O3-HUB

Application Guide
Edition 1.9

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Introduction

This guide describes how to set up and control the O3-HUB sensor hub using Delta Controls' O3 integrated room controller.

It applies to the following sensor hub models:

- O3-HUB
- O3-HUB-En868
- O3-HUB-En902

- O3-HUB-2xP
- O3-HUB-En868-2xP
- O3-HUB-En902-2xP

About the O3 System and Sensor Hub

The O3 is a flexible, modular room control system that integrates HVAC, dimmable lighting, door access, and motorized blind control in a single controller.

As part of the O3 system, the O3 sensor hub combines multiple temperature sensors, humidity sensors, occupancy detection, and wireless integration in a single device, providing occupant- and location-based control for the modern office or meeting space.

Connected to an O3-DIN controller, the hub's sensor input values are mapped to BACnet objects on the controller, which can then be programmed in GCL+.

2xP models come with two universal points that you can configure as inputs or outputs in enteliWEB.

Hubs equipped with EnOcean radios can receive wireless EnOcean data from up to 32 EnOcean devices.

All sensor hubs come with an IR blaster for A/V remote control, as well as a Bluetooth beacon that enables users to control room comfort settings from their phones using the O3 mobile app.

The following diagram depicts a typical O3 system:
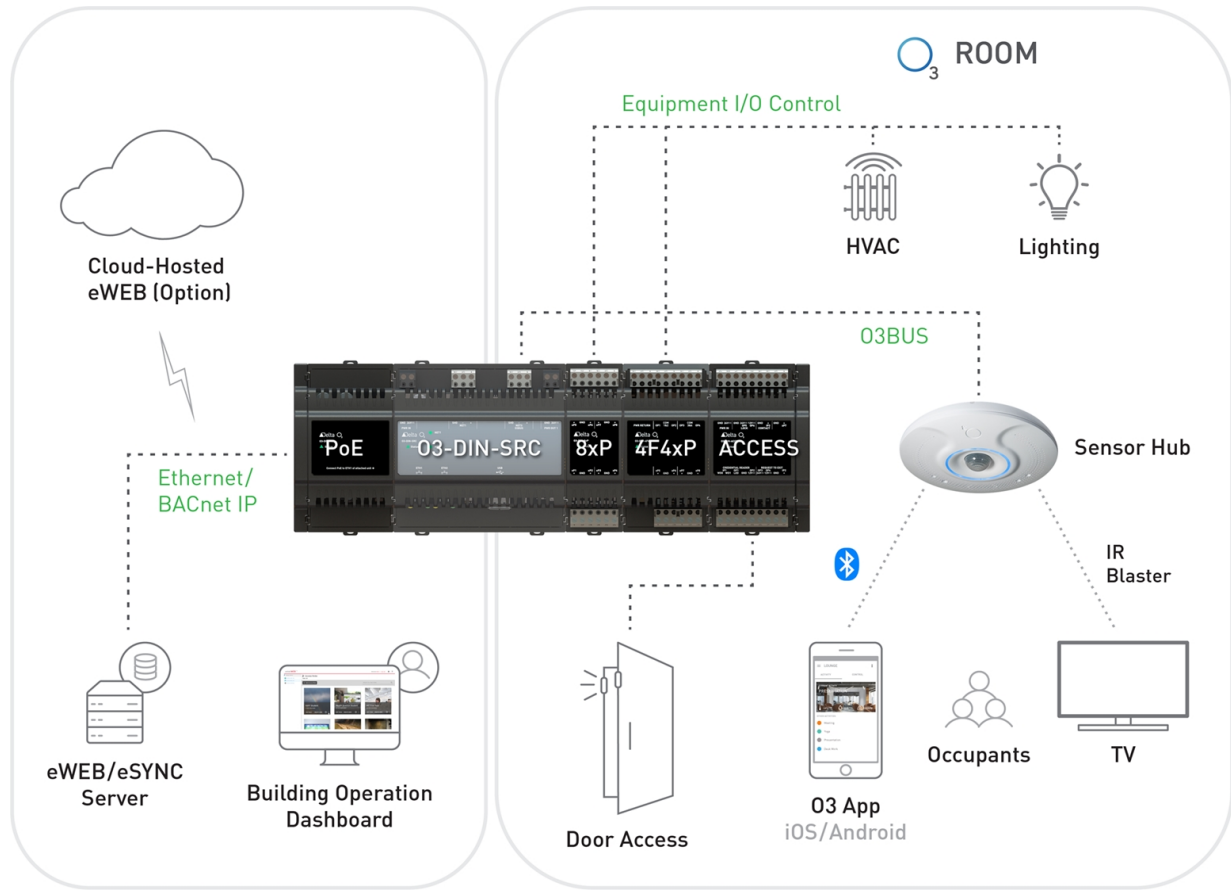
Setting Up the Sensor Hub

Main Steps to Set Up the Sensor Hub After Installation

This section describes how to set up the sensor hub.

During an installation, it's assumed a unique address between 2 and 9 is assigned to the sensor hub using the sensor hub's rotary switch. The sensor hub cannot be software addressed.

1. Enable CANbus protocol on the O3-DIN controller's NET3 port.

   When you connect the O3-HUB to the NET3 port of the controller, make sure the NP3 object on the controller is set to support CANbus protocol type. You also need to select Activate in the Command field in the same object.

   After a connection has been successfully established between the sensor hub and the O3-DIN controller, the IOM object displays an online status for the sensor hub.

2. You can create the object database manually in enteliWEB for the sensor hub, or you can auto-create the object database from an existing template using the Database Creation tool (enteliWEB 4.12 and higher).

   The database includes BACnet objects that map to the sensor input values on the sensor hub. Similar objects are also used to control the LED light ring and speaker. These objects follow a specific instance numbering format. A full list of BACnet objects for the sensor hub can be found at the Object Instance Numbers on the Sensor Hub topic.

3. Create GCL+ programs in enteliWEB for room control.

   These programs use the BACnet objects that you've created to execute control sequences.

4. (Optional) Configure the sensor hub to receive EnOcean data from EnOcean devices. This step only applies to the O3-HUB-Enxxx models.

   See the O3 EnOcean application guide.

5. (Optional) Configure room settings for the O3 mobile app.

   If you are employing the O3 mobile app on the same site, see Getting Started with the O3 App and Deploying the O3 App for Building Occupants for more information.

Creating an Object Database

BACnet objects are used to map the O3-HUB input sensor values and configure light ring features. These are created in enteliWEB on the O3-DIN controller that controls the sensor hub.

You can create objects for the sensor hub manually or you can auto-create them from an existing template using the Database Creation tool.

The following tables list all the objects for the sensor hub.

Note: The letter "s" in the object instance numbers represents the sensor hub's address switch setting (2–9).

Object Instance Numbers for Sensor Hub Input Sensors

Object Name	Instance Number	Description
Room Temperature	AI30s000	Calculated room temperature at 1 m (3 ft) above the floor. This is a composite value taken from the hub's internal temperature sensors (AI30s010 and AI30s012) and the infrared temperature sensor (AI30s011). Range −40°C to 125°C (−40°F to 257°F).
		For optimal accuracy, the temperature can be calibrated to a specific reference point in the room. See Calibrating the Sensor Hub Temperature for more details.
Estimate Occupant Humidity	AI30s001	Calculated humidity (0–100%) at 1 m (3 ft) above the floor.
Occupancy	BI30s002	Active state = room occupied. Set the Binary Device Configuration property to Occupied/Unoccupied. See Occupancy States below for more details about how occupancy is determined.
Motion Sensor	BI30s003	Active state = motion detected. Set the Binary Device Configuration property to Motion/None.

Object Name	Instance Number	Description
Light Level	AI30s004	Intensity of light being measured (0–65535 lux).
Color Temperature	AI30s005	Color temperature of light being measured (0–65535 K).
Red Light Intensity	AI30s006	Red component of light being measured. No units but scaled from 0–65535.
Green Light Intensity	AI30s007	Green component of light being measured. No units but scaled from 0–65535.
Blue Light Intensity	AI30s008	Blue component of light being measured. No units but scaled from 0–65535.
Humidity at Ceiling	AI30s009	Humidity at ceiling height (0–100%), read from the hub's humidity sensor.
Internal Temperature	AI30s010	Temperature at ceiling height, read from the hub's humidity sensor. Range −40°C to 125°C (−40°F to 257°F).
IR Temperature	AI30s011	Average temperature of all room surfaces in the sensor's field of view, read from the hub's IR sensor. Range −40°C to 125°C (−40°F to 257°F).
Internal Temperature 2	AI30s012	Temperature at ceiling height, read from the hub's digital temperature sensor. Range −40°C to 125°C (−40°F to 257°F).
Sound Pressure Level	AI30s016	Unfiltered audio levels (0–120 dB) across the entire spectrum reported in dB SPL scale. Read-only.

Object Name	Instance Number	Description
Motion Sensitivity	AV30s033	PIR motion sensor sensitivity, expressed as a percentage (0–100%). 100% = maximum sensitivity, 0% = minimum sensitivity. Default value is 80%. May need adjusting based on room size and layout.
Occupancy Audio Sensitivity	AV30s036	Sensitivity of the audio portion of the occupancy algorithm, expressed as a percentage (0–100%). 100% = maximum sensitivity, 0% = minimum sensitivity. Default value is 80%.
Occupancy Inactivity Period	AV30s038	The amount of time (in seconds) it takes the hub to return to the unoccupied state when no motion and no audio activity is detected. Default value is 300 seconds (5 minutes).
Occupancy Audio Retrigger Period	AV30s039	The amount of time (in seconds) that activity sounds can cause the hub to remain in the occupied state after motion is detected. Default value is 1200 seconds (20 minutes). Measured from most recent motion detection event.

Occupancy States

A state change from unoccupied to occupied is triggered when motion is detected in the room, or by a combination of motion and sound. *Sound alone does not trigger a state change*.

The occupancy state is extended when either motion or sound is detected in the room. This sound level has to be above the baseline audio level that the sensor hub has previously established. In addition, new sounds that fall outside of the Occupancy Audio Retrigger Period (set by the value of AV30s039) are not allowed to extend the occupancy state. This feature (available with firmware 4.6 and later) reduces artificial extension of the occupancy state by background noise.

If no motion or sound is detected after a set amount of time (the Occupancy Inactivity Period), the sensor hub reports the room as unoccupied. This sound level has to be below the baseline audio level that the sensor hub has previously established. You can change the Occupancy Inactivity Period using object AV30s038.

Object Instance Numbers for Sensor Hub Speaker, Bluetooth, and EnOcean

Object Name	Instance Number	Description
Speaker Volume	AV30s005	Sets the speaker volume in the range 0–10. Default value is 0 (Off).
Play Sound	MV30s006	Plays sounds defined by the associated MIC. Set to 1 (Idle/Off) for no sound. Values 2 to X are predefined sounds. Reverts to Idle after a sound is played. See Loading Custom Sounds to the Sensor Hub.
Sound List MIC	MICx	Contains predefined stock sounds. Available through the Database Creation tool or via download from the sensor hub product page on George Support (O3-HUBScaleObjects.zip).
Sound Repeat	AV30s008	Sets how many times a sound should by played. 0 indicates indefinite repeats until changed.
Bluetooth Transmit Power	MV30s024	Sets the strength (maximum transmit power) of the Bluetooth beacon. Default value is 4 dBM.

Object Name	Instance Number	Description
Bluetooth Transmit Power MIC	MICx	Contains the maximum transmit power states used by the MV30*s*024 object. There are 8 allowable states. • −40 dBm • −8 dBm • −20 dBm • −4 dBm • −16 dBm • 0 dBm • −12 dBm • 4 dBm Available through the Database Creation tool or via download from the sensor hub product page on George Support (O3-HUBScaleObjects.zip).
Enable BLE	BV30*s*026	When set to On, the Bluetooth Low Energy (BLE) beacon is enabled and broadcasting.
Enable EnOcean	BV30*s*030	When set to On, EnOcean communication is enabled on sensor hub models equipped with EnOcean antennae. Goes into fault if not an EnOcean hub. Default value is Off.
Bluetooth Beacon MAC Address	CSV30*s*040	Displays the MAC address of the sensor hub's Bluetooth beacon. This object needs to be created so that the O3 app is aware of the room in which the sensor hub is installed.
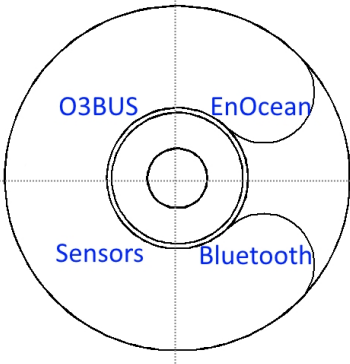
Object Name	Instance Number	Description
EnOcean ID	CSV30s044	Displays the EnOcean base ID of onboard chip. The EnOcean sending ID is determined by adding the base ID to the number of the sending device. For example, if a hub's EnOcean ID is ff9db180 and you are sending from EnOcean device 4, the sending ID would be ff9db184. If the EnOcean device being used were 12, the sending ID would be ff9db18c, since the value is in hexadecimal.

Object Instance Numbers for Sensor Hub Light Ring Display

These objects control the LED light ring's brightness and behaviors or patterns.

Object Name	Instance Numbers	Description
Light Ring Red	AV30s000	Sets the red component of RGB value of light ring (0–255). See Creating a Custom Light Ring Color on the Sensor Hub for more details.
Light Ring Green	AV30s001	Sets the green component of RGB value of light ring (0–255). See Creating a Custom Light Ring Color on the Sensor Hub for more details.
Light Ring Blue	AV30s002	Sets the blue component of RGB value of light ring (0–255). See Creating a Custom Light Ring Color on the Sensor Hub for more details.
Light Ring Brightness	AV30s004	Sets the overall brightness of the light ring (0–100%).

Object Name	Instance Numbers	Description
Light Ring Pattern	MV30s003	Sets the light ring pattern to one of 15 states defined by the Light Ring Patterns MIC. BV30s007 must be disabled for MV30s003 to work. By default, the light patterns use the factory colors listed in the Sensor Hub Light Ring Pattern States table below unless a custom color is defined by the RGB AVs (AV30s000, AV30s001, and AV30s002).
Light Ring Patterns MIC	MICx	Contains predefined light ring patterns used by the MV30s003 object. Available through the Database Creation tool or via download from the sensor hub product page on George Support (O3-HUBScaleObjects.zip). See the Sensor Hub Light Ring Pattern States table below for the complete list of light ring patterns.
Light Pattern Repeat	AV30s009	Sets how many times a light ring pattern should repeat. 0 indicates indefinite repeats until changed.
Enable RGB Control	BV30s007	Sets the light ring to the custom color defined by AV30s000, AV30s001, and AV30s002. Overrides MV30s003 (light ring pattern).

Object Name	Instance Numbers	Description
Enable Status Mode	BV30s029	When set to True/On, the light ring displays the hardware status of the major components of the sensor hub. The light ring is divided into four quadrants, with each quadrant displaying the status of a specific component. Green indicates normal functioning, yellow indicates a component is disabled, and red indicates a failure or error. For example, when the sensor hub is powered on for the first time, it is normal to see green for all quadrants except the EnOcean quadrant. The EnOcean quadrant appears yellow because EnOcean is disabled by default. See the sensor hub installation guide for more details.

Sensor Hub Light Ring Pattern States

This table lists the states defined by the Light Ring Patterns MIC object. These states are supplied to the MV30s003 object that issues a command to display a specific light ring pattern. The MIC object is part of the O3-HUBScaleObjects.zip file available on the sensor hub product page on George Support.

State	Pattern Name	Description	Suggested Use	Factory Colors
1	Idle/Off	No ring pattern is displayed.		None
2	Swirl	Single spot of light spins around the ring once before the ring flashes twice. Ends with a prolonged flash that lasts for 2 seconds.		Blue
3	Fast Swirl	A faster version of the Swirl sequence.		Blue
4	Power On	Spins a single spot of light around the ring 3 times.	When the sensor hub powers on.	Green
5	Occupancy Triggered	Spins a single spot of light around the ring 3 times.	When occupancy is detected in the room.	White
6	Request Received	The ring flashes 3 times in a sequence that lasts for 2 seconds.	To confirm receipt of a room command.	Green
7	Heating Active	The entire ring fades in and out.	When the room is heating.	Red
8	Cooling Active	The entire ring fades in and out.	When the room is cooling.	Blue
9	Request Not Understood	The ring flashes 4 times followed by a prolonged light flash that lasts for 2 seconds.		Yellow
10	Error Condition	The entire ring flashes 8 times.		Red
11	Alarm Condition	Flashes alternate between both halves of the ring, for a total of 16 flashes.		Red

State	Pattern Name	Description	Suggested Use	Factory Colors
12	Christmas	The entire ring flashes and alternates between 2 colors. This sequence is repeated 8 times.		Red and Green
13	Awake	The entire ring lights up and stays lit while a spot of more intense light in the same color travels around the ring twice.		Blue
14	Power On (Alternate)	3 spots of light spin around once before the ring flashes twice. The entire ring then lights up and stays lit for 2 seconds.	When the sensor hub powers on.	Violet, Blue and Yellow
15	Occupancy Triggered (Alternate)	3 spots of light spin around once, followed by a sequence where a light spot travels down each half of the ring to the point where the 2 ring halves meet before moving back to their point of origin.	When occupancy is detected in the room.	Violet and Cyan

Object Instance Numbers for IR Blaster

Note: The IR blaster feature is available in firmware 4.6 and higher.

Using the following objects, you can set up the sensor hub's IR blaster to transmit infrared signals to control room appliances. Remote control codes using Pronto hex format are saved in CSV objects as string values. See Configuring the Sensor Hub IR Blaster for more details.

Object Name	Instance Number	Description
Send IR Blaster Code	MV30s010	Sends an IR code from CSV30s011 to CSV30s022. When set to Idle/Off (state 1), no code is sent. Reverts to Idle/Off after a code is sent.

Object Name	Instance Number	Description
IR Transmitter MIC	MICx	Contains Pronto IR codes for the IR blaster. Available through the Database Creation tool or via download from the sensor hub product page on George Support (O3-HUBScaleObjects.zip).
IR Repeat	AV30s023	Sets how many times an IR code should be sent per transmission. By default, a code is sent once per transmission.
IR Code 1	CSV30s011	Data in this object is sent out through the IR blaster when MV30s010 is set to state 2.
IR Code 2	CSV30s012	Data in this object is sent out through the IR blaster when MV30s010 is set to state 3.
IR Code 3	CSV30s013	Data in this object is sent out through the IR blaster when MV30s010 is set to state 4.
IR Code 4	CSV30s014	Data in this object is sent out through the IR blaster when MV30s010 is set to state 5.
IR Code 5	CSV30s015	Data in this object is sent out through the IR blaster when MV30s010 is set to state 6.
IR Code 6	CSV30s016	Data in this object is sent out through the IR blaster when MV30s010 is set to state 7.
IR Code 7	CSV30s017	Data in this object is sent out through the IR blaster when MV30s010 is set to state 8.
IR Code 8	CSV30s018	Data in this object is sent out through the IR blaster when MV30s010 is set to state 9.

Object Name	Instance Number	Description
IR Code 9	CSV30s019	Data in this object is sent out through the IR blaster when MV30s010 is set to state 10.
IR Code 10	CSV30s020	Data in this object is sent out through the IR blaster when MV30s010 is set to state 11.
IR Code 11	CSV30s021	Data in this object is sent out through the IR blaster when MV30s010 is set to state 12.
IR Code 12	CSV30s022	Data in this object is sent out through the IR blaster when MV30s010 is set to state 13.

> *When programming the sensor hub to transmit multiple infrared signals at the same time, allow a one second interval between signals to allow each signal to complete its transmission.*

Object Instance Number for Sensor Hub Termination Switch

The sensor hub includes built-in network termination through a manual switch setting. The switch is factory set to no termination (OFF). To enable termination, move the switch from OFF to TERM.

Object Name	Instance Number	Description
CAN Termination Status	BV30s043	Read-only value that indicates whether termination is on or off on the sensor hub.

Object Instance Numbers for Universal I/O (2xP models)

Object Name	Instance Number	Description
2xP universal I/O 1	AI/BI/MI/AO/BO/MO 30s098	Used to configure an O3-HUB-2xP Universal I/O 1.
2xP universal I/O 2	AI/BI/MI/AO/BO/MO 30s099	Used to configure an O3-HUB-2xP Universal I/O 2.

Calibrating the Sensor Hub Temperature

The sensor hub temperature reading needs to be calibrated to match a reference room temperature. After calibration, the accuracy of the hub's temperature sensor is ± 0.5 degrees when measured within a band ± 5 degrees from the calibrated temperature.
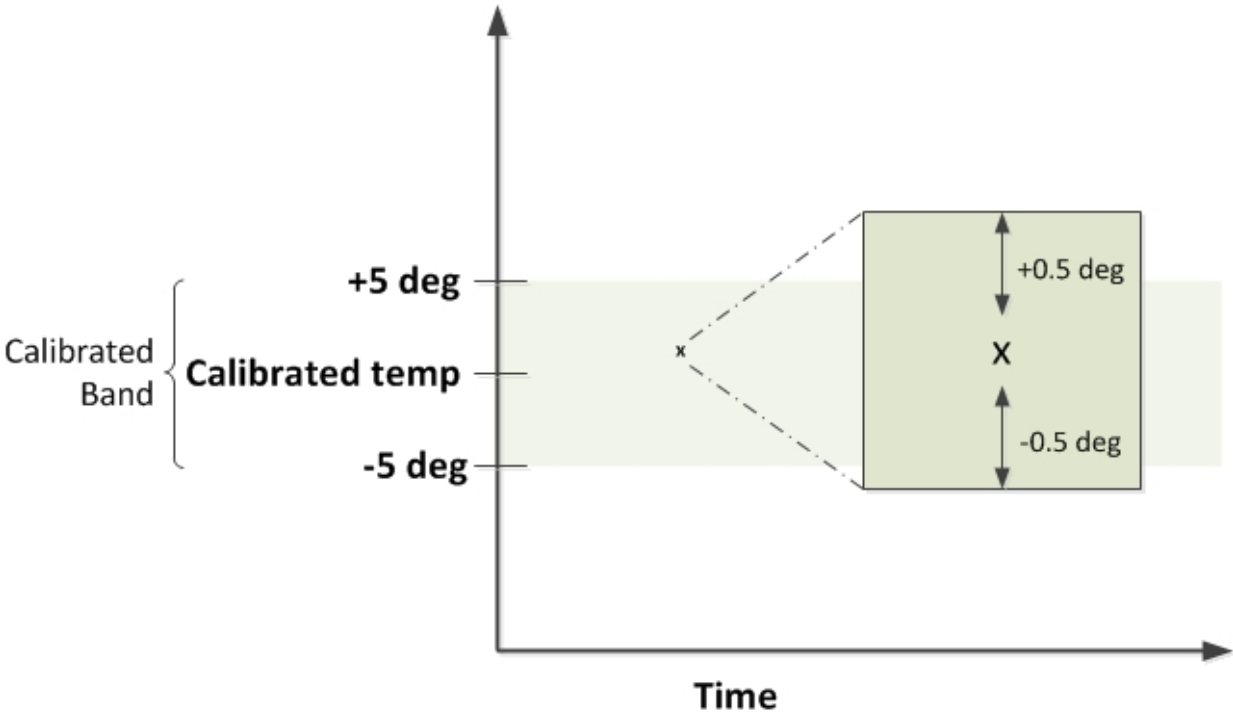
To calibrate the temperature:

- In enteliWEB, enter a correction factor in the AI30s000 object's Calibration property (where "*s*" represents the hub's address switch setting). The correction factor is the difference between the reference temperature and the AI30s000 object's present temperature value. For example, if the reference temperature is 21°C and the AI30s000 temperature value is 22°C, the correction factor that should be recorded is −1°C.

Creating a Custom Light Ring Color

> ⚠️ *The light ring color represented by the RGB triplet does not exactly match the same RGB color displayed on computer monitors. When setting a custom light ring color, use the sensor hub to preview the color.*

To create a new light ring color and display it on the sensor hub:

1. Create the following AV objects to set the red, green and blue values of the custom color ("*s*" represents the hub's address switch setting).

Object Name	Instance Number	Description
Red value	AV30s000	Sets the red value for the light ring RGB, 0 (Off) to 255 (max).
Green value	AV30s001	Sets the green value for the light ring, 0 (Off) to 255 (max).
Blue value	AV30s002	Sets the blue value for the light ring, 0 (Off) to 255 (max).

2. To display the new custom color, create object BV30s007. Set this object value to True or On. The light ring displays the color until you set the object value to False or Off.

> 💡 *In firmware 4.6 and later, you can also apply custom colors to light ring patterns.*

Examples of light ring colors and their associated RGB triplets: green (0,255,0), white (84,84,84), blue (0,0,255), red (255,0,0).

> ⚠️ **Light Ring Display Command Prioritization**
>
> *All commands interrupt other commands in progress, and are processed in the following priority: Sensor hub status display (highest priority) > Brightness AV > Custom RGB color BV > Light ring patterns (lowest priority). For example, if a command to play a ring pattern and a status request were sent together, both commands would be accepted without error but only the status is displayed on the light ring.*

Loading Custom Sounds

O3 firmware version 4.8 and later supports loading custom audio files to the sensor hub. The audio files are represented in BACnet as FIL objects.

To load custom sounds to the sensor hub:

1. Create up to 12 audio files with the following specifications:
   - File format: WAV
   - Bit resolution: 16 bit
   - Sampling rate: 16 kHz
   - Audio channel: Mono

   The total size of the audio files must not exceed 1.8 Mb. So, for example, you could create 12 short sounds (approximately 5 seconds each), a single long sound (approximately 1 minute), or some combination of short and medium-length sounds.

2. In enteliWEB, on the O3-DIN controller that controls the sensor hub, create an FIL object for each audio file that you have created.
   - To load the files to a specific sensor hub, create FIL objects in the range 30*s*101 to 30*s*112 (where "*s*" represents the hub's address switch setting).
   - To load the files to all the connected sensor hubs, create FIL objects in the range 310101 to 310112.

   > *If there are FIL objects created in the global range (310101–310112) and also FIL objects created in the range of a specific hub (30s101–30s112), the O3 driver will transmit the global files to all hubs except the hub with its own specific files. Global files cannot overwrite hub-specific files. If the files for a specific hub are invalid, the audio loading for that hub will end in error; it will not attempt to use any global files.*

3. Open each FIL object and upload the audio file that you want to associate with that FIL.
   a. In the Configuration section, click **Upload File**.
   b. In the Load File to Object dialog, click **Browse**, navigate to the location of the file, select it, click **Open**, and then click **OK**.
   c. Click **Save** to save your changes.

> *If you would like to load custom sounds but you also want to keep using some of the stock sounds, reload the stock sounds you want using the same method as the custom sounds. The stock sound files can be downloaded from the sensor hub product page on George Support. Every time new audio is loaded, the audio files are rewritten. Therefore, every time you do an audio load you must provide every file to be loaded, even if it already exists in memory.*

4. If you are loading less than 12 sounds, modify the default Sound List MIC to match the number of sounds that you have loaded or, alternatively, create a new MIC.

   If you are modifying the default MIC, rename the sounds as needed and delete any states that are not used. For example, if you are loading 6 sounds, the MIC should only have 7 states (state 1 as Idle/Off and states 2 to 7 as sounds). FIL30s101 corresponds to state 2, FIL30s102 corresponds to state 3, and so on.

5. Reset the O3-DIN controller or, alternatively, command BV30s099 to On. If the FIL objects are valid, the audio files are transmitted to the sensor hub and saved to its data flash. Depending on the size of the transfer, this can take up to 5 minutes. The light ring displays solid blue while the audio is loading.

> *If one or more of the files are not in the proper format, or if the total size of the audio is larger than the 1.8 Mb of space reserved for audio, no transfer will take place. Only if all files are valid and can be contained within the data space of the sensor hub will the O3-DIN controller update the sensor hub(s).*

6. To verify that the audio transfer was successful, create and/or open object CSV30s099 (read-only).

Once the audio transfer is complete, the files can be played back using MV30s006.

> *If the MV30s006 object is commanded to a non-existent sound file, all sounds will play consecutively in an infinite loop until the sensor hub is power cycled. Make sure the audio MIC does not have any unused states.*

Configuring the Sensor Hub IR Blaster

Note: The IR blaster feature is available in firmware 4.6 and later.

To set up the sensor hub to transmit infrared remote control signals:

1. Obtain the remote control codes specific to your appliance brand and model in Pronto hex format. Remote control codes are available online on websites such as www.remotecentral.com/cgi-bin/codes.

2. Create the CSV object or objects with specific instances as listed in the Object Instance Numbers for IR Blaster table. You can create up to 12 CSV objects per sensor hub.

3. In the CSV object, copy and paste the remote control code into the Default Value property field. Make sure your text editor tool does not introduce any extra characters or spaces in the code.

4. Create an MIC object to store the states associated with specific CSV objects in the exact order shown in the Object Instance Numbers for IR Blaster table.

5. Create object MV30s010 (where "*s*" represents the hub's address switch setting). To transmit a remote control signal, command the MV object value to the correct state.

Troubleshooting the Sensor Hub

The IOM object page displays the working status of the sensor hubs on the O3BUS network. In general, the status reflects the health of the connection between the sensor hub and the O3-DIN controller. This topic describes three possible statuses and how to interpret them.

If the sensor hub is still powered, the light ring displays the hardware status until the issue is resolved.

The sensor hub is offline

This could be due to one of the following reasons:

- Faulty network or power wiring between the O3-DIN controller and the sensor hub.

- The NP object on the O3-DIN controller is set to a protocol type other than CANbus.

- The sensor hub has been assigned the same address as a O3-DIN-PWRINJ module on the O3BUS network. Both the sensor hub and power injector module remain offline until the duplicate addressing is resolved.

- You are using the switched PWR OUT 1 port on the O3-DIN-CPU controller to power the sensor hub and the BO1 object set to OFF. Manually command BO1 to ON to turn on power to the hub.

The sensor hub has an error state

This could be due to the NET3 port being disabled. Verify that the Out of Service box on the NP3 object is not checked.

The sensor hub no longer appears on the IOM object page

This could be due to one of the following reasons:

- The sensor hub was offline before the O3-DIN controller was reset. When the controller comes back online after a reset, the sensor hub no longer appears on the IOM object page.

- The sensor hub shares the same address as another sensor hub on the O3BUS network. Give all the sensor hubs on the network unique addresses.

- You are using the switched PWR OUT 1 port on the O3-DIN-CPU controller to power the sensor hub and the BO1 object set to OFF. Manually command BO1 to ON to turn on power to the hub.
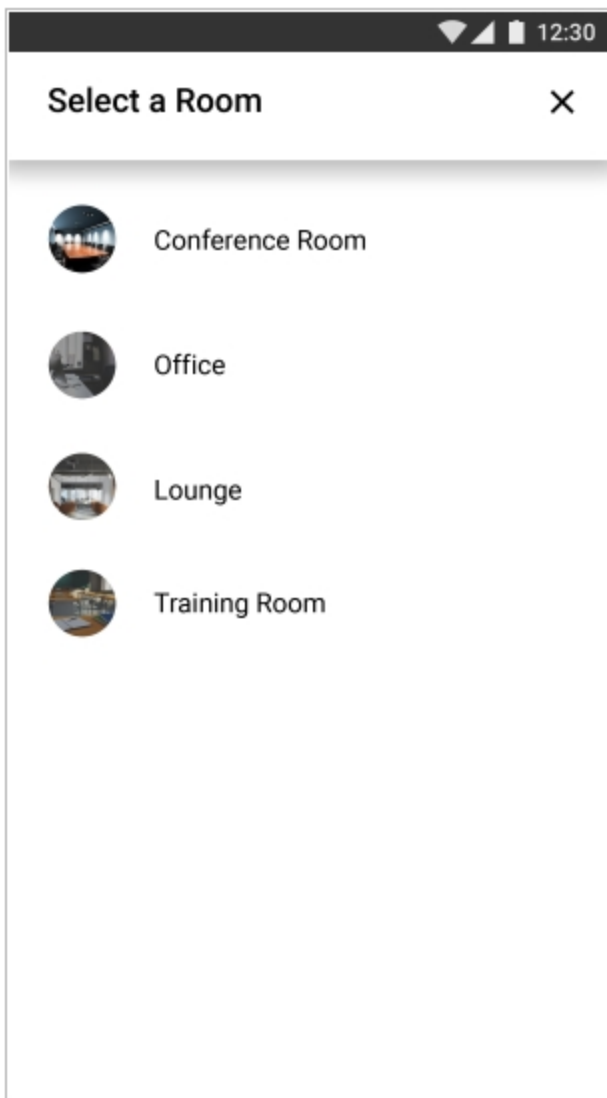
O3 App

The O3 app is a room control application for mobile devices. The app communicates with the O3-DIN room controller and enteliWEB to execute a preset comfort setting in a room. These comfort settings are previously configured by the enteliWEB administrator to match what the occupants intend to do in the room, for example, a meeting or presentation.

The O3 app relies on the Bluetooth beacon in the sensor hub (O3-HUB) for room location information, and therefore is designed to work only with rooms or spaces that have O3-HUB devices. enteliWEB determines the room permission level of each O3 app user on the site.
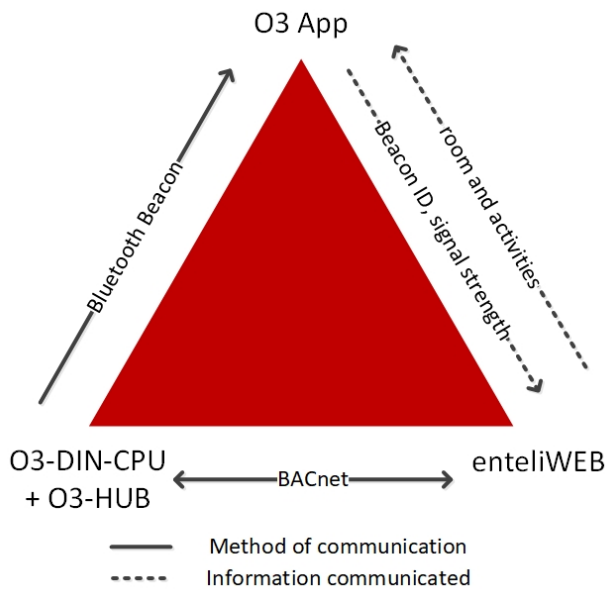
The O3 app displays a list of rooms closest to the O3 app user. In general, the room with the strongest Bluetooth beacon signal appears at the top of this list.

For more information about O3 rooms, see O3 Room Concept.

Each room or space is associated with one or more activities, each with their own preset comfort values. The O3 app user selects an activity option on the app to apply the new comfort values.
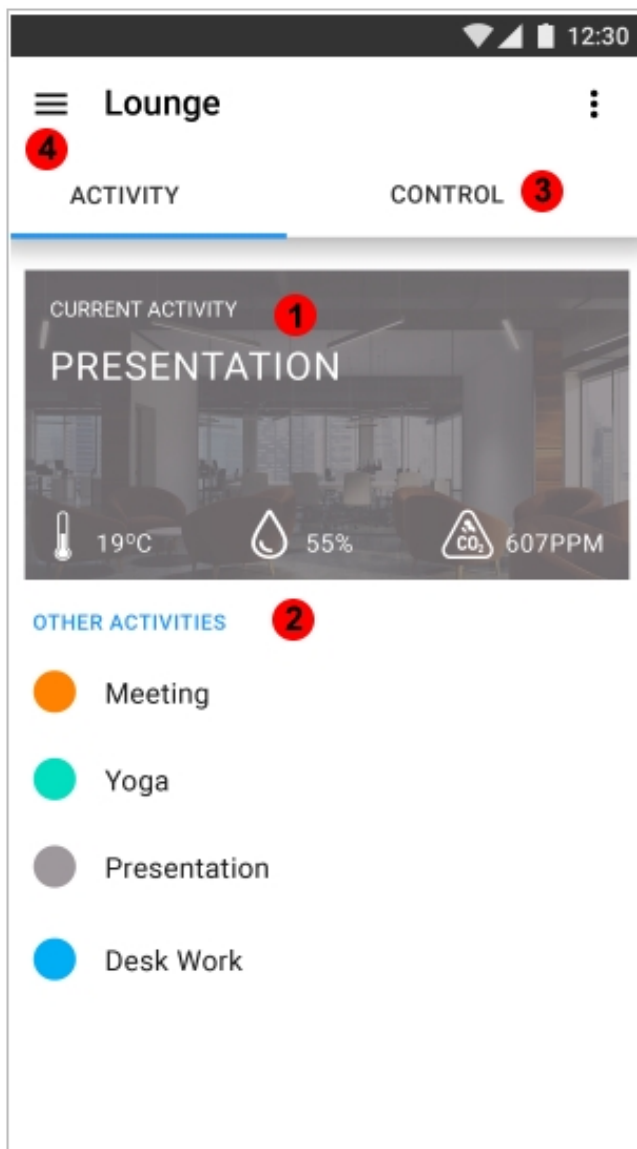
(1) Displays the current activity in use. Also displays the current values from the sensors in the room.
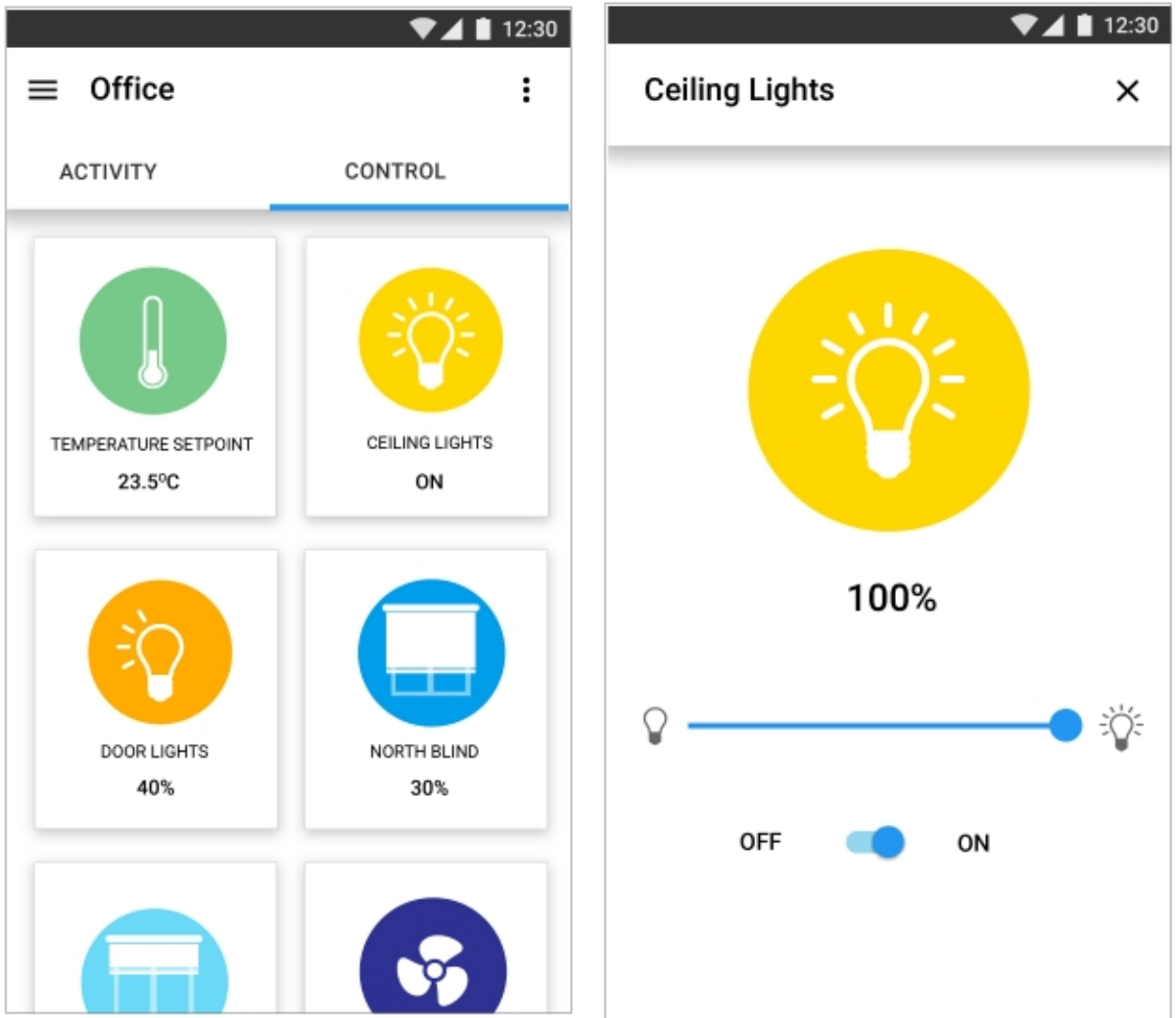
(2) **Other Activities:** List the activities available for selection.

(3) **Control:** Select Control to change the preset comfort values.

(4) Use the menu icon to go back to the room list.

For more information about O3 room activities, see O3 Room Activity Concept.

The O3 app user can change the preset comfort values using the Control section of the app.

The control tiles display the comfort values of the selected activity. Each control is represented by an image that changes color and form to reflect its current comfort value.

To change these comfort values, touch to open the control tile and tap or drag to adjust the setting.

Getting Started with the O3 App

Before you begin

- You must have enteliWEB version 4.8 or later installed, with the Web Services and Interface API license add-on activated. You can check the status of the add-on by going to ⚙ > **Configuration** > **Support**.

- A wireless access point must be installed to allow Wi-Fi connections to enteliWEB.

- The enteliWEB server must be set up for HTTPS connections, which requires installing an SSL certificate from a trusted certificate authority (Let's Encrypt is a popular free option). **The O3 app will not connect to the server if a self-signed certificate is used**. To obtain an SSL certificate, the server must have a DNS-resolvable hostname and access to the internet. Internal server names and IP addresses are not supported. For more information, see KBA2037.

Install an O3-DIN controller

Install an O3-DIN-CPU device running firmware version 4.6 or later (or an O3-DIN-SRC device running firmware version 4.7 or later) on a BACnet network. For more information, refer to the O3-DIN-CPU Installation Guide.

Install and set up a sensor hub

1. Install an O3-HUB or O3-HUB-Enxxx sensor hub and connect it to the O3-DIN controller. Connect the hub's O3BUS port to the controller's NET3 port and connect the hub's power to the controller's PWR OUT port. For more information, refer to the O3-HUB Installation Guide.

2. To enable the PWR OUT port on the O3-DIN controller, select the controller in enteliWEB, create object BO1, command it to ON, then click Save.

3. In the NP3 object, set Protocol Type to CANbus, set Command to Activate, then click Save.

4. Open the IOM1 object and verify that the sensor hub is online.

5. Create the object database for the sensor hub. You can create objects manually in enteliWEB or you can auto-create them from an existing template using the Database Creation tool (in enteliWEB 4.12 and higher).

   Note: In the following object names, "s" is a placeholder for the hub's rotary switch position (2–9).

a. Create object BV30s026 and set it to On to enable the Bluetooth beacon on the hub.

b. Create object CSV30s040 to hold the MAC address of the Bluetooth beacon on the hub so that the O3 app can distinguish it from other beacons within range.

c. Create object AI30s000 for the room temperature.

d. Create object AI30s009 for the room humidity.

e. Create AV and BV objects to hold room setpoints.

f. Create other objects as needed (for occupancy, motion, LED light ring, speaker settings, etc.). For a full list of BACnet objects for the hub, see Object Instance Numbers on the O3-HUB Sensor Hub.

g. Download the scale range objects, load them into the controller database, and apply them to the inputs as needed.

6. Create GCL+ programs in enteliWEB for room control. These programs use the objects that you've created to execute control sequences.

Create rooms and activities for the O3 app

1. Go to ⚙ > **Systems and Dashboards** > **Create O3 Room** to create one or more rooms. For more information, see Creating O3 Rooms.

   Note: A room must have at least one control set up (for temperature, lights, blinds, or fans) before it will appear in the rooms list in the O3 app.

2. Go to ⚙ > **Systems and Dashboards** > **Rooms** > **Create O3 Room Activity** to create one or more room activities. For more information, see Creating O3 Room Activities.

Install and log in to the O3 app

1. Download and install the O3 app to your mobile device. The app is available from Google Play or Apple's App Store.

2. Enable Bluetooth on your device.

3. Position yourself within range of the sensor hub and the Wi-Fi network.

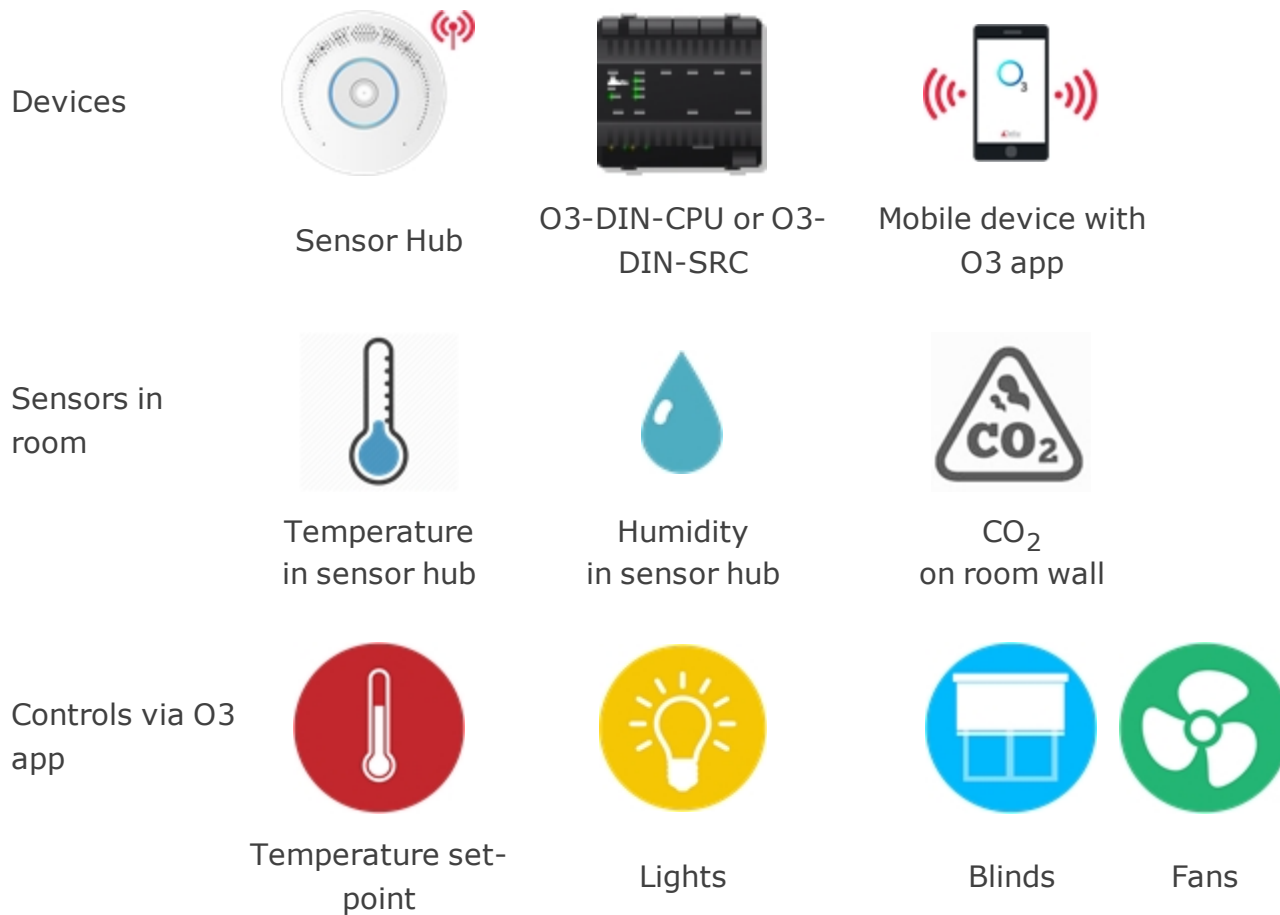4. Open the O3 app and enter your enteliWEB server address and login credentials.

O3 Room Concept

What is an O3 Room?

We define an O3 room as an area of a building where occupant comfort is controlled by a Delta Controls O3-DIN controller and one or more sensor hubs and where the occupants use the Delta Controls O3 app to manage their comfort.

Components of an O3 Room

Devices	Sensor Hub	O3-DIN-CPU or O3-DIN-SRC	Mobile device with O3 app
Sensors in room	Temperature in sensor hub	Humidity in sensor hub	CO_2 on room wall
Controls via O3 app	Temperature set-point	Lights	Blinds Fans

What is an O3 Room Activity?

See What is an O3 Room Activity?

What is an Occupant?

An occupant is a person who is in a room and can use the O3 app.

An occupant with the proper permissions uses the O3 app to choose an activity for the room. The activity defines the comfort settings for the room.

See Permissions below to understand what a principal occupant is.

Permissions

Each setpoint and other comfort setting for a room is assigned one of the following permission levels: principal occupant, everyone in room, no permission.

Principal Occupant

Principal Occupant permission allows the named user(s) to adjust the setpoint or other comfort setting for the room.

When the permissions for all setpoints and comfort settings for a room are set to Principal Occupant, then the room is displayed on the O3 app room list for the room's principal occupant users only.

A principal occupant can be either an enteliWEB user or an O3 app user.

Everyone in Room

Everyone in Room permission allows any enteliWEB user or O3 app user to adjust the setpoint or other comfort setting for the room. The room is displayed on the O3 app room list for all occupants.

No Permission

No Permission does not allow any enteliWEB user or O3 app user to adjust the setpoint or other comfort setting for the room. When the permission for all room comfort settings is set to No Permission, then the room is not displayed on the O3 app room list for any occupant.

Room and O3 App

The O3 app displays a room on its room list when all of the following rules are true:

- The app user is a member of the O3 Room Guests group or another group with the same object, service, and device permissions.
- The room has at least one of the following controls configured: temperature, lights, blinds, or fans.
- The control permissions are set to Everyone in Room or Principal Occupant. If the permission is set to Principal Occupant, the app user must be designated as a principal occupant or belong to a group that is designated as a principal occupant.

The O3 Room page does not support the nameFormat feature in config.xml.

Creating O3 Rooms

An O3 room is an area of a building where occupant comfort is controlled by an O3-DIN controller and one or more sensor hubs and is managed through the O3 app.

O3 rooms are created on the Create O3 Room page (⚙ > **Systems and Dashboards** > **Create O3 Room**).

To create a room:

1. Enter the Room Name (for example, "Conference Room").
2. Optional: Select a Room Photo to identify the room in the app.
3. Optional: Enter a Description for the room. The description is not visible to the app user.
4. In the O3 Sensor Hubs area, do the following:

   a. Click ⊕Add to add a new row.

   b. In the Device Reference field, start typing the name of the O3-DIN controller that controls the sensor hub. Select the controller from the list of results.

   c. Ensure that the Hub Address is correct. By default, the value is set to 2, the default address for sensor hubs. To edit the address, double-click in the Hub Address field to make it active, then select a new address from the list.

   > *The hub address is displayed in the IOM object (IOM1) of the controller. The hub address is the third digit from the left in the hub's IOM address. For example, 302000 indicates a hub address of 2, 303000 indicates a hub address of 3, 304000 indicates a hub address of 4, and so on.*

5. In the Room Controls area, do the following:

   a. On the Sensors tab:

      i. In the Temperature Reference field, enter the AI object that holds the temperature of the room (AI30s000, where *s* is the hub address).

      ii. In the CO_2 Reference field, enter the object that holds the CO_2 level of the room (this reading is not provided by the sensor hub; a separate CO_2 wall sensor must be installed).

      iii. In the Humidity Reference field, enter the AI object that holds the humidity level of the room (AI30s009, where *s* is the hub address).

  b. On the Temperature tab:

      i. Set Allow Control by to Everyone in Room (recommended), Principal Occupant (see step 8), or No Permission (no one in the room is allowed to adjust the temperature).

      ii. Set the Setpoint Type to Absolute or Offset. Absolute means that an O3 app user selects the setpoint temperature within a range set by Minimum Value and Maximum Value. Offset means an O3 app user selects an offset as an increase or decrease to the base setpoint temperature.

- If Absolute is selected, configure the following settings: Setpoint Reference, Minimum Value Type, Minimum Value, Maximum Value Type, Maximum Value.

- If Offset is selected, configure the following settings: Offset Adjustment Type, Offset Adjustment (+/-), Base Setpoint Reference, User Offset Setpoint.

  c. On the Lights tab:

      i. Set Allow Control by to Everyone in Room (recommended), Principal Occupant (see step 8), or No Permission (no one in the room is allowed to adjust the lights).

      ii. Click ⊕ Add to add a new row.

      iii. Enter a Name for the light(s) (for example, "Front Lights"). This is the name that the app user sees.

      iv. Set the Control Type to Dimmer, On/Off, or Dimmer - On/Off.

- If Dimmer is selected, configure the following setting: Dimmer Reference.

- If On/Off is selected, configure the following settings: Lights On Reference, Lights Off Reference, State Reference.

- If Dimmer - On/Off is selected, configure the following settings: Dimmer Reference, Lights On Reference, Lights Off Reference, State Reference.

      v. Write a GCL+ program to allow the O3 app to control the lights using the objects from the previous step. For example:

```
// On/Off light switch controlled by O3 app
```

```
IfOnce ('ON/OFF - ON' = 'On') Then
'ON/OFF - StateRef' = 'On'
'ON/OFF - ON' = 'Off'
EndIf

IfOnce ('ON/OFF - OFF' = 'On') Then
'ON/OFF - StateRef' = 'Off'
'ON/OFF - OFF' = 'Off'
EndIf
```

In this example, 'ON/OFF - ON' is the Lights On Reference BV object, 'ON/OFF - OFF' is the Lights Off Reference BV object, and 'ON/OFF - StateRef' is the State Reference BV object.

  vi. Optional: Enter an internal Key Name for the light(s) that can be applied to similar lights in other rooms (for example, "Main Lights" or "Perimeter Lights"). This allows activities to control these devices in a consistent way across multiple rooms.

  vii. Add additional lights as needed.

d. On the Blinds tab:

  i. Set Allow Control by to Everyone in Room (recommended), Principal Occupant (see step 8), or No Permission (no one in the room is allowed to adjust the blinds).

  ii. Click ⊕ Add to add a new row.

  iii. Enter a Name for the blinds (for example, "West Window"). This is the name that the app user sees.

  iv. In the Position Reference field, enter the AV object that holds the vertical position of the blinds.

  v. In the Angle Reference field, enter the AV object that holds the angle of the blinds.

  vi. Optional: Enter an internal Key Name for the blinds that can be applied to similar blinds in other rooms. This allows activities to control these devices in a consistent way across multiple rooms.

  vii. Add additional blinds as needed.

e. On the Fans tab:

  i. Set Allow Control by to Everyone in Room (recommended), Principal Occupant (see step 8), or No Permission (no one in the room is allowed to adjust the fans).

  ii. Click ⊕ Add to add a new row.

iii. Enter a Name for the fans (for example, "Ventilation"). This is the name that the app user sees.

iv. In the Fan Reference field, enter the MV object that holds the fan state.

v. Optional: Enter an internal Key Name for the fans that can be applied to similar fans in other rooms. This allows activities to control these devices in a consistent way across multiple rooms.

vi. Add additional fans as needed.

Note: For a room to appear in the rooms list in the O3 app, it must have at least one of the following controls configured: temperature, lights, blinds, or fans.

6. The Activities area shows any room activities that have been created. To associate an activity with the room, select the Enabled check box. To create a new activity, see Creating O3 Room Activities.

7. In the Principal Occupant area, you can designate specific users and/or groups as the principal room occupant. When room controls permissions are set to Principal Occupant, only these users and groups will be able to view and manage the room comfort settings in the app.

a. To add users to the Principal Occupant list, on the Users tab, click ⊕Add, select the users that you want to add, then click OK. To create new users, see Creating a User help topic.

b. To add groups to the Principal Occupant list, on the Groups tab, click ⊕ Add, select the groups that you want to add, then click OK. To create new groups, see Creating a Group help topic.

8. Click Create . The room is added to the O3 Rooms list.

Managing O3 Rooms

An O3 room is an area of a building where occupant comfort is controlled by an O3-DIN controller and one or more sensor hubs and is managed through the O3 app.

O3 rooms are managed on the O3 Rooms page (⚙ > **Systems and Dashboards** > **Rooms**), which lists rooms for all sites known to enteliWEB.

Searching the Rooms List

To search the rooms list, start typing a room name in the Search Room field. The list is filtered as you type.

To see everything in the rooms list, clear the Search Room field.

Sorting the Rooms List

To sort the rooms list, click the column heading that you want to sort by.

Opening an Existing Room

To open a room, click its name.

Adding a Room

To add a new room, click ➕ Add. The Create O3 Room page opens. For details, see Creating O3 Rooms.

Copying a Room to a Single Controller

> 💡 When a room is copied, its configuration—its specific objects and instances—is replicated in the copy. The object database is not copied. The copy process assumes that an identical object database exists in the destination device.

1. From the rooms list, select the room that you want to copy.
2. Click ⧉ Copy . The Copy Room dialog opens.
3. Edit the Room Name as needed. Each room name must be unique.
4. Optional: If you want to copy the room to a different controller, double-click in the Destination Device field to make it active, then start typing the name of the destination O3-DIN controller. Select the controller from the list of results.
5. Optional: Edit the Destination Hub Address if needed. If you are copying to the same device, the hub address must be different. To edit the address, double-

click in the Destination Hub Address field to make it active, then select a new address from the list.

6. Click Copy. The room list is updated to include the copied room.

Copying a Room to Multiple Controllers

When a room is copied, its configuration—its specific objects and instances—is replicated in the copy. The object database is not copied. The copy process assumes that an identical object database exists in the destination device.

1. From the rooms list, select the room that you want to copy.

2. Click Copy to Many. The Copy Room dialog opens.

3. In the Destination area, configure the Site, Device Range, Device Increment, and Hub Address.

4. Click Generate. The Generated Rooms list is updated with the copied rooms.

Deleting a Room

1. From the rooms list, select the room or rooms that you want to delete.

2. Click Delete. A confirmation dialog opens.

3. Click Yes to delete the rooms.

O3 Room Configuration Reference

Configuration

Room Name

Room Name specifies the name used in enteliWEB and in the O3 app for this room.

Room Photo

Room Photo specifies the image displayed for this room in the O3 app.

Description

Description contains a brief description of the room to help you identify it. This description is not visible to O3 app users.

O3 Sensor Hubs

Device Reference

Device Reference specifies the O3-DIN controller that is controlling the room.

Hub Address

Hub Address specifies the address of the sensor hub in the room in the range 2 through 9. The hub address is set by a rotary dial on the sensor hub. The factory default setting is 2. The hub's current address setting can be confirmed by opening the O3-DIN controller's IOM object (IOM1). The hub address is the third digit from the left in the sensor hub's IOM address in the Hardware Devices table. For example, 302000 indicates a hub address of 2, 303000 indicates a hub address of 3, 304000 indicates a hub address of 4, and so on.

Room Controls

Sensors

Temperature Reference

Temperature Reference specifies the AI object of the sensor hub that holds the composite temperature value for the room (AI30s000). For details, see Object Instance Numbers for Sensor Hub Input Sensors.

CO_2 Reference

CO_2 Reference specifies an AI or AV object reference for the CO_2 sensor. The sensor hub does not include a CO_2 sensor. A wall-mounted CO_2 sensor must be used.

Humidity Reference

Humidity Reference specifies the AI object of the sensor hub that holds the relative humidity value for the room (AI30s009). For details, see Object Instance Numbers for Sensor Hub Input Sensors.

Temperature

Allow Control by

Allow Control by specifies which O3 app users are allowed to adjust the temperature setpoint for the room.

Everyone in Room, Principal Occupant, No Permission

Setpoint Type

Setpoint Type specifies how the O3 app user is allowed to adjust the temperature setpoint for the room.

- *Absolute* means that an O3 app user selects the setpoint temperature within a range set by Minimum Value and Maximum Value.
- *Offset* means an O3 app user selects an offset as an increase or decrease to the base setpoint temperature.

Setpoint Type affects the Setpoint Value setting for activities that you assign to the room.

Minimum Value Type

When Setpoint Type is set to Absolute, Minimum Value Type specifies how Minimum Value is specified.

- *Absolute* means that Minimum Value specifies a temperature value.
- *Object Reference* means that Minimum Value specifies an object reference for the AV object that holds a temperature value.

Maximum Value Type

When Setpoint Type is set to Absolute, Maximum Value Type specifies how Maximum Value is specified.

- *Absolute* means that Maximum Value specifies a temperature value.
- *Object Reference* means that Maximum Value specifies an object reference for the AV object that holds a temperature value.

Setpoint Reference

When Setpoint Type is set to Absolute, Setpoint Reference specifies an object reference for the AV object that holds the desired setpoint that is requested by an O3 app user. The O3 app updates this object when the user adjusts the desired temperature.

Minimum Value

When Setpoint Type is set to Absolute, Minimum Value specifies the lowest temperature that an O3 app user can request. Setpoint Reference holds the requested temperature value.

The Minimum Value Type setting determines how Minimum Value is specified.

Maximum Value

When Setpoint Type is set to Absolute, Maximum Value specifies the highest temperature value that an O3 app user can request. Setpoint Reference holds the requested temperature value.

The Maximum Value Type setting determines how Maximum Value is specified.

Offset Adjustment Type

When Setpoint Type is set to Offset, Offset Adjustment Type specifies how Offset Adjustment(+/-) specifies the maximum offset.

- *Absolute* means that Offset Adjustment (+/-) specifies an offset value.
- *Object Reference* means that Offset Adjustment (+/-) specifies an object reference for the AV object that holds an offset value.

Offset Adjustment (+/-)

When Setpoint Type is set to Offset, Offset Adjustment (+/-) specifies the maximum temperature offset that an O3 app user can request. The O3 app limits a user to adjust the room temperature to this range. Setting Offset Adjustment (+/-) to zero is not recommended; the temperature control in the O3 app may not be able to function properly.

The offset that is requested by an O3 app user is held in the object specified by User Offset Setpoint.

Base Setpoint Reference

When Setpoint Type is set to Offset, Base Setpoint Reference specifies an object reference for the AV object that holds the temperature setpoint to which the offset is

applied. The temperature setpoint held in the AV object is set by a GCL+ program. The temperature setpoint is not changed by enteliWEB. A GCL+ program adds the offset requested by the O3 app user to the temperature setpoint to calculate the desired temperature setpoint for the room.

User Offset Setpoint

When Setpoint Type is set to Offset, User Offset Setpoint specifies an object reference for the AV object that holds the desired offset that is requested by an O3 app user. That is, the O3 app updates enteliWEB with the desired offset and enteliWEB writes the value to User Offset Setpoint on the O3-DIN controller.

Lights

Allow Control by

Allow Control by specifies which O3 app users are allowed to adjust the lights.

Everyone in Room, Principal Occupant, No Permission

Name

Name specifies a unique name for the lights. This name is visible to O3 app users.

Key Name

Key Name is optional and can be left blank. It is not visible to O3 app users.

The key name specifies an internal name for the lights that allows them to be controlled independently of other lights in an activity. If no key names are specified, all lights in a room will be controlled together. Also, when an activity is applied to multiple rooms, key names can be used to control similar devices the same way in each room.

For example, suppose you want a Presentation activity that turns off a meeting room's main fluorescent lights and dims a set of downlights. You would assign a key name to the fluorescent lights (such as "Main Lights") and another key name to the downlights (such as "Perimeter Lights"). The Presentation activity will then be able to separately turn off the fluorescent lights and dim the downlights.

Now, suppose you want to apply the activity to other meeting rooms. The downlights in each room might have different names specific to each space—they might be called "Front Lights" in one room and "Side Lights" in another. Give both sets of lights a consistent key name, such as "Perimeter Lights." This will allow the activity to control the downlights the same way in both rooms.

Control Type

Control Type specifies how the O3 app allows a user to control the lights.

- *Dimmer* means the O3 app presents a dimmer to allows a user to control the lights.
- *On/Off* means the O3 app presents an on/off switch to allows a user to control the lights.
- *Dimmer - On/Off* means the O3 app presents both a dimmer and an on/off switch to allows a user to control the lights.

Dimmer Reference

When Control Type is set to **Dimmer** or to **Dimmer - On/Off** , Dimmer Reference specifies an object reference for the AV object that holds the dimmer setting.

Lights On Reference

When Control Type is set to **On/Off** or to **Dimmer - On/Off** , Lights On Reference specifies an object reference for the BV object that causes the lights to be turned on.

By design, Lights On Reference is always Off except momentarily when the lights are turned on. For the current state of the lights, see State Reference.

Note: The BV object used for Lights On Reference should be different from the one used for Lights Off Reference.

Lights Off Reference

When Control Type is set to **On/Off** or to **Dimmer - On/Off** , Lights Off Reference specifies an object reference for the BV object that causes the lights to be turned off.

By design, Lights Off Reference is always Off except momentarily when the lights are turned off. For the current state of the lights, see State Reference.

Note: The BV object used for Lights Off Reference should be different from the one used for Lights On Reference.

State Reference

When Control Type is set to **On/Off** or to **Dimmer - On/Off** , State Reference specifies an object reference for the BV object that holds the current state, On or Off, of the lights.

Note: The BV object used for State Reference should be different from the ones used for Lights On Reference and Lights Off Reference.

For an on/off light switch, the Lights On Reference and Lights Off Reference BV objects are always Off except momentarily when the lights are turned on or off. State Reference remembers the lights on and off events to allow the O3 app to display the current state of the lights.

Blinds

Allow Control by

Allow Control by specifies the permission required for an O3 app user to adjust the blinds.

Everyone in Room, Principal Occupant, No Permission

Name

Name specifies a unique name for the blinds. This name is visible to O3 app users.

Key Name

Key Name is optional and can be left blank. It is not visible to O3 app users.

The key name specifies an internal name for the blinds that allows them to be controlled independently of other blinds in an activity. If no key names are specified, all blinds in a room will be controlled together. Also, when an activity is applied to multiple rooms, key names can be used to control similar devices the same way in each room.

Position Reference

Position Reference specifies an object reference for the AV object that holds the position of the blinds.

Angle Reference

Angle Reference specifies an object reference for the AV object that holds the angle of the blinds.

Fans

Allow Control by

Allow Control by specifies which O3 app users are allowed to adjust the fans.

Everyone in Room, Principal Occupant, No Permission

Name

Name specifies a unique name for the fan settings. This name is visible to O3 app users.

Key Name

Key Name is optional and can be left blank. It is not visible to O3 app users.

The key name specifies an internal name for the fan setting that allows it to be controlled independently of other fan settings in an activity. If no key names are specified, all fans in a room will be controlled together. Also, when an activity is applied to multiple rooms, key names can be used to control similar devices the same way in each room.

Fan Reference

Fan Reference specifies an object reference for the MV object that holds the fan state.

Activities

Activity Name

Activity Name lists the names of activities known to enteliWEB.

Enabled

When Enabled is selected, the corresponding activity is allowed in the room. When Enabled is not selected, the corresponding activity is not allowed in the room.

Principal Occupant

Users

Users lists the user names of users who are principal occupants of the room.

Groups

Groups lists the group names of groups whose members are principal occupants of the room.

O3 Room Activity Concept

What is an O3 Room Activity?

An O3 room activity consists of a collection of comfort settings for an O3 room based on what the occupants will be doing in the room: attending a meeting, attending a presentation, doing desk work, etc.

You can create multiple activities and associate an activity with multiple rooms.

An activity must include one or more of the following controls (depending on the options available in the O3-DIN controller and the sensor hub).

- Temperature setpoint
- Lights
- Blinds
- Fans

Activities and the O3 App

Using Delta Controls' O3 app, a room occupant with the proper permissions can choose an activity for the room.

When the occupant chooses an activity, the app sends a request to enteliWEB and the activity's definition is written to corresponding BACnet objects in the O3-DIN controller that controls the room. The control sequence (implemented in GCL+ in the controller) adjusts the room's comfort settings accordingly.

When the occupant adjusts a setpoint, such as raising or lowering the room temperature, the app sends the change to enteliWEB and enteliWEB writes the change to the appropriate BACnet object in the controller. The control sequence (implemented in GCL+ in the controller) adjusts the room's temperature setting accordingly.

When an O3 app user selects an activity, all activity values are applied regardless of the permission that the user has on each control.

Creating O3 Room Activities

An O3 room activity is a collection of comfort settings for an O3 room based around one or more setpoints (temperature, lights, blinds, etc.). An activity can be applied to multiple rooms.

O3 room activities are created on the Create O3 Room Activity page (⚙ > **Systems and Dashboards** > **Rooms** > **Create O3 Room Activity**).

To create an activity:

1. Enter the Activity Name (for example, "Presentation"). This name identifies the activity in enteliWEB. If Activity Label in App is left blank, it is also the name that is displayed in the app.

2. Optional: Enter the Activity Label in App (if you want it to be different from the Activity Name).

3. Select a Color to identify the activity in the app.

4. Optional: Enter a Description for the activity. The description is not visible to the app user.

5. In the Activity Controls area:

    a. On the Temperature tab, enter the Setpoint Value for the activity. This value is determined by the Setpoint Type (Absolute or Offset) of the O3 room in which the activity takes place.

    b. On the Lights tab, click ⊕ Add, enter the desired light level for the activity in the Dimmer field, then select the default On/Off setting (Lights On, Lights Off, Not In Use). If applicable, enter its Key Name.

    c. On the Blinds tab, click ⊕ Add, enter the desired blind position for the activity in the Position field (0% is fully retracted; 100% is fully deployed), then enter the desired blind angle for the activity in the Angle field (0° means slats pointed down; 90° means slats are horizontal; and 180° means slats point up). If applicable, enter its Key Name.

    d. On the Fans tab, click ⊕ Add, then select the desired fan state for the activity from the Fans list. This list of allowable fan states is determined by the fan's MIC object. If applicable, enter its Key Name.

6. In the Rooms area, associate one or more rooms with the activity. Click ⊕ Add, select a room from the list, then click OK. If the list is blank, then no

rooms have been created yet. To create new rooms, see Creating O3 Rooms.

7. Click Create. The activity is added to the O3 Room Activities list.

Managing O3 Room Activities

An O3 room activity is a collection of comfort settings for an O3 room based around one or more setpoints (temperature, lights, blinds, etc.). An activity can be applied to multiple rooms.

O3room activities are managed on the O3 Room Activities page (⚙ > **Systems and Dashboards** > **Rooms** > **O3 Room Activities**), which lists room activities for all sites known to enteliWEB.

Searching the Room Activities List

To search the room activities list, start typing a room activity name in the Search Room Activity field. The list is filtered as you type.

To see everything in the room activities list, clear the Search Room Activity field.

Sorting the Room Activities List

To sort the room activities list, click the column heading that you want to sort by.

Opening an Existing Room Activity

To open a room activity, click its name.

Adding a Room Activity

To add a new room activity, click ➕ Add. The Create O3 Room Activity page opens. For details, see Creating O3 Room Activities.

Copying a Room Activity

1. From the room activities list, select the activity that you want to copy.
2. Click ▪ Copy . The Copy Room Activity dialog opens.
3. Edit the Activity Name as needed. Each activity name must be unique.
4. If you don't want to keep the associated rooms with the new activity, clear the Copy Room Mapping checkbox.
5. Click Copy. The room activity list is updated to include the copied activity.

Setting the Units for Room Activities

☀ *Changes to the room activity unit settings apply to all room activities.*

1. Click ⚙ Settings. The Activity Unit Settings dialog opens.

2. To set the temperature unit, select °C or °F from the Temperature list.

3. To set the fan unit, in the Fan field, enter the MIC object that holds the list of allowed fan states. The MIC object must be from version 4 firmware.

4. To set the blind angle unit, select % or ° from the Blind Angle list.

5. Click Save to apply the settings.

Deleting a Room Activity

1. From the room activities list, select the activity or activities that you want to delete.

2. Click ❌ Delete. A confirmation dialog opens.

3. Click Yes to delete the activities.

O3 Room Activity Configuration Reference

Configuration

Activity Name

Activity Name specifies the name used in enteliWEB for this activity. When Activity Label in App is blank, then Activity Name is displayed in the O3 app.

Activity Label in App

Activity Label in App specifies the name used in the O3 app for this activity. When Activity Label in App is blank, then Activity Name is displayed in the O3 app.

Color

Color specifies the color that you want to associate with the activity to help users identify it in the O3 app.

Description

Description contains a brief description of the activity to help you identify it. The description is not visible to O3 app users.

Activity Controls

Temperature

Setpoint Value

The setpoint value is determined by the setpoint type (absolute or offset) that has been configured for the room in which the activity takes place.

Setpoint Type = Absolute

When the setpoint type is *absolute*, the setpoint value specifies the temperature setpoint for the room when the activity is selected by an O3 app user (for example, 19°C). The setpoint value must be in the range for the absolute temperature configured for the room by the Minimum Value and Maximum Value settings. The temperature setpoint is written to the object specified by the Setpoint Reference.

Setpoint Type = Offset

When the setpoint type is *offset*, the setpoint value specifies the temperature offset for the room that is applied when the activity is selected by an O3 app user (for example, -1 or +2). The setpoint value must be in the range for the offset that is

configured for the room by the Offset Adjustment (+/-) setting. The offset is applied to the value held by the Base Setpoint Reference.

Lights

Key Name

Key Name is optional and can be left blank. It is not visible to O3 app users.

The key name specifies an internal name for the lights that allows them to be controlled independently of other lights in an activity. If no key names are specified, all lights in a room will be controlled together. When an activity is applied to multiple rooms, key names can be used to control similar devices the same way in each room.

Dimmer

Dimmer specifies the desired light level (as a percentage) when this activity is selected by an O3 app user.

On/Off

On/Off specifies whether the room lights are on or off by default, when this activity is selected by an O3 app user.

- *Lights On* specifies that the lights are on.
- *Lights Off* specifies that the lights are off.
- *Not In Use* specifies that the activity does not include light control.

Blinds

Key Name

Key Name is optional and can be left blank. It is not visible to O3 app users.

The key name specifies an internal name for the blinds that allows them to be controlled independently of other blinds in an activity. If no key names are specified, all blinds in a room will be controlled together. When an activity is applied to multiple rooms, key names can be used to control similar devices the same way in each room.

Position

Position specifies the desired height of the blinds when this activity is selected by an O3 app user.

- 0% specifies that the blinds are fully retracted or rolled up.
- 100% specifies that the blinds are fully deployed or rolled down.

Angle

Angle specifies the desired angle of the slats when this activity is selected by an O3 app user.

- 0° specifies that the blinds are fully closed with the slats pointing down.
- 90° specifies that the blinds are fully open with the slats horizontal.
- 180° specifies that the blinds are fully closed with the slats pointing up.

Fans

Key Name

Key Name is optional and can be left blank. It is not visible to O3 app users.

The key name specifies an internal name for the fan setting that allows it to be controlled independently of other fan settings in an activity. If no key names are specified, all fans in a room will be controlled together. When an activity is applied to multiple rooms, key names can be used to control similar devices the same way in each room.

Fans

Fans specifies the state of the fan operation. The list of allowed states is taken from the MIC object specified for Fan in the Activity Unit Settings dialog on the O3 Room Activities page. See Selecting the Units for Room Activities.

Deploying the O3 App for Building Occupants

The O3 app allows occupants with the proper permissions to control the comfort settings of a room by interacting with enteliWEB, an O3-DIN controller, and a sensor hub.

To use the O3 app, occupants must log in with either an enteliWEB account or a Google Account (Gmail address). Both login methods are valid on Android and iOS mobile devices.

Users with a Google Account

When a user logs in to the O3 app for the first time with a Google Account, enteliWEB creates a guest account for the user and assigns them to the O3 Room Guests group—provided the automatic guest user creation function is enabled. To enable this function, go to ⚙ > **Configuration** > **Global Settings** and select the Enable Automatic Creation of Guest User Account checkbox.

The O3 Room Guests group is created automatically in enteliWEB and includes the necessary object, service, and device permissions to use the O3 app. To view or edit the group's settings, go to ⚙ > **Sites and Users** > **Groups** and click O3 Room Guests.

As long as the O3 room control permissions are set to Everyone in Room, users with Google Accounts should be able to see rooms and control setpoints and comfort settings when they log in to the app.

Users with an enteliWEB Account

Users with non-administrator enteliWEB accounts can log in to the O3 app with their enteliWEB account credentials but they will not be able to see rooms and control setpoints and comfort settings unless they are assigned to the O3 Room Guests group or to another group with the same object, service, and device permissions.

To add an enteliWEB user to the O3 Room Guests group:

1. Go to ⚙ > **Sites and Users** > **Groups** and click O3 Room Guests.
2. In the Members area, click ✎ Edit. The Edit Membership dialog opens and lists the usernames of all users.
3. In the Search field, enter the username of the user you want to add and press Enter. The username is shown in the list of users.
4. Select the user and click Save.

To create a group based on the O3 Room Guests group:

1. Go to ⚙ > **Sites and Users** > **Groups** and click O3 Room Guests.

2. Scroll to the bottom of the page and click Copy Group. The Copy Group dialog opens.

3. Enter a new name for the group and click Create. The new group will have the same permissions as the O3 Room Guests group.

4. Configure other settings for the group as needed.

5. Add members to the group.

As long as the O3 room control permissions are set to Everyone in Room, users with enteliWEB accounts that are members of the O3 Room Guests group (or another group with the same permissions as the O3 Room Guests group) should be able to see rooms and control setpoints and comfort settings when they log in to the app.

Document Revision History

Edition	Date	Change Description
1.0	August 2018	First publication.
1.1	September 2018	Updated object descriptions AI30s000, BI30s002, BI30s003, AI30s007 through AI30s009, and AV30s005.
1.2	September 2018	Added note regarding range limitation for custom value object instances.
1.3	September 2018	In the sections about the O3 room tasks and activities, added a new section called "Before you begin" that describes the requirements to set up O3 rooms.
1.4	October 2018	Corrected temperature sensor instance number on page 11.
1.5	November 2018	Corrected description of BV30s026 object.
1.6	February 2019	Updated O3 app documentation.
1.7	March 2019	Added reference to the Database Creation tool.
1.8	August 2019	Updated object list for 2xP variants, added procedure for loading custom sounds, reorganized document layout.
1.9	September 2019	Revised section on adding custom sounds.