu in the admin interface - [KB7715]	12
Users and Usergroup menu in admin interface - [KB7716]	16
Theme menu in the admin interface [KB7717]	23
Locations menu in admin interface [KB7718]	24
How to Pair Devices - [KB8487]	29
Device configuration – [KB7719]	33
Basic Room Configuration – [KB7723]	47
Overflow Room Configuration – [KB7724]	63
Virtual Classroom Configuration [KB7725]	66
Audio setup and calibration – [KB7751]	80
Lecture Management – [KB7752]	88

Introduction

These articles explain how to use the weConnect Administration interface to set up, control and monitor a weConnect institute. You will learn how to manage users, configure locations and classrooms, manage how users log in with or without Single Sign-On (SSO) integration and how to monitor devices.

The articles were primarily written as a guide to set up an institute according to the best practices we have collected. We highly recommend following the weConnect training provided by Barco University to become an expert in weConnect before starting a completely new setup.

Setting up a new institute can be started as soon as you have received access to the administration interface and does not require to wait for hardware deliveries. In contrast, the fastest way to configure the system is to perform the first steps as soon as possible. Each step has one or more dedicated articles.

The typical flow of an install will be to start with setting up the authentication methods. We provide a separate integration document explaining how to integrate SSO within your institute.

At this point, you will want to set up user groups and maybe create special user accounts for cloud administration use.

Next, we propose to configure the locations in the system. Locations represent the physical layout of the institute. Users will come into contact with this. The naming as such should be comprehensible for teachers and students.

These first steps can be done before any equipment has been delivered. After these steps, we suggest focusing on making the IT department aware and ready to receive the display nodes on the network. Please consult the network design article as a guide for this step. [KB7953]

Now is also the moment to make sure that (HA) proxy servers have been set up to ensure a smooth integration of the hardware into the system.

Once the display nodes have arrived, the device configuration can take place.

The peripheral configuration is ideally the next step to make sure that the basic physical install can be completed.

Finally, room configuration allows you to set the behavior of the rooms so that the system will function as intended.

Important note: Some items in these menus are dependent on options that enabled or disabled for your specific institute and may be missing for you.

System introduction and background information - [\[KB7709\]](#)

weConnect runs on Amazon Web Services. There are several clouds, all fully redundant and 24/7 monitored and managed by the Barco DevOps team.

The weConnect system is a multi-tenant cloud application. This means that the application serves multiple customers. Each institute is a tenant, separated by others through separate URLs. As such, each customer gets a unique link to use weConnect.

We run 2 clouds that customers can get access to:

Production: <https://edu.barco.com/>

User Acceptance Test (UAT): <https://uat.edu.barco.com/>

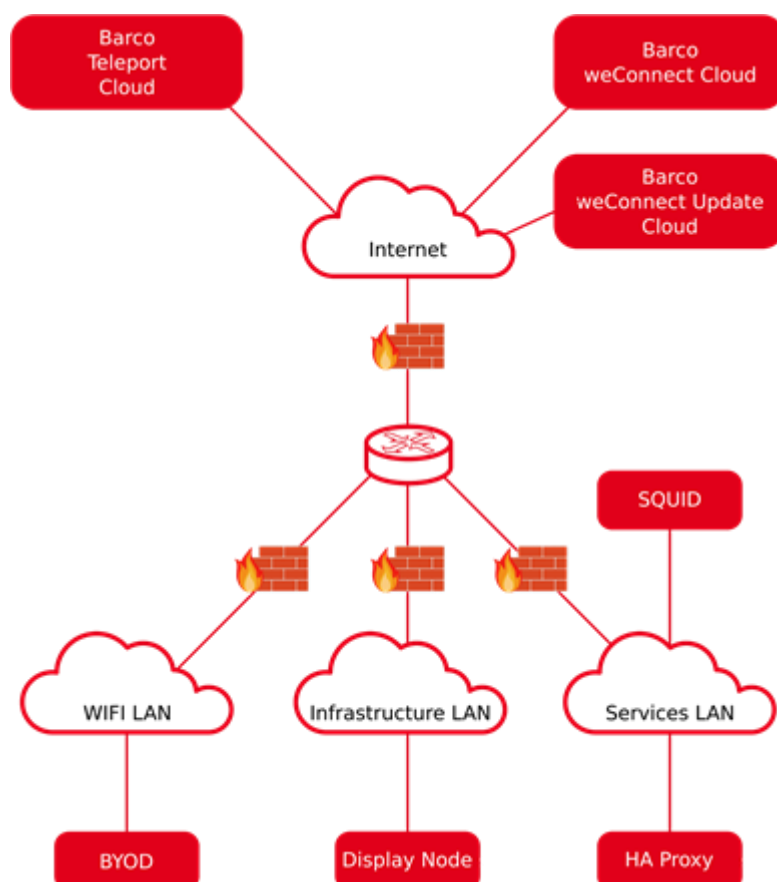
The production cloud is the version and instance used by all paying customers. UAT provides the opportunity for new customers to explore the systems and test features. Existing customers can opt for a higher maintenance support level and get access to the UAT cloud to prepare for upcoming releases.

There is one top entry to the cloud to allow Barco Super Administrators to manage system upgrades and overall system settings and to allow Barco Partners to configure and manage multiple institutes. This is the reason why in some cases items may be missing from your interface: they were not yet enabled in the superuser admin interface.

weConnect is only tested and guaranteed to work fully with Google Chrome. For iOS weConnect is tested with Safari. Other browsers like Firefox and the new Microsoft Edge (Chromium based) might work but are not officially supported and should be avoided when using weConnect. Remark that iOS does not offer a full Chrome browser and there we suggest to use Safari for the best results.

For inquiries about the security measures taken in weConnect we refer to the security whitepaper which is available upon request

Simplified connectivity overview – [\[KB7710\]](#)



This simplified network diagram shows that the system can work with complex networks using multiple VLANs. The system does not demand such complexity as it will work in open and flat networks as well.

It is important to understand that the users will need to be able to reach the weConnect cloud with their devices as they will have to run the application interface in the Chrome browser.

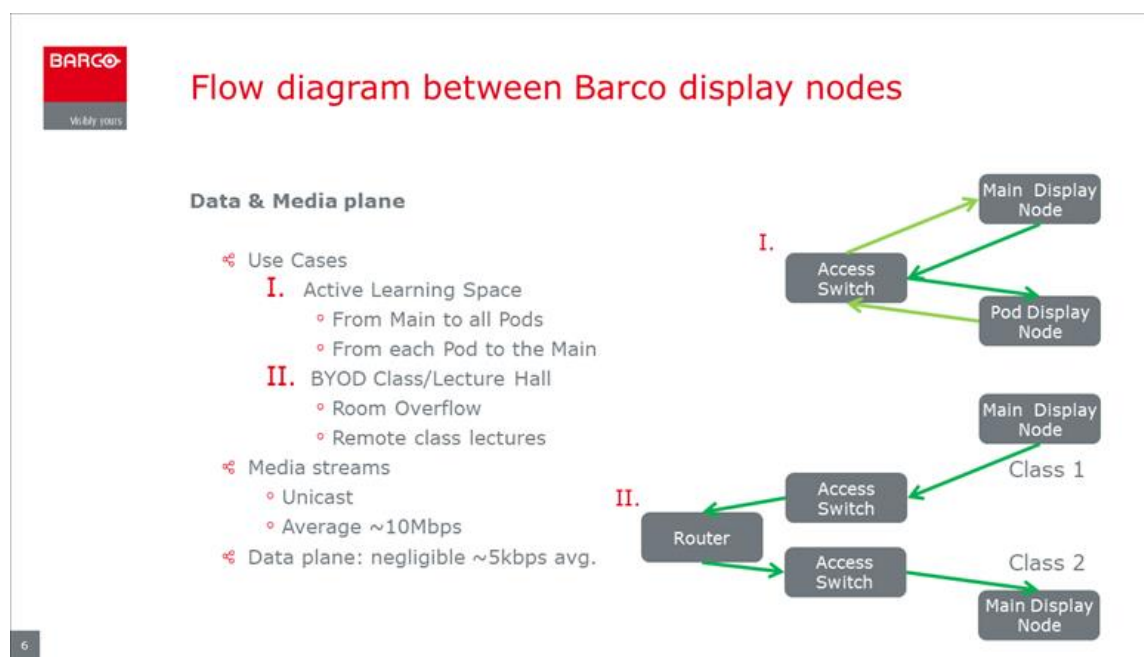
Users will also need to be able to address the Display Nodes, the devices generating the image on the displays in the classrooms as well. Every time a user mirrors a BYOD device to a display, a connection gets set up between the BYOD and the Display Node. This can be a direct connection, through VLAN routing or via the more secure method of using a HA Proxy service which weConnect supports. We suggest to create a virtual IP address for each Display Node which the HA Proxy will translate to the real IP address on the Infrastructure LAN. This way, users have no direct access to the Display Nodes. See KB7719: Device configuration for details on how this works.

The Display Nodes will need to be able to contact the weConnect cloud and for updates the weConnect update cloud. This can be done through direct internet connections or via a proxy (represented by the SQUID element in the drawing above). weConnect supports proxies with passwords per location level. This means that you can have different proxy servers per campus, building and floor level.

Firewall verification chart:

From	To	Purpose or Protocol	URL & Ports
BYOD	Display Node	MirrorOP Airplay & Chromecast	TCP 1688 TCP 3268 TCP 8080 UDP 53 TCP 80 UDP 123 TCP 443 TCP/UDP 554 UDP 1900 multicast UDP 5353 multicast TCP 8008 TCP 8009
Display Node	BYOD	Thumbnail views Discovery	TCP Port 8082 UDP 5353 multicast optional
BYOD	weConnect cloud	Application	*.edu.barco.com; port 80,443
Display Node	weConnect cloud	Application	*.edu.barco.com; port 443
Display Node	weConnect update cloud	Firmware upgrades	*.barco.cloud; TCP 80 TCP 443
BYOD	HA Proxy	MirrorOP	TCP 1688; TCP 3268 TCP 8080
Display Node	Display Node	RTSP/RTP Discovery	Port 554 UDP 5353 multicast

Connect Display Nodes which will function together in a lecture context (for instance in a collaboration room) as much as possible on the same switch. The unicast network traffic between Display Nodes will have no impact on the network. Media streams over the local network are not encrypted except for webRTC streams which are always encrypted even for local peer to peer connections.



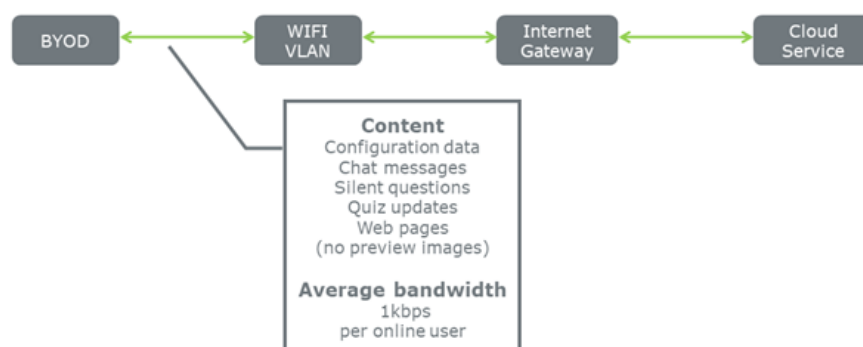
Summary of network connections and bandwidth loads – [\[KB7706\]](#)

This information is important to understand in order to assess the impact on the wireless network and the impact on network bandwidth needs between networks or switches and the internet as well.



Flow diagram between BYOD and Barco components

Data plane

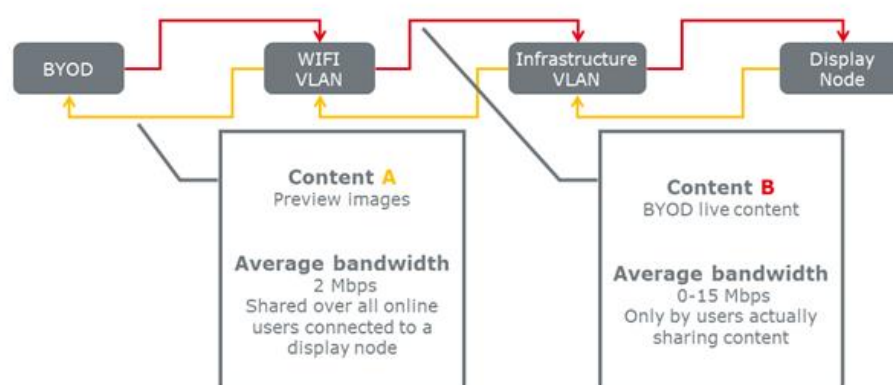


Students who get the live preview option in the student interface will ingest around 1Mbps to their personal device (BYOD).



Flow diagram between BYOD and Barco components

Media plane



For teachers, the average preview bandwidth is higher (Content A in the illustration above) than for students as the update rate is higher as well.

The bandwidth required for mirroring devices depends on the resolution and the amount of change in the image. On average the bandwidth for teacher content like presentations is minimal: close to 100kbps with short peaks of several Mbps when content changes. For full screen video mirroring at full resolution, the bandwidth can peak as high as 15Mbps, but mostly it will average 2-5Mbps. For network sizing purposes, we recommend to take 4Mbps as the average bandwidth requirement for each concurrent mirroring in the classroom. To know the average across a range of classrooms it is best to multiply the 4Mbps with the amount of Display Nodes in the network to know the average bandwidth requirements across a complete network.

For remote learning scenarios where all content stays on the institute network up to 4 AV streams can go bi-directionally between the classrooms. For standard remote learning scenarios 2 bi-directional AV streams have to be taken into account when connecting only two classrooms.

Calculating the bandwidth for Virtual Classroom setups or for individual remote users connecting over an internet connections.

The virtual classroom use case generates multiple media streams which are available to all participants. In return each participant sends media streams back to the virtual classroom to support the full bidirectional nature of the use case.

Classroom side:

- Upstream bandwidth

Only one set of streams consisting of the teacher content, teacher audio and all camera streams (teacher cameras and tile cameras) and all preview streams get uploaded into the cloud. Additionally the individual participant audio mixes get sent to the cloud. The total bandwidth for any size of Virtual Classroom stays under 10 Mbps for the teacher content and room camera streams. Per participant an additional 1Mbps bandwidth will be used for the individual audio content and tile camera feed. For a 24 seat room used a maximum capacity the total upstream bandwidth to reserve will be $10 + 24 \times 1 \text{ Mbps}$, resulting in 34Mbps. For an 80 seat room, this will require 90 Mbps for an ideal experience.

- Downstream bandwidth

Under perfect conditions the downstream bandwidth is between 1 Mbps and 3 Mbps per participant. E.g. a 24 seat room will use up to 72Mbps.

Participant side

- Upstream bandwidth

Between 1 and 3Mbps for participant audio and video, and potentially shared content.

- Downstream bandwidth

2-4 Mbps for the various content and camera sources and incoming audio streams.

The system supports internet connections which do not have guaranteed bandwidth availability.

Temporary low bandwidth conditions get dynamically absorbed by the system and will cause media streams to be reduced in bandwidth. The system prioritizes audio over video and will as such first reduce video quality and resolution. On extreme low bandwidth connections the video content will be disabled only retaining the audio connections. As soon as bandwidth limitations are lifted the system recovers to provide the maximum possible media quality.

Upgrade methodology – [\[KB7711\]](#)

The weConnect production system gets upgrades every few months. We strive to make the upgrade process as smooth as possible. There are two aspects to a system upgrade: we can upgrade the cloud side as well as the display nodes (hardware) firmware. Some updates require both, but not always. Barco follows the semantic versioning specification v2.0.0.

We strive to have an open and transparent communication towards our customers; this means that we send information to administrators of institutes in advance on what the upgrade will entail and when we will start the upgrade process. When possible, we offer options to the community of scheduling certain updates to moments where it does not have a big operational impact on the day to day business. We strive to give our community of users at least 14 calendar days of advance warning before upgrades are triggered. During the upgrade process we monitor all the institutes proactively. The weConnect system does not allow us to run different versions for different customers, but we do recognize that not everyone is able to internally process and manage all the new features we bring out during a term or school year. Therefore our system allows administrators to hide new features until the staff and students are properly prepared for it. Lastly, upgrades are scheduled to happen outside normal business hours in order to minimize service disruption. A typical cloud upgrade only impacts the system for about 15 minutes. Most firmware upgrades for display nodes are not critical and therefore will happen at night when no lectures are ongoing or scheduled for a couple of hours.

Please check our Service Level Agreement (SLA) documentation for detailed information on our service guarantees.

Patches

- Patches typically fix or improve system functionality. As some fixes have a big impact on the customer experience, we sometimes have a short time between announcements and application of the patch.
- The cloud business logic and database might be upgraded.
- The firmware of the devices might be upgraded.

Minor version upgrades

- These releases introduce new features, usability and serviceability improvements.

- The cloud business logic and database will be upgraded.
- The firmware of the devices might be upgraded.

Major version upgrades

- Major upgrades introduce major new system capabilities and offerings to the community.

These upgrades happen in two distinct steps. First the cloud business logic and database will be upgraded. Then the display nodes will upgrade automatically. In a major upgrade the communication between the cloud and display nodes changes significantly. This means that display nodes might be forced to upgrade immediately to be able to connect to the new cloud.

Administration interface overview – [\[KB7712\]](#)

To access the administration interface as Super Administrator or Partner:

- Production: <https://edu.barco.com/admin/>
- UAT: <https://uat.barco.com/admin/>

Select the institute you want to manage.

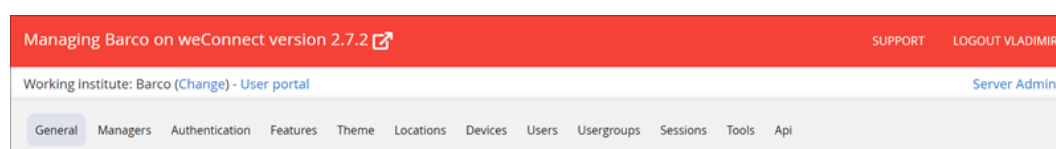
To access the administration interface as an institute manager:

- Production: <https://institute.edu.barco.com/admin/>
- UAT: <https://institute-uat.edu.barco.com/admin/>

You will have to replace institute with your own unique name!

Please note the dash in the UAT address.

The administration interface features nine sections at the top of the user interface, each representing a functional part of the system:



The following links give an overview of the system configuration and management options for each section. The order of the sections follows the ideal way to set up a new institute from scratch.

General menu in the admin interface - [\[KB7713\]](#)

Customization

In this section you can add a custom user manual. Users will then be able to open this information in the user interface via the help item in the user's menu. After changing the URL to point at the correct document, press the save button at the bottom right corner.

Streaming usage

In this section you can monitor the amount of participant hours consumed on the remote communication plan for the institute. The remote communication plan is a subscription to enable remote users to join a remote classroom session over the internet.

Device Updates

Firmware updates to devices can be held back by selecting the Block automatic device updates check box. Do not forget to plan the updates to happen at a certain point in time though. Deselecting the update box will allow devices to start updating according to our standard upgrade methodology. If you want to test a new version, before "releasing" the update in your institute, then block the updates here and force the update of one or more devices in the device section of the interface. This is a good deployment strategy.

Manager menu in the admin interface - [\[KB7714\]](#)

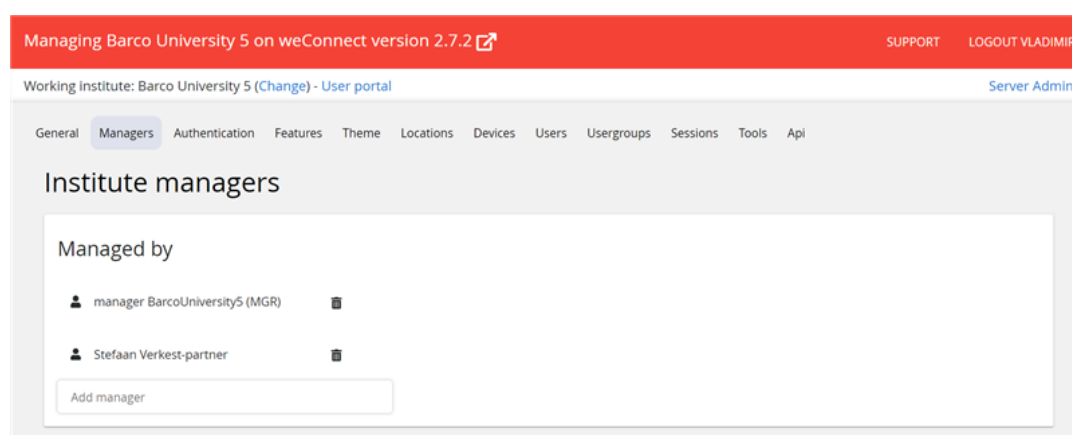
Initially, only Super Administrators (Barco only) are able to access the administration interface.

One of the first steps is to add the partner account to this institute so that the partner (together with the customer) can access the admin interface and can set up the authentication properties for the institute.

You can type into the 'Add Manager' input field. As he/she types a fuzzy search will be done for currently existing institute user's and partner's accounts that match the input provided.

Clicking on the username of the user you wish to add will assign the Manager permissions for that user. This action is saved automatically.

To revoke access to the Admin interface, simply remove the target user by clicking on the "bin" icon next to the users name.



Authentication menu in the admin interface - [\[KB7715\]](#)

Institute Authentication Setup

Given that until the authentication is configured for the first time, only registered Partners and Super Administrators (Barco only) can log in to the Institute's administration panel, the first configuration will have to be done by one of these profiled Users.

For the purpose of this article, we will consider that the Authentication setup will be done by a user with Partner rights and Managing rights to the Institute.

Additionally, there are two available Authentication setups:

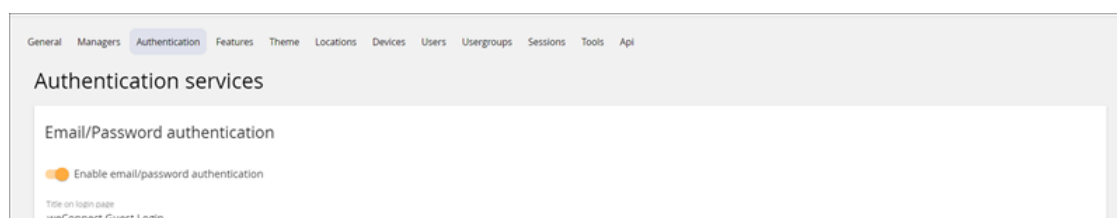
- Email / Password Authentication
- Single Sign-on (SSO) Authentication

We will discuss the two system setups individually as they are not dependent on each other.

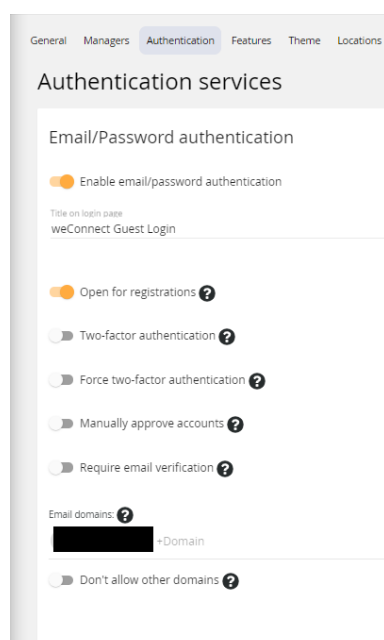
- **Email / Password Authentication System**

This authentication system is based on users registering to the system with a valid e-mail and a password of their choosing. Once activated the system can be configured in such a way that users can create their own accounts with or without posterior email validation and also can be limited to only signing in with an account that is created by an Institute Manager, Partner or Super Administrator. The system can also be configured for it to be a secondary login option. This is useful in situations where you will have visitors and want to give them a simple one time access to the system without a lot of administrative burdens. After the session, the newly created accounts will have to be manually removed in the user section.

The first step required to make Email / Password authentication available is to enable it in the 'Authentication' section found in the Institute administration interface, which can be reached through the route '/admin/authentication':

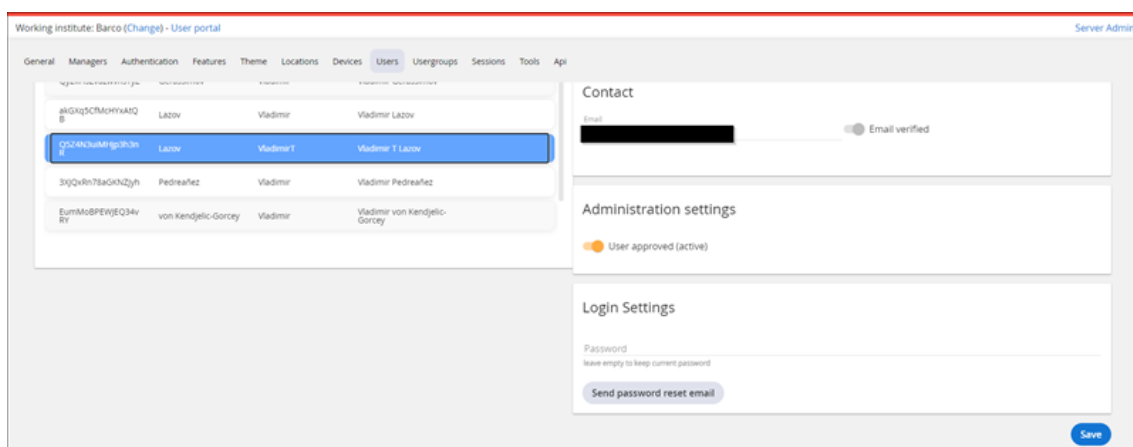


Once the 'Enable email/password authentication' switch is activated, the manager will be faced with the following option switches:



- **Enable email/password authentication:** used to toggle the authentication system on an institute level.

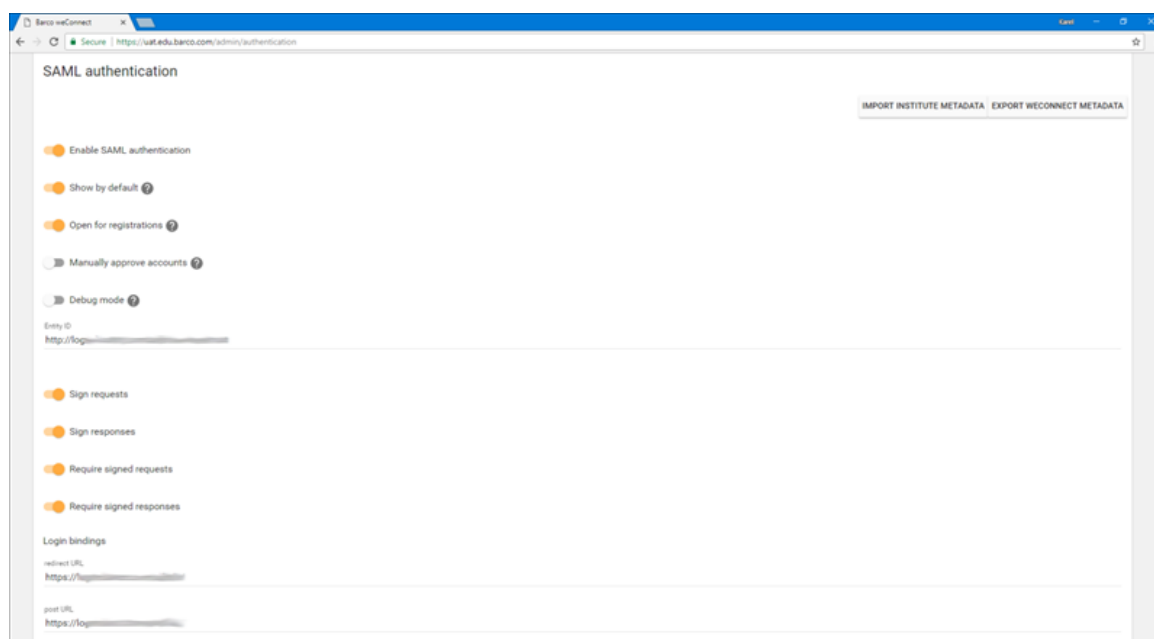
- **Open for registrations:** This option allows/blocks the possibility for users to create accounts on their own.
- **Two-factor authentication:** If active, a user is required to provide a code using a Google validation application as extra measure.
- **Force two-factor authentication:** If active, every user needs to provide a code using a Google validation Application.
- **Manually approve accounts:** If active, this option requires institute managers to give the final approval to created user accounts before they are valid and usable.
- **Require email verification:** If active, this option requires newly created accounts to go through the email verification process. This requires users to click on a verification link they will receive in their email inbox upon registering.
- This feature only applies to self-registration and not to manually created users in the admin UI!
- **Add a domain:** Here you can add email domain names to limit who can register for an account.
- **Don't allow other domains:** Use this to make the option above a white-list.
- Since weConnect v2.8.3 an Administrator of the Institute can reset the password for manually created accounts by pressing: Send password reset e-mail in the Login Settings section as shown in the screenshot below.



End user will receive an e-mail with instruction and link to reset and set a new password.

- SSO authentication

For this, we refer to a separate document detailing the specifics. Below is an example of an Active Directory Federation Services (ADFS) integration. This integration can be automated using the export and import metadata buttons in this section. This allows common settings and certificates to be exchanged between the systems.



Enable debug mode to get meaningful information windows while testing SSO integration, this will help to find the correct settings to make the integration work as intended. Do not forget to disable debug mode after finishing the integration as users will also see these debug messages.

Barco weConnect

Secure | https://uat.edu.barco.com/admin/authentication

—END CERTIFICATE—

MERGE ENCRYPTION/SIGNING

Preferred signing algorithm

Preferred digest algorithm

Preferred encryption algorithm

Preferred key encryption algorithm

Preferred Name ID format
urn:oasis:names:tc:SAML:2.0:nameid-format:persistent

Attribute mapping

If you don't map the Identifier, the SAML Name ID will be used

Input	Map to
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/givenname	First name
http://schemas.xmlsoap.org/ws/2005/05/identity/claims/surname	Last name

ADD MAPPING

SAVE

For a proper use of the system, we need at least first name and last names mapped to our internal attributes. For future improvements, we suggest to map the user's email address as well. Other attributes which are part of the authentication exchange can be used to create different user groups. For more information, see the usergroups section.

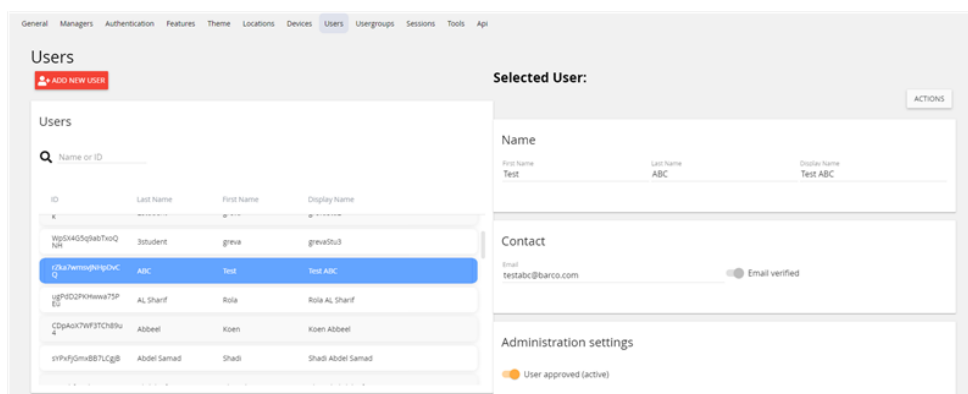
Users and Usergroup menu in admin interface - [\[KB7716\]](#)

Single Sign On integration

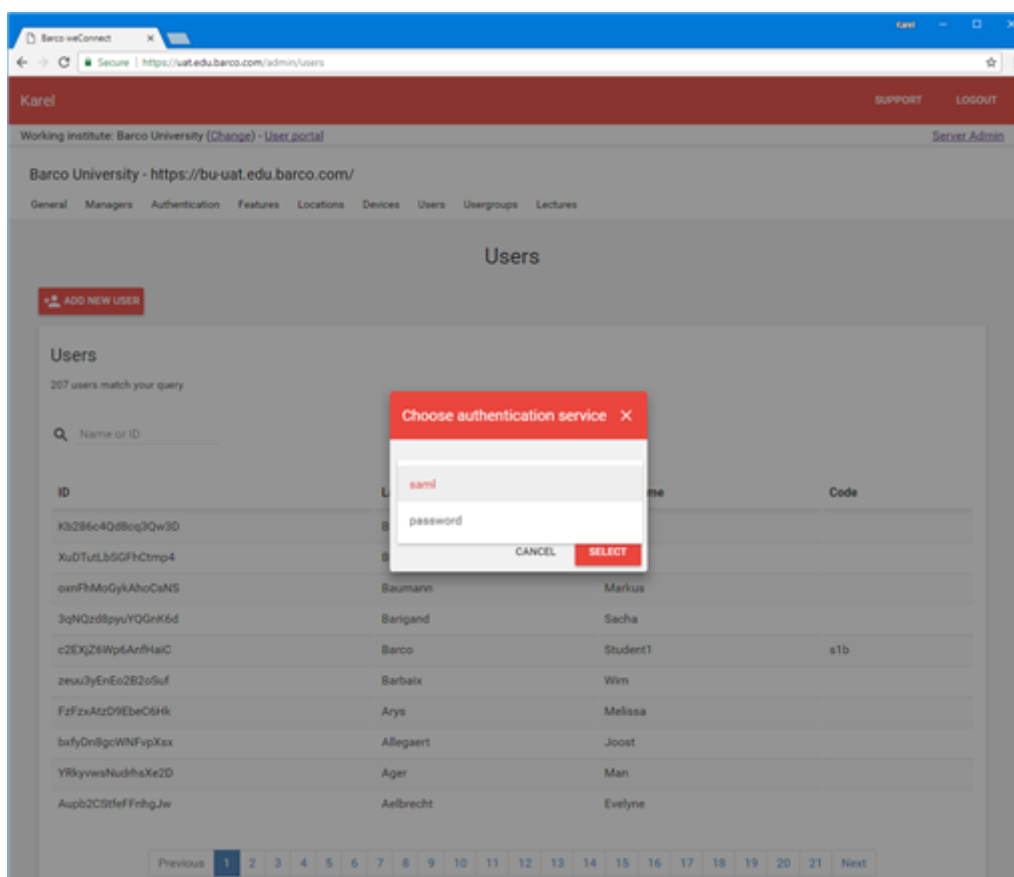
For the Single Sign On integration we refer to the separate SSO integration guide which you can find here (log in with your mybarco account to see all downloads).

Manual User Creation

If some users have to be created manually, this can be done in the Users section. This looks like the screenshot below:



If required, users can be added by pressing the 'Add New User' button. This opens the following pop-up:



Here you can choose the main authentication service to be used for this account. Manual user creation has been intended for user accounts which are not available through SSO.

- E-mail verified: when enabled the user does not need to verify his identity by e-mail. Otherwise, the user has to click a link in an automatically sent e-mail which activates his account.
- User approved: if enabled the user is approved and can access the platform. If disabled, the user's account is not approved to use the platform. This can be used to for example 'ban' the user from using the platform.

You can optionally set the display name to the preferred short form name of the user. This is to support shorter display names in the Virtual Classroom use case. Typically users with multiple family or very long names can then properly be rendered on the display tile.

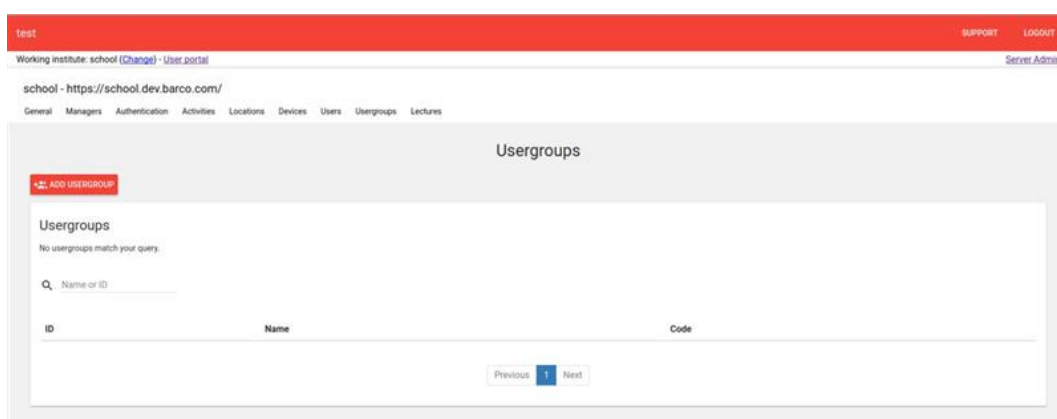
Usergroups

Users can be split up in different groups, e.g. based on their rights or on the courses they are following.

There are a number of user types in the system: admins, partners, managers, operators, teachers and students. In this section, only operators, teachers and student types are configured. The configuration can be found in the usergroups section.

There are two permission options which can be chosen for a group. First is the Plan Lecture permission. When a user belongs to this group it will be possible to plan and give lectures. The second option is to allow to Assist Lecture. This allows the user to take up an assistant role in the lecture, supporting the teacher.

When there are no user groups active yet, the user interface looks like this:



A user group can be added by pressing the 'Add User group' button, resulting in the dialog which can be seen below.

This is an example of how the teacher user group could look like.

The Plan Lecture permission should be disabled for students and enabled for teachers.

The Assist Lecture option will give those operators the possibility to support teachers in their lectures. This is very important in the Virtual Classroom use case where an operator can bring a lot of added value to the experience.

A technical support person should be part of the group with Give technical support permissions. This will allow the support role to answer questions from any user trying to connect and work with weConnect across the institute.

Pressing the 'Save' button stores the user group, so that users can be added.

Never enable Plan lecture, Assist lecture or Give technical support for a single group at the same time. These roles have conflicting rules and will prevent normal use when trying to attend a session as a teacher role when the session has been created by another teacher. We suggest to create multiple accounts for those users who have multiple roles (a combination of teacher, manager, operator or support roles).

Assigning users to user groups

The screenshot shows the 'Add Usergroup' modal in the weConnect admin interface. The modal is titled 'Add Usergroup' and has a red header. It contains two main sections: 'Name' and 'Permissions'. The 'Name' section has two input fields: 'Name' and 'Code'. The 'Permissions' section has three toggle switches: 'Plan lectures', 'Assist in lectures', and 'Give technical support'. At the bottom right of the modal are 'CANCEL' and 'SAVE' buttons. The background shows a sidebar with 'Usergroups' and a list of existing groups with their IDs.

Set the name of the group, give the group permissions and define the rules to automatically assign users to a user group. At this point, the rules only apply to new users created (first time login of a user through SSO also creates an account in weConnect) after the user group was created. It is therefore important to set up user groups as soon as possible to avoid a lot of manual set up work.

Be aware you should enable only one type of permission per group! The different rules which get applied will not provide a consistent experience when logging in as a teacher, operator or support role into existing lectures created by other teachers.

Manually:

Users can be added by clicking on the desired user group. This gives the following:

Managing bu

Working institute: bu (Change) - User portal

General Managers Authentication Features Theme Locations Devices Users **Usergroups** Lectures

Usergroups

+ ADD USERGROUP

Selected Usergroup:

NAME

Name: Tech Support Code: SUPPORT

Permissions

☐ Plan lectures

☐ Assist in lectures

☒ Give technical support

Automatically assign usergroup

Value can be: email/emailDomain in case of password authentication or a SAML attribute in case of SAML authentication. Note that changing these rules only affects newly added users, not existing users

ADD

SAVE

Users can be added by filling in their name in the 'Add user to user group' field. It will then give suggestions based on the (partial) name that was filled in:

Users in usergroup

stu

Stu Dent (SD)

Clicking the name 'Stu Dent' then adds the user to the group. Removing the user from the user group can be done by clicking the checkbox next to the name of the user (multiple users can be selected at once). Afterwards, press on 'With Selected' and press 'Remove' to remove the users from the user group.

Automatic assignment:

SSO can be used to automatically add users to a certain user group. This can be very useful for bigger groups of students which would be tedious to all add manually. This can be done in the creation of the user group or in the modify user group. This also works when users self-register!

Automatically assign usergroup

Value can be: email/emailDomain in case of password authentication or a SAML attribute in case of SAML authentication. Note that changing these rules only affects newly added users, not existing users

ADD

Pressing the 'Add' button gives the following:

Automatically assign usergroup

Value can be: email/emailDomain in case of password authentication or a SAML attribute in case of SAML authentication. Note that changing these rules only affects newly added users, not existing users

Value

emailDomain

is/does

exact

Value

AND

X

OR

X

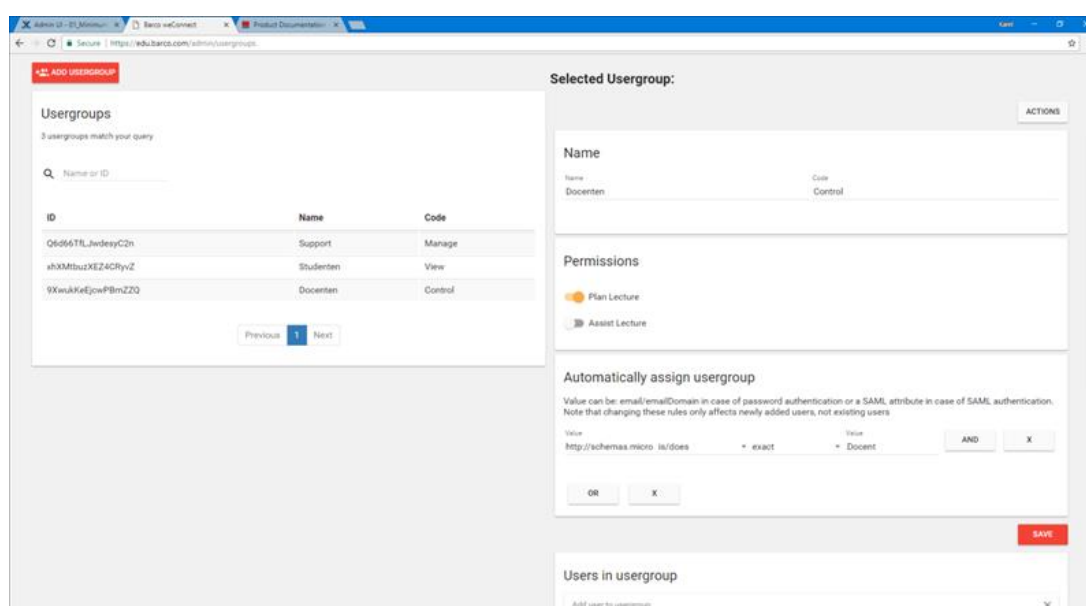
Note that there is a difference between email (SSO authentication) and emailDomain (password authentication).

Different rules can be added with 'OR' and 'AND' based on the email Domain. When these rules are in place, new users will be automatically added to the selected user group.

Users which were registered before the creation of these rules are not added automatically.

Creating complex rules using additional attributes from the SSO authentication is also possible:

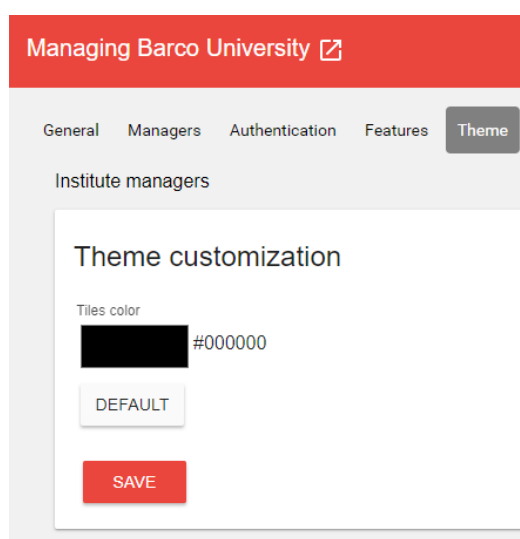
In the following example, the additional attribute `http://schemas.microsoft.com/ws/2008/06/identity/claims/role` is used to automatically add the users to any of three groups:



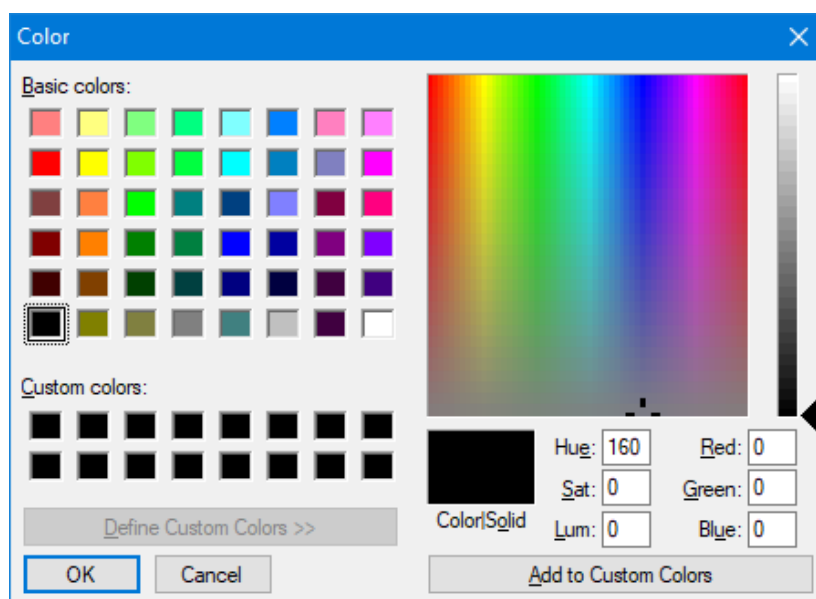
As a reminder, you can download the SSO implementation guide [here](#).

Theme menu in the admin interface [\[KB7717\]](#)

Institute managers can choose the base color for Virtual Classroom tiles. This can be handy to match the default color scheme to the institute colors or blend with the classroom interior looks.



Click on the colored rectangle to open the color picker dialog and select the preferred color.



Don't forget to save the color by pressing the Save button.

Theming only works for the Virtual Classroom functionality.

Locations menu in admin interface [\[KB7718\]](#)

Institute Location Setup

The weConnect application allows a location hierarchy to be defined in which campuses; buildings; floors and rooms can be defined. This action can be completed by a Super Administrator, Partner or Manager which was selected by one of the former users. In this article, it will be assumed that this action is performed by a Partner who has managing rights in the Institute.

There are two steps which will be discussed in this article:

- The setup of the location hierarchy
- Adding devices to specific rooms

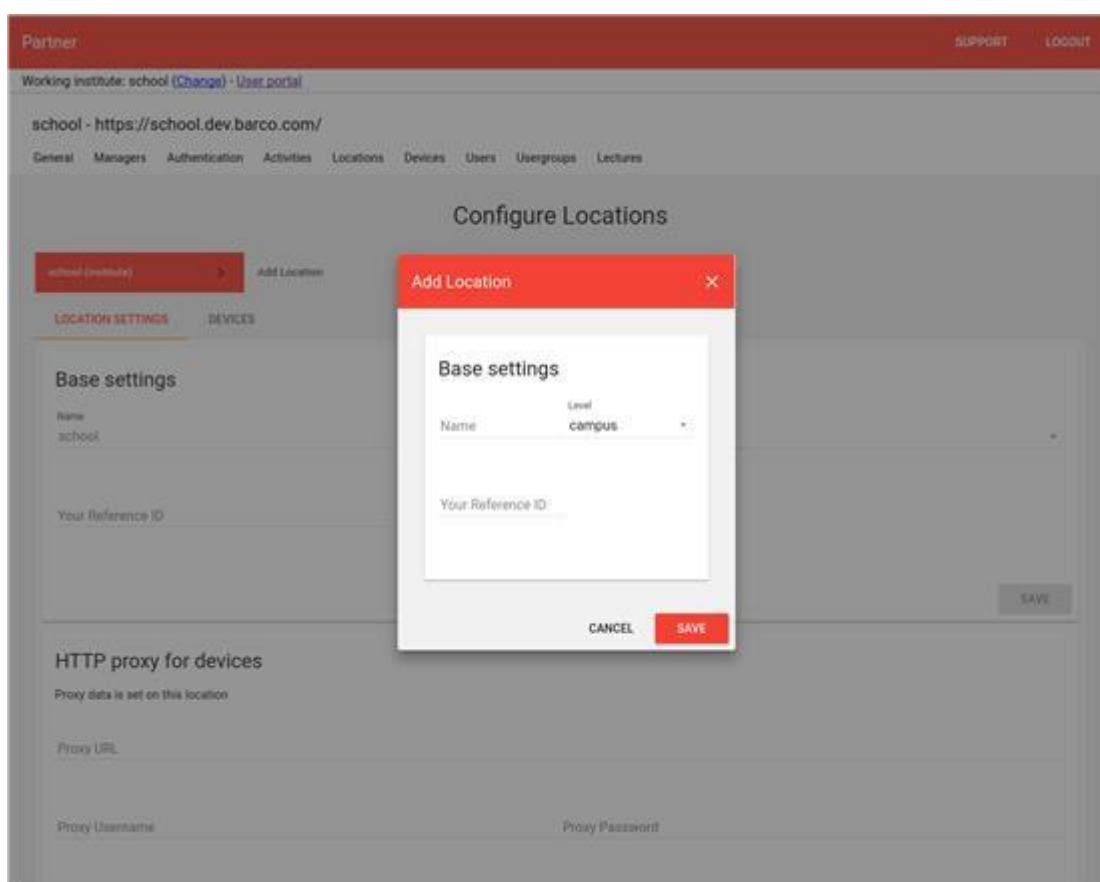
Setup of the location hierarchy

General setup

The Partner or Institute Manager can modify the location hierarchy in the 'Locations' tab in the admin interface. This corresponds to the '/admin/locations' route which will look like the following screenshot when the institute is selected:

The screenshot shows the 'Configure Locations' page in the Barco weConnect admin interface. At the top, there is a red header bar with 'Partner' on the left and 'SUPPORT' and 'LOGOUT' on the right. Below the header, a breadcrumb trail reads 'Working institute: school (Change) - User portal'. The main content area has a sub-header 'school - https://school.dev.barco.com/' and a navigation menu with 'General', 'Managers', 'Authentication', 'Activities', 'Locations', 'Devices', 'Users', 'Usergroups', and 'Lectures'. The 'Locations' tab is active, and the page title is 'Configure Locations'. On the left, there is a red button labeled 'school (institute)' with a right arrow, followed by an 'Add Location' button and a minus icon. Below this, there are two tabs: 'LOCATION SETTINGS' (selected) and 'DEVICES'. The 'Base settings' section contains a 'Name' field with 'school', a 'Level' dropdown menu with 'institute' selected, and a 'Your Reference ID' field. A 'SAVE' button is at the bottom right of this section. The 'HTTP proxy for devices' section has a message 'Proxy data is set on this location' and fields for 'Proxy URL', 'Proxy Username', and 'Proxy Password'. A red 'Cancel' button is at the bottom right of the page.

When pressing the 'Add location' button, a pop-up will appear which looks like this:



The following options are available to create: campus, building, floor and room. The first three options are used to form the location hierarchy for all the different rooms. After pressing 'Save', the location will be stored in the system and for example, after repeating this, the result could resemble the following:

The screenshot displays the 'Configure Locations' interface in the Barco weConnect admin guide. At the top, a red header bar contains the 'Partner' label, 'SUPPORT', and 'LOGOUT' links. Below this, a navigation bar shows the current path: 'Working institute: school (Change) - User portal'. The main content area is titled 'Configure Locations' and features a hierarchical tree structure for locations. The tree starts with 'school (institute)' and branches into 'campus a (campus)', 'campus b (campus)', and 'Add Location'. 'campus a (campus)' further branches into 'A (building)', 'B (building)', and 'C (building)'. 'A (building)' branches into '1st (floor)', '2nd (floor)', and '3rd (floor)'. 'B (building)' branches into 'Add Location'. 'C (building)' branches into 'Add Location'. Each level has an 'Add Location' button and a '+' icon. Below the tree, there are tabs for 'LOCATION SETTINGS' and 'DEVICES'. The 'LOCATION SETTINGS' tab is active, showing a 'Base settings' section with fields for 'Name' (set to '2nd') and 'Level' (set to 'floor'). There is also a 'Your Reference ID' field and a 'SAVE' button. Below the 'Base settings' section, there is an 'HTTP proxy for devices' section with a note: 'Proxy data is inherited from an ancestor location'.

Now, the Partner or Institute Manager can start adding rooms to the system by again clicking 'Add Location' at the desired place in the hierarchy. A similar pop-up will be shown, except for the Ad-Hoc switch. The Ad-Hoc switch allows the default room configuration to be used by students when there is no real lecture active. The full functionality of the Ad-Hoc feature is explained in the student manual. This option can always be reconfigured afterwards, so it can be switched on or off depending on the needs of the institute.

Remark: At the moment, reconfiguring the position of rooms, floors and buildings is not yet supported! This means that it is very important to check the created hierarchy before moving on to the next step. If not, the corresponding room configurations will have to be removed and configured again.

Removing locations can be done by selecting the location and pressing the 'Actions' button. This will open a drop-down containing the 'Remove' and 'Reconfigure' option. As previously mentioned the 'Reconfigure' is not yet supported and should not be used. Clicking 'Remove' will open a confirmation dialog that asks if the Partner or Institute Manager is certain that he wants to remove the location. Pressing 'Yes' will remove the location, children of the location and corresponding room configurations.

Proxy settings

After scrolling down, the Partner or Institute Manager can see proxy settings for the location which was selected. This can be configured for a campus, building, floor or room. If a proxy is used, then the following settings should be entered in the tab that can be seen below. When ready, press the 'Save' button and confirm in the pop-up. Subsequently, this information is inherited by the locations that are children from the location for which the information was entered. E.g. if these settings are entered for Building B, then all the rooms on the 1st, 2nd and 3rd floor will use that proxy configuration.

Remark: Ideally, this should be done before connecting devices to the system which is discussed in the next section. Otherwise, this could lead to connection problems which are not in the scope of this manual.

HTTP proxy for devices

Proxy data is inherited from an ancestor location

Proxy URL
school.proxy

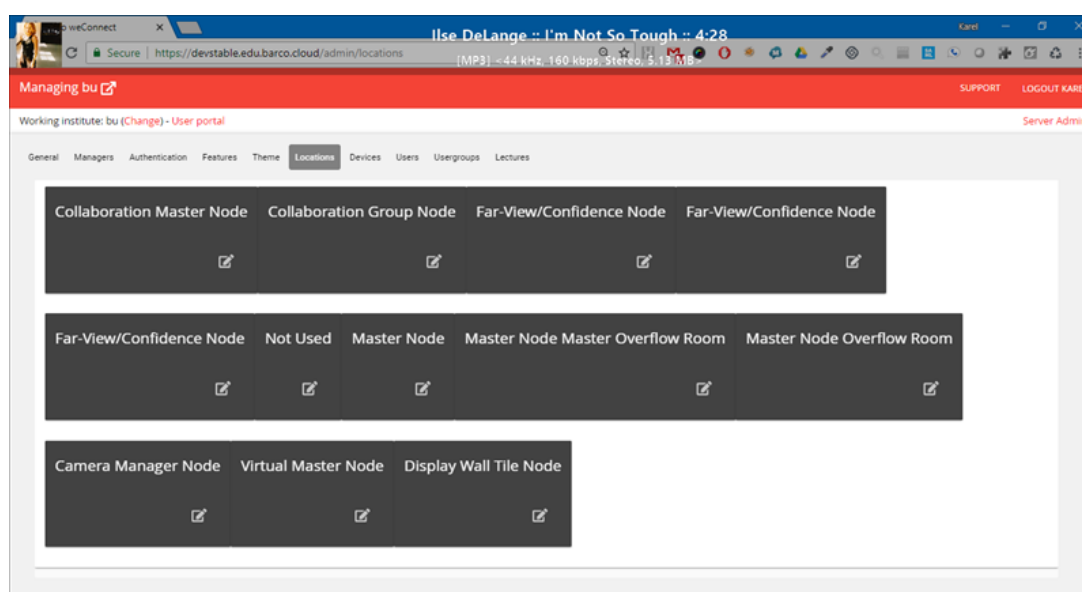
Proxy Username
partner

Proxy Password
password of partner

SAVE

Wallpaper settings

Similarly, the Partner or Institute Manager can scroll down to the bottom of the page to see the following tab:



Default Wallpapers						
Collaboration Master Node	Collaboration Group Node	Far-View/Confidence Node	Far-View/Confidence Node	Far-View/Confidence Node	Not Used	
Master Node	Master Node	Master Overflow Room	Master Node Overflow Room	Camera Manager Node	Virtual Master Node	Display Wall Tile Node

Custom wallpapers can be added to certain device roles if necessary. Again, configuring this at a certain location will propagate these changes to the children of the location. It can be changed by clicking the pencil on the related device role. E.g. when the Partner or Institute Manager clicks on the pencil from the Collaboration Room Master, the following pop-up opens:

Select a wallpaper

Wallpaper collection

Upload your first wallpaper.

Upload a new wallpaper

Click here to select image
OR
You can also drop image to here

CANCEL

SELECT

The Partner or Institute Manager can press the 'Click here to select image' or drag-and-drop an image in the box to upload an image.

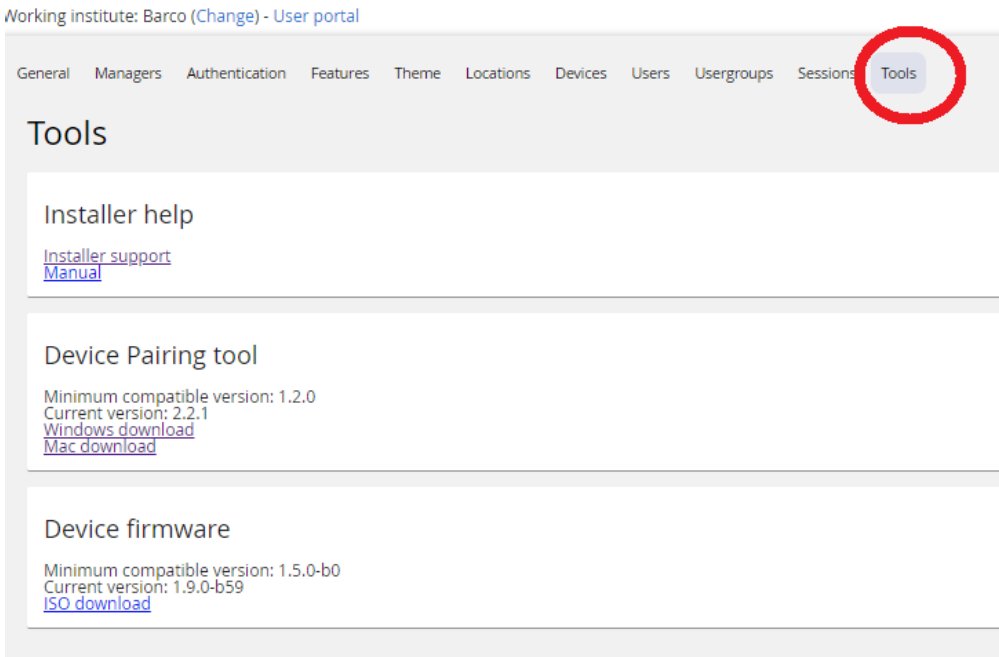
The upload size for the wallpapers is currently limited to 1MB. Standard extension types like .png and .jpg are supported.

After uploading, a thumbnail will appear in the wallpaper collection and afterward, the Partner or Institute Manager can click on the thumbnail and press the 'Select' button.

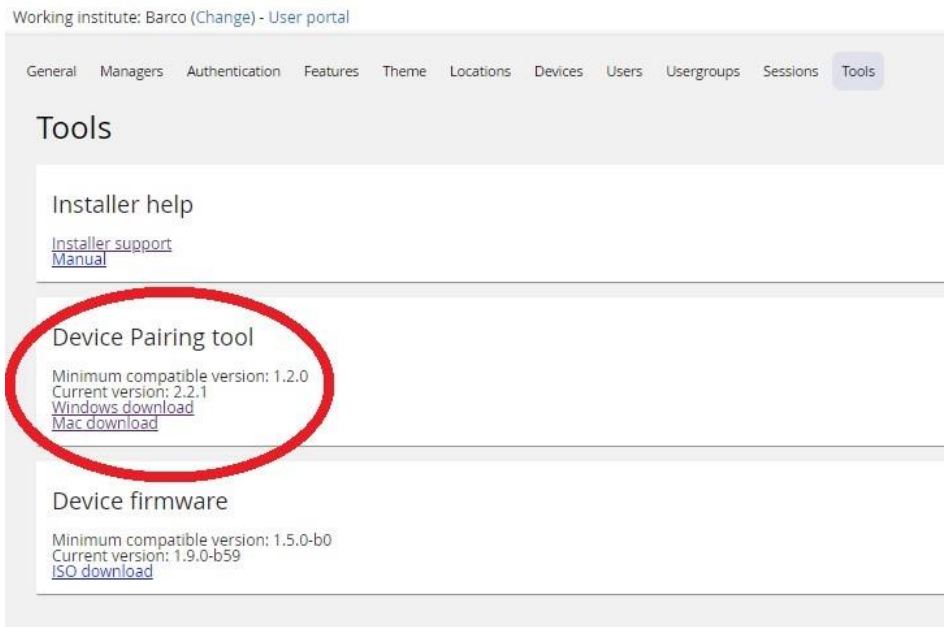
In order to pair the added devices to your location, please follow [KB \[8487\]](#)

How to Pair Devices - [\[KB8487\]](#)

In order to pair new devices, you must download the BPT (Barco Pairing Tool) first. The tool is available for download from the web GUI of your institute under the section 'Tools'



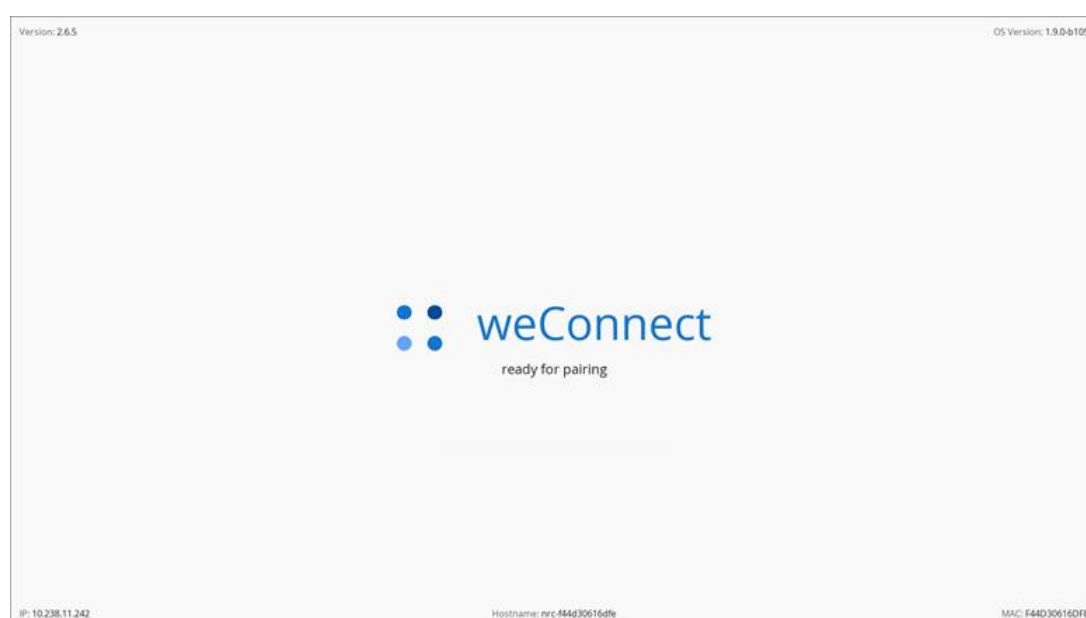
You may choose the suitable version matching the OS of your machine on which you will run it (Windows or Mac)



Simply download it and run the executable to discover devices in your local network and then add them to your institute, as described below.

Adding devices to a location

The first step is to power on the devices in the room and then turning on the displays which are connected to the devices. Even if display nodes have multiple network ports, the system only supports a single network connection per display node. Do not swap cables after going through the next process, as the system configuration depends on the device's mac address. Changing the network port will influence these settings and will require you to re-pair the device. After booting up the display nodes, its attached displays will have the following message on the screen:



The actual version number mentioned will change over time as updates are released.

The next step is pairing the devices to your cloud hosted institute by adding them to a location in your institutes hierarchy. For this, the Barco Pairing Tool (BPT) can be used.

Note: The devices have to be added to a "Room" upon pairing, if no room was created before inserting the devices, no location will be available to select. therefore you will not be able to complete the pairing process.

Devices can always be moved to other rooms after pairing, so having a fully realized hierarchy is not necessary before pairing the devices.

After opening the BPT, the administration URL of the server has to be filled in (eg. INSTITUTENAME.edu.barco.com). See the first chapter of this document for the URL to use. Then, press the 'Connect' button to connect to the server and a login screen will appear.

After logging in to the system, the Partner or Institute Manager will get a similar view to the admin interface. The only difference is that the 'Devices' tab has a second sub-tab which is called 'Add Devices'. The application will open the 'Add Devices' tab by default.

The device running the pairing tool application discovers the devices which are compatible with the cloud. The discovery protocol is mDNS. This means that in most networks, the BTP device will need to be connected to the same VLAN or network as the Display Nodes.

If a device cannot be discovered then please check your firewall settings for your device and verify that mDNS broadcasts can be received.

Lastly, a device can run older or incompatible firmware which does not allow it to be paired to the cloud.

If this is the case, you can download the latest device image in .ISO format from the same location you downloaded the Barco Pairing Tool from. After downloading the .ISO file you will need to deploy this image onto a USB flash drive using an application like Win32DiskImager/RufusUSB or any similar alternative.

When the USB flash drive is ready, you can connect it to any of the USB port on the NCN device which needs to be upgrade it and reboot the device. The installation of the new firmware should start automatically and will be visible on screen.

When the installation is done, the device will shutdown. Remove the USB flash drive and power on the device and continue with the pairing process.

Alternatively please contact your Barco partner or Barco support to get help with updating the firmware.

Pairable devices
Select which devices you want to pair

☐ ☐

Title	Hostname	Mac	Private IP	Public IP	Version	Identify	Servicing
	nrc-901b0ed466b2	901B0ED466B2	10.200.18.217	10.200.18.217	1.6.0-b67	IDENTIFY	ENABLE REMOTE ACCESS

Unpairable devices:

Hostname	Mac	Private IP	Public IP	Version	Reason	Servicing
nrc-b8aedd795690	B8AED795690	10.200.18.128	10.200.18.128	1.6.0-b67	Already assigned (different institute)	ENABLE REMOTE ACCESS
nrc-0060e063b880	0060E063B880	10.200.18.132	10.200.18.132	1.6.0-b67	Already assigned (different institute)	ENABLE REMOTE ACCESS

A list similar to the above will be visible in the BPT. The buttons in the tab have the following functionality:

- Restart Scan: Scans the network to generate a new list of devices, this could be useful when a device could not be found previously.
- Identify: Displays the MAC address temporarily on the display of the device, this could be useful to remotely know which device corresponds to which entry in the list.
- Insert Devices: Inserts the devices which are checked in the list. This will open a pop-up with the location browser which enables the Partner or Institute Manager to select a location. The devices are then added to the location. Shortly, the selected or default wallpaper will load. From that moment on, the device is connected to the cloud and can be configured further.
- Enable remote access: this allows you to give a Level 3 Barco service engineer remote access to the device to perform analysis tasks in case the device does not function correctly on your network.

After adding the devices to the corresponding rooms, the remaining configuration can be done either in the browser via the Administration User Interface or in the Barco Pairing Tool.

At this time you are also able to manage and configure these devices from any network as long as you and the weConnect devices have internet connectivity.

When the remote access feature has been enabled in the features tab you will be able to give Barco escalation support temporary access to a device for maintenance purposes. For more details on this service see [KB7719] Servicing section.

Device configuration – [\[KB7719\]](#)

The 'Devices' tab can be found at the /admin/devices address.

At the top of the page weConnect shows the compatibility window for device firmware. The versions of the display nodes must be within this window in order to be functional:

Devices					
Version information					
Minimal compatible version (inclusive)	1.5.0-b0	Maximal compatible version (exclusive)	1.8.0	Latest available version	1.7.0-b90

Filtering the list of devices can be done in the following part of the page:

Filter

1 device matches your query

campus a (campus)

>

campus b (campus)

>

☐ Include devices from sublocations

☐ Show only devices that are offline are have problems.

There are two ways to filter the list of devices.

The Partner can navigate to the locations and only show the devices corresponding to the selected location. There are 2 switches which can ease the localization of specific devices; their functionality is explained next to the switch.

- Include devices from sub locations
- Show only devices that are offline and have problems
-

The Partner or Institute Manager can also search on Title or ID of the device.

Alternative to find the devices

Devices can also be found in the /admin/locations route. First, the Partner or Institute Manager has to navigate through the tree and select the location of the devices he wishes to configure. After selecting a room and clicking on the 'Devices' tab, the following will be visible in the browser:

Configure Locations

> campus a (campus) > A (building) > 1st (floor) > 201 (room) >

campus b (campus) > B (building) > 2nd (floor) > Add Location +

Add Location + C (building) > 3rd (floor) >

Add Location + Add Location + Add Location +

LOCATION SETTINGS

DEVICES

ROOM CONFIGURATIONS

Version information

Minimal compatible version (inclusive)

1.5.0-b0

Maximal compatible version (exclusive)

1.6.0-b0

Latest available version

1.5.0-b33

Actions

ADD IP CAMERA

GENERATE HAPROXY CONFIG

Title	Status	Since	Type	Hostname	Version
201 Master		9/6/2017 9:27:42 AM	Display Node	nrc-b8aeede4d06	1.5.0-b58
201 Slave		9/6/2017 9:27:42 AM	Display Node	nrc-b8aeed79b42a	1.5.0-b58

Previous

1

Next

Device list

LOCATION SETTINGS

DEVICES

ROOM CONFIGURATIONS

Version information

Minimal compatible version (inclusive)

1.5.0-b0

Maximal compatible version (exclusive)

1.8.0

Latest available version

1.7.0-b62

Actions

ADD IP CAMERA

ADD OVERTURE PANEL

GENERATE HAPROXY CONFIG

Title	Status	Since	Config	Type	Hostname	Version
NCN-100-7-TEST		6/7/2018 11:34:37 AM	✓	Display Node	nrc-f44d306fc453	1.7.0-b62
P110-I3-TEST		6/7/2018 11:39:29 AM	⚠	Display Node	nrc-901b0ee186ce	1.7.0-b62
P110-I7-TEST		6/7/2018 11:42:33 AM	✓	Display Node	nrc-901b0e9c9eeb	1.7.0-b62

If the Partner or Institute Manager looks at the bottom of this page, he will see an overview of the devices that were already added to the location. In the table, the following fields are visible:

- Title: the name that is used in the Admin interface

P 35 / 89

ENABLING BRIGHT OUTCOMES

- Status: the status of the device (green, orange, red)
- Since: the time when the status last changed
- Config: indicates if the configuration saved and lock into the device matches with the currently connected physical inputs and outputs.
- Type: type of the node, e.g. display
- Hostname: the hostname of the device
- Version: the version of the firmware on the device

On the screenshot above, three devices are connected to the cloud and ready for use. When the device is in the process of connecting to the cloud or starting up, it will have the following status:

Title	Status
201 Master	

When the device does not have a connection with the cloud, it will have the following status:

Title	Status
201 Master	

This list also allows to quickly check if all AV connections to the display nodes are as they need to be: a warning is given in the Config column to indicate a mismatch with a previously saved and locked configuration. This can indicate a faulty or disconnected 3rd party device.

Actions

Room level integration options

Depending on the features which have been enabled in the features tab, it will be possible to add ip cameras as sources to the rooms or generate a HA Proxy configuration.

LOCATION SETTINGS
DEVICES
ROOM CONFIGURATIONS

Version information
Minimal compatible version 1.5.0-b0 (inclusive)
Maximal compatible version 1.8.0 (exclusive)
Latest available version 1.7.0-b62

Actions
ADD IP CAMERA
ADD OVERTURE PANEL
GENERATE HAPROXY CONFIG

Title	Status	Since	Config	Type	Hostname	Version
NCN-100-7-TEST		6/7/2018 11:34:37 AM	✓	Display Node	nrc-f44d306fc453	1.7.0-b62
P110-13-TEST		6/7/2018 11:39:29 AM	⚠	Display Node	nrc-901b0ee186ce	1.7.0-b62
P110-17-TEST		6/7/2018 11:42:33 AM	✓	Display Node	nrc-901b0e9c9eeb	1.7.0-b62

Add IP Camera

This action is only defined for locations. An IP Camera can be added in rooms and is another type of device. First, the Partner or Institute Manager has to press the 'Add IP Camera' button which a pop-up asking for the title of the camera. Afterwards, a new device will be in the device list for the location. For example:

Title	Status	Since	Type	Hostname	Version
201 Confidence	●	9/6/2017 2:27:00 PM	Display Node	nrc-b8aeede1764	1.5.0-b58
201 Master	●	9/6/2017 2:35:15 PM	Display Node	nrc-b8aeede4d06	1.5.0-b58
201 Slave	●	9/6/2017 2:27:05 PM	Display Node	nrc-b8aeed79b42a	1.5.0-b58
Teacher Camera			Camera		

Previous 1 Next

After selecting the camera, a dropdown will appear containing the different fields that can be changed. Different streams can be added by filling in the title and URL fields at the bottom of the page and pressing the 'Add Stream' button.

Selected Device:

ACTIONS

Base settings

ID

Dr49dcL6mJmxdtyhg

Title

Teacher Camera

Location

school > campus a > B > 2nd > 201

Streams

+ ADD STREAM

Title	URL
Title	URL

SAVE

Add Overture Panel

See the separate Overture integration manual for more information. This button will only be visible when the Overture integration feature has been enabled under the Features tab.

Generate HAProxy config

A HAProxy file can be generated by clicking on the 'Generate HAProxy Config' button which is located in the right bottom corner of the tab below. This can be found beneath the Filter tab. The generated file uses the configuration of the devices which are connected to the cloud. In other words, if devices are added or modified after generating this file, a new file will have to be generated.

Actions

GENERATE HAPROXY CONFIG

Configuring a single device

After selecting a device in the list by clicking on it, a dropdown will appear with all the different configuration options.

An important remark is that the 'Save' button on the bottom of the page should always be clicked to make sure changes are saved!

Take care not to change configuration of a room while a lecture is running. First stop the lecture before making changes. The changes may make the lecture unusable if performed while the lecture is active.

Title	Status	Since	Type	Hostname	Version
Main		3/1/2018 5:00:55 PM	Display Node	nrc-b8aeed795690	1.6.0-b67

Previous1Next

Selected Device:

ACTIONS

Base settings

ID

KWrmqNHPTyAwJ2C9m

Title

Main

Version

1.6.0-b67

Servicing

DISABLE REMOTE ACCESS

Remote access can only be configured when the device is either connected to the cloud or accessible on the same network as your computer.
Last changed at 1 Mar 2018 16:59 by Man Ager

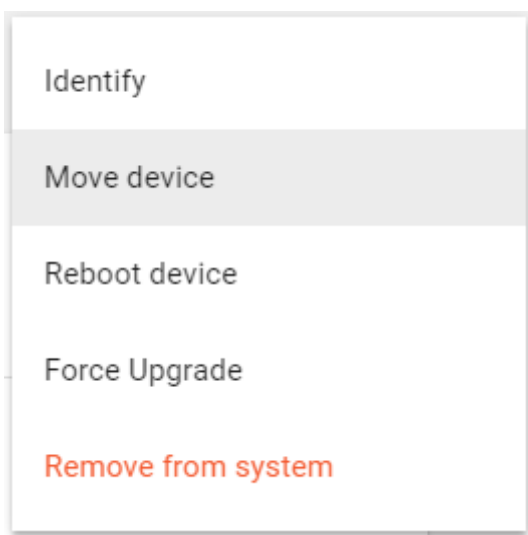
Location

Actions

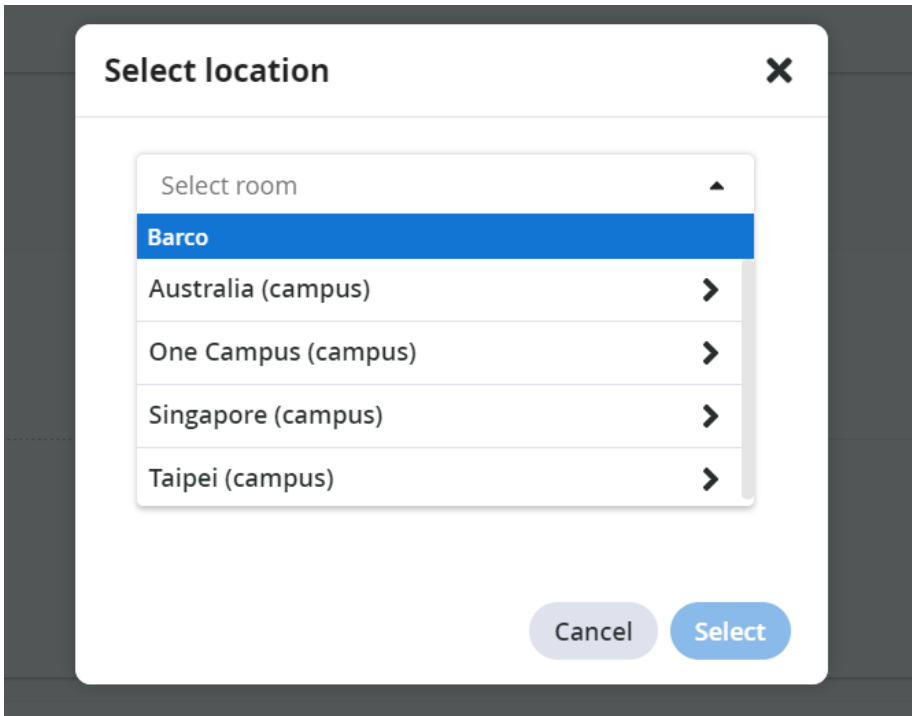
The action dropdown menu can be opened by pressing the 'Actions' button which can be found on the right top of the 'Selected Device' section of the page. These are actions which can be performed on this device. The following actions are defined:

- Identify: shows the identification message on the display corresponding to the device
- Move device: allows you to relocate a device from one room to another. This is a useful tool when replacing a broken device with a spare device. You can prepare spare devices in a "spare room".
- If these devices are turned on when a system release has happened, you will be sure to have the latest firmware on those devices at all times. This greatly reduces the mean time to repair (MTTR) of a classroom.
- Reboot device: reboots the device remotely
- Force upgrade: tries to upgrade the firmware of the device if possible
- Remove from system: removes the device from the system, afterwards the device is no longer connected to the server and can be repaired to another room or another server.

This should not be done at any time because this can lead to invalid room configurations.



Another popup window will appear enabling a user to select a Room part of the Institute to move the already existing device.



Base settings

The first parts of the device configuration are the 'Base settings' of which only the Title can be changed. The ID is fixed and the version of the firmware could be changed by performing a 'Force Upgrade' on the system.

Base settings	
ID	Title
RYWDcoHSh7de8akEN	201 Master
Version	
1.5.0-b58	

Servicing

You can allow a designated person from the Barco escalation service group to access the device to perform remote service actions. You will be able to see who accessed the device. The remote access is performed over a secure tunnel connection and enabling the service creates a temporary access for the service person. A two-factor authentication implementation creates a secure way to perform remote maintenance. We keep full visual audit logs for every intervention which can be obtained upon a simple request to your Barco contact.



Servicing

ENABLE REMOTE ACCESS

Remote access can only be configured when the device is either connected to the cloud or accessible on the same network as your computer.
Last changed at 18 Jul 2018 11:29 by Geert Nuytens (GJN)

For security reasons, the person who has last changed the remote access status is shown below the Enable Remote Access button.

Network

The second part consists of the network configuration. Again, most options are fixed for obvious reasons.

- DNS name: the name that can be used to share content to the screen. I.e. this should be human-readable to make it easy to share content to the different displays.
- Public IP: can be changed if required.

Network

DNS name (connect)
201-master

Public IP
10.200.20.155

Private IP
10.200.20.155

Mac
B8AEDEA4D06

Hostname
nrc-b8aeedea4d06

Display

The first part is the configuration of the displays. In this example, two screens are connected and we see the following:

Displays

IDENTIFY SCREENS

Lock displays

Port	Device	Mode	Position
DP-2	DDS - OVD/KVD XX21	1920x1080@59.94 ▾	↓ ↑
DP-3	DDS - OVD/KVD XX21	1920x1080@59.94 ▾	↓ ↑



Below, an overview is given of all the different settings that can be changed.

- Locking the display configuration makes sure that the different settings for the display are locked and do not change if the display is for example disconnected or shut down. It is advised to always lock the configuration to prevent settings from being lost.



- The Mode column allows overriding the preferred EDID timing which the Display Node received from the connected display. This can be useful when you want to use a different resolution to match other screens in the classroom.
- It is possible to change the Position of the screens by clicking on the up down arrows in the position column of the table.

Audio inputs

The audio inputs tab will look like this when multiple devices are connected to the device which has input capabilities.

Audio inputs		
☐ Lock audio inputs		
Device	Port	Default Volume [%]
Yamaha YVC-1000 Analog Stereo	Microphone	100
Logitech BRIO Analog Stereo	Microphone	100

Similarly, the configuration can be locked to prevent loss of settings. Furthermore, the title of the device on the platform can be changed. For remote learning experiences it is essential to set the default volume to a level high enough not to cause clipping and not too low so that at the receiving end the volume would need to be amplified at an excessive level. Please take care to align the levels of all inputs to a similar volume.

Audio outputs

Next, the audio output looks identical to the audio input example.

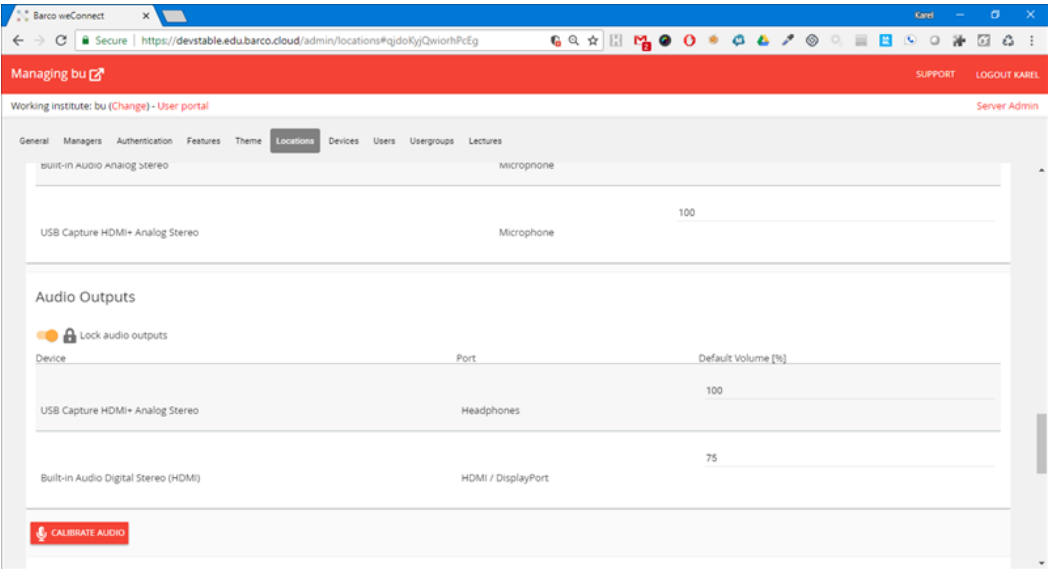
Audio Outputs

Lock audio outputs

Device	Port	Default Volume [%]
Yamaha YVC-1000 Analog Stereo	Analog Output	100

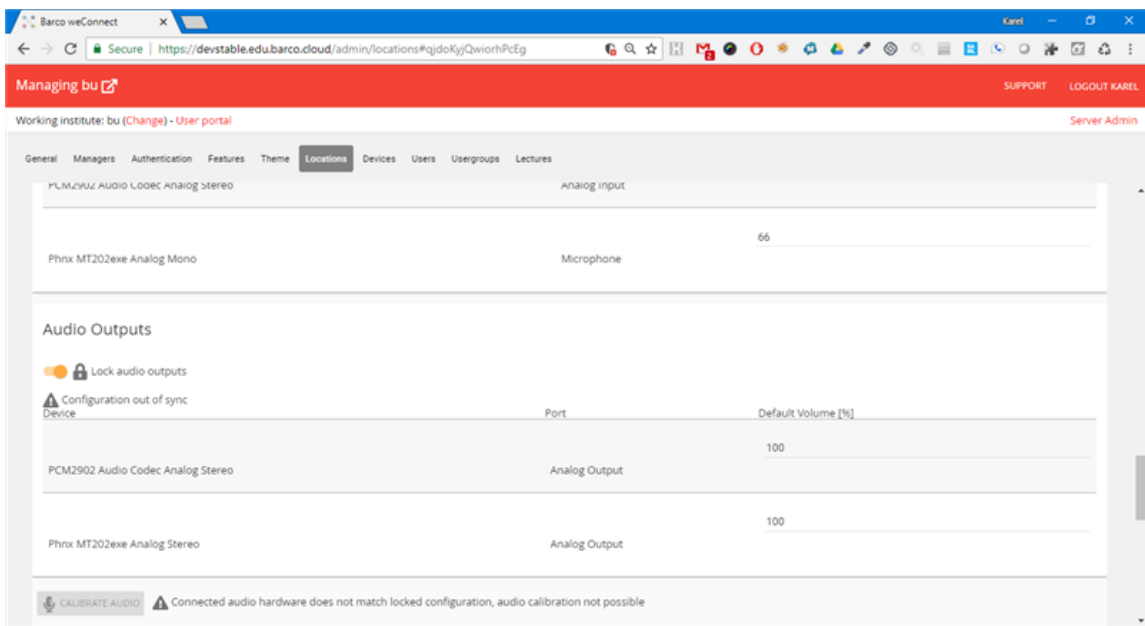
Calibrate Audio

In order for the classroom to be usable in a connected classroom scenario audio level will have to set up so that with any possible connection between classrooms all levels will be at a similar volume. This greatly enhances the user experience.



The calibrate audio button initiates a remote audio test session which allows an Institute Manager to remotely configure volume and microphone levels for those classrooms equipped with this capability. See the KB on Audio setup and calibration.

In order for audio calibration to be possible, the system must be able to detect the configured audio inputs and outputs. If not, error messages will be displayed next to a greyed out button.



USB Cameras

Finally, USB cameras can be connected to the device to allow for other content streams to be shown on the displays. An example is shown below for a 'Logitech C930e'. The fields are the following:

- Encoding: the used encoding for the video stream
- Resolution: the used resolution for the video stream
- Framerate: the used framerate for the video stream

Image settings: advanced options for the stream (see below)

USB Cameras				
Camera	Encoding	Resolution	Framerate	Image Settings
Logitech Webcam C930e	YUYV	640 * 480	30	<button>CHANGE</button>

There are different advanced Camera image settings which can be changed. When clicking the 'Change' button, a pop-up appears which contains all the possible settings.

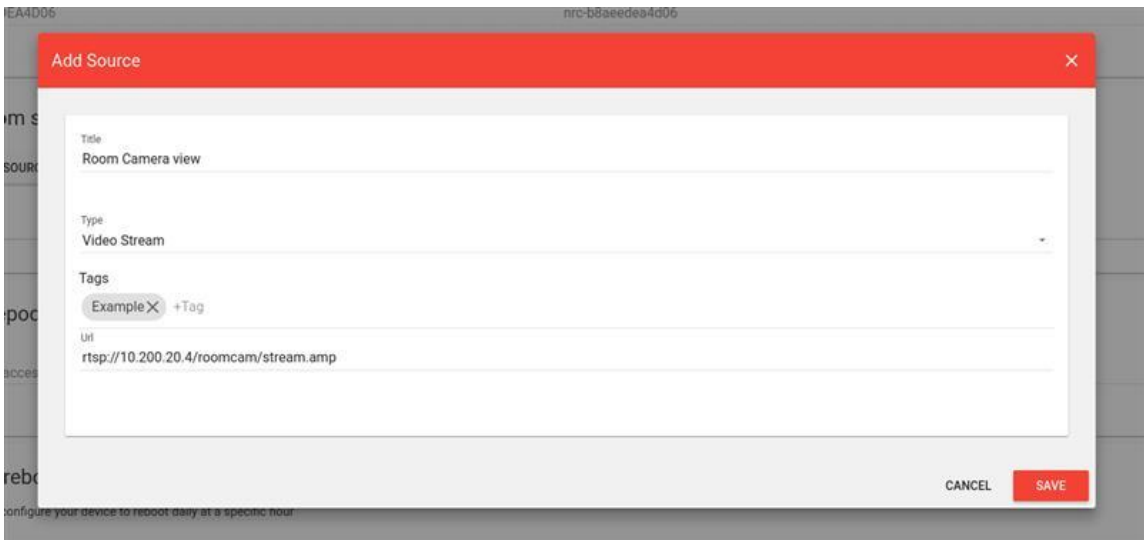


Custom sources

Custom sources can be added to every device. At the moment this is limited to RTSP streams which are streamed over the network. The list will first be empty but can be changed by clicking the 'Add Source' button which can be found above the list.



After clicking the following pop-up will appear:



The following fields can be filled in:

- Title: name that will appear for the source in the teacher interface
- Type: type of custom source (for now this is limited to Video Stream)
- Tags: tags can be given to the stream
- URL: the URL on which the video stream can be found

A list of confirmed integrations with 3rd party IP streams is available in the Device Integration Support Guide.

Sharepod dongle

First, the Sharepod should be connected through USB to the computer which is performing the setup and it should be connected to the same network as the selected device. Then in the Barco Pairing Tool, select the device in the /admin/devices route and scroll down to the Sharepod settings. The following button will be visible:

Sharepod dongle

Sharepod detected.

PAIR SHAREPOD WITH THIS DEVICE

After pressing the 'Pair Sharepod with this device' button, the Sharepod will pair and a message will appear on the screen: 'The Sharepod is successfully paired'. Then, if a lecture is started where content can be shared to the device that is connected with the Sharepod, the button will become blue. Afterwards, a device connected with the Sharepod can start sharing content to the display by pressing the button.

Daily reboot

The devices can be configured to be rebooted daily at a specific time. Because of the nature of the product, it is not often used during the night, which makes those hours the most appropriate. It is advised to configure the daily reboot to improve the stability of the product over time.

Daily reboot

You can configure your device to reboot daily at a specific hour

Reboot at ▾

Basic Room Configuration – [\[KB7723\]](#)

General

In order to understand how rooms are configured it is necessary to understand the underlying philosophy of weConnect. The purpose of the system is to set up a room once. When using the room various behaviors might be needed based on the lecture needs. A room may be used as a traditional classroom, as an active learning space or overflow room. When connecting rooms for remote learning or as overflow other settings are required to make the room provide the technology support to teacher and students which match the needs at that time. In order not to make these settings and changes transparent for the teacher and students, the room will need to be set up with all possible behaviors. Choices must be made on how the room behaves when no lecture is active. E.g. run in IDLE mode where signage content can be shown on all screens or rather in huddle space mode, where the displays will be able to act as individual huddle spaces to share content to.

Using this approach allows multiple uses out of a single physical classroom space without the need to reconfigure after the initial setup. Within a single day a room can be used as an ad hoc huddle space for students, for traditional lectures, as overflow room for an auditorium and as a remote learning location for a lecture with the teacher teaching from a remote campus without the need for any support intervention.

The components to be set up are the room itself for the general behavior, the individual display nodes which may perform different functions depending on the general room behavior, and the display outputs of said display nodes which can show different content based on the room setting and display node setup.

Behaviors are expressed as roles in weConnect. The general structure is as follows:

A room has one or more roles. There is one possible default role for when a lecture will be started. There is also one possible role for when there is no lecture running.

At the start of a lecture, or when planning a lecture, either the default role or a specific alternative role can be chosen.

Each room role controls what the display nodes will be able to do. For chosen display node role another role can be chosen for the display node output(s).

3rd party devices in each room role can also be assigned roles, this is the way to instruct the system what the intended behavior is in, for instance, connecting classrooms. An IP camera designate with the room camera role will be treated differently to a camera designated teacher camera.

When connecting classrooms the system will automatically show the teacher in the remote classroom and the room camera from the remote classroom can be put automatically on a confidence monitor in the teacher's classroom. So the users always get the same experience, no matter if different rooms are connected from lecture to lecture. For administrators this means that the system does not need to be reconfigured if classroom scheduling changes or if different rooms are used for overflow or connected classroom scenarios throughout the academic year.

The room configuration for the different locations in an institute has to be performed by a user which has managing rights in the institute. The configuration happens in the admin interface at the /admin/locations route, in the subsection of Room Configurations:



Before explaining how the room configurations are configured, an extensive explanation about the different room roles is required. In this manual only the configuration of the classroom and master overflow room (also used for remote learning setups) is explained. A separate chapter covers the Virtual Classroom. The configuration of the other room types is similar. The only exception is the collaboration room where student tables get display nodes configured as Collaboration Group node rather than auxiliary display nodes (indicated in the UI as Far-view/Confidence node).

Room roles

Room roles dictate the behavior of the system without requiring administrators to configure each and every lecture in detail. Display Nodes and 3rd party devices get designated functions which the system uses to set up the class when the lecture starts. This is especially important in remote learning scenarios where the overflow or remote classrooms can differ from lecture to lecture. This way administration managers do not have to foresee each and every possible configuration and setup for all possible combinations of connected rooms.

The room has 2 possible states: lecture is either active or the lecture is not active. When there is no lecture active, there are 2 possible room configurations: 'Idle' and 'Huddle Space'.

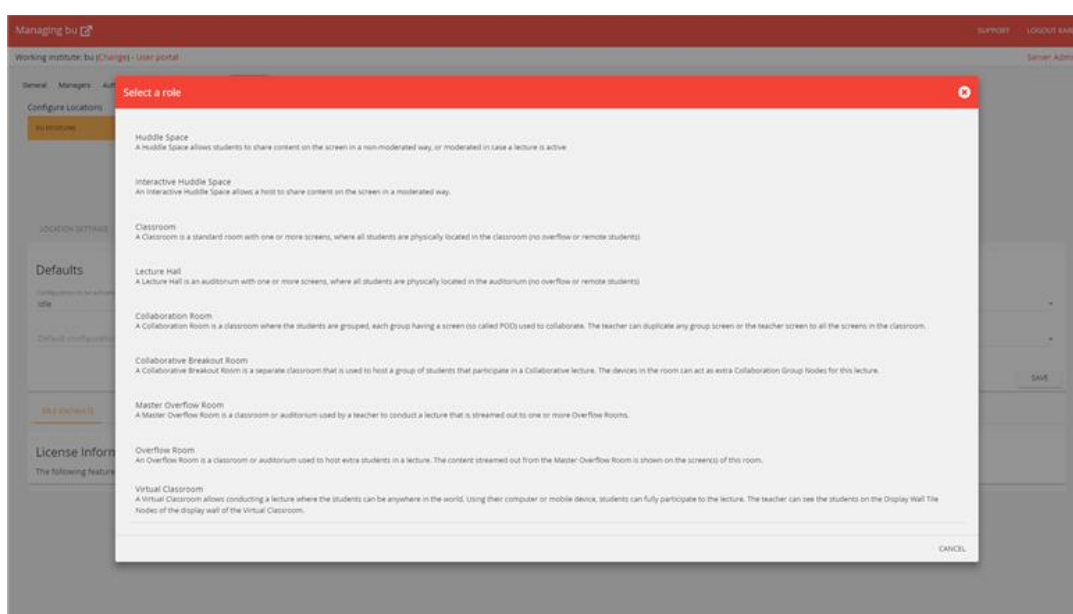
- Idle: the 'Idle' room configuration is the default configuration whenever there is no lecture active. By configuring the devices and screens for this room role, the behavior of the room can be defined for the situation where no lecture is active in this room. Wallpapers can be set but no content can be streamed to the displays.
- Huddle Space: a 'Huddle Space' allows students to share content on the screen in a non-moderated way. This means that no lecture needs to be started to share content to the screen.

When there is an active lecture, there are multiple possible room configurations:

- Interactive Huddle Space: allows students to start a moderated session in a huddle space. This allows for screen control, interactivity tools and collaboration tools to be used for group work or ad hoc meetings. In case the "Add-hoc usage allowed" switch is switched on for the location, students will see a button labeled "Use a room now" in the home screen of the weConnect interface which allows them to claim and use a room.
- Classroom: is a standard classroom with one main display and potentially one or more auxiliary screens. Up to 50 students are physically located within the classroom. This is the standard lecture situation where the teacher can share content to a display and allow content from the students to be displayed. With a basic classroom subscription only the teacher can log into weConnect and moderate a lecture. With interactive classroom subscriptions, students can additionally log in and get previews of the main display, answer quizzes and polls as well as see and download the whiteboard content. The connected classroom allows to set up overflow and remote classroom scenarios.
- Lecture Hall: is a larger classroom with typically more than 50 students. One or more displays are present in the room. To help the teacher and students optionally additional (auxiliary) displays can be added to the room as confidence monitors or to provide a better view on the classroom content (for big or awkwardly sized rooms). This full featured subscription enables all moderation, interaction and collaboration tools as well as room overflow and remote learning.
- Master Overflow Room: A Master Overflow Room is an option for connected classroom or lecture hall subscriptions. A teacher can conduct a lecture that is streamed out to one or more (maximum 3) Overflow Rooms or remote classrooms.

- **Overflow Room:** An Overflow Room is a classroom or auditorium used to host extra students in a lecture. The content streamed out from the Master Overflow Room is shown on the screen(s) of this overflow room. Choose this role for remote learning lectures where the room is on the receiving end of the lecture.
- **Collaboration Room:** A Collaboration Room is an active learning space where the students are seated in groups and each group has a screen to share with. These group tables are referred to as a pod. The teacher can duplicate the content on any pod or the teacher screen to all the displays in the classroom and pull all information available in the room to the main room display.
- **Collaborative Breakout Room:** A Collaborative Breakout Room is a separate classroom that is used to host a group of students participating in a Collaborative lecture. The devices in the room can act as extra Pods for this lecture. This role only works in conjunction with a collaboration room subscription in the main lecture space.

Virtual Classroom: A Virtual Classroom allows conducting a lecture where the students can be anywhere in the world. Using their computer or mobile device, students can fully participate to the lecture. The teacher can see the students on the Display Wall Tile Nodes of the display wall of the Virtual Classroom.



There is a relation between room roles and weConnect room subscriptions, the level of subscription dictates the various room roles which can be configured and used:

Room Roles	Subscriptions							
	Huddle Space	Interactive Huddle Space	Basic Classroom	Interactive Classroom	Connected Classroom	Lecture Hall	Collaboration Room	Virtual Classroom
Huddle Space	X	X	X	X	X	X	X	
Interactive Huddle Space		X		X	X	X	X	
Classroom			X*	X	X	X	X	
Lecture Hall						X	X	
Collaboration Room							X	
Collaborative Breakout room		X		X	X	X	X	
Overflow room				X	X	X	X	
Master Overflow Room					X	X	X	
Virtual Classroom								X

*With a Basic Classroom subscription only teachers can access the weConnect interface to moderate the classroom, interactivity options are not available.

Device roles

The Display Nodes used in these rooms can have different roles. These are summarized below, but remark that only relevant roles are shown depending on the room and display node roles chosen:

- Master Node: The selected device is driving the Main Display(s) in the Classroom or Auditorium.
- Display Wall Tile Node: The selected device is connected to a display (tile) on the display wall of a virtual classroom in order to show one or more remote students.
- Camera Manager Node: The selected device streams connected camera(s) and the selected aux-in audio input to the remote students.
- Far-view/Confidence Node: The selected device drives an auxiliary display in the classroom which needs to act as a Far-View or Confidence Display. This is a display which replicates the content on the Main Display(s).
- Pod Node: The selected device is driving a Pod in a Collaborative Classroom.
- Not Used: This device is not used for any content distribution and just shows static content, e.g. a wallpaper or HTML content.

Display roles

The displays that are connected to the devices can have specific roles

- **Main Display:** The display is the Main Display of this node and can be selected for control from the user interface. Content can be shown on this screen from the Teacher interface.
- **Auxiliary Display:** The selected display can be used as an extra display which can be controlled from the user interface to show additional sources required in the lecture.
- **Confidence Monitor (Local):** The display acts as a Confidence Monitor, this is a display that shows the same content as another display. Since it is a Local Confidence Monitor, the other display has to be connected to the same device.
- **Confidence Monitor (Remote):** The display acts as a Confidence Monitor that shows the same content as another display but it can be connected to another device that is in the same lecture.
- **Not Used:** The selected display is not used and will show content of a specified wallpaper.
- **User Interface (Touch) Display:** The selected display is an interactive touch displays and will show the weConnect user interface. You can only attach one touchscreen per Display Node.

The following display roles can only be used in Overflow or Remote Learning scenarios (these are situations in which there is a main lecture room and overflow rooms):

- **Combined Monitor:** This display shows both the content of the main display and the teacher camera that are being streamed to the other rooms in the lecture.
- **Content Monitor:** The display shows the content that is being streamed to the other rooms in the lecture.
- **Teacher Monitor:** The display shows the teacher camera that is being streamed to the other rooms in the lecture.
- **Combined Remote Auditorium Monitor:** The display shows the room cameras of all other rooms in the lecture.

The following display role is only available in Virtual Classroom scenarios:

- **Remote Student Display:** The display will show one or more student seats which remote students will take up when connecting. Typically there are 2 to 10 displays in a matrix configuration with each display connected to a Tile display node with one graphics output with this role.

Audio Input roles

Not used: the selected audio input is not used in the system.

Aux in: the selected audio input is used to ingest audio.

In the case of a Camera Manager device, use this role to indicate which input has to be used and streamed out together with the camera video. In a multi-tile virtual classroom setup where the audio mixes are created using an external DSP, use the Aux_in role on each of the tiles in order to indicate the input that receives the mix from the external DSP.

AEC'ed microphone in: the select input ingests an audio signal which has been processed by an external Acoustic Echo Cancellation device.

So the signal fed into this input must contain clean microphone signal after echo cancellation. The received microphone signal will be conditioned and mixed with the local sources (eg. screenshare sources) before streaming out to a remote location. Eg. in case of a Master Overflow or an Overflow device, the input having the AEC'ed microphone role will be streamed out to the remote location(s) after mixing with the local sources (eg. screenshare) so that both teacher and content can be heard in the remote location.

AEC reference in: this role makes it possible to 'inject' extra audio to be cancelled out from the microphone signal by an Acoustic Echo Canceller.

An Acoustic Echo Cancellor represents an audio output and an audio input to the display node to which it is connected. The Acoustic Echo Cancellor will send the audio that it receives from the display node to the speakers that are connected to it, while cancelling out this audio from the microphone signal it receives and it will present the clean microphone signal to the display node. The "AEC reference in" role allows adding extra audio in the mix that is send towards the Acoustic Echo Cancellor (and hence the speakers connected to it). The audio presented on this input will be mixed together with the audio generated by the display node itself and will be sent to Acoustic Echo Cancellor (use the "Main mix" role for the output that represents the Acoustic Echo Cancellor). More information can be found in the chapter "Audio setup and calibration".

Audio Inputs

Device	Title	Port	Role
Yamaha YVC-1000 Analog Stereo		Microphone	Not Used
Logitech BRIO Analog Stereo		Microphone	Not Used
Webcam C930e Analog Stereo		Microphone	Not Used

Not Used

The selected audio input is not used

Aux in The selected audio input is used to capture audio from a microphone or audio mixing device.

AEC'd microphone in The selected audio input is used to capture the AEC'd microphone signal generated by an external acoustic echo cancellation device.

Audio Output roles

Not used: the selected audio output is not used.

Main mix (all sources): the selected output will output all audio processed in the display node.

This includes all audio coming from screen sharing, audio coming from a remote location(s) in the case of an overflow scenario, and the audio presented to an input that has the "AEC reference in" role.

Local mix: the selected audio output will only output all audio source originating from the local classroom to the device, typically these are screen share sources.

Remote mix: the selected audio output will only output audio received from remote classrooms or remote overflow rooms.

Audio Outputs

Device	Title
Yamaha YVC-1000 Analog Stereo	
USB Cameras	

Not used

The selected audio output is not used

Main mix (all sources) The selected audio output will output all audio

Local mix (all local sources) The selected audio output will output the audio of all sources that are local to the classroom of this device.

Remote mix (all remote sources) The selected audio output will output the audio coming from the overflow rooms in an overflow lecture.

AEC reference mix The selected audio output will output the reference signal required by an external acoustic echo cancellation device.

USB Camera roles

The cameras that are connected to the devices can have specific roles:

- Teacher Camera: Camera is aimed at the presenter.
- Teacher Content: Content which is ingested into a display node via a USB connection (e.g. Frame grabber or document camera)
- Room Camera: Camera shows a view on the room/audience.
- Idle: Camera does not have a specific role.
- Other: Use this for any USB content which does not need to have a specific function in the various room roles.

The selection of roles for these devices makes sure that weConnect knows where to send content to depending on the use case the room is used in.

USB Cameras					
Camera	Title	Role	Stream	Use locally	Audio
Logitech BRIO			☒	☒	
	MR Brussels - Teacher Camera	Teacher Camera			No audio
Logitech Webcam C930e			☒	☒	
	MR Brussels - Room Camera	Room Camera			No audio

For remote learning scenarios the content must be set to "Stream".

When the source should also be available as a selectable source for the teacher to show on the main classroom screen, select "Use Locally"

A selected audio input can be send back to this USB device, the Audio dropdown box offers "No audio" or any of the audio inputs available to the display node.

Standard Room Configuration

Remark: it is required to press the 'Save' button at the bottom of the page to store the changes that were made. Otherwise, progress will be lost after refreshing the page or going to another section of the Admin interface.

It is important to understand that room roles which are not valid will not allow you to use the system properly. Please correct invalid room configurations (indicated by the crossed out room configuration tab) before running lectures. This is especially important for both the idle and default room roles.

Default setting

There are two default settings which can be modified in the Room Configurations section. These can be modified by clicking on the dropdown and selecting another configuration.

- The first indicates what the configuration should be when no lecture is active, this will be 'Idle' mode at the start.

- The second indicates what the default lecture configuration shall be when the lecture is started without modifying the type of lecture. It will also be the used configuration when an Ad-Hoc lecture is started. This will be empty when there is no active room configuration, as can be seen in the screenshot below. Once an active lecture configuration is created, this will be selected as the default.

Defaults

Configuration to be activated when no lecture is active

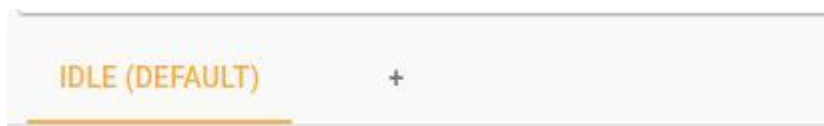
Idle

Default configuration to be activated when lecture starts

SAVE

Configuration list

A new configuration can be created by pressing the '+' button in the list.



Then the following pop-up will appear which shows all the different configurations which can be activated in the specified location.

Select a role

Huddle Space
A Huddle Space allows students to share content on the screen in a non-moderated way, or moderated in case a lecture is active

Interactive Huddle Space
An Interactive Huddle Space allows a host to share content on the screen in a moderated way.

Classroom
A Classroom is a standard room with one or more screens, where all students are physically located in the classroom (no overflow or remote students)

Lecture Hall
A Lecture Hall is an auditorium with one or more screens, where all students are physically located in the auditorium (no overflow or remote students)

Collaboration Room
A Collaboration Room is a classroom where the students are grouped, each group having a screen (so called POD) used to collaborate. The teacher can duplicate any group screen or the teacher screen to all the screens in the classroom.

Collaborative Breakout Room
A Collaborative Breakout Room is a separate classroom that is used to host a group of students that participate in a Collaborative lecture. The devices in the room can act as extra Collaboration Group Nodes for this lecture.

Master Overflow Room
A Master Overflow Room is a classroom or auditorium used by a teacher to conduct a lecture that is streamed out to one or more Overflow Rooms.

Overflow Room
An Overflow Room is a classroom or auditorium used to host extra students in a lecture. The content streamed out from the Master Overflow Room is shown on the screen(s) of this room.

CANCEL

Subsequently, for example, the 'Classroom' and 'Collaborative room' are enabled in the room. This results in the list that can be seen below. To go to a specific configuration, you can click on the name of the configuration. The 'Classroom' configuration has become the default configuration because it was created first. This can be changed as by selecting another valid room role in the Defaults dialog where you can select the default role to propose when a lecture is created.

The danger sign next to the two created configurations indicates that the configuration is invalid. This reminds us that these rooms still need to know which devices will perform which role. The 'Collaborative Room' configuration is disabled when it is initially added; the crossed out name

indicates this. The configuration can be enabled by pressing the red 'Enable' button which can be found at the right-hand side of the list. The remove button next to it makes it possible to remove the configuration.

This should be used with caution because it will remove all the options that were set by the user.

The screenshot shows the 'Defaults' configuration page. It has two dropdown menus: 'Configuration to be activated when no lecture is active' (set to 'Idle') and 'Default configuration to be activated when lecture starts'. A 'SAVE' button is at the bottom right. Below the configuration area, there is a tab bar with 'IDLE' (selected), 'CLASSROOM', and 'COLLABORATION ROOM (DEFAULT)'. At the bottom right, there are 'DISABLE' and 'REMOVE' buttons.

IDLE configuration

The screenshot shows the 'IDLE' configuration page. It has a tab bar with 'IDLE' (selected), 'COLLABORATION ROOM (DEFAULT)', 'HUDDLE SPACE', and 'MASTER OVERFLOW ROOM'. Below the tabs, there is a 'Last modification' section stating 'Last modified by Wim Barbaix at 12/4/17 1:36 PM'. A red banner indicates 'Display Node "main paris" : Not Used' with a 'CHANGE ROLE' button. Below this is a 'Displays' table.

Device	Extends Previous	Title	Resolution	Role	Touch	Parameters
DP-2		Not Used	1920 x 1080	Not Used	☐	☐ Black ? Wallpaper URL ? https://www.youtube.com
DP-3	☐	Not Used	1920 x 1080	Not Used	☐	☐ Black ? Wallpaper URL ? https://www.store.barco.c

When a room is in IDLE configuration or when a display node is not used in a certain configuration you can opt to have the screen blanked in the Parameters column of the Displays table. Alternatively you can show any HTML5 content by entering a Wallpaper URL pointing to a website. The webpage will be loaded whenever the Display Node goes into IDLE configuration. There is no option to automatically reload the page at regular intervals. The URL will be reloaded every time the system goes back into IDLE. You can use these Parameter settings for any Display Node in other room configurations which are not used in said configuration.

It is possible to assign different URLs to each display in the room. You can opt to make the displays interactive by enabling the touch option in the Touch column. If no parameter has been filled in then the display will default to the standard wallpaper

Tip: create a video loop with YouTube

Go to YouTube and select a video. For instance this Barco video:

<https://www.youtube.com/watch?v=F7RJr4kiWdg>

You can now construct this URL which makes the video load full screen, playing continuously:

<https://youtube.com/embed/F7RJr4kiWdg?autoplay=1&loop=1&playlist=F7RJr4kiWdg>

You can also play a playlist in loop mode, just make a playlist in Youyube like this one:

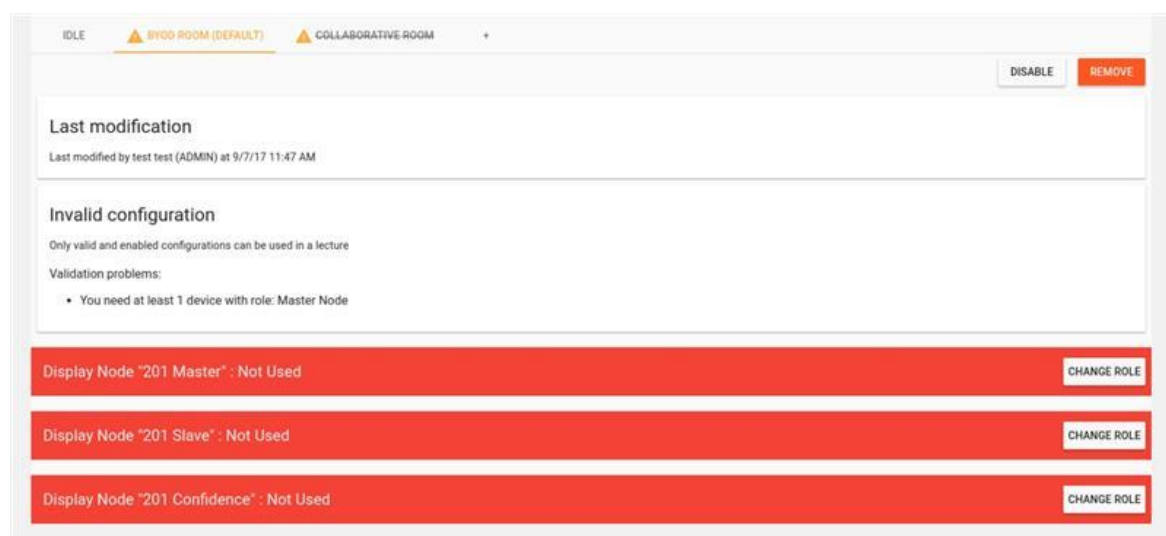
https://www.youtube.com/watch?v=F7RJr4kiWdg&list=PLU05RGyUgvL9IDrd3mam1_NPxphwIz3GJ

Now the URL to use in IDLE mode becomes:

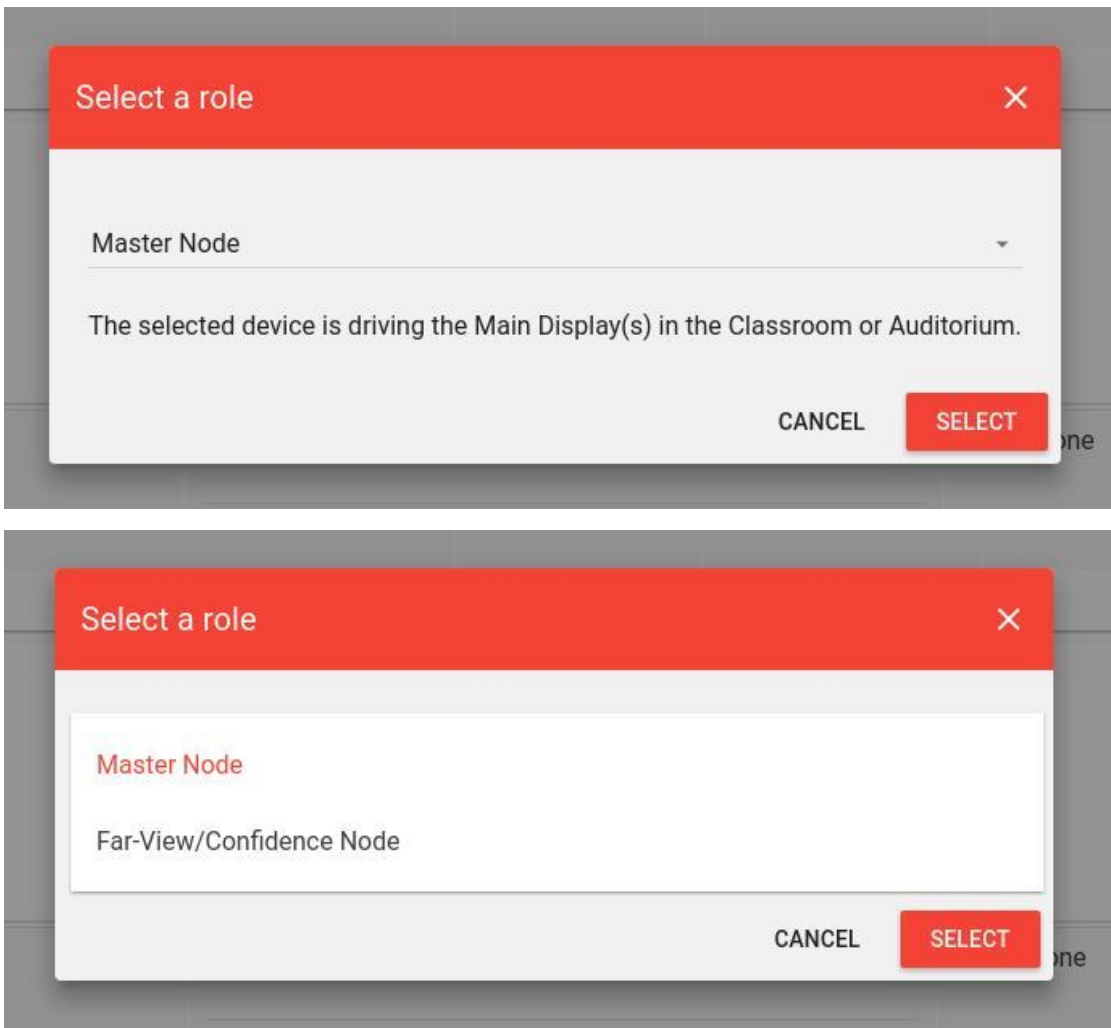
https://youtube.com/embed/F7RJr4kiWdg?autoplay=1&loop=1&playlist=PLU05RGyUgvL9IDrd3mam1_NPxphwIz3GJ

Classroom (Master Node)

Now, we click on 'Classroom' to start configuring the devices in 'Classroom' mode. The page will look like this:



The first thing to notice is the invalid configuration tab which informs us as to why the configuration is not valid. It says that at least one Master Node is required in the room to have a valid configuration. With that information we click on the 'Change Role' button of the '201 Master'. This brings up the pop-up and when the dropdown is clicked two roles are shown: Master Node and Far-View/Confidence Node. Select Master node and press the 'Select' button to confirm the choice.



Below the device bar a new set of properties will appear covering a range of settings specific for the use of this display node in this room role with the chosen device role:

- Displays
- Audio inputs
- Audio outputs
- USB Cameras
- Wallpaper options

At the top of the configuration page you will get some guidance about the validity of the configuration:



Again, we see that the device has an invalid configuration because there is no Main Display assigned. In other words, only when a Main Display is selected, the device can be used.

Display

The first tab is the configuration of the display. In this example, two screens are connected to the '201 Master' device and we see the following:

Displays

Lock display configuration

Device	Extends Previous	Title	Resolution	Role	Touch	Parameters
HDMI-1		Not Used	1920 x 1200	Not Used	☐	☐ Black ? Wallpaper URL ?
HDMI-2	☐	Not Used	1680 x 1050	Not Used	☐	☐ Black ? Wallpaper URL ?

Below, an overview is given of all the different settings that can be changed.

The following part consists of different columns:

- Device: The title of the device which cannot be changed and indicates which display matches with which device.
- Extends Previous: This tab allows the user to use the second screen (and potentially third or fourth screen) to extend the previous screen.
- Title: This tab allows for a custom title to be entered. These will also change based on the role of the display.
- Resolution: The resolution of the different screens. The resolution is fixed in this example because the used screens do not allow for changes.

Extending screens is only possible if all output resolutions are the same.

Device	Extends Previous	Title	Resolution
HDMI-1		Not Used	1920 x 1200
HDMI-2	☐	Not Used	1680 x 1050

- Role: Next, the role can be selected of the displays. The first display will be used as a Main Display and the second display will be used as a Local Confidence Monitor to replicate the content from the Main Display.
- Touch: After that, touch can be enabled if the display supports touch by clicking in the checkbox.

Role	Touch
Not Used	☐
Not Used	☐

The final result looks like this:

Displays

☐ Lock display configuration

Device	Extends Previous	Title	Resolution	Role	Touch	Parameters
HDMI-1		Main	1920 x 1200	Main Display	☐	
HDMI-2	☐	Clone	1680 x 1050	Confidence Monitor (local)	☐	Display to clone HDMI-1 - Main (Main Display)

Audio inputs

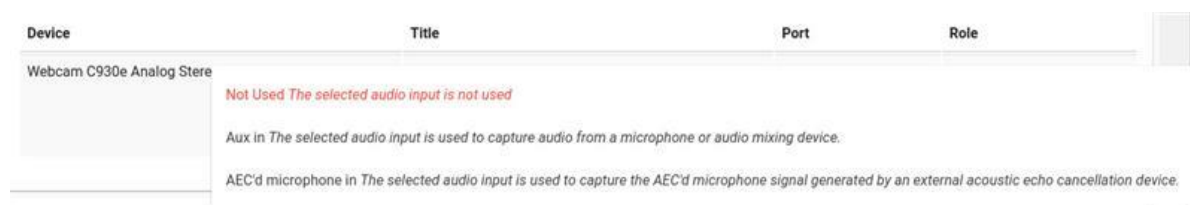
The audio inputs tab will look like this when only one microphone is connected to the device.

Audio Inputs

☐ Lock audio input configuration

Device	Title	Port	Role
Webcam C930e Analog Stereo		Microphone	Not Used

Similarly, the configuration can be locked to prevent loss of settings. Furthermore, the title of the device on the platform can be changed. Finally, the role can be set. When clicking on the 'Not Used', the following dropdown appears:



Normally, the Aux In can be selected to capture audio from standard microphones. However, if an external acoustic echo cancellation device is used, which is advised when audio input and output are used at the same time, then the third option should be selected.

Audio outputs

Next, the audio output looks similar to the audio input example.

Audio Outputs

☐ Lock audio output configuration

Device	Title	Port	Role
Built-in Audio Analog Stereo		Headphones	Not used

The dropdown now contains the following elements:

- Not Used
- Main Mix: this will mix the audio from all possible inputs and output it on the selected device automatically.
- Local Mix: only outputs the audio that was captured in this classroom
- Remote Mix: only outputs the audio captured in overflow rooms connected to this lecture. The audio is mixed automatically.
- AEC Reference Mix: outputs the audio received from an external acoustic echo cancellation device.

In general, the 'Main Mix' is the best option for most use cases.

Wallpapers

Finally, the wallpaper that is used during the lecture, when no content is shown on the display, will be the one from its parent, unless another is uploaded and selected here. This process is similar to the wallpaper selection which is detailed in [KB7718].

Wallpaper



Finally, press 'Save' to make sure that the configuration is saved.

Classroom (Auxiliary Display Node used as Far-View/Confidence monitor)

After setting up the Master Node, we want one device more which replicates the content of the Master Node. This can be done by clicking on the 'Change Role' button on another device and selecting the 'Far-View/Confidence Node' option. After that the dropdown gives you the following information:

⚠ Display Node "201 Slave" : Far-View/Confidence Node

CHANGE ROLE

Invalid device configuration

Validation problems:

- You need at least 1 display with role: Confidence Monitor (remote)

The configuration is invalid due to not having a 'Remote Confidence Monitor'. This can be quickly solved by scrolling down to the 'Displays' tab and selecting to clone a display from the 201 Master device. Afterwards, we select to clone 'Main'. The result will look like this:

Displays

Lock display configuration

Device	Extends Previous	Title	Resolution	Role	Touch	Parameters
HDMI-1		Confidence Monitor (ren	1920 x 1080	Confidence Monitor (remote) ▾	☐	Device Display to clone ⓘ : 201 Master (Master Node) ▾ Display Main (Main Display) ▾

The remaining settings are similar to the example of the Master Node. After completing the configuration of this device, press 'Save' to store the settings. Congratulations, you have configured your first room and are ready to start a lecture.

Remark: It is often desirable to only have one audio input and output per room. If more than one is used, this could lead to audio problems due to delay on the audio streams.

Auxiliary Display Node as UI node

It is possible to configure a touchscreen with display node as a UI node. This allows the teacher to use the weConnect interface on a touchscreen. The touchscreen can be a large display or a small tabletop touchscreen monitor.

When a teacher starts a lecture, the UI node setup will automatically log in with the teacher credentials and present the UI according to the configured settings. The teacher can then use the UI alongside the weConnect UI on his/her BYOD.

To set up a UI node, an auxiliary display node must be configured. This means that the UI node cannot be the main display in the classroom.

Select a display node with the role "Far-View/Confidence Node".

Display Node "ctouch paris" : Far-View/Confidence Node CHANGE ROLE

Displays

Device	Extends Previous	Title	Resolution	Role	Touch	Parameters
HDMI-1		User Interface (Touch)Display	1920 x 1080	User Interface (Touch)Display	☒	Page/Tab ⓘ Whiteboard ▾ ☒ Interactive ⓘ

Configure the display output to the User Interface display role. Enable touch to allow interaction.

It is possible to start the UI node with a standard view on the UI. The options are Display control, Polls & Quizzes, Silent Questions and Whiteboard.

Configure the display output to the User Interface display role. Enable touch to allow interaction.

It is possible to start the UI node with a standard view on the UI. The options are Display control, Polls & Quizzes, Silent Questions and Whiteboard.

Display Node "ctouch paris" : Far-View/Confidence Node CHANGE ROLE

Displays

Device	Extends Previous	Title	Resolution	Role	Touch	Parameters
HDMI-1		User Interface (Touch)Display	1920 x 1080	User Interface (Touch)Display	☒	Display control Polls & Quizzes Silent Questions Whiteboard ☒ Interactive ⓘ

The interactivity option allows users to make full use of the user interface as it allows navigation between the different UI tabs.

Tip: to allow for a full Whiteboard view, select Whiteboard as standard Page/Tab view and disable Interactive.

Overflow Room Configuration – [\[KB7724\]](#)

Location Setup

First, 2 rooms have to be setup. These rooms can be anywhere in the same institute, for example:

campus a (campus) >	A (building) >	1st (floor) >	201 (room) >
campus b (campus) >	B (building) >	2nd (floor) >	202 (room) >
	C (building) >	3rd (floor) >	

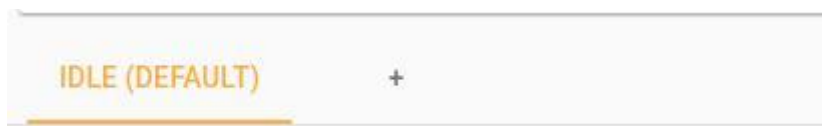
In this example Room 202 will be used as the Overflow room.

Master Overflow Room Setup

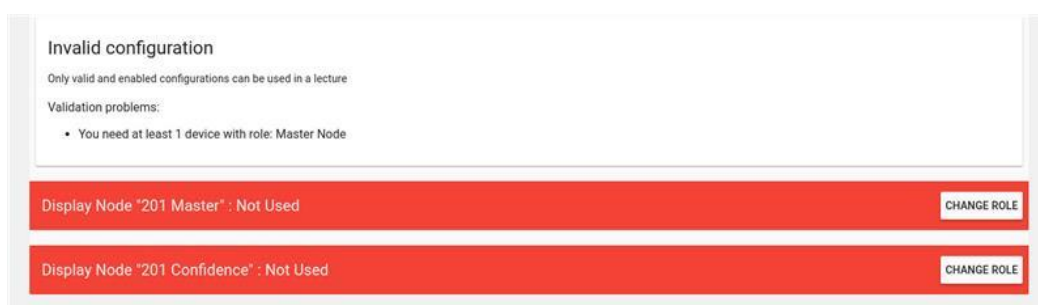
First, we will setup the 'Master Overflow Room' in Room 201. We navigate to 'Room Configurations' by going to the /admin/locations route, selecting Room 201 in the location browser and clicking on the 'Room Configurations' tab. Then we see the configurations list which only contains the 'Idle' configuration at the moment:



Subsequently, we press the '+' button and select the 'Master Overflow Room' in the pop-up. The configuration appears in the list and we click it:



After clicking and scrolling down, the following information is shown on the page:



We need at least one 'Master Node', otherwise the configuration is invalid! The setup is very similar to the 'BYOD Room' setup which was done in the previous chapter of the manual but there are some essential differences which need to be explained.

Master Node

The only difference for the 'Master Node' is the box which can be seen below. Clicking the checkbox will allow audio from Room 202 to be added to the audio output in this room. Please make sure the "Remote audio" checkbox is checked.

Device Parameters

☐ Remote audio 

We can also see for the second display that there are extra options available (of which the functionality can be found at the start of the previous chapter):

- Combined Self-View Monitor
- Teacher Monitor
- Combined Remote Auditorium Monitor

We select the 'Teacher Monitor' and set the Webcam as a 'Teacher Camera', otherwise the Teacher Monitor would have no content to show. The second device, '201 Confidence' does not have to be configured in this case but it can be configured the same as in the previous chapter.

Overflow Room Setup

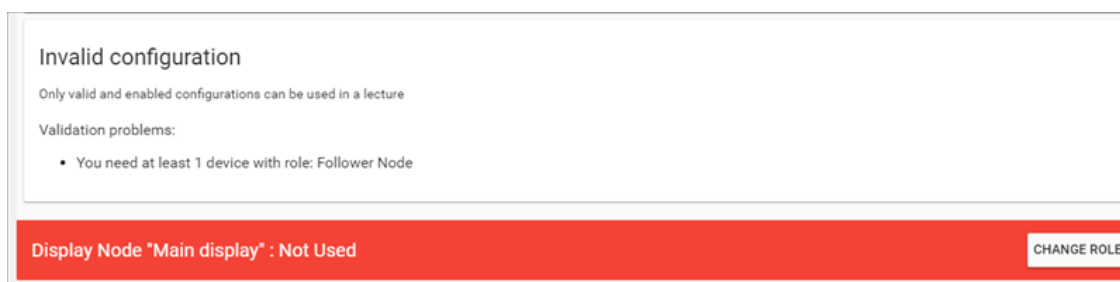
Now, select the other location:

school (institute)	>	campus a (campus)	>	A (building)	>	1st (floor)	>	201 (room)	>
		campus b (campus)	>	B (building)	>	2nd (floor)	>	202 (room)	>
		Add Location	+	C (building)	>	3rd (floor)	>	Add Location	+

Add the Overflow Room configuration to the list of configurations:



If we scroll down, the reason for the invalid configuration is shown:



Now, click the 'Change Role' button and select 'Follower Node' from the pop-up. A new message says that we are missing a 'Combined Monitor' or 'Content Monitor'. Obviously, this is because the content shared to the 'Main Display' should at least be visible in Room 202 which will be physically in another place than Room 201.

Invalid device configuration

Validation problems:

- You need at least 1 of the following display role combination: Combined Monitor or Content Monitor

Steps to finish the setup:

- Enable Remote Audio to make sure that the audio from the 'Master Overflow Room' reaches the 'Overflow Room'
- Select e.g. the 'Content Monitor' role for the device
- Press the 'Save' button to ensure that the settings are stored

The screenshot shows the 'Overflow Room' configuration page in the weConnect admin interface. At the top, there are tabs for 'IDLE', 'HUDDLE SPACE', 'CLASSROOM (DEFAULT)', and 'OVERFLOW ROOM' (which is selected). To the right of the tabs are 'DISABLE' and 'REMOVE' buttons. Below the tabs, there are sections for 'License Information' (stating features available for the location), 'Last modification' (last modified by Karel Buijsse at 1/8/18 12:15 PM), and a red banner for 'Display Node "Main" : Follower Node' with a 'CHANGE ROLE' button. Under 'Device Parameters', there is a checked 'Remote audio' option with a help icon. The 'Displays' section contains a table with columns: Device, Extends Previous, Title, Resolution, Role, Touch, and Parameters.

Device	Extends Previous	Title	Resolution	Role	Touch	Parameters
HDMI-1		Combined Monitor	1920 x 1200	Combined Monitor	☐	

Congratulations, a lecture can now be started in Room 201 with Room 202 in an overflow scenario.

Remark: weConnect supports a maximum of 3 overflow rooms.

The KB regarding Audio setup and calibration gives an overview on how to set up rooms so that the audio levels are correct for remote learning and overflow use. After this initial setup please use the audio calibration instructions to ensure a great user experience.

Virtual Classroom Configuration [\[KB7725\]](#)

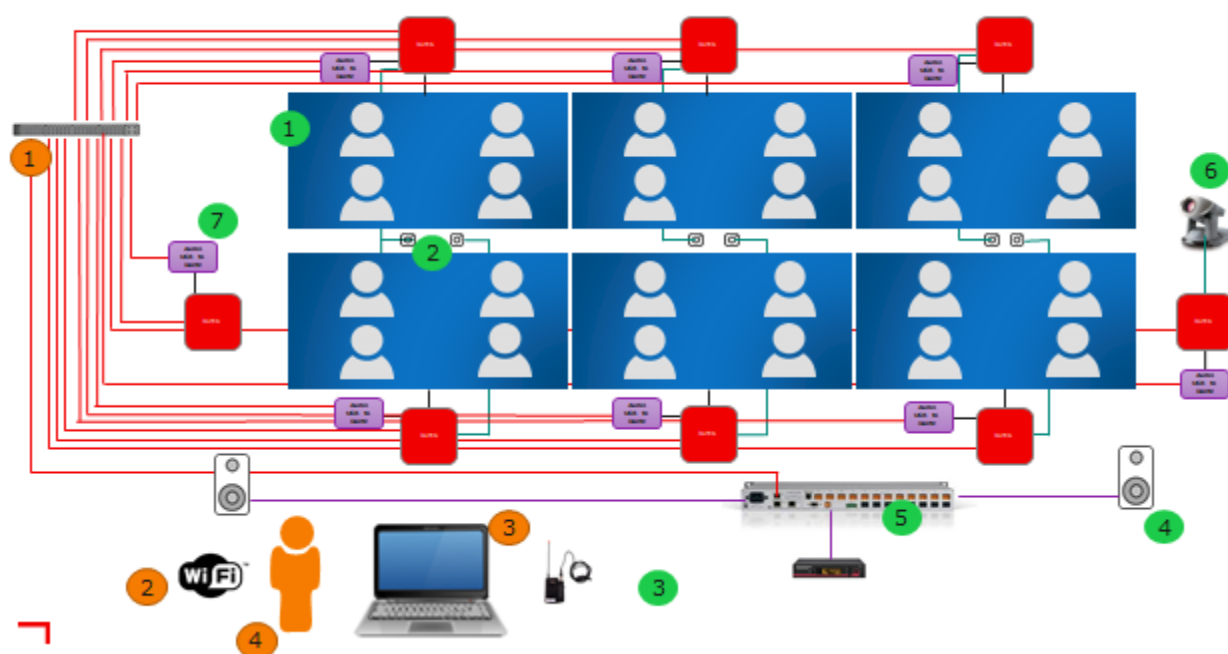
The Virtual Classroom has been created to provide an experience which is as close as or better than an in-room lecture experience. In order to create that experience a number of essential elements are listed here:

1. A physical space which is sound proofed where the teacher has sufficient distance from the displays and the ability to walk up to the displays.
2. Video lighting to capture the room and teacher perfectly.
3. Audio system to hear the teacher content and the students talking. Stereo sound allows to create a directional effect to make sure the teacher can react to students talking from the left side, middle or right side of the display wall.
4. A microphone system, preferably with close mic options for all presenters in the room. Typically there will be 2-4 microphone channels needed to cover all possible virtual classroom use cases.

5. A display wall with displays which allow students to be shown within 22-25 inch view spaces. For a typical setup with 4 students per display tile, this comes down to 46-50 inch displays.
6. A touchscreen to be used as a digital whiteboard. We suggest a 65 inch touchscreen so that users can see the teacher writing.
7. Optional touchscreen for an additional teacher user interface. The teacher can control the lecture from a BYOD (Bring your own device) but as this is usually the main device to present from, we suggest to provide an alternative control display.
8. A webcam per tile to allow students connected to that tile to see eye to eye with the teacher when talking to each other.
9. One or more teacher cameras to capture the teacher from different viewpoint

Virtual Classroom design

This is a reference design for a 24 seat capacity room. This can be increased or reduced by adjusting the numbers of tiles, tile nodes and associated USB cameras. There is a theoretical maximum of around 500 attendees to a virtual classroom session. For bigger setups we suggest to also increase the amount of room cameras and associated camera nodes.



AV BOM

1. Participant HD displays with HDMI input (participant tiles)
2. One USB camera per tile
3. Wireless or wired teacher microphone
4. Stereo active speaker set
5. Audio DSP processor with AEC and Dante capabilities
6. One or more USB 3.0 teacher camera
7. One Dante USB interface for each tile, camera manager and master node

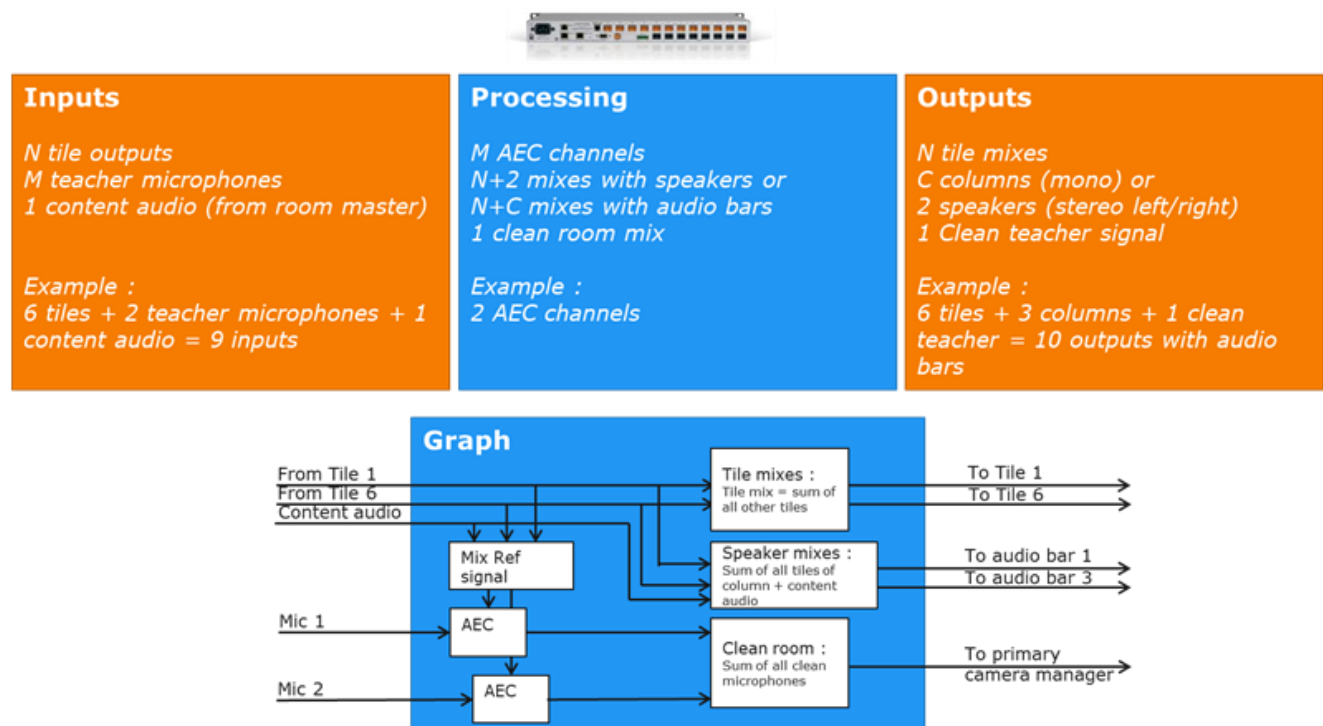
Other

1. Campus network
2. Campus BYOD Wifi
3. Teacher Laptop
4. Teacher

This setup can be complemented with additional auxiliary displays for confidence monitoring: to see the teacher content, silent questions (upcoming feature) and to check if the teacher is properly captured by the cameras.

Audio setup considerations and dimension

If you work with audio bars per display column in a 6 tile room rather than a stereo audio setup, then the sound setup looks like this:

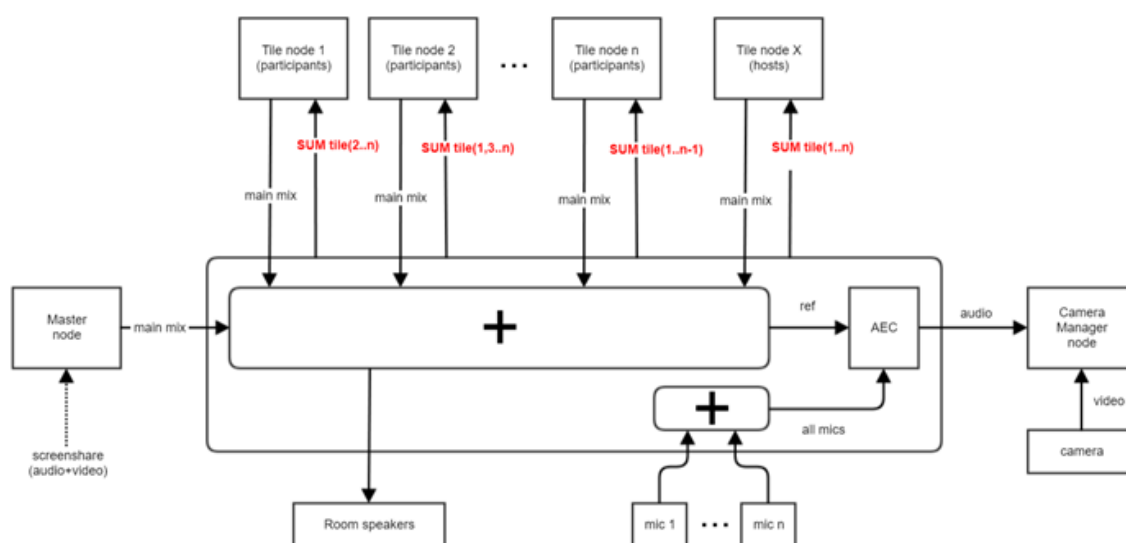


With a stereo system reduce the Speaker mix output to 2 and use panning options to position the tile audio from left to middle to right so that it feels natural to the teacher that the audio comes seemingly from the tile where the students speaks.

Audio DSP setup for Virtual Classrooms with remote host support

This requires a different approach to make sure that the remote host audio goes to all other participants, room audio and even, if there are multiple remote hosts, other hosts. For this purpose one tile must be reserved for hosts only and mixed differently as compared to the other tiles.

This boils down to providing a "mix-minus" to all participant tiles: the tile gets the sum of all incoming participant tile audio in the DSP minus the own tile audio. For the host tile this must be all the sum of all incoming participant tile audio.

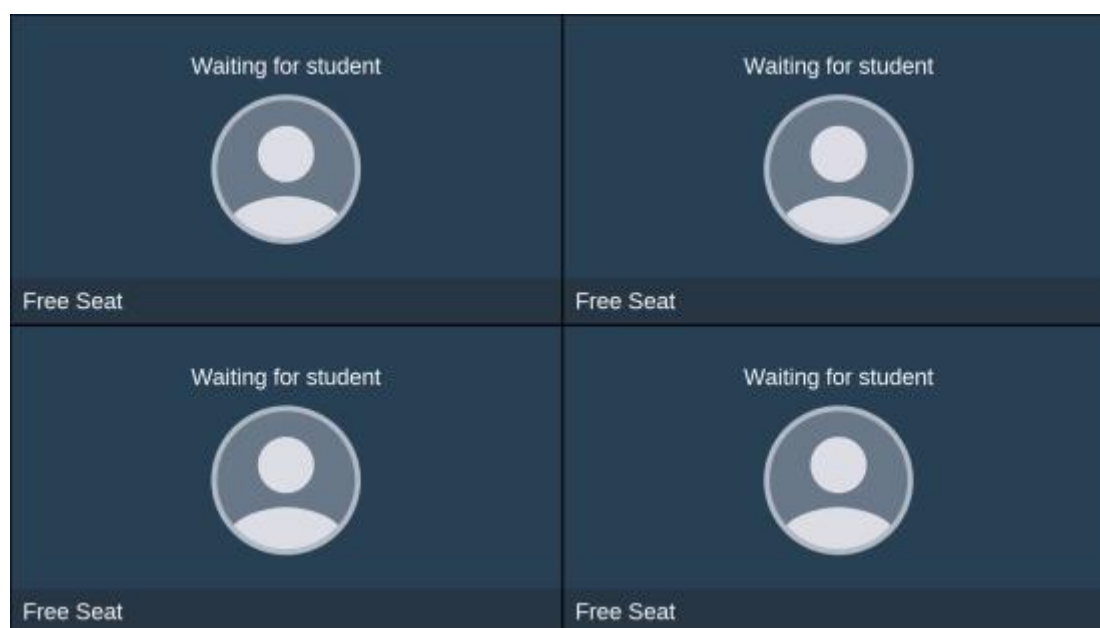


Component overview

These Nodes are exclusive to the Virtual Classroom use case:

Display Wall Tile Node

This node drives one element in a display wall and can be configured to have between 1 to 8 student seats in a grid pattern. The node sends the attached tile usb camera to the students and mixes the incoming student media streams.



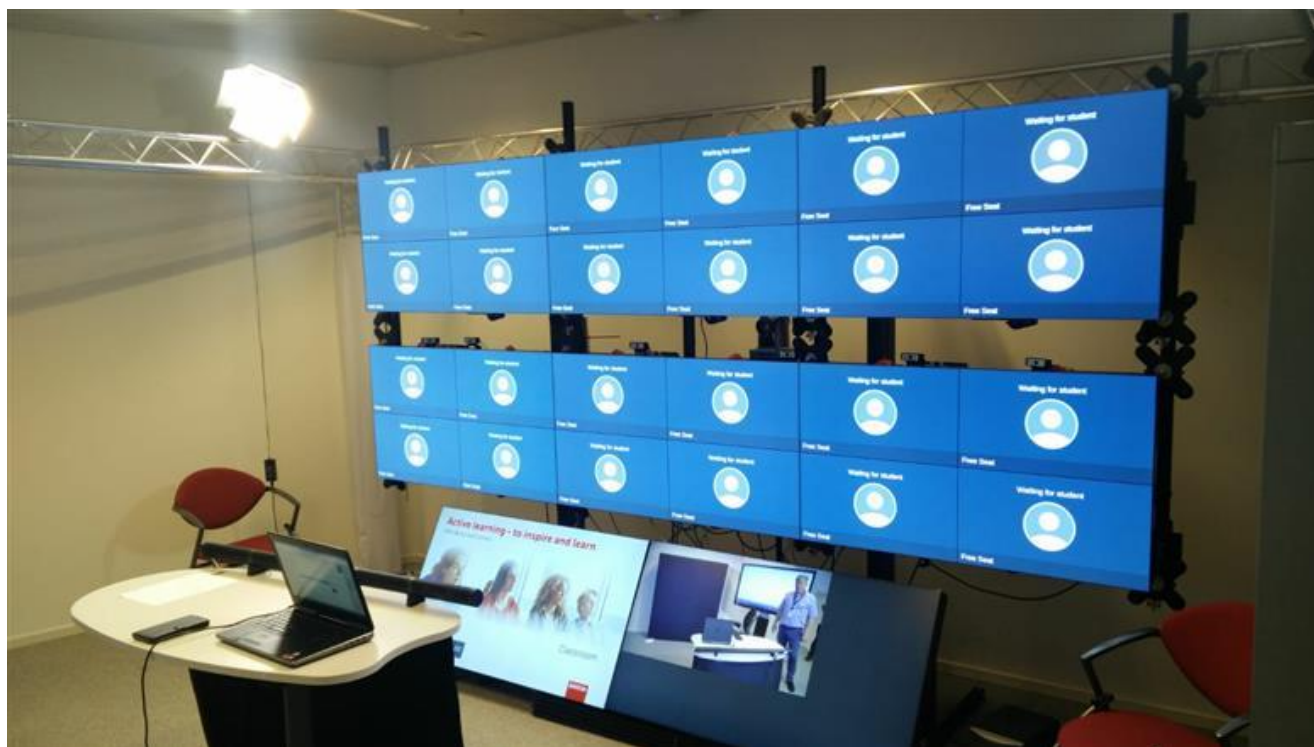
Camera Manager Node

This node provides extra camera sources to all students by encoding an USB camera. This camera is typically a good quality PTZ camera which can be controlled by an operator to allow for a more production oriented experience. The camera manager also receives the echo-canceled microphone and teacher content audio which gets distributed to all students.

Component configuration

The minimal required configuration for a functional virtual classroom setup requires at least one Display Wall Tile Node and one Master node. The minimal recommended configuration includes multiple Display Wall Tile Nodes, one Master Node and at least one Camera Node.

This setup can be enhanced with Auxiliary Nodes to be used as confidence monitors or to be attached to a digital whiteboard.



Component device settings

Display Wall Tile Node

Device settings:

Managing bu

SUPPORTLOGOUT KAREL

Working institute: bu (Change) - User portalServer Admin

GeneralManagersAuthenticationFeaturesThemeLocationsDevicesUsersUsergroupsLectures

Location

bu > Benelux Park > The Circle > 1st > Melbourne

Network

DNS name (connect)
tile1.melbourne.barco.com

Public IP
10.201.121.199

Private IP
10.201.121.199

Mac
94C69111F1E2

Hostname
nrc-94c69111f1e2

Displays

IDENTIFY SCREENS

Lock displays

Port	Device	Mode	Position
HDMI-1	DOS - BVD XX21	1920x1080@60	↓↑

Managing bu

SUPPORTLOGOUT KAREL

Working institute: bu (Change) - User portalServer Admin

GeneralManagersAuthenticationFeaturesThemeLocationsDevicesUsersUsergroupsLectures

Audio Inputs

Lock audio inputs

Device	Port	Default Volume [%]
Webcam C930e Analog Stereo	Microphone	100
Built-in Audio Analog Stereo	Microphone	0

Audio Outputs

Lock audio outputs

Device	Port	Default Volume [%]
Built-in Audio Analog Stereo	Headphones	100

CALIBRATE AUDIO



USB Cameras

 Lock usb cameras

Camera	Encoding	Resolution	Framerate	Image Settings
Logitech Webcam C930e	YUYV	640 * 360	15	<button>CHANGE</button>

Camera Manager Node

Device settings:

Managing bu

SUPPORT LOGOUT KAREL

Working institute: bu (Change) - User portal Server Admin

General Managers Authentication Features Theme Locations Devices Users Usergroups Lectures

Location

bu > Benelux Park > The Circle > 1st > Melbourne

Network

DNS name (connect)
cameramgr.melbourne.barco.com

Public IP
10.201.121.204

Private IP
10.201.121.204

Mac
94C69111F320

Hostname
nrc-94c69111f320

Displays

 IDENTIFY SCREENS

 Lock displays

Port	Device	Mode	Position
HDMI-1	DDS - OVD/KVD XXQ1	1920x1080@59.94	↓ ↑



Managing bu

SUPPORT LOGOUT KAREL

Working institute: bu (Change) - User portal

Server Admin

General Managers Authentication Features Theme Locations Devices Users Usergroups Lectures

Audio Inputs

Lock audio inputs

Device	Port	Default Volume [%]
PCM2902 Audio Codec Analog Stereo	Analog Input	100
Phnix MT202exe Analog Mono	Microphone	66

Audio Outputs

Lock audio outputs

Configuration out of sync

Device	Port	Default Volume [%]
PCM2902 Audio Codec Analog Stereo	Analog Output	100
Phnix MT202exe Analog Stereo	Analog Output	100

USB Cameras

Lock usb cameras

Camera	Encoding	Resolution	Framerate	Image Settings
Cyt-FX4	YUVV	640 * 360	30	CHANGE

To minimize bandwidth use and still provide a good experience choose medium sized resolutions like 640x360.

Master Node

Device settings:



Managing bu

SUPPORTLOGOUT KAREL

Working institute: bu (Change) - User portalServer Admin

GeneralManagersAuthenticationFeaturesThemeLocationsDevicesUsersUsergroupsLectures

Location

bu > Benelux Park > The Circle > 1st > Melbourne

Network

DNS name (connect)
main.melbourne.barco.com

Public IP
10.201.121.202

Private IP
10.201.121.202

Mac
94C69111CDF2

Hostname
nrc-94c69111cdf2

Displays

IDENTIFY SCREENS

Lock displays

Port	Device	Mode	Position
HDMI-1	MGW - USB Capture	1920x1080@60	↓↑

Managing bu

SUPPORTLOGOUT KAREL

Working institute: bu (Change) - User portalServer Admin

GeneralManagersAuthenticationFeaturesThemeLocationsDevicesUsersUsergroupsLectures

Audio Inputs

Lock audio inputs

Device	Port	Default Volume [%]
Built-in Audio Analog Stereo	Microphone	100
USB Capture HDMI+ Analog Stereo	Microphone	100

Audio Outputs

Lock audio outputs

Device	Port	Default Volume [%]
USB Capture HDMI+ Analog Stereo	Headphones	100
Built-in Audio Digital Stereo (HDMI)	HDMI / DisplayPort	75





Location settings for the Virtual Classroom room configuration

Display Wall Tile Node

Set the role to Display Wall Tile Node.

The display can be configured to show the Remote Student Display.

There are 3 parameters required:

- **Order:** The tile order number. The system will add new participants first on the tile with the lowest order number and start populating the next tile when the first tile is full of connected participants. The tiles must be numbered between 1 and 99. There is no requirement to start numbering at 1.
- **Viewport Columns:** enter how many columns are required in the grid. Minimum entry is 1, maximum is 4.
- **Viewport Rows:** enter how many rows are required in the grid. Minimum entry is 1, maximum is 4.

Remark that although up to 16 seats can be shown on the tile this way, the system might not support that many per actual tile.

Managing bu

SUPPORTLOGOUT KAREL

Working institute: bu (Change) - User portal

Server Admin

GeneralManagersAuthenticationFeaturesThemeLocationsDevicesUsersUsergroupsLectures

Display Node "Tile4" : Display Wall Tile Node

CHANGE ROLE

Displays

Device	Extends Previous	Title	Resolution	Role	Touch	Parameters
HDMI-1		Remote Student Display	1920 x 1080	Remote Student Display		Order6 Viewport Columns2 Viewport Rows2

Audio Inputs

Device	Title	Port	Role
Built-in Audio Analog Stereo		Microphone	Not Used

Managing bu

SUPPORTLOGOUT KAREL

Working institute: bu (Change) - User portal

Server Admin

GeneralManagersAuthenticationFeaturesThemeLocationsDevicesUsersUsergroupsLectures

Audio Inputs

Device	Title	Port	Role
Built-in Audio Analog Stereo		Microphone	Not Used
Webcam C930e Analog Stereo		Microphone	Not Used

Audio Outputs

Device	Title	Port	Role
Built-in Audio Analog Stereo		Headphones	Main mix (all sources)

USB Cameras

Camera	Title	Role	Stream	Use locally	Audio
	Seat 4				



Managing bu

SUPPORTLOGOUT KAREL

Working institute: bu (Change) - User portalServer Admin

GeneralManagersAuthenticationFeaturesThemeLocationsDevicesUsersUsergroupsLectures

USB Cameras

Camera	Title	Role	Stream	Use locally	Audio
Logitech Webcam C930e	Seat 4	Teacher Camera			No audio

Wallpaper

Wallpaper

Inherited from parent

BARCO

SAVE

Display Node "Tile6" : Display Wall Tile NodeCHANGE ROLE

Camera Manager Node

Set the role to Camera Manager Node

The Camera Manager Node takes in echo-canceled audio input from the room microphones mixed together with the teacher content from the master node (via an external mixer and echo-canceller). Set the connected audio input to "Aux in".

Display Node "CameraManager" : Camera Manager NodeCHANGE ROLE

Displays

Device	Extends Previous	Title	Resolution	Role	Touch	Parameters
HDMI-1		Camera Manager Display	1920 x 1080	Camera Manager Display		

Audio Inputs

Device	Title	Port	Role
PCM2902 Audio Codec Analog Stereo		Analog Input	Not Used
Phnx MT202exe Analog Mono		Microphone	Aux in

Managing bu

SUPPORT LOGOUT KAREL

Working institute: bu (Change) - User portal

Server Admin

General Managers Authentication Features Theme Locations Devices Users Usergroups Lectures

Audio Outputs

Device	Title	Port	Role	
PCM2902 Audio Codec Analog Stereo		Analog Output	Not used	▼
Phnx MT202exe Analog Stereo		Analog Output	Main mix (all sources)	▼

USB Cameras

Camera	Title	Role	Stream	Use locally	Audio	
Cyt-FX4	Melbourne - Teacher Camera	Teacher Camera	▼ ☐	☐	No audio	▼

Wallpaper

Wallpaper

Master Node

Set the role to Master Node

The master node has a USB frame grabber attached to create a necessary loop from the output to a usb input in order to be able to capture and transmit the teacher content in the room. Future firmware release (NRC v1.8+) will improve with a software solution for this frame grabber.

Display Node "Master" : Master Node

CHANGE ROLE

Displays

Device	Extends Previous	Title	Resolution	Role	Touch	Parameters
HDMI-1		Main Display	1920 x 1080	Main Display	▼ ☐	

Audio Inputs

Device	Title	Port	Role	
USB Capture HDMI+ Analog Stereo		Microphone	Aux in	▼
Built-in Audio Analog Stereo		Microphone	Not Used	▼



Audio Outputs

Device	Title	Port	Role	
USB Capture HDMI+ Analog Stereo		Headphones	Not used	▼
Built-in Audio Digital Stereo (HDMI)		HDMI / DisplayPort	Main mix (all sources)	▼

USB Cameras

Camera	Title	Role	Stream	Use locally	Audio		
USB Capture HDMI+	Melbourne - Teacher Content	Teacher Content	▼	☐	☐	USB Capture HDMI+ Analog Stereo	▼

Audio setup and calibration – [\[KB7751\]](#)

Audio setup

Basic principles

weConnect is a flexible system that allows to reuse the equipment in a classroom for different lecture types. For example, a connected classroom might be used as a simple classroom in one lecture, while in the next lecture the same equipment is used in an overflow type lecture.

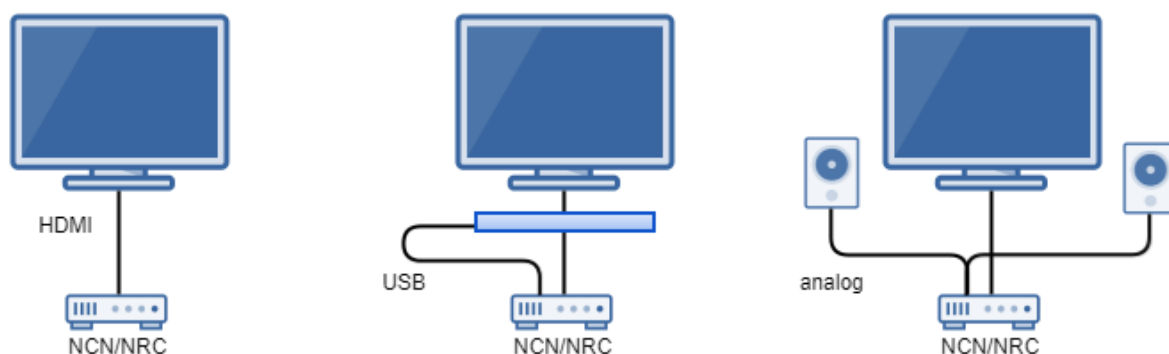
The basic principle in weConnect is that the audio (hardware) setup and wiring is common between the different supported use cases (= room roles) and there is no rewiring or re-adjustment needed when switching from one lecture type to another. In order to achieve this, two basic principles apply:

- For each room role configuration, a specific role is assigned to each audio input of all devices in the selected room location.
- Each device is calibrated individually meaning that all audio levels of the inputs and outputs of a device are calibrated independent of other devices.

Basic audio setup

In the most simple case the audio setup consist of the audio system being connected directly to the (master) node in the room. The picture below shows the 3 possibilities for a basic audio setup.

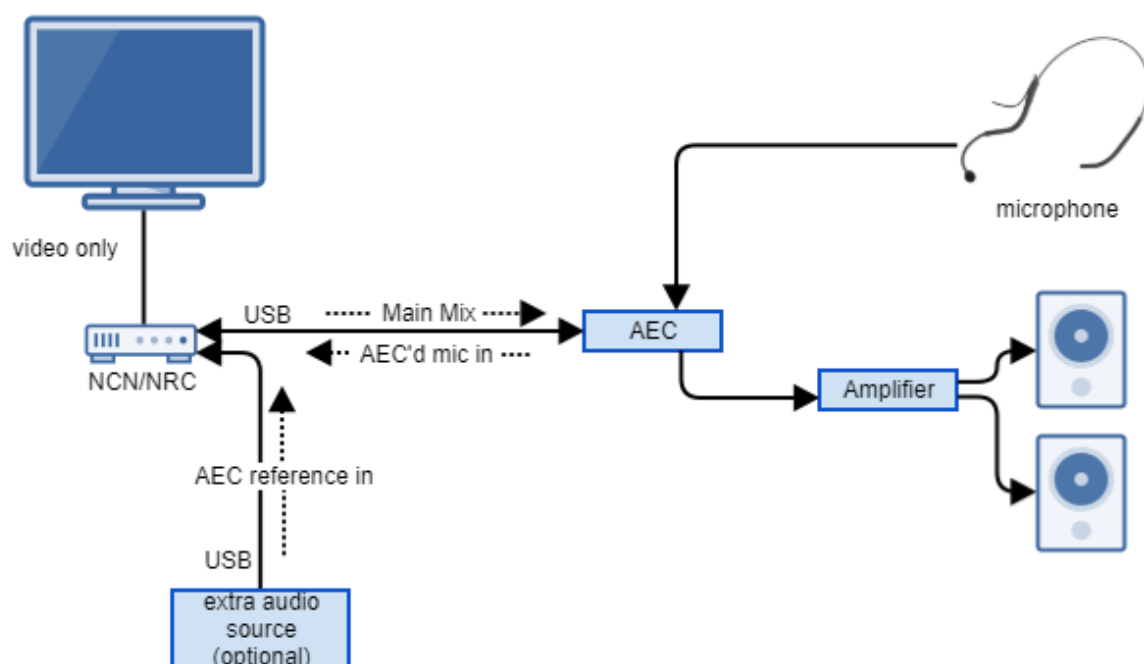
- Audio via HDMI/DisplayPort to a screen that has built in speakers
- Audio via USB (eg. USB audio bar, USB to analog convertor,...)
- Audio via analog out (3,5mm stereo jack)



The first 2 options are recommended in case of eg. POD nodes in a collaboration room. Although it is possible to use a 3.5mm mini stereo jack connected to the analog audio output, we recommend using USB based audio (eg. using a USB to analog converter) especially in more complex setups that also use a microphone.

Advanced audio setup with AEC (Acoustic Echo Canceller)

Room configurations that are used in multi-location type lectures (eg. Master Overflow Room, Overflow Room, Virtual Classroom) require the use of an AEC (=Acoustic Echo Canceller) as part of the setup in order to filter out the audio coming from the room speakers that is picked up by the teachers microphone. In this way a clear "unpolluted" teacher microphone signal is presented to the node that streams out this audio to the remote location(s) and or to the remote participants, making it easy for the remote participants to understand the teacher. The picture below shows how such a setup looks like:



This kind of setup is used for rooms for which room configurations that include streaming have been configured (eg. Master Overflow Room, Overflow Room, Virtual Classroom). The NCN/NRC in the picture above can be the Master Node in case of a Master Overflow Room or an Overflow room, or can be a Camera Manager Node or a Master Node in case of a Virtual Classroom (take the node to which the main teacher camera is attached).

Please note that for optimal echo cancelling the speakers **MUST** be connected to the audio out of the AEC (not to the audio out of the node itself). Certain AEC models have microphone, amplifier and speakers built in into a single device.

In certain cases it is desired to insert an extra audio source to be output through the room speakers. For example this can be the audio coming from the display wall Tile Nodes in a Virtual Classroom setup. In a Virtual Classroom setup, the AEC is to be connected to the Camera Manager or Master Node (the node to which the main teacher camera is connected) and the audio of all Tile Nodes of the display wall (mixed) is inserted into the same node as extra audio source ("AEC reference in" role) so that the participants displayed on the Tile Nodes can be heard through the room speakers and are cancelled out of the teacher microphone.

In the room configuration, the input role to be used for the microphone signal coming from the AEC is "AEC'd microphone in" except for a Camera Manager Nodes and Tile nodes where "Aux in" is to be used for the same. The input role to be used for an extra audio source is

“AEC reference in”. The output role to be used for the audio output presented by the AEC is “Main mix”. All local audio of the node (eg. audio from screen sharing) and the inserted audio are mixed and sent to the main mix and hence will come out of the room speakers.

Conclusion

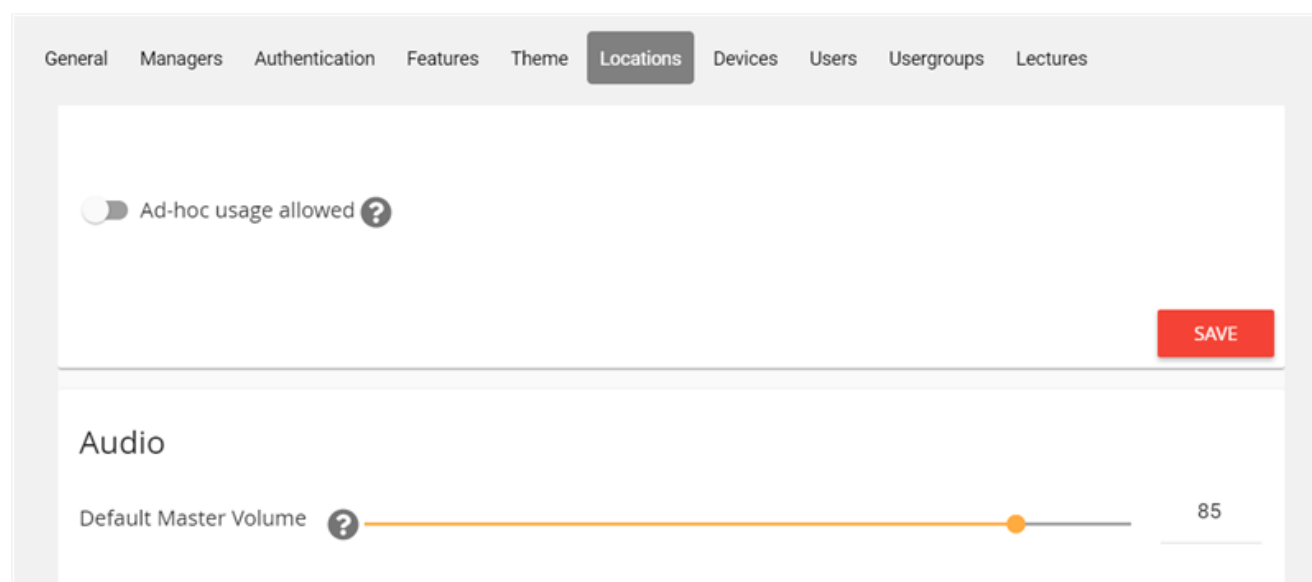
The basic audio setup as presented above is only usable for lecture types that do not use any microphone audio streaming between multiple locations eg. a huddle space, interactive huddle space, a classroom, a collaborative room. However, for all lecture types that include streaming of the teachers voice, the advanced setup is to be used. Using the advanced setup still allows configuring basic room roles and starting the corresponding lectures for that room location, because the input role of the inputs that are not required for the basic use case can simply be set to “Not used” for that room role.

Audio Calibration

The weConnect system allows calibrating audio volumes at different levels and offers a dedicated Audio Calibration dialog allowing to remotely (even offsite!) calibrate input gains and monitor the audio present on different inputs of a selected device.

Default Master Volume

A first setting is the Default Master Volume of a room location. This is a setting on room location level (not on device level). It is the default value to which the master volume (controlled by the volume slider in the teacher UI) is set at the start of each new lecture.



The Master Volume is applied to all the devices in the room location that output audio, eg. Master Nodes, POD Nodes, Tile Nodes etc. Moving the master volume slider in the teacher UI will affect all these devices in the room. At the start of each new lecture, the Default

Master Volume is reapplied to all these devices so that the system is reset to the default state.

Default Output Volume

Selecting a device in the Devices page of the administrator UI shows the details of this device including its hardware inputs and outputs. As shown in the picture below, for each of the hardware outputs of the device a default volume value can be set. As certain speaker devices (eg. some USB audio bars) do not have any volume adjustment, the Default Volume value in the list below allows setting the base volume for such device. Whenever a lecture is active, the volume slider in the teacher UI allows to change the volume (note that changing this volume slider will affect all the audio outputs used by all the nodes in the room), i.e. the volume set in the teacher UI is applied as a scaling factor on top of the Default Volume value of each hardware output.

Audio Outputs

 Lock audio outputs

Device	Port	Default Volume [%]
Built-in Audio Digital Stereo (HDMI)	HDMI / DisplayPort	100
CM108 Audio Controller Analog Stereo	Analog Output	100
BCC950 ConferenceCam Analog Stereo	Analog Output	100

Note: Please be aware that NCN devices do not allow using both analog and HDMI/DisplayPort audio outputs simultaneously. Plugging in a mini jack in the NCN device will result in the HDMI/DisplayPort output being disabled automatically. However using analog in combination USB or HDMI/DisplayPort in combination with USB is possible.

Default Input Volume

In a similar way as the audio hardware outputs, the page allows to set the Default Volume (Gain) of the audio hardware inputs of the selected device. At the start of a lecture, these gain values are applied for the inputs that are used in the selected lecture type (for some room configurations the input role of a certain input can be set to "Not used", in such case the input will be muted at the start of a lecture).

Audio inputs

 Lock audio inputs

Device	Port	Default Volume [%]
Built-in Audio Analog Stereo	Microphone	100
CM108 Audio Controller Analog Mono	Microphone	53
BCC950 ConferenceCam Analog Stereo	Headset Microphone	115

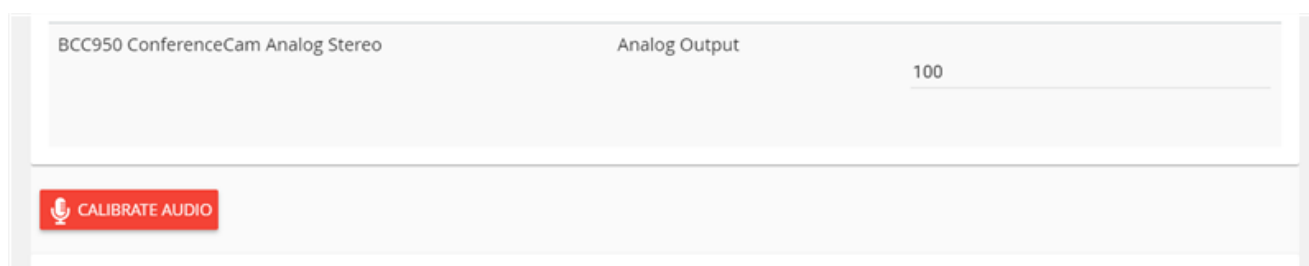
Important remark: Please note that although the values can be set using the dialog as shown in the picture above, it is recommended to adjust these input gains using the “Audio Calibration” dialog that is explained in next chapter.

Audio Calibration dialog

The basic philosophy applied in weConnect is that each device is calibrated individually, independent of any other device. Two types of items can be calibrated:

- The default volume of screen sharing
- The default volume (gain) of each of the hardware inputs of a device

Judging whether a volume is set correctly is not easy, because there are many intermediate places that influence the volume that eventually comes out of the speakers. To make it easy to adjust, a dedicated Audio Calibration dialog is available as part of the weConnect Administrator UI. It can be launched by pressing the “Audio Calibration” button that is below the Audio Outputs section:



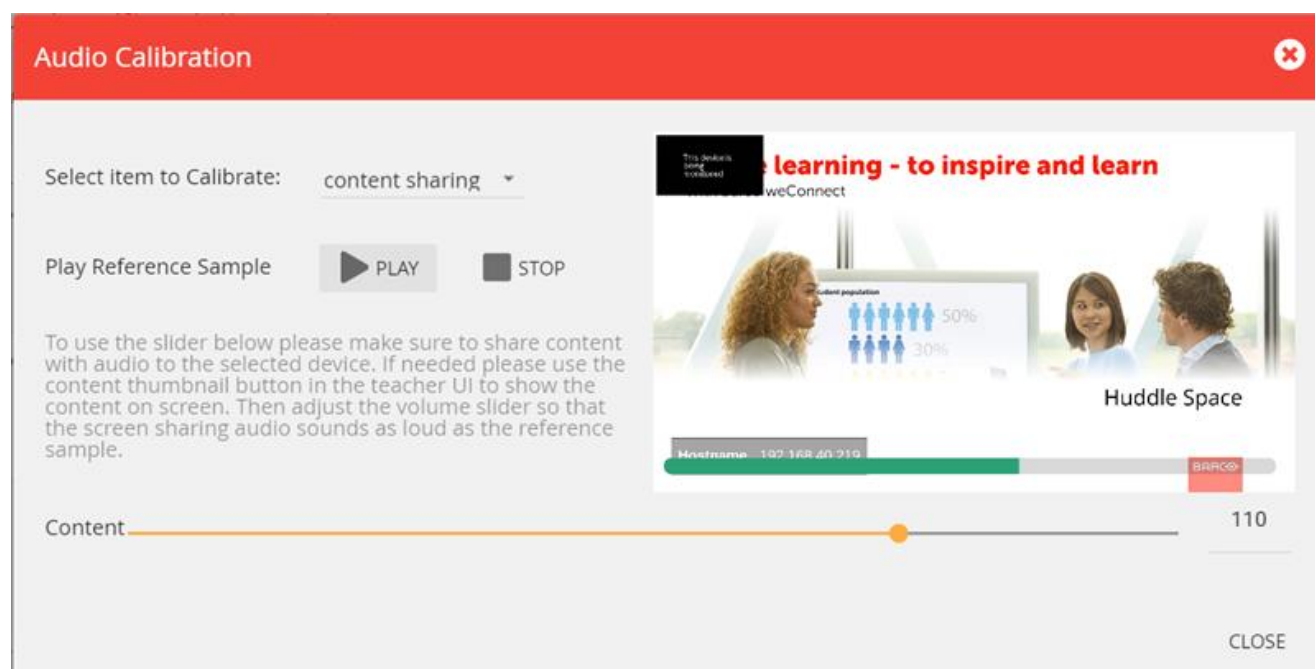
This dialog allows to remotely adjust the default volumes as the audio (and video) of the selected device is streamed towards the machine (eg. laptop) on which the Calibration Dialog runs. This makes it possible to remotely assist a room during installation without having to go onsite. Of course in case of microphones we still need someone to speak into the microphone when adjusting that volume. Special “Reference samples” that can be played give a reference of the expected volume and make things easy

because all that needs to be done is adjusting the gains so that the item to be calibrated sounds as loud as the reference sample.

The “Calibration Audio” dialog can be launched in two cases:

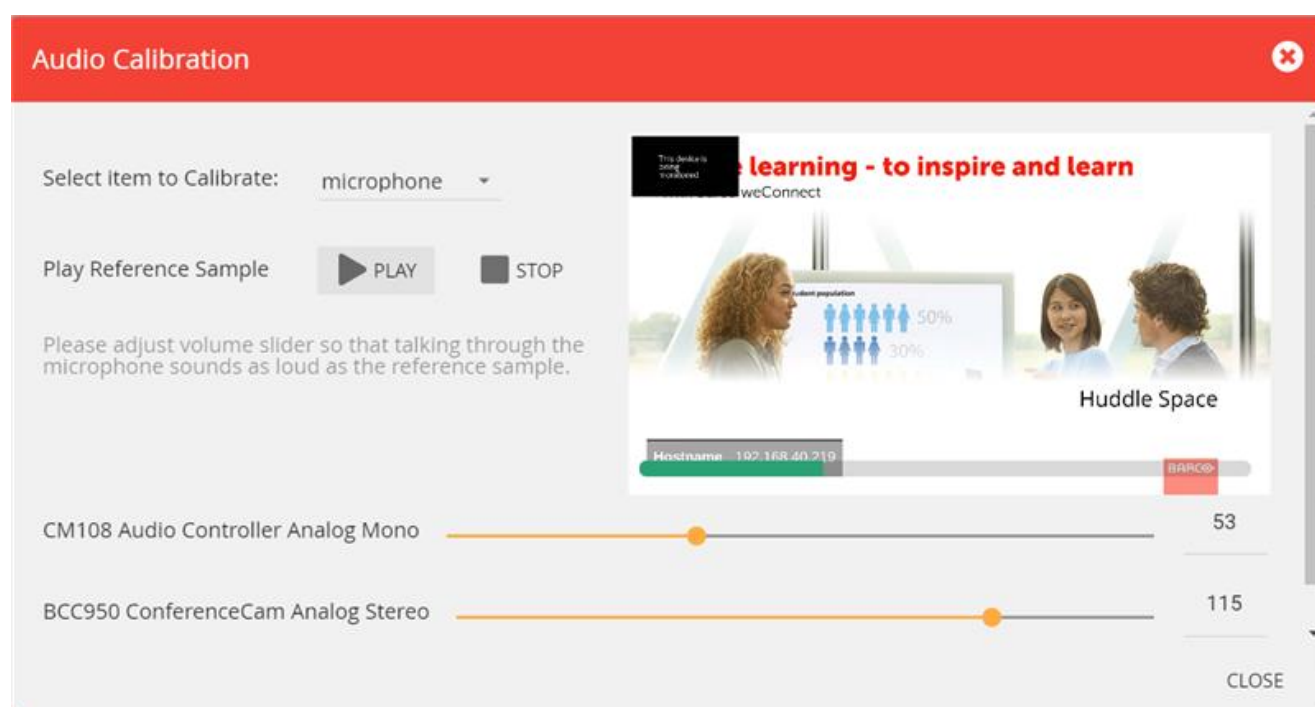
- When no lecture is active. This will allow calibrating the default volume of all the inputs used over all the room roles that have been configured. If the room configuration to be activated when no lecture is active is set to “Huddle Space” (see “room configurations” page in the administrator UI – a “Huddle Space” room configuration must be configured for this) then the default screen sharing volume can also be calibrated. In case the room configuration to be activated when no lecture is active is set to “Idle”, only the hardware inputs used in the configured room roles can be calibrated but not the screen sharing volume (as screen sharing is not possible when in “Idle” mode).
- When a lecture is active: This will allow calibrating the default volumes of all the hardware inputs used in the active room role (=type of lecture that has been started) and the screen sharing volume.

The screenshot below shows the calibration dialog. The dropdown box in the dialog allows choosing whether to calibrate the screen sharing (=content sharing) volume or the microphones (=hardware inputs) volumes.



In order to calibrate the screen sharing volume it is necessary that screen sharing is active and on screen. In order to do so, please use the MirrorOp application or the browser based content sharing and share content with audio. Make sure the content is shown on screen (can be checked in the viewer of the Audio Calibration dialog). In case of MirrorOp it can be required to use the teacher UI to launch the source on screen. The audio can now be heard on the computer that runs the calibration dialog (please make sure the speakers of this computer are not muted), even if this computer is in a different location. Now in order to calibrate the volume, press the Play button in order to play the reference sample and adjust the Content slider until the volume of the screen sharing is similar to the volume of the reference sample.

In order to calibrate the volume of microphones and any audio connected to one of the hardware inputs of the selected device, change the selection in the dropdown box to microphone. Now you will see as many sliders as there are audio inputs in use for the active lecture type or over all configured lecture types in case no lecture is active. The dialog now looks as in the picture below:



In order to calibrate an input, first stop the screen sharing, if still connected. Then first put all the sliders to zero and while playing the reference sample, open up one of the sliders until the audio sounds as loud as the reference sample. Again the audio can be heard on the computer that runs the Calibration Dialog. After all input gains have been calibrated the dialog can be closed. You will see that the Default Volumes as set in the Calibration Dialog

have now been saved and are visible in the Audio Inputs section of the main page from where the Calibration Dialog was launched.

Note: the Calibration Dialog is a handy tool to remote assist and locate and resolve audio problems as it provides a way to monitor the audio at the inputs of the device, even while a lecture is running and without having to go to the room where the device is located.

Lecture Management – [\[KB7752\]](#)

Browsing the lectures

If no lectures have been planned, started or ended, then this will be empty. Otherwise, it will look similar to this:

ID	Title	Room	Status	Active users	Ad-hoc	Start Date	End Date	Recording	Download
ewK6AjNaC9oXhQ35	Session by Barco University	TR Melbourne	●	n/a		10/2/20 13:16	10/2/20 13:21	●	👤
LC5B3447ym4s9B2w	Session by Barco University	TR Melbourne	●	n/a		10/2/20 12:01	10/2/20 12:02	●	👤
fapXPPpPZWD38H	Session by Barco University	TR Melbourne	●	n/a		10/2/20 11:14	10/2/20 11:50	●	👤
Ns2BNeok3PqbThyp	Python Essentials	TR Harvard	●	0		10/2/20 9:11	10/2/20 17:22	●	👤

Filtering

The lectures can be filtered based on a number of parameters:

- Title: search on lecture title
- Start date: lecture started on that date
- End date: lecture ended on that date
- Status: planned, started, finished
- Location: selecting a location only returns the lectures which were performed at that location

Actions

Lectures can be removed by selecting them, clicking the 'Actions' button and clicking 'Remove'. Multiple lectures can be selected at the same time and all the lectures on this page can be selected by pressing the checkbox on the top-left of the list.

Moreover, if a Session is active for i.e 'Python Essentials' it can be stopped or removed by clicking the Actions button available in this page. In additions, sessions can be filtered also based on Recording Option.

Note 1

Lectures started without a specific start and end time will by default last for 2 hours. 5 minutes before the 2 hours are over the system will check if the system is being used. To be considered an active lecture a teacher must be active by having a browser open, running weConnect. Starting a quiz or showing content on the main classroom display will not trigger the end of the lecture. The teacher will be presented with a dialog to extend the lecture with another 15 minutes if no activity has been detected. The lecture will end when the teacher does not answer positively to the extension request.

Note 2

For the UI node functionality and the quiz/poll features to work as intended, it is important to have the time and time zone for the display nodes set correctly. This can be by setting the bios clock correctly during install. We suggest to set the clock to UTC time.