User's and Administrator's Manual

AudioCodes 400HD IP Phone Series

C470HD IP Phone

Microsoft Teams Application

Version 1.8

audiocodes

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Related Documentation

Document Name
C470HD IP Phone for Microsoft Teams Quick Guide
C470HD IP Phone for Microsoft Teams Release Notes
https://docs.microsoft.com/en-us/MicrosoftTeams/phones-for-teams

Table of Contents

1 Overview 1
Specifications 1
2 Setting up the Phone 4
Unpacking 4
Device Description 5
Front View 5
Rear View 7
Cabling 8
3 Starting up 9
Configuring Device Settings 9
Configuring Wi-Fi 22
Restoring the Phone to Default Settings 24
Performing a Hard Restore 24
Performing a Soft Restore 25
Recovery Mode 26
Locking and Unlocking the Phone 27
Automatic Lock 27
Unlock 27
4 Teams Application 29
Signing In 29
Getting Acquainted with the Phone Screen 32
Setting a Status Message 34
Hot Desking 35
Changing Presence Status 36
Configuring Teams Application Settings 37
Setting up a Meeting 41
Using the People Screen 42
Accessing Voicemail 44
Using Audio Devices 44
Signing Out 45
5 Performing Basic Operations 47
Making a Call 47
Dialing a Missed Call 48
Making an Emergency Call 48
Answering Calls 50
Ending an Established Call 51
Managing Calls 51
Parking a Call 52
Managing Teams Meetings 52
Using Live Captions 55

Raising a Hand During a Meeting 55
Transferring a Call to Frequent Contacts 55
Viewing and Playing Voicemail Messages 55
Rejecting an Incoming Call, Sending it Directly to Voicemail 56
Adjusting Volume 56
Adjusting Ring Volume 56
Adjusting Tones Volume 56
Adjusting Handset Volume 57
Adjusting Speaker Volume 57
Adjusting Headset Volume 57
Viewing and Joining Meetings 58
Better Together over Bluetooth 59
6 Updating Phone Firmware Manually 63
7 Managing Phones with the Device Manager 66
Configuring a Periodic Provisioning Cycle 67
Configuring TimeZone and Daylight Savings 67
Managing Devices with HTTPS 68
Supported Parameters 68
8 Updating Microsoft Teams Devices Remotely 71
9 Troubleshooting 72
Users 72
Network Administrators 72
Collecting Logs 72
Remote Logging 74
Diagnostic Data 75
SSH 77
Capturing the Phone Screen 77
Running the tcpdump Tool 78
Activating DSP Recording 78
Deactivating DSP Recording 78
Getting the Phone IP Address 79
Getting Information about Phones 79
Installing the Teams APK (or Any Other APK) using SSH 80
Getting Company Portal Logs 80
Getting Audio Debug Recording Logs 82
Collecting Media Logs (*.blog) from the Phone 82

1 Overview

The AudioCodes Microsoft Teams-native C470HD IP phone is a feature-rich, executive high-end business phone for Microsoft Teams. A native Microsoft Teams Total Touch high-end business phone, it features a large color touch screen and full UC integration. The phone is equipped with a large, single surface, full touch interface, incorporating an exceptionally sharp 5.5" color touch screen, with optional support for Wi-Fi and Bluetooth.

AudioCodes IP phones can be offered as part of its 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.

C470HD Features:

- Native support for Microsoft Teams
- Graphical portrait 5.5” color touch screen (1280 x 720) with multi-lingual support
- GbE support
- USB headset support
- Bluetooth 5.0 support

400HD IP Phone Series Highlights:

- Superior voice quality
- Full duplex speaker phone
- Robust security mechanisms
- PoE or external power supply
- Centralized management supported by AudioCodes Device Manager (available for download free of charge)

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 ■ Comfort Noise Generation

Feature	Details
	■ 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 and Management	■ Microsoft Teams & Skype for Business Admin Center (Provisioning and Logging) ■ AudioCodes Device Management and AudioCodes Redirect Server for monitoring, upgrading and configuring
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) ■ Port mirroring network monitoring (C450HD) ■ Remote Packet Capture network sniffer application
Localization Support	■ Multi-lingual support; the language pack list is not yet final and is subject to modification.

Feature	Details
Hardware	■ Graphical portrait 5.5" color touch screen, 1280 x 720 resolution, with multi-lingual support ■ Wired connectivity: ✔ Two RJ-45 [Gigabit Ethernet (GbE)] (10/100/1000BaseT Ethernet) ports for WAN and LAN ✔ RJ-9 port (jack) for handset ✔ USB port for headset support ✔ RJ-11 interface ■ Wireless connectivity: ✔ Dual band 2.4GHz/5GHz, 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 (Currently supported at a Beta level) ■ Power: ✔ DC jack adapter 12V ✔ Power supply AC 100 ~ 240V ✔ PoE Class 3: IEEE802.3af (optional) ■ Keys: ✔ Hold ✔ Mute ✔ Transfer ✔ Volume ✔ Headset (including LED) ✔ Speaker (including LED) ✔ Back ✔ Home

2 Setting up the Phone

Unpacking

When unpacking, make sure the items listed in the phone's *Quick Guide* are present and undamaged.

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

For detailed information, see the phone's *Quick Guide* shipped with the device or available from AudioCodes.

Device Description

Use the following 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

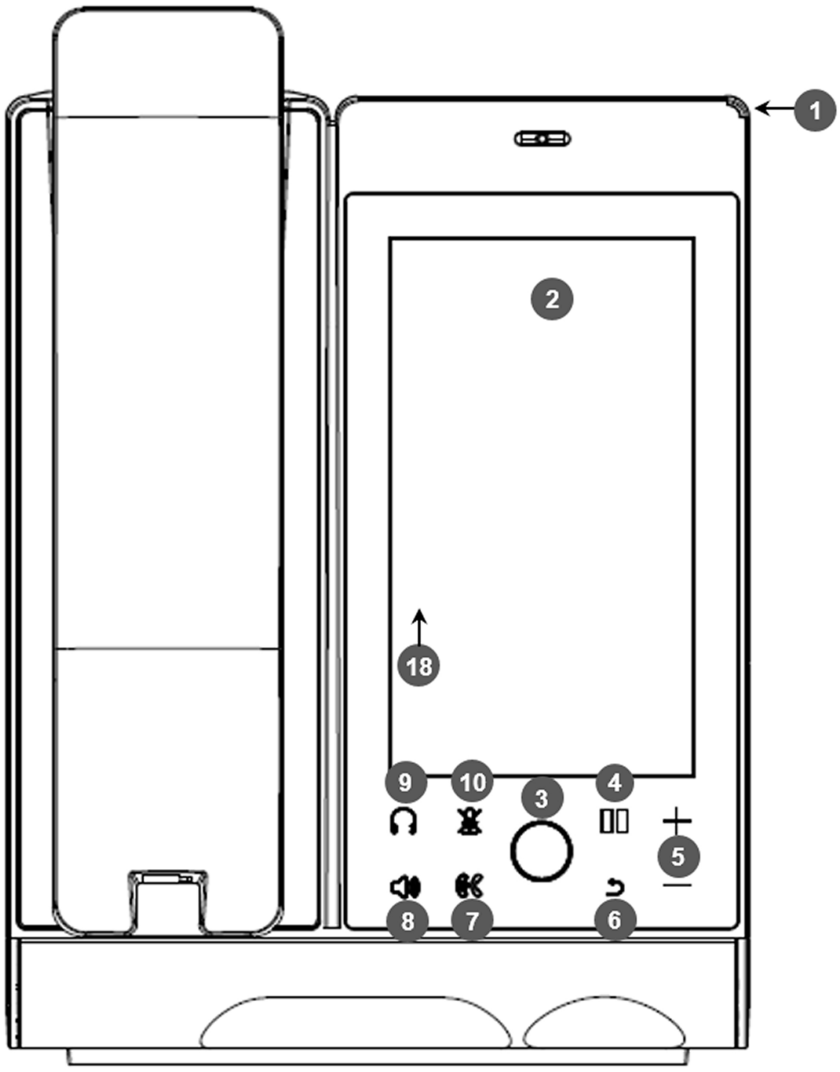


Table 2-1: Font View Description

Item #	Label/Name	Description
1	Ring LED	Indicates phone status: ■ Green: Idle state

Item #	Label/Name	Description
		■ Flashing red: Incoming call (ringing) ■ Red: Answered call
2	TFT touch screen	Thin Film Transistor touch screen, a type of LCD (Liquid Crystal Display) interactive screen which displays calling information and lets you configure phone features by touching the glass.
3	Home	Touch to return to the phone's home (idle) screen from any screen.
4	Hold	Touch to place an active call on hold.
5	Volume	Increases or decreases the volume of the handset, headset, speaker, ring tone or call progress tones. See Adjusting Volume on page 56 for detailed information.
6	'Back' key	Touch to return to the previous screen.
7	Call transfer	Touch to transfer a call to a third party.
8	Speaker	Touch to activate the speaker, allowing a hands-free conversation.
9	Headset	Touch to activate a call using an external headset.
10	Mute	Touch to mute an established call.

Rear View

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

Figure 2-2: Rear View

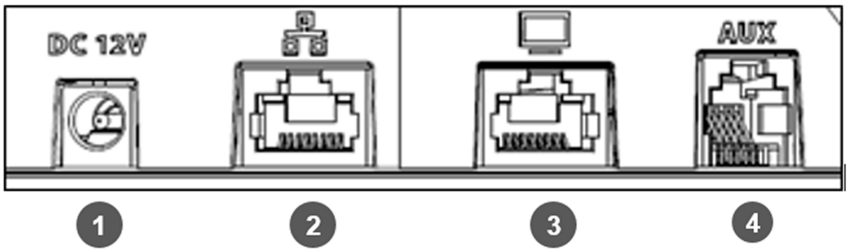


Table 2-2: Rear View Description

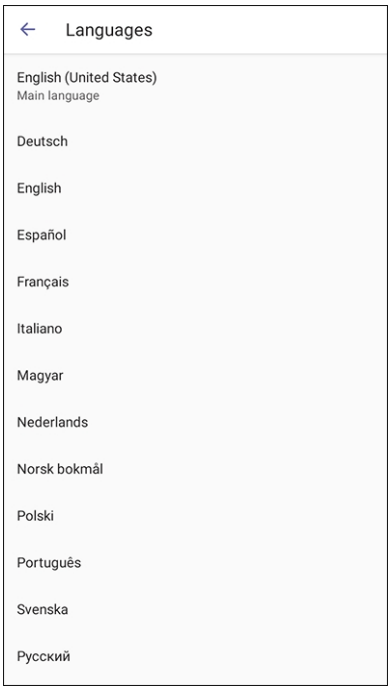
#	Description
1	12V DC power jack that connects to the AC power adapter.
2	RJ-45 port to connect to the Ethernet LAN cable for the LAN connection (uplink - 10/100/1000 Mbps). If you're using Power over Ethernet (PoE), power to the phone is supplied from the Ethernet cable (draws power from either a spare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

Cabling

See the phone's *Quick Guide* shipped with the device and also available from AudioCodes for detailed information on how to cable the phone.

3 Starting up

After connecting the phone to the network (or resetting it), the language selection screen is displayed by default.



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

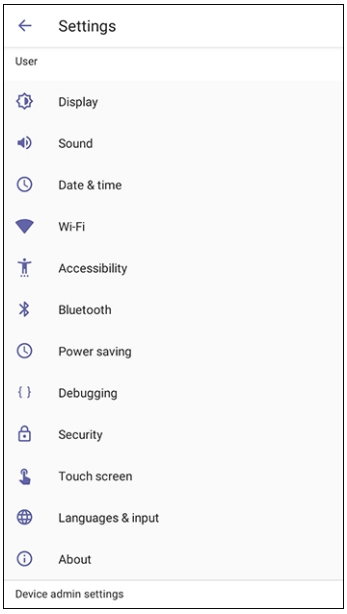
Only if the phone is restored to default settings will it be necessary to repeat this.

Configuring Device Settings

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

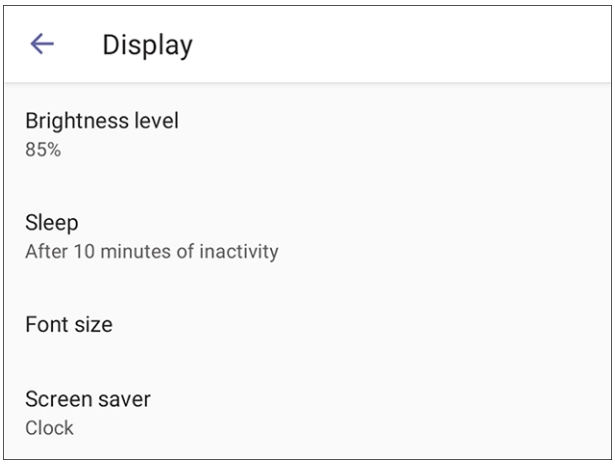
➢ **To access device settings:**

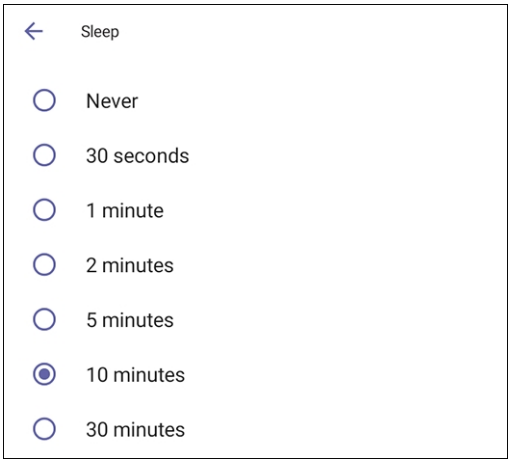
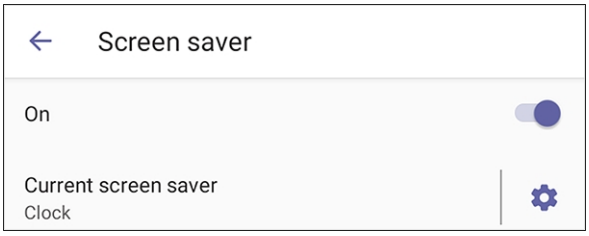
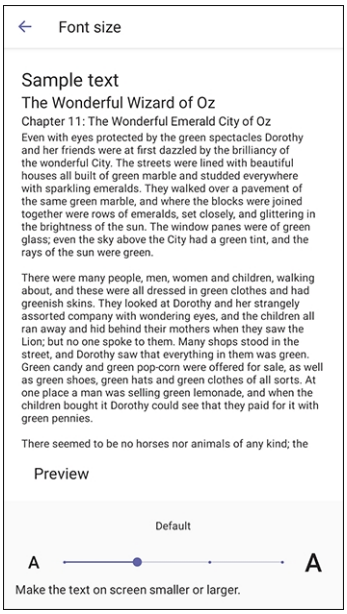
1. In the home screen, touch the avatar picture and then touch the option **Settings** and then the option **Device settings**.

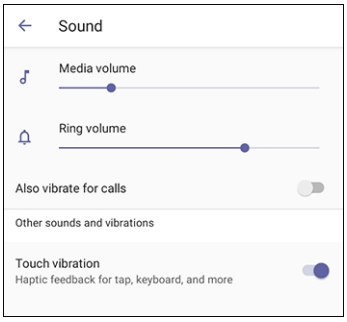
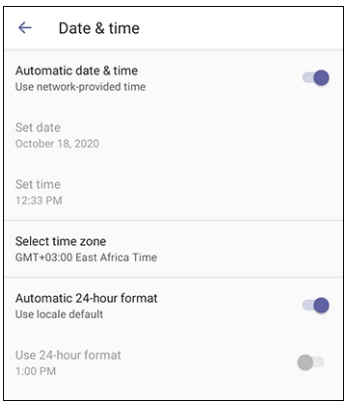
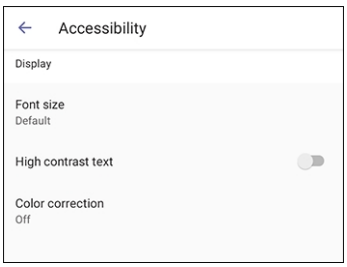


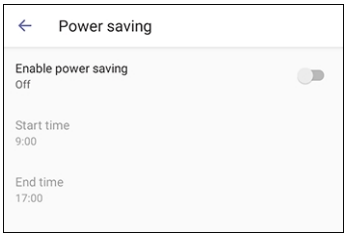
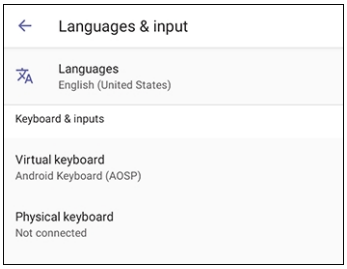
2. Under 'User', view the settings; touch a setting to open it. Scroll down to view the settings under 'Device admin settings'. Use this table as reference.

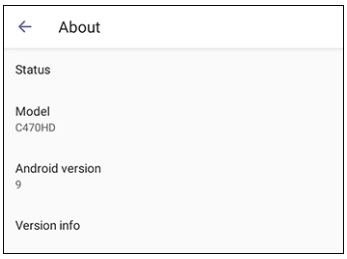
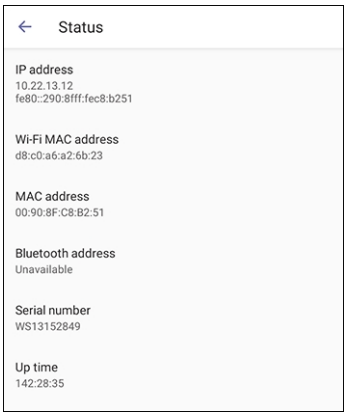
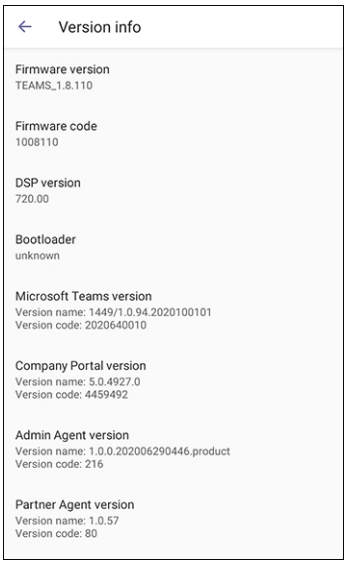
Table 3-1: Device Settings

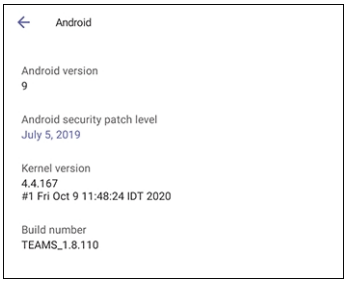
Setting	Description
'User'	
Display	Opens the ‘Display’ screen [Brightness level].  The phone's screen supports different brightness levels. Choose the level that best suits your requirements. ■ Sleep

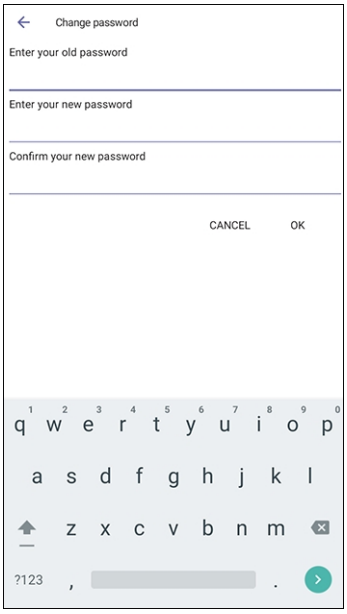
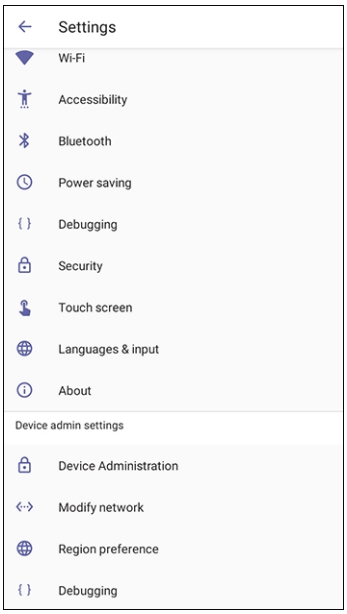
Setting	Description
	 ■ Screen saver  ■ Font size 
Sound	Allows you to customize phone volume for a friendlier user experience. **Ring volume at n%**

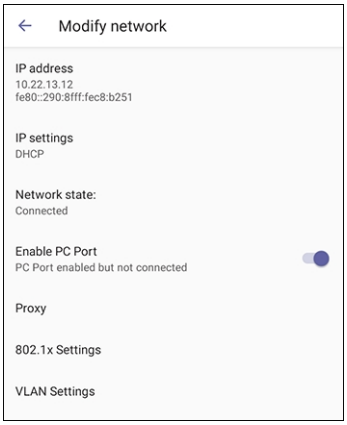
Setting	Description
	
Date & time	Date and time are automatically retrieved from the deployed Network Time Protocol (NTP) server.  Use 24-hour format [Allows you to select the Time format]
Wi-Fi	The phone can connect to an Access Point via Wi-Fi. See the phone's *Quick Guide* for detailed information on setting up Wi-Fi. See also Configuring Wi-Fi on page 22 in this document for information about configuring the feature.
Accessibility	Allows making the screen reader-friendlier. 
Bluetooth	Hands free profile where the phone is able to connect to Bluetooth headset or speaker. See the phone's *Quick Guide* for detailed information on setting up Bluetooth.
Power Saving	Allows users to contribute to power saving in the enterprise.

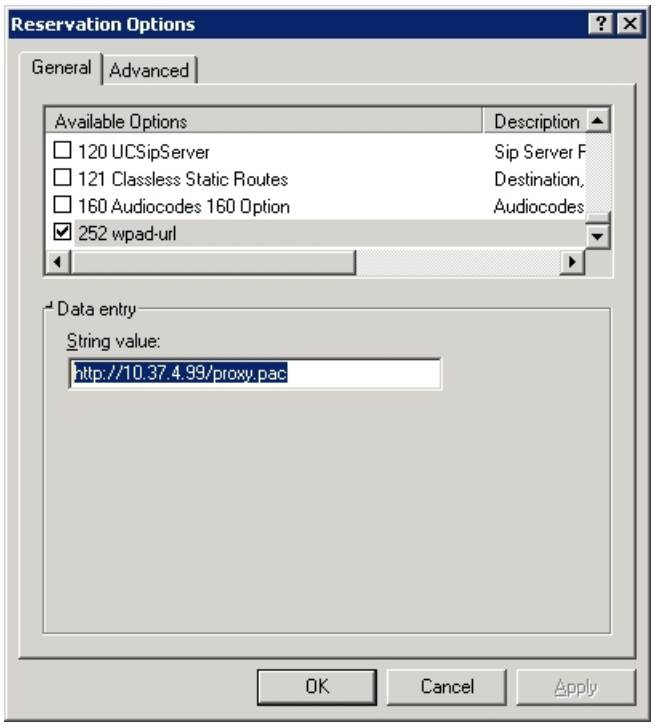
Setting	Description
	 Enable power saving Start time [The device consumes minimal energy before the user arrives at the office] End time [The device consumes minimal energy after the user leaves the office]
Debugging	Enables users to reboot the device. Log in as Administrator for more debugging settings 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'.  To get information about the Android version, select 'Android version'.

Setting	Description
	
'Device admin 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. 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).

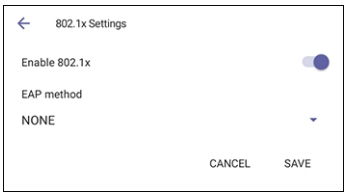
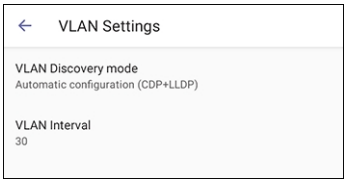
Setting	Description
	 These virtual keyboards are also displayed when network administrators need to enter an IP address to debug, or when they need to enter their PIN lock for the security tab. After logging in, scroll down in the Settings screen to the section 'Device admin settings'. 
Modify network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

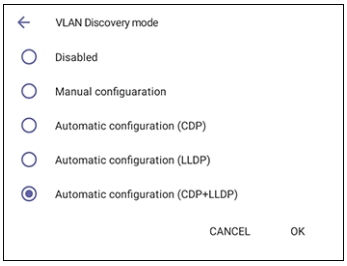
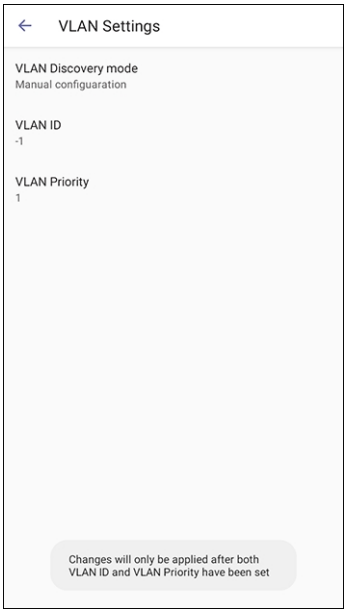
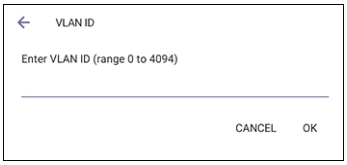
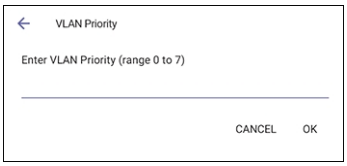
Setting	Description
	 IP Address [Read Only] IP Settings [DHCP or Static IP] Network state [Read Only] Enable PC port Enable PC port mirror Proxy 802.1x Settings VLAN Settings. Allows you to configure the VLAN mode **Manual**, **CDP only** or **LLDP only**.
Proxy	The phone can be configured with an HTTP 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:

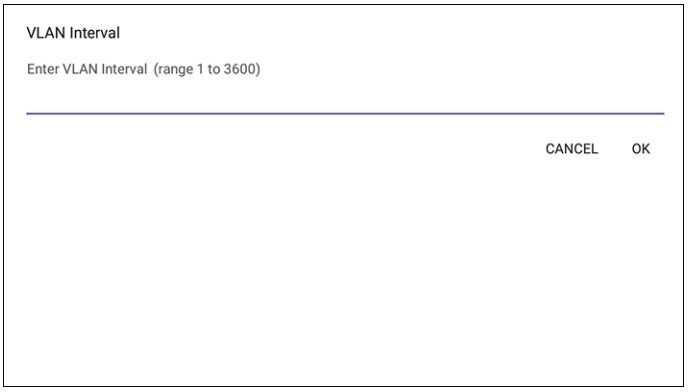
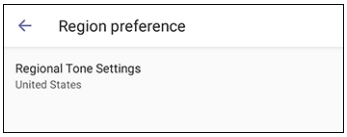
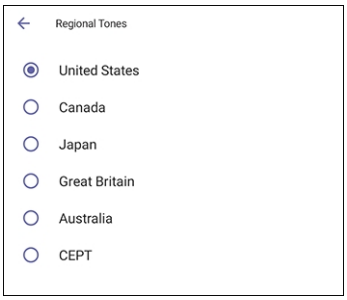
Setting	Description
	 ■ **Over DHCP with Option 252**. It's recommended that the Admin user uses this method when provisioning multiple phones. Option 252 provides a DHCP client with a URL to use to configure its proxy settings:  The proxy setting is provided in a Proxy Auto-Configuration (PAC) file 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

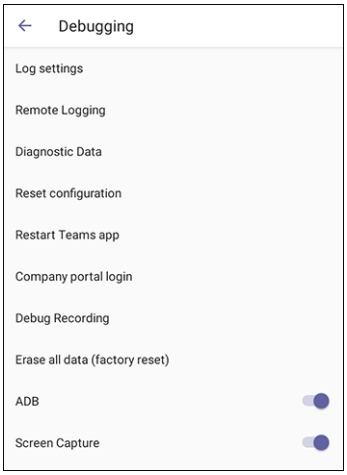
Setting	Description

	phone handles HTTP, HTTPS and FTP traffic.
	Example of a basic PAC file:
	function FindProxyForURL(url, host)
	{
	return "PROXY 10.13.2.40:3128";
	}

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**.  Touch **VLAN Discovery mode**.

Setting	Description
	 ■ 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:  Touch **VLAN ID**.  Touch **VLAN Priority**. 

Setting	Description
	Touch **VLAN Interval**.  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 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 74 for more information) Diagnostic Data (see under Diagnostic Data on page 75 for more information) Reset configuration Restart Teams app Company portal login Debug Recording (for Media/DSP debugging) (see under Remote Logging on page 74 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.

Configuring Wi-Fi

Network administrators can configure Wi-Fi parameters for the phone. The parameters are concealed from the user's view. Use the following table as reference.

Table 3-2: Wi-Fi Parameters

Parameter	Description	Values
network/wifi_enabled	Enables/disables the Wi-Fi feature.	0 (disable,

Parameter	Description	Values
		default) 1 (enable)
network/wifi_pc_bridge	Enables network connectivity for the PC behind the phone; for debugging purposes.	0 (disable, default) 1 (enable)
network/wifi_ipv4_method	Defines the Dynamic or Static IP address for Wi-Fi.	DHCP (default) STATIC
network/wifi_channel_mode	Enables the Wi-Fi channel mode: ■ 2.4G only ■ 5G only ■ 2.4G+5G	5G_2_4G (default) 2_4G_ONLY 5G_ONLY

The following table shows the parameters per index. The phone can currently store 16 connected SSIDs.

Table 3-3: Wi-Fi Parameters per Index

Parameter	Description	Values
network/wifi/[0-15]/ssid	Saves the Access Point's SSID.	-
network/wifi/[0-15]/password	Saves the password for some authentication methods which need it, e.g., WPAPERSONAL,WPA2PERSONAL	-
network/wifi/[0-15]/security	Saves the Access Point's authentication method: • WPAPERSONAL • WPA2PERSONAL • WPAENTERPRISE • WPA2ENTERPRISE	-
network/wifi/[0-15]/auto_reconnect	Configure this parameter to reconnect this SSID automatically.	1 (default, enable) 0 (disable)

Parameter	Description	Values
network/wifi/[0-15]/identity	Saves the identity for some authentication methods that need it, e.g., WPAPERSONAL, WPA2PERSONAL	-
network/wifi/[0-15]/anonymous_identity	Saves the anonymous identity for some authentication methods that need it, e.g., WPAENTERPRISE, WPA2ENTERPRISE, etc.	-
network/wifi/[0-15]/phase2_authentication	Phase 2 authentication for WPAENTERPRISE, WPA2ENTERPRISE. The phone supports PAP, MSCHAP, MSCHAPV2, CHAP, MD5, GTC	-
network/wifi/[0-15]/pin_code	Defines the PIN code for the WPS PIN code authentication method.	String of up to 64 characters
network/wifi/[0-15]/wps_method	Defines the WPS method. The phone supports PIN and push button.	None ALL (default) PIN AUTH PBC

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:

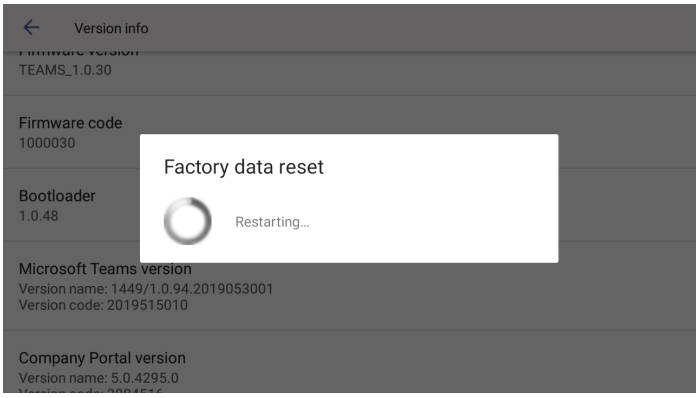
- Performing a Hard Restore below
- Performing a Soft Restore on the next page

Performing a Hard Restore

You can restore the phone's settings to their defaults when the phone is up and running (see below)

➢ **To perform a hard restore while the phone is up and running:**

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 29 for more information).

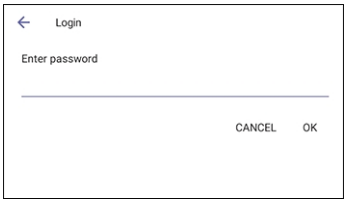
Performing a Soft Restore

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

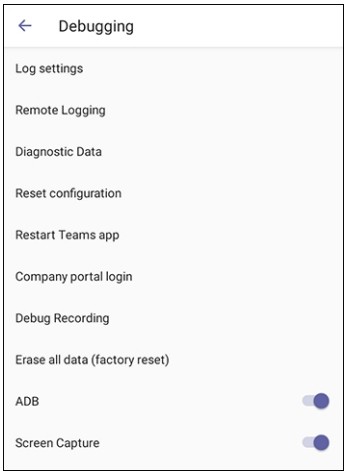
➢ To perform a soft restore:

1. In the Settings screen, scroll down and touch the **Device Administration** 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 Admin privileges to configure settings.
4. Under 'Device admin settings', select the **Debugging** option.



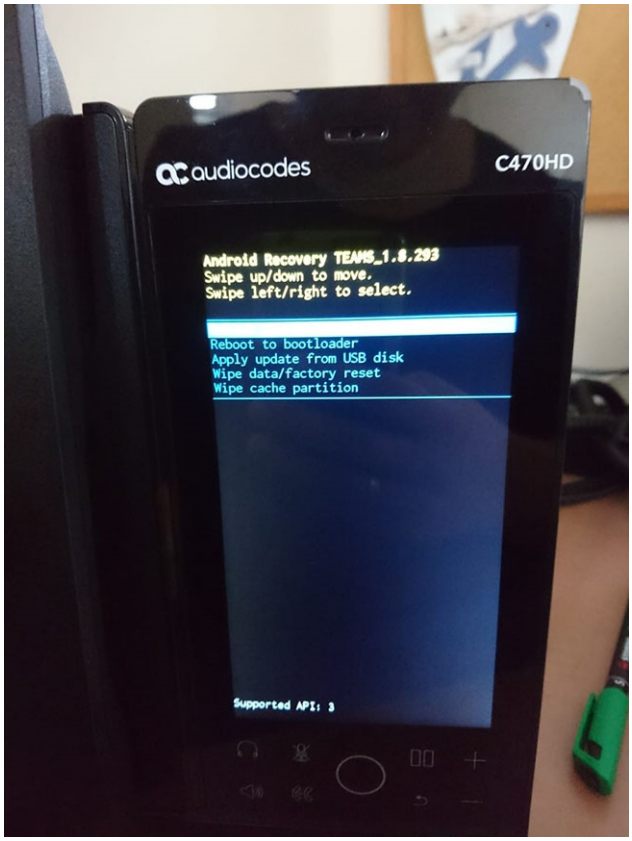
5. Touch the **Erase all data (factory reset)** option; the device performs a restore to default factory settings.

Recovery Mode

If a phone goes into recovery mode, you can boot it using the touch screen.

➢ To boot the phone:

1. In the screen of the phone that has gone into recovery mode, swipe down or up to navigate to **Reboot to bootloader**.



2. Swipe left or right to select the option; the phone reboots and the issue is resolved.

Locking and Unlocking the Phone

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

- Unlock (see 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.

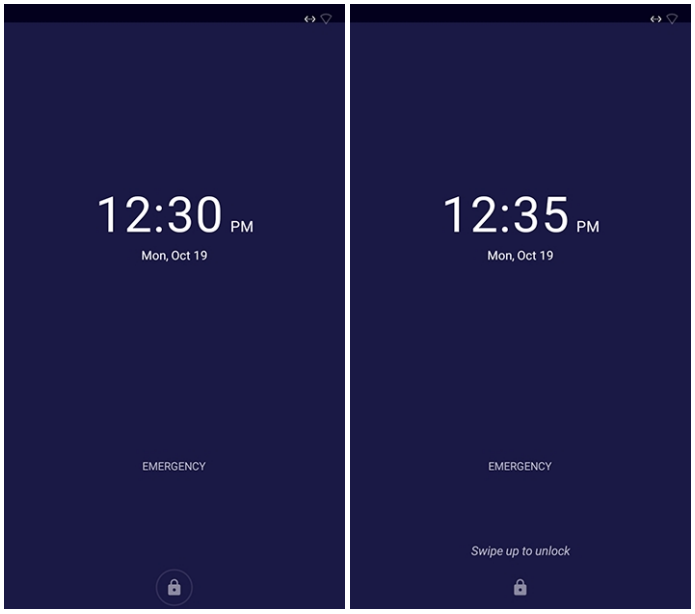
➢ **To lock the phone:**

- Press the key on the phone for at least three seconds for the device to automatically lock.

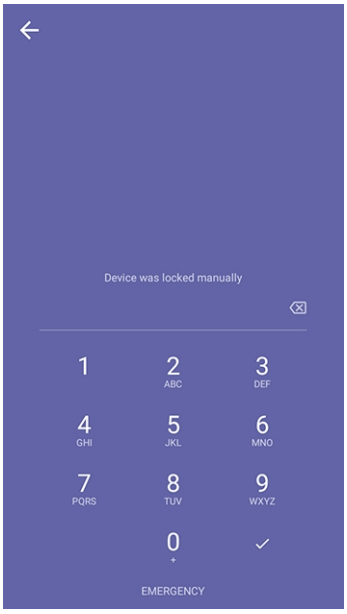
Unlock

➢ **To unlock the phone:**

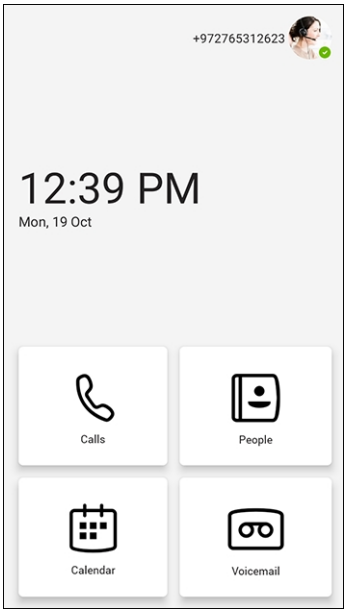
1. When the screen shown in the figure below is displayed, touch the lock icon and swipe up



2. In the virtual keyboard that opens, start typing your unlock PIN code; the phone displays the digits as you type.



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



4 Teams Application

The documentation following describes functions related to the 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):

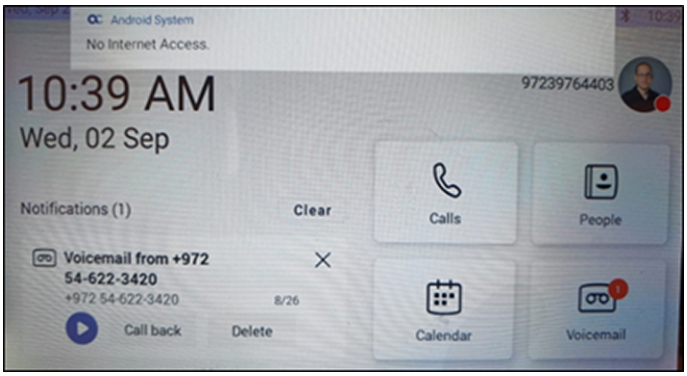
https://www.google.com/generate_204

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.

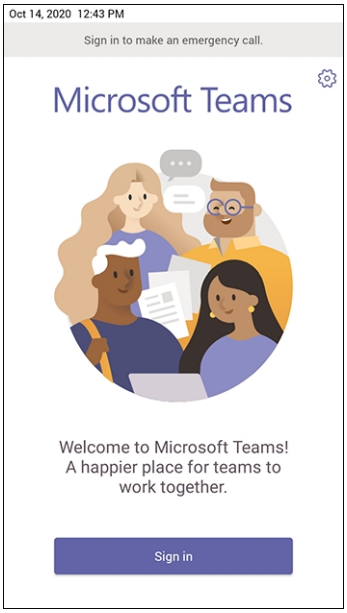
Figure 4-1: Internet Connectivity Check - No Internet Access



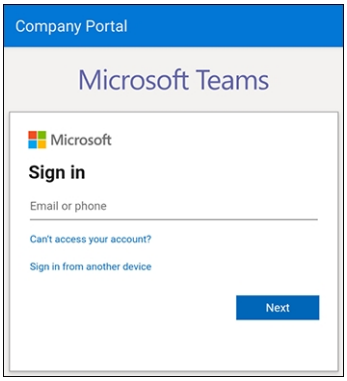
This can point to a problem that is preventing the phone from fully functioning in a Teams environment. The user can ignore the message if the Teams application is fully functioning, or can report a problem if the Teams application is not fully functioning.

➢ To sign in:

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

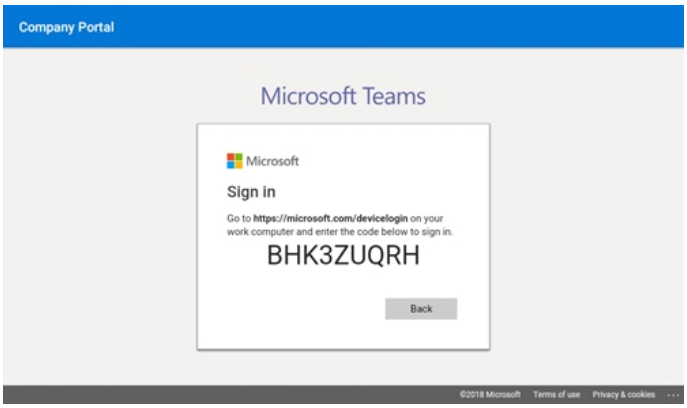


You're prompted with the option to sign in by entering user credentials or **Sign in from another device**.



- The 'Sign in' interface dynamically rolls upwards, clear of the virtual keyboard which pops up after touching the field to input user credentials, so you can effortlessly view all the characters and keys you input.
- 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

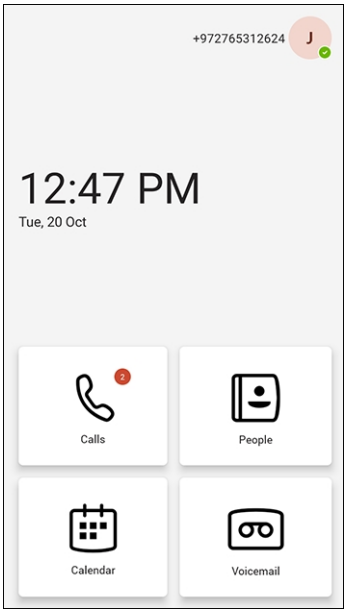


  - In the browser on your PC or smartphone, enter the URL indicated in the preceding screen and then in the phone's Web interface that opens, perform sign-in (as noted previously, this option is recommended if using MFA).

Getting Acquainted with the Phone Screen

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

Figure 4-3: Home Screen



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

Figure 4-4: Calls Screen

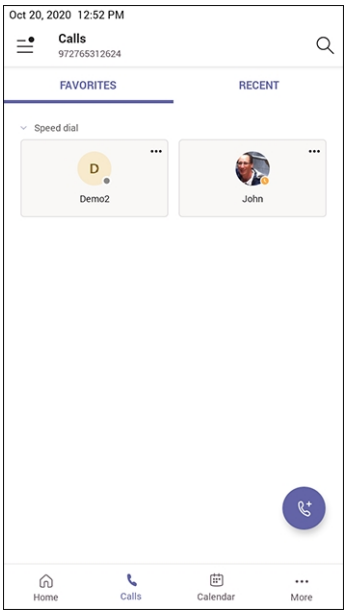
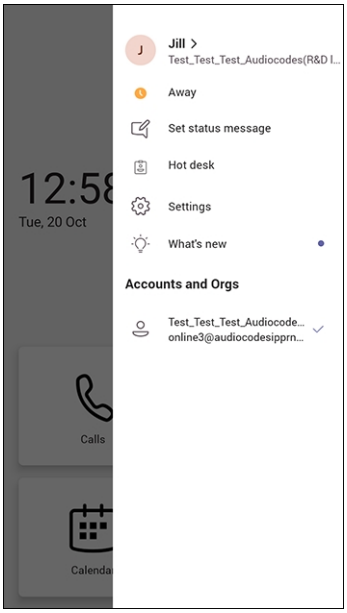


Table 4-1: Calls Screen

Item	Description
	The phone menu. Touch to open the menu 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 42 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.
Calendar	Touch to open the Calendar screen, shown under Setting up a Meeting on page 41 opens.
Voicemail	Touch the tab to open the Voicemail screen, shown under Accessing Voicemail on page 44 opens.

Figure 4-5: Menu Items



Use this table as reference.

Table 4-2: Menu Item Descriptions

Item	Description
Presence status	See Changing Presence Status on page 36 for more information.

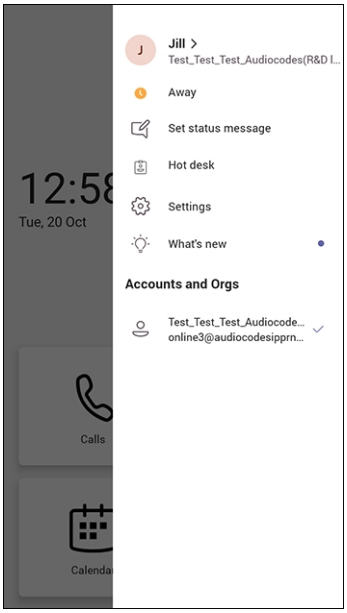
Item	Description
Set status message	See Setting a Status Message below for more information.
Connect a device	See Connecting a Device for more information.
Hot desk	See Hot Desking on the next page for more information.
Settings	See Configuring Teams Application Settings on page 37 for more information.
Sign Out	See Signing Out on page 45 for more information.

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'.

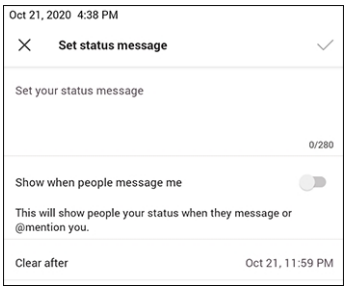
➢ **To set a status message:**

1. In the home screen, touch the user picture. (In the Calls and Calendar screens, touch ☰).



2. Touch **Set status message**.

Figure 4-6: Set status message



3. 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.
4. Optionally, switch on 'Show when people message me'. When people message or @mention you, they'll view the status message you set.
5. 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

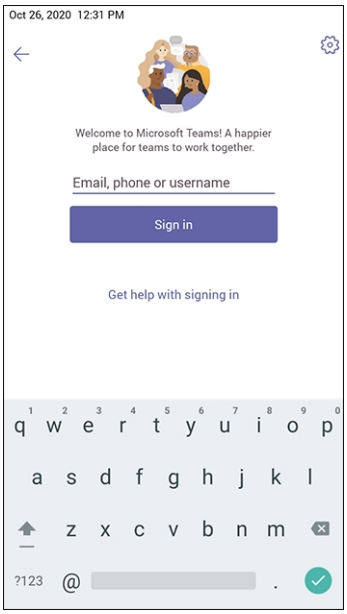
The hot desk feature allows a user to sign in to a phone that is already signed in to by another user without signing out the original user to whom the phone was assigned for primary use.

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 desk 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. Touch the user's photo or avatar picture, and then from the menu touch the option **Hot desk**. Alternatively, in the Calls screen (or People screen, Calendar screen or Voicemail screen), touch the phone menu ☰ and then touch **Hot desk**.

Figure 4-7: Hot desk



2.

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

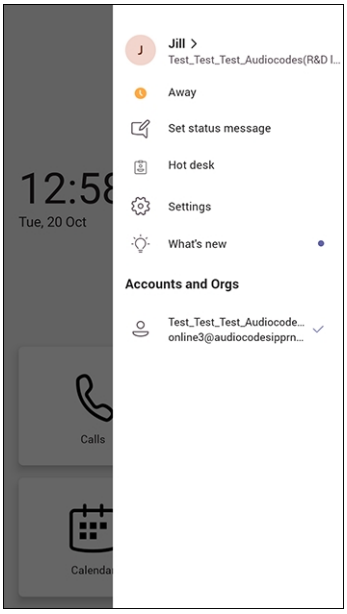
Changing Presence Status

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 home screen, touch the user picture. (In the Calls and Calendar screens, touch).



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

Table 4-3: Presence Statuses

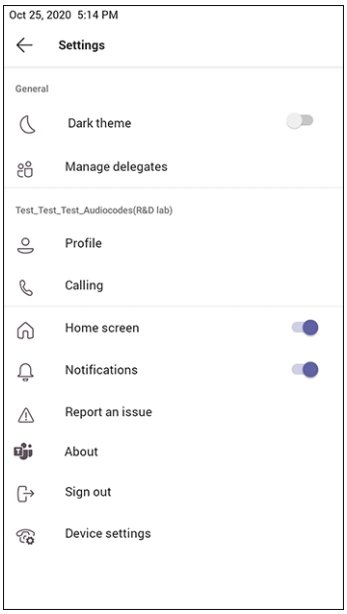
Icon	Presence Status	Description
	Available	You're online and available for other contacts to call.
	Busy	You're busy and don't want to be interrupted.
	Do not disturb	You don't want to be disturbed. Stops the phone from ringing when others call you. If DnD is activated, callers hear a tone indicating 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.

Configuring Teams Application Settings

The following describes the Teams application's settings. In the home screen, touch the user picture / avatar. Alternatively, in the Calls screen (or People screen, Calendar screen or

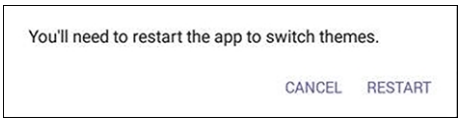
Voicemail screen), touch the phone menu and select the **Settings** option.

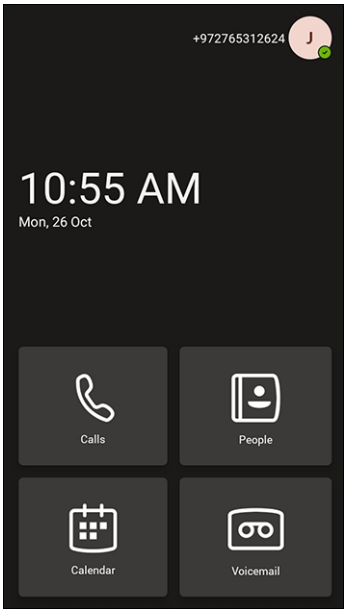
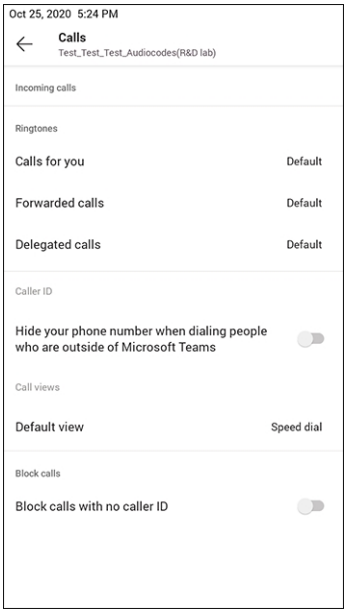
Figure 4-8: Settings

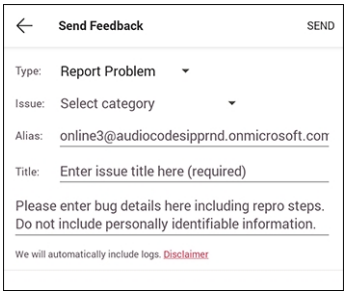


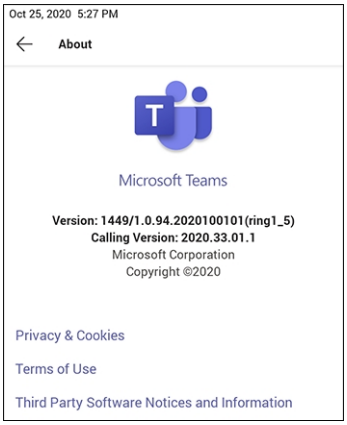
Use this table as reference:

Table 4-4: Idle Screen Description

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

Item	Description
	
Profile	Opens the user's email address and photo / avatar picture.
Calling	Opens the Calls screen.  **Incoming Calls** ■ **Call forwarding**. Enables automatically redirecting an incoming call to another destination. ■ **Forward to**. Only displayed if the previous setting is enabled. Defines the destination to which to forward incoming

Item	Description
	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.
Home screen	Default: On (enabled). Slide left to switch off (disable) and block the home screen from view; the Calendar screen takes its place.
Notifications	Default: On (enabled). Allows notifications to be displayed. Slide left to switch off (disable); notifications will not be displayed.
Report an issue	Opens the Send Feedback screen. 
About	Opens the About screen.

Item	Description
	
Sign out	Lets you sign out of the phone application as one user and optionally sign in again as another user. See Signing Out on page 45 for detailed information.
Device Settings	Opens the [Device] Settings screen. See Configuring Device Settings on page 9 for detailed information.

Setting up a Meeting

From the phone's home screen, touch **Calendar**.

Figure 4-9: Home

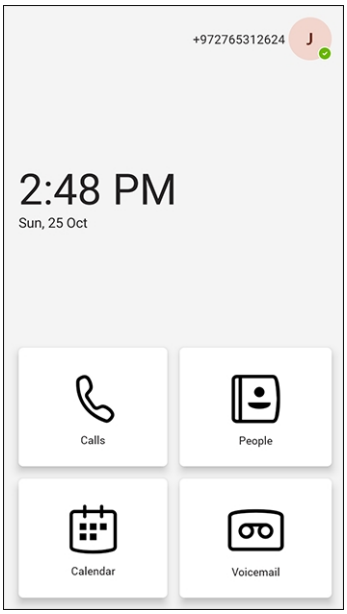
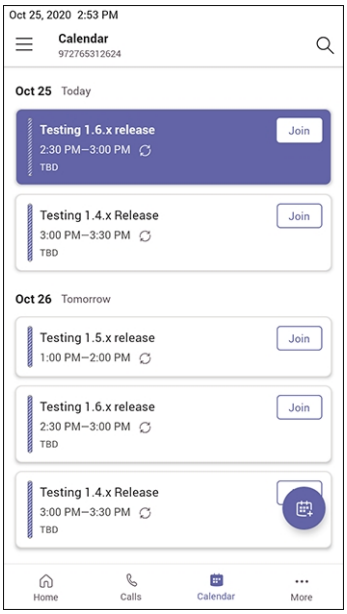


Figure 4-10: Calendar



You can join calendered meetings and / or you can touch to add a new event to the calendar.

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 4-11: Accessing the People screen

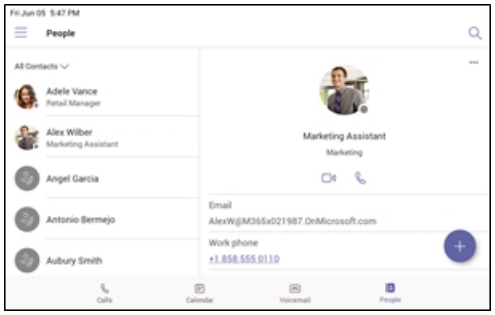


Figure 4-12: Creating new group

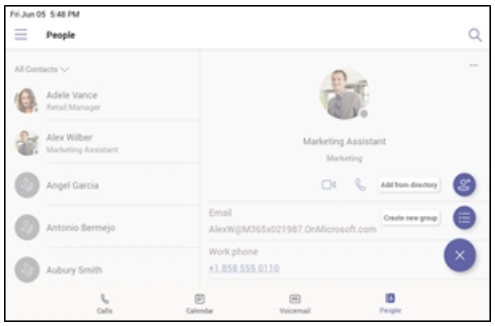


Figure 4-13: Add from directory

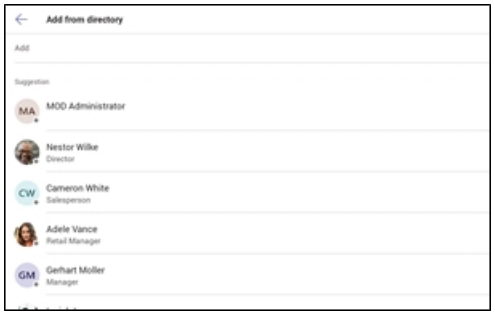


Figure 4-14: Select a group

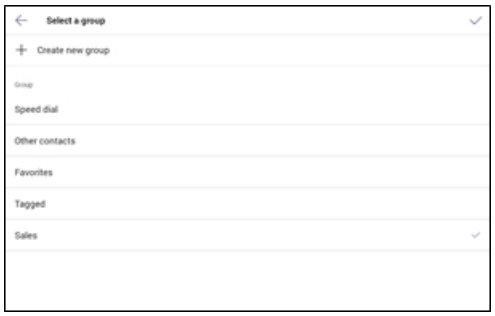


Figure 4-15: Select a group

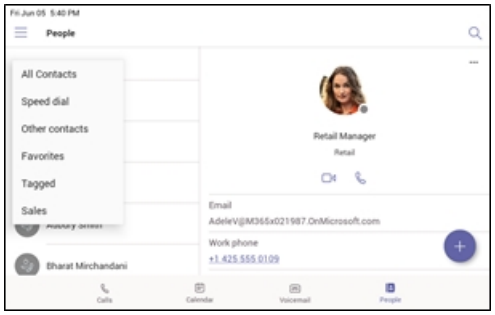
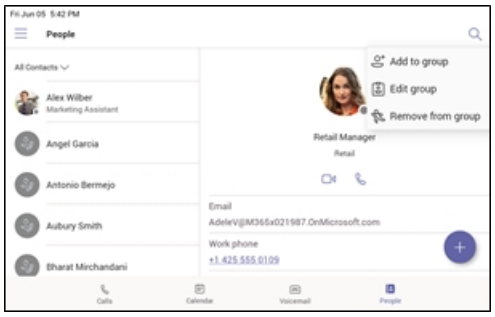


Figure 4-16: Edit group



Accessing Voicemail

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

Figure 4-17: Home

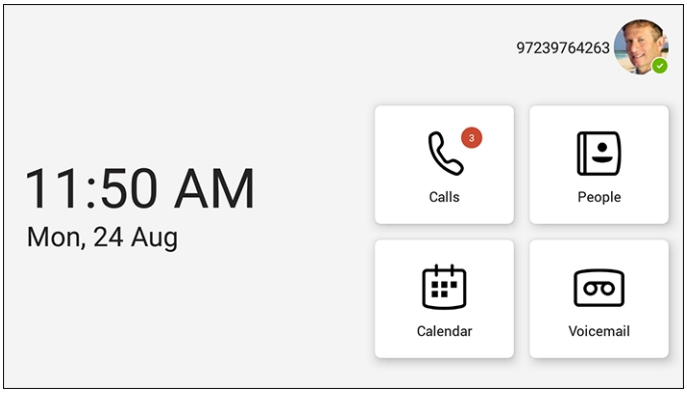
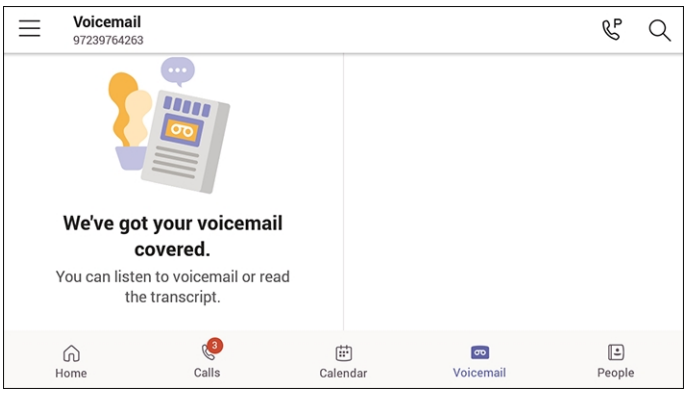


Figure 4-18: Voicemail



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.

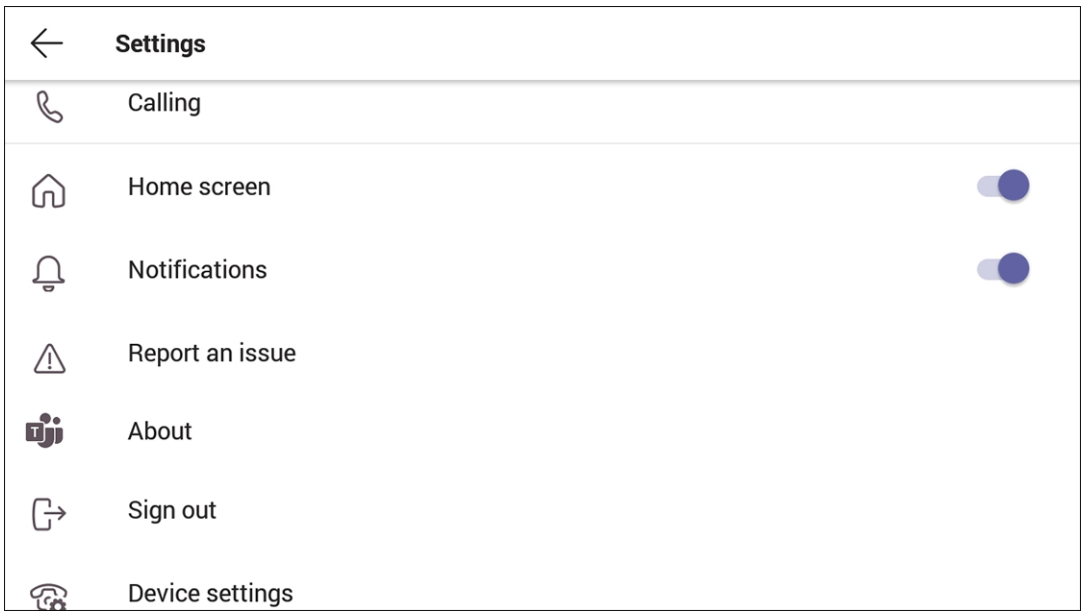
Signing Out

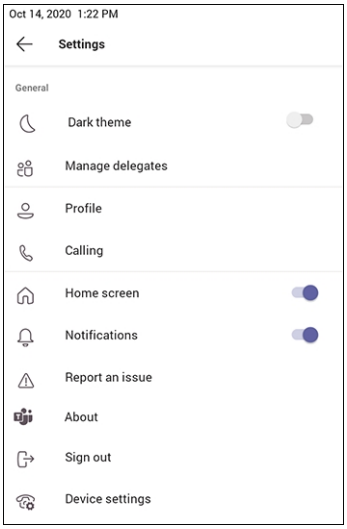
You can sign out of the phone application as one user and optionally sign in as another user.

➢ **To sign out:**

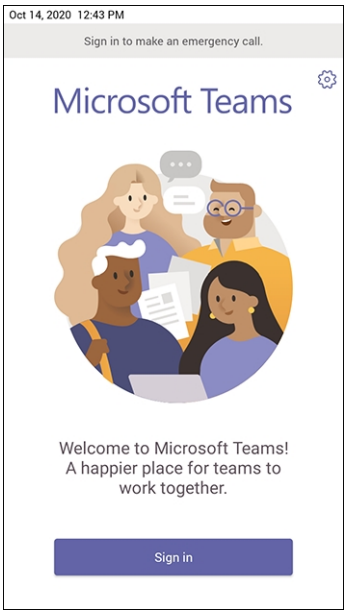
1. In the home screen, touch the user photo / avatar picture, touch the **Settings** option and then touch the **Sign Out** option.

> Alternatively, in the Calls screen (or People screen, Calendar screen or Voicemail screen), touch the phone menu ☰, touch the **Settings** option.





2. Touch the **Sign Out** option; you're signed out and returned to the **Sign in** screen.

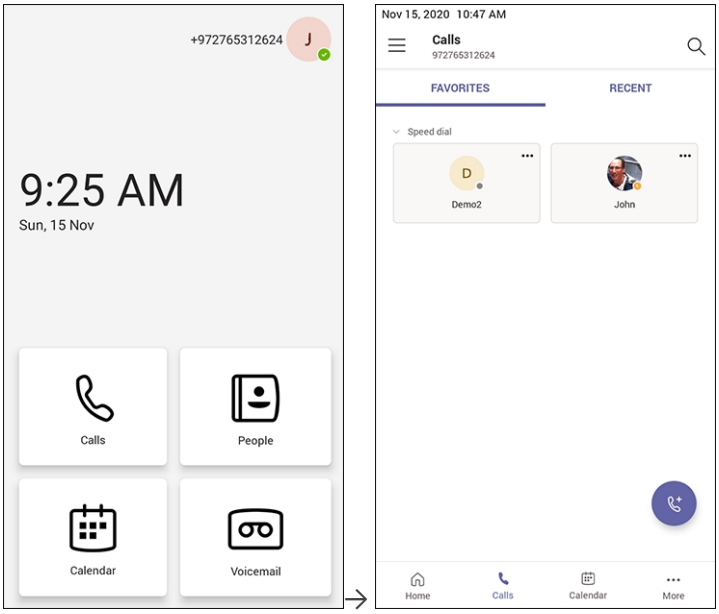


5 Performing Basic Operations

The documentation following shows basic phone operations.

Making a Call

Calls can be made in multiple ways. In the phone's home screen, for example, touch **Calls**.



In the Calls screen that opens, touch .

In the 'Make a call' screen, touch the field 'Search for people' and use the virtual keyboard to input the name of person to call -OR- touch **?123** in the lower left corner and input the phone number of the person to call.

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

➢ **To toggle between mute and unmute:**

- Touch on the phone. Touch it again to revert.

  You can mute the phone during a call so that the other party cannot hear you. While the call is muted, you can still hear the other party. Muting can also be performed during conference calls.

➢ **To toggle between device and speaker:**

- Touch on the phone.

➢ **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.
2. Use the virtual keyboard to input the URL address. To delete (from right to left), touch the clear key.

Dialing a Missed Call

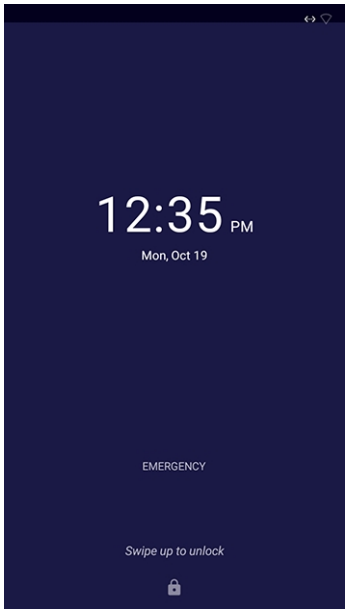
The phone logs all missed calls. The screen in idle state displays the number of missed calls adjacent to the Calls softkey.

➢ **To dial a missed call:**

1. Touch **Calls** and then in the Calls screen under the **Recent** tab, scroll to the missed call to dial if there is more than one listed.
2. Touch adjacent to the missed call.

Making an Emergency Call

The phone features an emergency call service. The idle lock screen 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.

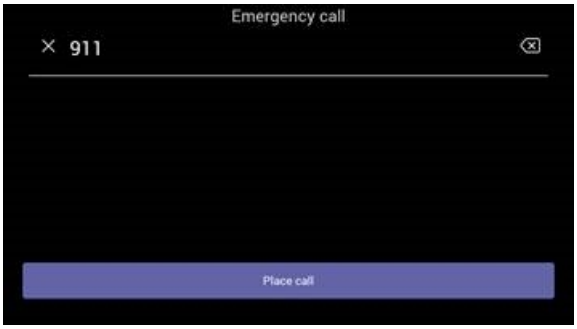
-OR-

- 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 **Caller X is calling you**. The LED located in the upper right corner of the phone flashes red, alerting you to the incoming call.

➢ **To answer:**

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

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- touch the headset key on the phone -or- touch the speaker key on the phone -or- touch the **End** softkey.

Managing Calls

You can view a history of missed, received and dialed calls.

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 the server.

➢ **To manage calls:**

1. Touch **Calls** and in the Calls screen touch **Recent**.

- Calls are listed from newest to oldest.
- Missed call indicates a call that was not answered.
- Incoming and outgoing calls are differentiated by their icon.

2. Touch a call in the list and then touch to call someone back.

Parking a Call

The Teams phone 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.

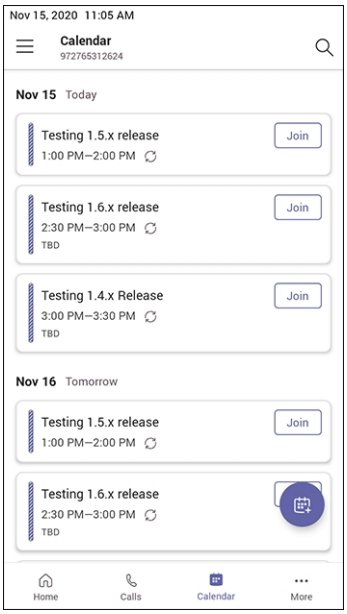
3. The user on the other device enters the code communicated to them and then touches the **Pick up** button to pick up the call.

Managing Teams Meetings

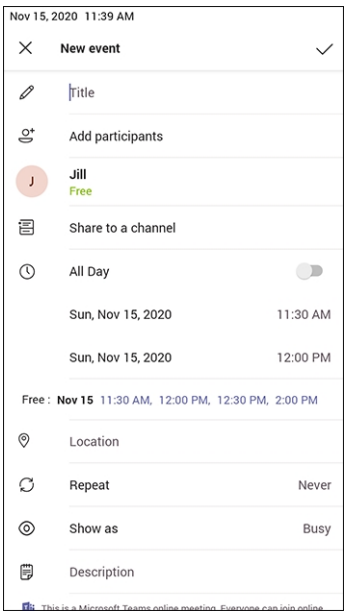
Multi-party conference meetings based on the Teams server (remote conference) can be calendered and initiated from the phone.

➢ To manage conference meetings:

1. In the phone's home screen, touch **Calendar**.

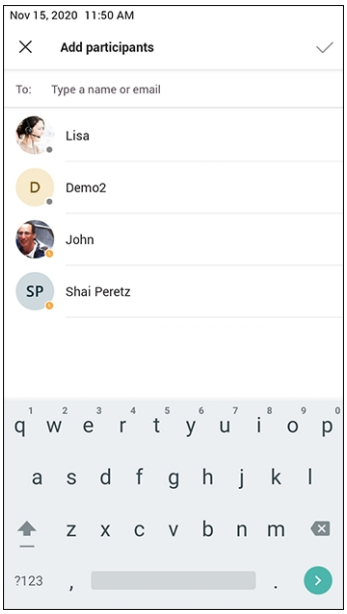


2. Touch the icon.

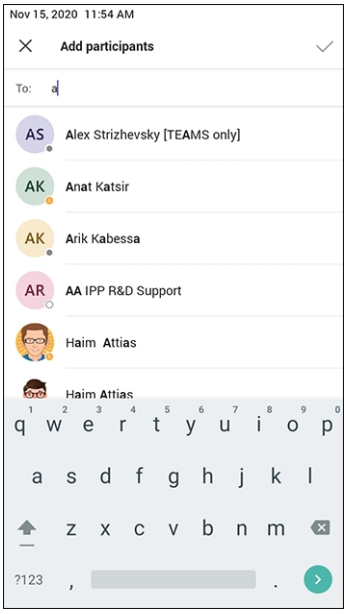


3. In the 'New event' screen, touch the 'Title' field and then use the virtual keyboard that launches to enter a title for the meeting.

4. Touch the 'Add participants' field.



5. In the 'Add participants' field, touch the 'To:' field and input the first digit in the name of a participant to add; the names of the employees listed in the Corporate Directory is displayed.



6. Touch an entry in the list and then touch ; the participant is added to the meeting.
7. Define 'Share to a channel', date, date and time, 'Location', 'Show as' and provide a 'Description' of the meeting to facilitate effective management later.
8. Touch the ✓ icon; the meeting is calendarized.

Using Live Captions

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

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.

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

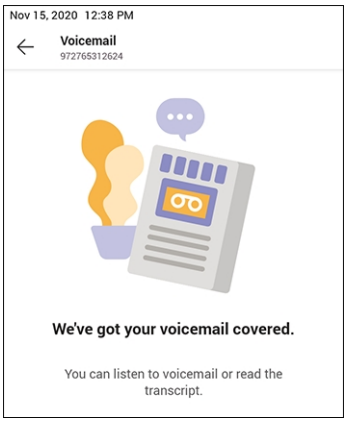
To transfer your calls efficiently to frequent contacts, the phone presents frequent contacts in the transfer screen for a single touch transfer. Contacts not shown in the list can be searched for using the search bar.

Viewing and Playing Voicemail Messages

If you hear a stutter dial tone when you pick up the handset, new messages are in your voicemail box. The phone also provides a visual indication of voicemail messages.

➢ To view a list of your voicemail messages:

1. In the phone's home screen, touch the **Voicemail** icon .



2. Scroll down to select from the list of messages (if there are voicemail messages in your box) which message to **Play**, **Call** or **Delete**.

For more information, see https://support.microsoft.com/en-us/office/check-your-voicemail-in-teams-f8d568ce-7329-4fe2-a6a2-325ec2e2b419

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

- Adjusting Ring Volume below
- Adjusting Tones Volume below (e.g., dial tone)
- Adjusting Handset Volume on the next page
- Adjusting Speaker Volume on the next page
- Adjusting Headset Volume on the next page

For more information about sound and volume, see https://support.microsoft.com/en-us/surface/surface- sound- volume- and- audio- accessories- ec517257- d98b- 5a1b- 1f94- a410b671a0eb.

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, touch **+** or **-** on the phone.
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. Touch + or - on the phone.
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. Touch **+** or **-** on the phone; the volume bar 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, touch the speaker key on the phone.
2. Touch **+** or **-**; the volume bar is displayed on the screen. After adjusting the volume, the volume bar disappears from the screen.

Adjusting Headset Volume

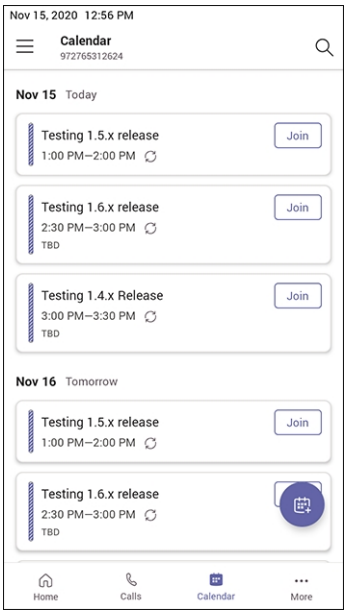
Headset volume can be adjusted *during a call* to suit personal preference.

➢ **To adjust the headset volume:**

1. During a call, touch the headset key on the phone.
2. Touch **+** or **-** on the phone; the volume bar is displayed on the screen.

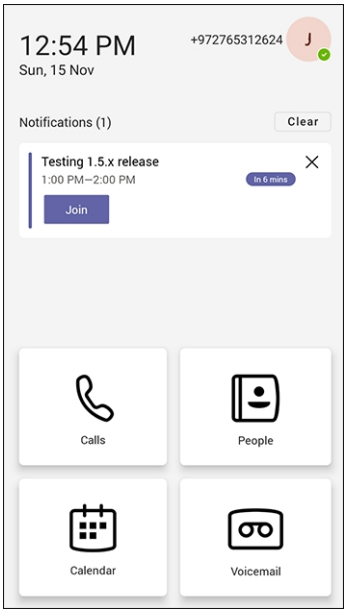
Viewing and Joining Meetings

Scheduled meetings can be viewed and joined by touching the **Calendar** icon in the phone's home screen.



➢ To view the details of a meeting:

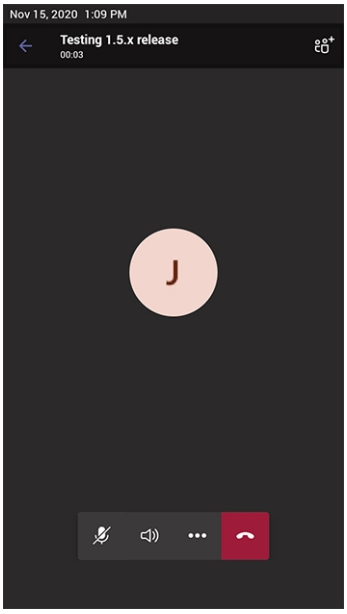
1. Scroll down if necessary to the meeting whose details you want to view and touch it.



2. View the details of the meeting under 'Notifications'.

➢ To join a meeting:

- In the details of the meeting you want to join, touch **Join**.



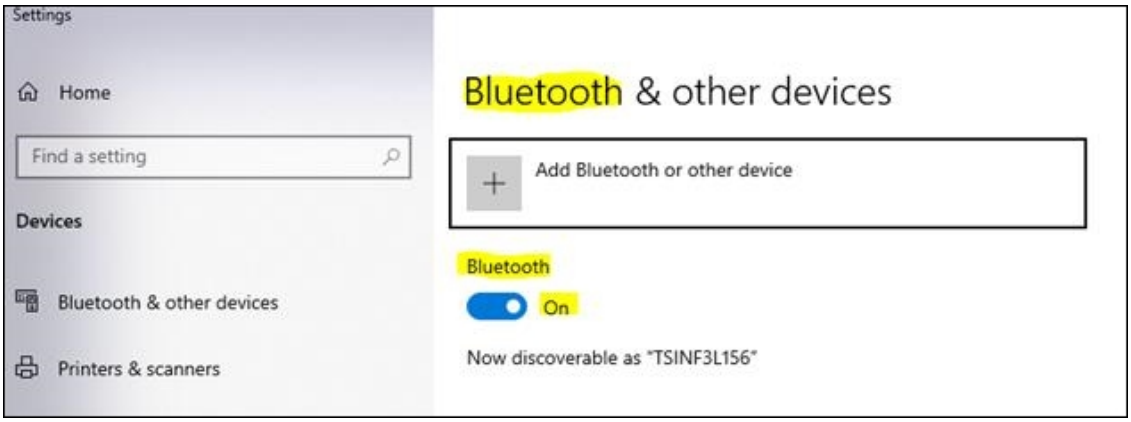
Better Together over Bluetooth

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

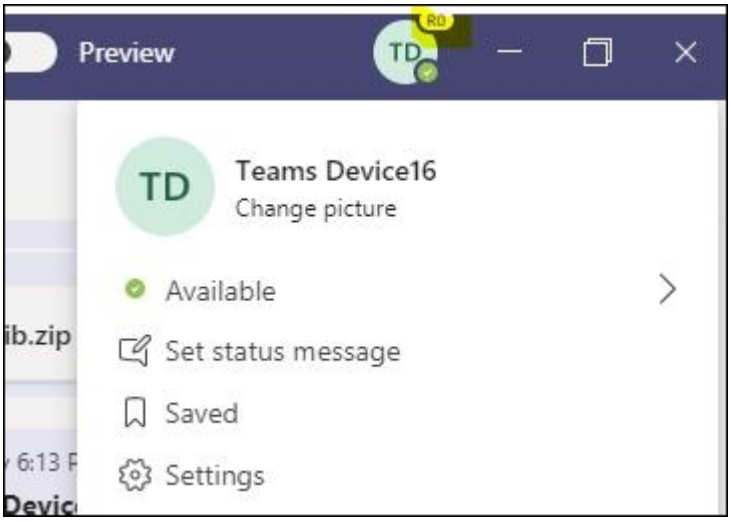
- Pairing with the Teams PC Client
- Lock/unlock synchronization
- [As a feature in preview] Use of the phone as the Teams audio device for calls / meetings

➢ To set up Bluetooth on the PC side:

1. Enable Bluetooth on your PC.

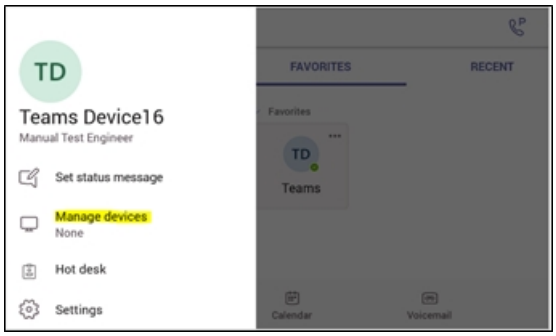


2. Install Teams PC Client on the PC.
3. Sign in to the Teams PC Client with your account (it's necessary to sign in with the same accounts to both the Teams PC Client and to the device).

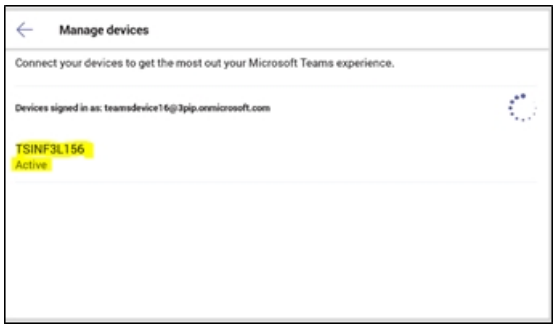


➢ **To set up Bluetooth on the device side:**

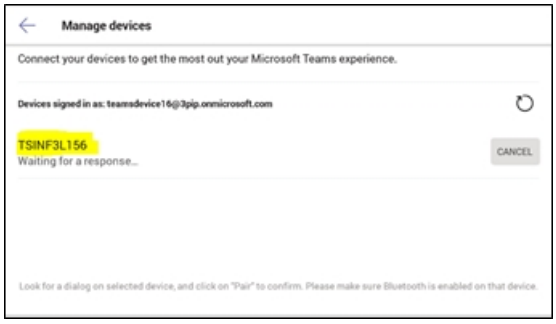
1. Sign in to the Teams application with your account (it's necessary to sign in with the same accounts to both the Teams PC Client and to the device).
2. Go to the hamburger menu on the device and click **Manage devices**.



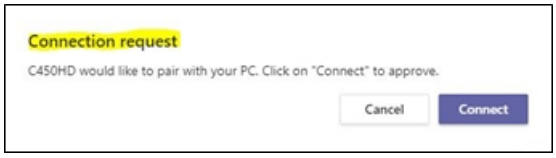
3. View the displayed available device to connect to.



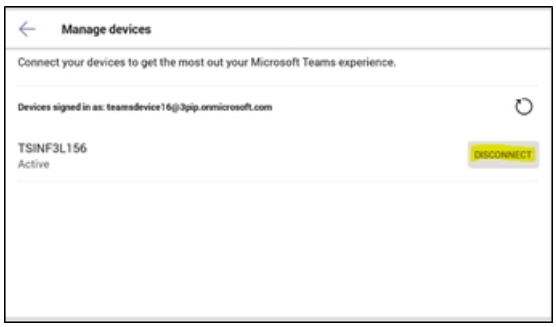
4. Pair the device with your PC.



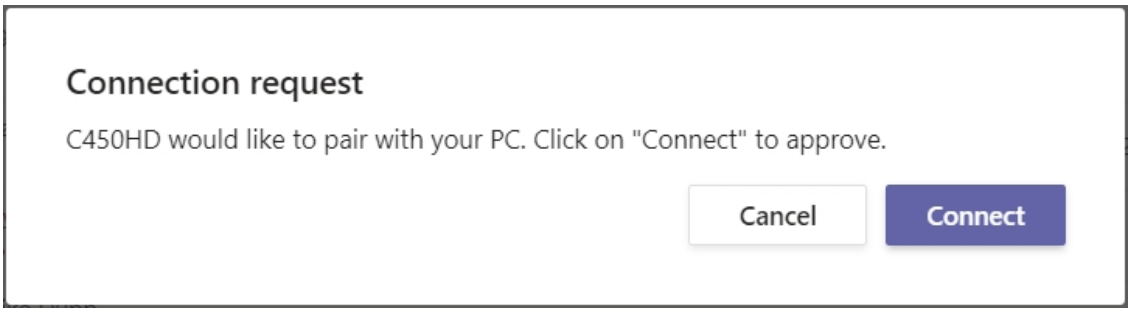
5. View on your PC a notification it gets to accept the connection:



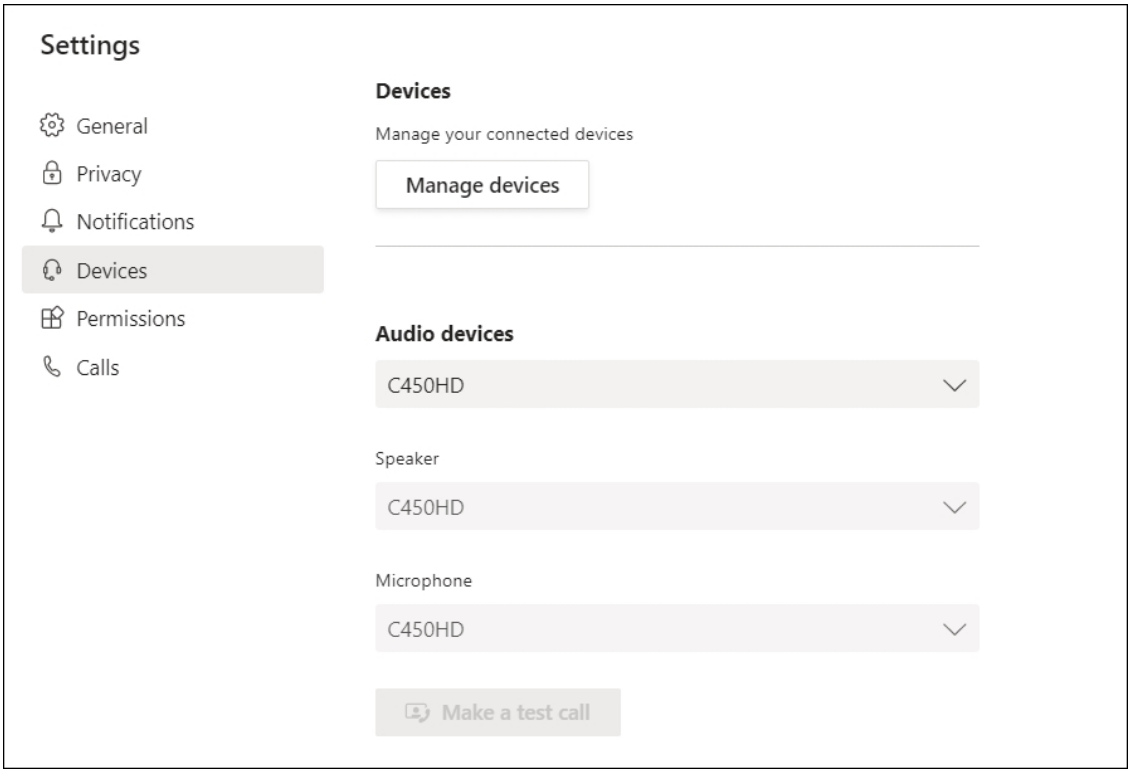
6. Accept the notification from PC.
7. Check the device and make sure pairing was successful:



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:


Settings
General
Privacy
Notifications
Devices
Permissions
Calls
Devices
Manage your connected devices
Manage devices
Audio devices
C450HD
Speaker
C450HD
Microphone
C450HD
Make a test call

6 Updating 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:

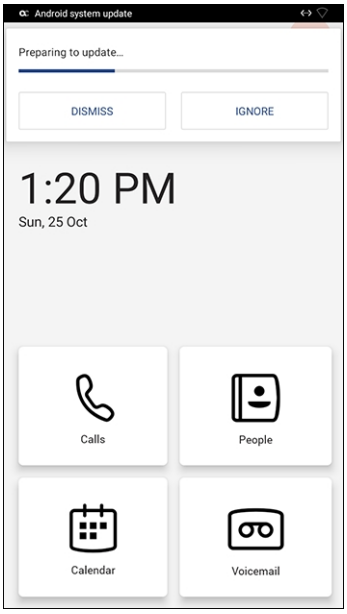
```
scp C470HD_TEAMS_1.8.zip admin@10.16.2.50:/data/ota_package/update_image.zip
```

- In the preceding example, the phone's IP address is **10.16.2.50** and the firmware name is **C470HD_TEAMS_1.8.zip**
- The SCP command allows you to copy files over SSH connections.

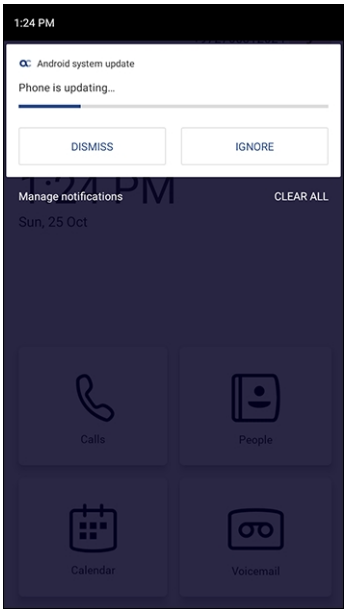
3. Choose **Yes** and enter the phone admin password (default is **1234** or **1111** if you didn't perform restore default yet); the firmware is downloaded to the phone's memory.
4. Run the following command:

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

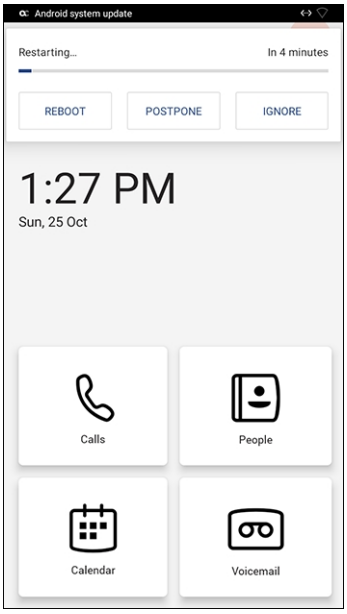
5. Enter the Admin password; the firmware is burnt to the phone and the phone is automatically rebooted.
6. View the notification that is displayed to notify you that the phone is preparing to update.



7. Swipe down twice in rapid succession to present the **Manage notifications** option.



8. Touch **Manage notifications**; the screen that is then displayed allows viewing notifications such as:
   - Upgrade state (Preparing, updating, etc.)
   - Internet access issues
9. After the update is completed, the phone restarts.



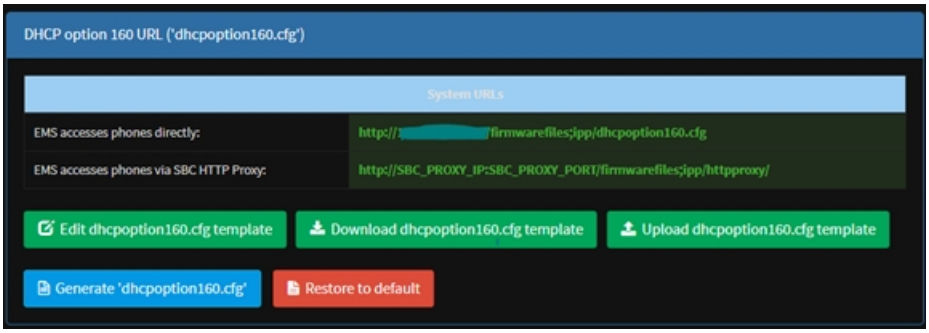
The above notification is also displayed when the phone is upgraded remotely from Microsoft Admin Portal or from AudioCodes' Device Manager.

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 if an issue with your phone occurs. Contact your network administrator if necessary. Network administrators can also use this documentation 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 56)
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 57).

Network Administrators

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

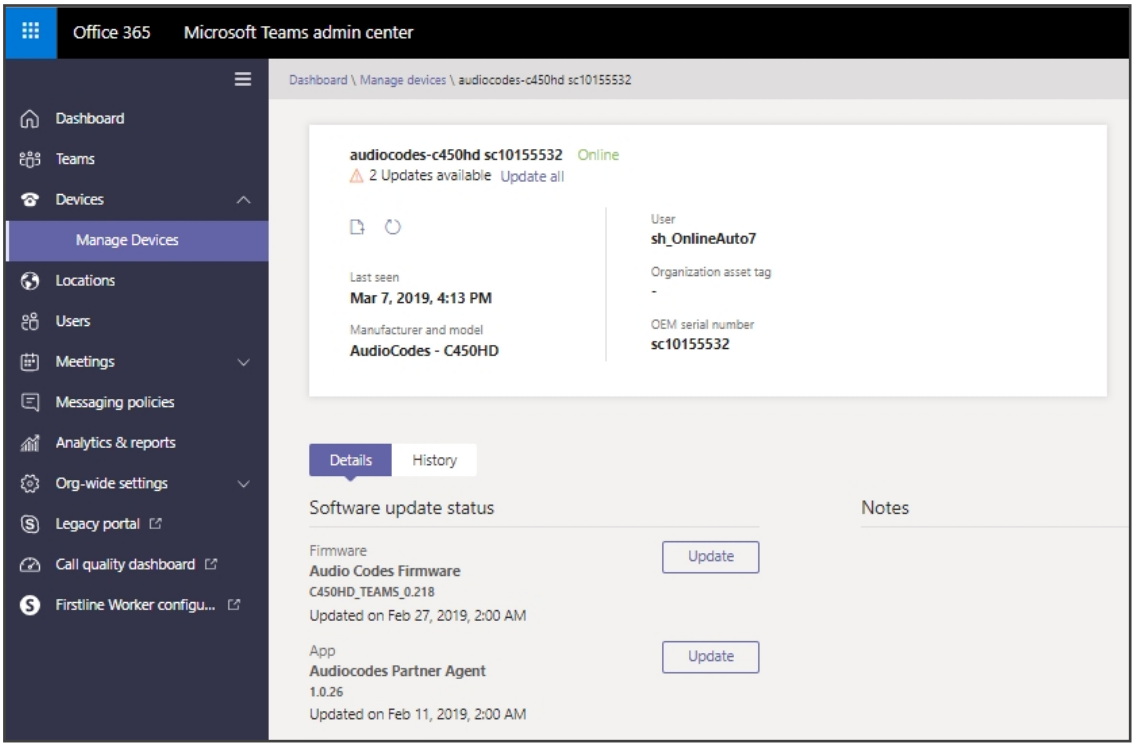
Collecting Logs

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:

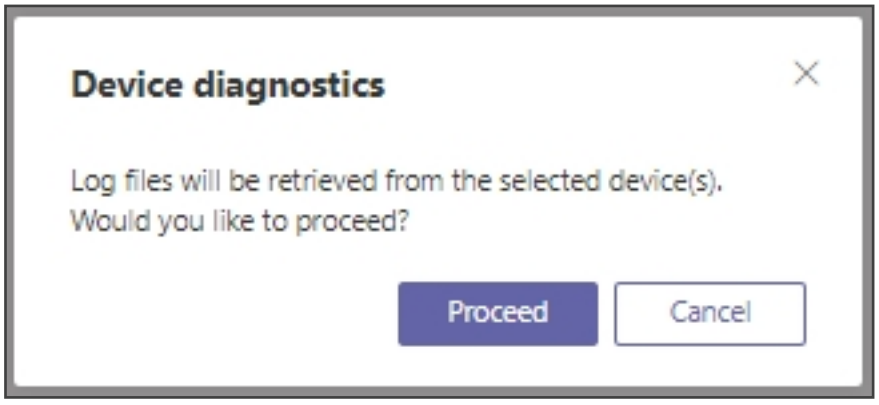
1. Reproduce the issue
2. Access Microsoft Admin Portal and under the **Devices** tab click the **Diagnostics** icon.

Figure 9-1: Microsoft Teams Admin Portal - Diagnostics



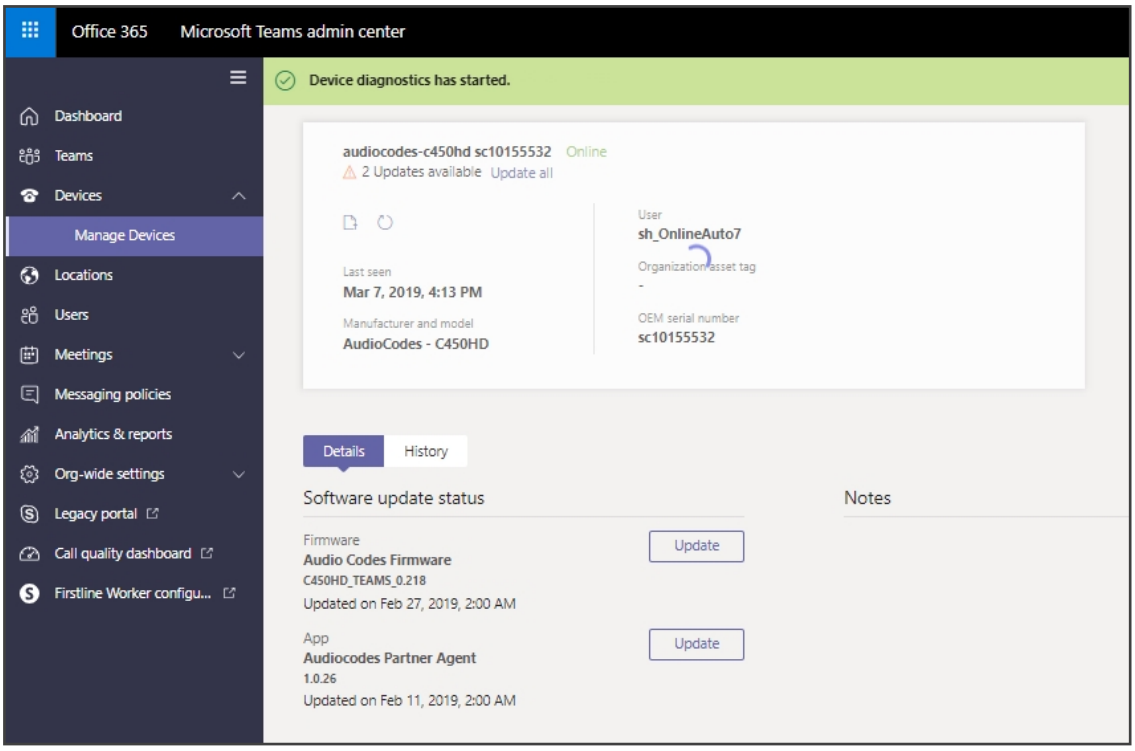
Applies to all AudioCodes phones for Microsoft Teams even though a specific model is shown in the figures here.

3. Click the **Diagnostics** icon .



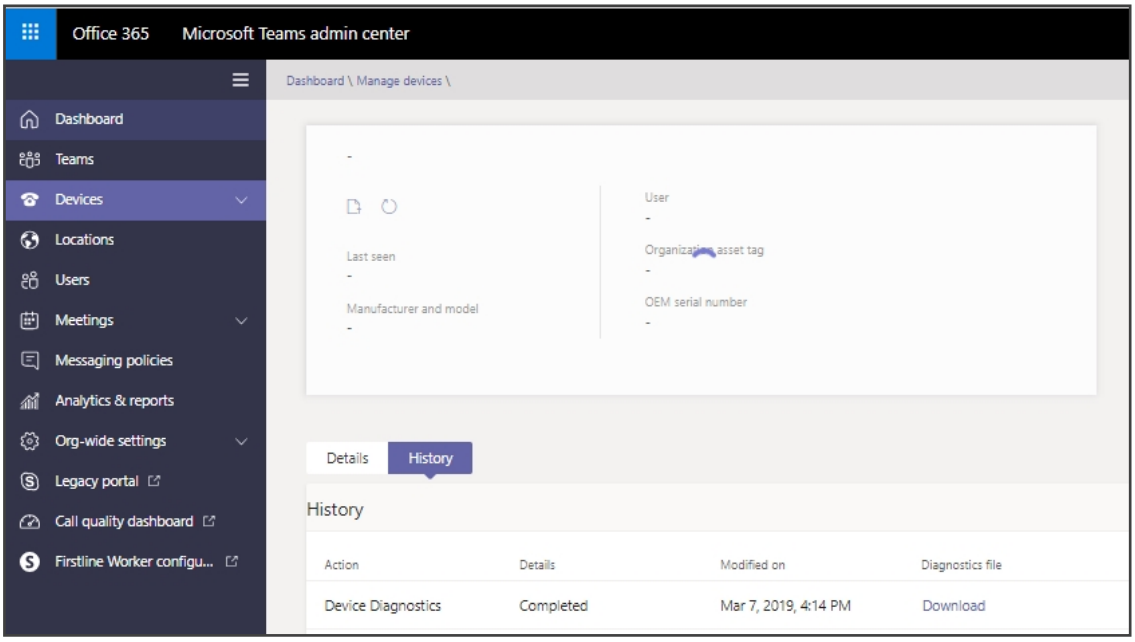
4. Click **Proceed**; the logs are uploaded to the server.

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

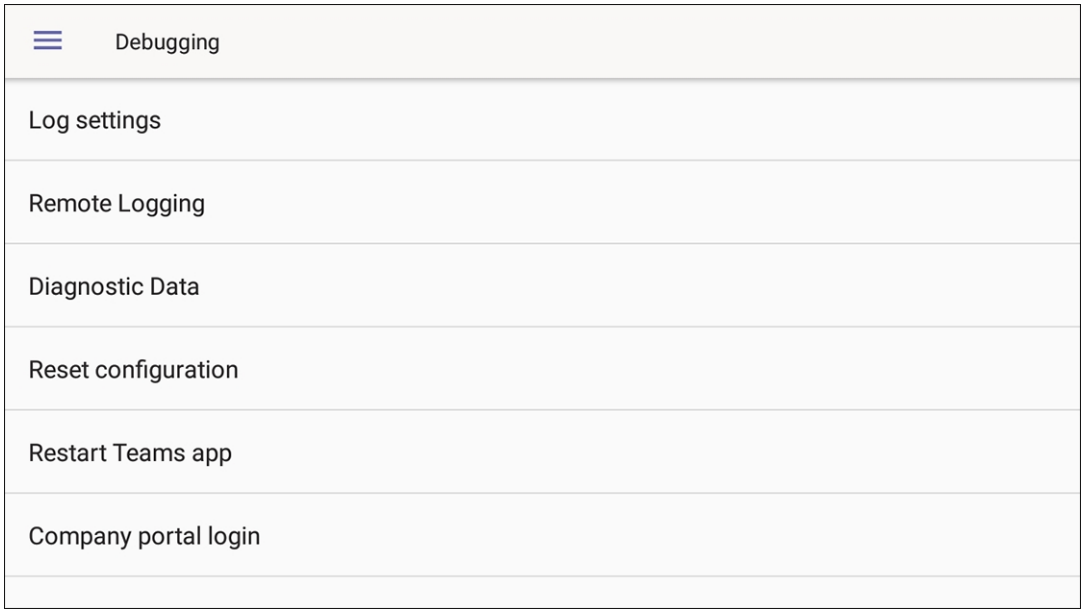
Remote Logging via Syslog provides the same log level as Device Diagnostics (performed via the Microsoft Admin Portal) with some additional information that may be relevant to device

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 ""
```

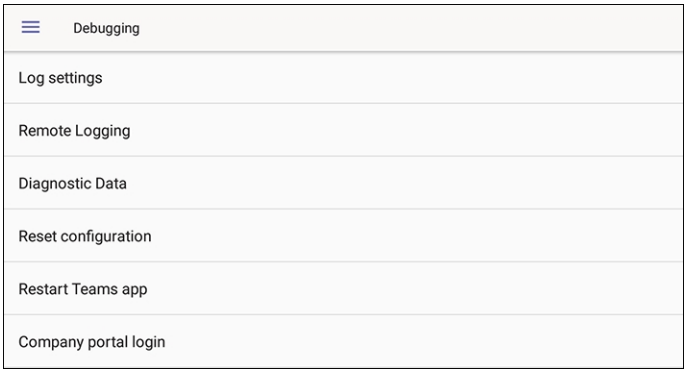
Diagnostic Data

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

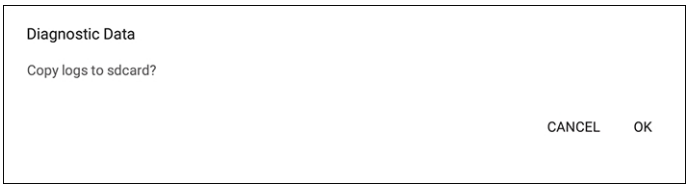
Shell (SSH) protocol. Whenever an issue occurs, the Admin can dump the logs into the SD Card.

➢ To use the tool:

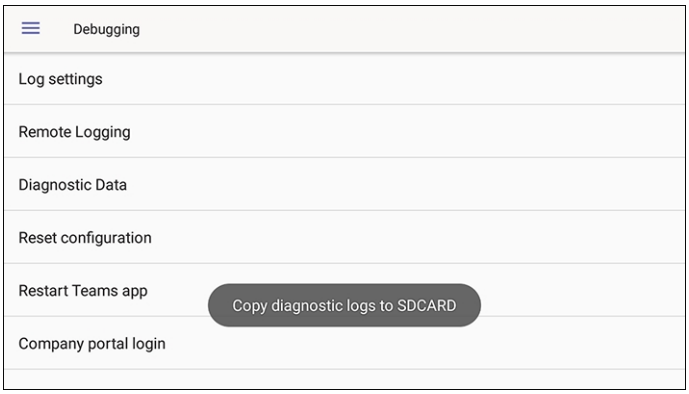
1. Log in to the phone as an Admin user
2. Open the Debugging screen (**Device Administration** > **Debugging**).



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 79 for more information)
- Get version information (see Getting Information about Phones on page 79 for more information)
- Install the Teams apk (or any other apk) (see Installing the Teams APK (or Any Other APK) using SSH on page 80 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
```

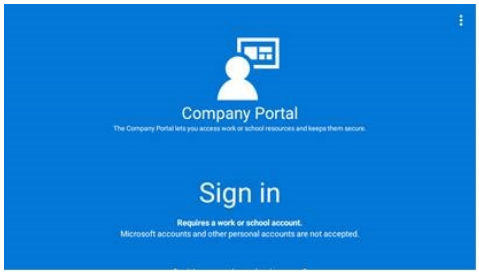
Getting Company Portal Logs

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

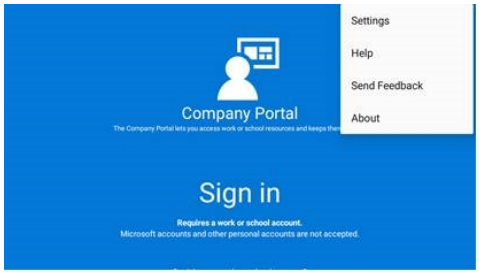
➢ **To get Company Portal logs:**

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

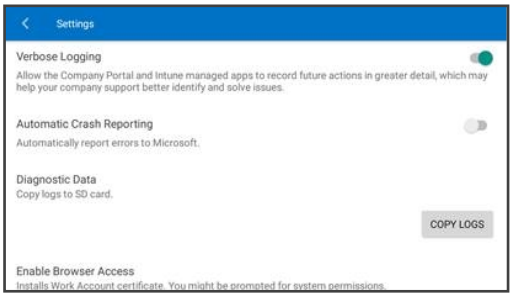
2. Log in to the phone as Administrator and then go back.
3. Touch the **Debugging** option under Admin.
4. Touch **Company Portal login**.
5. Touch the icon located in the uppermost right corner of the screen, shown in the next figure:



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. Open the Settings screen and scroll down 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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