User's and Administrator's Manual

AudioCodes High Definition IP Phones Series

450HD IP Phone for Microsoft® Teams™

Version 0.314

Microsoft Partner
Gold Communications

audiocodes

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Related Documentation

Document Name
C450HD IP Phone for Microsoft Teams Quick Guide
C450HD IP Phone for Microsoft Teams Release Notes
https://docs.microsoft.com/en-us/MicrosoftTeams/phones-for-teams

1 Overview

The AudioCodes C450HD IP phone is a native Microsoft Teams high-end executive business phone with a large color touch screen and full UC integration for the Native Microsoft Teams Online market.

The Microsoft Teams C450HD is equipped with a 5-inch color capacitive touch screen, 1280 x 720 resolution and optional integrated Wi-Fi and Bluetooth support (contact your local AudioCodes representative for more information about regional availability of Wi-Fi / Bluetooth).

The phone can be managed by the Microsoft Teams & Skype for Business Admin Center. For more information, see https://docs.microsoft.com/en-us/MicrosoftTeams/phones-for-teams.

The phone also features the option to be used as a Microsoft Skype for Business IP phone, offered as part of AudioCodes' Managed IP Phones solution which defines the IP phone as an IT-managed entity and delivers unique and complete lifecycle management of end-user desktop devices. A single-click switchover between Microsoft Teams with native client experience and Skype for Business is supported.

1.1 Specifications

The table below summarizes the software specifications of the C450HD IP Phone for Microsoft Teams.

Table 1-1: C450HD IP Phone for Microsoft Teams Software Specifications

Feature	Details
Media Processing	▪ Voice Coders: G.711, G.729, G.722, SILK Opus ▪ Acoustic Echo Cancelation: G.168-2004 compliant, 64-msec tail length ▪ Adaptive Jitter Buffer ▪ Voice Activity Detection ▪ Comfort Noise Generation ▪ Packet Lost Concealment ▪ RTP/RTCP Packetization (RFC 3550, RFC 3551), SRTP (RFC 3711)
Microsoft Teams phones feature set	▪ Authentication (Sign in with user credentials; Sign in using PC/Smartphone; Modern Authentication; Phone lock/unlock) ▪ Calling (Incoming/Outgoing P2P calls; In-call controls via UI (Mute, hold/resume, transfer, end call); PSTN calls; Visual Voicemail; 911 support ▪ Calendar and Presence (Calendar Access and Meeting Details; Presence Integration; Exchange Calendar Integration; Contact Picture Integration; Corporate Directory Access) ▪ Meetings (One-click Join for Meetings; Join Skype for Business meetings; Meeting Call controls [Mute/unmute, hold/resume, hang up, add/remove participant]; Meeting Details. See also https://docs.microsoft.com/en-us/MicrosoftTeams/phones-for-teams.
Configuration / Management	▪ Microsoft Teams & Skype for Business Admin Center (Provisioning and Logging)
Debugging Tools	▪ Log upload to Microsoft server (certification for 3rd party Skype for Business clients) ▪ Remote logging via Syslog ▪ SSH Access ▪ Capturing the phone screen ▪ TCPdump ▪ Company Portal (Intune) logs ▪ Audio Debug recording logs

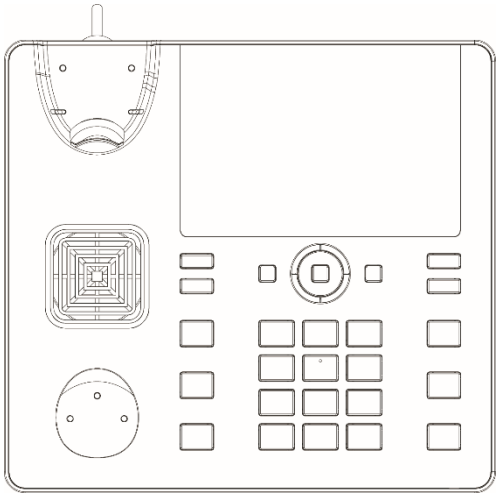
Feature	Details
	▪ Media logs (*.blog)
Localization Support	▪ Multi-lingual support; the language pack list is not yet final and is subject to modification.
C450HD Hardware	▪ Five-inch color capacitive touch screen, 1280 x 720 resolution, with an intuitive user interface. ▪ Wired connectivity: ✓ Two RJ-45 [Gigabit Ethernet (GbE)] (10/100/1000BaseT Ethernet) ports for WAN and LAN ✓ RJ-9 port (jack) for headset ✓ RJ-9 port (jack) for handset ✓ 2 x USB ports for headset support ✓ RJ-11 interface ▪ Mounting: ✓ Wall and desktop mounting options ✓ One angle for desktop mount, another angle for wall mount ▪ Power: ✓ DC jack adapter 12V ✓ Power supply AC 100 ~ 240V ✓ PoE Class 3: IEEE802.3af (optional) ▪ Keys: ✓ VOICE MAIL message hotkey (including LED) ✓ 4-way navigation button with OK key ✓ MENU ✓ REDIAL ✓ HOLD ✓ MUTE (including LED) ✓ TRANSFER ✓ VOLUME control key ✓ HEADSET (including LED) ✓ SPEAKER (including LED) ✓ BACK (the 'x' key) ✓ CONTACTS (not yet supported in Teams)

2 Setting up the Phone

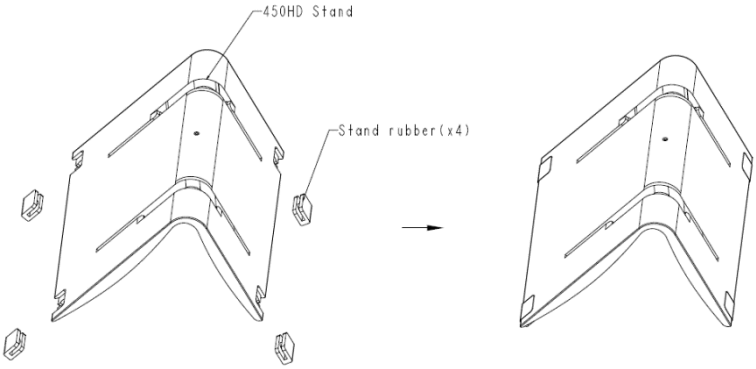
2.1 Unpacking

When unpacking, make sure the following items are present and undamaged:

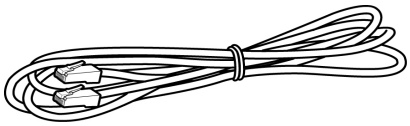
Phone / Stand



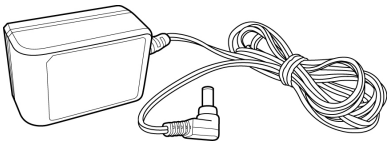
Handset / Cord



Cat 5e Ethernet Cable



AC Power Adapter (Optional)



If anything appears to be missing or broken, contact the distributor from whom you purchased the phone for assistance.

2.2 Device Description

Use the graphics below to identify and familiarize yourself with the device's hardware functions.

2.2.1 Front View

The front view of the phone is shown in Figure 2-1 and described in Table 2-1.

Figure 2-1: Front View

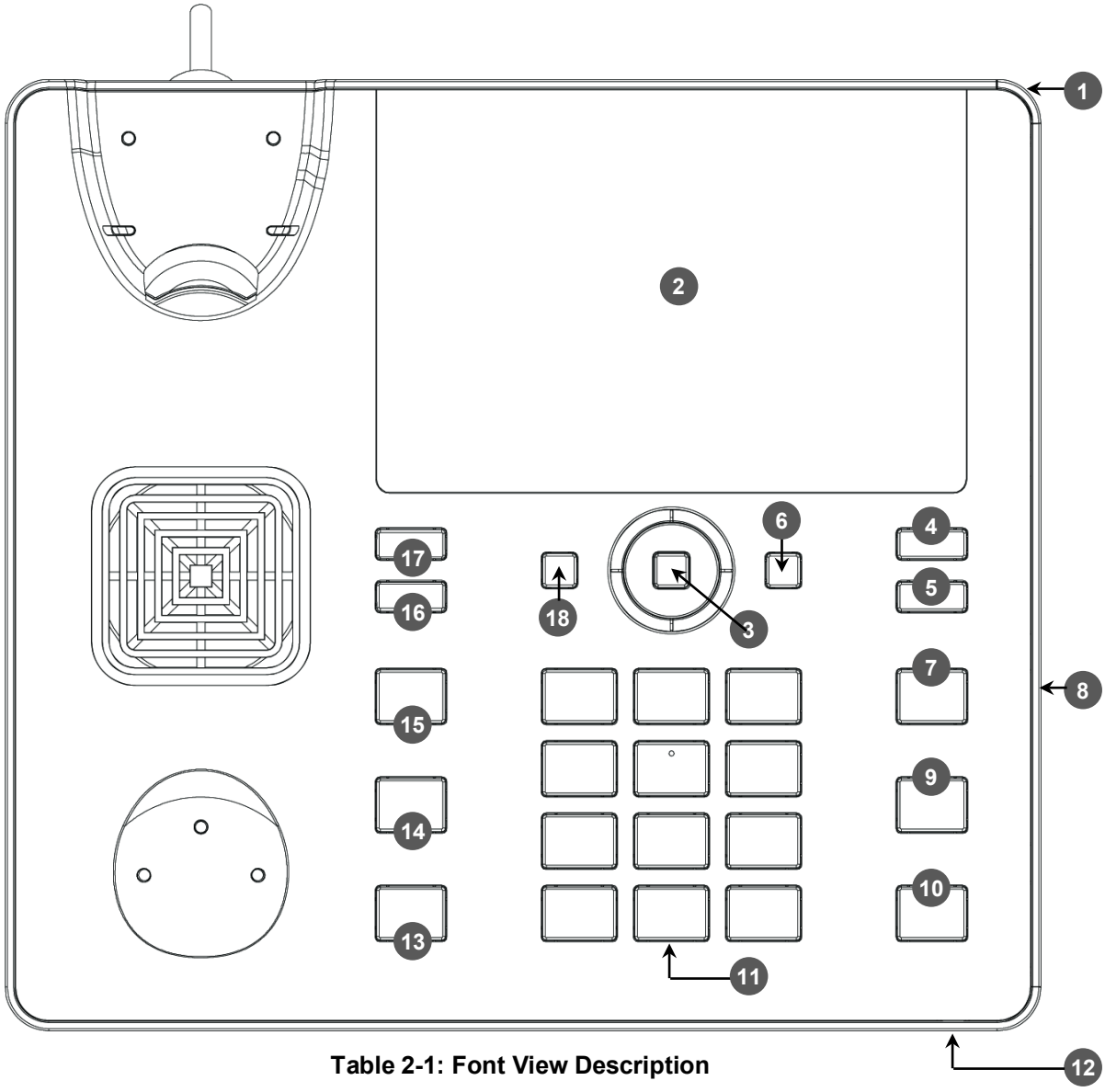


Table 2-1: Font View Description

Item #	Label/Name	Description
1	**Ring LED**	Indicates phone status: ▪ Green: Idle state ▪ Flashing blue: Incoming call (ringing) ▪ Red: Answered call
2	**TFT touch screen**	Thin Film Transistor touch screen, a type of LCD (Liquid Crystal Display) interactive screen which displays calling information and lets you configure phone features by touching the glass.
3	**Navigation**	▪ Press the button's upper rim to scroll up menus/items in the touch screen.

Item #	Label/Name	Description
	Control / OK	▪ Press the button's lower rim to scroll down. ▪ Press the button's left or right rim to move the cursor left or right (when editing a contact number for example). ▪ Press **OK** to select a menu/item/option.
4	**Voicemail**	Retrieves voicemail messages.
5	**CONTACTS**	[Functionality pending]
6	**MENU**	Accesses the Settings screen.
7	**REDIAL**	Accesses a list of recently dialed numbers; one can be selected to redial.
8	**Kensington lock**	Allows locking the device.
9	**TRANSFER**	Transfers a call.
10	**HOLD**	Places an active call on hold.
11	**Alphanumerical Keypad**	Keys for entering numbers, alphabetical letters and symbols (e.g., colons)
12	**Microphone**	Allows talking and listening. The network administrator can disable it if required.
13	**SPEAKER**	Activates the speaker, allowing a hands-free conversation.
14	**HEADSET**	Activates a call using an external headset.
15	**MUTE**	Mutes a call.
16	**▲ VOL**	Increases or decreases the volume of the handset, headset, speaker, ring tone and call progress tones.
17	**▼ VOL**	
18	**x**	Used as a 'Back' key to return to the previous screen.

2.2.2 Rear View

The rear view of the phone is shown in the figure below and described in the table below.

Figure 2-2: Rear View

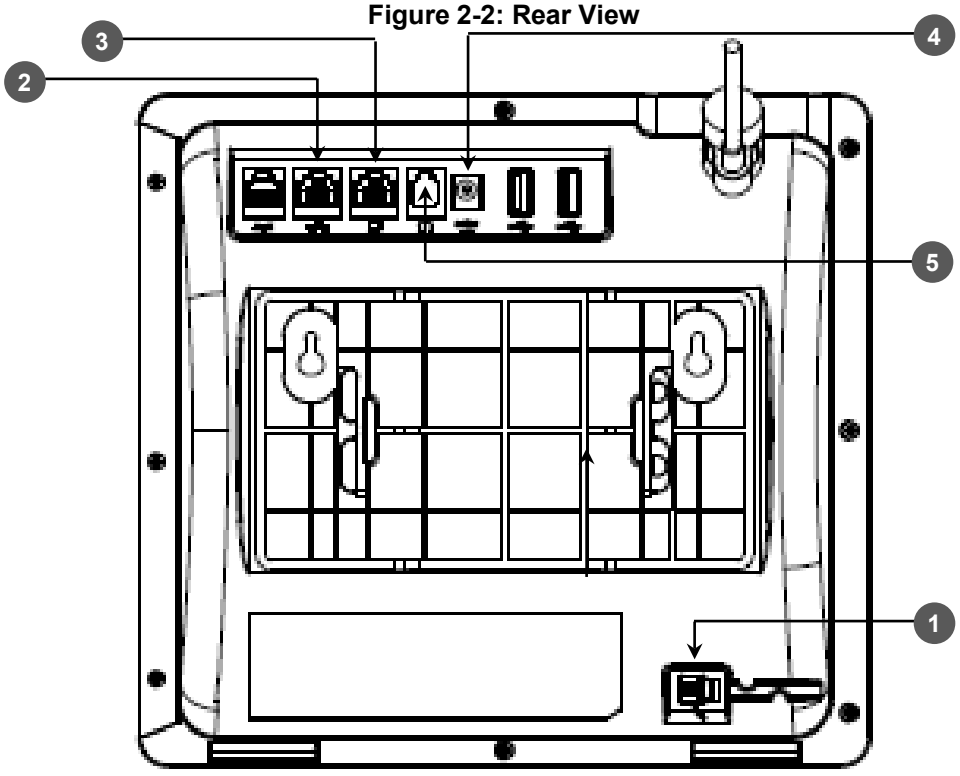


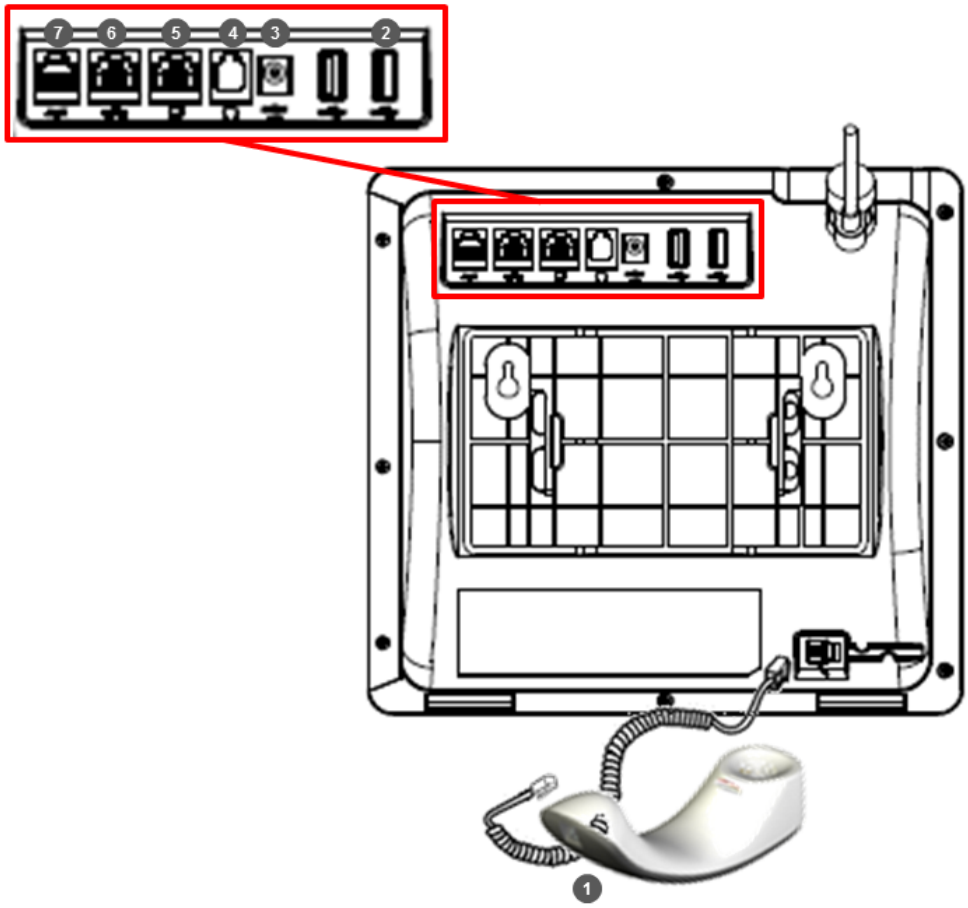
Table 2-2: Rear View Description

#	Label	Description
1		Handset jack, i.e., port RJ-9, to connect the handset.
2		RJ-45 port to connect to the Ethernet LAN cable for the LAN connection (uplink - 10/100/1000 Mbps). If you're using Power over Ethernet (PoE), power to the phone is supplied from the Ethernet cable (draws power from either a spare line or a signal line).
3		RJ-45 port to connect the phone to a PC (10/100/1000 Mbps downlink).
4		12V DC power jack that connects to the AC power adapter.
5		Headset jack, i.e., RJ-9 port that connects to an external headset.

2.3 Cabling

This section covers how to cable your phone. Use the figure and table below as reference.

Figure 2-3: Cabling



Action	Description
1	Connect the phone's RJ-9 port to the handset cord's *longer, straight end*. Connect the handset to the handset cord's *short, straight end*.
2	Connect one of the two USB ports to a headset [optional].
3	Connect the phone's power socket labelled DC 12V to the connector tip of the AC power adapter. Connect the two-prong AC adapter directly to the electrical wall outlet. When the phone powers up, all the LEDs momentarily light up.
4	Connect the phone's RJ-9 headset jack to a headset [optional]
5	Connect the RJ-45 PC port to a computer/laptop, using a CAT 5 / 5e straight-through Ethernet cable
6	Connect the phone's RJ-45 LAN port to your LAN network (LAN port or LAN switch/router) using a CAT 5 / 5e Ethernet cable.
7	Internal use only. FAEs use the port to debug and troubleshoot the phone - after connecting the AUX (auxiliary) port to a terminal monitor with a serial cable.

Note: If the LAN to which the phone is connected supports Power over Ethernet (PoE), no AC adapter is required; the phone receives power from the Ethernet network.

Prior to connecting power, refer to the Compliancy and Regulatory Information at www.audiocodes.com/library.

2.4 Mounting the Phone

The phone can be mounted on a:

- Desk (see Section 2.4.1 below)
- Wall (see Section 2.4.2)

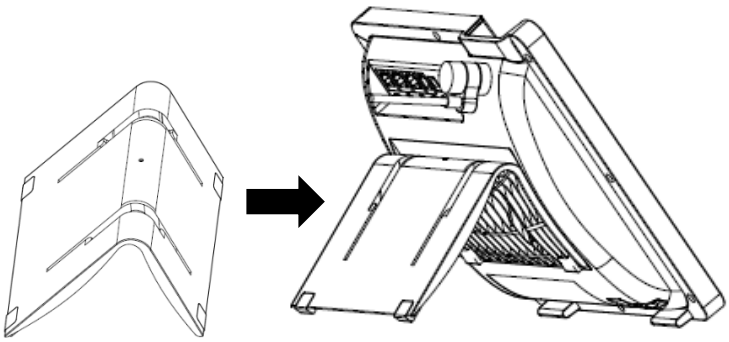
See also https://www.youtube.com/watch?v=oGe9STB9lFE to assemble the base stand.

2.4.1 Desktop Mounting

This section shows how to mount the phone on a flat surface like a desk.

➢ **To mount the phone on a flat surface like a desk:**

1. Off-hook the handset (if on-hook) and place the phone upside down, i.e., base-up, on your desktop.
2. On the phone's stand, identify outer notches.
3. On the phone's base, identify outer rails.
4. Invert the stand and align its outer notches with the base's outer rails.
5. Insert the stand's outer notches into the base's outer rails and slide the notches along the rails until the stand click-locks into the base.
6. Revert the phone and stand it on the desktop.



2.4.1.1 Routing the Handset Cable

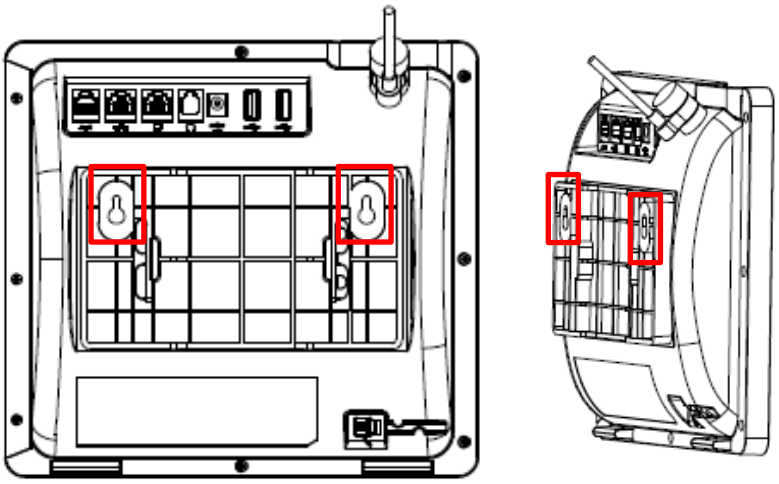
The phone features a groove for routing the handset cable.

2.4.2 Wall Mounting

This section shows how to mount the phone on a wall.

➢ **To mount the phone on a wall:**

1. Attach the stand of the phone for the purpose of a wall mounting:
   a. Detach the base.



b. Attach it again as you did for a desktop mounting (see Section 2.4.1) only now make sure that it's flatly aligned to lie flush against the wall, i.e., slide the *inner rails* of the phone stand onto the phone base's inner notches.

2. Connect the AC power adapter, LAN and PC/laptop cords.
3. In the wall, drill two horizontal holes at a distance of 3 15/16 inches (100 mm) from one another, in line with the template.
4. Insert two masonry anchors into the holes if necessary.
5. Thread two screws (not supplied) into the two masonary anchors; ensure that the heads extend sufficiently (about 3/16 inch or 5 mm from the wall) for the phone stand's keyhole slots to hang on.
6. Hang the phone stand's keyhole slots on these screws.

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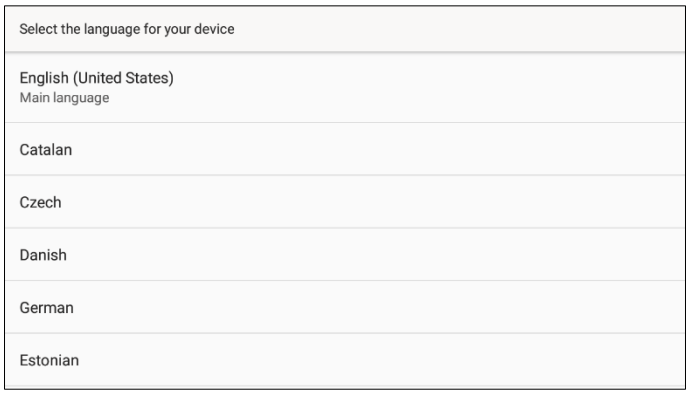
3 Starting up

After connecting the phone to the network (or resetting it), a start-up wizard opens displaying by default the 'Select the language for your device' screen.



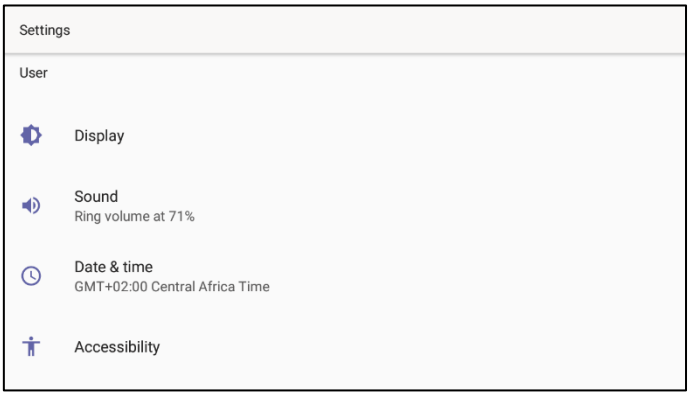
Configure the language of your choice and then configure device settings to match specific requirements. Only if the phone is restored to default settings will it be necessary to repeat this.

3.1 Configuring Device Settings

The section familiarizes you with the device's settings. Devices are delivered to customers configured with their default settings. Customers can customize these settings to suit enterprise requirements.

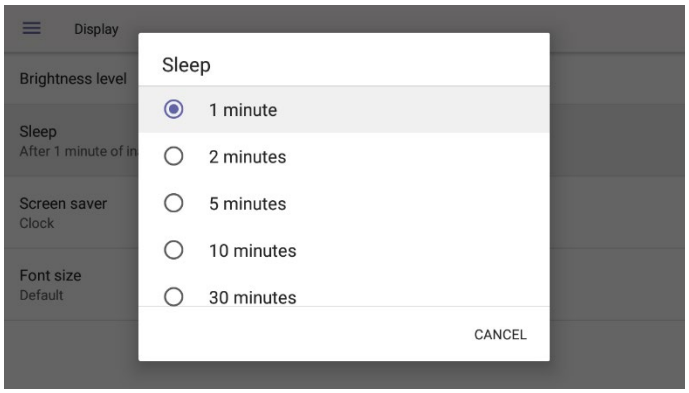
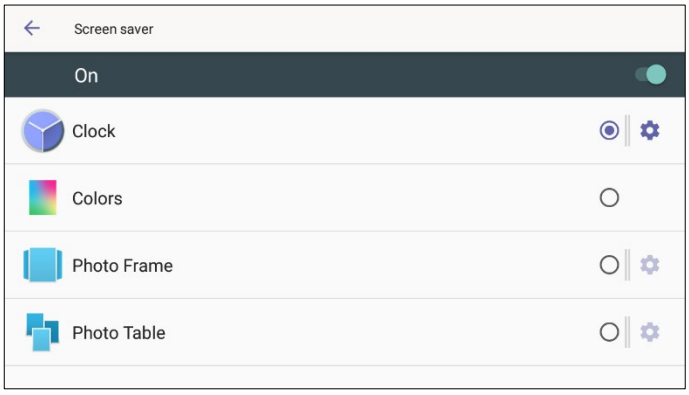
➢ **To access device settings:**

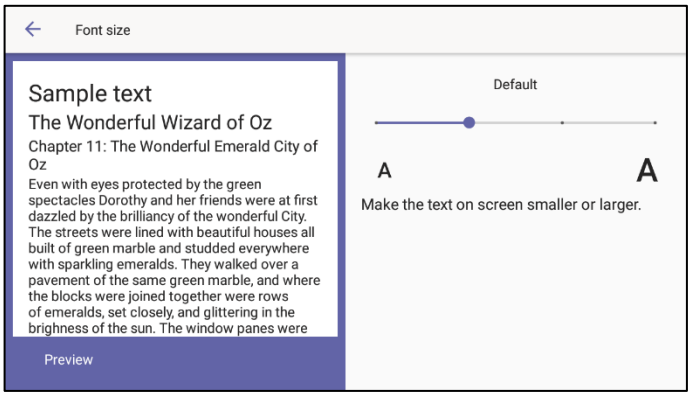
1. In the phone's idle screen, touch the ☰ menu, touch **Settings** and then **Device Settings**. Alternatively, press the hard MENU key on the phone.



2. Swipe down to navigate to and open a setting. Use the table below as reference.

Table 3-1: Device Functions Settings Descriptions

Setting	Description
Login to the Device as Regular User	
Display	Opens the 'Display' screen [Brightness level]. The phone's screen supports different brightness levels. Customers can choose the level that best suits requirements. • Sleep  • Screen saver  • Font size

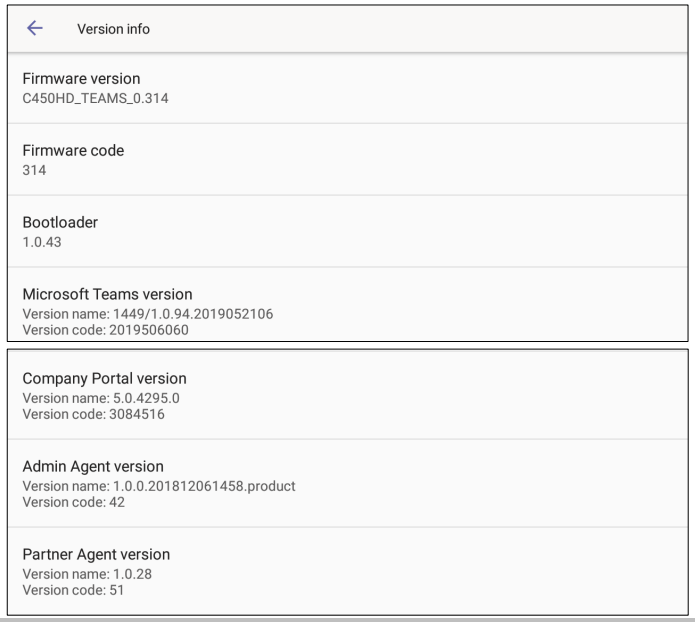
<table>
<tr><td></td><td> 
</td></tr>
<tr><td>Sound</td><td>Allows you to customize phone volume to create a friendlier user experience.
Ring volume at n%
</td></tr>
<tr><td>Date & time</td><td>Date and time are automatically retrieved from the deployed Network Time Protocol (NTP) server.

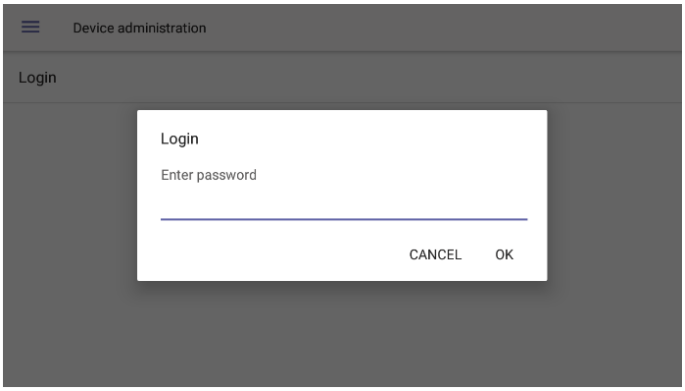
Use 24-hour format [Allows you to select the Time format]</td></tr>
<tr><td>Accessibility</td><td>Allows making the screen reader friendlier.
</td></tr>
</table>

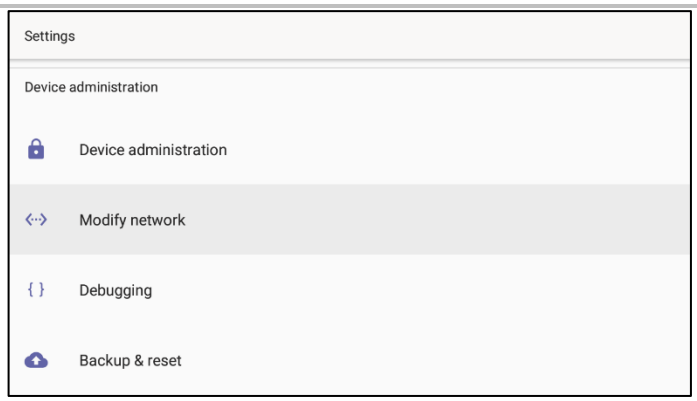
Power Saving	Allows users to contribute to power saving in the enterprise. • Enable power saving • Office hours start time [The device consumes minimal energy before the user arrives at the office] • Office hours end time [The device consumes minimal energy after the user leaves the office]
Debugging	Enables users to reboot the device. Log in as Administrator (MENU key on the phone > Admin) for more debugging settings to be available.

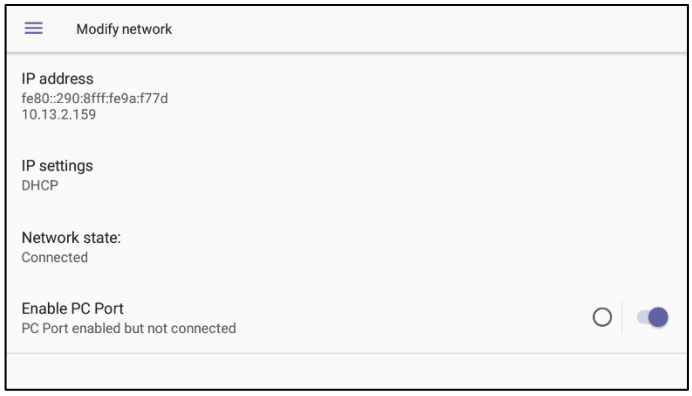
Security	Helps secure the enterprise telephony network against breaches. Screen lock [The phone automatically locks after a configured period to secure it against unwanted use. If left untouched for 10 minutes (default), it automatically locks and is inaccessible to anyone who doesn't know its lock code.] • Make passwords available • Storage type • Trusted credentials • User credentials • Install from SD card • Clear credentials
Touch screen	Allows users to disable the phone's touch screen.
Languages & input	Allows users to customize inputting to suit personal requirements.
About [Android 7.1.2]	Enables users to determine device information. To determine the device's IP address, select the 'Status' option.

To get information about the version, select 'Android version'.



Login to the Device as Admin	
Device administration	Allows the user to log in as Administrator, necessary for some of the debugging options. It is password protected. Default password: 1234 (or 1111 in early versions). After logging in as an Administrator, the user can log out | change password. To log in as Administrator: **1.** Press the MENU key on the phone. **2.** Touch the **Device administration** option. **3.** Touch the **Login** field.  **4.** Enter the password (**1234** or **1111**).
Modify network	Enables the Admin user to determine network information and to modify network settings.

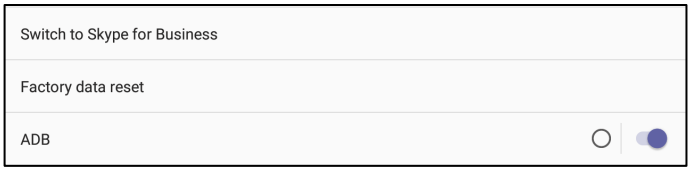




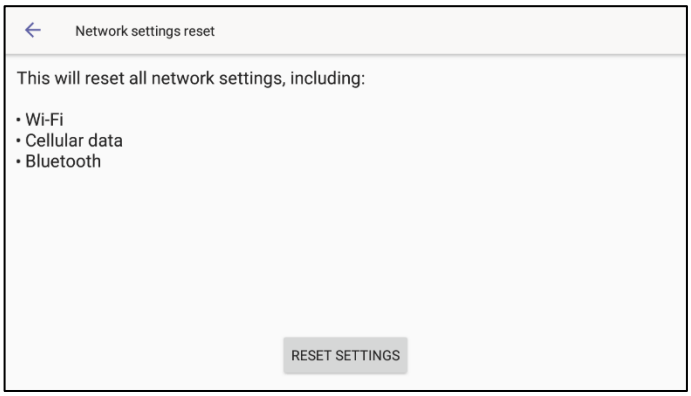
- IP Address [Read Only]
- IP Settings [DHCP or Static IP]
- Network state [Read Only]
- Enable PC port

Debugging

Allows the Admin user to perform debugging for troubleshooting purposes. Available after logging in as Admin.



- Log settings
- Remote Logging (see under Section 7.2.2 for more information)
- Reset configuration
- Restart Teams app
- Company portal login
- Debug Recording (for Media/DSP debugging) (see under Section 7.2.2 for more information)
- Switch to Skype for Business
- Factory data reset (the equivalent of restore to defaults; including logout and device reboot).
- ADB (Android Debug Bridge command-line tool used to debug the Teams app); the setting is

	disabled by default; leave it unchanged at the default unless there's a real necessity to use it.
Backup & Reset	Enables the Admin user to perform a factory data reset.
…. More	Enables the Admin user to access the Wireless & Networks screen. The 'Network settings reset' options enables resetting all network settings including Wi-Fi, Cellular data and Bluetooth. 

3.2 Restoring the Phone to Default Settings

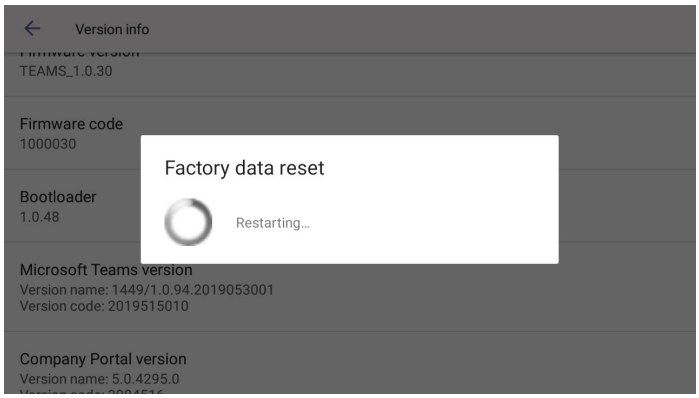
Users can restore the device to factory default settings at any time. The feature can be used if a user forgets their Admin password, for example. Two kinds of restore are available:

- Hard restore
- Soft restore

3.2.1 Performing a Hard Restore

➢ **To perform a hard restore:**

1. Long-press the HOLD key on the phone (more than 15 seconds); you're prompted with the screen below and the device performs a restore to default factory settings.



2. After the restore, the phone automatically reboots and goes through the Wizard and sign-in process.
3. Touch **OK**; the sign-in screen is displayed (see Section 4.1 for more information).

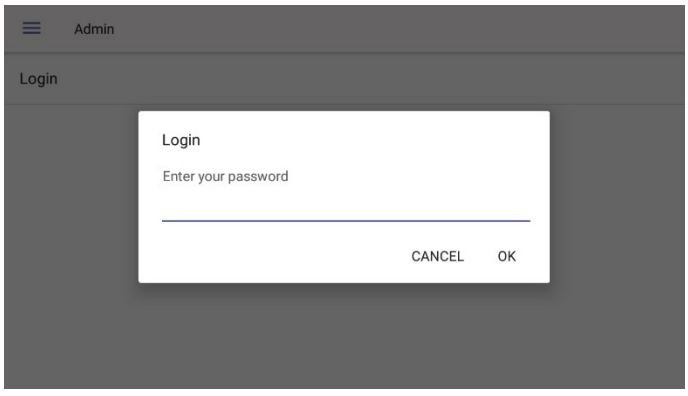
3.2.2 Performing a Soft Restore

Users must log in as Administrator in order to perform a soft restore. The soft restore is then performed in the 'Debug' screen.

➢ **To perform a soft restore:**

1. Press the MENU key on the phone and in the Settings screen that opens, scroll down and touch the **Admin** option.

2. Touch the **Login** menu item.



3. Touch the field for the virtual keyboard to be displayed and then enter the default password of **1234**; you're prompted with 'You are now logged in'; you now have privileges to configure the Device Settings screen.
4. Press the x key on the phone to go back and then in the (device) Settings screen, select the **Debug** option.

5. Touch the **Factory data reset** option; the device performs a restore to default factory settings.

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4 Teams Application

This section describes functions related to the C450HD phone's Microsoft Teams application.

4.1 Signing In

Before using the phone (after setting it up), sign in for security purposes. You can sign-in with user credentials locally on your IP phone, or remotely with your PC / smart phone.

'Modern Authentication' is also supported.

Before signing in, the network administrator must make sure the phone gets the local time, using either:

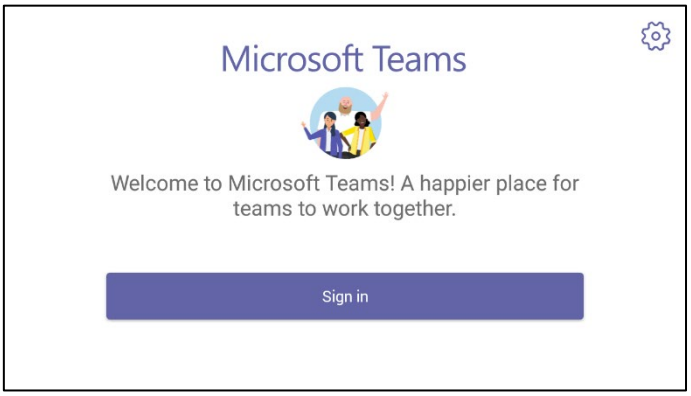
- Google NTP
- DHCP Option 42 (NTP)

If DHCP Option 42 (NTP) is opted for, the network administrator must specify the server providing NTP for the network. For more information, see the *Administrator's Manual.*

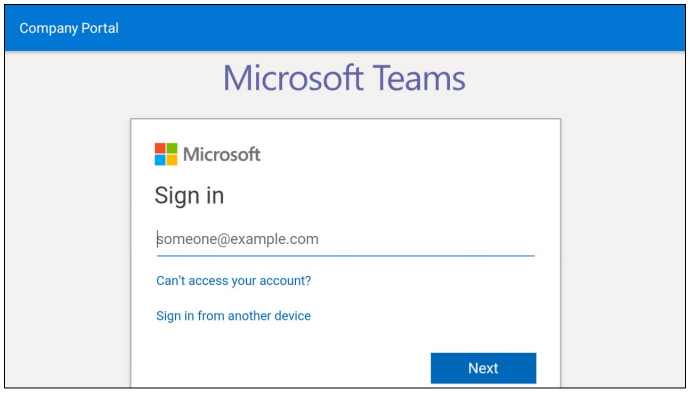
➢ **To sign in:**

1. Click the sign-in button in the Welcome to Microsoft Teams! Screen.

Figure 4-1: Signing-in with credentials

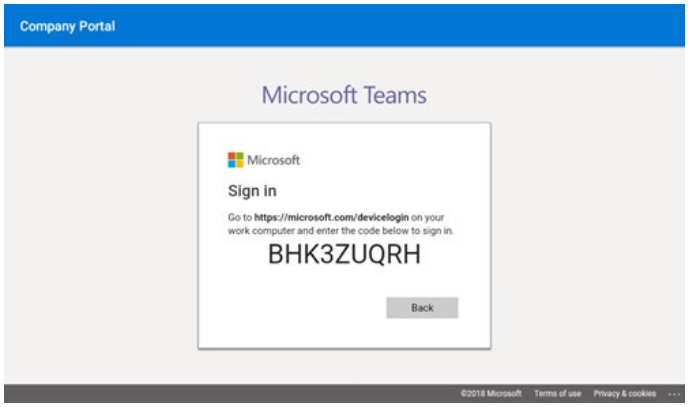


You're prompted with the option to sign in by entering user credentials (someone@example.com as can be seen in the example below), or **Sign in from another device**.



- If you opt to sign in with user credentials and you touch the someone@example.com field, the keyboard that opens eclipses the field; scroll up to view it and enter your user credentials.
- If you opt to **Sign in from another device**, complete authentication from your PC or smartphone. This is recommended if you're using Multi Factor Authentication (MFA).

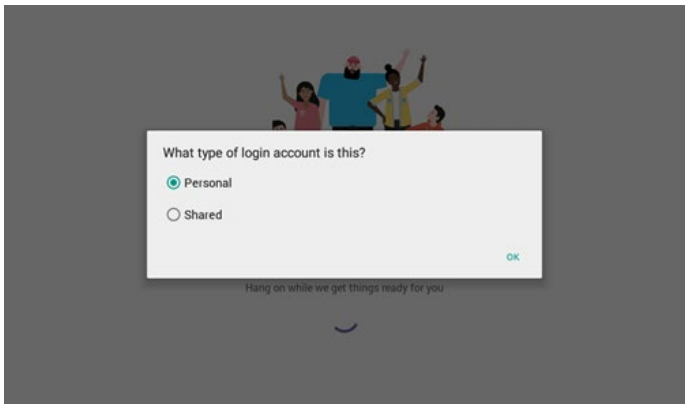
Figure 4-2: Signing-in via PC / Smart Phone



- In the browser on your PC or smartphone, enter the URL indicated in the screen above and then in the phone's Web interface that opens, perform sign-in (as noted previously, this option is recommended if using MFA).

- After successful sign-in, select **Personal** use or **Shared**.

Figure 4-3: Personal or Shared



User experience is optimized based on the selection.

Figure 4-4: Personal Mode

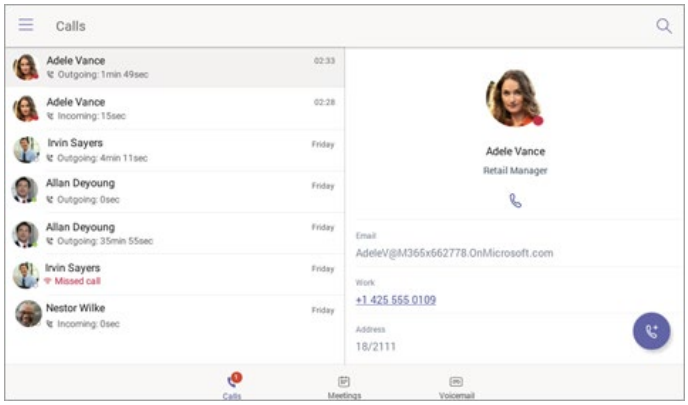
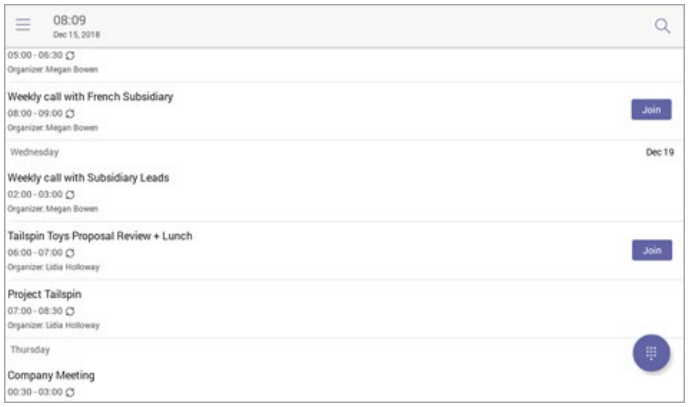


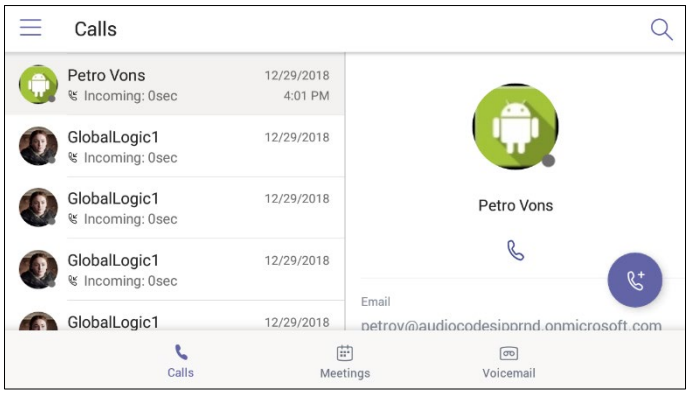
Figure 4-5: Shared Mode



4.1.1 Getting Acquainted with the Phone Screen

This section gets you acquainted with the phone's user interface. The figure below shows the screen when the phone is in idle state.

Figure 4-6: Phone Screen in Idle State - Calls

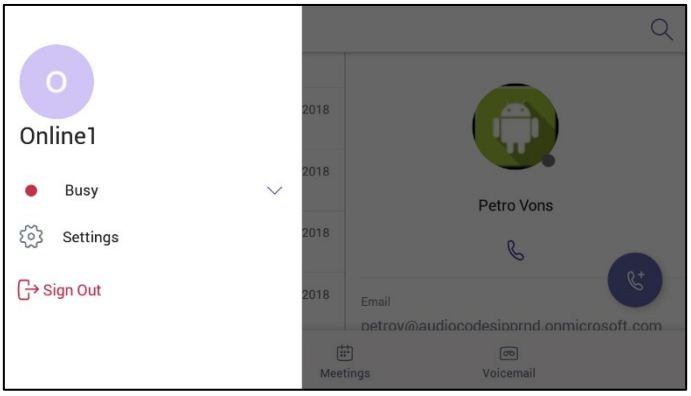


Use the table below as reference.

Table 4-1: Phone Screen in Idle State - Description

Item	Description
☰	The phone menu. Touch to open. The screen shown in Figure 4-7 below opens.
Calls	Touch the tab to open the Calls screen if it isn't already (i.e., if the Meetings screen or Voicemail screen is open). The screen shown in Figure 4-6 above opens.
Meetings	Touch the tab to open the Meetings screen, shown in Figure 4-9 below opens.
Voicemail	Touch the tab to open the Voicemail screen, shown in Figure 4-13 below opens.

Figure 4-7: Phone Screen in Idle State - Menu Items



Use the table below as reference:

Table 4-2: Menu Item Descriptions

Item	Description
Presence status	See Section 4.1.2 for more information.
Settings	See Section 4.2 for more information.
Sign Out	See Section 4.6 for more information.

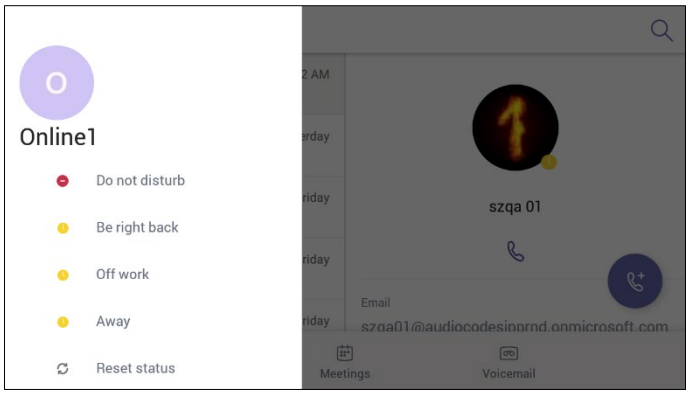
4.1.2 Changing Presence Status

You can assign a presence status to control whether you want people to contact you or not. By default, your status is based on your Teams server.

Note:

- After *n* minutes (configured in the Teams server by your administrator), presence status automatically changes to 'Inactive'.
- *n* minutes after this (also configured in the Teams server by your administrator), presence status automatically changes to 'Away'; all calls are then automatically forwarded to the RGS (Response Group Service) if it is configured.

From the drop-down list in the phone's idle screen, select the status you require.



Use the table below as reference.

Table 4-3: Presence Statuses

Icon	Presence Status	Description
	Available	You're online and available for other contacts to call.
	Busy	You’re busy and don’t want to be interrupted.
	Do not disturb	You don’t want to be disturbed. Stops the phone from ringing when others call you. If DnD is activated, callers hear a tone indicating that your phone is busy; the call is blocked and your phone's touch screen indicates 'Missed Calls'.
	Be Right Back	You'll be away briefly and you'll return shortly.
	Off Work	You're going on vacation (for example).
	Away	You want to hide your status and appear to others you're currently away.

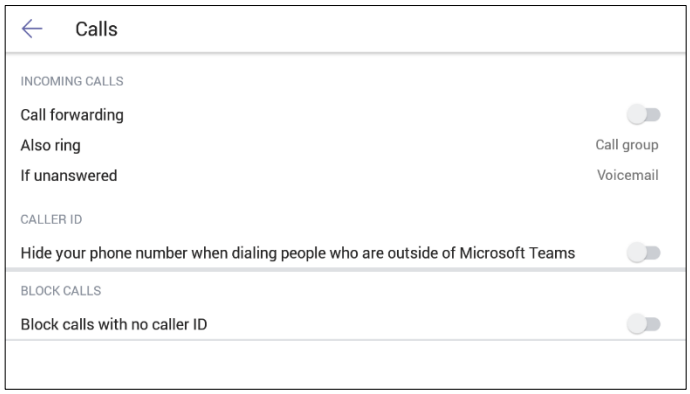
4.2 Configuring Teams Application Settings

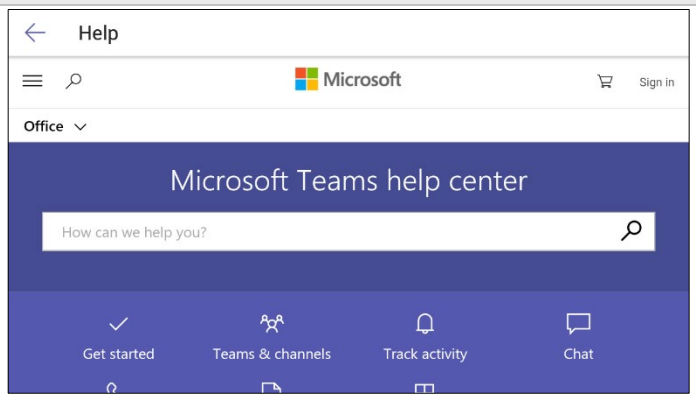
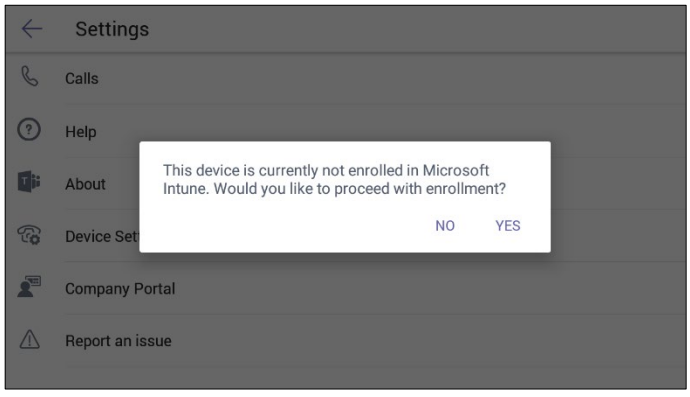
This section describes Teams application settings. In the Calls screen, touch the phone menu ☰ and from the menu screen shown in Figure 4-7, select the **Settings** item.

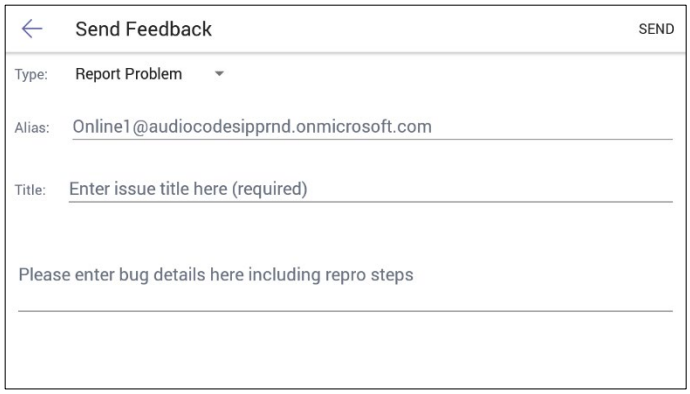
Figure 4-8: Settings

Use the table below as reference:

Table 4-4: Idle Screen Description

Item	Description
Calls	Opens the Calls screen.  **Incoming Calls** • **Call forwarding**. Enables automatically redirecting an incoming call to another destination. • **Forward to**. Only displayed if the previous setting is enabled. Defines the destination to which to forward incoming calls. • **Also ring**. Only displayed if 'Call forwarding' is disabled. Select either **Off**, **Contact or number**, or **Call group**. • **If unanswered**. Only displayed if 'Call forwarding' is disabled. Defines the destination to which to forward unanswered incoming calls. Select either **Off**, **Voicemail**, **Contact or number**, or **Call group**. **Caller ID** • Hide your phone number when dialing people who are outside of Microsoft Teams **Block Calls** • **Block calls with no caller ID**. Enables blocking calls that do not have a Caller ID.
Help	Opens the 'Microsoft Teams help center' screen.

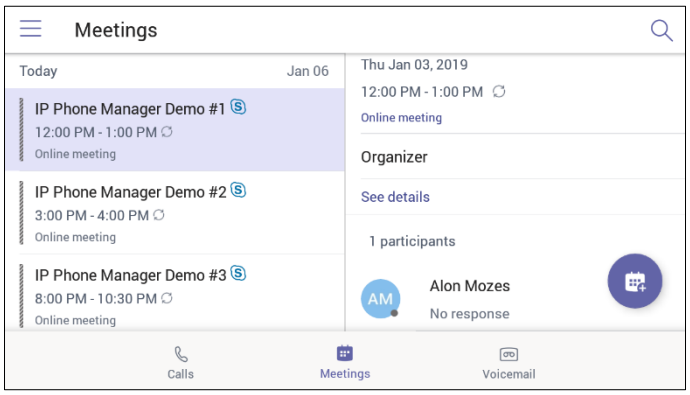
Item	Description
	 • Get started • Teams & channels • Track activity • Chat • Meetings & calls • Files • Apps & services
About	Opens the About screen.
Device Settings	Opens the [Device] Settings screen.
Company Portal	The phone is by default not enrolled. You're prompted with the option to enroll: 

Item	Description
Report an issue	Opens the Send Feedback screen. 

4.3 Setting up a Meeting

Touch the **Meetings** tab to view your meetings. Use the **Join** button to join your Teams meetings.

Figure 4-9: Meetings



Select the **Join** button to join your Teams meetings.

Figure 4-10: Calendar view

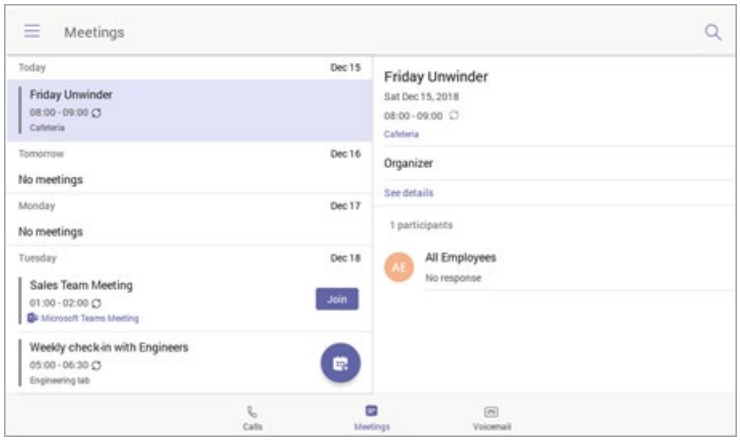
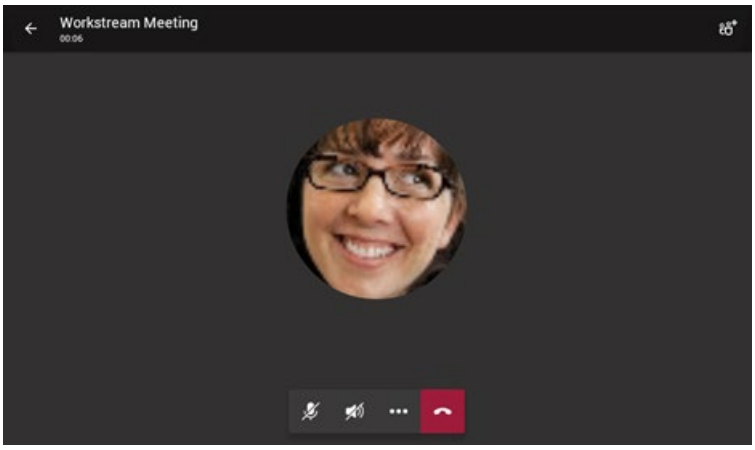


Figure 4-11: Meeting join view



4.4 Accessing Voicemail

You can access your voicemail by touching the **Voicemail** tab.

Figure 4-12: Voicemail

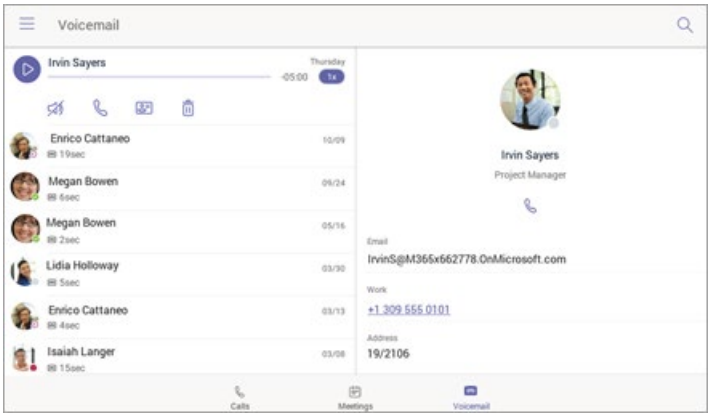
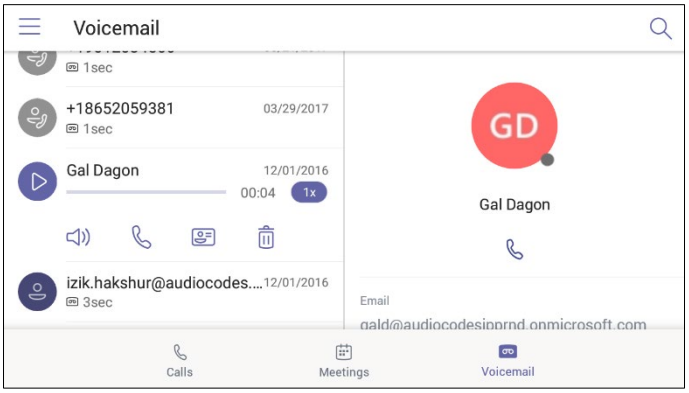


Figure 4-13: Voicemail



4.5 Using Audio Devices

You can use one of the following audio devices on the phone for speaking and listening:

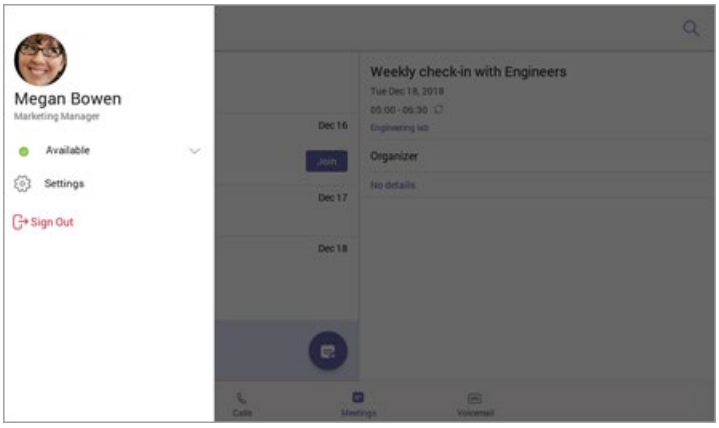
- **Handset**: To make a call or answer a call, lift the handset off the cradle.
- **Speaker** (hands-free mode). To activate it, press the speaker key during a call or when making a call. To deactivate it, press the speaker key again.
- **Headset** (hands-free mode). When talking on the phone, you can relay audio to a connected headset. To enable it, press the headset key. To disable it, press it again.

You can easily change audio device during a call.

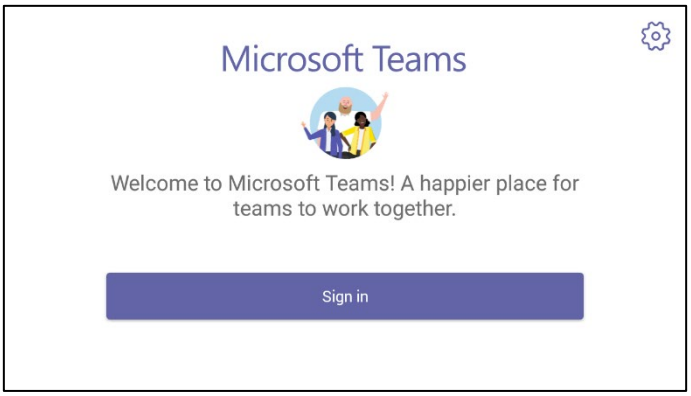
- **To change from speaker/headset to handset**: Activate speaker/headset and pick up the handset; the speaker/headset is automatically disabled.
- **To change from handset to speaker/headset**: Off-hook the handset and press the speaker/headset key to activate the speaker/headset. Return the handset to the cradle; the speaker/headset remains activated.

4.6 Signing Out

In the idle screen, touch the phone menu ☰ and then touch the **Sign Out** option.



You're signed out and returned to the **Sign in** screen.



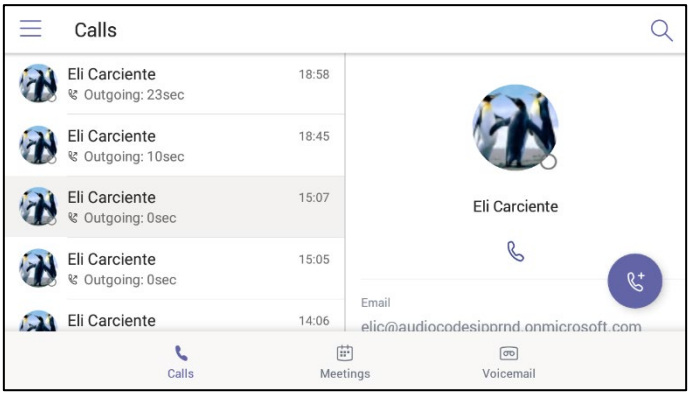
5 Performing Basic Operations

This section shows basic phone operations.

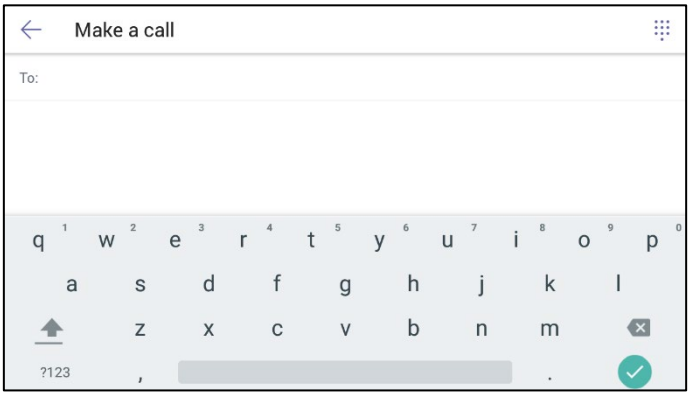
5.1 Making a Call

Calls can be made in multiple ways, for example, you can press the digit keys on the phone's dial pad to enter the phone number or URL.

Alternatively, select a call listed in the Calls screen, and then touch .



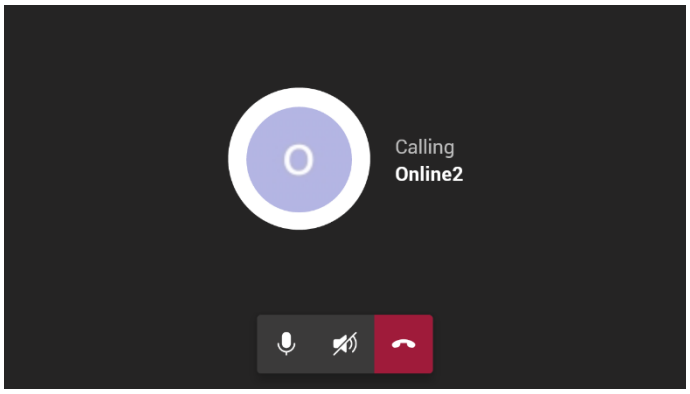
Touching the icon also in the Calls screen allows you to make a call using the soft keyboard.



To launch the soft keyboard, touch the 'To' field.

To switch to digits, touch **?123**.

After dialing a destination number, the phone displays the Calling screen while playing a ring-back tone.



➢ **To toggle between mute and unmute**

- Touch . Touch it again to revert.

  You can mute the microphone of the handset, headset, or speaker during a call so that the other party cannot hear you. While the call is muted you can still hear the other party. Muting calls can also be used during conference calls.

➢ **To toggle between device and speaker**

- Touch

➢ **To end a call before it's answered at the other end**

- Touch

➢ **To dial a URL:**

1. Press the speaker key or lift the handset and then touch the 'Place call' field.
2. Enter a URL address. To delete (from right to left), touch the clear key.

5.1.1 Redialing

You can redial a number you previously dialled.

➢ **To redial:**

- Press the REDIAL hard key on the phone; the first call listed in the Calls screen redialled.

5.1.2 Dialing a Missed Call

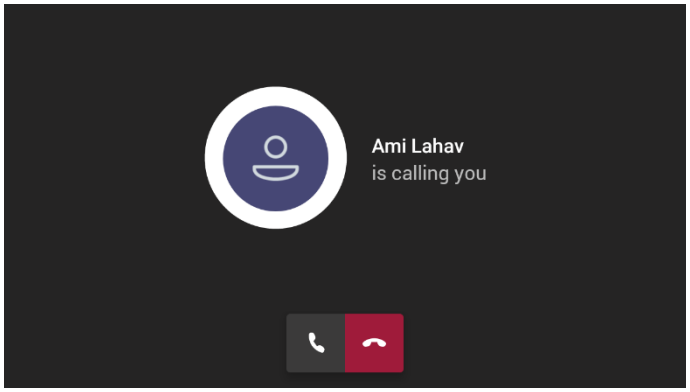
The phone logs all missed calls. The screen in idle state displays the number of missed calls adjacent to the Calls softkey.

➢ **To dial a missed call:**

1. Touch the Calls softkey and then in the Calls screen navigate to the missed call to dial if there is more than one listed.
2. Scroll down (if necessary) and select the missed call and then touch .

5.2 Answering Calls

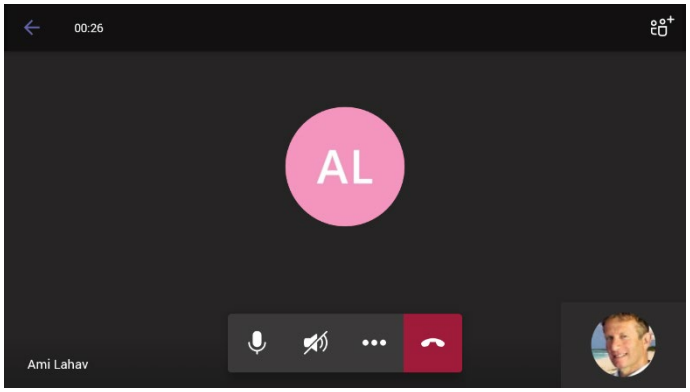
Your phone indicates an incoming call by ringing and displaying this screen:



➢ **To answer:**

- Pick up the handset -OR- press the headset key (make sure the headset is connected to the phone) -OR- press the speaker key -OR- touch the **Accept** softkey (the speaker is automatically activated).

When you answer, the screen displays this screen:



5.3 Ending an Established Call

You can end an established call.

➢ **To end an established call:**

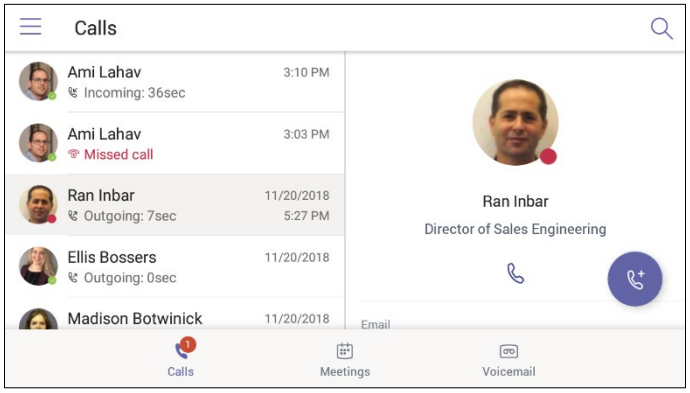
- Return the handset to the phone cradle if it was used to take the call -or- press the headset key -or- press the speaker key -or- touch the **End** softkey.

5.4 Managing Calls

The phone's Calls screen displays missed, received and dialed calls.

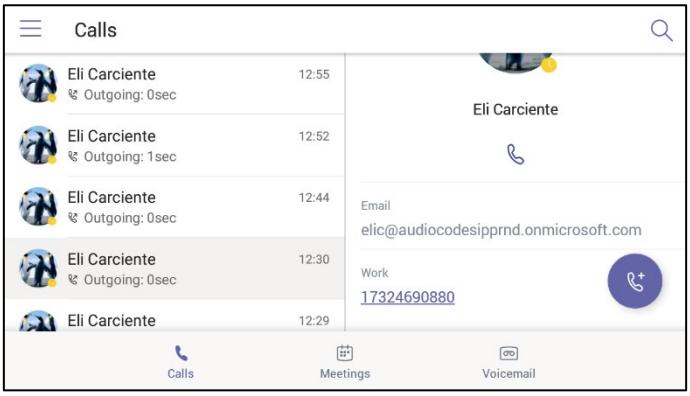
Note: Each device reports every call from | to that user to the server. All devices that a user signs into are synchronized with the server. The Calls screen is synchronized with server.

In idle state, the touch screen displays the number of missed calls (if any). In the example below, 1 missed call is indicated.



➢ **To manage calls:**

1. Touch the Calls softkey; in the list of historical calls displayed, Missed call indicates a call that was not answered.
   - Incoming = most recently answered
   - Outgoing = most recently dialed
2. Scroll to and select a call in the list; their picture is displayed in the right side of the screen together with their email and work number if defined in the server.
3. Touch to dial them



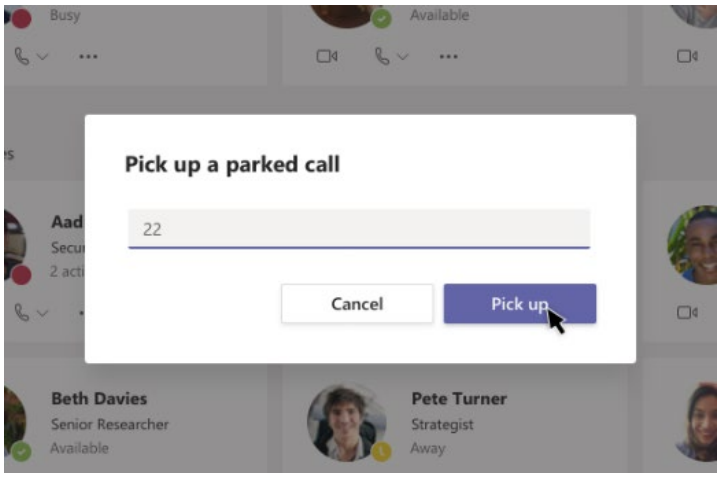
Note: Calls are listed from newest to oldest.

5.5 Parking a Call

This Microsoft Teams application feature allows a user to park a call, i.e., transfer a call to a "parking lot" for it to be picked up on any other phone in the enterprise by a party who must enter a code to retrieve it.

➢ **To park a call:**

1. Put the call on hold and park it; you'll receive a unique code from the Teams application.
2. Communicate the code to another user who can then pick up the call on their device. The user on the other device touches a new **Call park** icon displayed in their device's main Calls screen; the following screen opens:



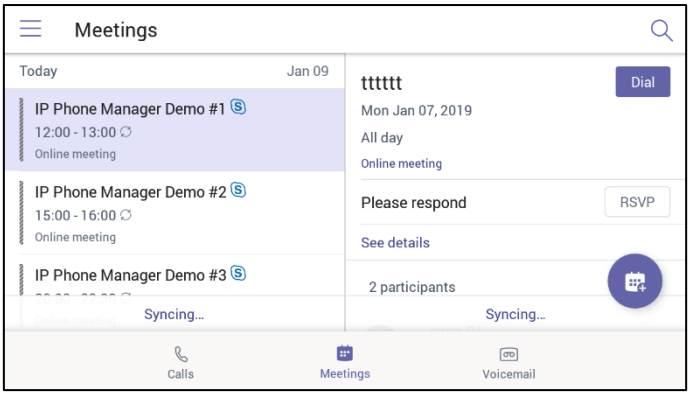
3. The user on the other device enters the code communicated to them and then touches the 'Pick up' button to pick up the call.

5.6 Initiating a Teams Meeting

A multi-party call conference based on the Teams server (remote conference) can be initiated from the phone.

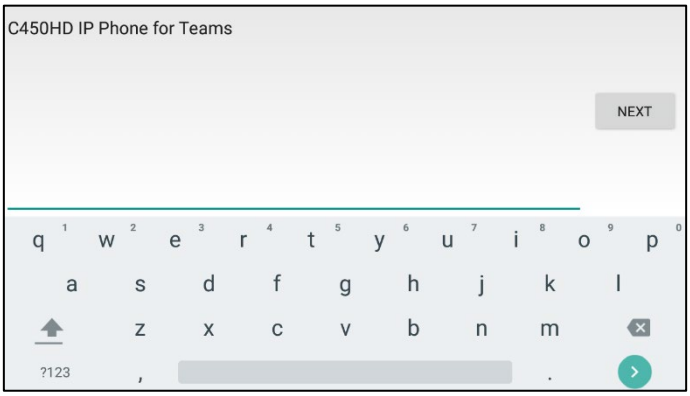
➢ **To initiate a conference:**

4. In the phone's idle screen, touch the **Meetings** softkey.

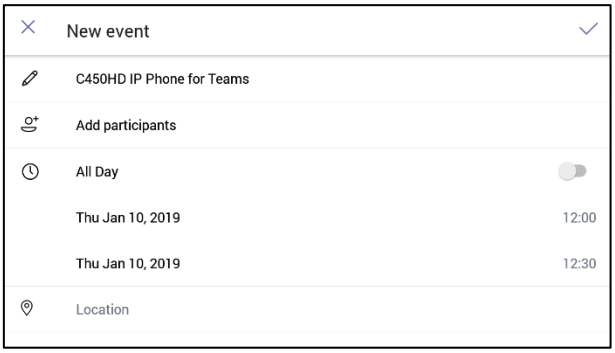


5. Touch the **+** icon.

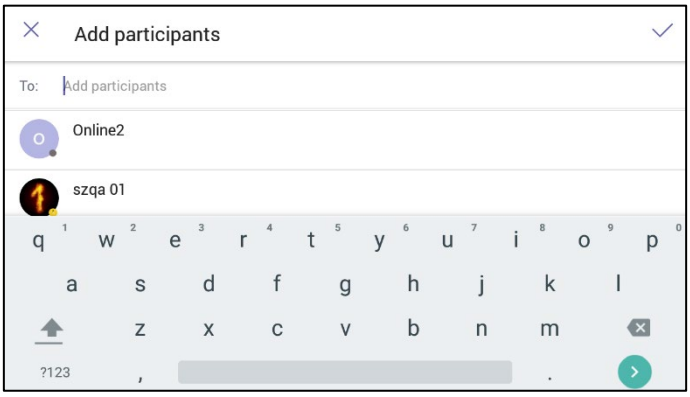
6. Touch the Title field. Use the soft keyboard that launches to enter a title for the meeting.



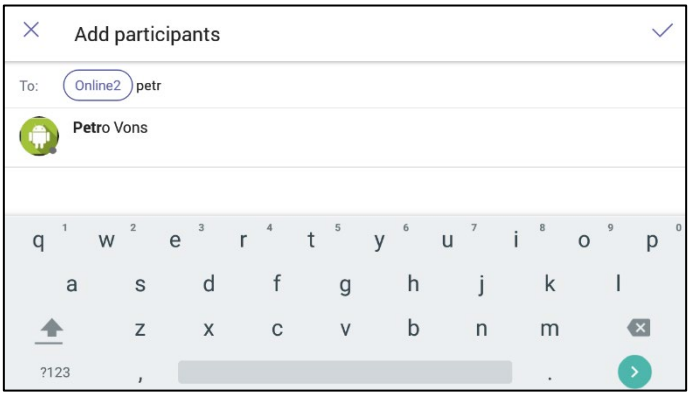
7. Touch NEXT.

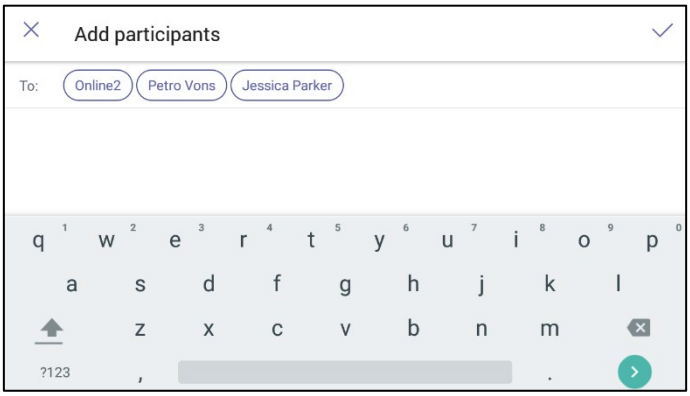


8. Touch **Add participants**.



9. Touch the 'To' field and then use the soft keyboard to enter the first letter of the name of the participant to add. If you're searching for **Alex** (for example), touch the letter **A** on the soft keyboard, then **l**, etc.; the name you're searching for will be promoted to the top of the list of Corporate Directory entries displayed.





The feature lets you quickly and easily navigate to any employee listed in the Corporate Directory.

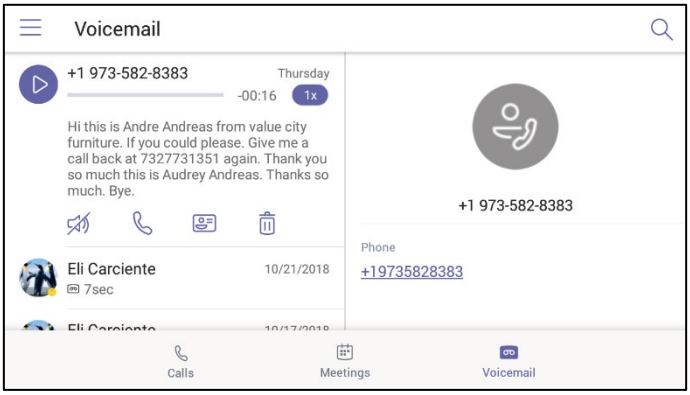
5.7 Viewing and Playing Voicemail Messages

New messages will be in your voicemail box if

- the envelope softkey displayed in the phone's screen indicates a number
- a stutter dial tone is heard when you pick up the handset

➢ **To view a list of your voicemail messages:**

1. Press the voicemail key on the phone (indicated by the icon of an envelope) which will be illuminated if you have voicemail, or touch the Voicemail softkey in the idle screen.



2. Scroll down to select from the list which message to **Play**, **Call** or **Delete**.

5.7.1 Rejecting an Incoming Call, Sending it Directly to Voicemail

You can send an incoming call directly to voicemail if time constraints (for example) prevent you from answering it. The caller hears a busy tone from your phone.

➢ **To send an incoming call directly to voicemail:**

- When the phone rings to alert to a call, touch ; if you have voicemail, the call will go into voicemail; the Microsoft Teams server performs this functionality.

5.8 Adjusting Volume

The phone allows you to adjust

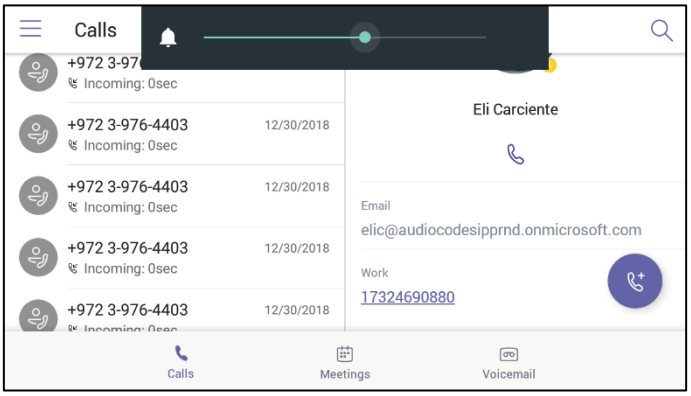
- Ring volume
- Tones volume (e.g., dial tone)
- Handset volume
- Speaker volume
- Headset volume

5.8.1 Adjusting Ring Volume

The volume of the phone's ring alerting you to an incoming call can be adjusted to suit personal preference.

➢ **To adjust ring volume:**

1. When the phone is in idle state, press the VOL ▲ or VOL ▼ key.



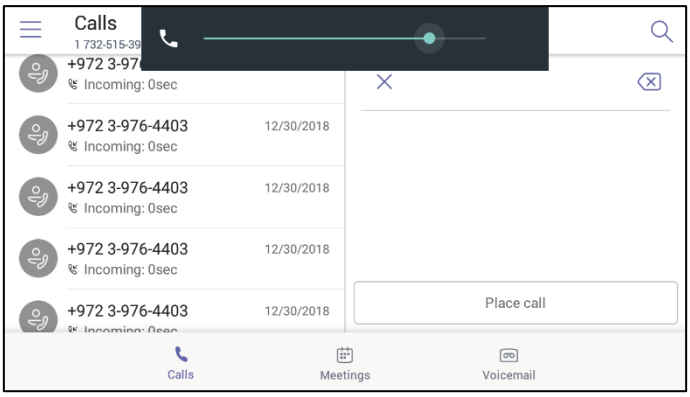
2. After adjusting, the volume bar disappears from the screen.

5.8.2 Adjusting Tones Volume

The phone's tones, including dial tone, ring-back tone and all other call progress tones, can be adjusted to suit personal preference.

➢ **To adjust tones volume:**

1. Off-hook the phone (using handset, speaker or headset).
2. Press the VOL ▲ or VOL ▼ key to adjust the volume.



3. After adjusting, the volume bar disappears from the screen.

5.8.3 Adjusting Handset Volume

Handset volume can be adjusted to suit personal preference. The adjustment is performed during a call or when making a call. The newly adjusted level applies to all subsequent handset use.

➢ **To adjust handset volume:**

1. During a call or when making a call, make sure the handset is off the cradle.
2. Press the VOL ▲ or VOL ▼ key; the volume bar shown in the preceding figure is displayed on the screen. After adjusting, the volume bar disappears from the screen.

5.8.4 Adjusting Speaker Volume

The volume of the speaker can be adjusted to suit personal preference. It can only be adjusted *during a call*.

➢ **To adjust the speaker volume:**

1. During a call, press the speaker key on the phone.
2. Press the VOL ▲ or VOL ▼ key; the volume bar is displayed on the screen. After adjusting the volume, the volume bar disappears from the screen.

5.8.5 Adjusting Headset Volume

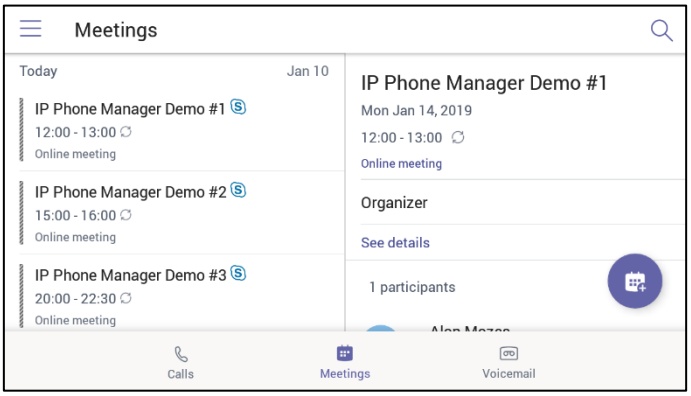
Headset volume can be adjusted to suit personal preference. It can only be adjusted *during a call*.

➢ **To adjust the headset volume:**

1. During a call, press the headset hard key on the phone.
2. Press the VOL ▲ or VOL ▼ key; the volume bar is displayed on the screen.

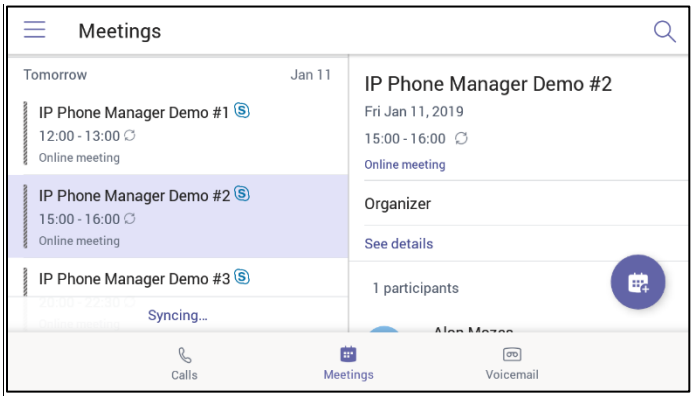
5.9 Managing Meetings

Meetings scheduled for today and for the next week can be viewed by touching the Meetings tab.



➢ **To view the details of a meeting:**

1. Scroll down to select the meeting whose details you want to view and touch it.



2. View in the right pane the details of the meeting.

➢ **To join a meeting:**

- In the meeting you want to join (see the preceding figure), touch the **See details** link.

6 Updating C450HD Phone Firmware Manually

The phone's firmware can be upgraded manually via Secure Shell (SSH) cryptographic network protocol.

➢ **To manually upgrade firmware to firmware that does not exist in Microsoft Admin Portal:**

1. Open the Command prompt.
2. Run the following command:

```
scp C450HD_TEAMS_0.314.zip admin@10.16.2.50:/data/ota_package/update_image.zip
```

Note:

- In the above example, the phone's IP address is **10.16.2.50** and the firmware name is **C450HD_TEAMS_0.314.zip**
- The SCP command allows you to copy files over SSH connections.

3. Choose **Yes** and enter the phone admin password (default is **1234** or **1111** if you didn't perform restore default yet); the firmware is downloaded to the phone's memory.
4. Run the following command:

```
ssh admin@10.16.2.50 local_update.sh
```

5. Enter the Admin password; the firmware is burnt to the phone and the phone is automatically rebooted.

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7 Troubleshooting

7.1 Users

Read this section if an issue with your phone occurs. Contact your network administrator if necessary. Network administrators can also use this section as reference.

Table 7-1: Troubleshooting

Symptom	Problem	Corrective Procedure
Phone is off (no screen displays and LEDs)	Phone is not receiving power	▪ Make sure the AC/DC power adapter is attached firmly to the DC input on the rear of the phone. ▪ Make sure the AC/DC power adapter is plugged into the electrical outlet. ▪ Make sure the electrical outlet is functional. ▪ If using Power over Ethernet (PoE), contact your network administrator to check that the switch is powering the phone.
Phone is not ringing	Ring volume is set too low	▪ Increase the volume (see Section 5.8.1)
Touch screen display is poor	Touch screen settings	▪ Adjust the phone's screen brightness
Headset has no audio	Headset not connected properly	▪ Make sure your headset is securely plugged into the headset port located on the side of the phone. ▪ Make sure the headset volume level is adjusted adequately (see Section 5.8.5).

7.2 Network Administrators

Network administrators can troubleshoot telephony issues in their networks using the sections below as reference.

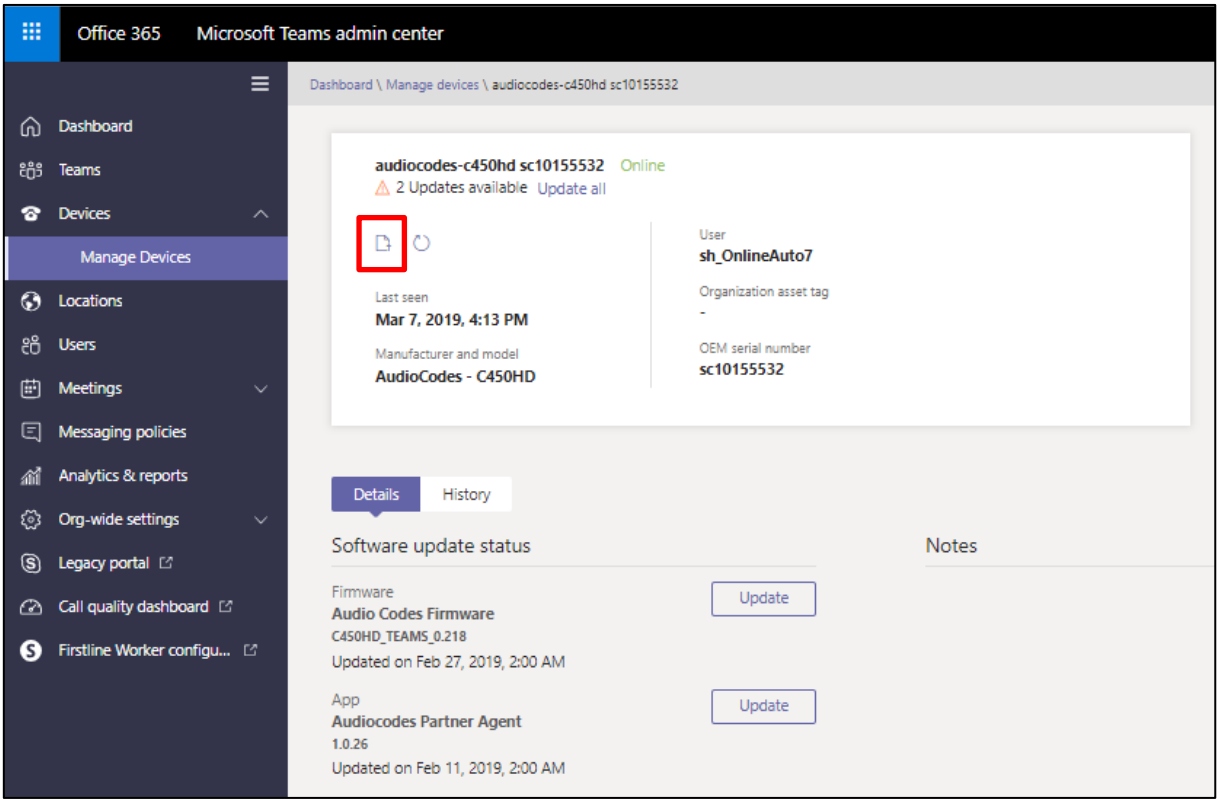
7.2.1 Collecting Logs

Device diagnostics (Logcat) can be collected using the Microsoft Admin Portal. For support purposes, general logs can be collected also using the Microsoft Admin Portal. The logs can help debug Teams application issues and also for issues related to the device.

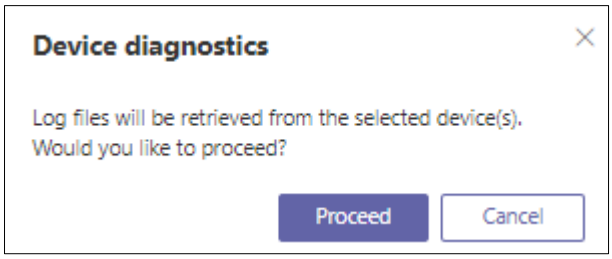
➢ **To collect logs:**

1. Reproduce the issue
2. Access Microsoft Admin Portal and under the **Devices** tab click the **Diagnostics** icon.

Figure 7-1: Microsoft Teams Admin Portal - Diagnostics

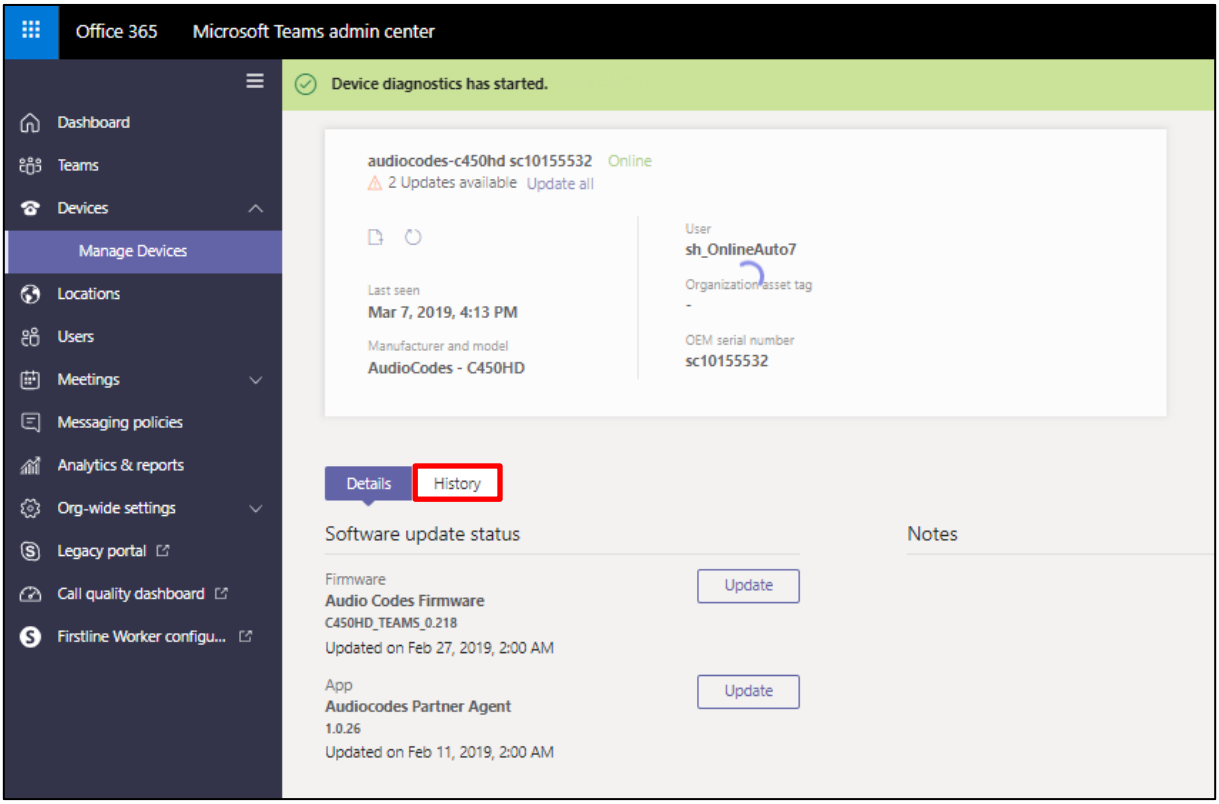


3. Click the **Diagnostics** icon .



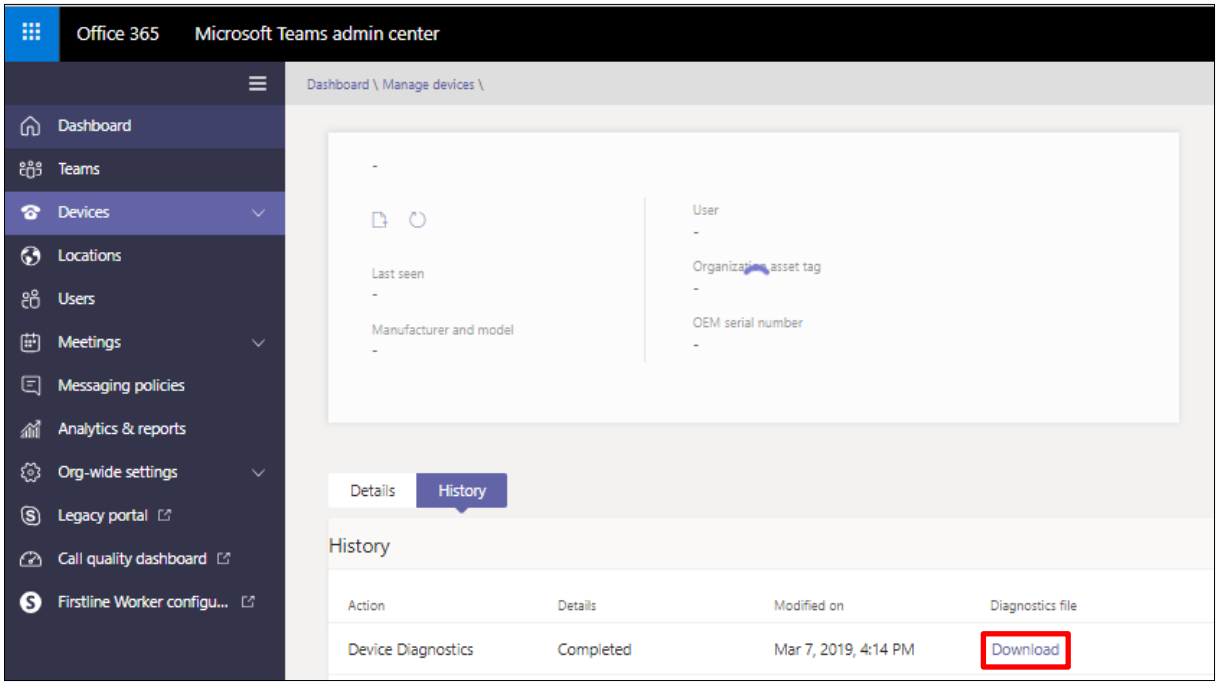
4. Click **Proceed**; the logs are uploaded to the server.

Figure 7-2: Microsoft Teams Admin Portal – Logs Upload to Server



5. Click the **History** tab.

Figure 7-3: History - Download



6. Click **Download** to download the logs.

7.2.2 Remote Logging

Remote Logging via Syslog provides the same log level as Device Diagnostics (performed via the Microsoft Admin Portal) with some additional information that may be relevant to device issues (not Teams application issues).

Diagnostics via the Microsoft Admin Portal are saved to the device sdcard and collected after the event. Remote Logging via Syslog is different. The logs are collected in real time.

➢ **To enable Remote Logging via Syslog:**

1. Log in to the device as Administrator and go back.
2. In the 'Device administration' screen, select **Debugging**.
3. Select **Remote logging**.

4. Configure the 'Remote IP address' and 'Remote port' and enable 'Remote Logging'; the device starts sending logs to the Syslog server.

7.2.3 SSH

After Administrator sign-in for which you need to know the administrator username and password **admin** and **1234** are the defaults), the phone is accessed by default via Secure Shell (SSH) cryptographic network protocol.

SSH access allows network administrators more debugging capabilities. For example:

- Pulling files from the phone sdcard (using the curl command)
- Capturing the phone screen (see Section 7.2.3.1 below for more information)
- Running the tcpdump tool (see Section 7.2.3.2 below for more information)

7.2.3.1 Capturing the Phone Screen

This feature allows network administrators to effectively collaborate to debug issues.

➢ **To capture the phone screen:**

1. Access the phone via SSH
2. Run a TFTP client on your PC
3. Set the phone to the screen to capture
4. Run the commands:

```
screencap /sdcard/screen_cap.png
curl -T /sdcard/screen_cap.png tftp://host_ip
```

7.2.3.2 Running the tcpdump Tool

Running under the command line, this common packet analyzer allows network administrators to display TCP/IP and other packets transmitted or received over the IP telephony network.

➢ **To run tcpdump:**

1. Access the phone via SSH and run the following commands:

```
cd /storage/emulated/0/
mkdir recording
```

```
cd recording/
tcpdump -w rtp.pcap
```

2. After running TCPDump, reproduce the issue.
3. Press **Ctrl+C** to stop TCPDump:

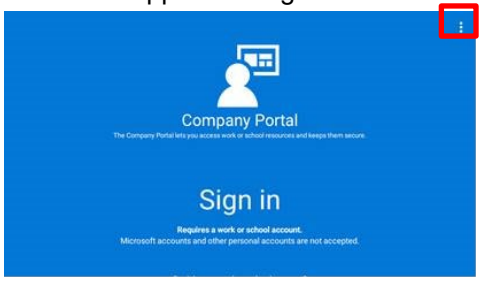
```
curl -T /storage/emulated/0/recording/rtp.pcap
tftp://host_ip/rtp.pcap
```

7.2.4 Getting Company Portal Logs

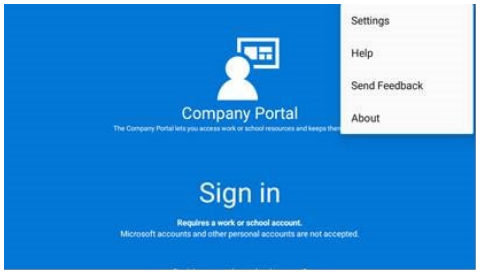
Company Portal logs can be helpful to network administrators when there are issues with signing in to Teams from the phone.

➢ **To get Company Portal logs:**

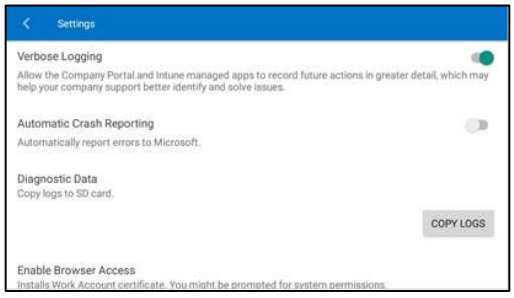
1. Reproduce the issue (logs are saved to the device so you first need to reproduce the issue and then get the logs).
2. Log in to the phone as Administrator and then go back.
3. Touch the **Debugging** option under Admin.
4. Touch **Company Portal login**.
5. Touch the icon located in the uppermost right corner of the screen, shown in the next figure:



6. Touch **Settings**.



7. Touch the **Copy Logs** key.



Company portal logs are copied to:
sdcard/Android/data/com.microsoft.windowsintune.companyportal/files/

8. To pull the logs, use the ssh:

```
scp -r admin@hosp_ip:/sdcard/android/data/com.microsoft.windowsintune.companyportal/files/ .
```

Files are quite heavy so you may need to pull them one by one.

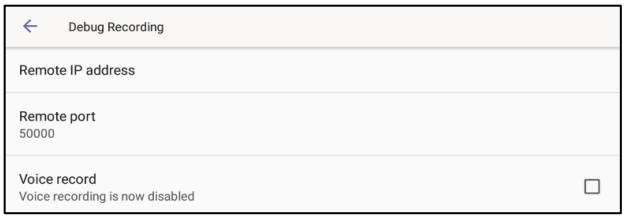
7.2.5 Getting Audio Debug Recording Logs

Network administrators can opt to get Audio Debug Recording logs from the phone screen. The purpose of these logs is for issues related to media.

➢ **To enable Audio Debug Recording logs:**

1. Log in as Administrator.
2. Press the MENU hard key and then scroll down in the Settings screen to **Debug**.

3. Touch **Debug** and then scroll down to **Debug Recording**.



4. Configure the remote IP address and port.
5. Enable 'Voice record'.
6. Start Wireshark on your PC to capture the Audio traffic.

7.2.6 Collecting Media Logs (*.blog) from the Phone

Network administrators can collect Media Logs (*.blog) from the phone.

➢ **To collect Media Logs (*.blog) from the phone**

1. Access the phone via SSH.
2. Set the phone to the screen to capture.
3. Run the following command:

```
scp -r admin@hosp_ip:/sdcard/android/data/com.microsoft.skype.teams.ipphone/cache/ .
```

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