



You make **possible**



Implementing and troubleshooting Webex cloud registered devices

Webex Kits, Rooms, Board, and Share

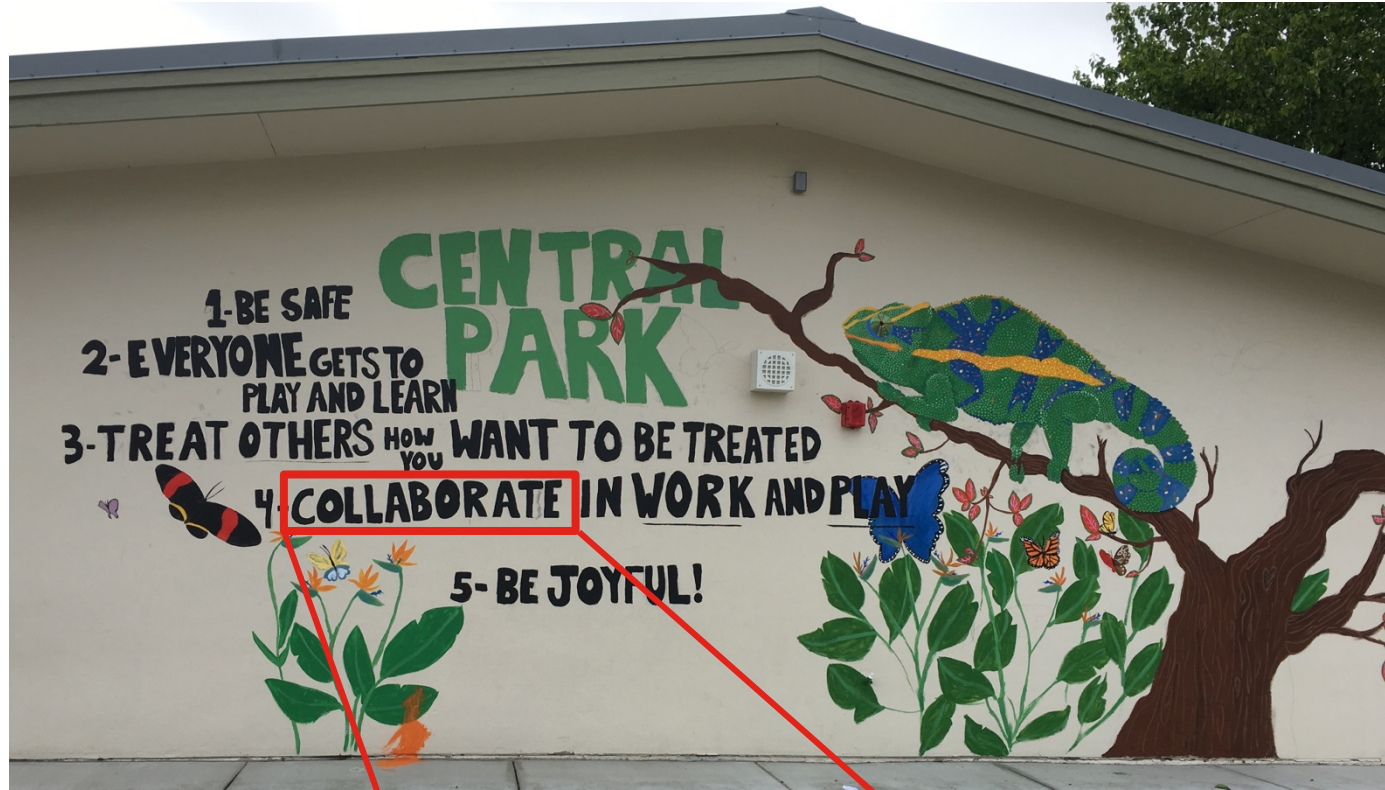
Hisham Abdelhamid
Sr. Technical Marketing Engr.

BRKCOL-2111

CISCO *Live!*

Barcelona | January 27-31, 2020





4- **COLLABORATE** IN WORK AND PLAY

COLLABORATE

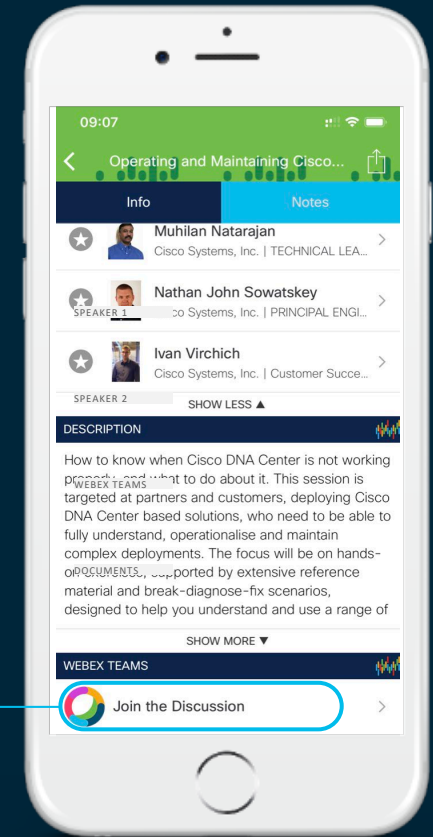
Cisco Webex Teams

Questions?

Use Cisco Webex Teams to chat with the speaker after the session

How

- 1 Find this session in the Cisco Events Mobile App
- 2 Click “Join the Discussion”
- 3 Install Webex Teams or go directly to the team space
- 4 Enter messages/questions in the team space



Agenda



- Level set
 - Why register to the cloud?
 - Feature updates



- Deployment Best Practices
 - References & Checklists
 - Planning & Implementation
 - Physical install
 - Network attachment/bandwidth
 - Customizations
 - Operation & Troubleshooting



- Control Hub tie-in
 - Device management
 - Reporting and Diagnostics



- Conclusion

Why consume UC as SaaS (cloud delivered)?



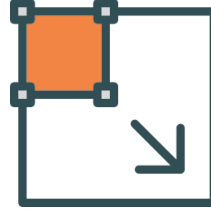
OPEX & CAPEX
Savings



Faster & easier
deployments



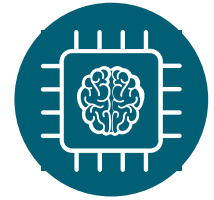
Self-managed
expansions



New capabilities
delivered faster



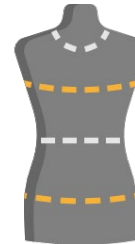
Cognitive
Collaboration



Security: tie to SSO,
Oauth, CASB, DLP,
retention, MDM, ...



Cloud based
management and
user portals



Customized
Experiences
using APIs



Access to 3rd party
open integration
services/AI libraries

cisco *Live!*

Why would you continue with on-premise UC?



Sweat Assets
(& Licensing)



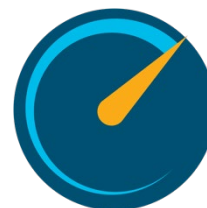
Network
Readiness



On-boarding
at scale



Metrics and
reports



Regulations



Feature Set



Control over
deployment
(& outages!)



Dial Plan,
directory, and
address books



User
Experience



Third party
devices & clients

Webex devices that can be cloud registered



Recap – January 2020

Webex Share



DX70



DX80



Webex Desk Pro



Q1CY20

MX200 G2



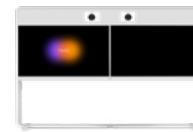
MX300 G2



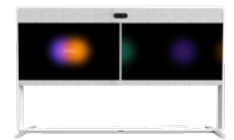
Room 55



MX700 – 55”



Room 55 Dual



Webex Boards:

55, 55S, 70, 70S, and 85



MX800 Single



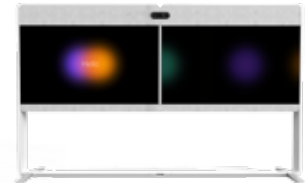
MX800 Dual



Room 70 Single G2



Room 70 Dual G2



SX10



SX20



SX80



SpeakerTrack 60



Room Kit Mini



Room Kit



Room Kit Plus



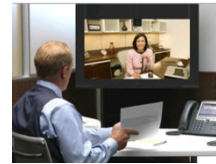
Room Kit Pro



CISCO Live!

Let's try our luck with "name that device"? 😊

None of these can be cloud registered...



All the Cisco video endpoints shown above are End of Life.

cisco *Live!*

Feature Updates

Webex Share
Webex Board
Webex Room Series



Cisco Webex Share

Released 2018

Cloud Only

Highlights

- Scheduling and Calendar Preview
- Automatic Pairing and Greeting
- Cable-free content sharing to any HDTV (locally & in-call)
- 802.11ac WiFi or Wired Ethernet with Enterprise Grade Security
- Licenses included as part of any paid subscription at no additional cost
- Hardware
 - Ultrasonic Emitter for Pairing
 - Microphones for Presence Detection
 - HDMI - 1080p 30fps
 - USB-C to PoE Class 2 Adapter



CISCO *Live!*

Cisco Webex Share - updates

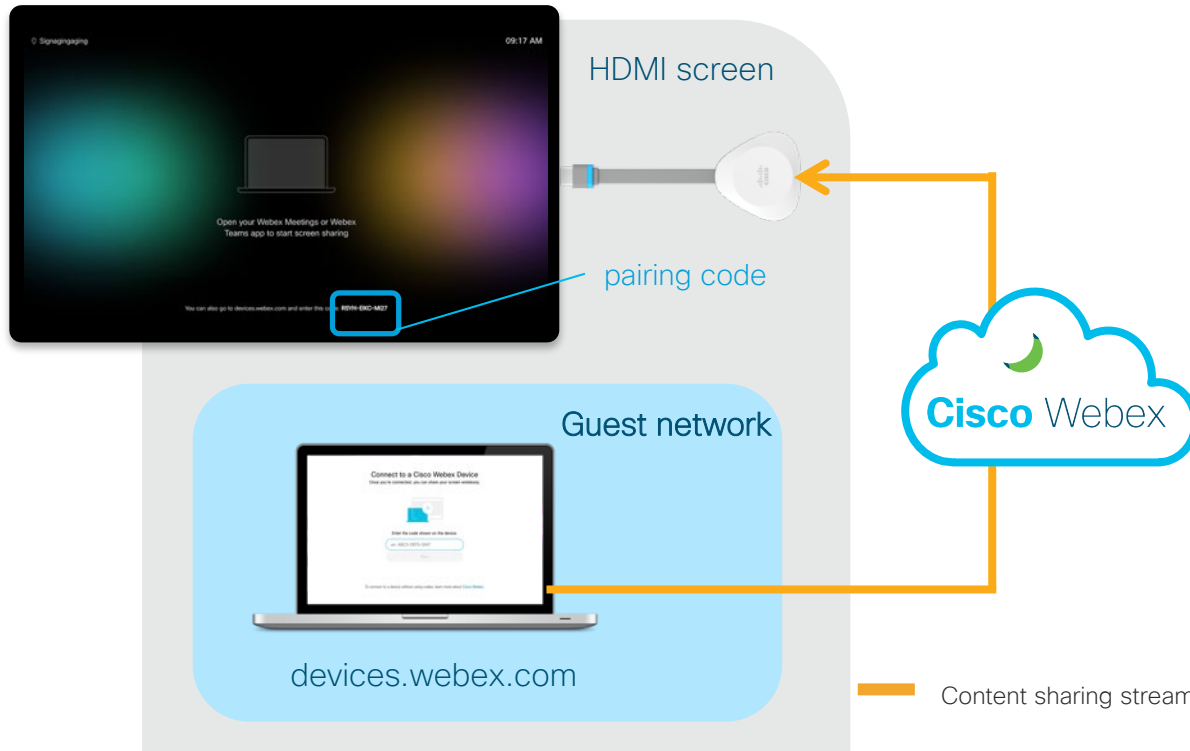
1) Guest Share



Just Released

Highlights

- Basic flow
 - pairing code shows on the bottom of the device screen
 - Guest browses to devices.webex.com and enters the code and then a 4-digit PIN
- Browsers
 - Recent versions of Chrome and Firefox
 - Windows, Mac OS and Linux
- Resolution and frame-rate:
 - Up to 1080p at 30fps on Webex Share device
 - The actual frame-rate depends on multiple factors

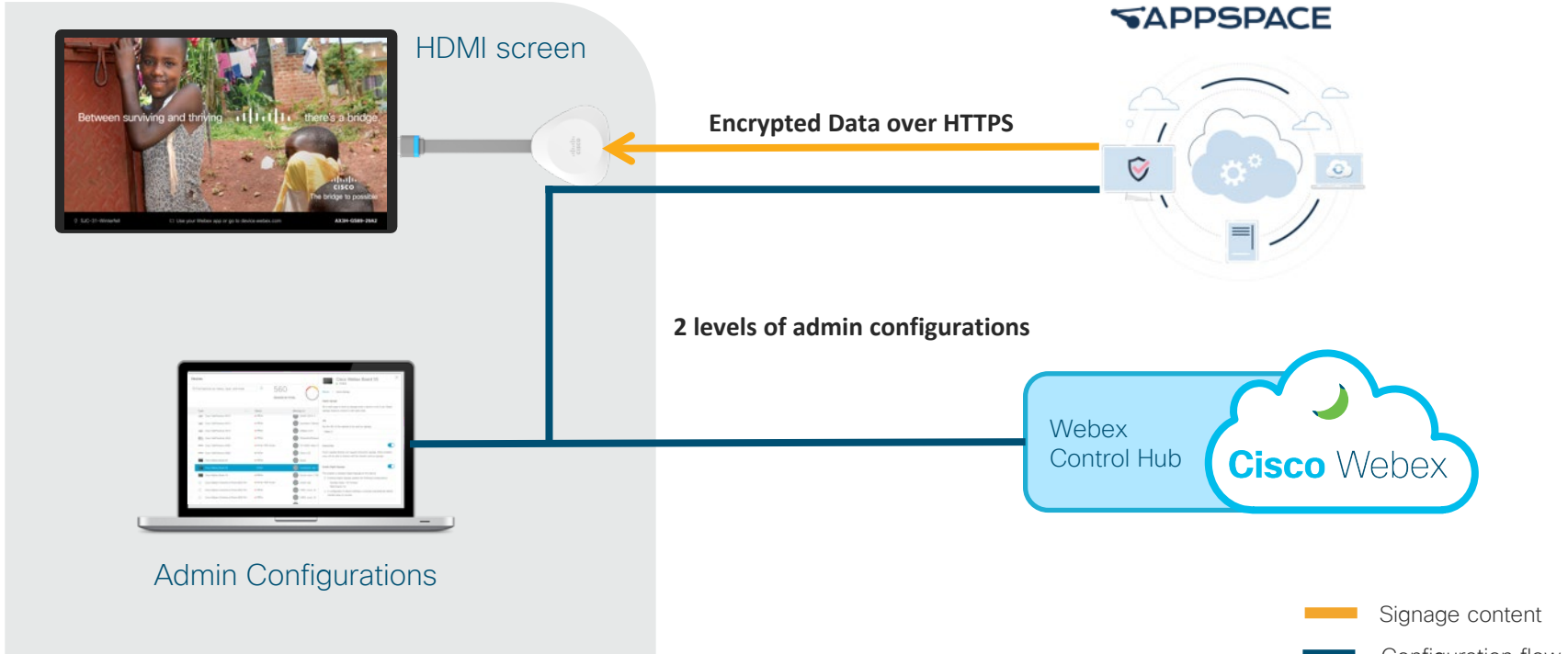


Cisco Webex Share - updates

2) Digital Signage



Just Released

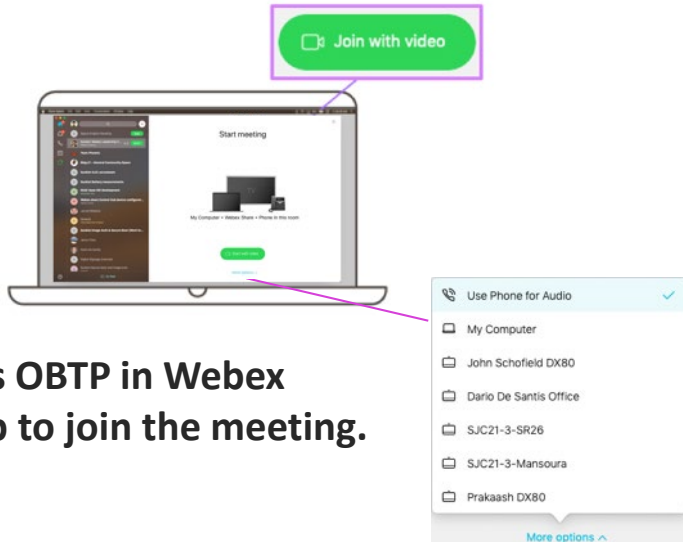


Cisco Webex Share - updates

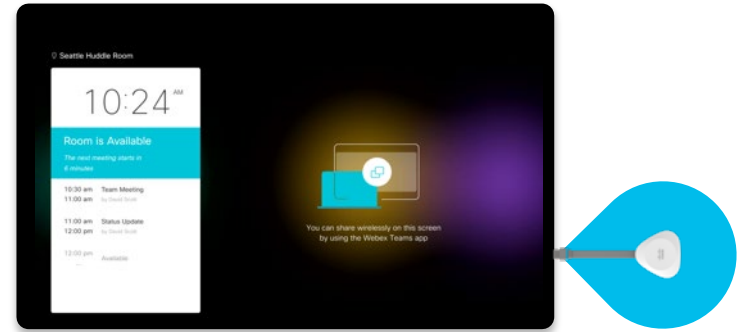
3) Webex Edge Audio - Room Phone integration



Preview



User clicks OBTP in Webex Teams app to join the meeting.



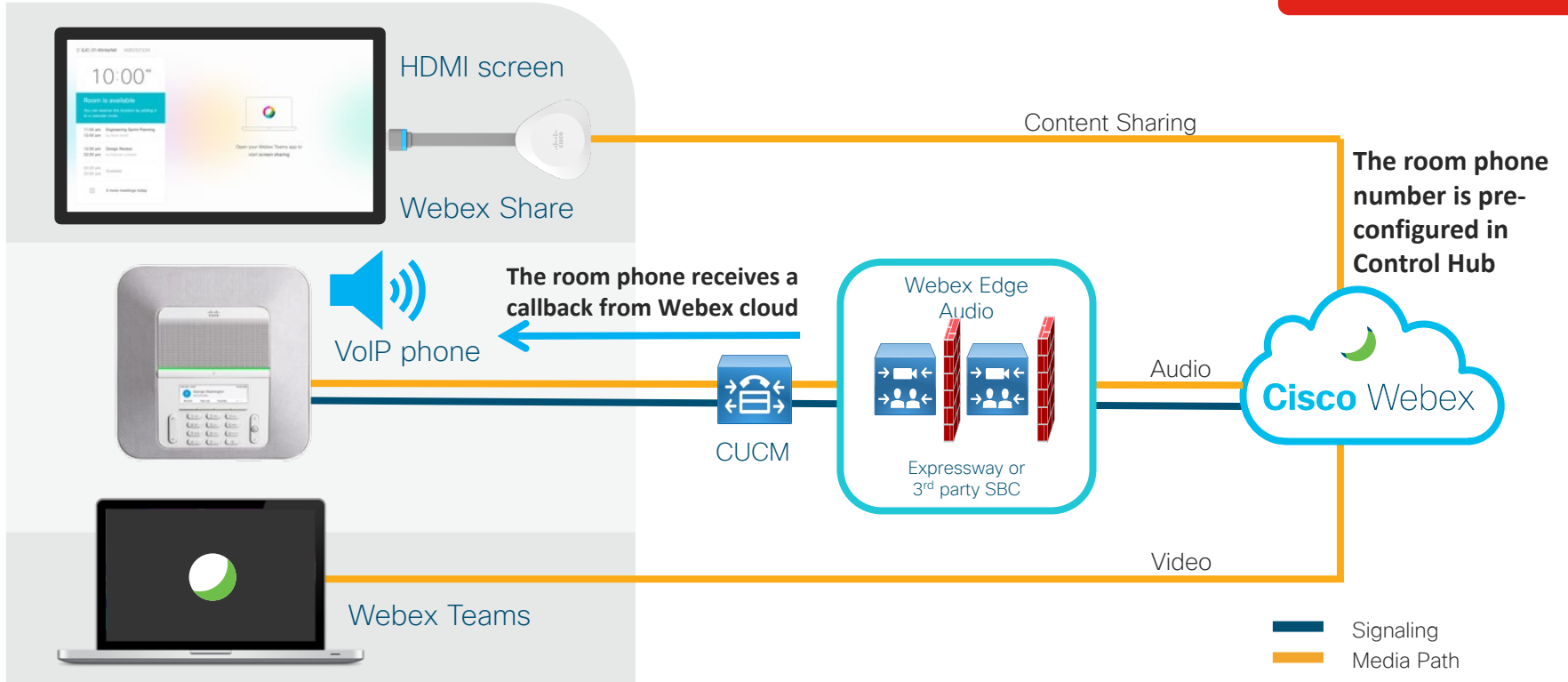
Webex Share joins the meeting and the room phone rings

Cisco Webex Share - updates

3) Webex Edge Audio - callback solution architecture



Preview



Cisco Webex Board Updates



CISCO *Live!*



reddot design award
best of the best 2017



- All-in-one solution:
Digital Whiteboard, Wireless Presentation, and Video Conferencing
- Draw and annotate from any device and from anywhere
- Cloud Persistence
- Leave your logins at the door!
- Engaging Experiences
 - Recognizes and greets you
 - Bring-up your own content

Webex Board Hardware Updates: “S series”



Dec 2018



- Webex Board 85S
- Webex Board 70S and Board 55S – “S series”
 - Scale production
 - Identical design, features, look, and feel; same mounting options
 - PID change, but no changes to product names
 - Minor hardware optimizations
 - Ultrasound speakers, I/O panel (USB-C & micro-USB), lower standby power

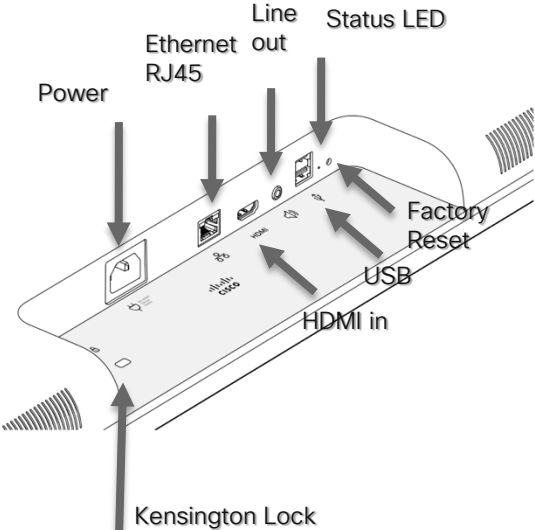


Hardware updates: “S Series” I/O panel

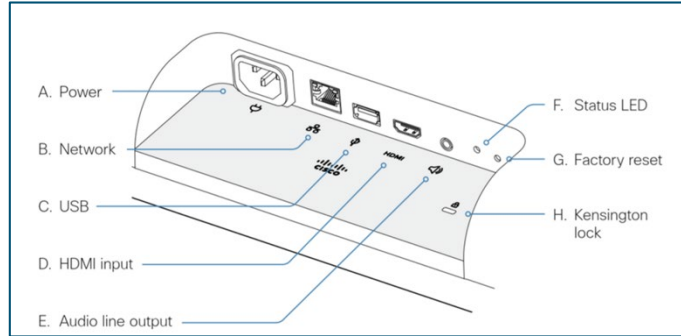


Dec 2018

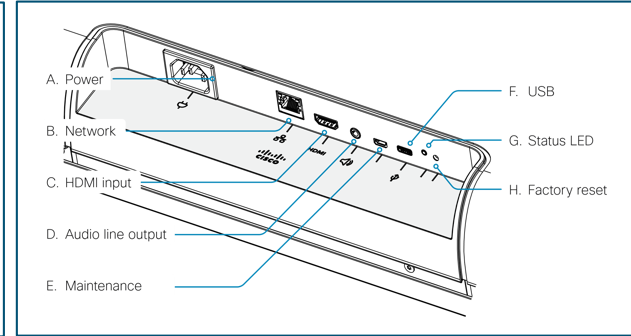
Webex Board 55



Webex Board 70



Webex Board S Series (85S, 70S, and 55S)



Note: S Series ships with RoomOS software only

Webex Board transition to RoomOS software

Usability, troubleshooting, and cloud features



Jan 2019


- RoomOS/CE Admin web interface
 - Control Hub access: launch “Advanced Settings”
 - Configure local users
 - Diagnostics, Factory reset, restart, Extended Logging with PCAP and download of Logs, Call logs, call history, User interface screenshots
 - Backup and restore: configurations, favorites, etc
- RoomOS/CE xAPI
 - Including tshell, HTTP feedback
- Certificate handling and Proxy support
- 802.1x for wired Ethernet
- On screen diagnostic panel
- *Multitude of features released over the past year!*

Cisco Webex Desk Pro

Orderable!

Target GA: 3/20



 Full HD camera with 71 degrees field of view with automatic framing

 Intelligent, noise cancelling 8 element microphone array

 27" display

 4K touch

 Digital whiteboarding pen with magnetic holder

 3.1 speaker array with directional audio

Other Highlights

- Intelligent USB-C
 - presentation share, touch redirect, PC external mic/camera/speaker, and laptop charging!
- 802.11ac WiFi or Wired
- Bluetooth & USB
- HDMI 2.0 in & out
- VESA adapter
- Optional accessory
- Cognitive collab features

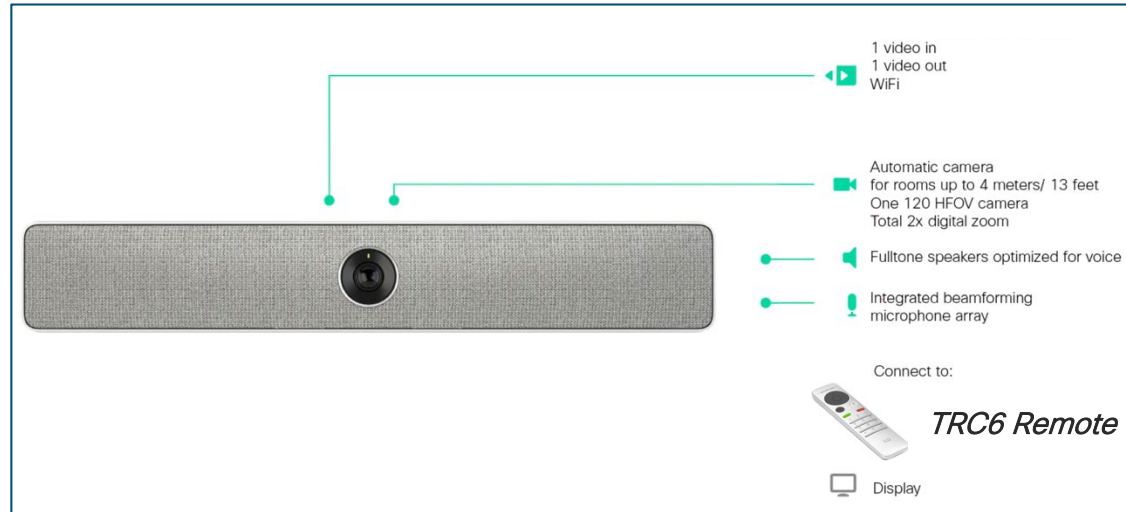
<https://www.cisco.com/c/en/us/products/collaboration-endpoints/webex-desk-pro/datasheet-c78-743105.html>

CISCO *Live!*

Cisco Webex Room Kit USB

Just Announced!!

Target GA: 3/20



Other Highlights

- Mount: above or below screen, or wall mount
- WiFi and Ethernet
- 4k HDMI
- Webex Cloud managed:
 - No subscription required!
 - Room Analytics, Digital signage, Wireless Guest sharing
 - Control Hub: software upgrades, remote management, and reporting/usage metrics

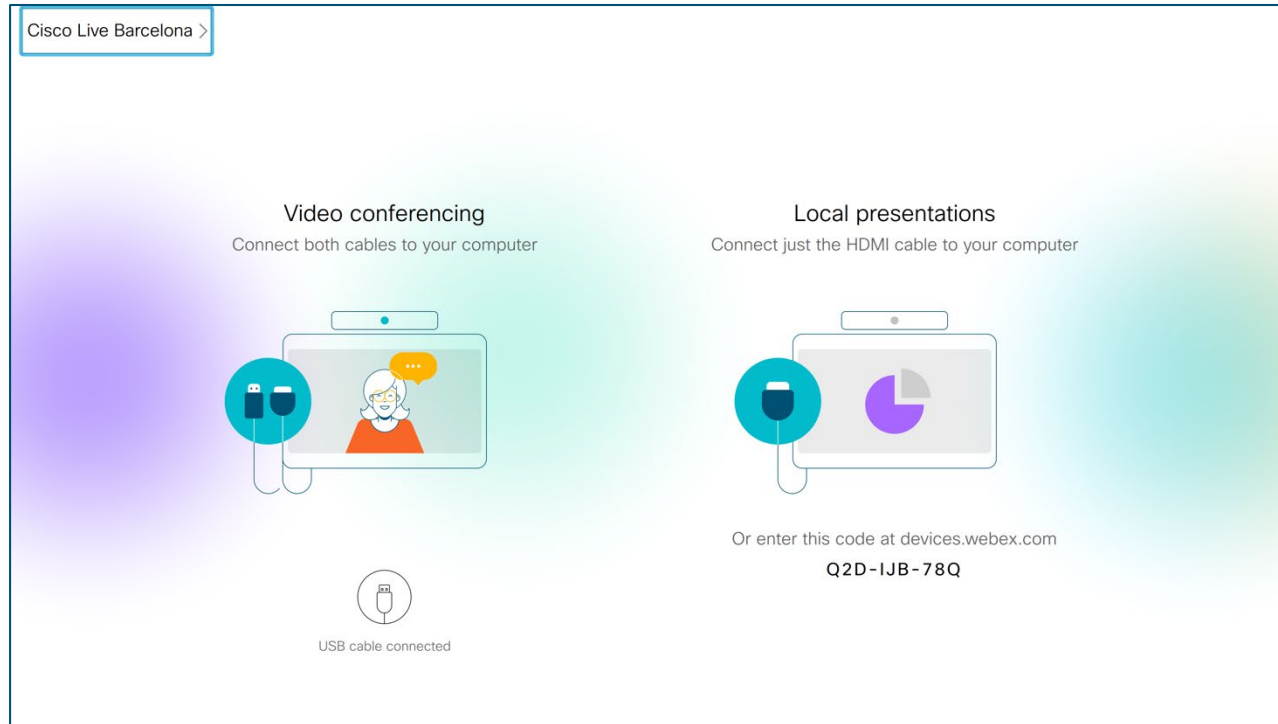
Based on Room Kit Mini hardware

- User PC with third party apps utilizes Room Kit USB as a high-end intelligent camera with audio (single USB cable from PC to camera)
- Cisco TRC6 Remote as control device (no Touch10)
- Upgradable to RK Mini feature set with option key purchase

Webex Room Kit USB

User Interface (first release)

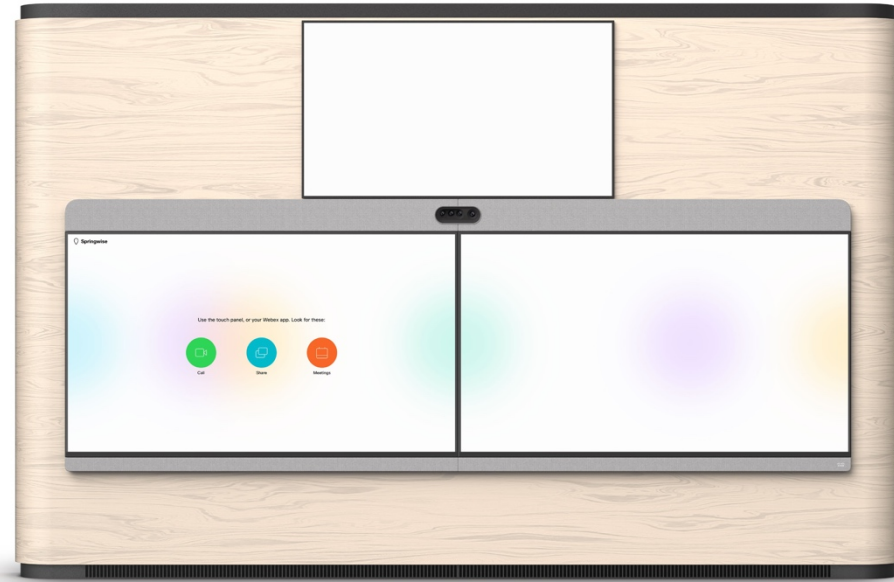
Just Announced!!



Cisco Webex Room Panorama

Preview

Target GA: 1H 20



Panorama and speaker tracking camera for rooms up to 9 meters/ 30 feet
One 83 FOV camera overview
Three 50 FOV tele lenses
Total 5x zoom

Top mounted speaker array with XL bass modules optimized for voice, directional audio and powerful multimedia sound

Professional grade
2 x 82" 8K LED displays
1 x 65" 4K LED display

Codec

Presentation cable
Integrated cable management

Other Highlights

- Optimal framing: Automated frame participants / speakers
- Natural audio: high quality speakers and microphones
- Rich content collaboration
- Cognitive collab features
- Integrations



Touch10 control



5 x Cisco Table Microphones

<https://www.cisco.com/c/en/us/products/collateral/collaboration-endpoints/collaboration-room-endpoints/datasheet-c78-743064.html>

CISCO *Live!*



Room Kit Mini – “Board mode”

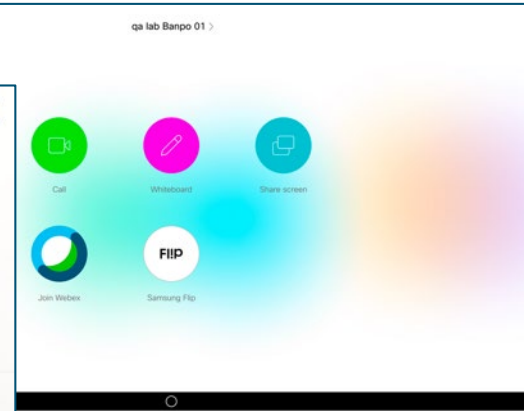
Samsung partnership



Preview

A combination of Room Kit Mini and the Samsung Flip touch screen

- Same Whiteboarding capabilities as the Webex Board
- Supported for both on-premise and Webex Teams registration
- Can add a Touch10
- Two cables to connect:
 - Room Kit Mini’s HDMI OUT → HDMI IN Samsung Flip
 - Room Kit Mini’s USB-A → USB-B Samsung Flip (Touch Out)



Cisco Webex Video Endpoint Features

Sample Features while cloud registered



- Audio Inputs control
- Basic diags from Touch 10
- Call history
- Content share (wired and proximity)
- Directory-based dialing
- Do not Disturb
- Encrypted signaling & media
- Face Recognition/name labels*
- Facility service – webUI
- Factory reset from Touch 10
- Flash incoming calls
- H.264 and Opus
- HDCP – local (*Room 55*)
- In-room controls multiple panels
- Languages/localization
 - Inc. Arabic/Hebrew/Russian

- Local favorites
- Media resilience
- Noise Suppression
- On screen layout control
- OBTP, upcoming meeting
- Output monitor roles
- Pairing, swipe to move calls, and call controls with Webex*
- Personalization: branding, custom wallpaper & ringtones
- Proximity (cloud based)*
- Presenter Tracking
- PSTN DID
- Room Analytics
 - Presence Detector & People Count, reported using xAPI for integrator role

- Self View, local presets with full range of PTZ
- Serial port settings
- Set time zone
- Settings Lockdown
- Self provision: simple onboarding, 16 digit activation*
- Source Compositing
- SpeakerTrack
- Standby control
- URI dialing
- Whiteboarding/annotation*
- Webex Assistant*
- WiFi (as applicable)

****Cisco Webex Teams cloud-only features**
Some features applicable to specific models

RoomOS feature examples (2)



Presentation source compositing
Edit favorites (touch 10, DX UI)
Record Webex Meetings
Local Proximity share to on-premise devices
Third party USB controllers
HTTPClient POST/Put
Remove default buttons on Touch 10
New room mode: Classroom
Macro framework
Advanced Customization of Audio Using the Audio Console Utility
Cisco Webex Assistant on Webex Room Series and Board

Personal Mode
HDCP on room series (room55/70, RK plus, RK pro)
Increased admin API access
SX80 and SX20 Screen status monitoring (CEC)
DX whiteboarding
DX mirrored self-view
Upcoming meetings list (hybrid calendar)
Noise suppression during calls
Participant avatars on Touch 10 during meeting
Cloud xAPI
Flashing screen for incoming calls (accessibility)

Custom prompts on UI
Source composition
Proxy server support
Admit from Lobby
Drop Participant
DX Backlight Compensation
Common Device Phonebook (Hybrid Directory)
New Whiteboard Toolbar and Undo
Pairing Improvements
Edit Favorite contacts on Room and Desk Devices
Report ambient noise level
Face Recognition/name labels

Recent RoomOS feature examples (3)



<https://help.webex.com/en-us/6ger7db/What-s-New-in-RoomOS>

Manage RoomOS Software on Control Hub
Webex Edge for Devices
Annotate everywhere
Save your work and open space capabilities on DX80/70
New Whiteboarding workflow
Companion Mode
Touch Redirect
Add participants to an ongoing call or meeting
Updated layout on Webex Boards
Redo option for Whiteboarding
Opening files stored in OneDrive or SharePoint online from Files activity

Two-Way Whiteboarding (in Webex Meeting)
Advanced Configurations Available on Control Hub
Stickies on Webex Boards
Open Web Apps from Webex Boards
Changes to the Network Settings Menu
New Pen Sizes for Whiteboarding and Annotating
Join Webex Meetings From Device (Webex button)
Create a copy of Whiteboards and Annotations
Digital Signage on Cisco Webex Boards and Room Series Devices

Send Whiteboards and annotations by email
Turn off video during a meeting or a call
USB Headset Support
Annotations stored in the Whiteboard menu
Register a device to cloud using API or local web interface
Extended support for HTTP requests
Infinite whiteboard
Graphical sound mixer available on audio console
Connect to xAPI over a WebSocket

Webex Board on-premise registration



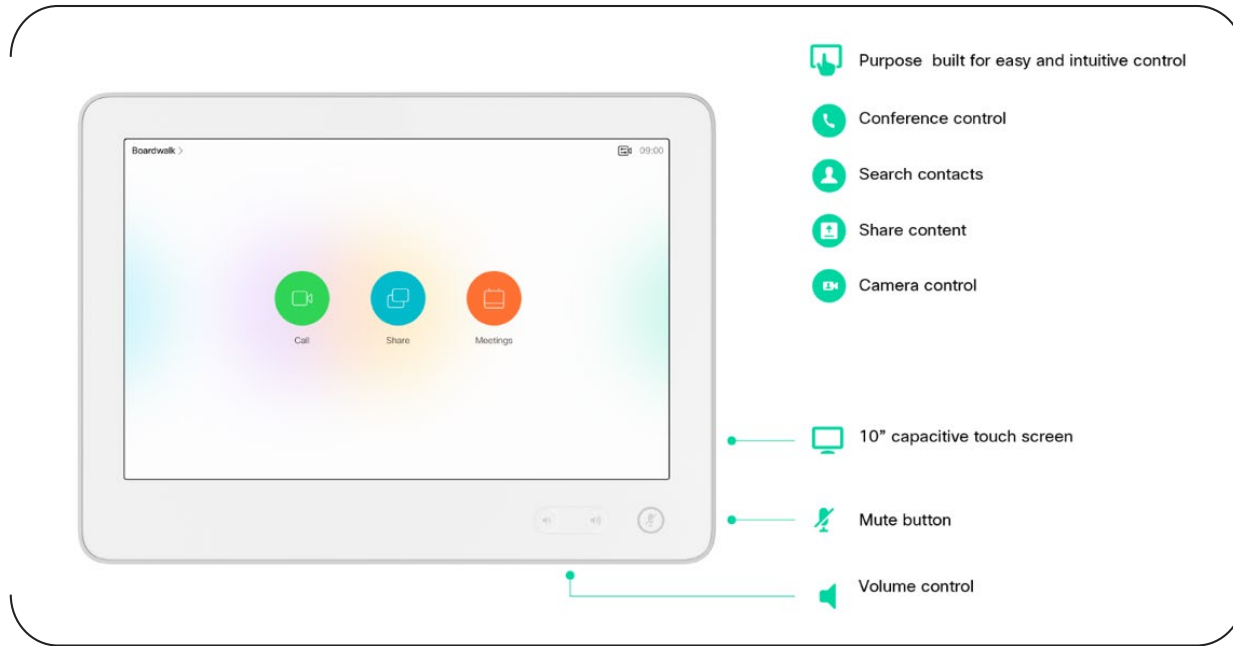
July 2019

- Webex Board must be running CE9.8 (or higher) to register on-premises
- Core functionalities available for On-Premises scenarios
 - When in-call, a similar feature set to the room series is available.
 - Whiteboarding and annotation features are available in local meetings
- Minimum supported versions for infrastructure:
 - TMS 15.9 +
 - CUCM 10.5, 11.5, 12.0, 12.5 +
 - VCS/Expressway X8.6 +
- A Touch 10 is optional
 - More features become available
 - Touch 10 must be paired over the local network

Webex Board support for the Touch 10



July 2019



Webex Board on-premise registration

Feature Overview (1)



Feature	Via on-screen GUI	Via Touch 10	Currently unsupported	Comment
Multisite (add more participants)		✓		Requires multisite option, supports 3 remote video participants
Hold/Resume/Transfer/Ad hoc conferencing		✓		
Shared lines		✓		
Local layout selection			✓	
CMS layout selection		✓		
ISDN dialing		✓		ISDN Link
In-room controls (UI Extensions)	✓	✓		
Digital signage	✓	✓		Added in CE9.9; Board supports interactive signage
WebApps	✓	✓		Added in CE9.9
Touch redirect	✓	✓		Added in CE9.9
Minimize remote presentation			✓	
Local preview of presentation - in call			✓	
Camera control			✓	
Far-end camera control		✓		

CE9.x release notes: <https://www.cisco.com/c/dam/en/us/td/docs/telepresence/endpoint/software/ce9/release-notes/ce-software-release-notes-ce9.pdf>

Webex Board on-premise registration

Feature Overview (2)



Feature	Via on-screen GUI	Via Touch 10	Currently unsupported	Comment
Selfview	*	✓		Enabled on Touch 10 Only * Can be moved around in the on-screen GUI
Custom wallpaper			✓	Not to be mistaken for Branding, which is supported
Custom text awake state			✓	Custom text in awake state is not supported, custom text in halfwake is supported
Source composition			✓	
Local Meeting whiteboarding and annotation	✓			Not supported in-call
Whiteboarding/annotation in meeting - 1-WAY	✓**	✓**		CE 9.12 EFT Jan 20 - whiteboard transcoder: ** 1-way transcoded whiteboard sent as content stream
Multiple whiteboard/annotation sessions	✓			For local meetings, stored temporarily on the Webex Board. Not supported in-call
Email multiple whiteboards/annotations	✓			Requires SMTP configuration, whiteboard sent as a PDF
Infinite whiteboard canvas	✓			local meeting only.
Webex Button	✓	✓		Added in CE9.9
Webex Assistant, Proactive join, CH automated software upgrades, two way in-call whiteboarding/annotation			✓	Not supported with “pure” on-prem registration. Webex Edge for Devices as a pathway to bring in some (but not all) of Webex Cloud registration benefits

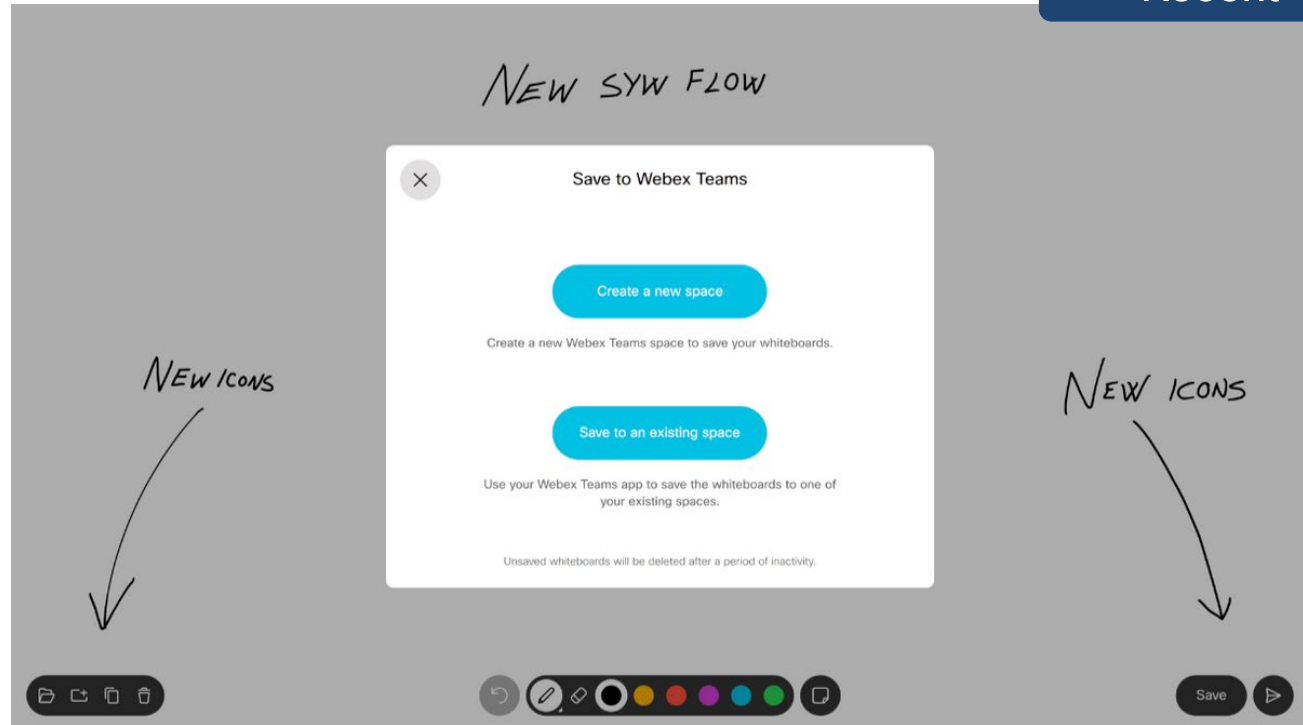
Enhanced whiteboarding features



Recent

Highlights

- Added colors
- Undo/Redo
- Sticky Notes
- Extended Canvas / infinite WB
- Zooming
- Send to Email
- Duplicate (create a copy)
- Pen “thickness”
- Activity Indicators



Webex Board

Other recent notable features



Recent

- Digital Signage (6/2019)
 - display custom content on Webex Boards and Room Series devices when in half-wake state
 - <https://help.webex.com/en-us/nmd8log/Enable-Digital-Signage-on-Cisco-Webex-Boards-and-Room-Devices>
- Email Whiteboards & Annotations (6/19)
- Webex Assistant (6/19)
- Web Apps (8/19)
 - creates macros to open web apps on Webex Board
- Touch re-direct (11/19)
 - use the Webex board touch screen to control a Windows 10 PC
 - <https://help.webex.com/en-us/nxqcrbz/Wired-Touch-Redirect-from-Webex-Boards>
- Annotate Everywhere (12/19)
 - annotate on shared web pages and files
- Companion Mode (12/19)
 - one Room Series device and one Webex Board to work as a combined system
 - <https://help.webex.com/en-us/ogrc5/Set-Up-Companion-Mode>

Web App

Configuring a WebApp on Webex Board



Recent

Properties

Id
trello

Name
Trello

Position
↓ ↑

Web app URL
http://www.trello.com

Web app icon URL (optional)

If empty, the icon is fetched automatically from the Web app URL. Otherwise use .ico, .png, .jpg, .svg or .gif with a minimum size of 60x60 and a maximum size of 1200x1200.

Web app is displayed:
Always
Only out of call
Only in call

Delete webapp

UI Extensions configuration

Extensions

Start adding your first UI extension

New

Add a new UI Extension

Panel

Create a panel with buttons and sliders. These can for example control the lights in the meeting room.

Action Button

Create a button that runs a custom script. This is a great way to create quick dials for instance.

Webapp

Create a button that opens web page on the device. Can be used on Webex Boards provide interactive web tool.

*Requires that the Web Engine is enabled. Only available outside of call.

Oakland Webex Board >

Ultrasound is off

Call

Whiteboard

Join Webex

Trello

Cognitive Collaboration

Endpoint specific subset



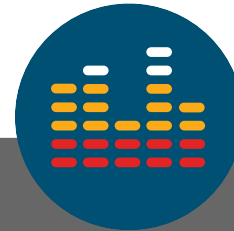
Multi-modal Bots & Assistants

Webex Assistant
Proactive meeting join
Room Scheduling



Computer Vision

People Count /
Room Analytics
Facial Recognition/
Name labels



Audio & Speech Technologies

Noise Detection
(Wakeup On Motion
Detection, Ambient noise
estimation, key clicks...)
People Presence
Speech Integration

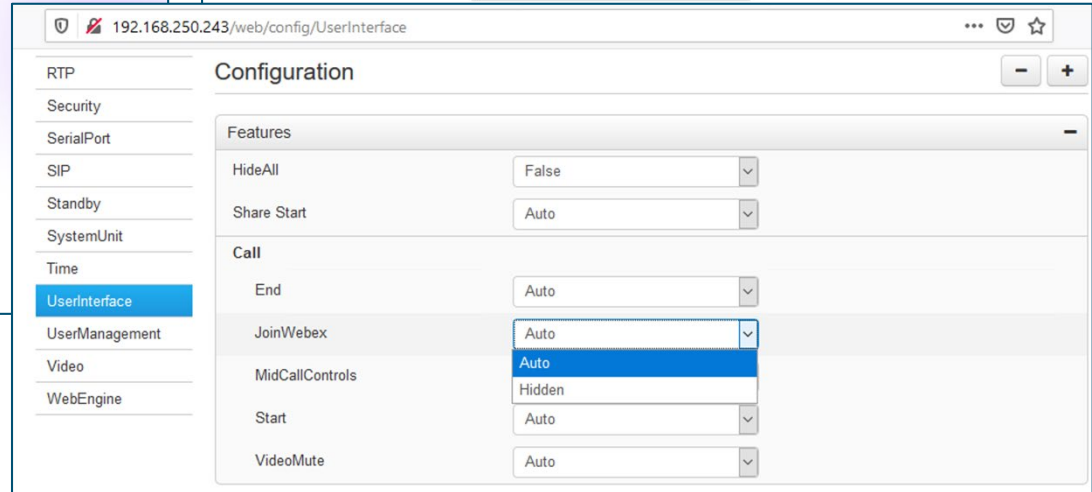
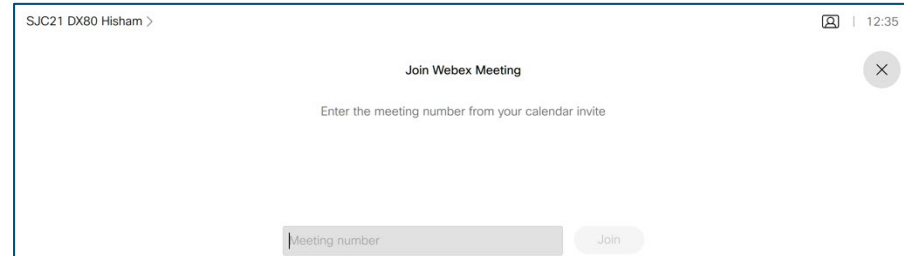
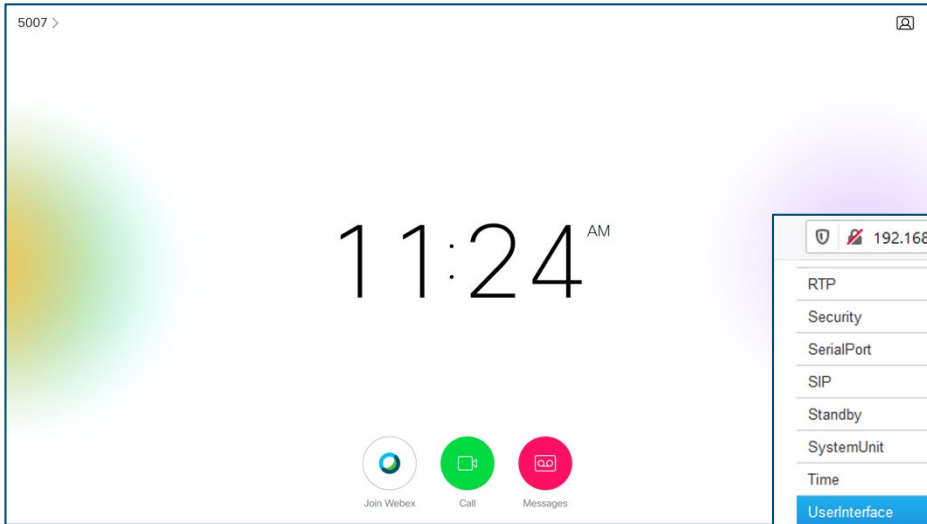
BRKCOL-3008: Cognitive Collaboration – AI and Machine Learning Assisted Collaboration

Webex Button

One tap access to Webex meeting number entry



Recent

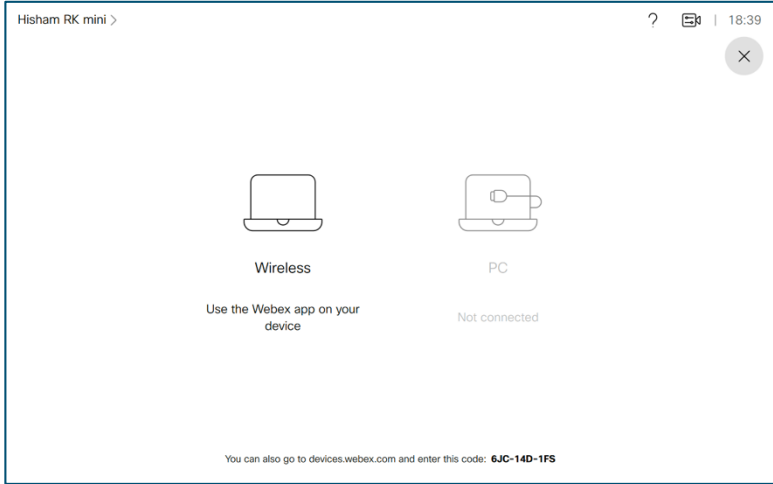


Guest share

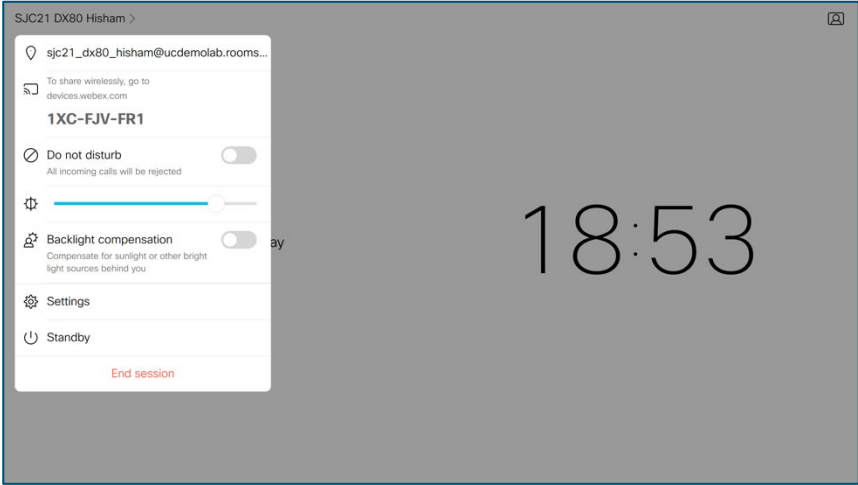
devices.webex.com



Recent



Touch 10



DX80 (in room mode)

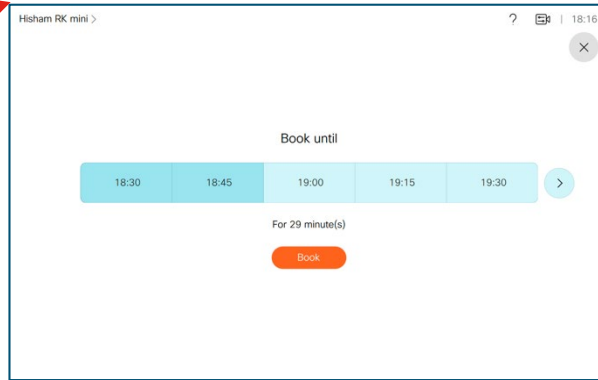
Room ad-hoc reservation

Feature Preview

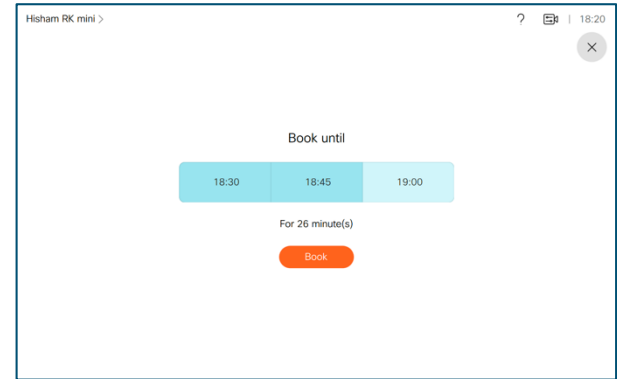


Preview

- Reserve an “available” shared endpoint in 15 minute increments by initiating a booking from the Touch 10



Free Room Calendar



Room booked starting 19:00

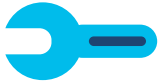
Deployment Best Practices



Deployment Best Practices

- References and Checklists
- Planning and Implementation
 - Physical install
 - Network attachment, bandwidth
 - Customizations
- Operation and Troubleshooting

Webex Devices “Planning” references



- “A place for everything and everything in its place”
 - Project workplace: <https://projectworkplace.cisco.com/>
 - “Best practices for room design”, esp. guidance on lighting and acoustics
 - Huddle Space Quick Designer: <https://collaborate.cisco.com/huddle>
- “Network Requirements for Webex Teams Services”
<https://collaborationhelp.cisco.com/article/en-us/WBX000028782>
- Familiarize yourself with product guides
 - data sheets, physical interfaces, installation, admin guides
 - Release notes and caveats

Webex Devices references (2)



- Requirements for Business-to-Business (B2B) SIP Calls To and From the Cisco Webex Cloud
 - <https://collaborationhelp.cisco.com/article/en-us/7ej8gq>
- Learn xAPI, in-room Controls, Macros, HTTPClient, XoWS!
 - Devnet Sessions at Cisco Live and Devnet learning labs!
 - Introduction to xAPI for Cisco Collaboration Devices: <https://learninglabs.cisco.com/lab/collab-xapi-intro/step/1>
 - Creating Custom In-Room Controls and Macros for Cisco Collaboration Devices: <https://learninglabs.cisco.com/lab/collab-xapi-controls/step/1>
 - Personalizing Collaboration Devices from Code: <https://learninglabs.cisco.com/lab/collab-xapi-branding/step/1>
 - GitHub: <https://github.com/CiscoDevNet/roomdevices-macros-samples>

Webex Devices references (3)



- What's New in Cisco Webex Room and Desk Devices
 - <https://collaborationhelp.cisco.com/article/en-us/n4lhv2s>
- CE 9.10 release notes
 - <https://www.cisco.com/c/dam/en/us/td/docs/telepresence/endpoint/software/ce9/release-notes/ce-software-release-notes-ce9.pdf>
- CE Customization Guide: User Interface Extensions and Macros
 - <https://www.cisco.com/c/dam/en/us/td/docs/telepresence/endpoint/ce98/sx-mx-dx-room-kit-boards-customization-guide-ce98.pdf>
- CE 9.9 API (application programming interface) Reference Guide:
 - <https://www.cisco.com/c/dam/en/us/td/docs/telepresence/endpoint/ce99/collaboration-endpoint-software-api-reference-guide-ce99.pdf>

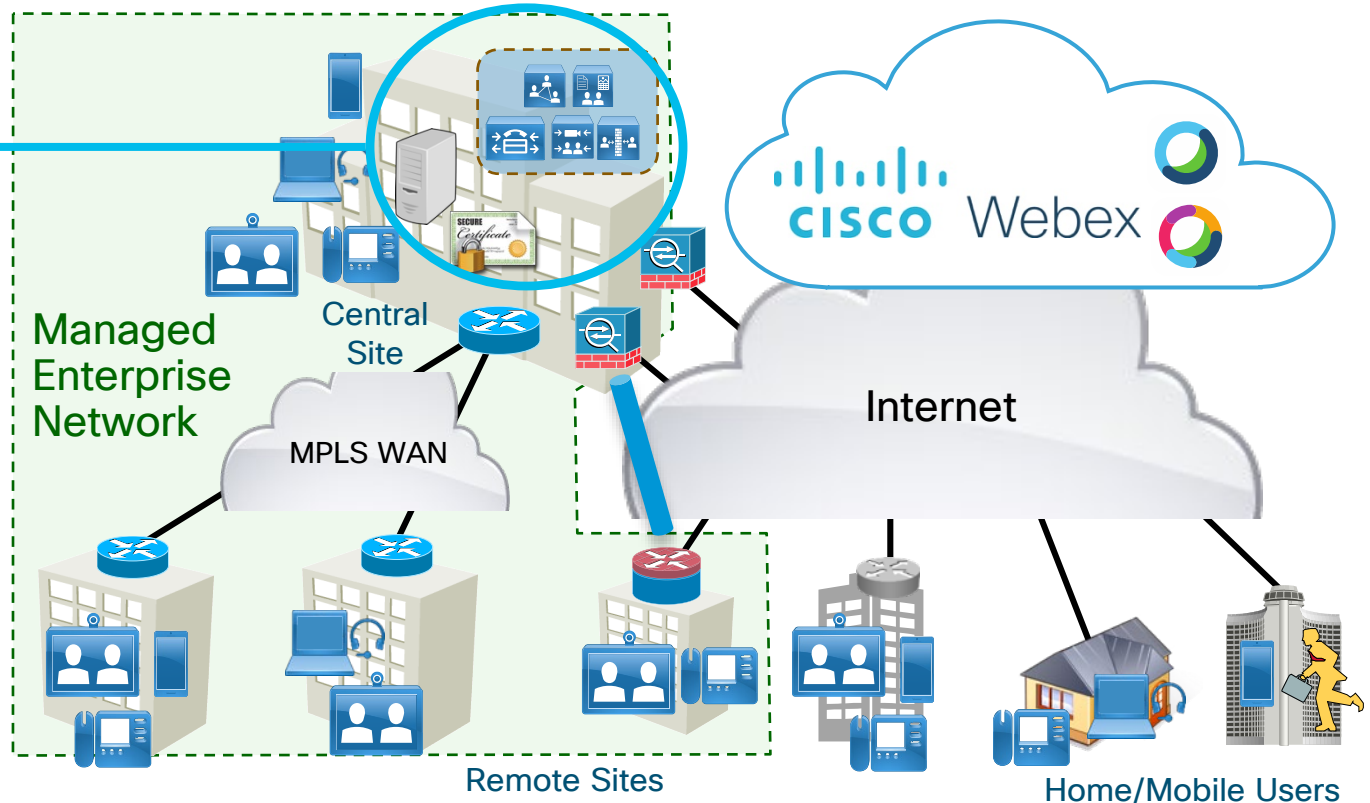
System Implementation

Overall context of enterprise collaboration subsystems



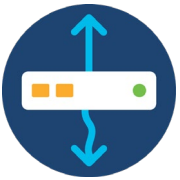
UC enablement functions:

- Management
- Directory and SSO:, AuthN (IdP), AuthZ (LDAP)
- Certificates, Encryption Keys
- Endpoint Registration
- Call Control
- Conferencing: Media Bridge
- Edge and Federation
- Scheduling, Calendaring
- Applications



CISCO *Live!*

Physical install Considerations



- System/endpoint choice
 - CAD drawings
 - Lighting, acoustics, HVAC
 - Project workplace -> Resources – Best practices
 - Don't overcomplicate room design!
 - Touch 10 in-room control vs. custom controller
 - Use codec pro full capability
 - Room customization
 - In-room control, signage, branding
 - Touch 10 connectivity to codec
 - Ports for “network pairing” (TCP 4043-4053)
 - No 802.1x for Touch..
 - Screens and cameras
 - Placement
 - Loading on walls
 - Cable management and “runs” to codec
 - Room kit mini can be installed above or below, flips image (while RK and quad cam does not)
 - When to add Presenter Track
 - Acoustics
 - Audio console on codec pro
 - Does third party speaker pass ultrasound
- Guidelines for the most part are same as on prem, except bandwidth to the cloud*

Webex Room Kit series compatible displays

LG and Samsung



Features uniquely available when Cisco Spark Room Kits are combined with compatible LG Commercial Display

-  Automatic integration and no-touch set-up
-  Auto input changing on incoming calls
-  Low latency detection removes echo and/or lip sync issues
-  Color scheme designed for video and presentation formats
-  Auto system and display standby mode



Verified Best Color Setting UHD Content Under Scan Handling Over Scan Handling



STATING A PROJECT PROGRESS REPORT

Confidence monitoring is required for a customer response and additional needs identified in accordance with each response needs. Address reorganization after more detailed analysis carried out. Detailed statistics such as planning proceeds time, time, device, and page views. Do not use the tool without analysis of the effect of marketing.

13%	9%	17%	21%	25%
865	660	1,316	1,706	1,944
PLANNING LEVEL	BLUE DESIGN	BACKGROUND DESIGN	PROGRAM	RESEARCH



<https://www.lg.com/us/business/commercial-display/certifications/cisco-compatible>

<https://displaysolutions.samsung.com/industries/corporate/samsung-cisco-video-conference-solution>



Cisco Webex Codec Pro Positioning



- The Codec Pro, like the C90 and SX80 before it, has additional audio visual components built right in
- The Codec Pro is in fact four boxes in one:
 - a VTC codec,
 - a video matrix switcher,
 - a windowing processor,
 - and an audio DSP.
- When positioning the Pro in a room design, think of its Design/ Application Features:
 - Video Matrix Switcher with windowing capabilities. Supports resolutions up to 2160p at 60fps, with 4:4:4 chroma sampling and full time video scaling.
 - Audio DSP with eight graphic equalizers, configurable delay zones, and customizable routing.

Implementation: Network Considerations



- Network Topology
- Bandwidth Usage
 - Latency, loss, and jitter
- Secure Device Attachment
 - Bootstrapping
 - Authentication: credentials, certificates, trust chains
 - VLAN/SSID: data/voice, internet access
 - VLAN assignment (CDP/LLDP), 802.1Q
 - IP addressing, DNS & DHCP access, ICMP to devices
 - Network access control: 802.1x, MAB
- Cloud Services Reachability: firewalls and proxies
 - Whitelists for IP ranges
 - TCP, UDP, ICMP ports/protocols for media and signaling
 - Default routes
 - Proxy types supported, proxy set-up,
- QoS
 - DSCP Markings for audio, video, signaling and port ranges
 - Classification, queuing, scheduling, ...
 - Goal: self regulating QoS network with endpoint media resilience and rate adaptation



Proxy support

Room Devices: SX, DX, MX, Room Kit series and Webex Board

- Proxy Support
 - Authentication: No Auth, Basic, Digest
 - Configuration: WPAD, PAC, or Manual
- Proxy Inspection and Certificate Pinning
 - No Support for Custom Trusted CAs for TLS inspection
 - This means TLS inspecting proxies are not supported (Planned)
- 802.1X – Port based Network Access control
 - EAP-FAST
 - EAP-MD5
 - EAP-PEAP
 - EAP-TLS
 - EAP-TTLS
 - Configure 802.1X for codec via GUI or Touch 10
 - Upload Certs via codec admin GUI

BRKCOL-2795: Webex Teams Security in depth



Bandwidth considerations

- For a comprehensive discussion on bandwidth considerations, refer to the “Bandwidth Provisioning and Capacity Planning” chapter in “Preferred Architecture for Cisco Webex Hybrid Services, CVD”

<https://www.cisco.com/c/en/us/td/docs/solutions/CVD/Collaboration/hybrid/12x/hybcvd/bwm.html#28588>

- Use the CVD examples as a good starting point, but only a starting point!
- Budget reasonable overhead
 - Video is bursty!
 - Typical vs. “maximum”

Endpoint	Audio BW	Video BW (Typical)	Video BW (Maximum)
Webex DX Series, SX10	80 kb/s	1 to 2 Mb/s	3 Mb/s
MX Series, SX20, SX80, Webex Room Kit, Webex Board, Desk Pro	80 kb/s	2 to 4 Mb/s	10 Mb/s

BRKCOL-2777: Webex Bandwidth Management



Webex Cloud registration Best Practices



- Be familiar with device relevant configurations on Control Hub
 - WiFi discovery
 - Admin Settings lock
 - Advanced Configuration
 - Enable Webex Assistant – where/when available
 - Org level branding – once released will be under “Settings”
- Define local users on your devices
 - Full admin, Integrator, Inroom Control
- When configuring devices on Control Hub
 - Choose indicative names for Places
 - Add Tag to devices – easier search, segment deployment, add hierarchy
- Make sure you are on the same network to access “Advanced Settings”

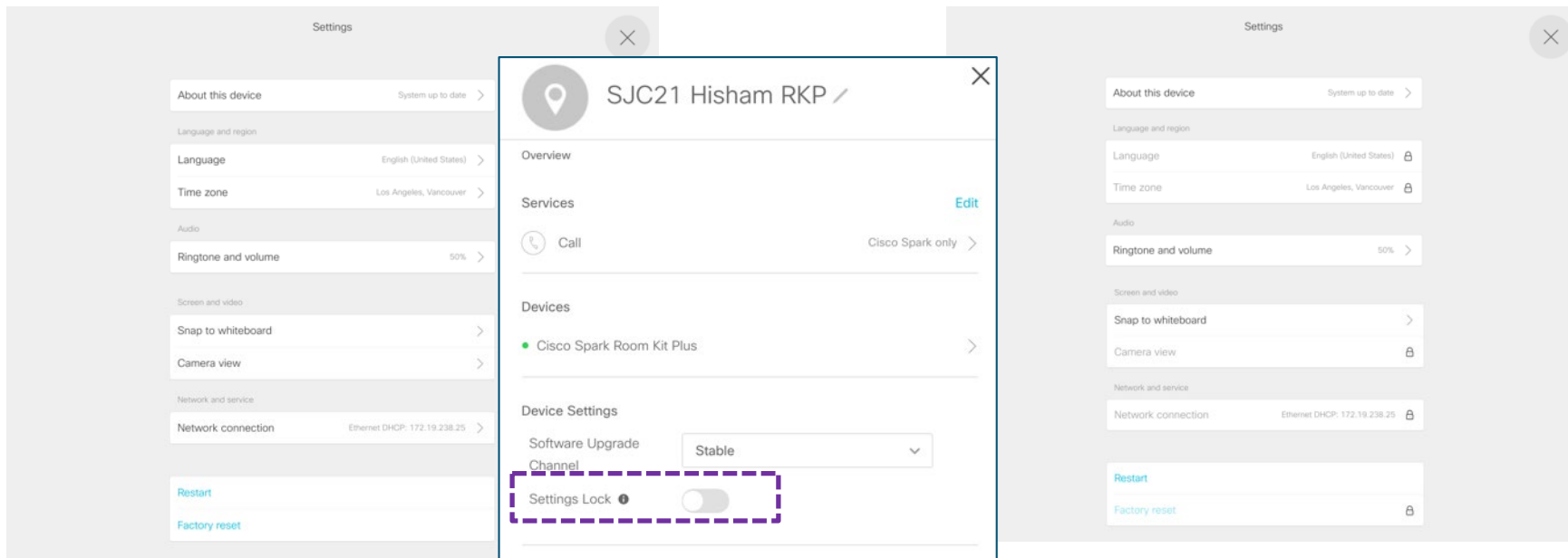
Customizations



- Room templates
- Branding
- Locking access to admin settings
- In-room Control
- WebApps
- Advanced feature sets
 - xAPI support with cloud registered
 - Macros
 - Cloud xAPI
 - xAPI over WebSockets
 - HTTP Client:
POST/PUT/UPDATE/Delete
 - Audio Console

Locking access to admin settings

Cloud registered endpoints



Touch 10
Unlocked
Settings

Control Hub
"Place" config

Touch 10
Locked
Settings

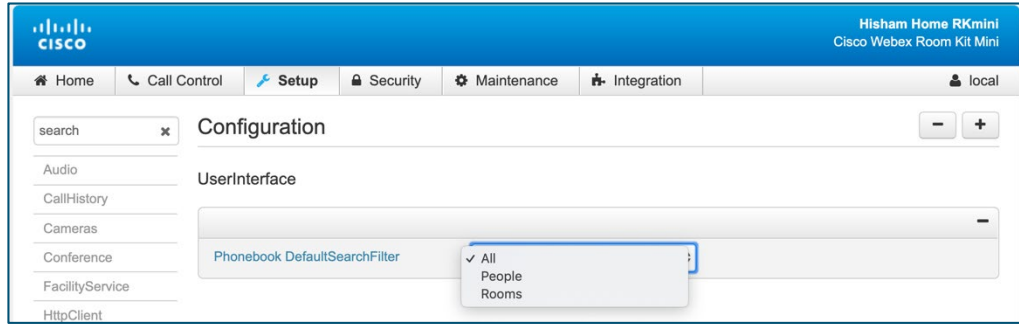
cisco *Live!*

Phonebook Search Filter

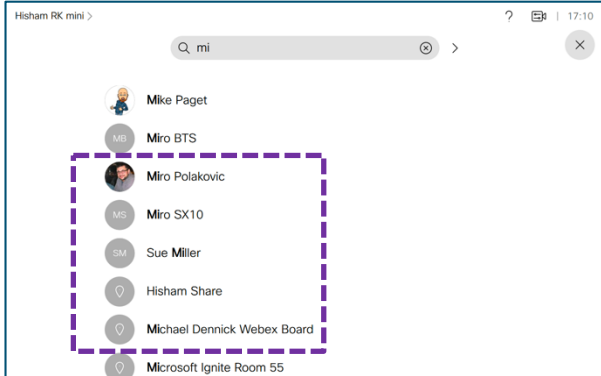
Example of features to look into...



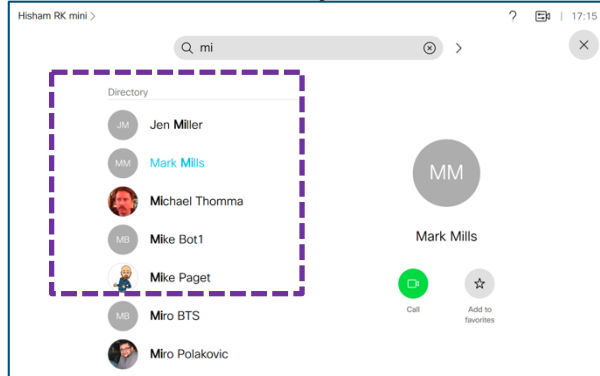
Recent



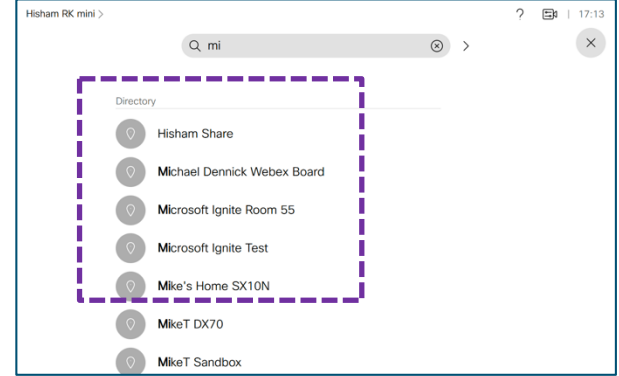
All: Directory search returns mix of users and rooms



People: Directory search returns users only



Rooms: Directory search returns room endpoints only



CISCO Live!



Increased Webex Devices local API Access

Parity with on-prem registration

Cisco Collaboration Endpoint Software API Reference Guide

Introduction About the API xConfiguration xCommand xStatus Appendices

Command	SX80	SX20	SX10	MX800/MX700	MX300G2/ MX200G2	DX80/DX70	Room Kit	Codec Plus	Codec Pro	Room 70 / Room 55 Dual	Room 70 G2	Room 55	Web interface or API	User role
Provisioning CUCM ExtensionMobility Logout	X	X	X	X	X	X	X	X	X	X	X	X	API	A U
Provisioning RoomType Activate	X	-	-	X	-	-	-	-	X	-	X	-	API	A I
Provisioning Service Fetch	X	X	X	X	X	X	X	X	X	X	X	X	API	A
Proximity Services Activate	X	X	X	X	X	X	X	X	X	X	X	X	API	A U
Proximity Services Deactivate	X	X	X	X	X	X	X	X	X	X	X	X	API	A U
RoomPreset Activate	X	X	X	X	-	-	X	X	X	X	X	X	API	A U
RoomPreset Clear	X	X	X	X	-	-	X	X	X	X	X	X	API	A U
RoomPreset Store	X	X	X	X	-	-	X	X	X	X	X	X	API	A U
Security Certificates CA Add	X	X	X	X	X	X	X	X	X	X	X	X	API	A
Security Certificates CA Delete	X	X	X	X	X	X	X	X	X	X	X	X	API	A
Security Certificates CA Show	X	X	X	X	X	X	X	X	X	X	X	X	API	A U
Security Certificates Services Activate	X	X	X	X	X	X	X	X	X	X	X	X	API	A
Security Certificates Services Add	X	X	X	X	X	X	X	X	X	X	X	X	API	A
Security Certificates Services Deactivate	X	X	X	X	X	X	X	X	X	X	X	X	API	A
Security Certificates Services Delete	X	X	X	X	X	X	X	X	X	X	X	X	API	A
Security Certificates Services Show	X	X	X	X	X	X	X	X	X	X	X	X	API	A U
Security FIPMode Activate	X	X	X	X	X	X	X	X	X	X	X	X	API	A
Security Persistence	X	X	X	X	X	X	X	X	X	X	X	X	API	A
Security Session Get	X	X	X	X	X	X	X	X	X	X	X	X	API	A Au I R U
Security Session List	X	X	X	X	X	X	X	X	X	X	X	X	API	A
Security Session Terminate	X	X	X	X	X	X	X	X	X	X	X	X	API	A
Standby Activate	X	X	X	X	X	X	X	X	X	X	X	X	API	A I U
Standby Deactivate	X	X	X	X	X	X	X	X	X	X	X	X	API	A I U
Standby Halfwake	X	X	X	X	X	X	X	X	X	X	X	X	API	A I U

X: Supported - : Not supported

A: ADMIN Au: AUDIT I: INTEGRATOR R: ROOMCONTROL
U: USER

CE9.9 API reference guide Appendix:

“Supported Commands Matrix:

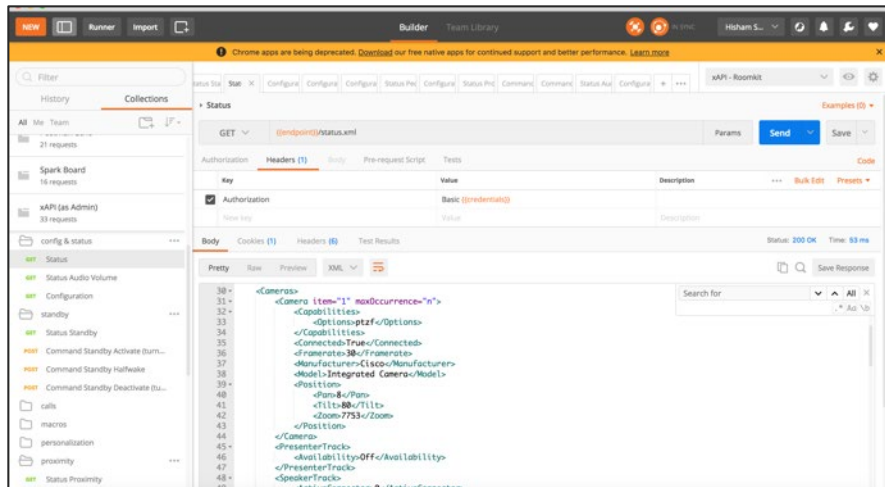
- Tables detailing commands, configurations, and statuses supported per admin role: ADMIN, ROOMCONTROL, AUDIT, INTEGRATOR, USER
- Some commands don't apply to Webex registered systems, e.g. H.323, H.320, SIP, NTP, CUCM, LDAP, FECC, Proximity



Devnet xAPI Postman Collection



1. <https://github.com/CiscoDevNet/postman-xapi>
2. <https://github.com/CiscoDevNet/awesome-xapi>

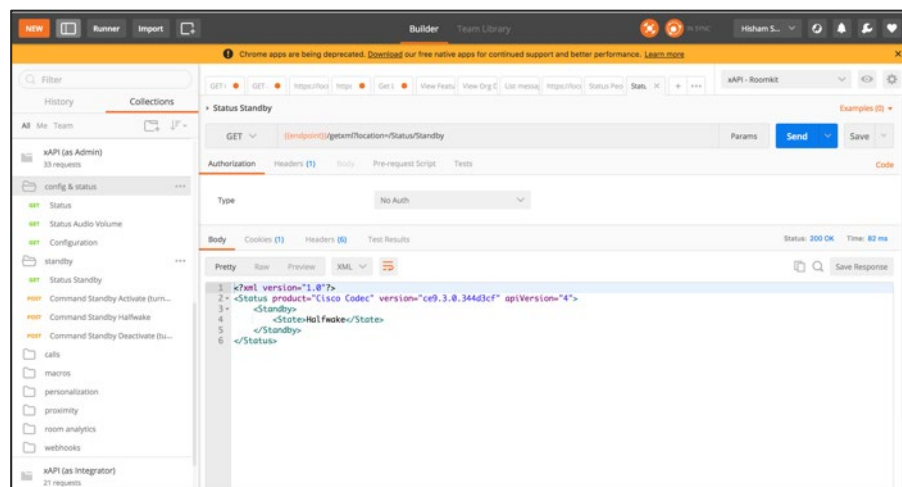


Room 55 registered to Webex Teams

“Integrator” role account

Example: GET Status

cisco Live!



Room Kit Plus registered to VCS

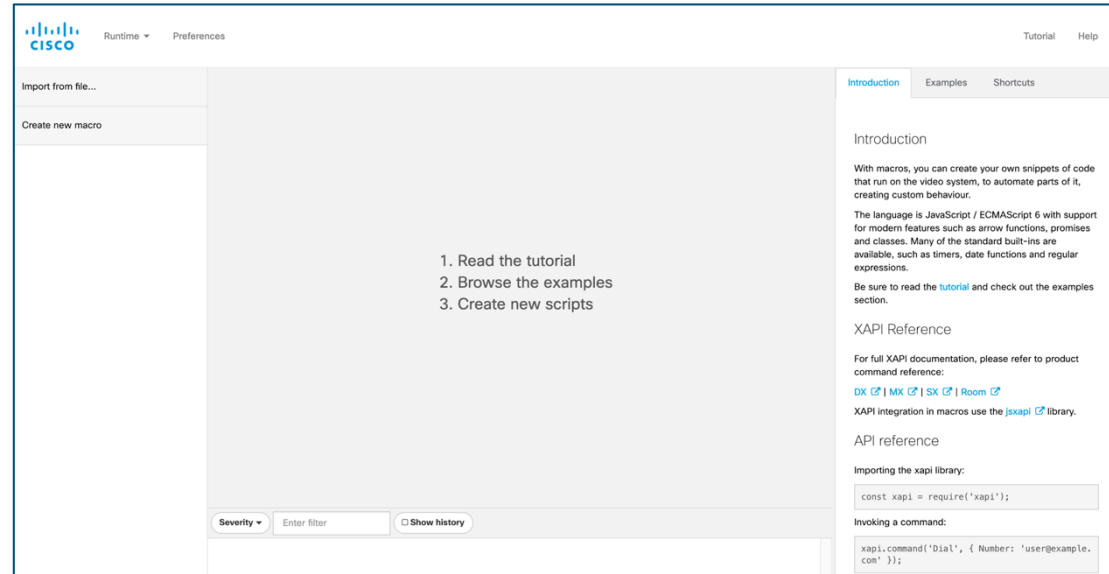
Example: GET Standby

Webex Devices Macros

Automate and customize endpoint behavior



Macro Editor



<https://github.com/CiscoDevNet/roomdevices-macros-samples>

BRKCOL-3008: Customization and Integrations of Cisco Video Room Devices



Webex Device Cloud xAPI

Basic Concept



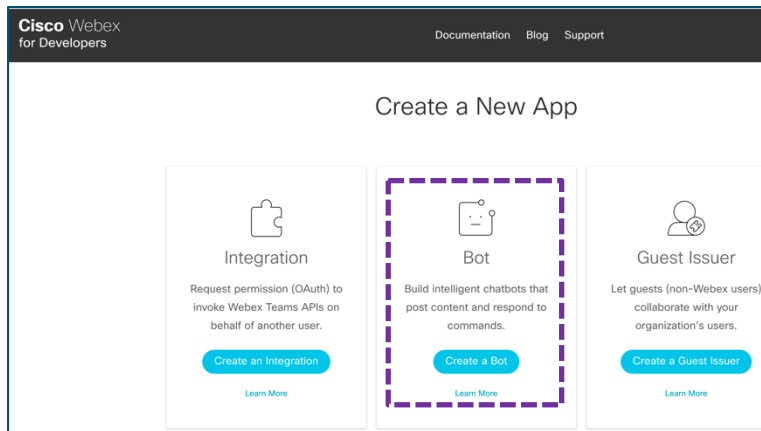
- Provide a bot (or a user) access the xAPI through the Webex Teams cloud
 - Unlike classic xAPI where you access the device directly and so must be on the local network, you can do this remotely
- Bot or user must be in the same Webex Teams org for device it will control
 - access has to be provided to a bot or user on a specific place by a full admin (full or read only access)
- Bot uses its access token to query the device API for xStatus and xCommands
 - Only xStatus and xCommands are currently available through the Cloud xAPI
 - A development guide is planned
 - Check on Cisco Devnet

<https://developer.cisco.com/site/roomdevices/>

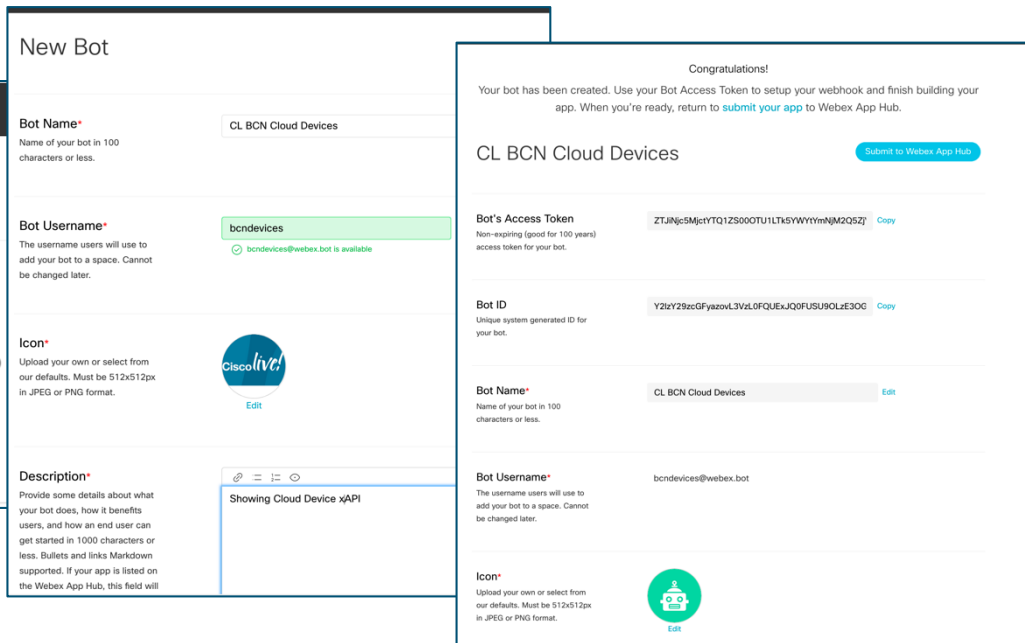


Device API Access – Cloud xAPI

Step 1 : Create a Bot



A user on the same Webex Teams org where the device is registered creates a bot at developer.webex.com



Now that that you created a Bot, make it do something useful! 😊





Device API Access – Cloud xAPI

Step 2 : Give the Bot access to the device’s “Place”

The image shows a sequence of four overlapping screenshots illustrating the configuration process:

- Device Overview:** Shows the 'MX700 in SJC21' device page with a 'View/Edit Access' button highlighted in a dashed red box.
- Access Dialog (Initial):** A 'Device APIs Access' dialog box for 'MX700 in SJC21 TME lab' with an empty 'Authorized To' table.
- Search:** The 'Authorized To' search field contains 'CL BCN', showing a dropdown with 'CL BCN Cloud Devices'.
- Access Dialog (Final):** The 'Authorized To' table now contains one entry: 'CL BCN Cloud Devices' with 'Full Access' and a green checkmark indicating successful addition.

A full admin grants bot access to the “Place”

DEVNET-2071: Customizing Cisco Collaboration Devices



Devices and Places REST API



Recent

- Add, remove, edit services for devices and places (meeting rooms/shared device) via API
- Automate onboarding process with API's to generate activation codes
- Access to xAPI's on the device through a cloud proxy with Webex Platform authentication
- <https://developer.webex.com/docs/api/v1/devices>
- <https://developer.webex.com/docs/api/v1/places>
- <https://developer.webex.com/docs/api/v1/xapi>

Cisco Webex for Developers

xAPI

The xAPI allows developers to programmatically invoke commands and query the status of devices that run Webex RoomOS software.

Executing commands requires an auth token with the `spark:xapi_commands` scope. Querying devices requires an auth token with the `spark:xapi_statuses` scope.

To manage Devices, see the [Devices API](#). xAPI commands and statuses are described in the [Cisco Collaboration Endpoint Software API Reference Guide](#). For more information about xAPI, see the [xAPI Guide](#).

Method	Description
GET	https://api.ciscospark.com/v1/xapi/status Query Status
POST	https://api.ciscospark.com/v1/xapi/command/{commandName} Execute Command
GET	https://api.ciscospark.com/v1/places List Places
POST	https://api.ciscospark.com/v1/places Create a Place
GET	https://api.ciscospark.com/v1/places/{placeId} Get Place Details
PUT	https://api.ciscospark.com/v1/places/{placeId} Update a Place
DELETE	https://api.ciscospark.com/v1/places/{placeId} Delete a Place



Webex Devices Troubleshooting tips



- Scenarios
 - Not getting an IP address. What do I do?
 - Get an IP, but unable to reach the cloud. What do I do?
 - Get an IP address, but when I put in the Activation Code I generated on the admin portal I get “invalid code”. What’s wrong?
- Service Connection
- Tools
 - health checker, mediatest
- Factory reset & recovery
- Collecting Logs

Webex Board Troubleshooting tips



- Make use of diagnostic panel
- Network connectivity
 - Captive portals
- Software versions
 - Older “BoardOS” images may not have WiFi, proxy support, CDP support, etc... so need to register it so it gets upgraded, then converted to CE afterwards
- Download logs/report issues
- There is no HDCP support
- High bit rate and audio sharing
 - Should work fine with MacOS and Windows Teams client, coming soon to Webex Meetings
 - make sure your webex site and clients are upgraded
- Restart
- Power cycle by unplugging, wait a few minutes, power back on
 - Reboot fixes common problems
- Factory reset as last resort

Webex Board Diagnostic panel



The screenshot displays the Webex Board diagnostic interface. At the top, a green bar says "Tap to return to screen share". Below it, the "Paris Conference Room" header is visible. The main area is divided into several panels:

- Left Panel:** Shows device information for "Paris Conferen...". Fields include Video address (paris_conference_room), Organization name (TME Demo), Ip address (10.17.34.181), MAC address (78:72:5D:61:9E:5A), Serial number (WZS2235G00X), Software (RoomOS 2019-01-22 5), and Software channel (Beta). A "Factory reset" button is at the bottom.
- Hardware diagnostics Panel:** Features a "Hardware diagnostics" title, a "BestOverview debug" toggle (turned on), and a "Camera preview" section showing a video feed of a person with a green bounding box around their face.
- Right Panel:** Lists various system components with green checkmarks: Calendar, Configurati..., Credential..., Encryption..., Geo locati..., Metrics, Notificatio..., and Phoneboo...

Overlaid on the right side are three "Issues and logging" panels:

- Lost network:** A red header with a network icon. The message reads: "No Network. There is no active network connection on the Spark Board. Please configure a connection in the Network..."
- Ultrasound Interference:** A white header. The message reads: "There is an ultrasound signal interference in this room from other devices (e.g. other video systems) that could..."
- Microphone error detected:** A white header. The message reads: "A problem has been detected in one or more of the Spark Board's microphones. Please contact Cisco Support for more information"

At the bottom of the diagnostic panel, there is a blue "Save Your Work" button.

Web Engine remote debugging



Control Hub

Advanced Configurations

139 configurations available. For detailed information, check the device API documentation

WebEngine > RemoteDebugging : Following Default

Following default (Off) Follow default value (Off)
Sets the configuration to always follow the default

Configuration

WebEngine

Mode	On
RemoteDebugging	On

Webex Board

cisco Live!
Barcelona 1 January 27-31, 2020

Attend Learn Activities Sponsor Login JOIN US ONLINE

Join us for Cisco Live 2020

We'll build the bridge to get you where you want to go so you can make anything possible. At Cisco Live, you'll learn new things, be inspired, and create the path to endless opportunities.

Registration for Cisco Live 2020, Barcelona is now closed, and we do not accept onsite registrations at this year's event.

Join us online for the live broadcast from Barcelona from January 27.

Keynotes

Join Cisco leadership and our inspirational guest keynote speaker for Keynotes and Innovation Talks.

LEARN MORE

Remote debugging tools available at <http://10.35.242.70:9222>. Others may monitor your browser session.

Webex Board GUI

Remote debugging tools available at <http://10.35.242.70:9222>. Others may monitor your browser session.

Webex Share Troubleshooting



- Pairing is not working
 - Ensure acoustic horn is not blocked . Point it away from the floor and other absorbing surfaces.
- Device does not power on
 - Ensure the appropriate USB-C cable is connected to either the wall or to the POE adaptor.
- WebEx Share does not connect to the Internet
 - Check to see if there is a Proxy server in the environment, and if so, configure proxy settings on the WebEx Share. Also, check the firewall to ensure appropriate ports are open.
- Submit problem reports from associated client
 - Download logs and submit to TAC: browse to the Share's IP address
- Know the factory reset sequence!

The screenshot displays the Cisco Webex Share management interface. The top navigation bar includes 'Overview', 'Network', 'Security', 'Timezone and Location', and 'Support'. The main content area is divided into two sections: 'Status Messages' and 'Problem Report Status'.

Status Messages

Device Log	Status Messages
2019-01-15 00:40:12 UTC mfgdatatool I: [STATUS_MSG]: system.mfg_info_ver = 0001	2019-01-15 00:40:12 UTC mfgdatatool I: [STATUS_MSG]: system.serial = FCH2228E183
2019-01-15 00:40:12 UTC mfgdatatool I: [STATUS_MSG]: network.wifi_mac_addr = 40017A22F3C1	2019-01-15 00:40:12 UTC mfgdatatool I: [STATUS_MSG]: network.eth_mac_addr = DCF719D921E2
2019-01-15 00:40:12 UTC mfgdatatool I: [STATUS_MSG]: system.version_id = V01	

Problem Report Status

View the status of pending and completed problem reports here. Click each one to view a list of the events that have occurred and view errors if they have been encountered. Follow this [link](#) to open a TAC case.

Problem Report ID	Source	Status	Time (UTC)
01039125-4dfa-47fd-a075-3379ef20fdcc	Cloud	Uploaded	2019-01-15T02:30:24.611Z
46c53fdc-efb6-4e35-82fb-5ed836410bed	Cloud	Uploaded	2019-01-15T02:30:11.395Z
2e574369-770e-462d-9bb2-02a160fa4b6	Cloud	Uploaded	2019-01-15T02:30:01.274Z

How would you get this to work?

Here is an MX200 gathering dust... Can you put on the cloud?



CISCO Cisco TelePresence MX200 G2

Home Call Control Configuration Diagnostics Maintenance admin

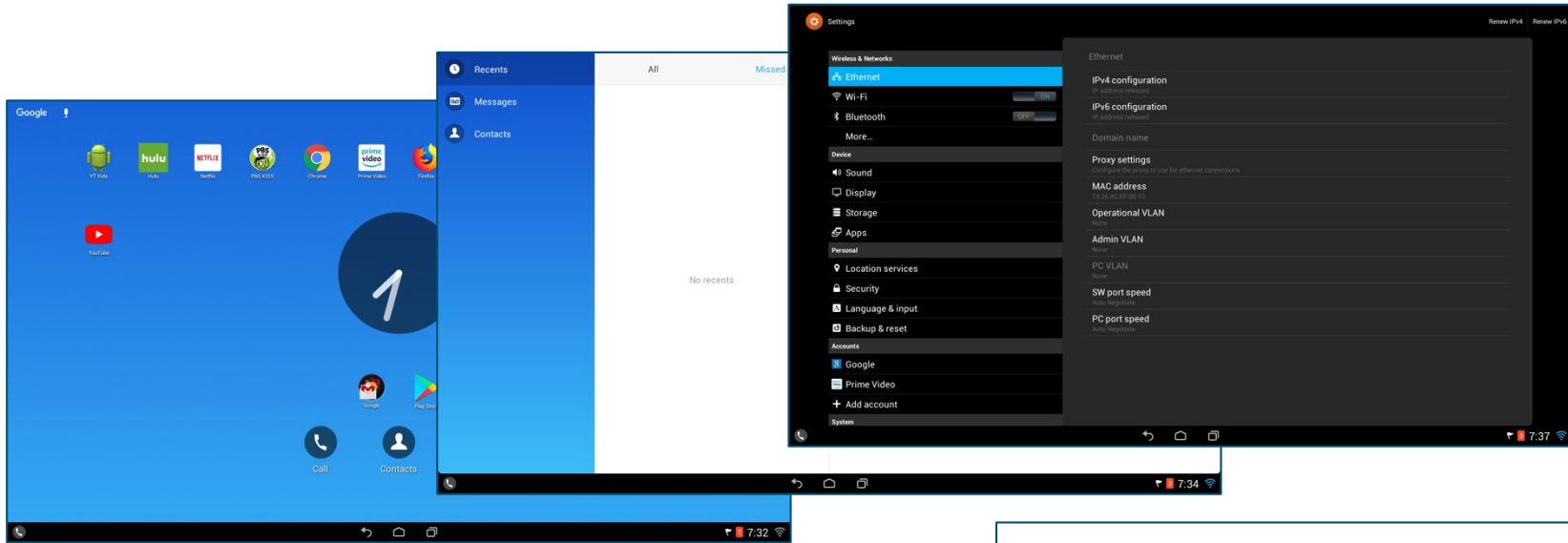
System Information

There are possible issues with your system. See [Troubleshooting](#) for more info.

General		H323	
Product:	Cisco TelePresence MX200 G2	Status:	Inactive
Last boot:	today at 09:55	Gatekeeper:	-
Serial number:	FTT192300ZB	Number:	-
Software version:	TC7.3.3.c84180a	ID:	-
Installed options:	Encryption MultiSite PremiumResolution	SIP Proxy 1	
System name:	-	Status:	Inactive
IPv4:	172.19.238.27	Proxy:	10.195.100.21
IPv6:	-		
MAC address:	80:E0:1D:02:CA:73		
Temperature:	29.5°C / 85.1°F		

How would you get this to work? (2)

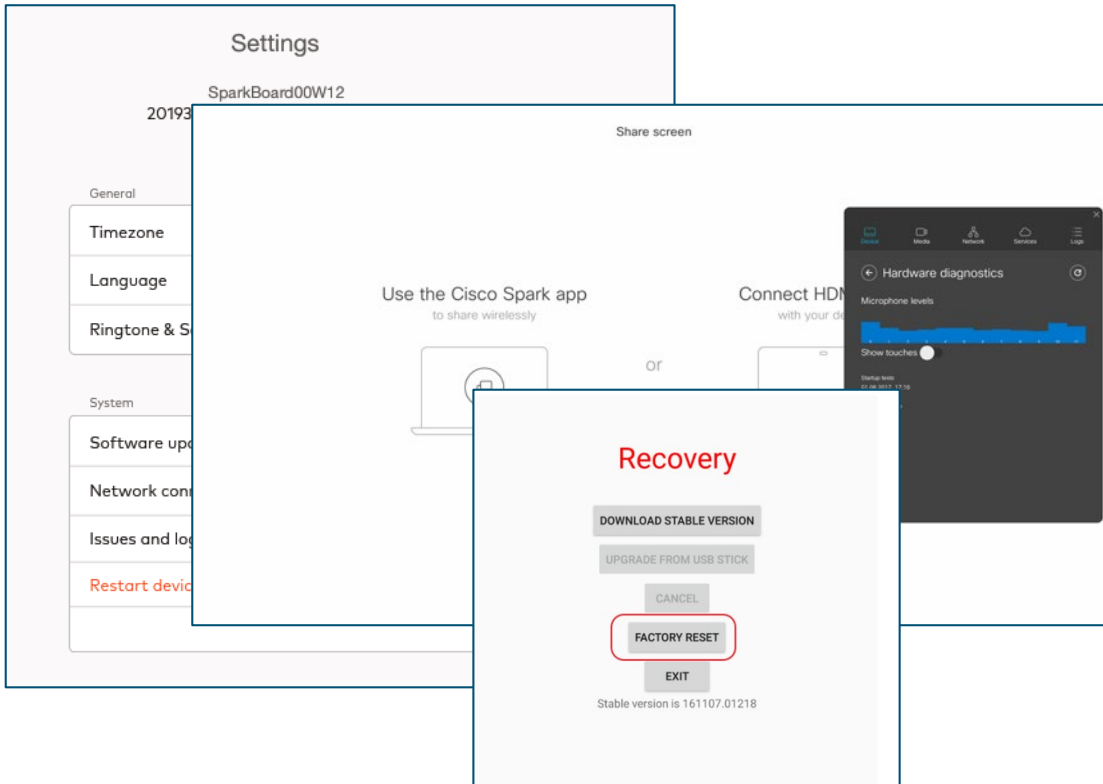
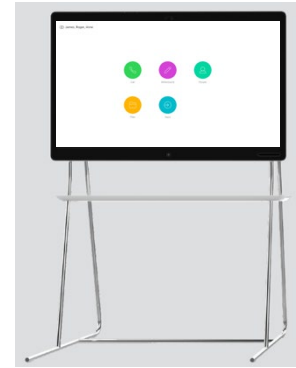
A DX80 on Android software....



upgrade.cisco.com

How would you get this to work? (3)

An “original” Webex Board on BoardOS....



- Remember that with early BoardOS software, there was no support for: WiFi, Proxy, CDP, 802.1x
- Workaround all this so Board is connected to “Internet” (and so to Webex Cloud), and let it upgrade automatically
- Alternately: USB upgrade
 - Contact TAC for image/help

Control Hub tie-in



Device Management

Cloud registered Endpoints



Cisco Webex Control Hub Pro

- Overview
- Users
- Places
- Services
- Devices**
- Analytics
- Troubleshooting
- Settings

Devices

[Manage](#) [My Alerts](#) [Software](#)

Find devices by status, type, and more

161 DEVICES IN TOTAL

Online, With Issues	10
Expired	10
Offline	102
Online	38
Status Unavailable	1

0 devices selected [Export as CSV](#) [Delete Devices](#)

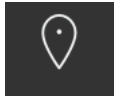
<input type="checkbox"/>	Type	Status	Belongs to
<input type="checkbox"/>	Cisco Webex DX80	● Online	Tom's DX80
<input type="checkbox"/>	Cisco Webex DX80	● Online	TME Oslo DX80
<input type="checkbox"/>	Cisco Webex Room 55	● Online	TME Oslo Companion
<input type="checkbox"/>	Cisco Webex Board 85S	● Online	TME Oslo Companion
<input type="checkbox"/>	Cisco Webex Share	● Online	Te Miro Share
<input type="checkbox"/>	Cisco Webex Board 55	● Online	SJC21 Lab105 Board

Webex Video Devices Cloud Registration



Simple and elegant registration flow

Place



- "Location", usually Room name
- Associate "Services" to the Place
Calling, Room mailbox (for OBTP)
- Settings: e.g. lock access on Touch 10
- Obtain Device activation Code



Device



- Actual Endpoint
- Device type, status (online/offline, etc)
- Admin "tags" added for easy identification
- Issues
- Actions: "Report Issues", "Delete"
- Settings: IP Address, MAC, basic status
- Device Access
"Launch advanced settings" to access device page, "Remote Access Key" for TAC

About Devices in a Place

An activation code can be used to activate a new device or reactivate an existing device.

Note that if you put multiple devices in a place that are not designed to work together, it could create interference issues between them.

Cancel

Ok, got it

Add Device

Activation Code

Share this code with the person setting up the device belonging to Cisco Live US 2019, or enter or scan it yourself when prompted by the device.

Once the device has been successfully activated, you will be able to find and configure it in Places or Devices.



8132-1955-4557-2234

Expires June 14, 2019 10:17 AM (PDT)

This code cannot be used to activate Cisco IP Phones

Note: "personal devices" have a different registration flow....

Digital Signage Configuration on “Device” page



- Configure digital signage for Webex Board and Webex Room series devices
 1. Enable Signage
 2. Enable “Interactivity” (for Webex Board) so users can interact with the content
 3. Specify URL for the signage content
- Two-way sync with the device’s settings (e.g. if configured on admin GUI of the device itself)
 - This means that Digital Signage settings can be changed from the device's WebUI and that will reflect back to Webex Control Hub

The screenshot displays the configuration interface for a Cisco Webex Board 55. At the top, the device name "Cisco Webex Board 55" and status "Online" are shown. A "Recent" tab is visible. The main content area is titled "Device Settings" and includes a "Digital signage" section. This section contains a description, a "URL" field with the value "https://cisco.cloud.appspace.com/app/pwa#?deviceguid:", and an "Interactivity" toggle switch which is currently turned off. Below this is an "Enable Digital Signage" toggle switch, which is turned on. A note indicates that enabling digital signage updates configurations for "Standby Delay: 120 minutes" and "Web Engine: On". At the bottom of the page, a "Digital signage" status bar shows "Disabled" with a right-pointing arrow. A red arrow points to this status bar from the left side of the slide.

Advanced Device Configuration on Control Hub



Recent

- Access to all the Integrator-specific configurations available on RoomOS Device
- Full list of Device configurations through Control Hub
- Admins now have the ability to configure Devices that they don't have direct IP-connectivity to.

The screenshot illustrates the process of accessing advanced device configurations in Cisco Control Hub. It shows a sidebar with a 'Device Settings' section where 'Digital signage' is disabled and 'Device Access' is expanded. A red dashed box highlights the 'Launch Advanced Settings' link, with a red arrow pointing to a modal window titled 'Advanced device configurations'. This modal shows a search bar and a list of configuration categories for 'Cisco Webex Room 55', including Audio, CallHistory, Cameras, Conference, FacilityService, H323, and HttpClient. A second modal shows the 'Advanced device configurations' for 'Cisco Webex DX80', displaying a search bar and a list of configurations for 'Conference > AutoAnswer > Mode', with 'Off' selected. A third modal shows the 'Advanced device configurations' for 'Cisco Webex DX80', displaying a search bar and a configuration for 'Audio > SoundsAndAlerts > RingVolume' set to 60. The interface includes a 'Report Issue' button and a 'Changelog' section.

cisco Live!

Webex Share Advanced Settings



Recent

- Access to Webex Share specific configurations directly from Control Hub
- Digital Signage Server, Language, Restart, Standby settings, Timezone, Ultrasound volume
- Note that Webex Share is included in “Alerts” notifications

Cisco Webex Share
● Online

Device

Belongs to
NYC1-9 Share - Freedom Tower

Tags
Freedom Tower × NYC1-9 ×
Add tag +

Manage alerts **Beta**

Alert me when this device goes offline or online

Alert me when this device has issues or issues are resolved

[Read more about alerts](#)

Actions

When you report an issue, device logs will be sent to Cisco.

Report Issue Delete

Serial Number FCH2332DV2B

Software Latest
novum1.1.0.2eaadbec7 2020-01-18 17:41:02

Configurations

Advanced Configurations Access 8 Configurations

Advanced Configurations

8 configurations available. For detailed information, check the device API documentation

UltrasoundVolume >

DigitalSignageServer >

Language >

Maintenance > Restart

Standby >

Timezone >

UltrasoundVolume >

Applied changes
You can edit multiple configurations

UltrasoundVolume : 60

0 60 100

Follow default value (100)
Sets the configuration to always follow the default value, even if this changes in the future.

Apply

Applied changes
You can edit multiple configurations, one at a time. Changes made will appear here.

Close



Device Alerts

Proactive notifications



Recent

Cisco Webex Room Kit Mini
Online

Device

Belongs to

Samsung Latin America

Tags

Add tag +


Manage alerts Beta

Alert me when this device goes offline or online

Alert me when this device has issues or issues are resolved

Get started with alerts

Alerts inform you when devices go offline, have issues or have issues resolved.



Set up alerts

Alerts are personal to you and will be sent via Webex Teams. Other admins will need to set up their own alerts.

Configure alerts for all devices in 'My Alerts'

Get informed of issues as they happen for all the devices in your organization.

Configure alerts per device

Get informed of issues with an individual device. Alerts can be configured in the device details panel.

Get alerted via Webex Teams

Get informed when:

- a device goes **offline** or **online**
- a device has **issues** or **issues are resolved**

The alert contains information on issues and a link to an individual device in Control Hub.

Close [Go to My Alerts](#)

Control Hub Alerts

Control Hub Alerts

Control Hub Alerts @webex.bot 2:50 PM

Hi! You have set up alerts for Samsung Latin America (Cisco Webex Room Kit Mini) in Control Hub. You will get informed

- When the device goes offline or online

To manage alerts, go to the device details panel. [View >](#)

You have set up alerts for Samsung Latin America (Cisco Webex Room Kit Mini) in Control Hub. You will get informed

- When the device goes offline or online
- When the device has issues or issues are resolved

To manage alerts, go to the device details panel. [View >](#)

Control Hub Alerts @webex.bot 2:52 PM

Samsung Latin America (Cisco Webex Room Kit Mini) came back online after being offline for 3 minutes 2019-10-28 19:51 UTC [View >](#)



Device attribute bulk export / delete



Recent

The screenshot shows the Cisco Meraki dashboard interface. At the top, there's a search bar with the filter 'Status=Online, With Issues' and a count of 11 devices found. A donut chart shows the status distribution: 11 Online, With Issues. Below this, a table lists 12 selected devices. A red arrow points to the 'Export as CSV' button, which is highlighted with a dashed purple box. An 'Export as CSV' dialog box is open on the right, showing a list of attributes to export for the 12 selected devices.

Type	Status	Belongs to
Cisco TelePresence SX10	Online, With Issues	TME Oslo SX10
Cisco Webex Board 55	Online, With Issues	Forrester - Board 55
Cisco Webex Board 70	Online, With Issues	CiscoStore-SJC-WB70
Cisco Webex DX80	Online, With Issues	Alan's Home Office
Cisco Webex Desk Pro	Online, With Issues	Peter Welburn Desktop
Cisco Webex Room 55	Online, With Issues	BDLK 11-1 150 CTG TME Lab Room55
Cisco Webex Room Kit	Online, With Issues	Forrester - Room Kit
Cisco Webex Room Kit	Online, With Issues	RTP-HS-RoomKit
Cisco Webex Room Kit	Online, With Issues	TME Oslo Room Kit
Cisco Webex Room Kit Plus Precision 60	Online, With Issues	Enrico RKPlus Proto
Cisco Webex Room Kit Pro Precision 60	Online, With Issues	TME Oslo Codec Pro

Export as CSV

Export device attributes for 12 devices

- Select All
- Belongs to (displayname)
- Type (product)
- MAC Address (mac)
- IP Address (ip)
- Serial Number (serial)
- Primary SIP Address (primarysipurl)
- SIP Addresses (sipurls)
- Software (software)
- Status (connectionstatus)
- Network Connectivity (activeinterface)
- Software Upgrade Channel (upgradechannel)
- Issues (errorcodes)
- Tags (tag)

Cancel Export

Bulk Configuration

“Digital signage” and “tags”



Just released!

The screenshot displays the Cisco Webex Control Hub interface with several overlapping windows:

- Devices List:** Shows 33 devices selected. A red arrow points to the **Edit Devices** button.
- 33 devices selected (Selection):** Lists 12 device types with counts and progress bars:
 - Cisco Webex Room Kit: 7
 - Cisco Webex DX70: 6
 - Cisco Webex Room Kit Mini: 4
 - Cisco Webex DX80: 4
 - Cisco Webex Board 55: 3
- Digital Signage Configuration:** A modal window for configuring digital signage for the selected devices.
 - Digital Signage Mode:** Radio buttons for On, Off, and Keep current state (selected).
 - URL:** Radio buttons for New URL and Keep current state (selected). Includes an "Enter URL" input field.
 - Interactivity:** Radio buttons for Interactive, Non-interactive, and Keep current state (selected).
- Edit tags:** A modal window for applying tags to the selected devices.
 - Applied to all:** Shows a tag "CLBCN 2020 demo".
 - Applied to some:** Shows a list of tags: Hachawla (2), Potomac (2), Peter (1), Harish (2), Chawla (2), Maryland (2), Louis (1), and RTP (1).



Personalization: Branding with admin GUI



Personalization

Branding Custom wallpaper Ringtones

Add your branding

Branding customization allows you to add your own brand image and logo to your system, while at the same time, you can customize the background image and text on the touch panel.

Wake-up flow

When the video system wakes up from standby, the screen will first display the background image. Instructions will also be displayed on the touch panel.

Put the system in standby state Put the system in halfwake state

Custom brand background

The brand image will be displayed as a background on both the main screen and on the touch panel when the video system is in the halfwake state.

The recommended image size is 1920x1080 pixels, in png or jpeg format. When uploading the image, it will be scaled to the recommended size.

Image uploaded

Upload new image Delete

Awake state

When the system is awake, the touch panel will display instructions about how to use the system.

Put the system in awake state

Custom text

The custom text will be displayed in the bottom left corner of the main screen when the system is in the awake state.

Example: Custom calling instructions

Save

Personalization

Branding Custom wallpaper Ringtones

Custom wallpaper

The default experience is not compatible with custom wallpaper. The custom wallpaper disables the background image in all screen states, and disables the "One Button to Push" functionality, meeting info, and default usage prompts.

Custom wallpaper is disabled

Continue without branding

Brand logo (awake)

This dark brand logo will be displayed on a light background in the bottom right corner of both the main screen and the touch panel.

For best results, the logo should be an all black version without padding, in png format with a transparent background. The recommended size is 272x272 pixels. When uploading the logo, it will be scaled to the recommended size, and it will be displayed with a slight transparency in order to blend naturally with the user interface. Use of colors in the logo is discouraged, since they will blend with any background colors and appear unnatural.

Image uploaded

Upload new image Delete

Customize on admin GUI:

- Brand background,
- Brand logo (halfwake)
- Brand logo (awake)

Note: Custom wallpaper is mutually exclusive to branding



Branding provisioned on Control Hub



Recent

From Control Hub (Settings -> Branding), an admin can provision deployment wide Branding

Cisco Webex Control Hub

Branding

Brand your employees' experience with Cisco applications and devices by uploading custom logos and/or imagery.

Applications

Brand your employee's experience with Cisco applications by uploading your company logo below. For advanced customization for the Webex service, go to [Cisco Webex Meetings Sites](#), choose a site, then click [Configure Site > Common Settings > Branding](#).

- Use logo ([see example](#))
- Use your own logo ([see example](#))

Upload logo'

For best results, logo should be transparent, with no padding around the outside of the image. Image file size must be less than 1 MB.

Devices

The option to show your company logo on the devices and a custom background image to be shown when the device wakes up. Refer to the [Add Customized Branding article](#) to find out about compatible devices.

See examples

- Allow all devices to be edited individually in Advanced Settings
- Use the Cisco default visuals on all devices

Upload your company's brand visuals for all devices

Wake-up background



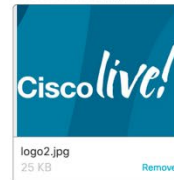
cisco-live-2019.jpg
137 KB [Remove](#)

Wake-up brand logo (light)



logo1.jpg
13 KB [Remove](#)

Awake brand logo (dark)



logo2.jpg
25 KB [Remove](#)

For best results, logos should be transparent png files, without padding and 272x272px. Recommended brand image image size is 3840x2160 (1920x1080 minimum), png or jpeg.

Save



Device reports – “Devices” page



- Device search and troubleshooting
 - Pictorial device icons
 - Context based search criteria in the “Devices tab”:
 - Type, Status, Belongs to, Tags, Issues, Network Connectivity
 - Interactive chart:
 - Online, Online with Issues, Offline, Expired
 - Highly scalable

Cisco Webex Control Hub

Devices Manage My Alerts Software

Find devices by status, type, and more

161 DEVICES IN TOTAL

Online, With Issues: 11
Expired: 10
Offline: 102
Online: 37
Status Unavailable: 1

0 Alerts on Software Upgrade Channel Network Connectivity

Type	Status	Belongs to
Cisco TelePresence SX20	Online	#FirstName# #LastName# (4117 - Cisco TelePresence SX20)
Cisco Webex Board 85S	Offline	Aaron Sandbox
Cisco Webex Room 55	Offline	Aaron-SJ21 Lab Room 55
Cisco Webex DX70	Online	Abhijit Dey
Cisco Webex DX70	Offline	Abhijit Dey
Cisco Webex DX80	Offline	Adam McKenzie
Cisco Webex DX80	Offline	Ajay Pawar
Cisco Webex DX80	Online	Ajay Pawar

Device reports – “Issues”



Enhanced

The screenshot displays the Cisco Webex Control Hub interface. On the left is a navigation sidebar with options: Overview, Users, Places, Services, **Devices**, Analytics, and Troubleshooting. The main content area is titled "Devices" and shows a search filter for "Issues" containing 159 devices. A dropdown menu lists various issues with their counts: Signal Interference from other devices (8), Software is out of date (1), Device credentials will soon expire (28), Main Display Not Detected (1), Automatic Updates Disabled (1), Touch Panel Required (1), MediaBlockingDetected (0), TouchPanelConnection (0), TCPMediaFallback (0), AudioPairingInterference (0), OSDVideoOutput (0), and NetworkQuality (0). A status summary shows 159 devices found, with a donut chart and a table: Online, With Issues (2), Expired (42), Offline (58), and Online (57). Below this is a table of devices belonging to "Te Miro - Lower Level", "Te Miro NZ Upper", "Hisham Abdelhamid", "RTP9-2-MX200", and "SJC21 DMZ TME Lab MX200".

Issue	Count
Signal Interference from other devices	8
Software is out of date	1
Device credentials will soon expire	28
Main Display Not Detected	1
Automatic Updates Disabled	1
Touch Panel Required	1
MediaBlockingDetected	0
TouchPanelConnection	0
TCPMediaFallback	0
AudioPairingInterference	0
OSDVideoOutput	0
NetworkQuality	0

Status	Count
Online, With Issues	2
Expired	42
Offline	58
Online	57

Device	Status
Cisco TelePresence MX200 G2	Online
Cisco TelePresence MX200 G2	Online

Example of “issues” that can be filtered for reporting

Device Analytics



Enhanced

- Daily, Weekly, Monthly usage

- Summary tabs: KPI's

1. # of online devices,
2. total usage (& trend)
3. avg. usage per device (& trend)

- Charts:

1. & 2. Timeline and summary overview of activities that devices were used for: calling, local sharing with HDMI cable, wireless sharing, whiteboarding

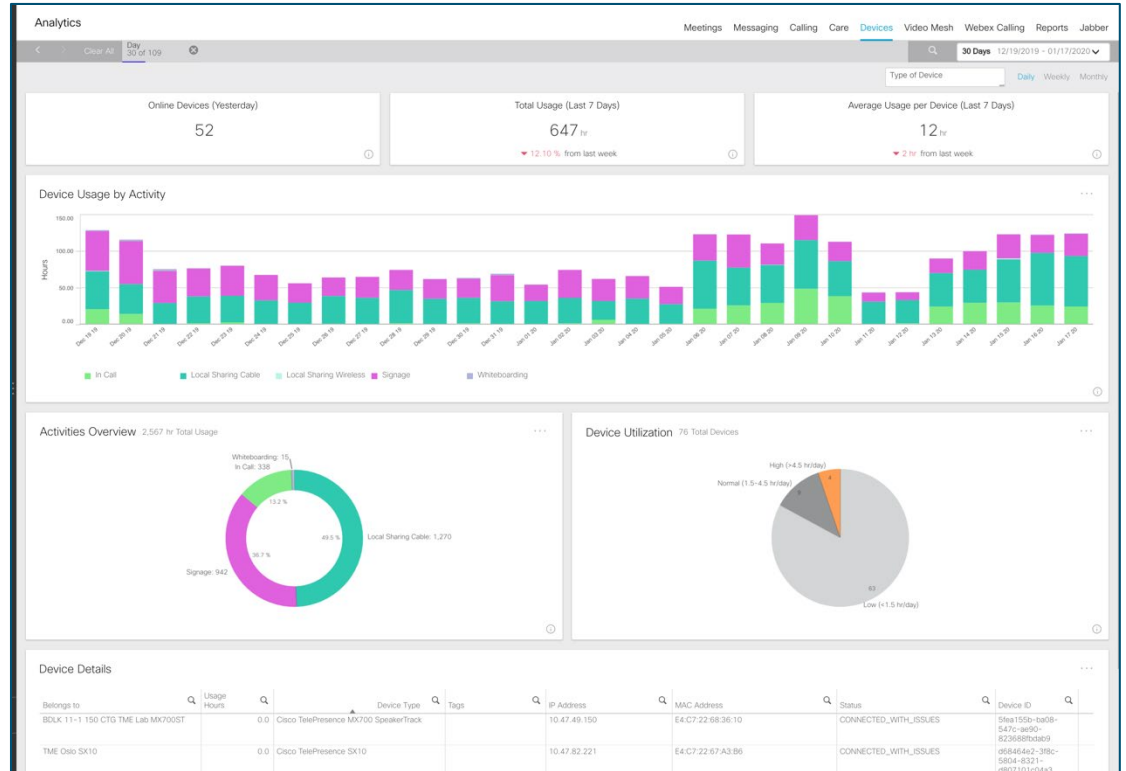
3. Device Utilization: low, normal, high

- downloadable as PDF, PNG, or CSV

- Table:

- Device Details: usage, endpoint type (now includes Webex Share), tag, IP address, MAC, device ID

- Interactive sort & search on any heading, download as CSV



Advanced Diagnostics



Enhanced

Cisco Webex Control Hub

UC Demo Lab

Overview

Users

Places

Services

Devices

Analytics

Troubleshooting

Settings

< Diagnostics

Adam McKenzie's Personal Room

Participants (10)

5007

Adam McKenzie

CNN Codec 9

Call-in User_3

Call-in User_4

Hisham Abdelha...

Hisham Abdelha...

Hisham RK mini

SJC21 DX80 His...

Samantha Clifton

Audio

Video

Sharing

Details

12:43 AM

< Diagnostics

Adam McKenzie's Personal Room

Participants (10) > Hisham RK mini

Participant Details

12:41

01:00

01:19

01:37

01:56

Audio Quality

Video Quality

Latency(ms)

Packet Loss(%)

Jitter(ms)

Media Bitrate(kbps)

Frame Rate(fps)

Resolution(p)

Share Quality

Signal

Sending & Receiving

Equipment and Networks

Client: Webex Room web 12.1

78ee65c76d 2020-01-21

Room Kit Mini

Connection: wifi

Audio Node: Jim Jose

Public IP: 73.202.241.83

Audio Transport: UDP

Video Transport: UDP

Share Transport: UDP

Audio Codec: Opus (Sending)
Opus (Receiving)

Video Codec: H.264 BP (Sending)
H.264 BP (Receiving)

Share Codec: H.264 BP (Receiving)

Chart Legend

Indicators

Signal Quality

Best

Good

Sharing

Fair

Change

Poor

Join Meeting Time

Fast

Slow

Not Available

Not Used

Video Transport: UDP

Share Transport: UDP

Audio Codec: Opus (Sending)
Opus (Receiving)

Video Codec: H.264 BP (Sending)
H.264 BP (Receiving)

Share Codec: H.264 BP (Receiving)

Export Record

All Meeting Data (JSON)

Participant Details (CSV)

cisco Live!

Webex Monitoring Service

Providing meeting diagnostics for on-premise devices



Preview

Limited Availability

The screenshot displays the Cisco Webex Control Hub interface. On the left is a navigation sidebar with options: Overview, Users, Places, Services, Devices, Analytics, Troubleshooting, and Settings. The main content area shows the 'Services' section with a 'Webex Monitoring Service' card. A modal window titled 'Add agents' is open, providing instructions on downloading software and listing minimum system requirements (64-bit Windows Server 2016+, 4-core processor, 8-GB RAM, 20-GB storage). Another modal window titled 'On-Premise Device Monitoring' shows a table of devices with columns for IP Address, Description, and Status. A third modal window titled 'Device Details' shows specific information for a device, including Name, Status, IP Address, SIP Address, Description, Device Type, Serial Number, Agent Name, and Version.

Services

- View all
- Service
- Fields
- Fieldsets
- Settings

● Setup not completed

Webex Monitoring Service

Monitor on-premises video devices for diagnostics and troubleshooting.

- Agents (1)
[Add more agents](#)
- On-Premises Video Devices (5)
[Add / Update devices](#)
[View quality data](#) on the Meeting Diagnostics page.

Add agents

Download Software

The Webex Monitoring Agent collects diagnostics data from your on-premises video devices and sends the information to your Cisco Webex Control Hub account. Install an agent on each computer or virtual machine you use for on-premises video device monitoring.

The minimum requirements for the Webex monitoring Service is an operating system running 64 bit Windows Server 2016 or later version, a 4-core processor, 8-GB of RAM, and 20-GB free storage. You can have up to 250 devices per agent, and 20 enabled agents total.

On-Premise Device Monitoring

IP Address	Description	Status
10.99.16.10	CNN-2 RKP	Operational
192.168.250.140	SJC21 CNN Pro	Unreachable
10.99.150.232	CNN SX80	Operational
192.168.250.186	SJC21 DX70-2	Unreachable
192.168.250.187	SJC21 DX80	Unreachable

Device Details

Overview

Device Information

- Name: CNN Codec 9
- Status: Operational
- IP Address: 10.99.150.232
- SIP Address: 5929@ucdemolab.com
- Description: CNN SX80
- Device Type: Cisco TelePresence SX80
- Serial Number: FTT183502H8
- Agent Name: DESKTOP-FI63DHR
- Version: ce9.8.0.be9359915d0



Webex Monitoring Service

Installing the agent

- Admin installs the agent (.msi) on Windows test agent machine
- Agent self-registers to the Cloud and will be viewable on Control Hub

Preview

Limited Availability

The screenshots illustrate the installation workflow:

- Add agents**: A window to manage agents in the Control Hub.
- WebexMonitoringAgent - InstallShield Wizard**: The installation wizard's welcome screen and progress bar.
- Cisco Webex**: The logo and a confirmation message: "Successful. The installation is completed and it is safe to close this window now."
- Cisco Webex Control Hub**: The web interface showing the 'Agents' list.

Name	Agent Hostname	Description	Status	Action
TME Demo001	win2016-rdp	win2016-rdp	Running	Modify, Disable



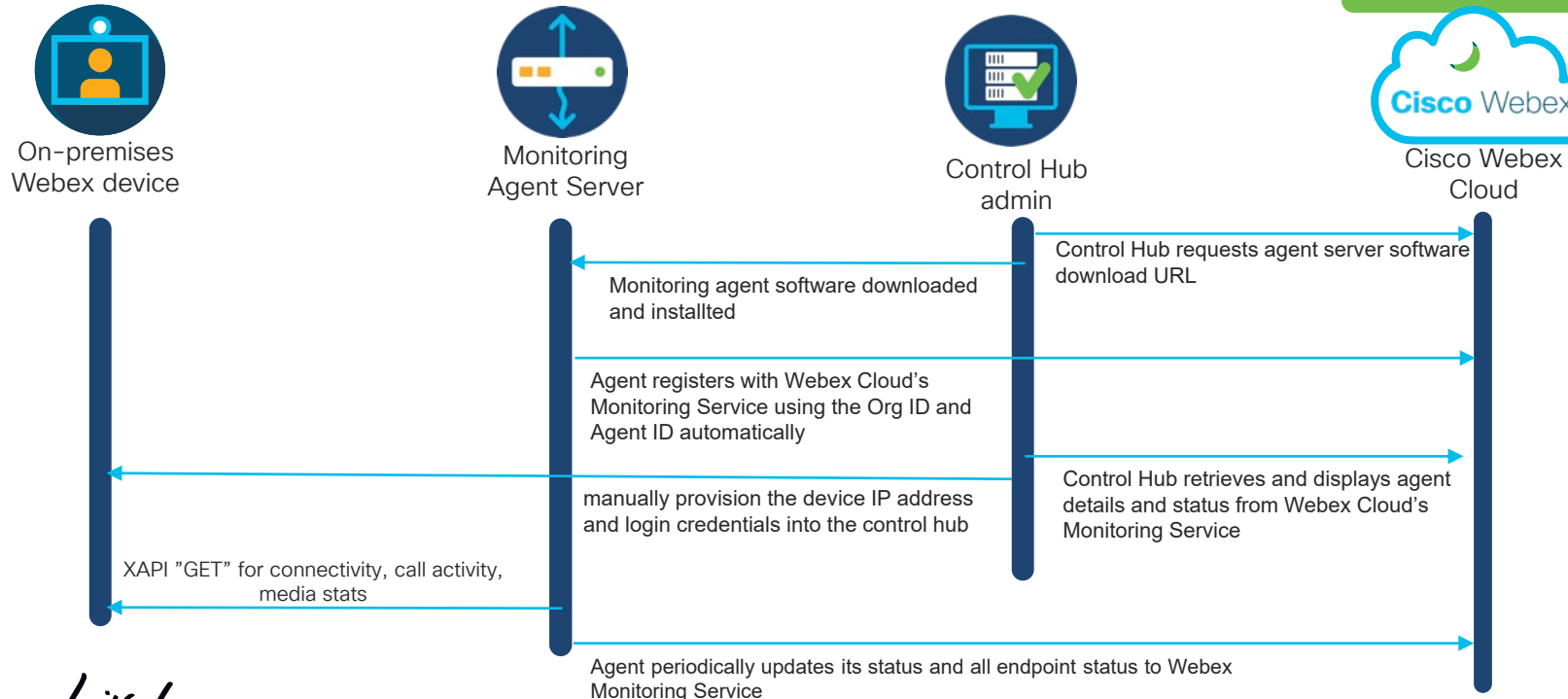
Webex Monitoring Service

Basic System Flows for on-prem device monitoring



Preview

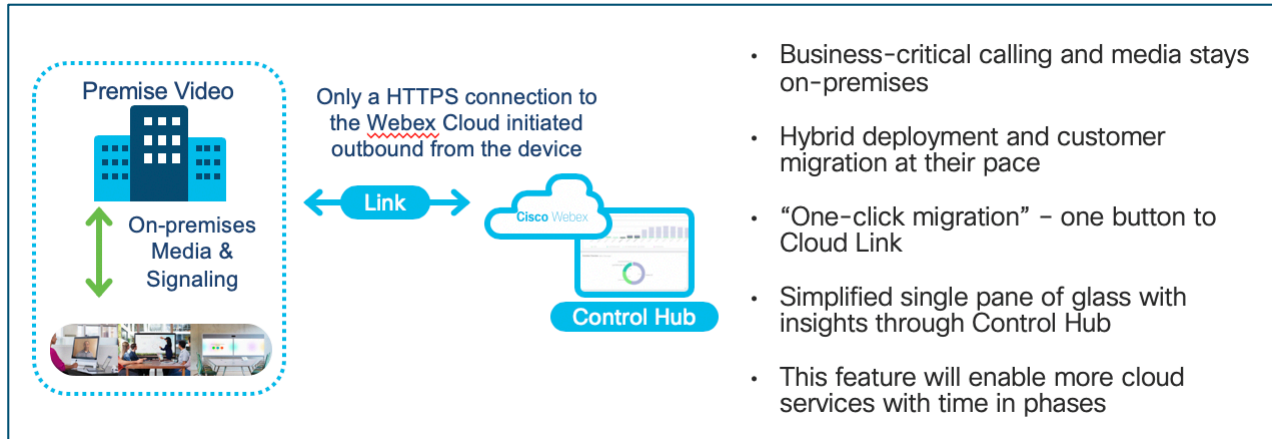
Limited Availability



Webex Edge for Devices



Just Released



References

1. https://www.cisco.com/c/dam/en/us/td/docs/voice_ip_comm/cloudCollaboration/wbxt/white_papers/webex-edge-devices-white-paper.pdf
2. <https://help.webex.com/en-us/383gbd/Cisco-Webex-Device-Connector>
3. <https://blog.webex.com/collaboration-devices/webex-edge-for-devices-released/>

Webex Edge for Devices

Initial feature set



Just Released

- Endpoints must be on CE9.10
 - CUCM version dependency (*CUCM 12.5su1, or 11.5.x with the latest device pack installed*)
- Links on-premise devices with Webex cloud, providing
 - Historical Device Usage Analytics
 - Online/Offline Connection Status
 - Device Diagnostics Messages
 - Cloud xAPI access (<https://developer.webex.com/docs/api/guides/xapi>)
 - Device Alerts (Diagnostics Messages proactively sent to Webex Teams)
- Additional optional features that can be deployed:
 - Calendar Connector
 - Webex Assistant (including proactive meeting join prompts)

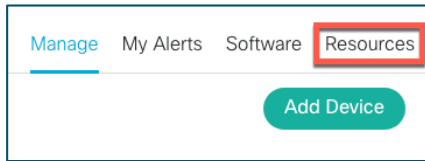
Cisco Webex Device Connector Tool

High Level Overview



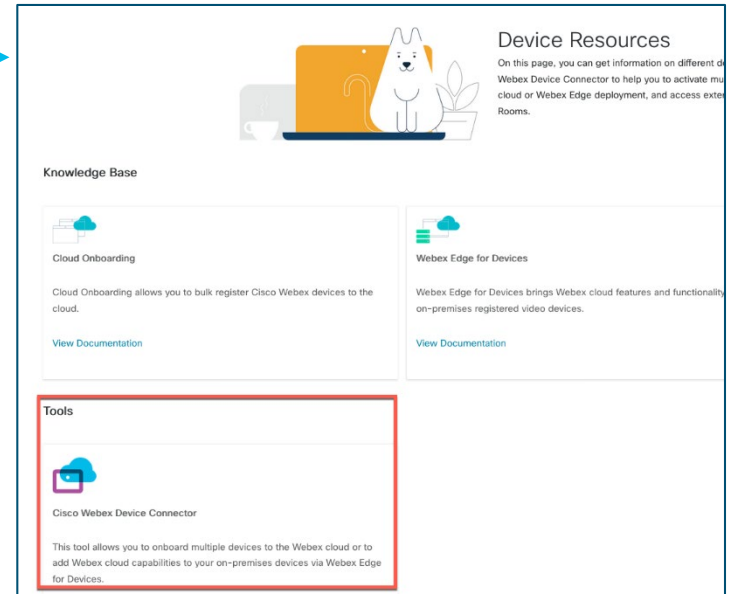
Just Released

The Cisco Webex Device Connector tool is available from within the Resources section under Devices in Webex Control Hub.



The tool can be used to automate device related tasks, such as:-

- Onboarding Webex devices to the cloud
- Providing Cloud features to on-premises registered Webex devices



Cisco Webex Device Connector Tool

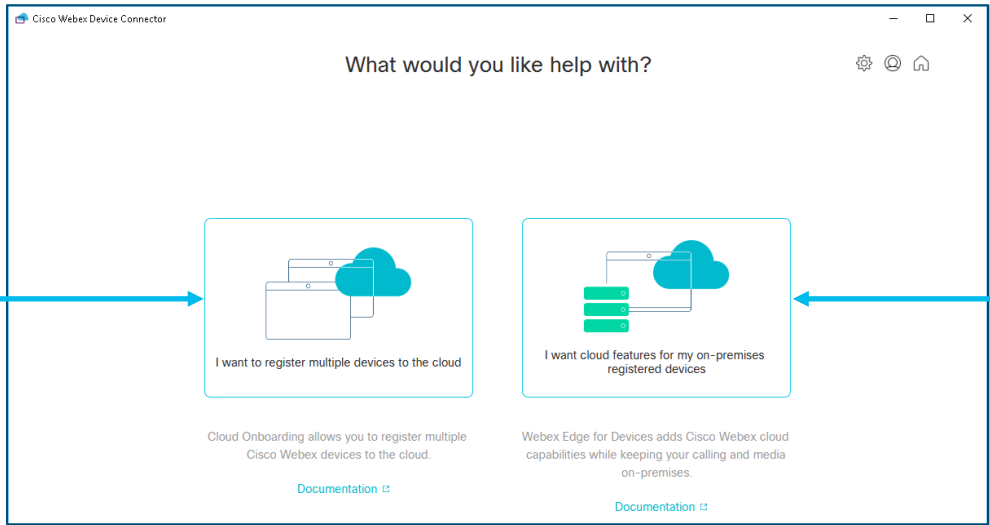
Capabilities



Just Released

Once the tool has been installed and you have signed into it with your Cisco Webex Control Hub credentials (Device Admin or Full Admin profile needed), you will be presented with the screen below

Bulk register Webex devices to the cloud



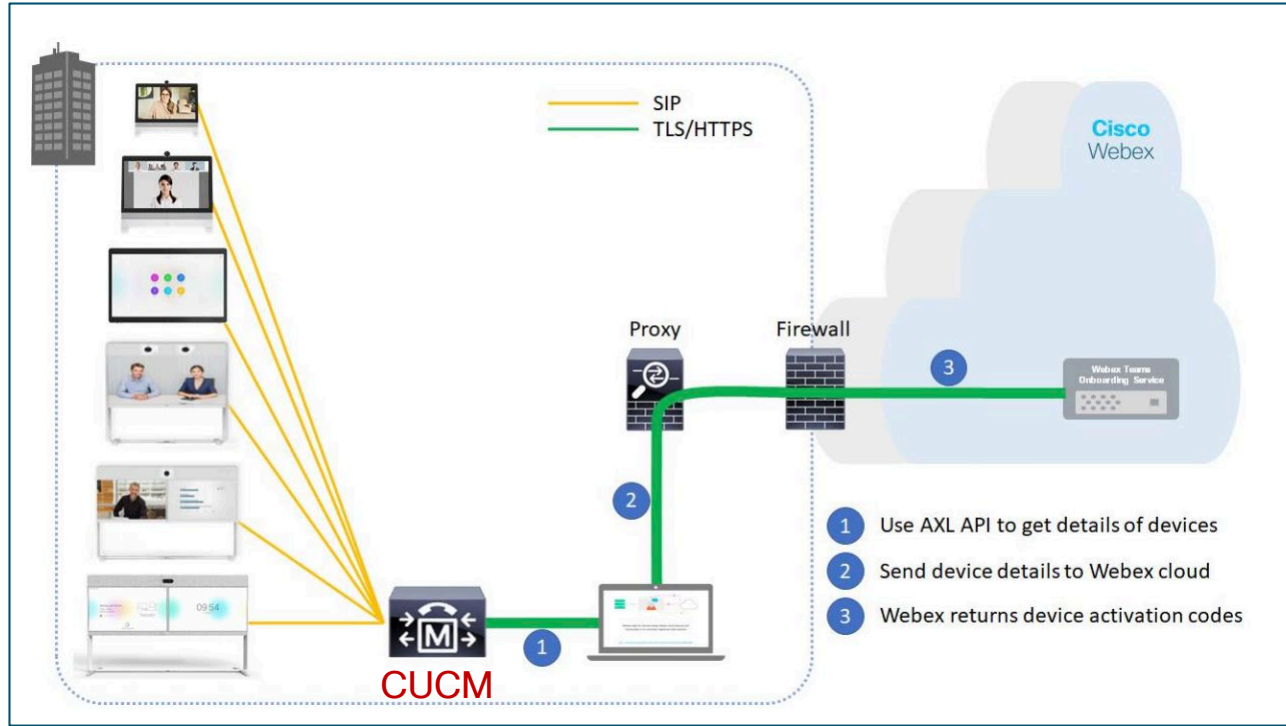
Provision cloud features and services to on-premises registered Webex devices

Webex Edge for Devices

Device Connector Operation



Just Released

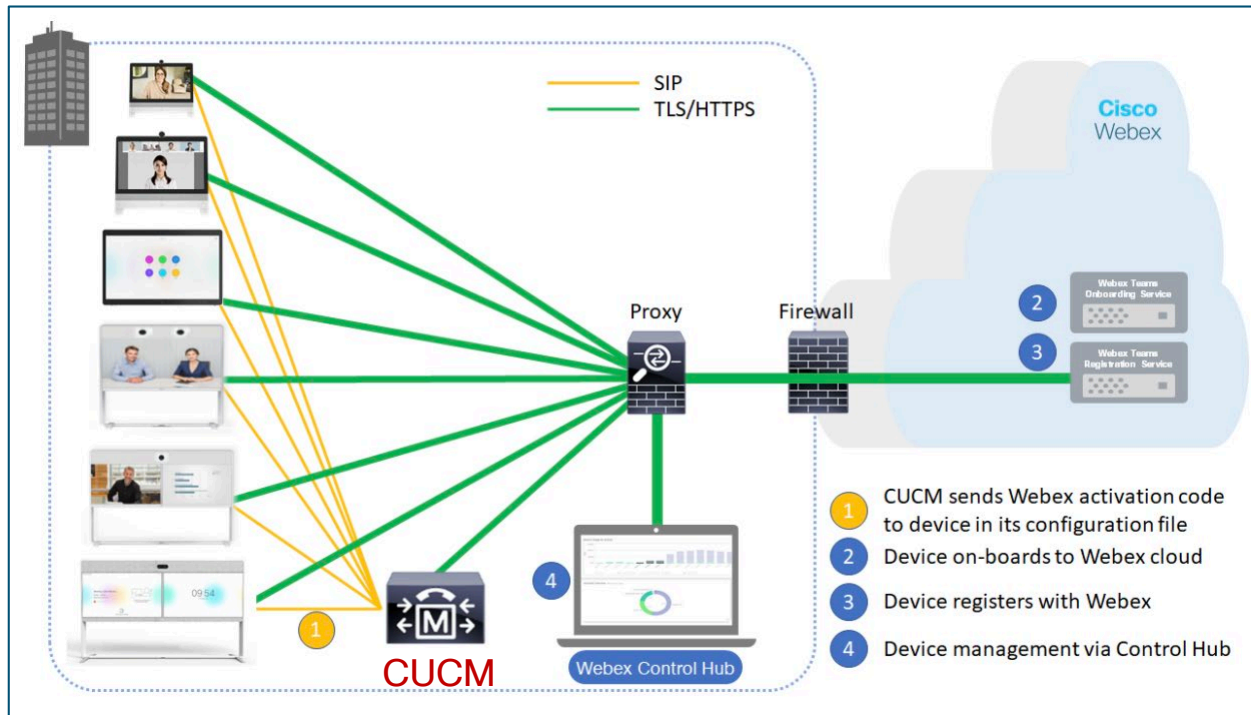


Webex Edge for Devices

On-premises devices cloud onboarding and linking



Just Released

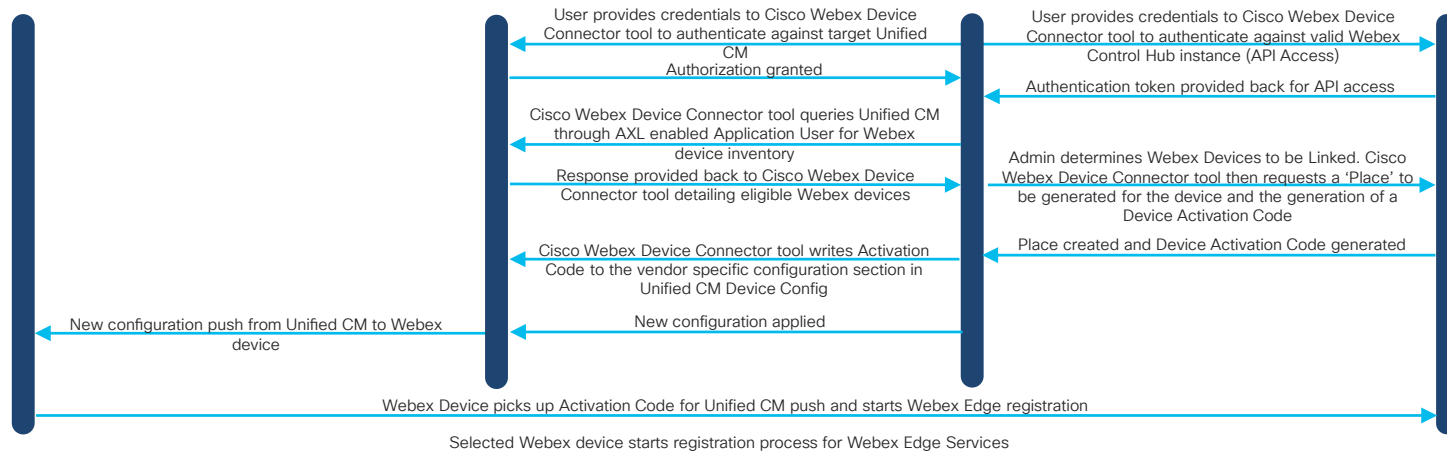


Device Linking Flow – Unified CM

Providing on-premises registration Webex devices with Cloud features



Just Released




Webex Edge for Devices

Cloud linking flow exmple



Just Released

Configure Webex Edge for Devices



Webex Edge for Devices adds Cisco Webex cloud capabilities while keeping your calling and media on-premises.

Note that on-premises device software version CE 9.10 or later is required. If you link devices registered to Cisco Unified CM, you also need the latest Device Package.

- Link devices registered with Cisco Unified Communications Manager
- Link devices using CSV or Cisco TMS Overview Export files
See how to prepare your file

Configure Webex Edge for Devices

Connected to 10.99.150.112 Refresh List Connect to different Unified CM

DX70

Name	Description
<input type="checkbox"/> SEP881DFC611379	Kevin Roarty (5004 - Cisco TeleP
<input type="checkbox"/> SEP881DFC61281E	Louis Pratt Collab Summit 2018
<input type="checkbox"/> SEPC08C6051A889	Auto 4081
<input type="checkbox"/> SEP881DFC6108F0	David Scott (5003 - Cisco TeleP
<input type="checkbox"/> SEP7426ACF34EDC	Kevin Roarty (5004 - Cisco TeleP
<input type="checkbox"/> SEP881DFC60FBE8	Hisham Abdelhamid (5007 - Cisco
<input type="checkbox"/> SEP881DFC61137A	Roarty Room
<input type="checkbox"/> SEP7426ACF34FA9	Hisham Abdelhamid (Lab 5007 - C
<input type="checkbox"/> SEP881DFC612486	Andres Salgado (5035 - Cisco TelePresence D Cisco TelePresence DX70

Configure Webex Edge for Devices

Connected to 10.99.150.112 Refresh List Connect to different Unified CM

43 Devices | 1 Linked 41 Ready to link 1 Needs attention 0 Link failed

Name	Description	Type
<input type="checkbox"/> SEP0867D9724E3A 15	Webex Edge for Devices SX20 (4117)	Cisco TelePresence SX20

Configure Webex Edge for Devices

Connected to 10.99.150.112 Refresh List Connect to different Unified CM

43 Devices | 1 Linked 41 Ready to link 1 Needs attention 0 Link failed

Name	Description	Type
<input type="checkbox"/> SEP881DFC60FBE8	Hisham Abdelhamid (5007 - Cisco TelePresenc	Cisco TelePresence DX70



Webex Edge for Devices

Control Hub view – indications of successful linking



Just Released

The screenshot displays the Cisco Webex Control Hub interface. On the left is a navigation sidebar with options: Overview, Users, Places, Services, Devices, Analytics, Troubleshooting, Settings, and UC Demo Lab. The main content area is divided into several sections:

- Troubleshooting**: Includes a search bar for "Performed By", a date range for "January 14, 2020", and an "Admin Activity" section showing 341 results with an "Export to CSV" link.
- Admin Activity**: A list of recent events, including "Hisham Abdelhamid created activation code for place 5007." and "Hisham Abdelhamid performed by Hisham Abdelhamid".
- Devices**: A table with columns for Type, Status, and Belongs to. It shows "0 devices selected" and a search for "sx20" and "hisham". A "DEVICE FOUND" indicator is present.
- Device Details**: A pop-up window for "Cisco TelePresence SX20" showing it is "Online, With Issues". It lists tags like "Hisham", "Webex Edge for Devices", and "SJC21".
- Alerts**: A "Manage alerts" section with options to be notified when the device goes offline/online or has issues.
- Actions**: A "Delete" button.
- Details**: A table of device specifications:

Lines	None
IP Address	192.168.250.212
Network Connectivity	Wired
MAC Address	D8:67:D9:72:4E:3A
SIP Address	4117@ucdemolab.com
Serial Number	FTT170901ER
Software	Software managed on-premises ce.9.10.0.db991eb3e27.2019-10-17

A day later, you will see it in Analytics → Devices 😊



Webex Edge for Devices

endpoint admin UI indications of a linked endpoint



Just Released

10.60.112.67
Cisco TelePresence DX70

Home Call Control Setup Security Maintenance Integration local

System Information

General		H323	
Product:	Cisco TelePresence DX70	Status	Inactive
System time:	05:05 AM	Gatekeeper	-
Browser time:	09:05 PM	Number	-
Last boot:	today at 12:16	ID	-
Serial number:	FOC1923N5NW	SIP	
Software version:	ce 9.10.0 50f5888d087 2019-12-17	Status	Registered
Installed options:	Encryption	Proxy	10.99.150.112
System name:	-	URI	5007@ucdemolab.com
IPv4:	10.60.112.67	Webex	
IPv6:	-	Status	Registered
MAC address:	88:1D:FC:60:FB:E8	Type	Webex Edge
Temperature:	42°C / 107.6°F	Display Name	5007
		Organization	UC Demo Lab

10.60.112.67
Cisco TelePresence DX70

Home Call Control Setup Security Maintenance Integration local

Search...

Status

- Audio
- Bookings
- Cameras
- Capabilities
- Conference
- Diagnostics
- H320
- H323
- ICE
- Logging
- Network
- NetworkServices
- Phonebook
- Provisioning
- Proximity
- Security
- SIP
- Spark**
- Standby
- SystemUnit
- Time
- UserInterface
- Video
- Webex

Spark

Space Access	NotInSpace
Status	Registered

Account

CloudMode	CloudAware
ClusterId	PF84
DisplayName	5007
Email	
ExternalPhoneNumber	
Id	f33e2e7b-1b40-4771-b90c-c5497e7538cf
InternalPhoneNumber	
OrganizationDisplayName	UC Demo Lab
OrganizationId	35a15b0a-0ef1-4029-9f63-a7c54df5df59
SipAddress	
Type	LyraSpace

Binding

DeviceRoles	
CallControl	True
MainAudio	True
MainVideo	True
Presentation	True



Feature Comparison

Webex Edge for Devices & Webex Monitoring Agent



Feature	Webex Edge for Devices	Webex Monitoring Agent
CUCM version	12.5su1 or 11.5.x with latest device pack	Any
Endpoints models	SX/MX/DX/Room Kit/Room Series/Board	Also C20/40/60/90,
Endpoint software	CE9.10 and newer	Any
Includes in Control Hub “Devices”	Yes	No
Cloud based features	Cloud xAPI, alerts, Calendar Service, Webex Assistant	No
Control Hub Analytics	Supported (historical device analytics, admin audit log)	No
Control Hub Advanced Diagnostics (Troubleshooting)	Roadmap; target 9.12 release in March 2020	Yes
Device discovery/provisioning	Discovered through CUCM or bulk upload	CSV bulk upload
Agent / server required?	Direct reachability to devices (and CUCM) by “Device Connector” tool during provisioning	Agent must be on same network as on-prem devices



Agenda



- Level set
 - Why register to the cloud?
 - Feature updates



- Deployment Best Practices
 - References & Checklists
 - Planning & Implementation
 - Physical install
 - Network attachment/bandwidth
 - Customizations
 - Operation & Troubleshooting



- Control Hub tie-in
 - Device management
 - Reporting and Diagnostics



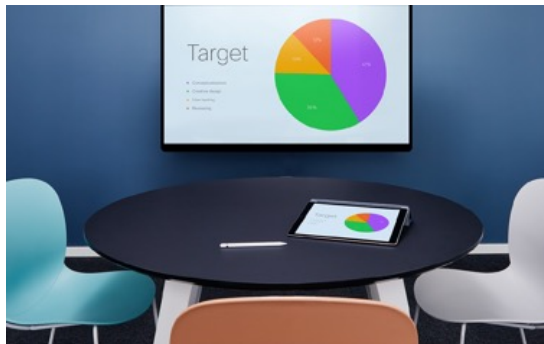
- Conclusion



Match devices to the desired scenario

Positioning the best experience

Share content locally



Connect people with video



Enable teams to create



Webex Share



Webex Room Series



Webex Board



Cisco Webex meeting experience

cisco *Live!*

Cisco Webex cloud registration benefits



- Continuous delivery of Innovative features via cloud Updates
 - Device firmware is always up-to-date!
 - Calendar integration, Webex Assistant, and more to come!
- “Video Mesh” localizes media and alleviates bandwidth-to-the-cloud concerns
- Webex Control Hub for provisioning devices and services, enterprise policy enforcement, and analytics



Conclusions



- Deploying Cisco devices on the Webex cloud provides immense value both to system administrators and their end user
 - Planning as well as an understanding of the underlying system and services flows help realize those gains
- Benefits of device registration to the Webex platform include:
 - Investment protection in endpoints and licenses
 - Differentiated and innovative functionality exclusively from the cloud
 - Extensive end-user features
- Keep system lifecycle in mind

Review of Session Objectives



- Recap of recent Webex device features
- Implementation and operational considerations
- Customizations and advanced features
- “Cloud linking” your on-prem devices
- Best practices

Continue your education



Demos in the
Cisco Showcase



Walk-In Labs



Meet the Engineer
1:1 meetings



Related sessions

Continue Your Education



- Related Cisco Live 2020 Barcelona sessions:
 - BRKCOL-1460: Cognitive Collaboration – AI and Machine Learning Assisted Collaboration
 - BRKCOL-2004: Technical overview of the journey to the cloud for on-premises video deployments
 - BRKCOL-2241: Technical introduction to cloud-aware video endpoints
 - BRKCOL-3004: Advanced Troubleshooting of Cisco Collaboration Video Endpoints
 - BRKCOL-3008: Customization and Integrations of Cisco Video Room Devices
 - DEVNET-1462: Webex Room Device APIs
 - DEVNET-2071: Customizing Cisco Collaboration Devices
 - BRKDEV-3244: Advanced coding for Cisco Video devices
 - DEVWKS-3534: Setting the mood with Webex Room Kit

Complete your online session survey



- Please complete your session survey after each session. Your feedback is very important.
- Complete a minimum of 4 session surveys and the Overall Conference survey (starting on Thursday) to receive your Cisco Live t-shirt.
- All surveys can be taken in the Cisco Events Mobile App or by logging in to the Content Catalog on ciscolive.com/emea.

Cisco Live sessions will be available for viewing on demand after the event at ciscolive.com.



Thank you





You make **possible**