User's and Administrator's Manual

AudioCodes 400HD IP Phone Series

C448HD | C450HD IP Phones

Microsoft Teams Application

Version 1.7.9

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

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1 Overview

The AudioCodes C448HD and C450HD IP phones are native Microsoft Teams high-end executive business phones with a large color touch screen and full UC integration for the Native Microsoft Teams Online market.

The Microsoft Teams C448HD and C450HD phones are equipped with a 5-inch color capacitive touch screen of 1280 x 720 resolution.

The C448HD phone is identical to the C450HD phone from the user's point of view, with the exception of:

- The C448HD phone does not allow the 'Switch to Skype' feature (in the Admin debugging tab); the C450HD allows this feature.
- The C448HD phone does not feature Bluetooth and Wi-Fi; the C450HD phone features optional integrated Wi-Fi and Bluetooth support (contact your local AudioCodes representative for more information about regional availability).
- The C448HD phone features one USB port; the C450HD phone features two.
- The C448HD phone does not feature an option to add the Expansion Module; the C450HD phone features this option.

The phones 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.

AudioCodes' Device Manager and AudioCodes' Redirect Server are also supported for monitoring, upgrading and configuring the devices.

The phones feature the option to be used as a Microsoft Teams Compatible 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 Native and Teams Compatible is supported.

Specifications

The following table summarizes the software specifications of the AudioCodes IP phones for Microsoft Teams.

Table 1-1: 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

Feature	Details
	■ 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) ■ AudioCodes Device Management and AudioCodes Redirect Server for monitoring, upgrading and configuring (Beta as of 1.4.208)
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 ■ Media logs (*.blog)
Localization Support	■ Multi-lingual support; the language pack list is not yet final and is subject to modification.
C448HD and C450HD	■ Five-inch color capacitive touch screen, 1280 x 720 resolution, with an intuitive user interface.

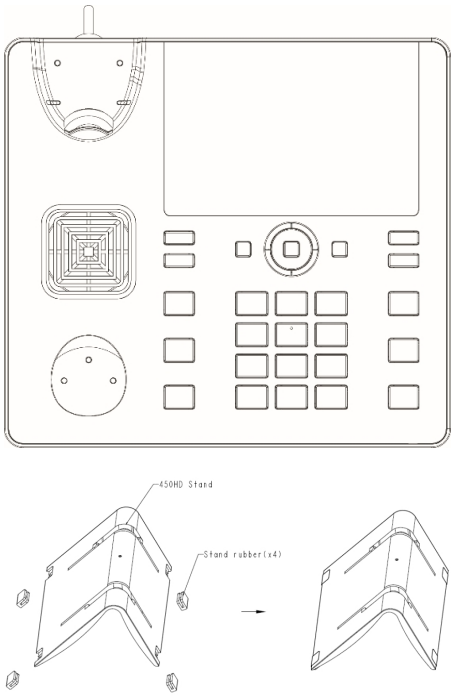
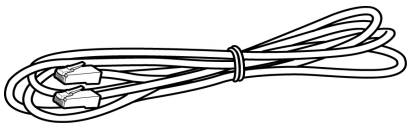
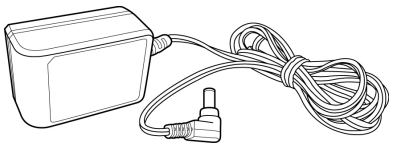
Feature	Details
Hardware	■ Wired connectivity: ✔ Two RJ-45 [Gigabit Ethernet (GbE)] (10/100/1000BaseT Ethernet) ports for WAN and LAN ✔ RJ-9 port (jack) for headset ✔ RJ-9 port (jack) for handset ✔ [C450HD] 2 x USB ports for headset support: USB white port– host port; USB black port – device port (default) but it can be configured to host port using the following commands: **setup_usbport2_mode.sh host** (from device to host) **setup_usbport2_mode.sh device** (from host to device) It can alternatively be configured by setting the configuration file parameter 'management/usbport2/mode' to the value of **USB_HOST_MODE/USB_DEVICE_MODE** ✔ [C448HD] 1 x USB port for headset support ✔ RJ-11 interface ■ Wireless connectivity (C450HD only): ✔ Single band 2.4GHz, 802.11b/g/n Wi-Fi support ✔ Wi-Fi supported protocols: WEP, WPA-PSK/WPA2-PSK and WPA/WPA2 Enterprise (802.1X) PEAP only ■ Integrated optional Bluetooth support (C450HD only) (Currently supported at a Beta level) ■ Expansion Module (C450HD only) ■ 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

Feature	Details
	✔ MENU ✔ REDIAL ✔ HOLD ✔ MUTE (including LED) ✔ TRANSFER ✔ VOLUME control key ✔ HEADSET (including LED) ✔ SPEAKER (including LED) ✔ BACK (the 'x' key) ✔ CONTACTS

2 Setting up the Phone

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.

Device Description

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

Front View

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

Figure 2-1: Front View

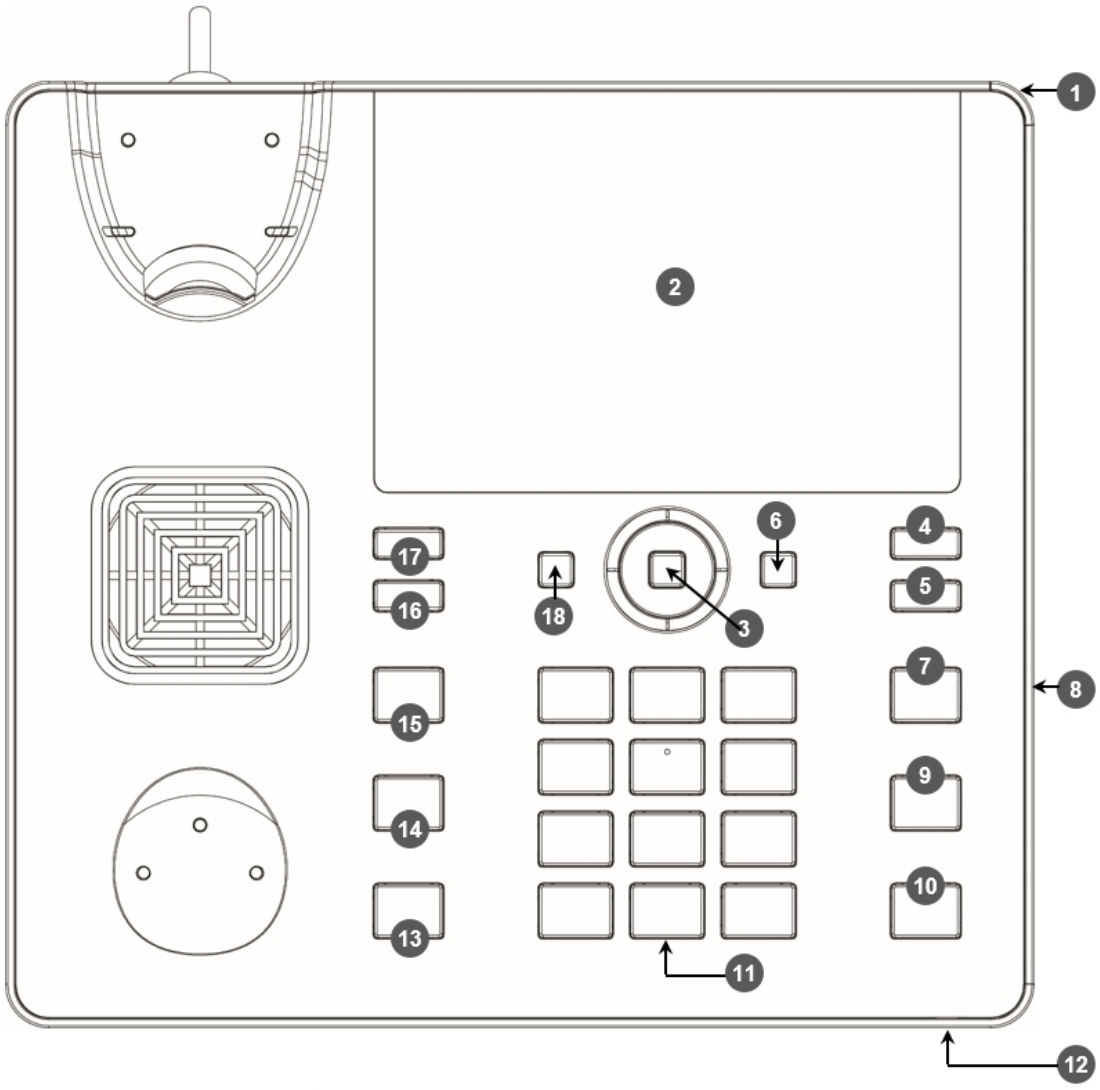


Table 2-1: Font View Description

Item #	Label/Name	Description
1	Ring LED	Indicates phone status: ■ Green: Idle state ■ Flashing red: Incoming call (ringing)

Item #	Label/Name	Description
		■ 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 Control / OK	■ Press the button's upper rim to scroll up menus/items. ■ 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	Accesses the People screen.
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.
1617	▲ VOL	Increases or decreases the volume of the handset, headset, speaker, ring tone and call progress tones.
	▼ VOL	
18	x	Used as a 'Back' key to return to the previous screen.

Rear View

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

Figure 2-2: Rear View

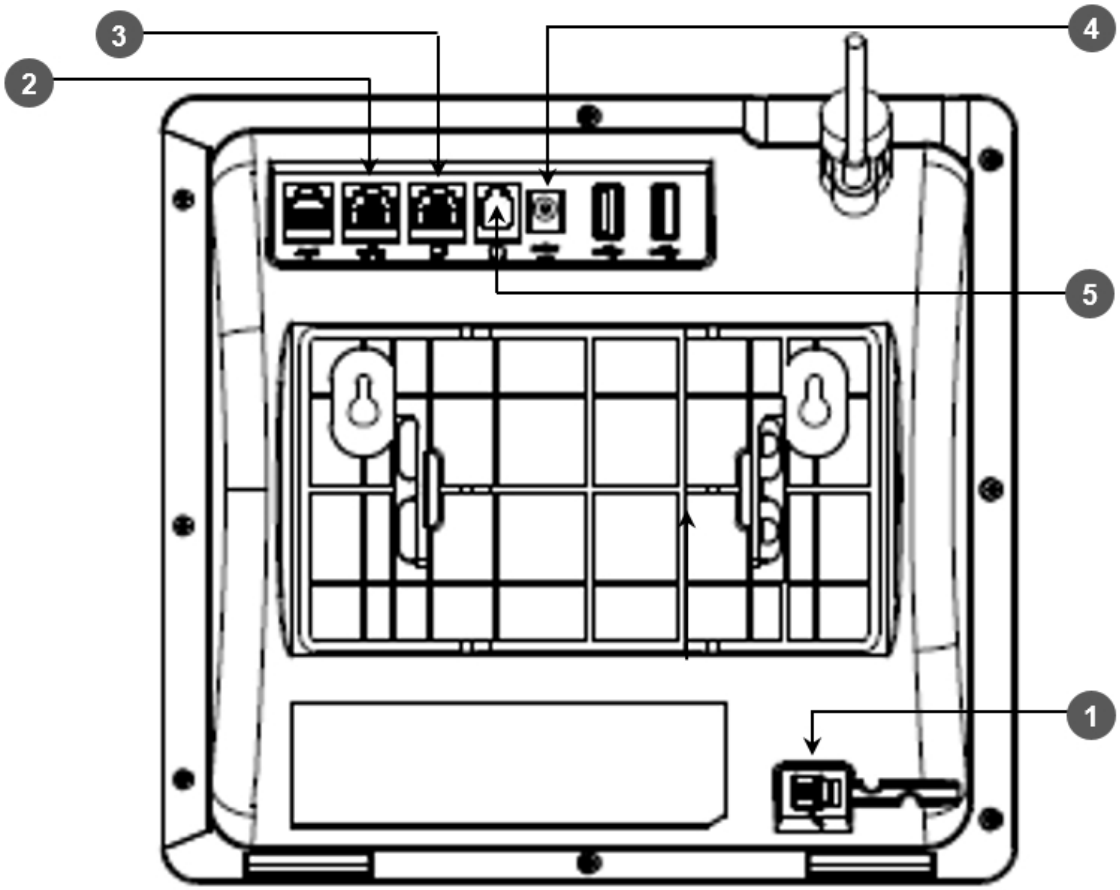


Table 2-2: Rear View Description

#	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	DC12V	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.

Cabling

The documentation following shows how to cable your phone. Use the figure and table as reference.

Figure 2-3: Cabling the Phone

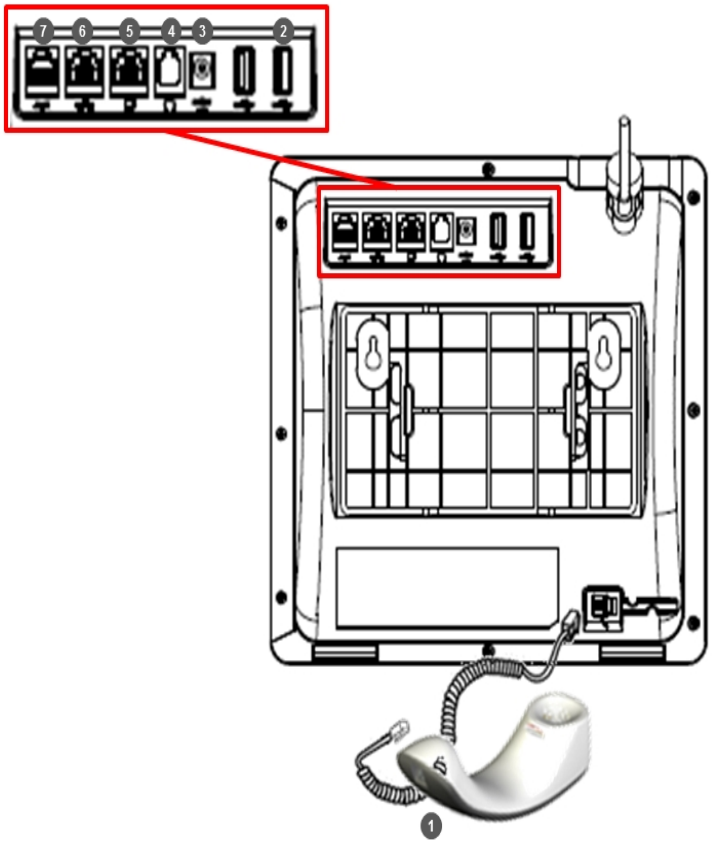


Table 2-3: Cabling the Phone

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]

Action	Description
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.

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.

Mounting the Phone

Applies only to the C448HD and C450HD. Does not apply to the C470HD.

The phone can be mounted on a:

- Desk (see Desktop Mounting below)
- Wall (see Wall Mounting on the next page)

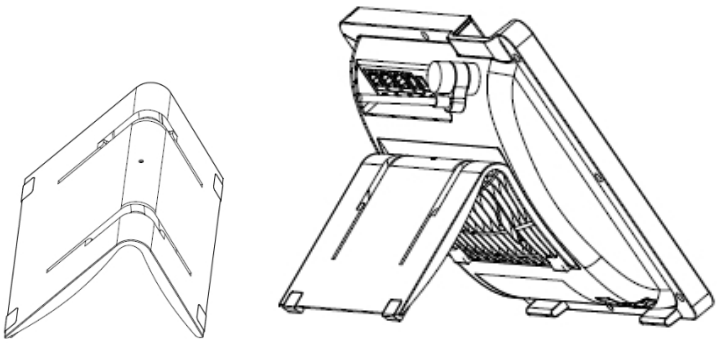
See also https://www.youtube.com/watch?v=oGe9STB9lFE to assemble the base stand.

Desktop Mounting

The documentation following 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.



Routing the Handset Cable

The phone features a groove for routing the handset cable.

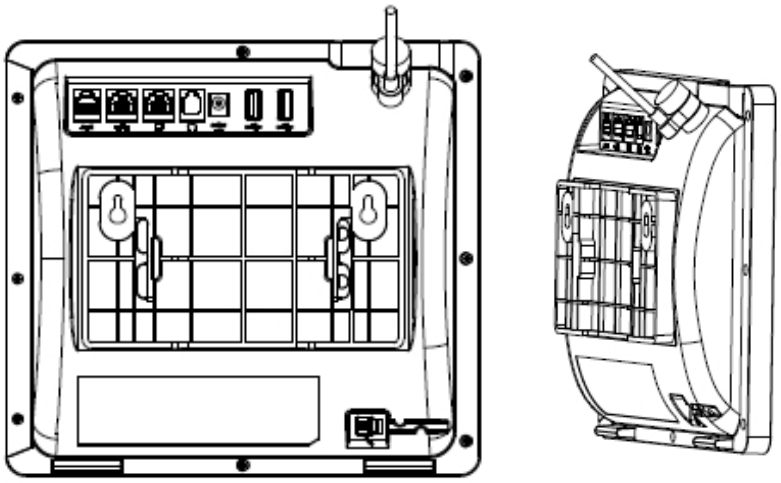
Wall Mounting

The documentation following shows how to mount the phone on a wall.

> If the phone has an Expansion Module attached, wall mounting isn't supported.

➢ **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.

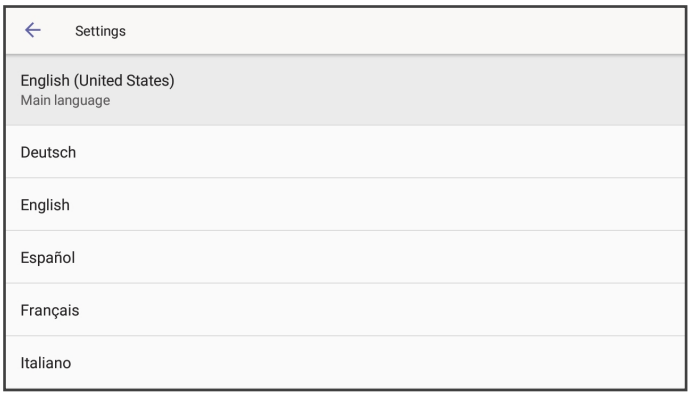


   b. Attach it again as you did for a desktop mounting (see Desktop Mounting on the previous page) only now make sure that it's flatly aligned to lie flush against the wall, i.e., slide the inner rails of the phone stand onto the phone base's inner notches.
2. Connect the AC power adapter, LAN and PC/laptop cords.
3. In the wall, drill two horizontal holes at a distance of 4 7/8 inches (123.8 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.

3 Starting up

After connecting the phone to the network (or resetting it), the 'Select the language for your device' screen is displayed by default .



Touch the language of your choice and then configure device settings to match specific requirements.

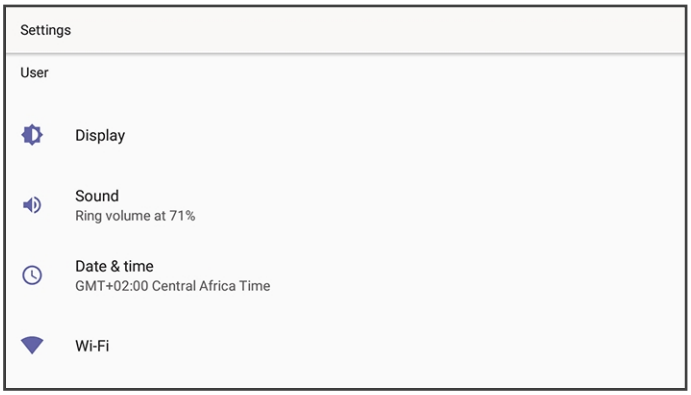
Only if the phone is restored to default settings will it be necessary to repeat this.

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.

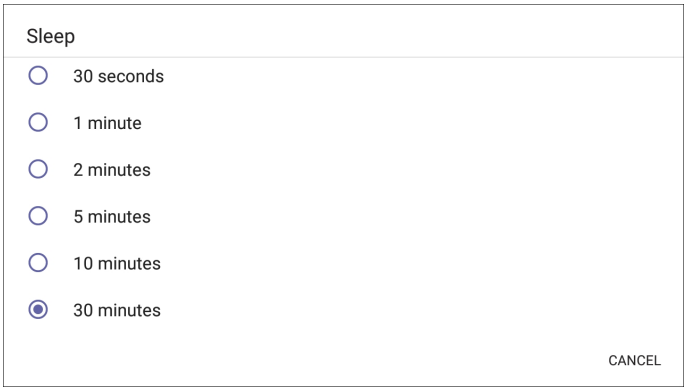
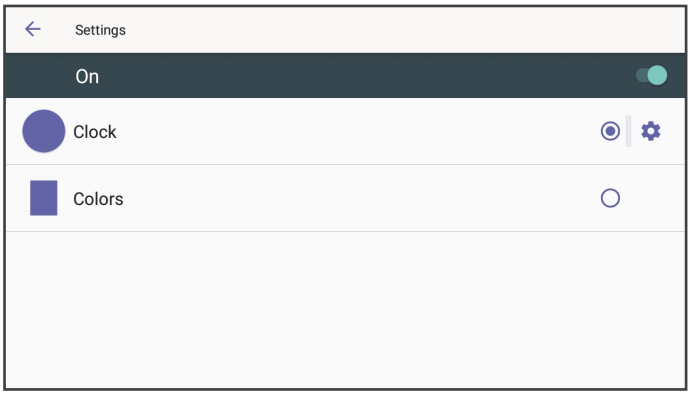
➢ **To access device settings:**

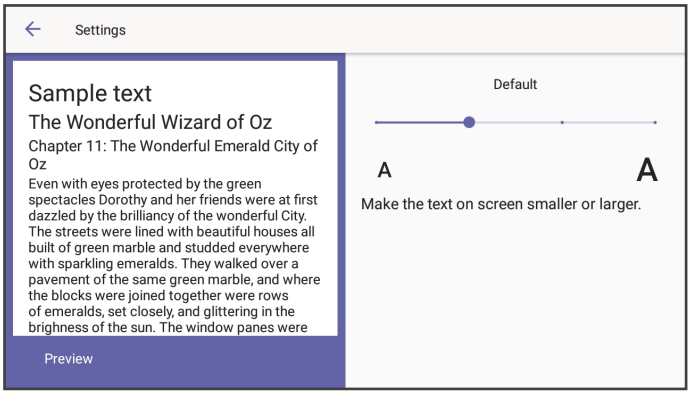
1. Press the hard MENU key on the phone.

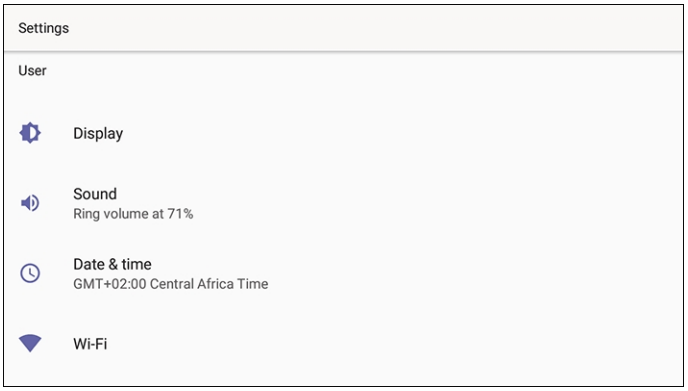
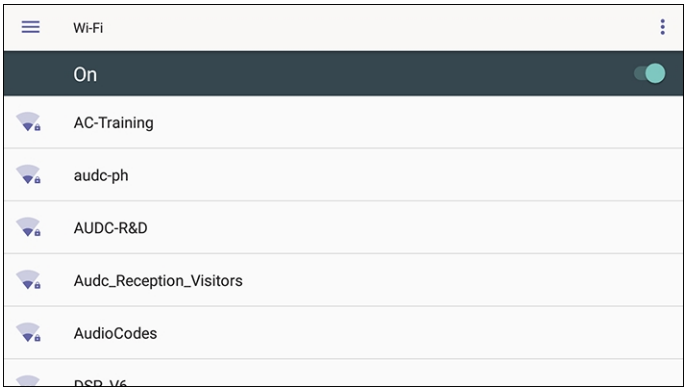
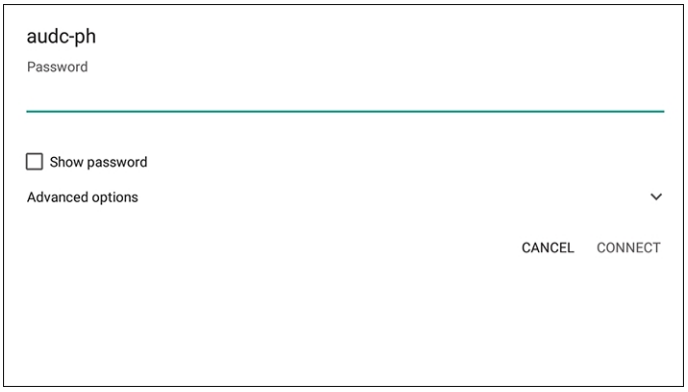


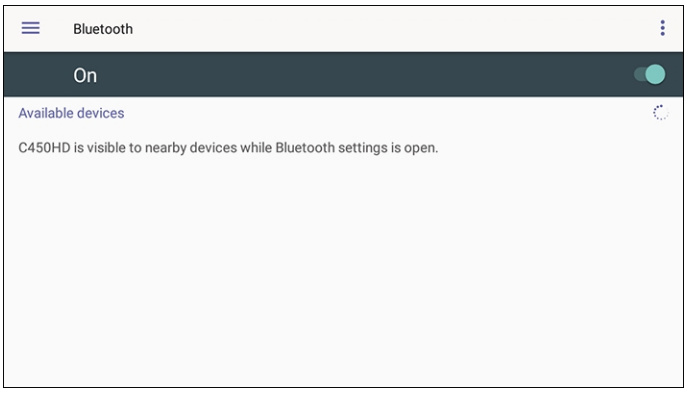
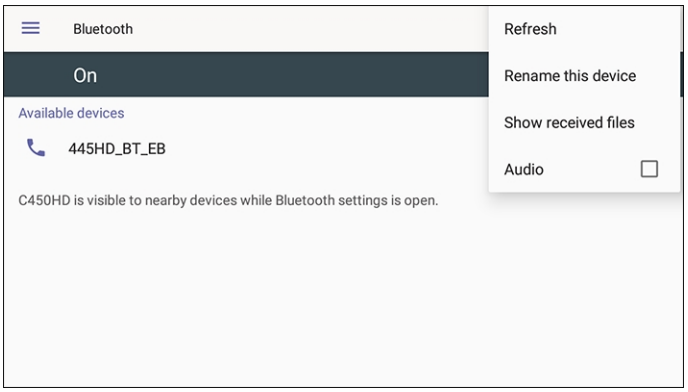
2. View the User settings; touch a setting to open it. Scroll down to view the Administrator settings. Use this table as reference.

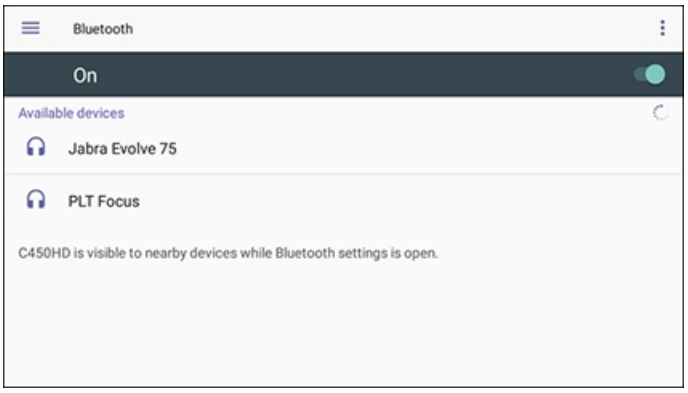
Table 3-1: Device Settings

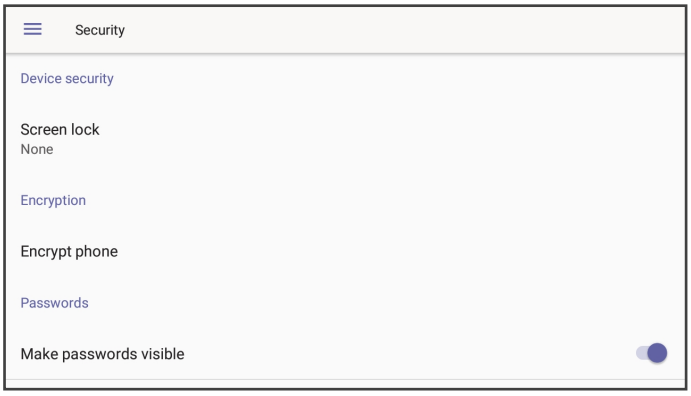
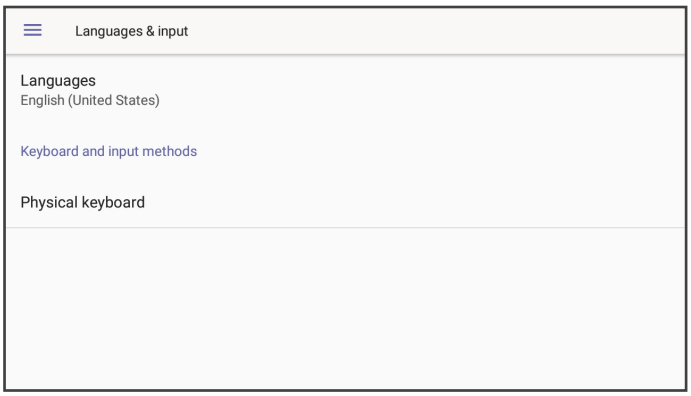
Setting	Description
User Settings	
Display	Opens the 'Display' screen [Brightness level]. The phone's screen supports different brightness levels. Choose the level that best suits your requirements. ■ Sleep  ■ Screen saver  ■ Font size

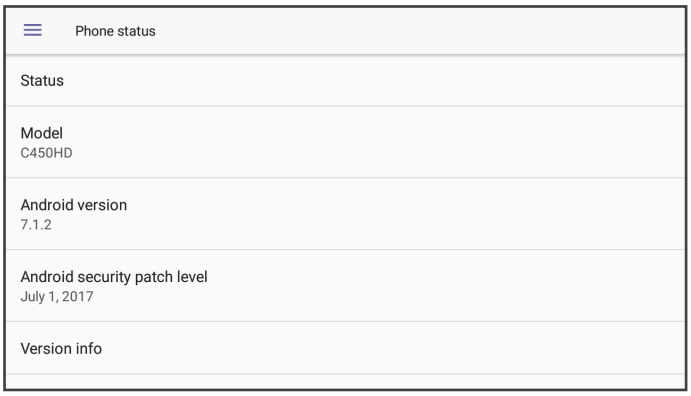
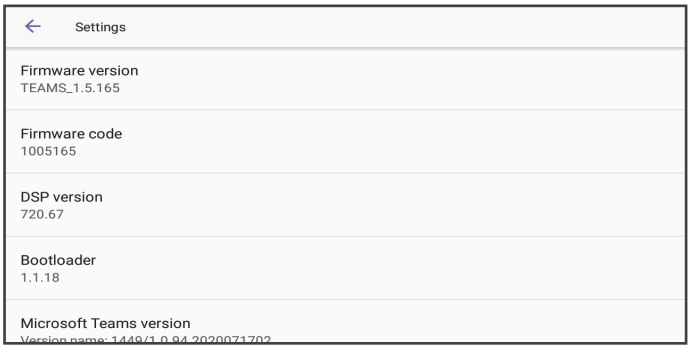
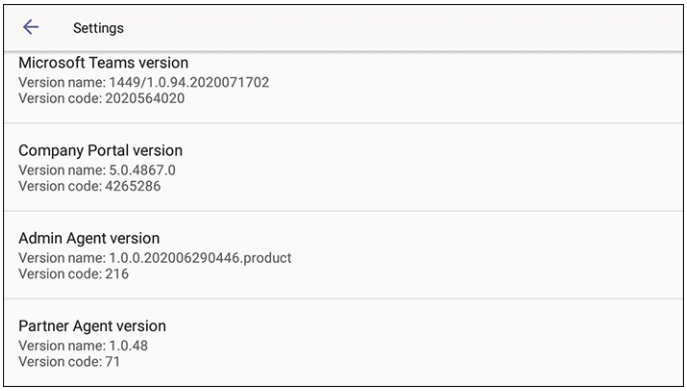
Setting	Description
	
Sound	Allows you to customize phone volume for a friendlier user experience. **Ring volume at n%**
Date & time	Date and time are automatically retrieved from the deployed Network Time Protocol (NTP) server. Use 24-hour format [Allows you to select the Time format]
Wi-Fi	The phone can connect to an Access Point via Wi-Fi. To enable Wi-Fi: 1. In the Device Settings screen, select **Wi-Fi**.

Setting	Description
	 2. Switch Wi-Fi to **On** to view the list of possible SSIDs (Service Set Identifier).  3. Select an SSID, configure the required credentials, and then touch **CONNECT**: 
Accessibility	Allows making the screen reader-friendlier.

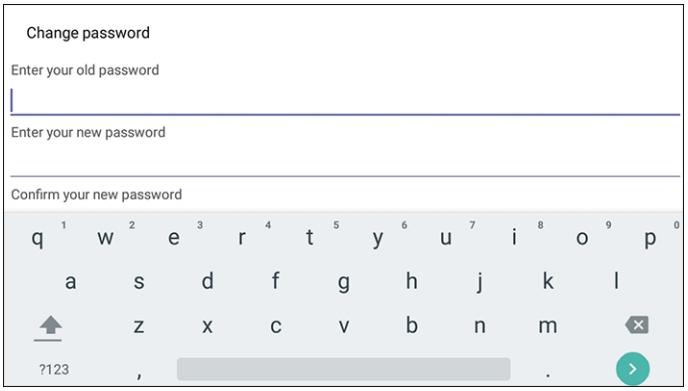
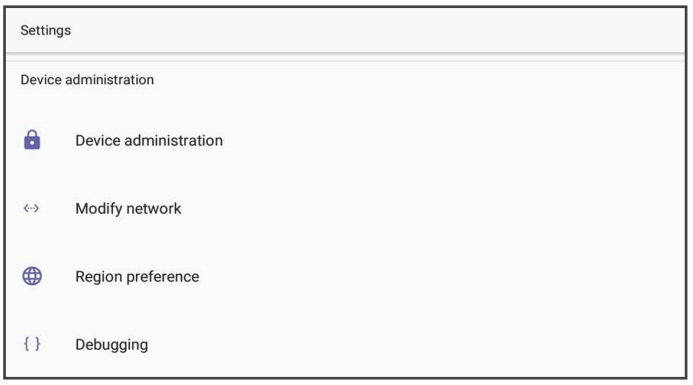
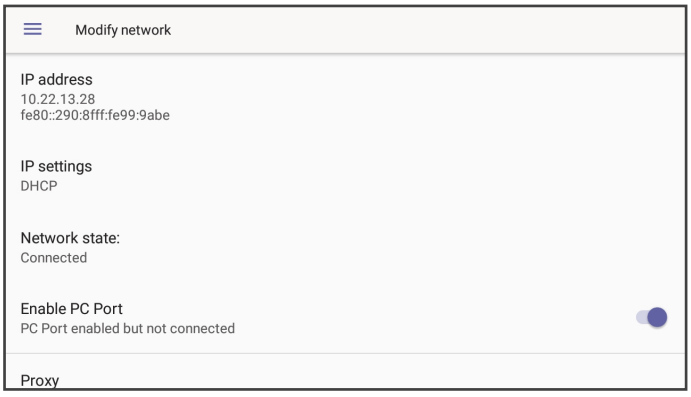
Setting	Description
Bluetooth	[Applies only to C450HD] [Bluetooth support is provided under Android as a Beta] Hands free profile where the phone is able to connect to Bluetooth headset or speaker. To enable Bluetooth: 1. Press the MENU hard key on the phone and scroll down and touch **Device settings**. 2. In the (Device) Settings screen, scroll down to **Bluetooth**.and switch the feature on.  3. Wait or press ⋮ shown in the upper right corner of the preceding screen and touch **Refresh** to find available Bluetooth devices. 

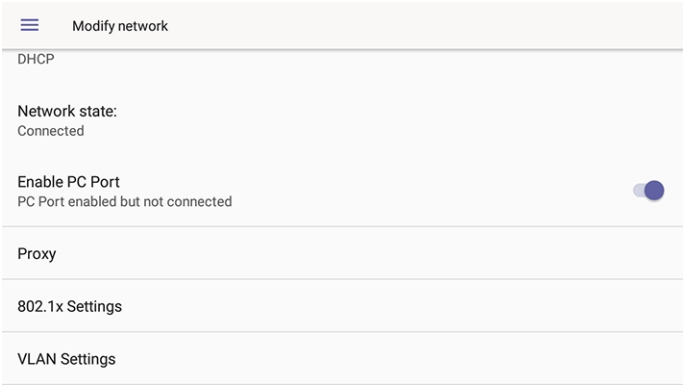
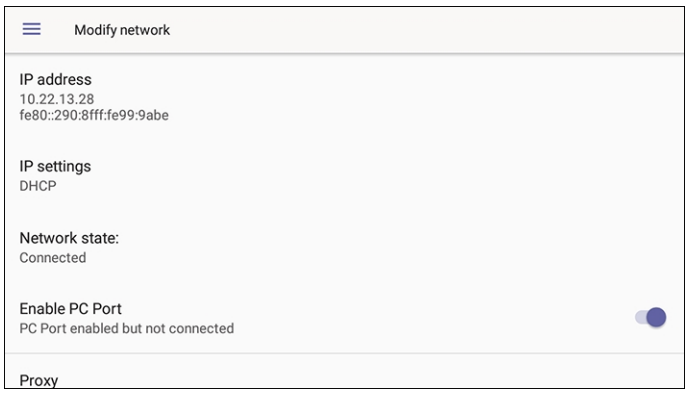
Setting	Description
	4. [Optional] Select the **Audio** check box to view only audio devices. 5. Pair your Bluetooth USB headset and then touch **Refresh**.  6. Select the device you require; it's then connected to Bluetooth.
Power Saving	Allows users to contribute to power saving in the enterprise. Enable power saving Start time [The device consumes minimal energy before the user arrives at the office] End time [The device consumes minimal energy after the user leaves the office]
Debugging	Enables users to reboot the device.

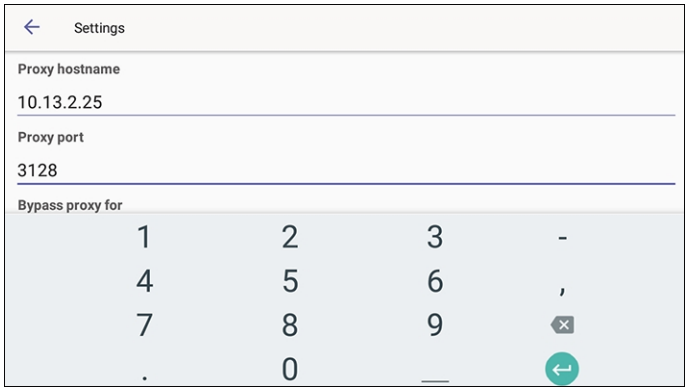
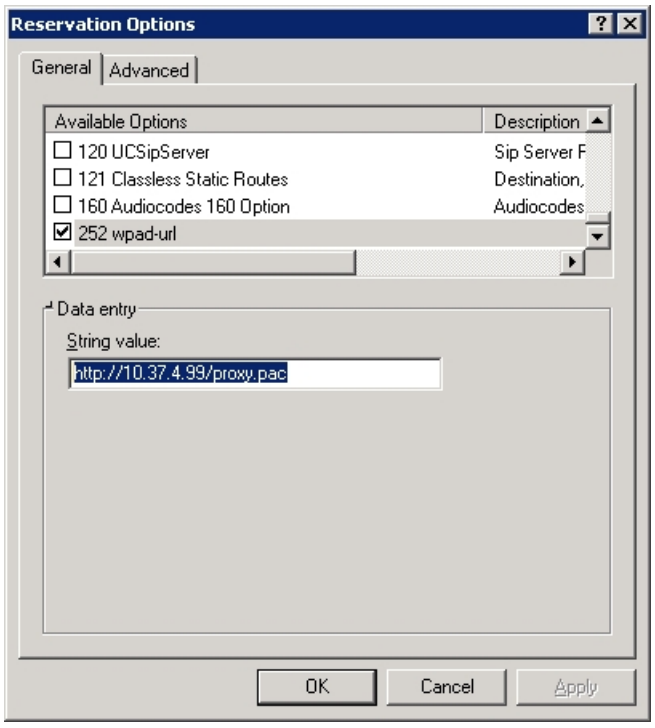
Setting	Description
	 Log in as Administrator (MENU key on the phone > Admin) for more debugging settings to be available.
Security	Helps secure the enterprise telephony network against breaches.  Screen lock [The phone automatically locks after a configured period to secure it against unwanted use. 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
Touch screen	Allows users to disable the phone’s touch screen.
Languages & input	Allows users to customize inputting to suit personal requirements. 

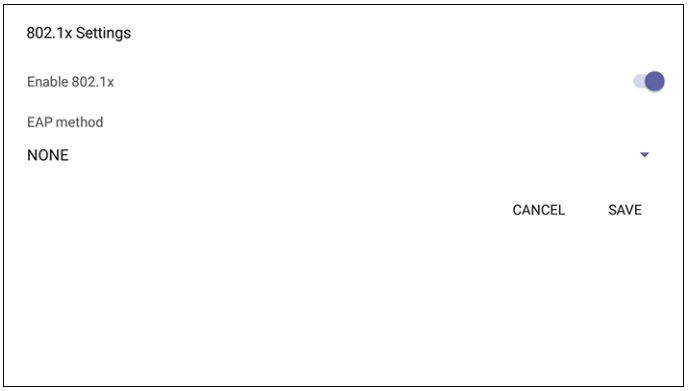
Setting	Description
About [Android 7.1.2]	Enables users to determine device information.  To determine the device's IP address, select the 'Status' option. To get information about the version, select 'Version info'.  

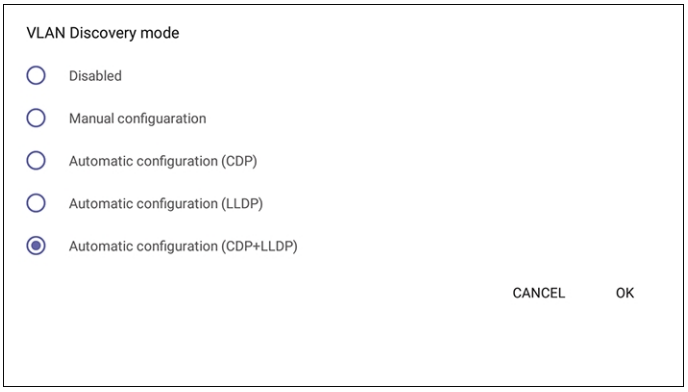
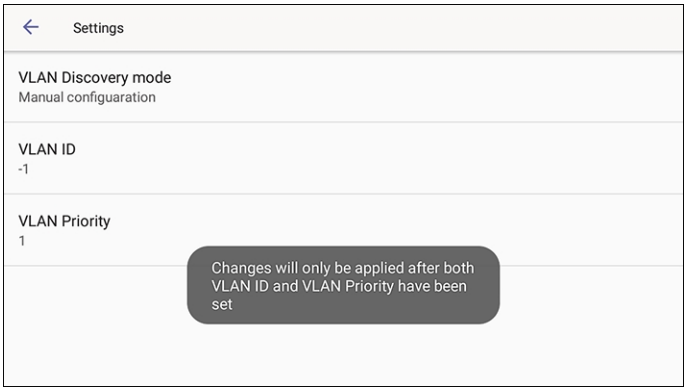
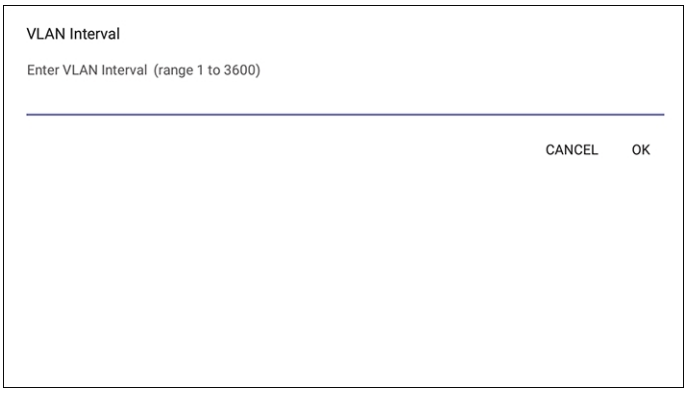
Setting	Description
Device Administration Settings	
Device administration	Allows the user to log in as Administrator, necessary for some of the debugging options. It is password protected. Default password: 1234 (or 1111 in early versions). After logging in as an Administrator, the user can log out | change password. To log in as Administrator: Press the MENU key on the phone and in the Settings screen that opens, scroll down to and touch **Device administration**. Touch **Login** and then in the Login screen that opens, touch the 'Enter password' field and use the virtual keyboard to enter the password (**1234** or **1111**). Note that the virtual keyboard pops up for all 'Settings' fields to allow inputting characters and / or numbers. Two virtual keyboard types can be displayed: Numeric (shown first below) or QWERTY (shown second below).

Setting	Description
	 These virtual keyboards are also displayed when network administrators need to enter an IP address to debug, or when they need to enter their PIN lock for the security tab. After logging in, scroll down in the Settings screen to 'Device Administration'. 
Modify network	Enables the Admin user to determine network information and to modify network settings. 

Setting	Description
	 IP Address [Read Only] IP Settings [DHCP or Static IP] Network state [Read Only] Enable PC port Proxy 802.1x Settings VLAN Settings. Allows you to configure the VLAN mode **Manual**, **CDP only** or **LLDP only**.
Proxy	The phone can be configured with an HTTP Proxy server by an Admin user in two ways: ■ **Manually**. The Admin user can use this method to configure HTTP proxy server parameters through the Teams application: **a.** Log in as Administrator, touch the **Modify network**.  **b.** Touch the **Proxy** option and then configure the proxy host name and port:

Setting	Description
	 ■ **Over DHCP with Option 252**. It's recommended that the Admin user uses this method when provisioning multiple phones. Option 252 provides a DHCP client with a URL to use to configure its proxy settings:  The proxy setting is provided in a Proxy Auto-Configuration (PAC) file that contains a set of rules coded in JavaScript which allows a web browser to determine whether to send web traffic directly to the Internet or to be sent via a proxy server. PAC files control how the phone handles HTTP, HTTPS and FTP traffic. Example of a basic PAC file: function FindProxyForURL(url, host) { return "PROXY 10.13.2.40:3128";

Setting	Description
	}
802.1x Settings	802.1X Authentication is the IEEE Standard for Port-based Network Access Control (PNAC). See https://1.ieee802.org/security/802-1x/ for more information. **To configure an 802.1X Authentication method:** 1. From the 'Modify Network' screen (as an Admin), access the 802.1x Settings screen.  2. From the 'EAP method' drop-down, select the method: MD5 or TLS (for example). 3. Enter this information: ✔ Identity: User ID ✔ Password ✔ root certificate (not required for every method) ✔ client certificate (not required for every method) 4. Touch the **Save** softkey
VLAN Settings	Touch the menu option **VLAN Settings**.

Setting	Description
	Touch **VLAN Discovery mode**.  ■ Cisco Discovery Protocol (**CDP**) is a Cisco proprietary Data Link Layer protocol ■ Link Layer Discovery Protocol (**LLDP**) is a standard, layer two discovery protocol Select the mode you require and then touch **OK**. If you select **Manual configuration**, this screen opens:   The 'VLAN interval' refers to CDP/LLDP advertisements' periodic interval. Default: 30 seconds. You can increase or decrease the intervals between the CDP/LLDP packets that are sent, based on network traffic and

Setting	Description
	topology.
Region preference	Touch the menu option **Region preference**. This option allows you to define the country in which the phone is located. The setting determines which regional tone the phone will use. Call Progress Tones (CPTs) are country-specific; the behavior and parameters of analog telephones lines vary from country to country. Touch **Regional Tone Settings** and select the country in which the phone is located.
Debugging	Allows the Admin user to perform debugging for troubleshooting purposes. Available after logging in as Admin.

Setting	Description
	 Log settings Remote Logging (see under Remote Logging on page 78 for more information) Diagnostic Data (see under Diagnostic Data on page 79 for more information) Reset configuration Restart Teams app Company portal login Debug Recording (for Media/DSP debugging) (see under Remote Logging on page 78 for more information) Switch to Teams Compatible 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. Screen Capture. By default, this setting is enabled. If it's disabled, the phone won't allow its screens to be captured.

Restoring the Phone to Default Settings

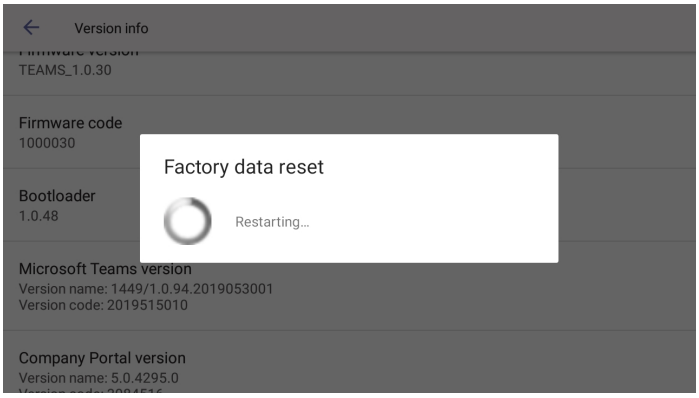
Users can restore the device to factory default settings at any time. The feature can be used if a user forgets their Admin password, for example. Two kinds of restore are available:

- Performing a Hard Restore below
- Performing a Soft Restore on the next page

Performing a Hard Restore

➢ **To perform a hard restore:**

1. Long-press the HOLD key on the phone (more than 15 seconds); the screen shown below is displayed and the device performs a restore to default factory settings.



After the restore, the phone automatically reboots and goes through the Wizard and sign-in process.

2. Touch **OK**; the sign-in screen is displayed (see Signing In on page 32 for more information).

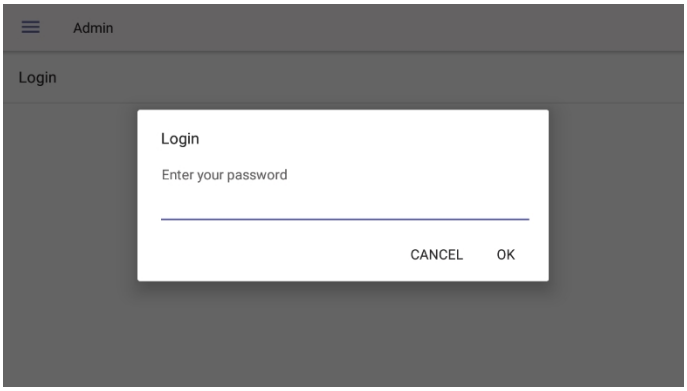
Performing a Soft Restore

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:

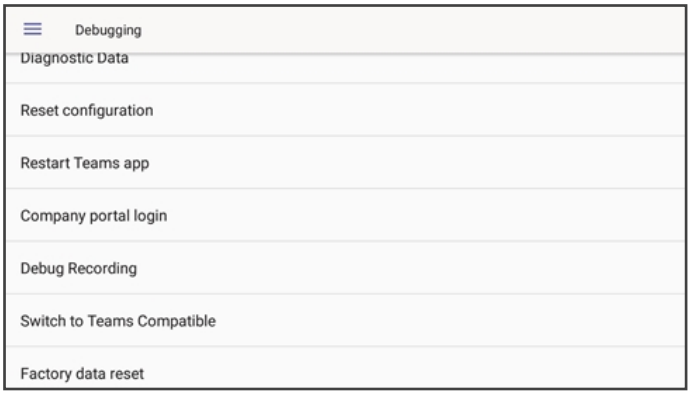
1. Press the MENU key on the phone and in the Settings screen that opens, scroll down and touch the **Admin** option.

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.

Locking and Unlocking the Phone

As a security precaution, the phone can be locked and unlocked. The feature includes:

- Smart unlock (see Smart Unlock below)
- Automatic lock (Automatic Lock below)

Automatic Lock

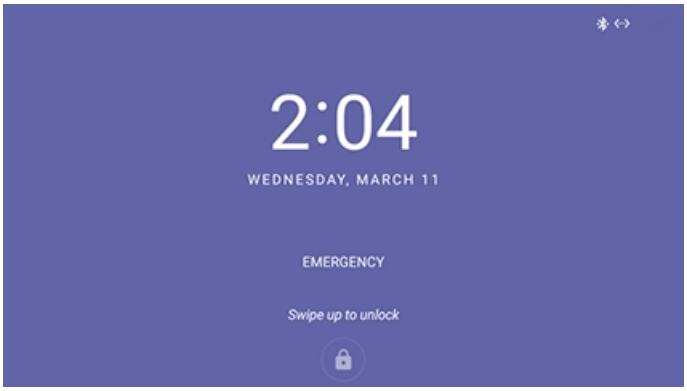
Users can lock their phones as a security precaution. Make sure the phone is configured with any of the lock options before attempting to lock it. If a lock option isn't configured, the lock action won't work.

➢ **To lock the phone:**

- Press the 'back' hard key for at least three seconds for the device to automatically lock.

Smart Unlock

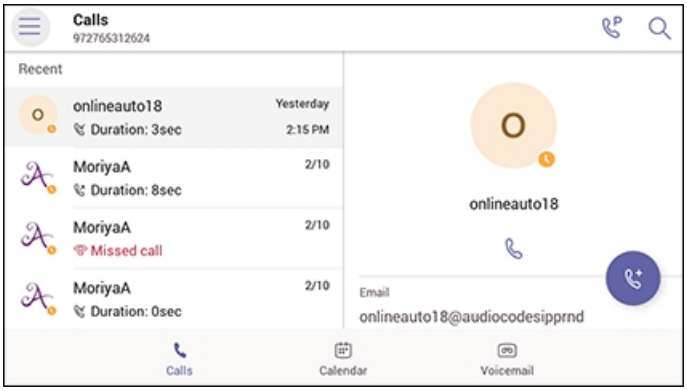
The smart unlock feature is available for the PIN code lock option. When the phone displays a lock screen as shown in the figure below, the user does not need to swipe to unlock the phone.



➢ To unlock the phone without swiping:

1. Start typing your unlock PIN code; the phone displays the digits as you type:

2. When the phone detects the unlock code, it unlocks.



4 Teams Application

The documentation following describes functions related to the C450HD phone's Microsoft Teams application.

Signing In

Using TeamsIPPhonePolicy, network administrators can create the following users who can then sign in to the phone:

- UserSignin: All features are available, i.e., calls, meetings and voicemail
- MeetingSignIn: Only meetings are available
- Common Area Phone (CAP) users who can sign in to the device with a CAP account (as a CAP user) using TeamsIPPhonePolicy as follows:
  - ✔ CAP SignIn (SearchOnCommonAreaPhoneMode=Enabled): The user has calling and searching capability
  - ✔ CAP SignIn (SearchOnCommonAreaPhoneMode=Disabled): The user has calling capability

Before using the phone (after setting it up), you need to 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:

- NTP Time server '2.android.pool.ntp.org'
- DHCP Option 42 (NTP)

If DHCP Option 42 (NTP) is opted for, the network administrator must specify the server providing NTP for the network.

In most regions, Daylight Saving Time changes the regional time twice a year. DST Validation allows maintaining accurate time. Two options for phones to get the correct time are:

- [Recommended] If the DHCP server offers Timezone Options (100/101), the phone will set the obtained time zone and display the correct time on the screen; the time will be calculated based on an embedded Time Zone database, factoring in DST.
- If the DHCP server offers Time Offset Option only (2), the phone will assign the obtained time offset to the first matched region in the list but there is a good chance it won't reflect the actual geographical location, therefore the displayed time might be incorrect in some cases. For example, if the given time offset is GMT-5 and the phone is located in Mexico, the phone will get the time (and the DST setting) from central time and not from Mexico because in GMT-5 there is also Central Daylight Time.

The network administrator must make sure the phone can access the following URLs (to check connectivity with the internet):

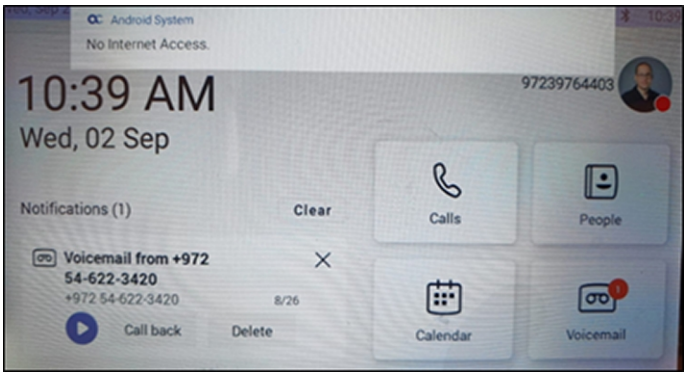
https://www.google.com/generate_204

http://connectivitycheck.gstatic.com/generate_204

http://www.google.com/gen_204

If the internet connectivity check fails, a 'No Internet Access' warning pops up on the phone screen.

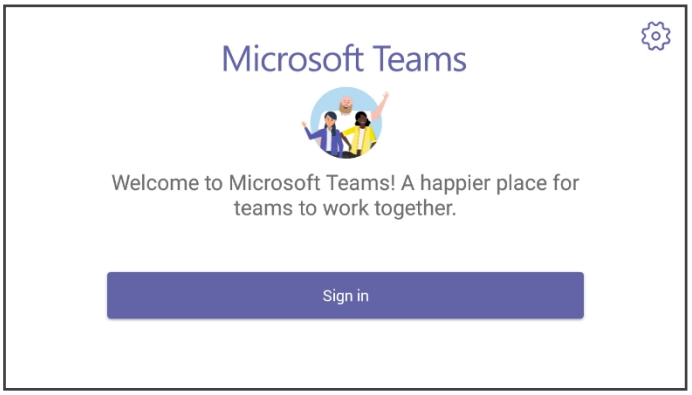
Figure 4-1: Internet Connectivity Check - No Internet Access



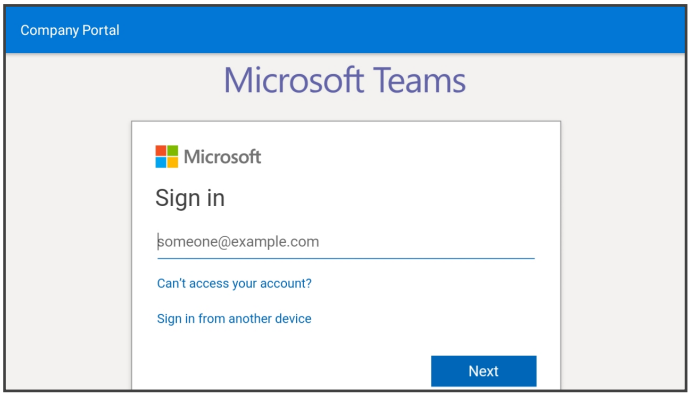
This can point to a problem that is preventing the phone from fully functioning in a Teams environment. The user can ignore the message if the Teams application is fully functioning, or can report a problem if the Teams application is not fully functioning.

➢ To sign in:

1. Click the **Sign in** button in the Welcome to Microsoft Teams screen.

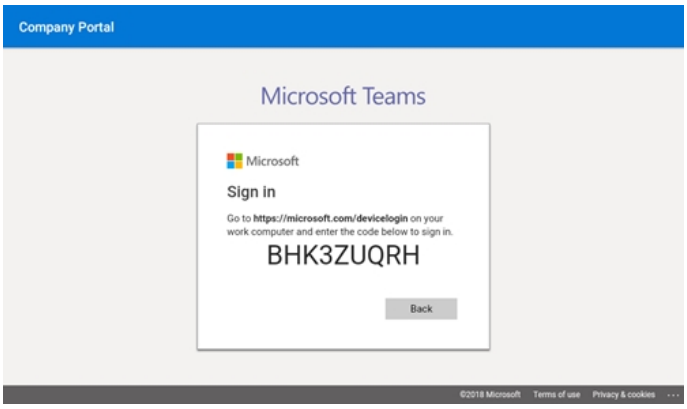


You're prompted with the option to sign in by entering user credentials (someone@example.com as can be seen in the following example), or **Sign in from another device**.



- 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

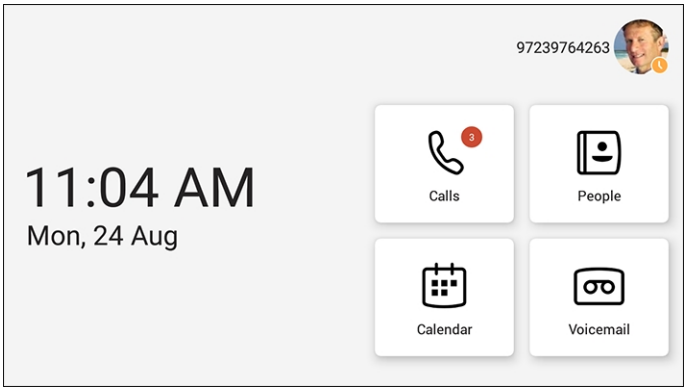


  - In the browser on your PC or smartphone, enter the URL indicated in the preceding screen and then in the phone's Web interface that opens, perform sign-in (as noted previously, this option is recommended if using MFA).

Getting Acquainted with the Phone Screen

The documentation following gets you acquainted with the phone's user interface. The next figure shows the home screen.

Figure 4-3: Home Screen



Touch the **Calls**, **People**, **Calendar** or **Voicemail**.

Figure 4-4: Calls Screen

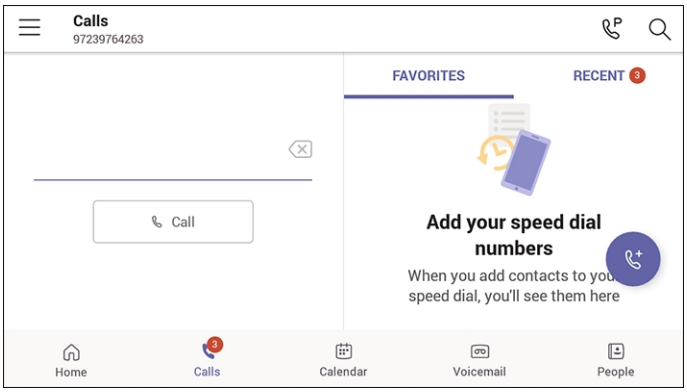
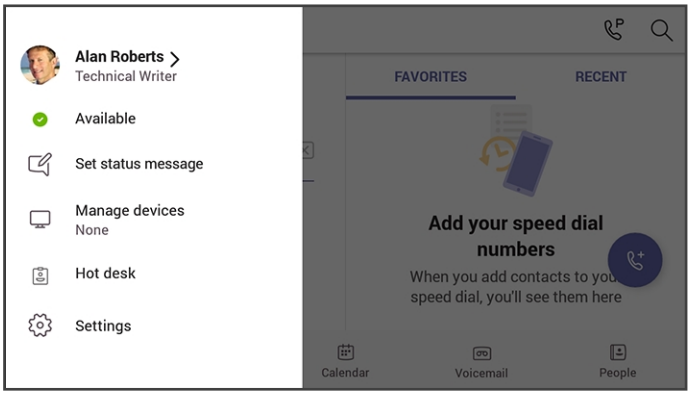


Table 4-1: Calls Screen

Item	Description
	The phone menu. Touch to open the screen shown in the figure following this table.
Calls	Touch the tab to open the Calls screen. The screen shown in the figure preceding this table opens.
People	Touch the tab to open the People, shown under Using the People Screen on page 45 opens. Allows you to easily connect and collaborate with teammates, colleagues, friends and family. Through this screen, you can see all your contacts and create and manage contact groups to organize your contacts. The screen provides a simple user experience and aligns with the contacts on the Teams desktop client.
Meetings	Touch the tab to open the Meetings screen, shown under Setting up a Meeting on page 44 opens.
Voicemail	Touch the tab to open the Voicemail screen, shown under Accessing Voicemail on page 47 opens.

Figure 4-5: Phone Menu Items



Use this table as reference.

Table 4-2: Menu Item Descriptions

Item	Description
Presence status	See Changing Presence Status on the next page for more information.
Set status message	See Setting a Status Message on page 38 for more information.
Manage Devices	See Setting Manage Devices for more information.

Item	Description
Hot desk	See Hot Desking on page 39 for more information.
Settings	See Configuring Teams Application Settings on page 40 for more information.
Sign Out	See Signing Out on page 48 for more information.

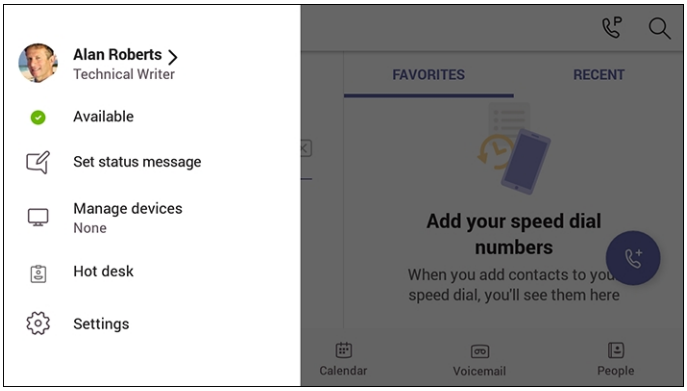
Changing Presence Status

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 Microsoft Teams server.

- 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.

➢ To change presence status:

1. In the Call's screen (or People screen, Calendar screen or Voicemail screen), touch the phone menu ☰.



2. Touch the current status and then from the drop-down list of statuses displayed, select the status to change to. Use this table as reference.

Table 4-3: Presence Statuses

Icon	Presence Status	Description
✓	Available	You're online and available for other contacts to call.

Icon	Presence Status	Description
	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.

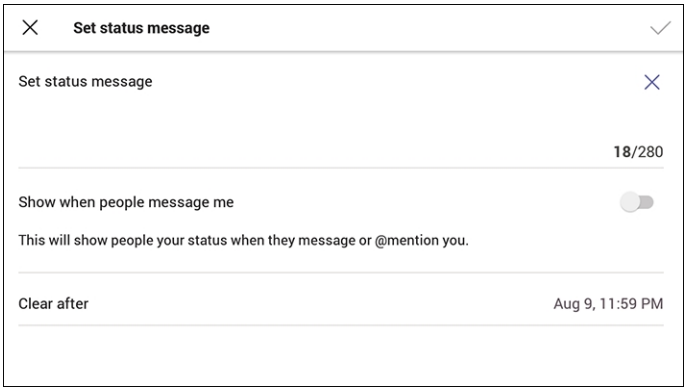
Setting a Status Message

You can set a status message to add more substance to your presence status. For example, a status message such as 'Working from home' adds more substance to the presence status of 'Available'.

➢ **To set a status message:**

1. In the Call's screen (or People screen, Calendar screen or Voicemail screen), touch the phone menu and then touch **Set status message**.

Figure 4-6: Set status message



2. Touch the field under 'Set status message' and in the Virtual Keypad that pops up, type in the message you want to show other people, for example, 'Working from home'. The text you type in will replace 'Set status message' in the screen shown in the preceding figure.

3. Optionally, switch on 'Show when people message me'. When people message or @mention you, they'll view the status message you set.
4. Touch 'Clear after' and choose when you want the message to stop displaying. Options are:
   - Never clear
   - 1 hour
   - 4 hours
   - Today
   - This week
   - Custom (set a date and time in the calendar that pops up)

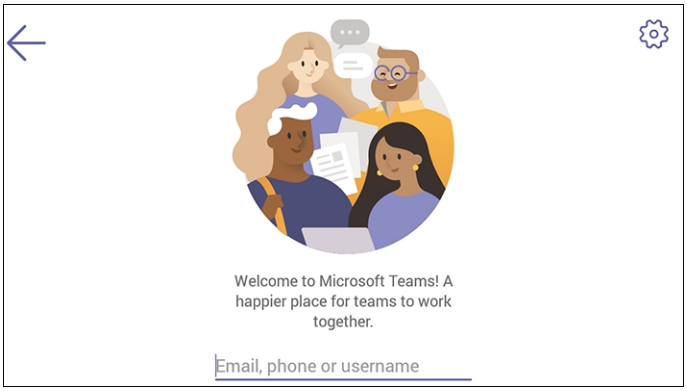
Hot Desking

Any phone in the enterprise network that is enabled with this feature allows any user in the enterprise to temporarily sign into it, make calls, attend meetings and access their calendar and call log. After finishing using these phone functions, the user can sign out to end their hot desking session; call logs and history will automatically be removed from the device.

➢ **To set up a phone as a shared device for hot desking:**

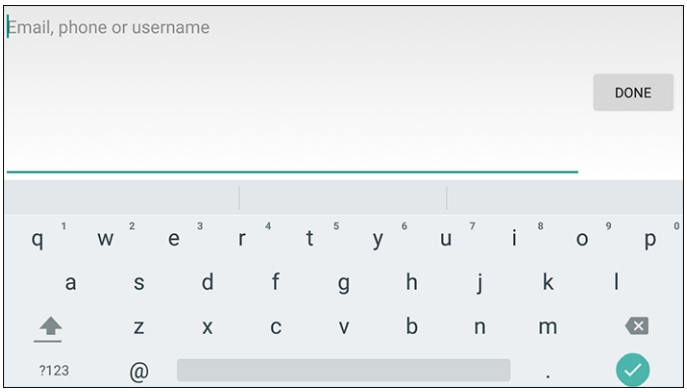
1. In the Call's screen (or People screen, Calendar screen or Voicemail screen), touch the phone menu and then touch **Hot desk**.

Figure 4-7: Hot desk



2. Touch the field 'Email, phone or username'.

Figure 4-8: Email, phone or username

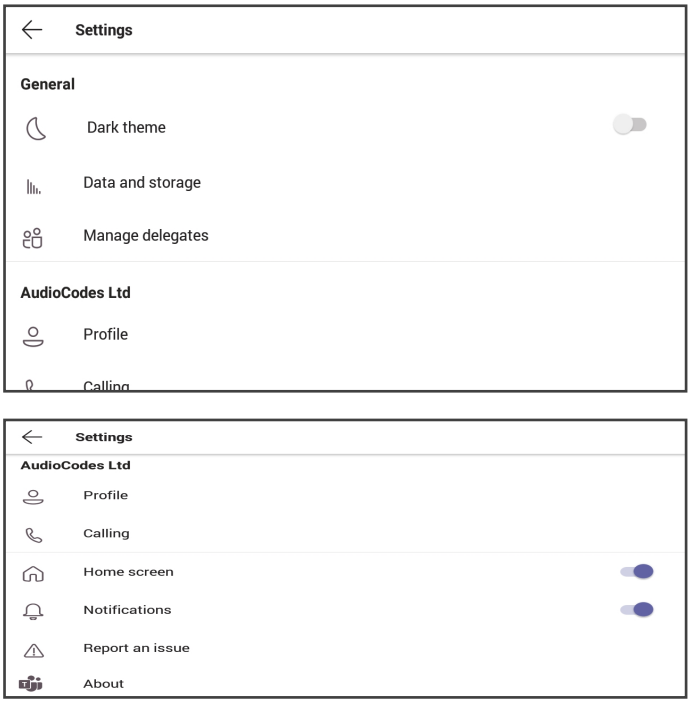


3. Use the Virtual Keyboard to type in your email, phone or username and then touch **Done**; the phone is enabled for hot desking.

Configuring Teams Application Settings

The documentation here describes Teams phone's application settings. In the Calls screen (or People screen, Calendar screen or Voicemail screen), touch the phone menu and select the **Settings** option.

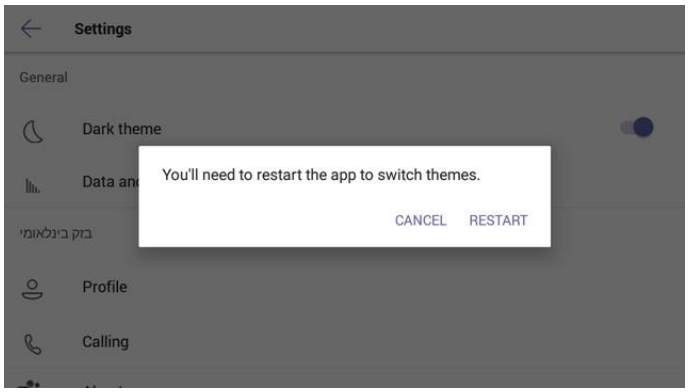
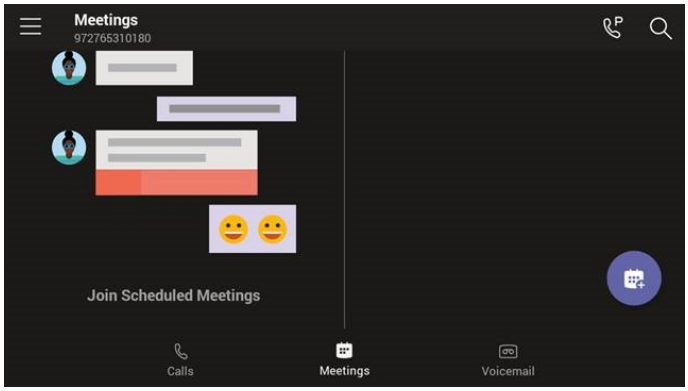
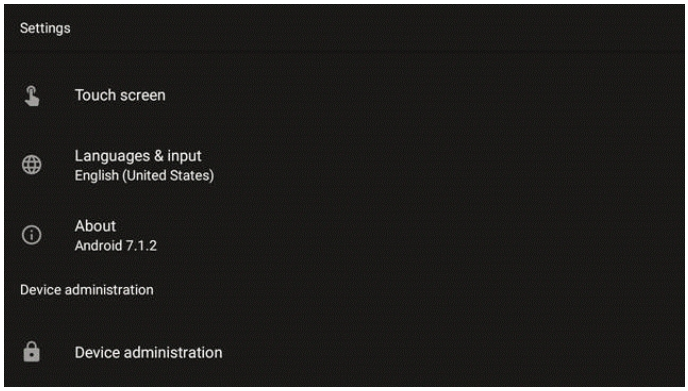
Figure 4-9: Settings

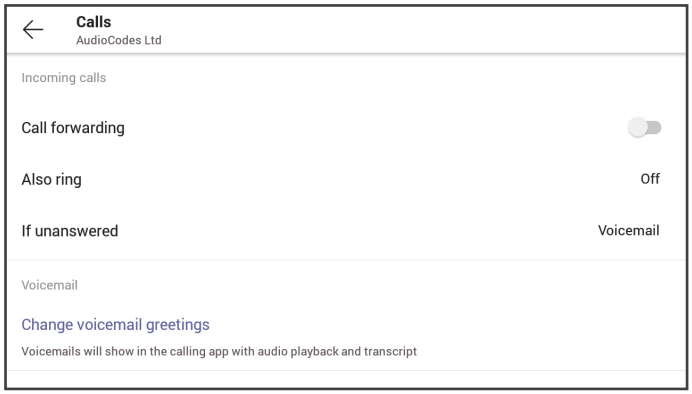
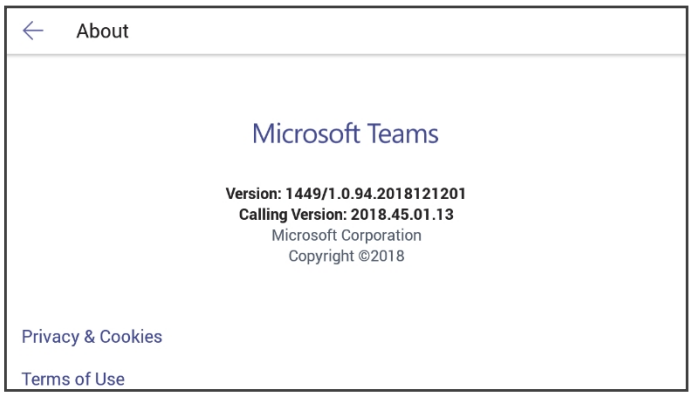


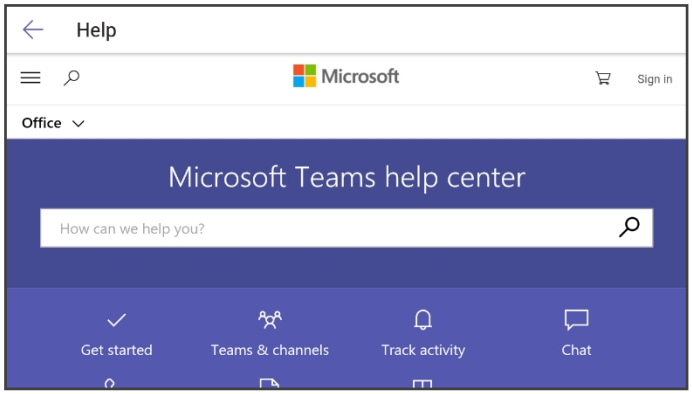
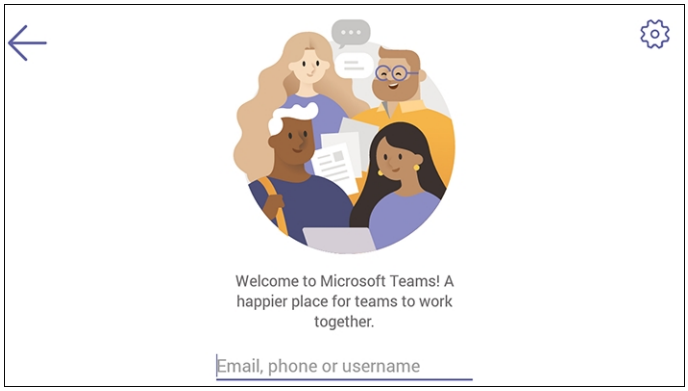
Use this table as reference:

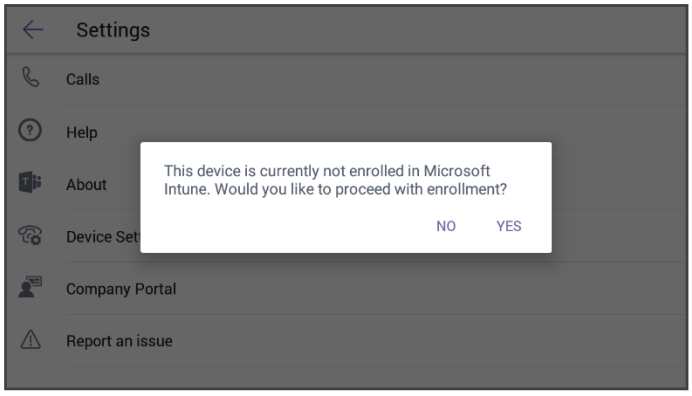
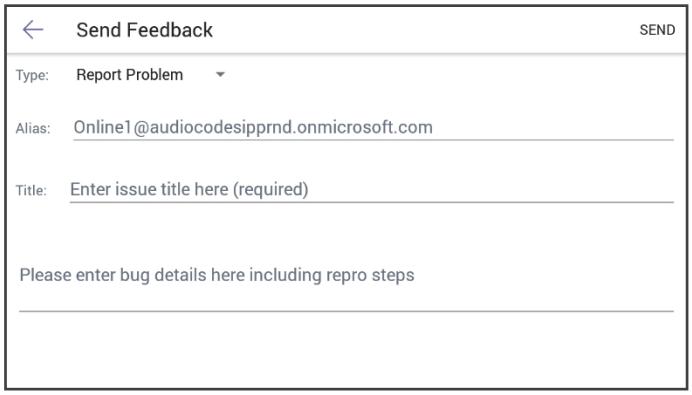
Table 4-4: Idle Screen Description

Item	Description
Dark	Dark Theme can be enabled to suit user preference.

Item	Description
Theme	To enable Dark Theme: 1. Drag the 'Dark Theme' setting slider to the 'on' position; the following prompt is displayed:  2. Click **Restart** and then verify after the Teams application restarts that all screens (Teams application and Device Settings) are dark themed as in the following examples:  
Calling	Opens the Calls screen.

Item	Description
	 **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.
About	Opens the About screen. 
Help	Opens the 'Microsoft Teams help center' screen.

Item	Description
	 ■ Get started ■ Teams & channels ■ Track activity ■ Chat ■ Meetings & calls ■ Files ■ Apps & services
Device Settings	Opens the [Device] Settings screen.
Hot Desking	Allows signing in to a phone that is already signed in by another user without signing out the original user to whom the phone was assigned for primary use. Access the Hot Desking feature from the **Hot desk** option in the Teams application settings. 
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. 

Setting up a Meeting

From the phone's Home screen, touch the **Calendar** tab.

Figure 4-10: Home

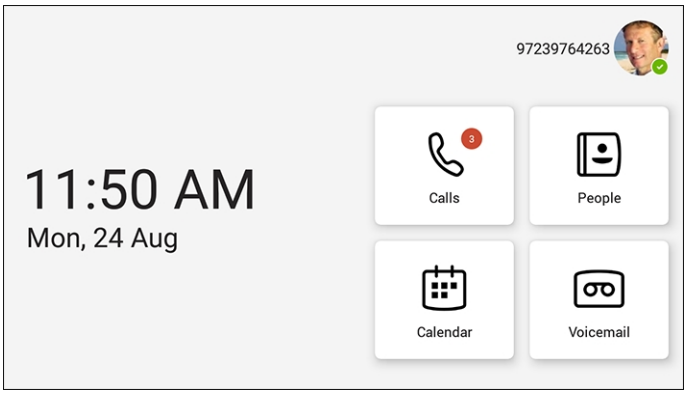
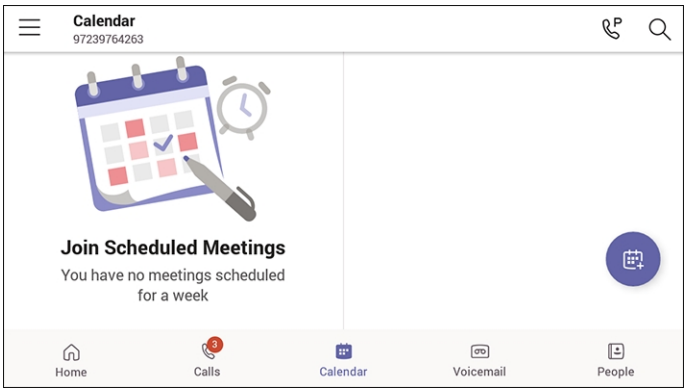


Figure 4-11: Calendar



Use the **Join Scheduled Meetings** feature to join your Teams meetings. Click to add a new event to the calendar.

Figure 4-12: Calendar view

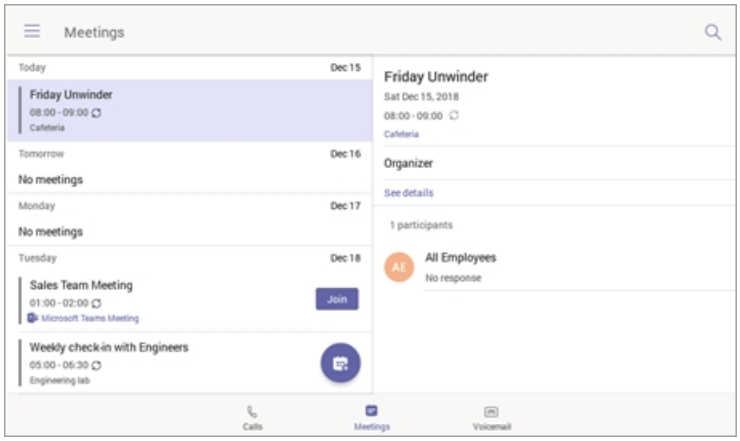
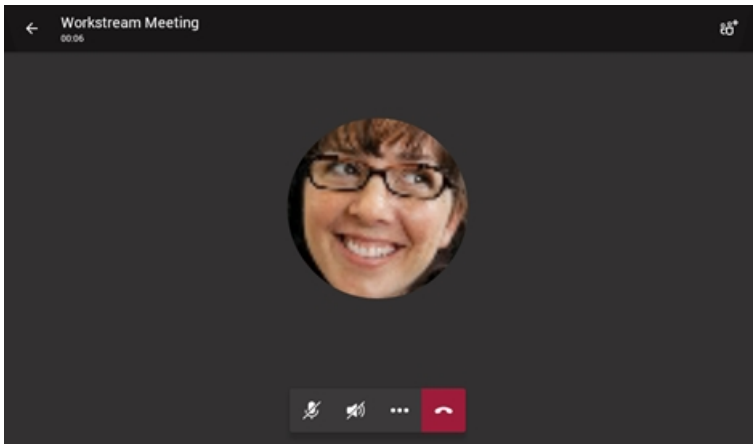


Figure 4-13: Meeting join view



Using the People Screen

The People screen allows users to easily connect and collaborate with teammates, colleagues, friends and family. Through the screen, users can see all their contacts and create and manage contact groups to organize their contacts. The screen provides a simple user experience and aligns with the contacts on the Teams desktop client. In addition to accessing the People

screen from the menu, the screen can also be accessed from the hard CONTACTS button on the phone.

Figure 4-14: Accessing the People screen

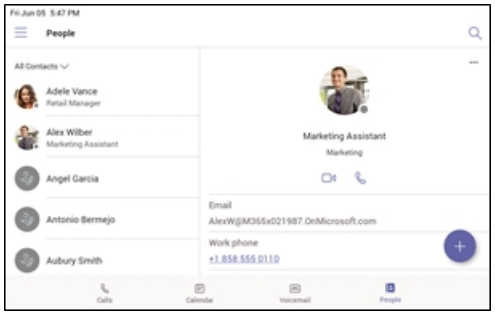


Figure 4-15: Creating new group

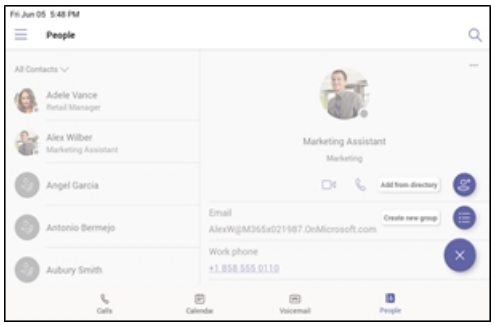


Figure 4-16: Add from directory

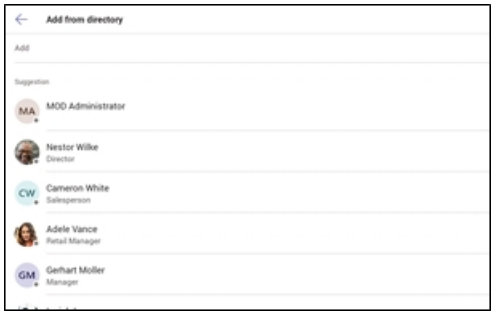


Figure 4-17: Select a group

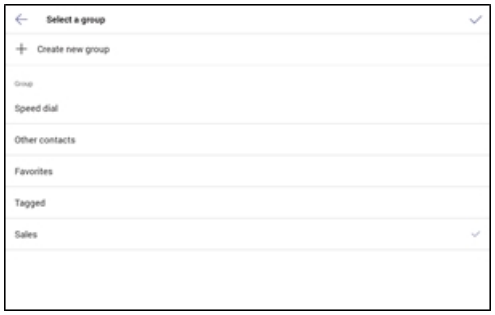


Figure 4-18: Select a group

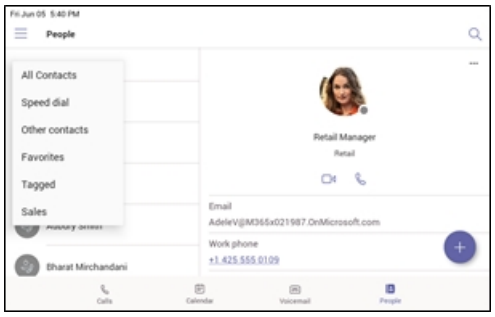
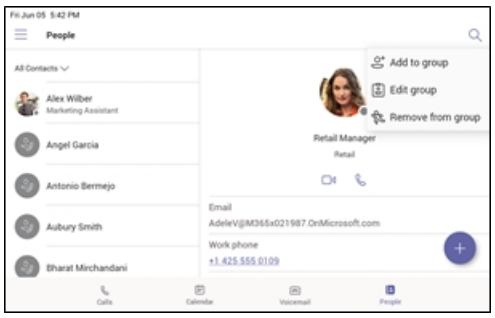


Figure 4-19: Edit group



Accessing Voicemail

From the phone's Home screen, touch the **Voicemail** tab.

Figure 4-20: Home

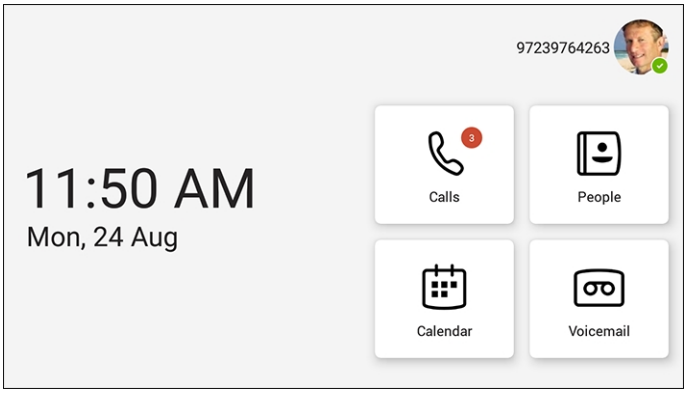
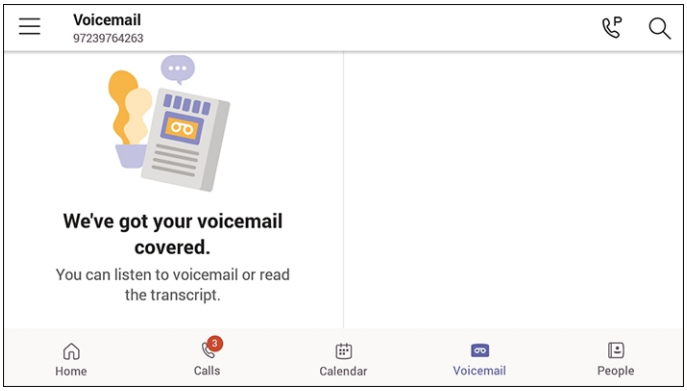


Figure 4-21: Voicemail



Using Audio Devices

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

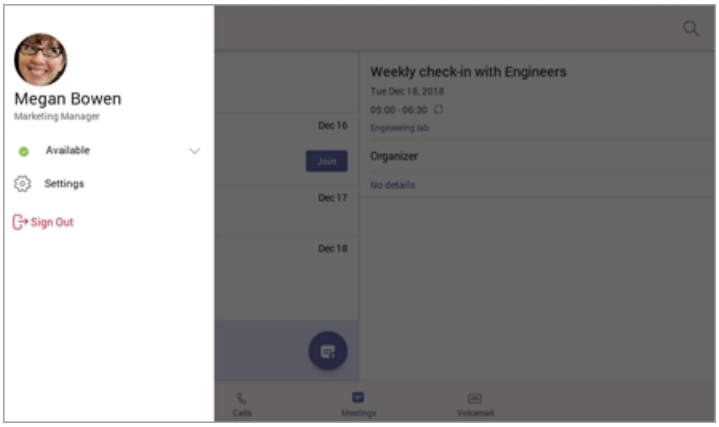
- **Handset**: To make a call or answer a call, lift the handset off the cradle.
- **Speaker** (hands-free mode). To activate it, press the speaker key during a call or when making a call. To deactivate it, press the speaker key again.
- **Headset** (hands-free mode). When talking on the phone, you can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

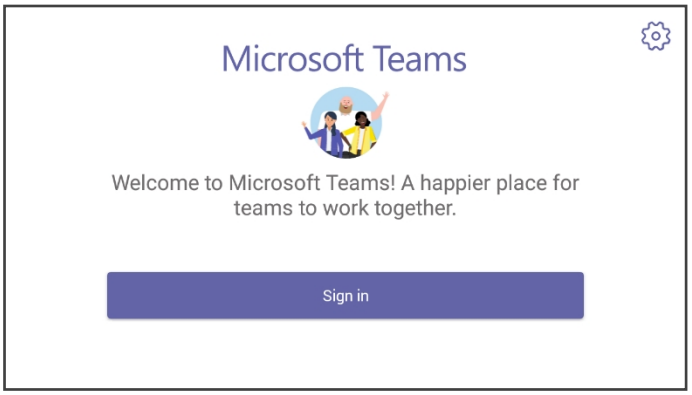
- **To change from speaker/headset to handset**: Activate speaker/headset and pick up the handset; the speaker/headset is automatically disabled.
- **To change from handset to speaker/headset**: Off-hook the handset and press the speaker/headset key to activate the speaker/headset. Return the handset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

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.

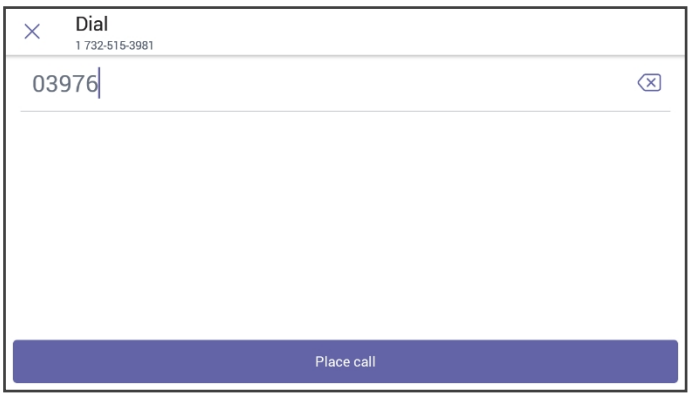


5 Performing Basic Operations

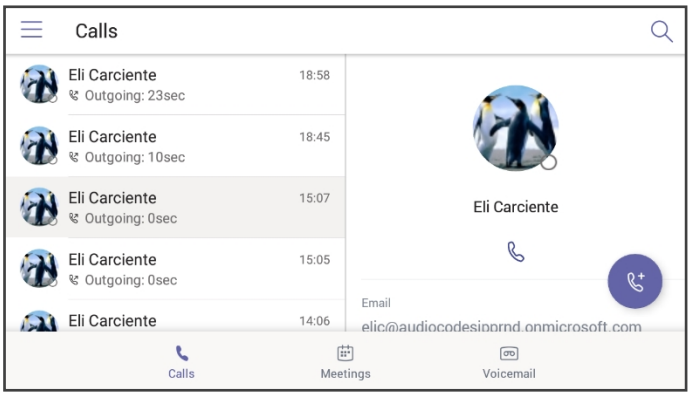
The documentation following shows basic phone operations.

Making a Call

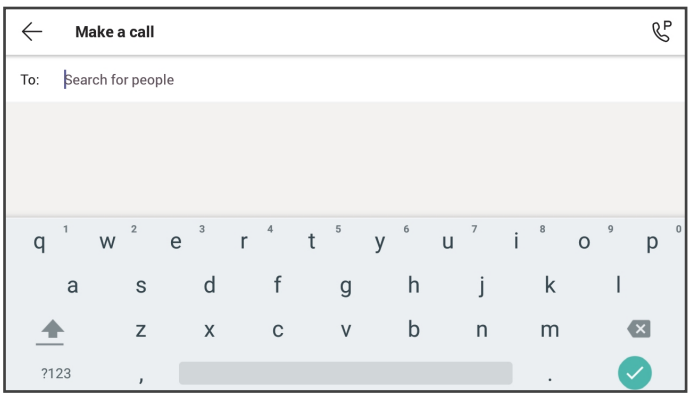
Calls can be made in multiple ways, for example, you can press the digit keys on the phone's dial pad to enter the phone number or URL.



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



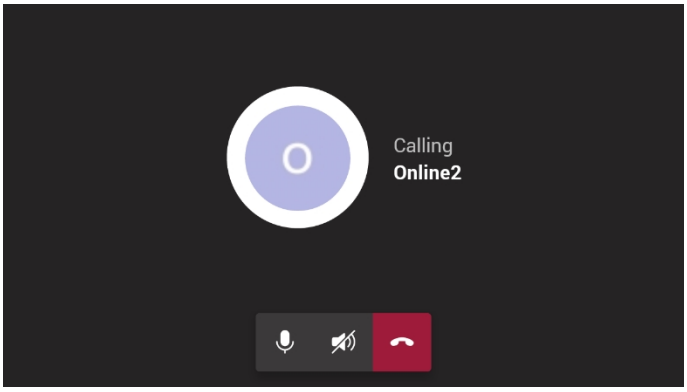
Touching in the Calls screen allows you to make a call by entering the name of a contact.



- You need to touch the 'To: Search for people' field to launch the soft keyboard.
- If you decide to nonetheless dial a destination number rather than the name of a contact, touch **?123** in the lower left corner of the screen.

Touching located in the upper right corner of the screen shown in the preceding figure allows you to park a call. For more information about parking calls, see Parking a Call on page 56.

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

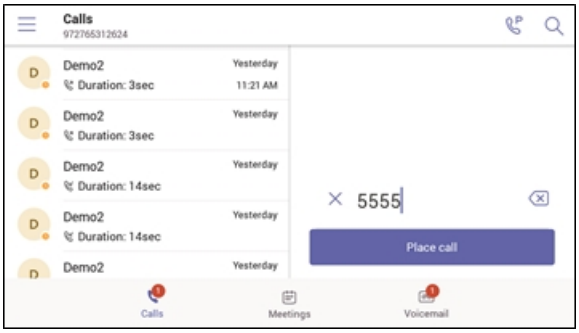
➢ To end a call before it's answered at the other end

■ 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.

If after activating the speaker and starting to dial a number you decide you don't want to make the call, touch the key (shown in the figure below); the speaker LED turns off.



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.

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:**

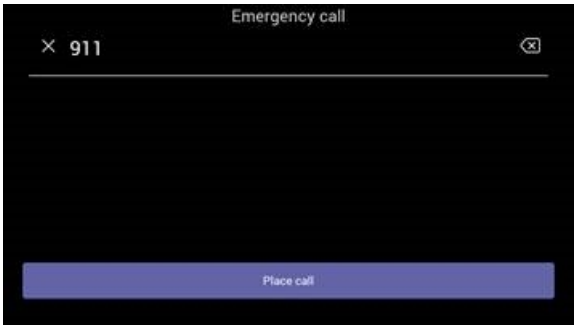
1. Touch the Calls softkey and then in the Calls screen navigate to the missed call to dial if there is more than one listed.
2. Scroll down (if necessary) and select the missed call and then touch .

Making an Emergency Call

The phone features an *emergency call service*. The phone's idle lock screen (displayed before the screen that allows entering the PIN code / pattern to unlock the phone) displays an **Emergency** key.

➢ **To dial the service from the locked idle screen either:**

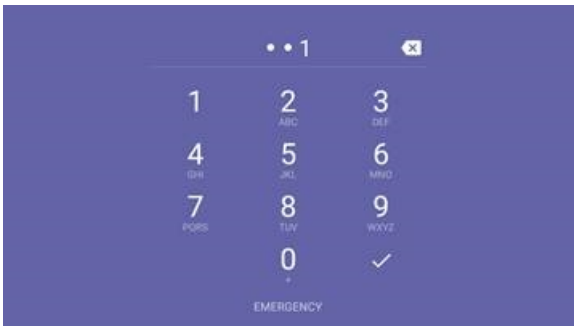
- Touch the **EMERGENCY** softkey shown in the preceding figure of the locked idle screen and then enter the emergency number.



-OR-

- Dial from the locked idle screen without needing to press the **EMERGENCY** key:

  a. Dial **911**.



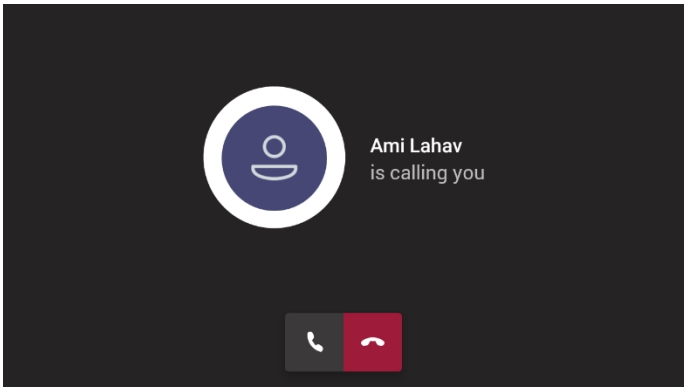
  b. Press the speaker button.

  c. View the 'Emergency call' screen displaying the dialed emergency number.

  When the phone detects that 911 was requested, it automatically dials that number.

Answering Calls

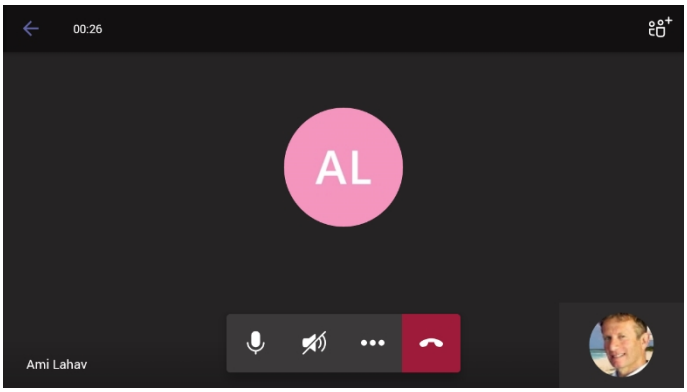
Your phone indicates an incoming call by ringing and displaying this screen:



➢ 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:



Ending an Established Call

You can end an established call.

➢ To end an established call:

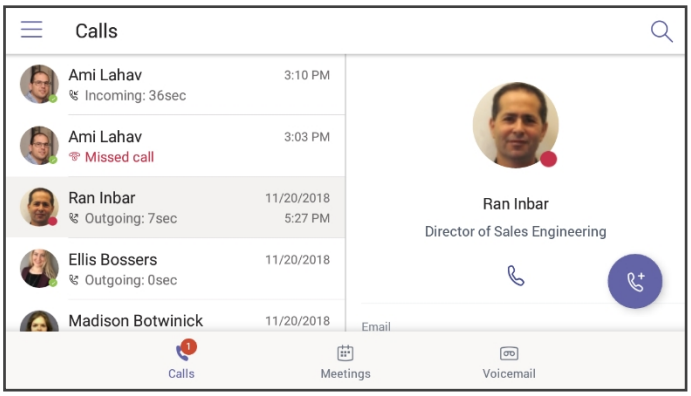
- Return the handset to the phone cradle if it was used to take the call -or- press the headset key -or- press the speaker key -or- touch the **End** softkey.

Managing Calls

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

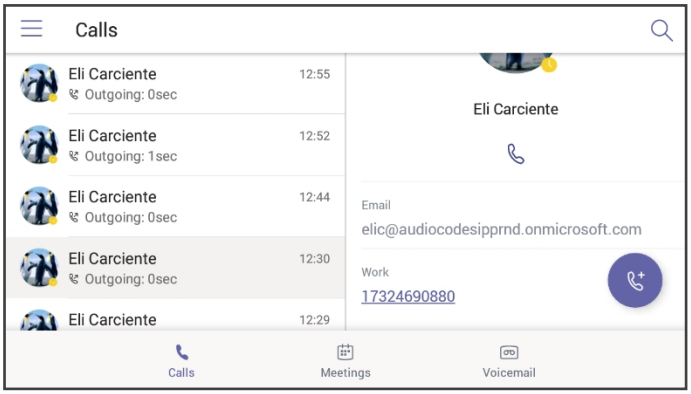
Note: Each device reports every call from | to that user to the server. All devices that a user signs into are synchronized with the server. The Calls screen is synchronized with server.

In idle state, the touch screen displays the number of missed calls (if any). In the following example, 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



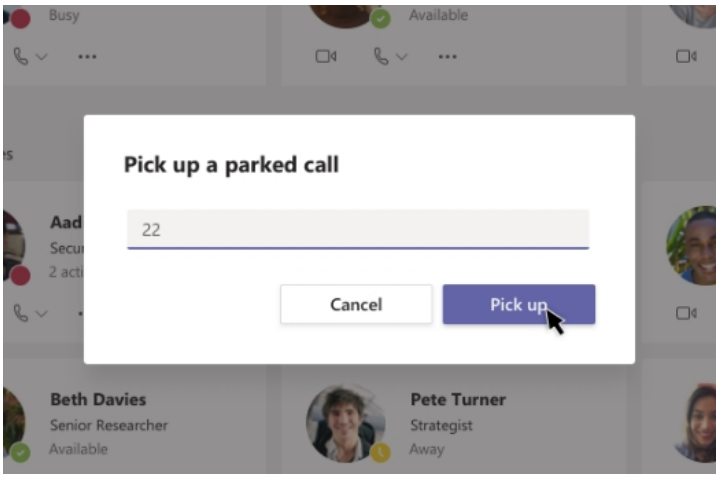
Calls are listed from newest to oldest.

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 the call park icon displayed in their device's Calls screen.



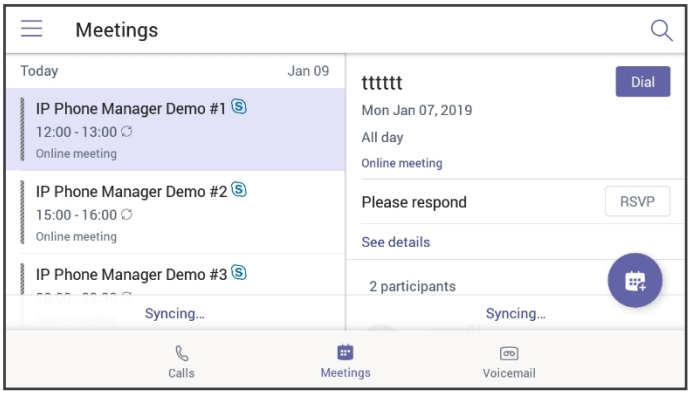
3. The user on the other device enters the code communicated to them and then touches the 'Pick up' button to pick up the call.

Initiating a Teams Meeting

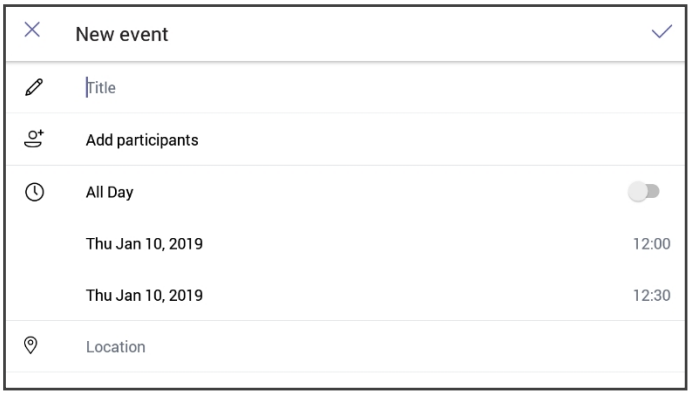
A multi-party call conference based on the Teams server (remote conference) can be initiated from the phone.

➢ To initiate a conference:

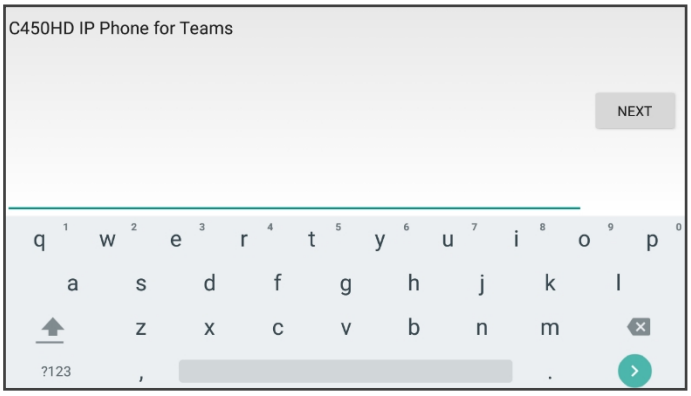
1. In the phone's idle screen, touch the **Meetings** softkey.



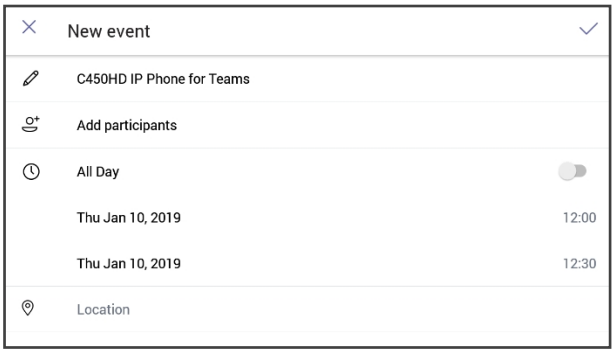
2. Touch the **+** icon.



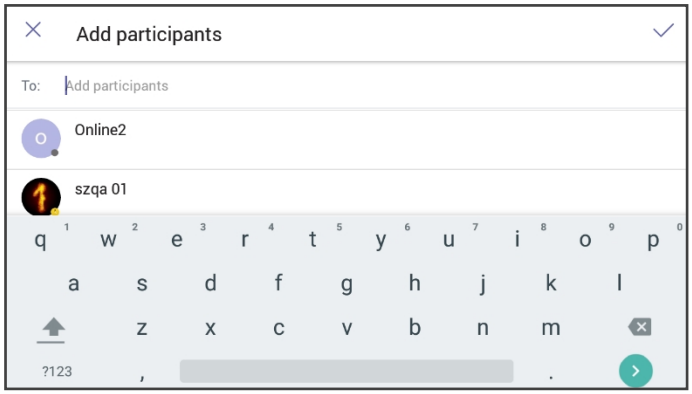
3. Touch the Title field. Use the soft keyboard that launches to enter a title for the meeting.



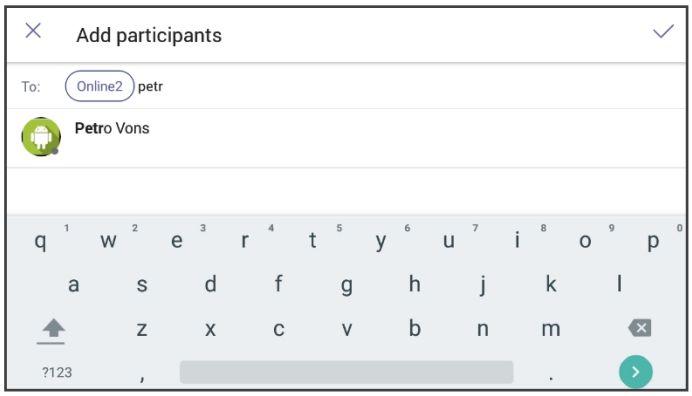
4. Touch NEXT.

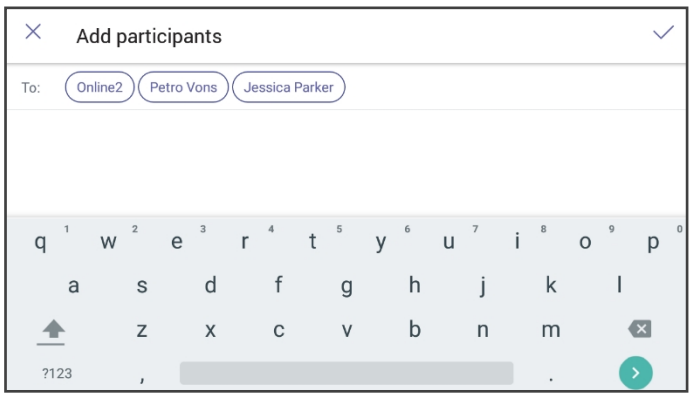


5. Touch **Add participants**.



6. 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.

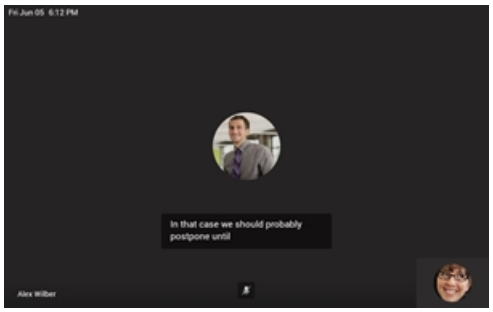
Using Live Captions

The Teams phone can detect what's said in a meeting or group call and present real-time captions.

Live captions are a preview feature of Microsoft Teams and they're only available in English (US) in version 1.4.

Figure 5-1: Start recording

Figure 5-2: Recording



For more information, go to https://support.microsoft.com/en-us/office/use-live-captions-in-a-teams-meeting-4be2d304-f675-4b57-8347-cbd000a21260#ID0EABAAA=Mobile

Raising a Hand During a Meeting

During a meeting, you can raise a virtual hand from your phone to let people know you want to contribute without interrupting the conversation. Everyone in the meeting will see that you've got your hand up.

Figure 5-3: Raise hand

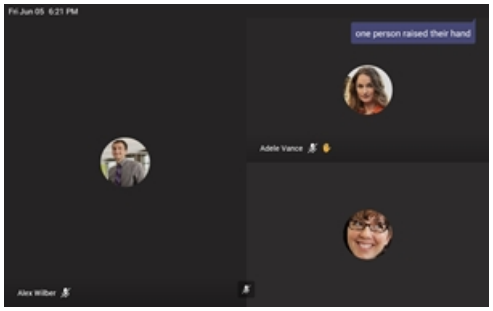
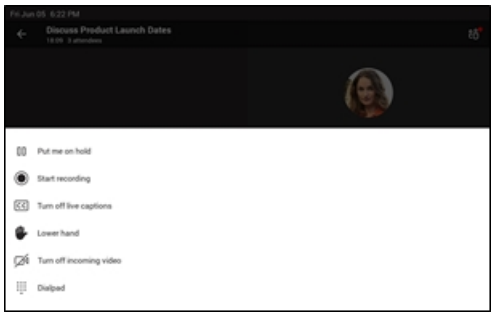


Figure 5-4: Lower hand



For more information, see https://support.office.com/en-us/article/raise-your-hand-in-a-teams-meeting-bb2dd8e1-e6bd-43a6-85cf-30822667b372

Transferring a Call to Frequent Contacts

To transfer your calls efficiently to frequent contacts, the phone suggests contacts in the transfer screen for a single touch transfer. Contacts not shown in the list could be searched in the search bar, as always.

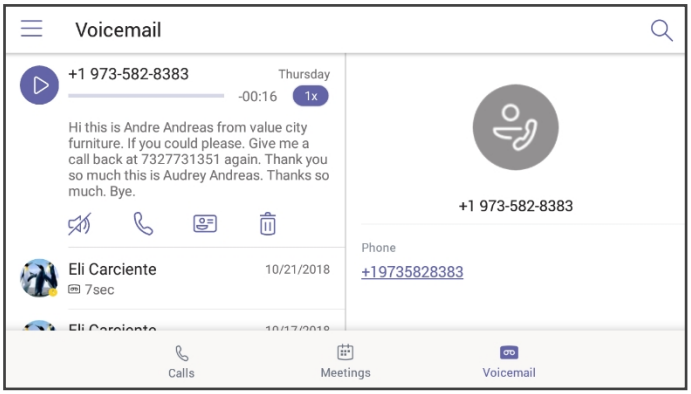
Viewing and Playing Voicemail Messages

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**.

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.

Adjusting Volume

The phone allows you to adjust

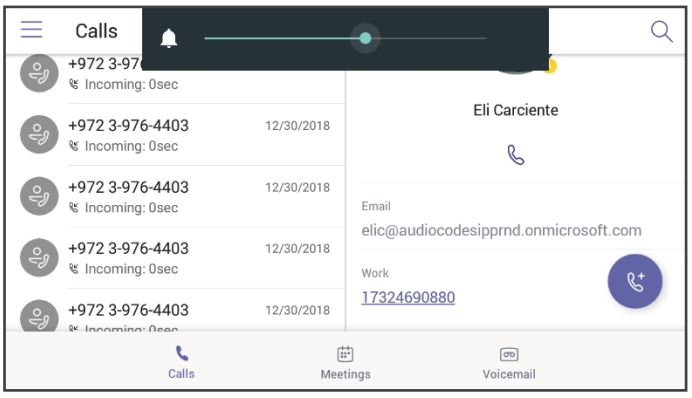
- Ring volume
- Tones volume (e.g., dial tone)
- Handset volume
- Speaker volume
- Headset volume

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.



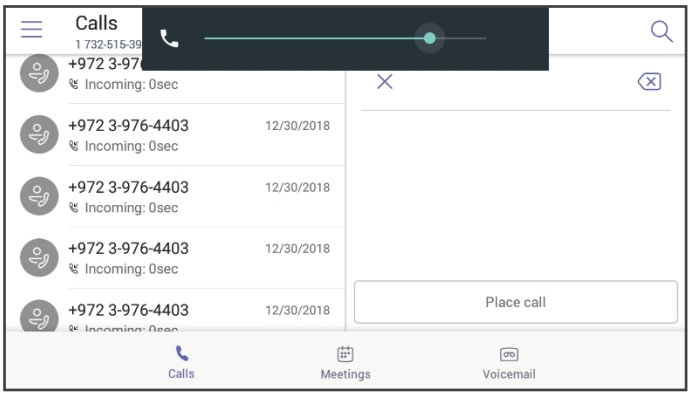
2. After adjusting, the volume bar disappears from the screen.

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.

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.

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.

Adjusting Headset Volume

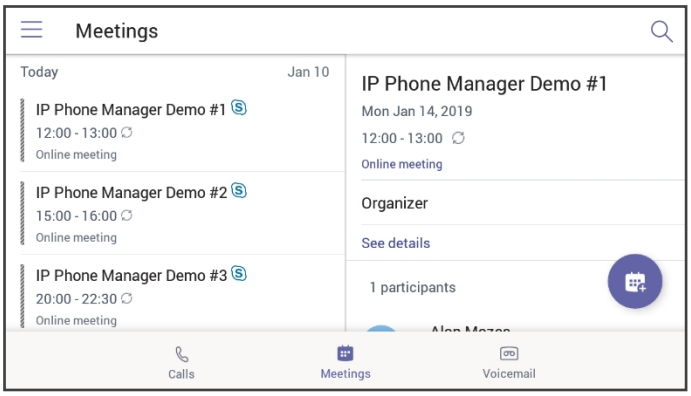
Headset volume can be adjusted *during a call* to suit personal preference.

➢ **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.

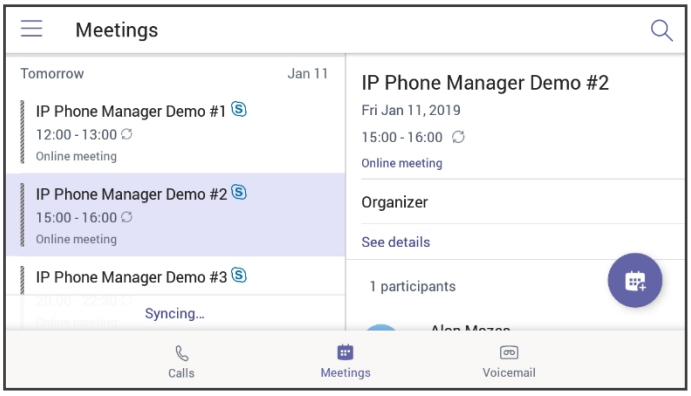
Managing Meetings

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.

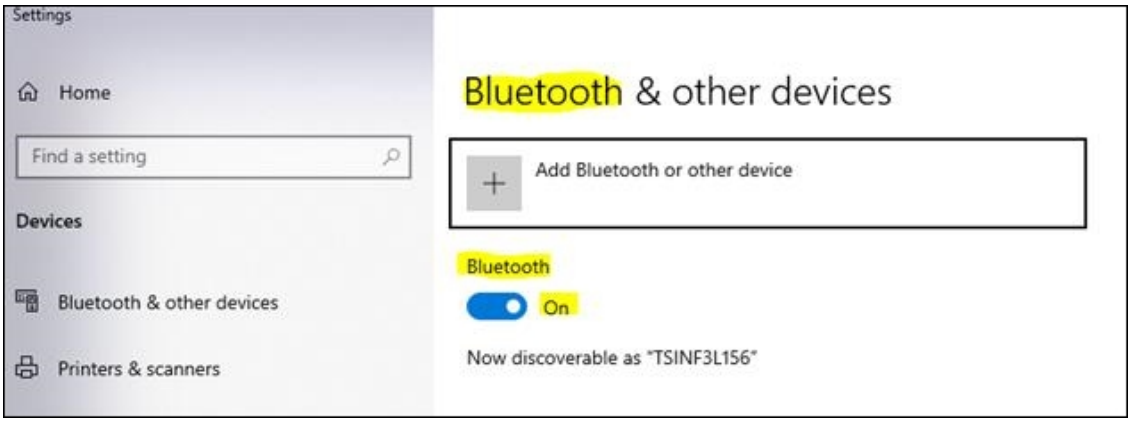
Better Together over Bluetooth

Read here about how to configure Better Together over Bluetooth with support for:

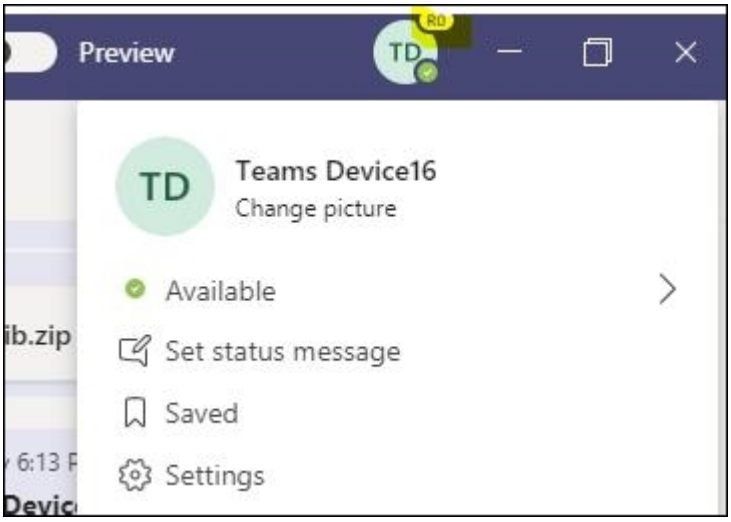
- Pairing with the Teams PC Client
- Lock/unlock synchronization
- [As a feature in preview] Use of the phone as the Teams audio device for calls / meetings

➢ To set up Bluetooth on the PC side:

1. Enable Bluetooth on your PC.

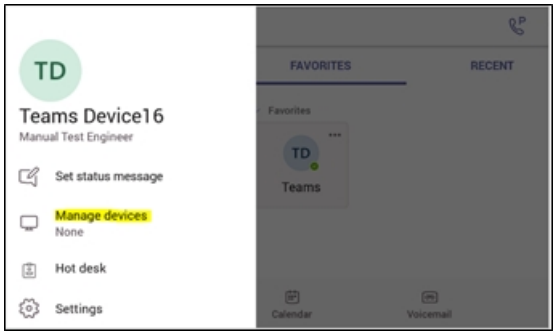


2. Install Teams PC Client on the PC.
3. Sign in to the Teams PC Client with your account (it's necessary to sign in with the same accounts to both the Teams PC Client and to the device).

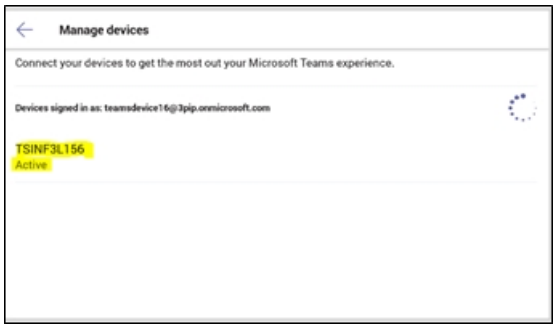


➢ To set up Bluetooth on the device side:

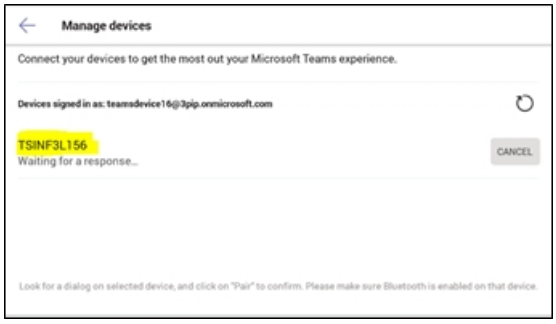
1. Sign in to the Teams application with your account (it's necessary to sign in with the same accounts to both the Teams PC Client and to the device).
2. Go to the hamburger menu on the device and click **Manage devices**.



3. View the displayed available device to connect to.



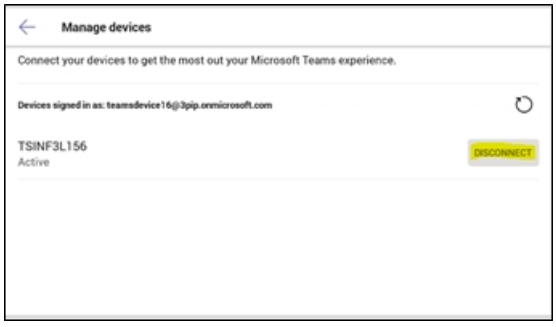
4. Pair the device with your PC.



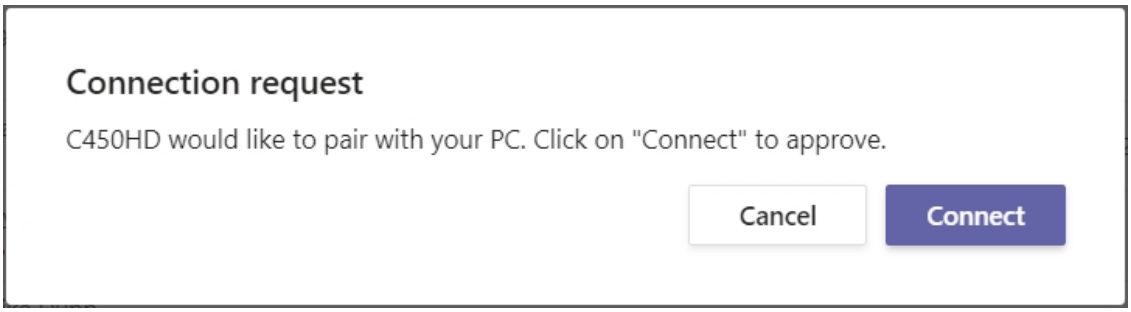
5. View on your PC a notification it gets to accept the connection:

6. Accept the notification from PC.

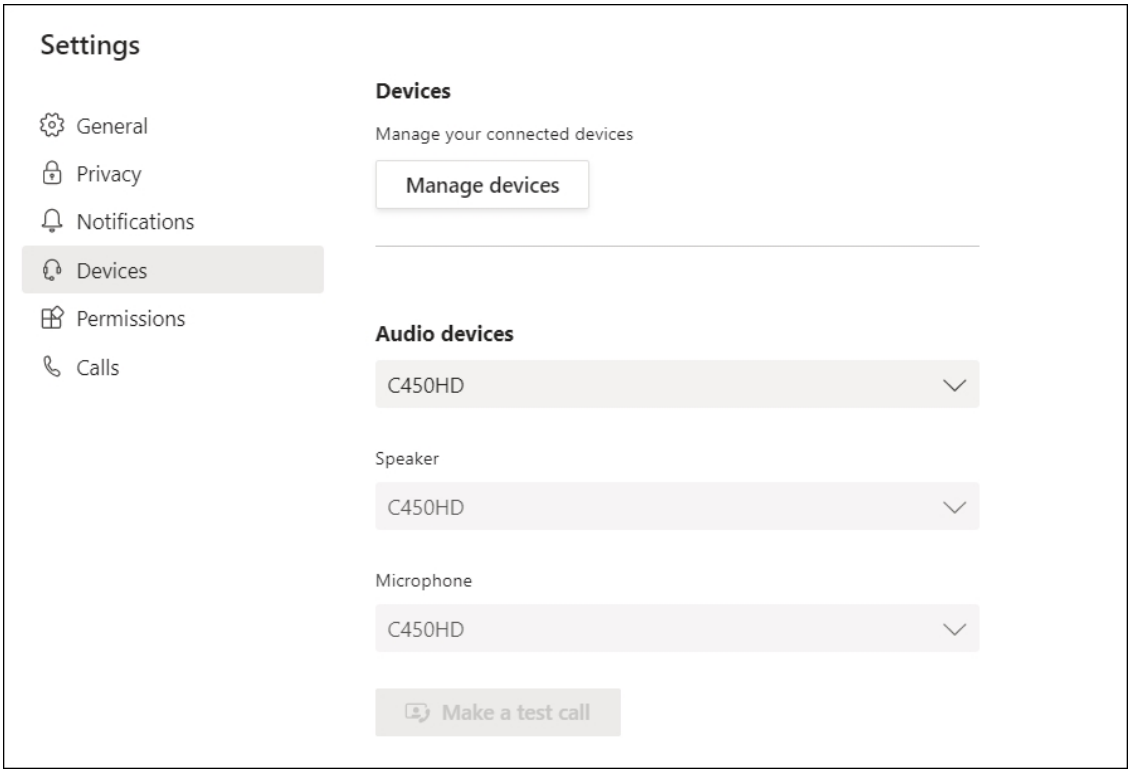
7. Check the device and make sure pairing was successful:



8. When pairing the phone with the PC Client, the PC Client presents the following request for approval:



Once connected, the phone will be presented as a default Teams PC Client Audio device:



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:**

- Make sure you have a command line tool that implements Secure Copy Protocol (SCP).
- Place the firmware file in the same directory from which this command line tool is running.

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

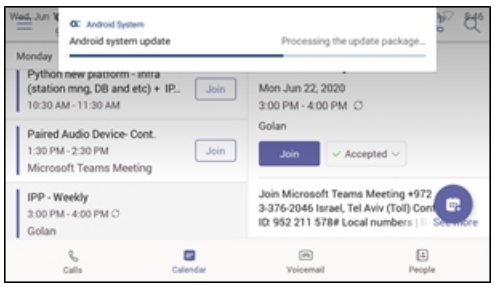
```
scp C450HD_TEAMS_1.0.69.zip admin@10.16.2.50:/data/ota_
package/update_image.zip
```

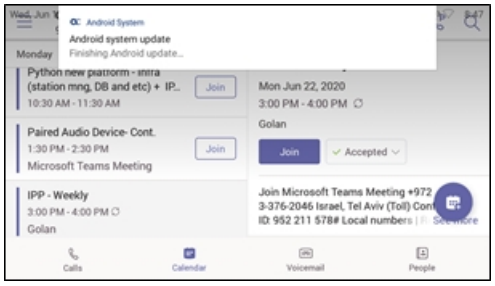
- In the preceding example, the phone's IP address is **10.16.2.50** and the firmware name is **C450HD_TEAMS_1.0.69.zip**
- The SCP command allows you to copy files over SSH connections.

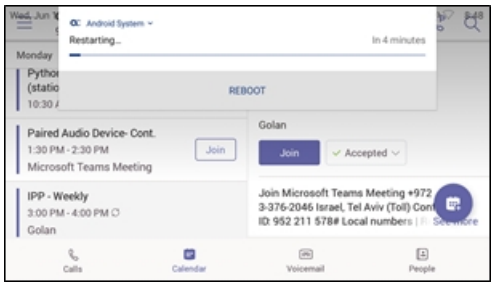
3. Choose **Yes** and enter the phone admin password (default is **1234** or **1111** if you didn't perform restore default yet); the firmware is downloaded to the phone's memory.
4. Run the following command:

```
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.
6. View the notification that is displayed to notify you that the phone is being updated and then rebooted.







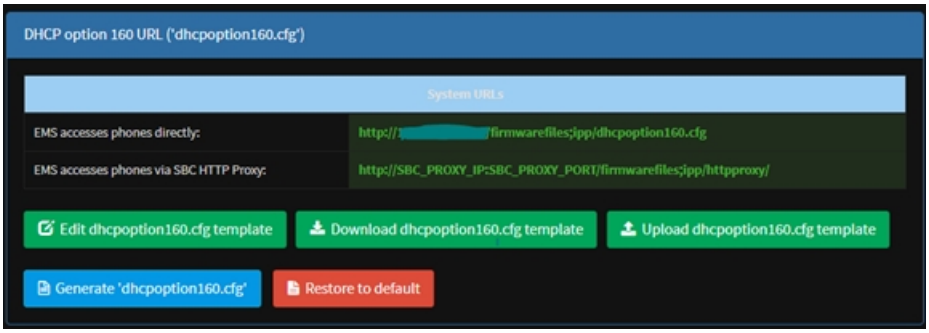
The above notification is also displayed when the phone is upgraded remotely from Microsoft Admin Portal or from AudioCodes' Device Manager.

7 Managing Phones with the Device Manager

AudioCodes' Device Manager manages Android-based Teams phones in a similar way to UC-type phones. Teams phones' configuration parameters are in the same format as UC phones. A .cfg configuration file is defined for each device. Device Manager version 7.8.2000 and later (Pro and Express) supports Android-based Teams devices.

Zero Touch Provisioning is supported in a non-tenant aware manner; each local DHCP Option 160 must be configured with a fully-specified URL pointing to **dhcpoption160.cfg** as shown here:

Table 7-1: DHCP Option 160 URL



This URL is displayed in the Device Manager page under **Setup** > **DHCP options configuration**. After devices are added to the Device Manager, they're allocated to tenants by selecting **Change Tenant** in the 'Actions' menu. Unless already used, it's recommended to leave the default tenant as a 'lobby' for the new devices. The above URL can also be configured in AudioCodes' Redirect Server. Android-based Teams devices currently support:

- Provisioning of configuration
- Provisioning of firmware
- Switching to UC / Teams
- Monitoring (based on periodic Keep-Alive messages sent from devices)
- Resetting the device

The Device Manager's 'internal' functions (which don't involve devices) are:

- Change tenant
- Change template
- Show info
- Generate Configuration
- Delete device status
- Nickname

Actions that go beyond the devices' periodic provisioning cycle will be supported in next releases. The **Check Status** option is irrelevant for Android-based Teams devices therefore it's omitted from the 'Actions' menu.

- To change a device's configuration, see the *Device Manager Administrator's Manual*. Changing a device's configuration using the Device Manager is the same for Android-based Teams devices as for UC devices.
- To commit a change made at the template/tenant/site/group/user level, perform **Generate Configuration**. The change can be validated in the device's .cfg file. The Android-based endpoint pulls the updated configuration when the next periodic provisioning cycle occurs.

Configuring a Periodic Provisioning Cycle

Network administrators can configure how often periodic provisioning cycles will occur, to suit enterprise management preference.

➢ **To configure how often periodic provisioning cycles will occur:**

- Use the following table as reference.

Table 7-2: Periodic Provisioning Cycle

Parameter	Description
provisioning/period/type	Defines the frequency of the periodic provisioning cycle. Valid values are: ■ HOURLY ■ DAILY (default) ■ WEEKLY ■ POWERUP ■ EVERY5MIN ■ EVERY15MIN Each value type is accompanied by additional parameters (see Supported Parameters on the next page) that further defines the selected frequency.

Configuring TimeZone and Daylight Savings

Network administrators can configure TimeZone and Daylight Savings to suit enterprise requirements.

➢ **To configure TimeZone and Daylight Savings:**

- Use the following table as reference.

Table 7-3: TimeZone And Daylight Savings

Parameter	Description
date_time/-timezone	Defines the Timezone. Valid values are: ■ +00:00 ■ +01:00 ■ +02:00 ■ Etc.
date_time/-time_dst	[Boolean parameter]. Configuring **ENABLED** adds one hour to the configured time. Valid values are: ■ 1 ■ 0

For example, to configure Central European Summer Time (CEST) you can either configure:

date_time/timezone=**+01:00**

date_time/time_dst=**1**

-OR-

date_time/timezone=**+02:00**

date_time/time_dst=**0**

Managing Devices with HTTPS

Android-based Teams devices support an HTTPS connection.

➢ **To establish an HTTPS connection:**

- The server certificate must be signed by a well-known Certificate Authority

  -OR-

- A root/intermediate CA certificate must be loaded to the device's trust store either via 802.1x or configuration parameter '/security/ca_certificate/[0-4]/uri'

➢ **To maintain backward compatibility with devices previously running UC versions:**

- Configure parameter '/security/SSLCertificateErrorsMode' to **Ignore**

Supported Parameters

Listed here are the configuration file parameters currently supported by Android-based Teams devices. They're in AudioCodes' UC version format. The parameters are comprised of Microsoft configuration profile settings and AudioCodes' device-specific parameters.

- general/silent_mode = 0 (default)/1
- general/power_saving = 0 (default)/1
- phone_lock/enabled = 0 (default)/1
- phone_lock/timeout = 900 (default) (in units of seconds)
- phone_lock/lock_pin = 123456
- display/language = English (default)
- display/screensaver_enabled = 0/1
- display/screensaver_timeout = 1800 (seconds)
- display/backlight = 80 (0-100)
- display/high_contrast = 0 (default) /1
- date_time/timezone = +02:00
- date_time/time_dst = 0 (default) /1
- date_time/time_format = 12 (default) / 24
- network/dhcp_enabled = 0/1
- network/ip_address =
- network/subnet_mask =
- network/default_gateway =
- network/primary_dns =
- network/pecondary_dns =
- network/pc_port = 0/1
- office_hours/start = 08:00
- office_hours/end = 17:00
- logging/enabled = 0/1
- logging/levels = VERBOSE, DEBUG, INFO, WARN, ERROR, ASSERT, SILENT
- admin/default_password = 1234
- admin/ssh_enabled=0/1 (default)
- security/SSLCertificateErrorsMode = IGNORE, NOTIFICATION, DISALLOW (default)
- security/ca_certificate/[0-4]/uri – uri to download costumer's root-ca
- provisioning/period/daily/time
- provisioning/period/hourly/hours_interval
- provisioning/period/type = HOURLY, DAILY (default), WEEKLY, POWERUP, EVERY5MIN, EVERY15MIN

- provisioning/period/weekly/day
- provisioning/period/weekly/time
- provisioning/random_provisioning_time

8 Updating Microsoft Teams Devices Remotely

For instructions on how to update Microsoft Teams devices remotely, see https://docs.microsoft.com/en-us/microsoftteams/devices/remote-update.

9 Troubleshooting

Users

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

Table 9-1: 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 Adjusting Ring Volume on page 62)
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 Adjusting Headset Volume on page 63).

Network Administrators

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

Collecting Logs

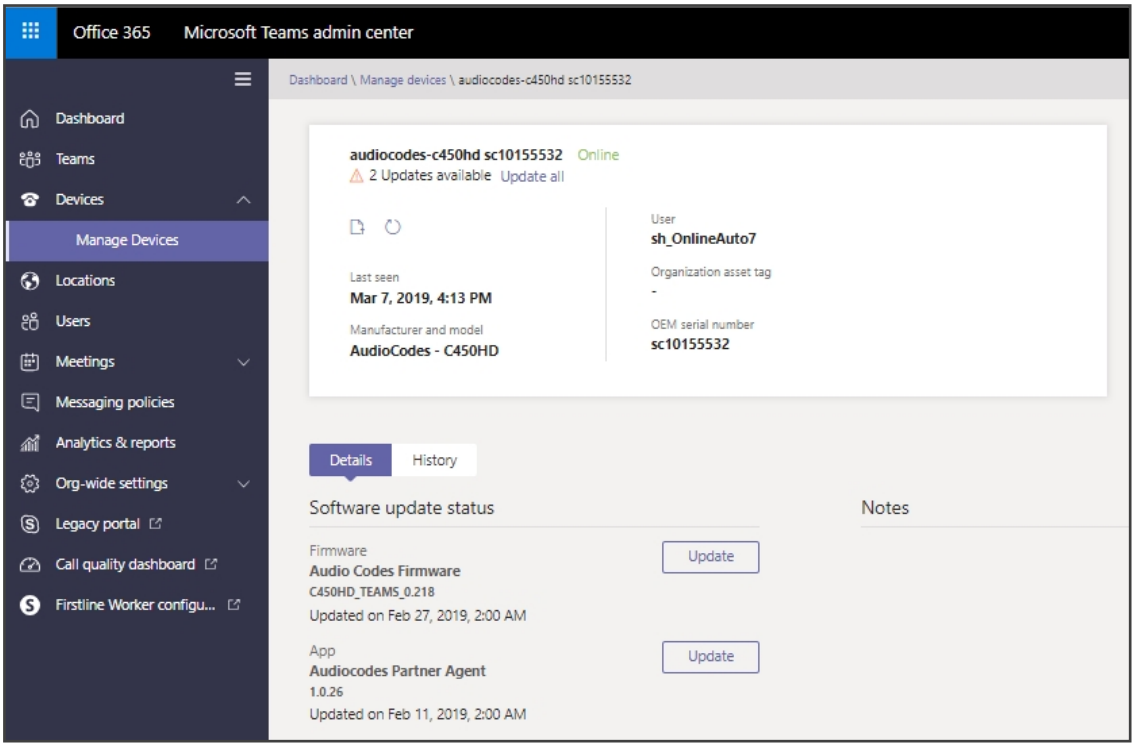
Device diagnostics (Logcat) can be collected using the Microsoft Admin Portal. For support purposes, general logs can be collected also using the Microsoft Admin Portal. The logs can

help debug Teams application issues and also for issues related to the device.

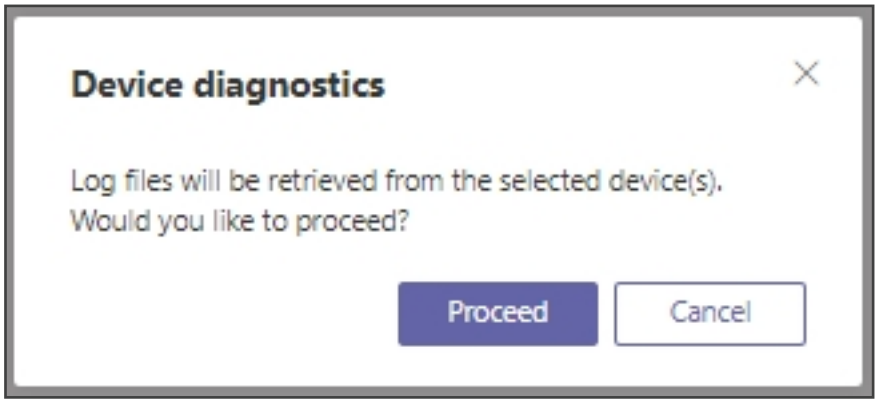
➢ To collect logs:

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

Figure 9-1: Microsoft Teams Admin Portal - Diagnostics

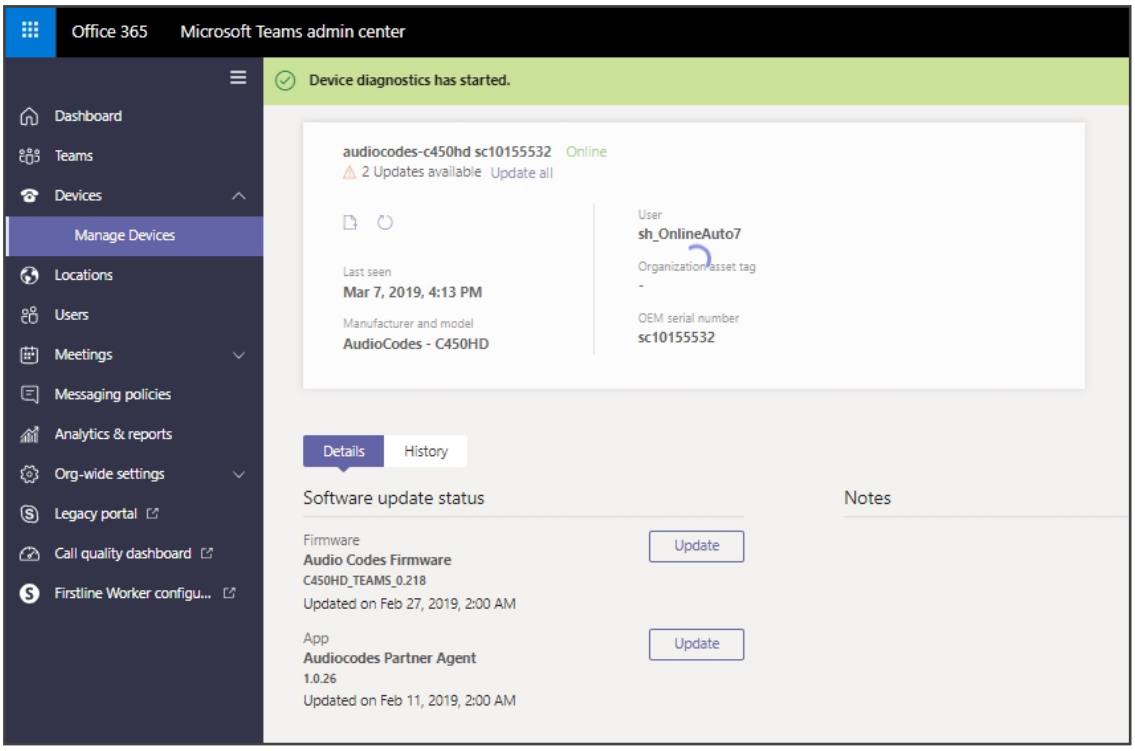


3. Click the **Diagnostics** icon .



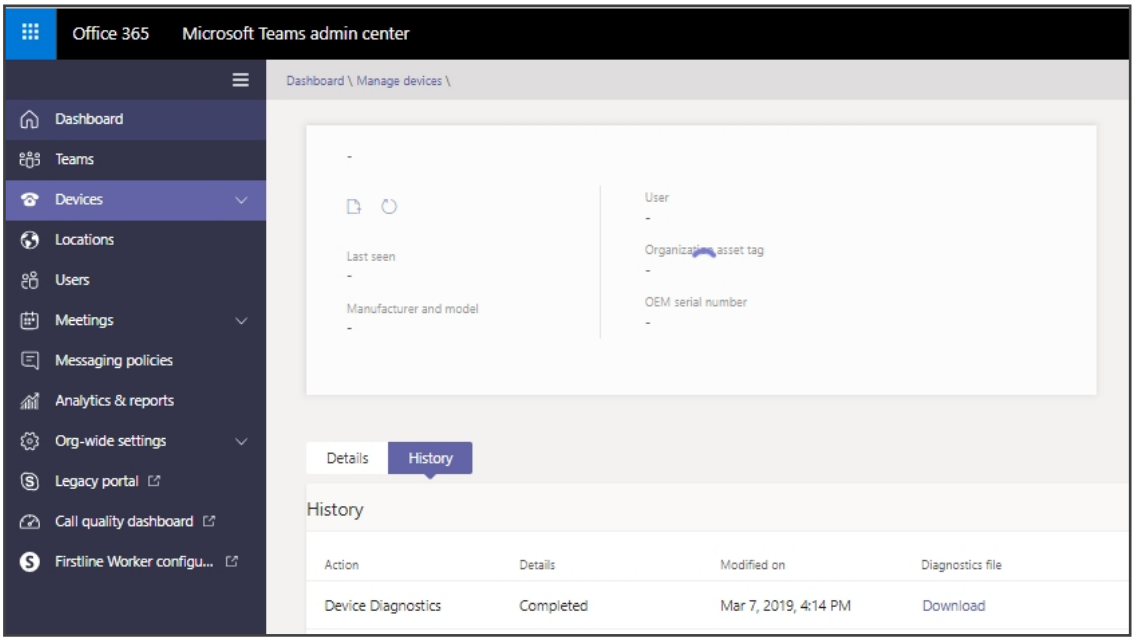
4. Click **Proceed**; the logs are uploaded to the server.

Figure 9-2: Microsoft Teams Admin Portal – Logs Upload to Server



5. Click the **History** tab.

Figure 9-3: History - Download



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

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 from the phone Remote Logging via Syslog:**

1. Log in to the phone 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.

Network administrators can also enable Syslog using Secure Shell (SSH) protocol.

➢ **To enable Syslog using SSH protocol, type the following command at the shell prompt:**

```
setprop persist.ac.rl_address <syslog_server_ip>:<port>.
```

➢ **To disable Syslog using SSH, type the following command at the shell prompt:**

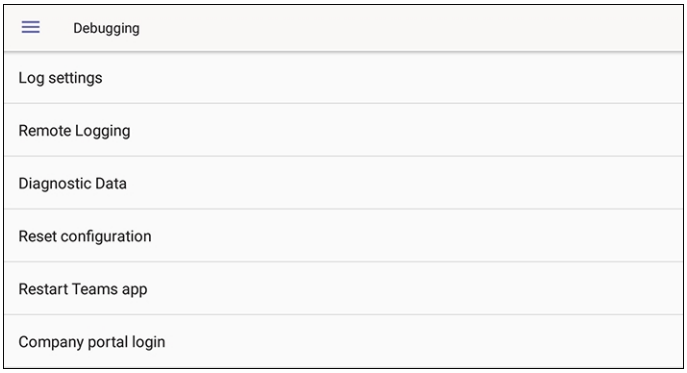
```
setprop persist.ac.rl_address ""
```

Diagnostic Data

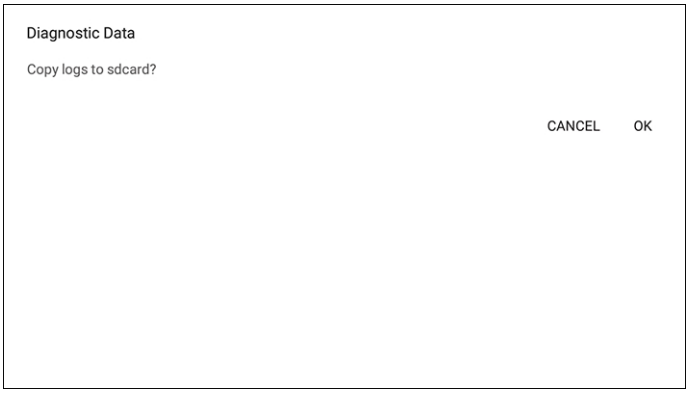
Admin users who need to get logs from the device can dump the logs to the phone's Secure Digital (SD) Card and then later collect them using Secure Copy Protocol (SCP) based on Secure Shell (SSH) protocol. Whenever an issue occurs, the Admin can dump the logs into the SD Card.

➢ **To use the tool:**

1. Log in to the phone as an Admin user
2. Open the Debugging screen (**Device Administration** > **Debugging**).



3. Touch the **Diagnostic Data** option.



4. Touch **OK** to confirm.

5. Wait until the screen shown in the preceding figure disappears; the phone creates all necessary logs and copies them to the its SD Card / Logs folder.

6. Get the logs using SCP notation as follows:

```
scp -r admin@host_IP:/sdcard/logs/ .
```

- Following are the relevant logs (version and ID may be different to those shown here):
  - ✔ dmesg.log
  - ✔ dumpstate-TEAMS_1.3.16-undated.txt
  - ✔ dumpstate_log-undated-2569.txt
  - ✔ logcat.log

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 Capturing the Phone Screen below for more information)
- Running the tcpdump tool (see Running the tcpdump Tool on the next page for more information)

Using SSH, network administrators can also:

- Activate DSP recording (see Activating DSP Recording on the next page for more information)
- Get the phone's IP address (see Getting the Phone IP Address on page 83 for more information)
- Get version information (see Getting Information about Phones on page 83 for more information)
- Install the Teams apk (or any other apk) (see Installing the Teams APK (or Any Other APK) using SSH on page 84 for more information)

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

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
```

Activating DSP Recording

Network administrators can activate DSP recording using SSH protocol.

➢ **To activate DSP recording using SSH protocol, type the following at the shell prompt:**

```
setprop ac.dr_voice_enable true
setprop ac.dr_ipaddr <ip_address>
setprop ac.dr_port 50000
```

DSP recording can be activated on the fly without requiring the network administrator to reset the phone.

Deactivating DSP Recording

Network administrators can deactivate DSP recording using SSH protocol.

➢ **To deactivate DSP recording using SSH protocol, type the following at the shell prompt:**

```
setprop ac.dr_voice_enable false
```

DSP recording can be deactivated on the fly without requiring the network administrator to reset the phone.

Getting the Phone IP Address

Network administrators can get a phone's IP address using SSH protocol.

➢ **To get the phone's IP address using SSH protocol, type the following at the shell prompt:**

```
su
```

```
ifconfig
```

Getting Information about Phones

Network administrators can get information about phones using SSH protocol.

➢ **To get *firmware information* from a phone using SSH protocol, type the following at the shell prompt:**

```
getprop ro.build.id
```

➢ **To get *Bootloader information* using SSH protocol, type the following at the shell prompt:**

```
getprop ro.bootloader
```

➢ **To get *DSP information* using SSH protocol, type the following at the shell prompt:**

```
getprop ro.ac.dsp_version
```

➢ **To get the *Microsoft Teams version* using SSH protocol, type the following at the shell prompt:**

```
getprop ro.teams.version
```

➢ **To get the Microsoft Company Portal version using SSH protocol, type the following at the shell prompt:**

```
getprop ro.portal.version
```

➢ **To get the *Microsoft Admin version* using SSH protocol, type the following at the shell prompt:**

```
getprop ro.agent.version
```

Installing the Teams APK (or Any Other APK) using SSH

Network administrators can install the Microsoft Teams APK (or any other APK) using SSH protocol. Here's an example of how to replace the Microsoft Teams application version.

➢ **To replace the Microsoft Teams application version:**

1. Upload the .apk file to the phone

```
curl http://<ip_address>/Microsoft-Teams-xxx.apk > /data/teams.apk
```

2. Install the .apk

```
pm install -r -d /data/teams.apk
```

3. Remove the .apk from /data

```
rm /data/teams.apk
```

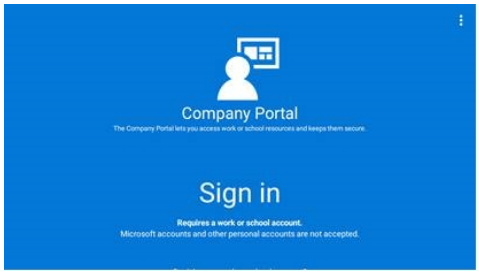
Getting Company Portal Logs

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

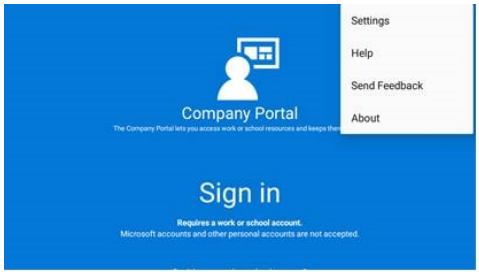
➢ **To get Company Portal logs:**

1. Reproduce the issue (logs are saved to the device so you first need to reproduce the issue and then get the logs).

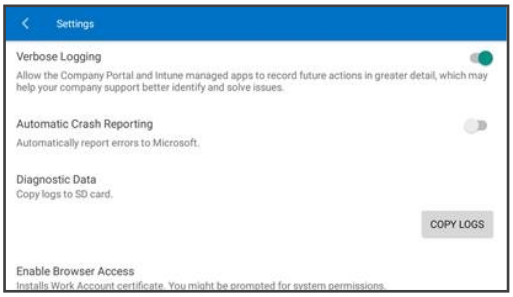
2. Log in to the phone as Administrator and then go back.
3. Touch the **Debugging** option under Admin.
4. Touch **Company Portal login**.
5. Touch the icon located in the uppermost right corner of the screen, shown in the next figure:



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.

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.

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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