Main Macro Instructions

Cisco Boardroom Version 2.0
For multi-camera solutions, up to five total cameras

Main Concepts

- PTZ Microphone Zones – Z1 / Z2 / etc
- V1 / V2
- SP

PTZ Microphone Zones are used only for PTZ Cameras, if you have any.
V1 / V2 are used only Codec Quad Cameras. Literally, Video input 1 (V1) or Video input 2 (V2) are used for either a Quad Camera that is attached to the Primary Codec or the video link from the Aux Codec.
SP is used only for a SpeakerTrack 60 that is attached to the Primary Codec, which should be in Video input 1 and 2. The use of Quad Cameras and SpeakerTrack 60 arrays are mutually exclusive since you cannot have both connected to a Codec.

Each of these types actually uses one or more microphone inputs on the Primary Codec to trigger them. So in general, there are three types of microphone zones – one that triggers the local Quad Camera or SpeakerTrack 60, one or two that trigger Auxiliary Quad Cameras, and up to five that trigger "PTZ Microphone Zones" – in other words, camera presets.

Legal camera combinations
One or two Quad Cameras (or none at all)
One or more PTZ cameras
One SpeakerTrack 60 camera array
Total cannot exceed five cameras, so possible combinations are

- No Quad Cameras, up to five PTZ camera
- One Quad Camera, up to four PTZ cameras (must be at least one)
- Two Quad Cameras, up to three PTZ camera (can be zero PTZ)
- One SpeakerTrack 60 camera array (using two video inputs), up to three PTZ cameras (must be at least one)

The program provides automation – when a person is speaking, the appropriate camera is automatically engaged. This is done by monitoring the microphone inputs on the Codec Pro to determine which input has a person that is actively speaking.
When a microphone is active, it will trigger a change in the Main Video Input on the Codec Pro. If you are using one Quad Camera or SpeakerTrack 60 array, or two Quad Cameras, it will select one of them, and the Quad Camera or SpeakerTrack 60 array will automatically zoom in on the person speaking. If you are using one or two PTZ cameras (PTZ 4K or Precision 60), it will trigger a camera preset for one of the cameras.
If you are using two PTZ cameras, you can have a primary preset (using one camera) and a backup preset (using the other camera) so that remote participants never see one camera moving from one preset to another. Instead, the available PTZ camera will always be used, so the far end sees a clean cut.

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+ Section 1 +
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For any installation that has two Quad Cameras, the design mandates the use of a Primary Codec Pro and an Auxiliary Codec Plus.
If your installation uses two codecs, enter the following information into Section 1 of the **main_codec_macro.js** file:
Line 33 – enter the IP address of the Auxiliary Codec
Lines 38 and 39 – enter a valid admin username and password for inter-codec communication.

- Whenever there are two codecs, they communicate with each other using HTTP messages.
- The admin must create identical admin-level accounts on both codecs, for use by the program
- An example is username: CameraMacro and password: CameraMacro
- It is recommended to use these accounts only for the macros to use; create separate admin account(s) for the installer and local administrators

Also enter the following in the **aux_codec_macro.js** file:
Line 23 - enter the IP address of the Main Codec
Lines 27 and 28 – enter a valid admin username and password for inter-codec communication as defined above.

If your installation uses only one codec, enter the following information into Section 1 of the **main_codec_macro.js** file (you will not need the **aux_codec_macro.js** file at all in this scenario):
Line 33 – just two sequential single quote marks (empty string)
Lines 38 and 39 – comment them out as they are not needed or leave as is (will be ignored)

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+ Section 2 +
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Lines 69 and 70 – if you have PTZ cameras, this is where you define the PTZ Microphone Zones for them.
A simple example – let's say you need one PTZ camera to point toward the head of the table, where the executives sit, because the Quad Camera does not zoom in enough. So – you would use one of your microphone Zones and line 69 would look like this:
const Z1= {'primary': 11, 'secondary': 11}
Why? Because you are only defining one microphone zone, and you have only one PTZ camera. You can't have a different secondary preset if there is only one PTZ camera.
What? The number 11 represents the PresetID that you using on the codec. **Don't use PresetIDs 1 thru 10**, because your users will need the ability to set camera presets from the Cisco Navigator / Touch 10 user interface. Therefore, we recommend that you start with PresetID: 11 and go up from there.

A complex example – you have two Quad Cameras (leaving you only six Microphone Zones) and you have two PTZ cameras. And – you want to set up six Microphone Zones with both a Primary and a Secondary Camera Preset.
Line 69 would start like this:
const Z1= {'primary': 11, 'secondary': 12}
const Z2= {'primary': 14, 'secondary': 13}
const Z3= {'primary': 15, 'secondary': 16}
const Z4= {'primary': 18, 'secondary': 17}

const Z5= {'primary': 19, 'secondary': 20}
const Z6= {'primary': 22, 'secondary': 21}

Why? You have defined six different Microphone Zones, each with a primary and a backup camera preset. Remember: these zones are only used for PTZ cameras – they are not needed for Quad Cameras.

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+ Section 3 +
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Line 85 – this is where you identify the physical microphone inputs on the Codec Pro that you want to monitor. Any microphone input that is used to automate a camera selection is listed here. You can list any microphone input numbers – just a few or all eight. Don't list the presenter microphone here – because PresenterTrack uses a different mechanism to start.

The physical microphone inputs on the Codec Pro are used to trigger camera actions automatically. If you use Cisco Table Microphones, you can have up to eight connected to the Codec Pro. If you use an audio DSP, you can have up to eight analog inputs from the DSP into the Codec Pro. Each analog line from the DSP would represent the microphones that define the up-to-eight Microphone Zones that you need.

Line 96 – this is where you map each microphone input to a camera source. Remember, your choices here are SP if you have a SpeakerTrack 60 attached to the Primary Codec, V1 / V2 for Aux Codecs running Quad Cameras, and Z1-Z8 for PTZ Microphone Zones. **IMPORTANT: The number of entries in this constant must match the number of entries in line 85.** If you list five microphones in line 85, you *must* have five entries in line 96.

Line 102 – if you have a Quad Camera connected directly to the Primary Codec, it should be connected to HDMI input #1, and you would leave this line as is, identifying it as connected to input 1. However, if you do *not* have a Quad Camera connected directly, change this from 1 to 0 (zero).

Line 112 – in order for the program to work correctly, it is necessary to list the physical video input for each Camera ID# - but only for the PTZ cameras. For example, it is common to have one of the cameras plugged into 3G-SDI input 6, so as written CameraID: 2 is using physical input #6. The other two PTZ cameras have IDs of 3 and 4, using inputs 2 and 4 respectively. Any camera can use any input, except that the Quad Camera should use input 1 (because of ARC). You do NOT need to list the inputs used by the local Quad Camera, by the Aux Codecs, or by a Presenter Camera.

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+ Section 4 +
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Now we introduce the OVERVIEW shot. This is used under three conditions:

1. At the beginning of the call
2. If nobody in the room is speaking
3. If someone presses the mute button (perhaps to have a sidebar)

Your choices for the OVERVIEW shot are Side By Side (indicated by overviewShowDouble = true), or to have a single camera OVERVIEW of the room.

If you set line 129 for false, then line 132 should indicate the video source for the camera that you want to use for the OVERVIEW shot. The OVERVIEW shots always use Preset ID 30.

However, if you want to use one of the PTZ Microphone Zones for the OVERVIEW shot – like perhaps the head of the table, you can enter this in line 138. Simply comment out line 138, and enter your primary (and secondary if it exists) camera presets in line 139 – and uncomment it. This will take precedence over line 132.

Line 144 – if you are using Side by Side as OVERVIEW, this allows you to enter the order of the video inputs. Usually it is 2,1 but depending on how your cameras are positioned it could be 1,2.

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+ Section 5 +
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Timers and Thresholds

Line 156 allows you to change the amount of time before the OVERVIEW shot is used when nobody is speaking. The default is 10 seconds, but this can be changed.
Line 158 is the amount of time to wait before switching to another speaker. Two seconds works well.
Line 160 is the amount of time that the OVERVIEW shot is used at the beginning of a call.
Line 163 is the amount of time that the codec will wait for the new camera to arrive at its preset before switching to it. It allows the camera to pan / tilt / zoom without being seen by remote participants. You should experiment with this value during commissioning.

Lines 173 and 174 are the minimum and maximum microphone level thresholds. The default values usually work well, but this should experimented with during commissioning. The way it works is this:

- If a single microphone has an average value above the MICROPHONEHIGH threshold for two seconds, then action is taken to switch to the appropriate camera. If the camera is already there, no action is taken.
- If all of the microphones have an average value below the MICROPHONELOW threshold, then action is taken to switch to the OVERVIEW shot. If the camera is already there, then no action is taken.
- If the loudest microphone is between the LOW and HIGH thresholds, then there is not enough information, and no change happens from the previous time interval.

The rest of the macro should not be edited.