

# **Revolabs FLX™ UC 1000 & Revolabs FLX™ UC 1500**

## **IP & USB Conference Phone**



## **Installation and Operation Guide**

### **Models:**

10-FLXUC1000

10-FLXUC1500

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## Online Resources

Resource	Website
Revolabs	<a href="http://www.revolabs.com">www.revolabs.com</a>
Revolabs FLX UC 1000	<a href="http://www.uc.yamaha.com/uc1000">www.uc.yamaha.com/uc1000</a>
Revolabs FLX UC 1500	<a href="http://www.uc.yamaha.com/uc1500">www.uc.yamaha.com/uc1500</a>
Customer Support	<a href="mailto:uc-support@music.yamaha.com">uc-support@music.yamaha.com</a>

## Safety Warnings

- Do not expose any component of the FLX UC 1000 or FLX UC 1500 to water, moisture, or high humidity.
- Do not expose any component to extreme high or low temperatures.
- Do not expose any component to lit candles, cigarettes, cigars, or to open flames, etc.
- Do not drop, throw, or try to bend any component, as rough treatment could damage them.
- Do not open the casings of any component
- Do not use any other accessories than Revolabs' originals intended for use with this product. Use of non-original accessories may result in loss of performance, damage to the product, fire, electric shock or injury. The warranty does not cover product failures which have been caused by use of non-original accessories.

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## **Introduction**

Thank you for choosing a Revolabs FLX UC 1000 or FLX UC 1500 IP & USB Conference Phone. This conference phone allows you to communicate via your call manager and a softphone, messaging, video conferencing, or webinar application, as well as bridge these calls together. With the FLX UC products, call performance is built to be of the highest quality to ensure every word of the conversation is heard.

This document covers the FLX UC 1000 and the FLX UC 1500 as configuration of these products is similar. Where there is a difference in capabilities or configuration, the document will highlight that explicitly.

# Getting Started

## Content and Component Overview

Depending on the system you have purchased you will find the following content in the box:

FLX UC 1000	FLX UC 1500
Base Unit	Base Unit
Dialer	Dialer
Ethernet Cable	Ethernet Cable
USB Cable	USB Cable
	Extension Microphones (Qty. 2)

For setup of the device, remove all the items from packaging.

### Base Unit



The base units of the FLX UC 1000 and FLX UC 1500 house the speaker elements and four embedded microphones. On the top of the device are five capacitive touch buttons for: volume up, volume down, mute, answer call, and end call.

On the corners of the base unit, LED lights display the status of the unit. Three different microphone states correspond to the color of the LEDs.

Microphone State	LED Color
Active microphones, unmuted	Green
Active Microphones, muted	Red
Microphones not active	Configurable: Amber, Green, or Off

Ports on the bottom of the base unit are used to connect the dialer, the USB cable, and Ethernet cable for the FLX UC 1000, and additionally two extension microphones on the FLX UC 1500.

## Dialer



The dialer has five categories of buttons:

- Function Keys: menu, redial, answer call/new call, hang up
- Soft Keys: 4 keys below the color display that correspond to changing menu options presented on the display
- Keypad: entering numbers, letters, and special characters
- Navigation: to navigate the menus on the display

- Volume Control and Mute: adjusting the volume and toggling mute on/off

### **Function Keys**

The Menu button provides access to the main menu for the FLX UC 1000 or FLX UC 1500. When already in a menu or submenu, pressing the menu button will return the display to the home screen.

The Redial button will redial the last number used to place an outgoing call.

The Answer Call/New Call Button, labeled with the green phone icon, provides the ability to answer an incoming call. It can also be used to open the dialer menu to place a new call.

The End Call Button, labeled with the red phone icon, disconnect from an existing call.

### **Soft Keys**

Soft keys are used to activate menu options, and each button corresponds to the text displayed above the button. The soft keys provide different options depending on the current screen content.

If a menu has more than four options the soft key on the far right will correspond to an option for [MORE>]. Pressing this key will navigate to the next set of menu options. In the second set of menu options the soft key on the far right will correspond to an option for [<MORE] to allow navigation back to the first set of menu options.

Some menus have less than four options. In that case soft keys that have no text above them have no function.

### **Keypad**

The keypad provides access to numbers, alphabet characters, and special keys such as \*, #, space, and period which are typical on phone keypads.

When entering contacts in the FLX UC 1000 or FLX UC 1500, the keypad buttons can be used to enter the alphanumeric values. When the button is first pressed, the first letter shown above the button will be entered in lower case. By pressing the button subsequent times, the character will iterate through the other lower case letters, then the number, then upper case letters. This sequence will repeat again from the beginning if the end of the series is reached and the button is pressed again.

For example, the number “2” provides access to the letters a, b, and c; when depressed multiple times, this button would iterate through the following sequence:

a b c 2 A B C a b c 2 A B C

The button with “1” provides no other characters.

The \* key cycles through the following sequence:

\* . , - \_ ( ) @ and then repeats

The # key cycles through the following sequence

# *space* and then repeats (*space* is a “ ”)

When dialing a number that begins with a plus sign (“+”), press and hold the 0 button until the “+” appears.

### ***Directional Buttons***

The directional buttons include left, right, up, down to navigate menu options and “OK” for making a selection.

In general, the up and down keys are used to select different submenu options, where the right and left keys are used to select new menus or return to the previous menu.

Based on the current menu item selected, pressing the “OK” button either enters (selects) a sub menu, toggles a configuration item, or has no effect.

When editing a configuration item that uses a slider bar, the left and right arrow keys are used to change the value in the slider.

### ***Volume Control & Mute***

The volume control and mute buttons perform the same function as the buttons on the base unit. The speaker volume can be increased or decreased using the volume up and volume down buttons. The microphones on the FLX UC 1000 and FLX UC 1500 are muted using the mute button on the dialer.

The mute/unmute button is only functional when microphones are activated.

## Setting up the system

All connectors can be found on the bottom of the case unit.

Ethernet  
Port

USB Port

Microphone  
Ports  
(UC1500 only)

Dialer  
Port



## Connecting the Dialer

Use the captive cable of the dialer and insert the connector into the “Dialer Only” port on the base unit until it clicks into place. Use the routing on the bottom of the dialer to adjust the length of the cable to your requirements.

Dialer Connection



## Connecting to an IP Network for VoIP Calling

The FLX UC 1000 and FLX UC 1500 are designed to be powered using 802.3af, Power over Ethernet (PoE). If you have an Ethernet port that does not provide PoE, a PoE Power Injector can be ordered from Revolabs to provide the device with power.

Network port



Connect one end of the Ethernet cable into the network connection port on the bottom of the base unit using the network port. Press the Ethernet connector until it clicks into place. Connect the other end of the Ethernet cable into a jack providing PoE or a PoE adapter. The phone will power on. When it is ready to use, the base will chime and the dialer will display the home screen.

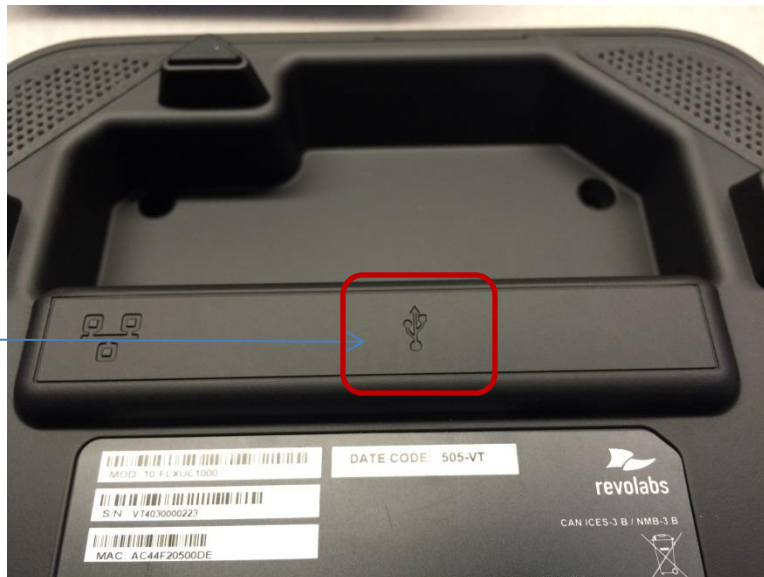
If the Ethernet cable needs to be removed from the FLX UC 1000 or FLX UC 1500, be sure to depress the lever on the connector and pull the cable out gently. Using force when removing this cable may damage the cable and render it useless.

In order to place and receive VoIP calls, your FLX UC 1000 or FLX UC 1500 will need to be registered with a call manager. See the section in this document called “Configuring the FLX UC 1000 or FLX UC 1500 for your VoIP Network” to register your device with a call manager.

### **Connecting to a Computer**

Using the included USB cable, connect the mini USB side of the cable into the port identified by the icon on the bottom of the base unit.

USB Connection



Connect the other end of the cable to the USB port on the computer running the third party softphone, webinar, or conferencing application.

The computer may detect new driver software and install it; wait until the install has completed before continuing. A USB symbol will be shown in the FLX UC 1000 or FLX UC 1500 dialer screen when the computer is connected.

For optimal audio performance when using a Window computers, please follow the instructions in the appendix section. No additional configuration is required when using Apple OS X or Chrome OS devices.

If a USB cable longer than the length of the one provided is required, an approved USB extender should be used. The following USB extenders have been tested and approved for use with the FLX UC 1000 or FLX UC 1500. Please note the distance supported by each USB extender varies and is defined by the manufacturer's specifications:

- USB Ranger 2212 Cat 5 Extender (IC2212R-05-307276) from Icron Technologies
- USB 1.1 Rover 1850 Single Port Cat 5e extender from Icron
- Gefen USB 2.0 Extender
- Extron USB Extender

### **Connecting Extension Mics**

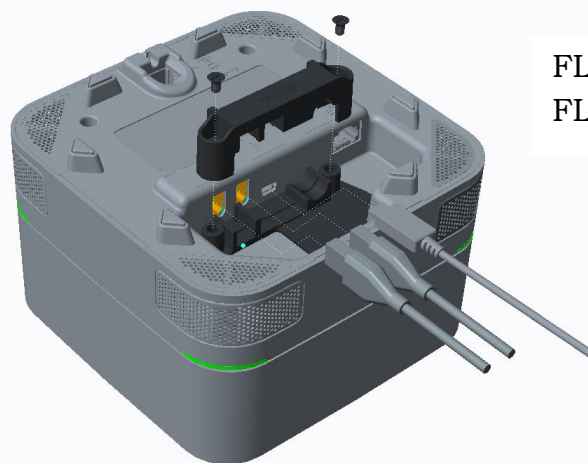
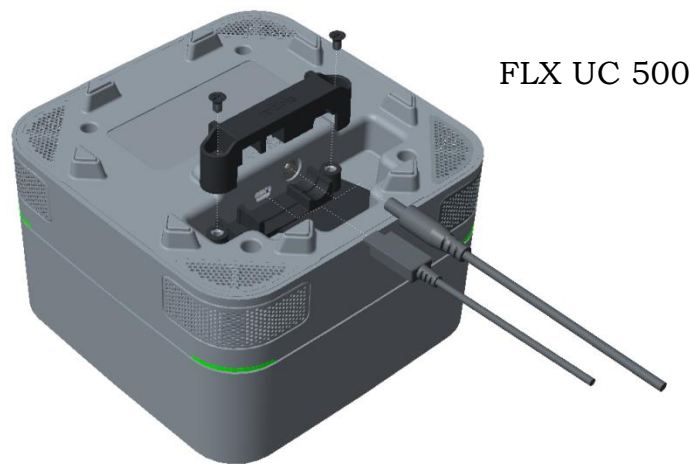
The FLX UC 1500 includes two ports on the base unit to connect the extension microphone.



## Using the Cable Clamps

To help securing the cables connected to the UC products and support that they are not unintentionally removed, Revolabs provides a cable clamp kit.

The same kit works for the FLX UC 500, the FLX UC 1000, and the FLX UC 1500. Place the bottom part of the cable clamp into the cable cavity of the UC unit before connecting the cables. Once the cables are connected and fit into the respective areas of the cable clamp, place the second part of the cable clamp on top, and using the two screws included with the kit fasten the clamp.



# User Interface

## Base Unit

The base unit provides volume up, volume down, mute, answer, and hang-up buttons. Mute status will be reflected on the LEDs on the four corners of the device; when microphones are active, these LEDs will be green when the system is unmuted and red when the system is muted.

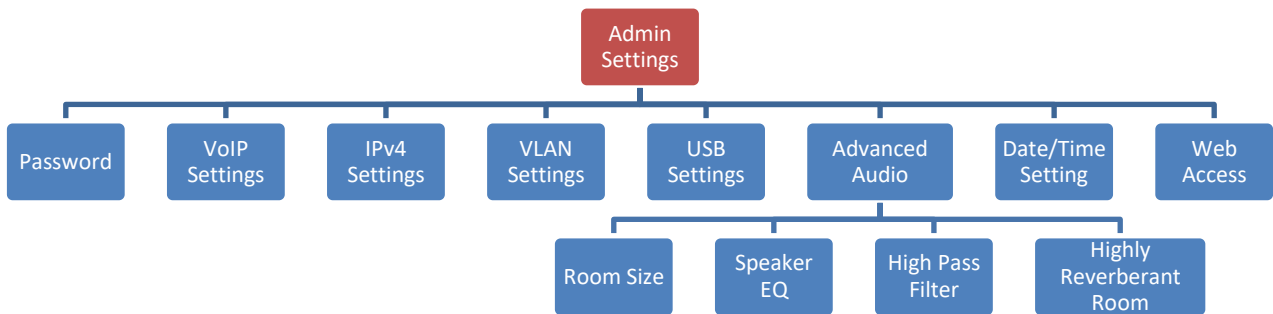
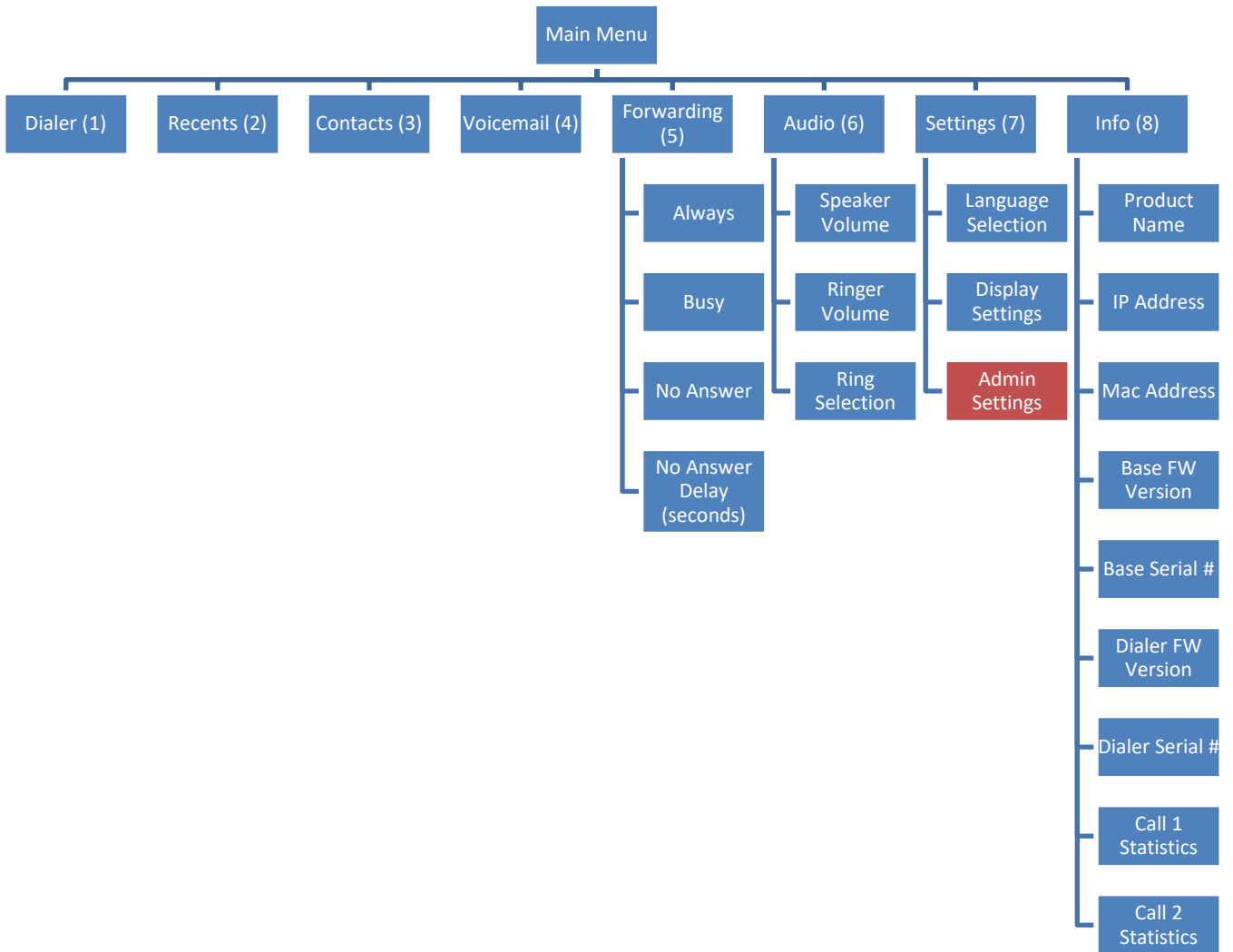
When the microphones are not active, the lights can be configured for an idle color with options of solid amber, solid green, or unlit (default). In order to change this color, an administrator can use the web UI or the settings menu on the dialer to configure the desired idle color.

For additional call control functionality, i.e. using the device buttons to hang up and answer calls using the preferred third party softphone, webinar, or conferencing application, refer to the FLX UC Device Manager section in this manual.

## Dialer

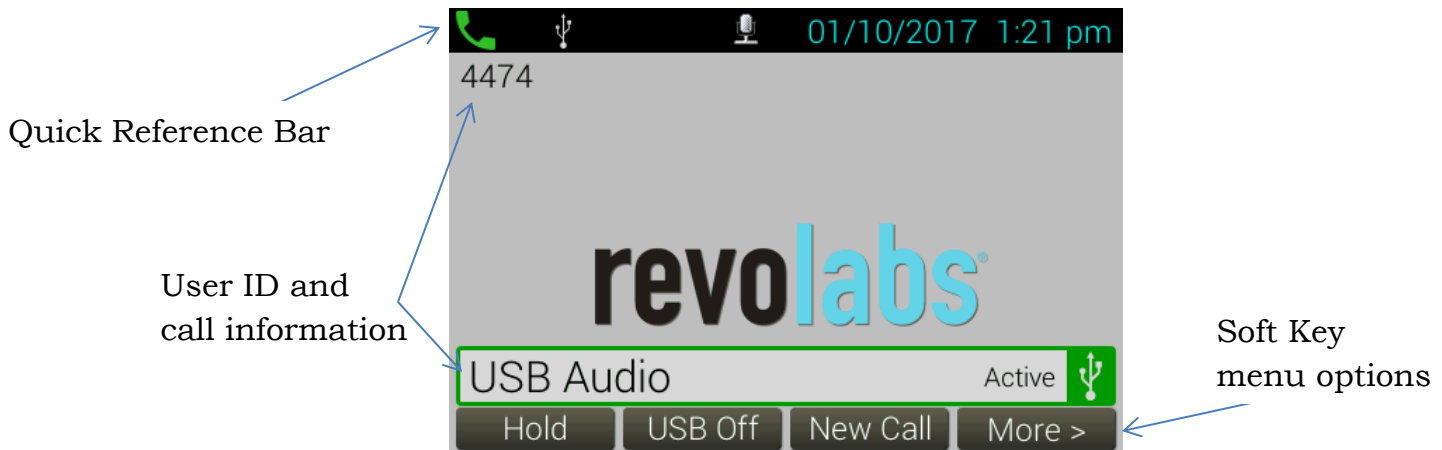
The display on the dialer presents a series of screens as an interface for using the device and configuring device settings. The details of those screens are described in this section.

# Menu Tree



## Home Screen

When the device is powered on, the device will display the home screen. The home screen provides information in three key areas: a quick reference bar on top, information about the user ID of the device and call activity in the center, and soft keys menu options on the bottom.



The quick reference bar provides information regarding the call status of the system. The information available includes:

- Call Icon (in Green): Displays information about call status (No Call, Call in Progress)
- Mute Indicator (microphones muted or unmuted)
- USB Icon: Displays when a USB connection is established between the FLX UC 1000 or FLX UC 1500 and a USB host (e.g. computer)
- Do Not Disturb (DND): Displays when the system is configured for do not disturb.
- Voice Mail Icon: Displays when a voice mail is available
- Missed Call: Displays when a call has been missed
- Extension microphone status (FLX UC 1500 only): Displays the number of connected extension microphones
- Date: Displays current date. The format is configurable in the menu or web interface
- Time: Displays current time. Time zone is configurable in the menu or web interface

The center area displays information on the status of USB and VoIP connections. If a VoIP connection is configured for the unit, the user ID is displayed directly under the quick reference bar in the upper left side of the screen. If a VoIP user is configured but not registered or errors occurred during registration, that status and possible error messages are displayed instead.

Below the VoIP user ID information for active calls is being displayed. The information for up to two concurrent VoIP calls is and on the USB audio connections is provided. If no calls are active no information is displayed and the Revolabs logo is seen instead.

The call state is indicated by the color of the bar:

- Incoming Call: Yellow
- Call in Progress/Active: Green
- Call on Hold: Orange
- Call Ended/Interface Inactive: Red

The soft key menu options are displayed at the bottom of the screen. Depending on configuration of the USB interface, different home screen menu options for the soft keys are offered.

When the USB port is configured as “User Determined” (factory default) the following soft key options are presented:

- [Calls]: Redirects to the Recent Calls menu
- [USB On]: Turns USB audio on if USB audio is set to User Determined
- [New Call]: Opens the Dialer menu
- [More >]

After pressing [More >]

- [DND]: Toggles Do Not Disturb mode
- [Contacts]: Opens the Contacts menu
- 
- [< More]

When the USB port is configured as “Always On” the following soft key options are presented:

- [Hold]: Places the current call (USB audio) on hold
- [New Call]: Opens the Dialer menu
- [Conf]: Adds a new call to the existing (USB audio) call
- [DND]: Toggles Do Not Disturb mode

When the USB port is configured “Always Off” or “USB calls only” the following soft key options are presented:

- [Calls]: Redirects to the Recent Calls menu
- [New Call]: Opens the Dialer menu
- [DND]: Toggles Do Not Disturb mode
- [Contacts]: Opens the Contacts menu

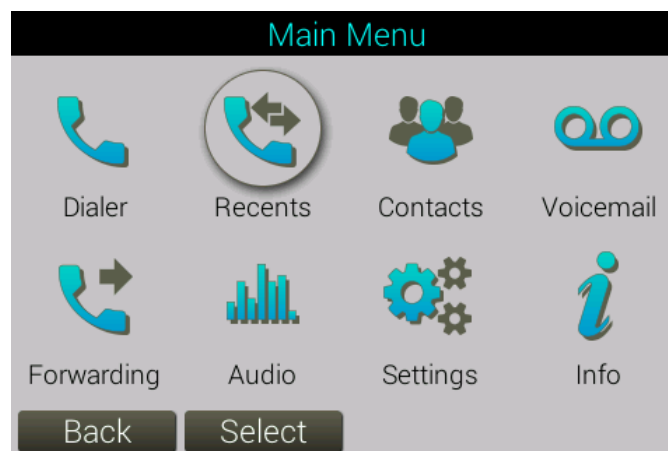
The difference is the between these two settings is the behavior when “New Call” is being selected. When the USB connection is always off, only the VoIP dialer is offered. If “USB calls only” is selected, the user can start a USB call.

## Menu Options

### ***Main Menu Screen***

To access the Main Menu Screen, press the “menu” button at the top left of the Dialer screen.

To navigate the Main Menu, use the arrow keys to move the shaded circle to highlight the option you wish to select.



Pressing the OK or Select buttons while highlighting any of these options will open the appropriate submenu. Alternatively, pressing the number corresponding to the option also opens the submenu:

1 - Dialer	2 - Recent Calls	3 - Contacts	4 - Voicemail
5 - Forwarding	6 - Audio	7 - Settings	8 - Info

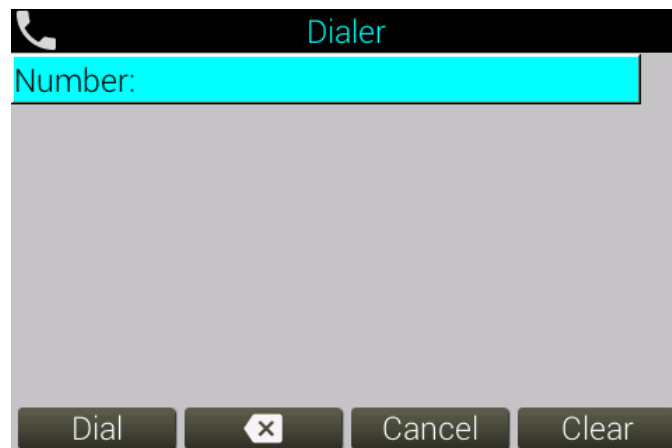
Using the Back button will bring the user back to the Home Screen.

### *Dialer Submenu*

In the dialer submenu a phone number can be entered using the keypad. The keypad supports the numbers 0-9, the star and hash-sign. In addition, when holding the “0” key for about 2 seconds, a “+” is added to the dial string.

Please be aware that the Call Manager needs to be set up to handle the special characters \*, #, and +.

A pause can be added into a dial string by holding down the “\*” key for about 2 seconds. The Pause is indicated by a “,” in the string.

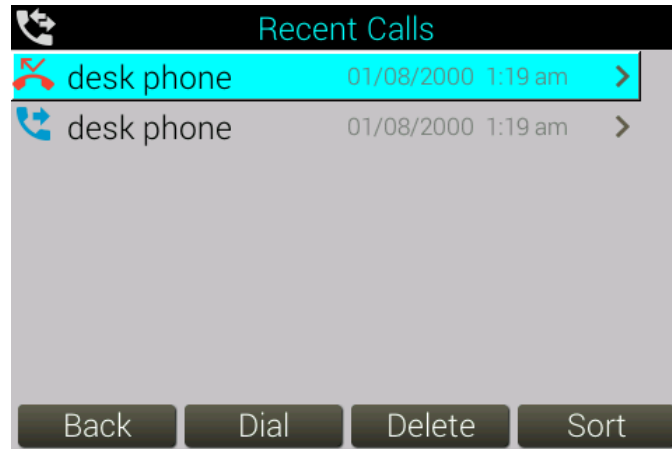


The soft keys available on this screen are:

- Dial: Attempts to dial the number entered. The Green Call button to the upper right of the screen can also be used to call the number (the green Call button on the base cannot be used to attempt to dial the number – pressing the green Call button on the base clears the number, takes the phone off hook, and the user hears dial tone).
- <x: Backspace. Deletes the last typed number
- Cancel: Leaves the dialer screen and returns to the previously opened screen
- Clear: Deletes the entire number typed

### *Recent Calls*

This submenu displays recent calls to or from the phone. Each call is listed by a name or the number, and the type of call: a call initiated from the phone, a received call, or a missed call. The list can be navigated by using the up and down arrow keys. From this list, the selected call can be redialed or deleted using the corresponding soft keys.



The list can be sorted to display all calls, missed calls, dialed calls, or received calls.

An individual call entry can be selected using the right arrow key or “OK” button, opening an additional information submenu for that call. In that submenu, the following information for the call is displayed:

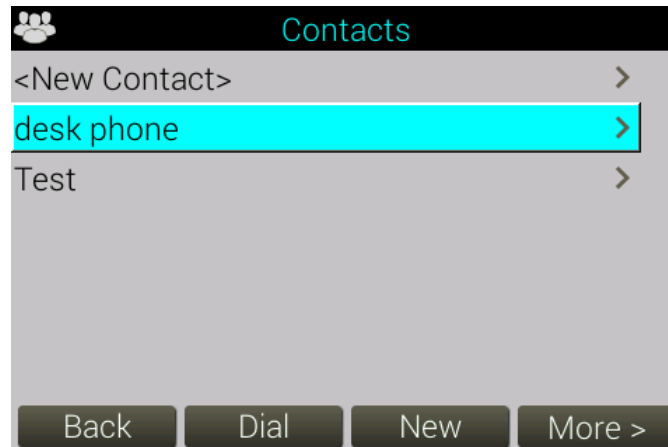
- Name
- Number
- Time (Date and time of call)
- Duration
- Type of Call: Missed, Dialed, Received

From that menu, the call can be saved to contacts, deleted, or dialed.

The web UI allows disabling the functionality to keep recent call information. If the functionality is disabled, the recent call list will show as empty and call information is not stored.

## Contacts

This submenu allows managing the phone's internal contacts list.



The list can be traversed by using the up and down arrow keys.

The highlighted contact can be dialed using the dial button or the green call function key.

New contacts can be added from this menu. The Name and three phone numbers, Work phone, Mobile phone, and Home phone, can be entered for a contact. One of the three phone numbers can be set as the default number by selecting the “OK” button while the number is highlighted – a green radio button icon is shown to the right of the default number.

An existing contact can be edited or viewed with the right arrow key, “OK” button, or by selecting the “More” and then the “View” Soft Key.

The menu also allows deleting (“More”, then “Delete”) of contacts.

When editing or adding a contact, a speed dial number can be assigned to that contact. The speed dial menu shows available speed dial numbers. To allocate the contact to a speed dial number, hold down the button on the keypad with the corresponding number, or highlight an available number and press the Assign soft key.

When using speed dial to call a contact, the FLX UC 1000 or FLX UC 1500 will use the default number for that contact.

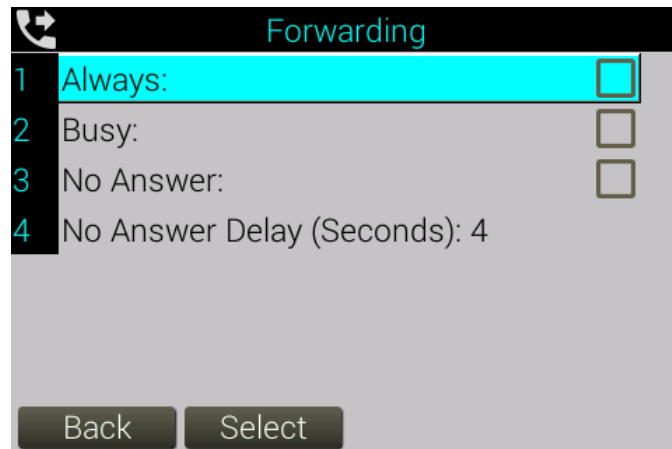
A new or changed contact can only be saved if at least one phone number is entered.

The web UI allows disabling changes to the contact list from the Dialer.

### *Voicemail*

Selecting this submenu will call the mailbox assigned to the device. If no voicemail has been configured an alert popup will appear, stating “Voice Mail number has not been configured yet!”

### *Call Forwarding*



Enabling call forwarding will forward calls when certain conditions are met. Enabling “always” will forward all calls. “Busy” will forward calls when both SIP lines on the phone are busy. No answer forwards calls after a certain time when the call was not answered.

When a forwarding option is selected, a popup will appear asking for the phone number the calls should be forwarded to.

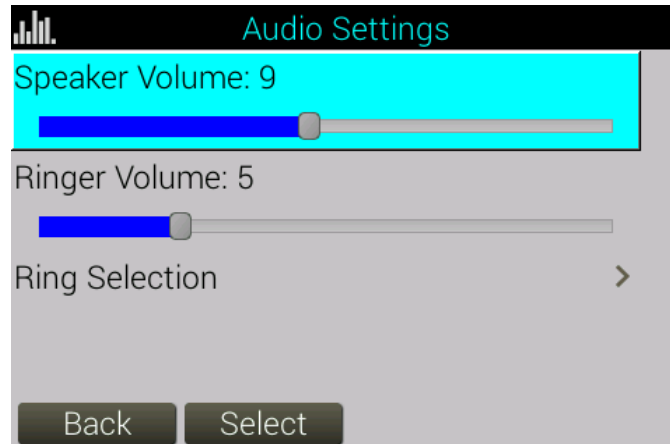
Wait time before an unanswered call is forwarded can be set from 2-30 seconds.

The web UI allows disabling changes to the call forwarding settings from the Dialer.

**Note:** Call Forwarding settings require the call manager to support this feature. Call forwarding on no answer requires the call manager to support three call appearances on the phone to detect the call that needs to be forwarded. If voice mail is set for the extension, the no-answer delay needs to be selected shorter than the voice mail delay,

otherwise the call will have been presented to voice mail before it is forwarded by the phone.

### Audio

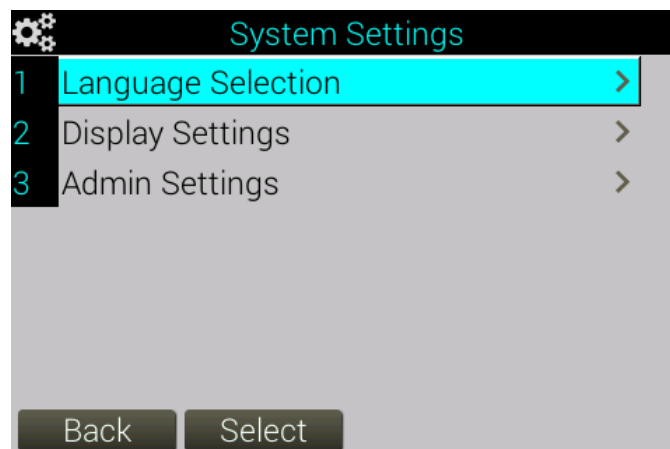


“Speaker Volume” and “Ringer Volume” sliders go from 1-18. The “Ringer Volume” slider plays a test tone for every number change. The “Speaker Volume” slider does not.

Ring Selection opens a menu where ring tones can be selected. You can test the ringtones before selecting in this menu by using the [Play] button at the bottom of the screen.

The option to change ring selection can be disabled in the web UI.

### Settings



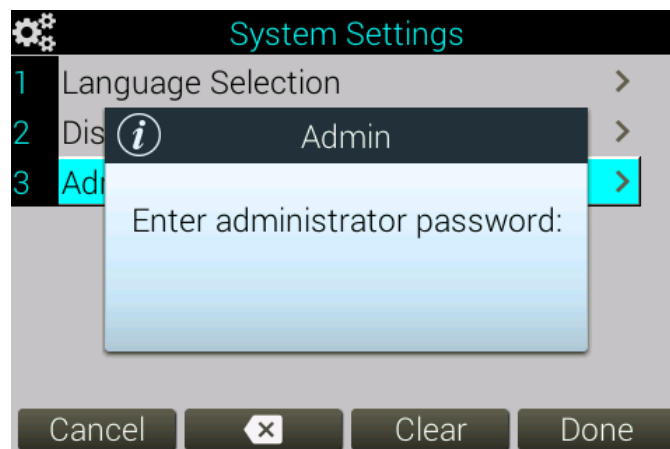
The Settings menu might offer up to three options: Language Selection, Display Settings, and Admin Settings.

Language Selection allows selecting the screen language. After changing the language the FLX UC 1000 or FLX UC 1500 will reboot after which the new selected language will be used for all screen content.

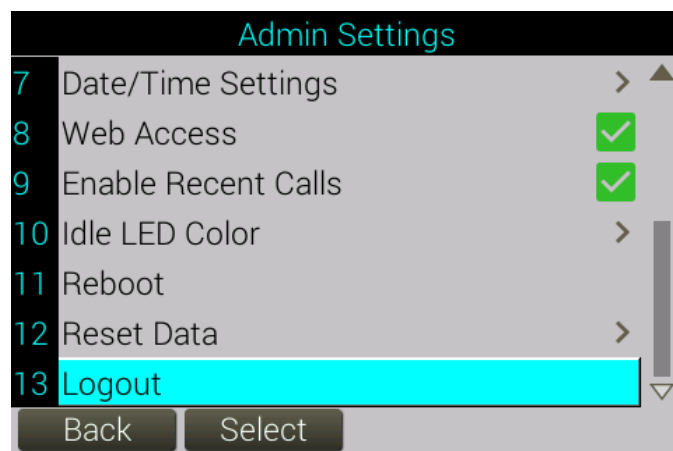
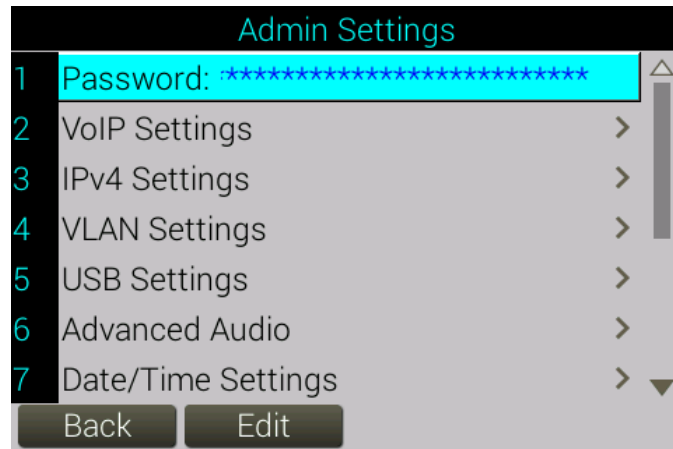
The language selection menu can be disabled using auto configuration or the web UI. When disabled, the option is not shown in the dialer screen.

Display setting allows setting the screen brightness using values between 1 and 15. It also allows defining the timeout for the Backlight. The screen will remain lit for the selected time after an action was taken, then the backlight will be turned off. Selecting “Never” for Backlight Time means the screen will not dim at all.

The Admin Settings menu is protected with a numeric password. The default password is 7386 (REVO on the phone dial pad), but it is user changeable. The Web-UI and the dialer use the same password, changing it in one interface affects both interfaces logons.



The Admin Settings submenu allows several administrative actions to be taken:



Selecting Password allows the user to delete the current password and create a new numeric password.

The VoIP Settings menu allows providing and changing of the VoIP parameters, like registrar address or name, user name, and password.

In the IPv4 Settings menu the user can enable DHCP, or provide a fixed IP address with subnet masks and other required settings.

The VLAN Settings menu allows specifying whether a VLAN is used, and either have the phone detect it automatically, or provide the VLAN identifier manually.

The USB Settings menu allows defining the behavior of the USB connection. It can be always disabled in which case the FLX UC 1000 or FLX UC 1500 act like a VoIP phone only, it can be always enabled, in which case the USB

connection is always life and providing an audio stream via USB to the connected device. It can be user determined, in which case the user can determine the status of the USB line through the dialer. If USB calls only is selected, the USB connection can only be active when a USB call is detected. This requires the communication application to send according signals on the USB interface, indicating the call state. USB audio can only be activated for a USB call.

Advanced Audio Settings will be described further down in this section.

In the Date/Time submenu NTP servers providing network time can be specified. The menu also allows specifying the time zone in which it is being used. Finally, the format in which dates and times should be presented in the dialer can be selected.

**Note:** Daylight savings time rules that might be used in the location where the phone is being installed can be set using the web interface.

The Web Access check box allows enabling / disabling the web access to the phone.

Enabling Recent Calls allows storing data on the recent calls made to or from the phone. Disabling “Recent Calls” displays a popup asking “Do you want to clear the recent call list?”

If “Yes” is selected, all call data stored on the device will be deleted.

If “No” is selected, the call data of previous calls will be saved, but no new call data is added, and the call data cannot be accessed until Recent Calls is re-enabled.

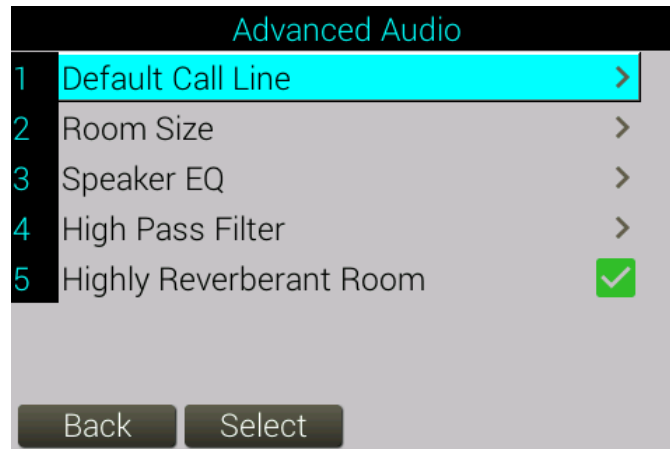
The Idle LED Color setting allows specifying the LED state when the system is idle and USB audio is disabled.

Reboot reboots the device.

Reset Data allows resetting of factory defaults and removing usage data, either for the whole system, or by area.

And finally, the admin user can select to log out of the interface.

*Advanced Audio Settings*



The Advanced Audio submenu enables the user to specify audio settings and the room environment.

Default Call Line defines the behavior of the green off-hook button. By default, this setting affects the VoIP call and takes the phone line off-hook. When the Default Line is set to USB, pressing the off-hook button will send an off-hook signal on the USB interface instead. If None is selected, the user is asked which interface should be activated when pressing the off-hook button.

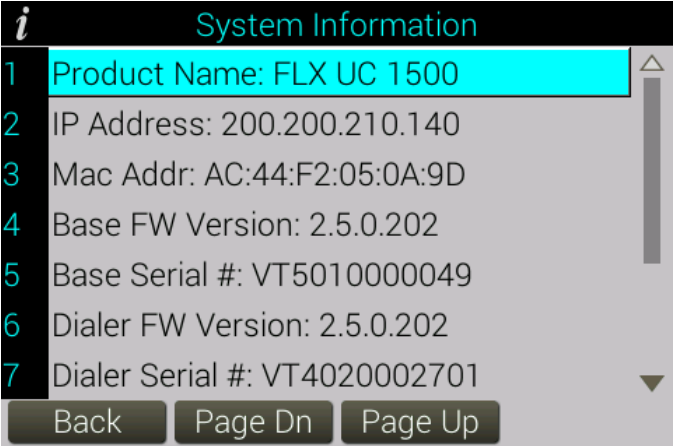
Room size allows specifying the size of the room in which the FLX UC 1000 or UC 1500 is being used. It affects the behavior of the gain control to ensure that in larger rooms everybody is heard, and in smaller rooms sounds that are not coming from the meeting itself are not gained.

Speaker EQ provides three pre-defined EQ settings to improve the speaker audio. We recommend using the Voice Enhance setting.

High Pass filters should be enabled in rooms with high background noise. These noises are typically in the low frequency level, selecting an appropriate High Pass Filter will eliminate these frequencies.

The Highly Reverberant Room setting activates a filter that limits audio frequencies found in reverberant rooms. A room might be highly reverberant when it has one or more window walls, wood or concrete floor, or concrete ceiling. An echo can be heard in these rooms for example when clapping hands. The FLX UC 1000 and UC 1500 conference phones have been designed to provide the truest audio experience, capturing the audio in the room as it is experienced in the room itself. This might cause an over-representation of low frequencies in reverberant rooms. The Highly Reverberant Room setting limits these frequencies.

*System Information*

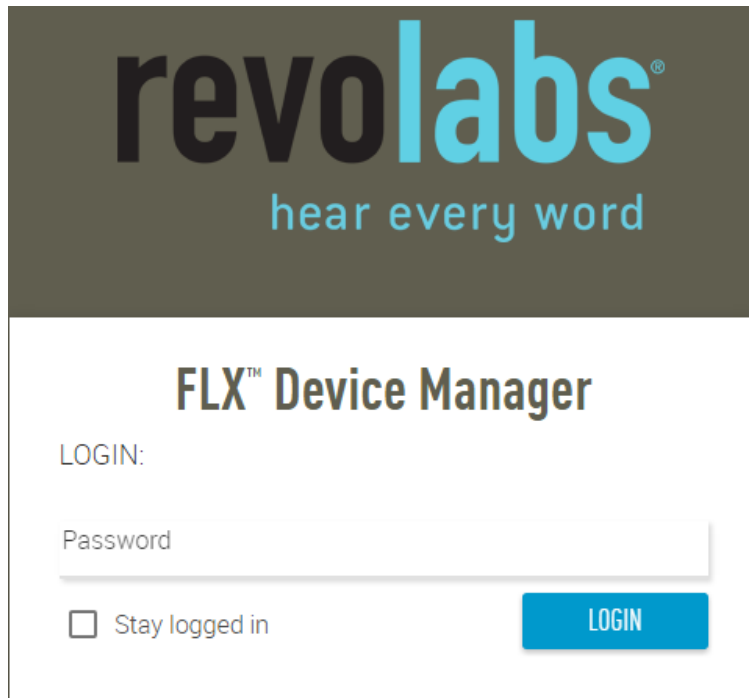


The System Information menu provides information about the product as well as statistics information on VoIP calls.

## Web User Interface (Web UI)

Using the IP address of the FLX UC 1000 or FLX UC 1500 and assuming that web access has not been disabled using the dialer, the unit can be accessed using a web browser by entering the IP address of the phone in the address line. Supported browsers are Microsoft Edge, Google Chrome, and Mozilla Firefox.

When accessing the phone the login page will be displayed. A password is required to log in to the device. Unless the password was previously changed using the dialer or the web UI, the factory default password is 7386.



revolabs®  
hear every word

FLX™ Device Manager

LOGIN:

Password

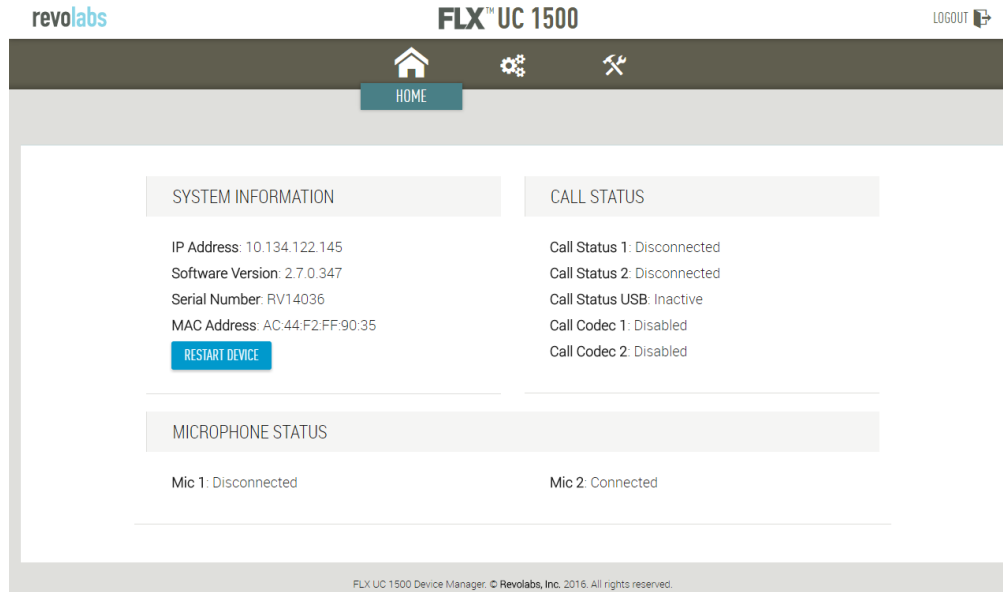
Stay logged in

LOGIN

Generally, after a time-out period the user will be automatically logged-out of the web interface. However, if it is expected that more time is required for configuring the phone, the login page provides a check box to disable to auto log-out on this system, leaving the user logged in until an explicit log-off is triggered.

### **Home Screen**

Once logged in the web interface will display the home screen. The home screen provides current status information about the unit, including current call information and connected microphones for the FLX UC 1500.



The home screen allows initiating an immediate restart of the device.

In all screens of the web UI a logout icon is displayed in the upper right corner allowing the user to log off from the unit.

The top menu line allows accessing the different pages of the web UI. Hovering over any of the symbols will show the available options. The Settings options allow configuring the unit. The Tools menu allows system firmware upgrades and uploading / downloading of log files and configuration files. The Settings and Tools options are described in more detail in the following sections.

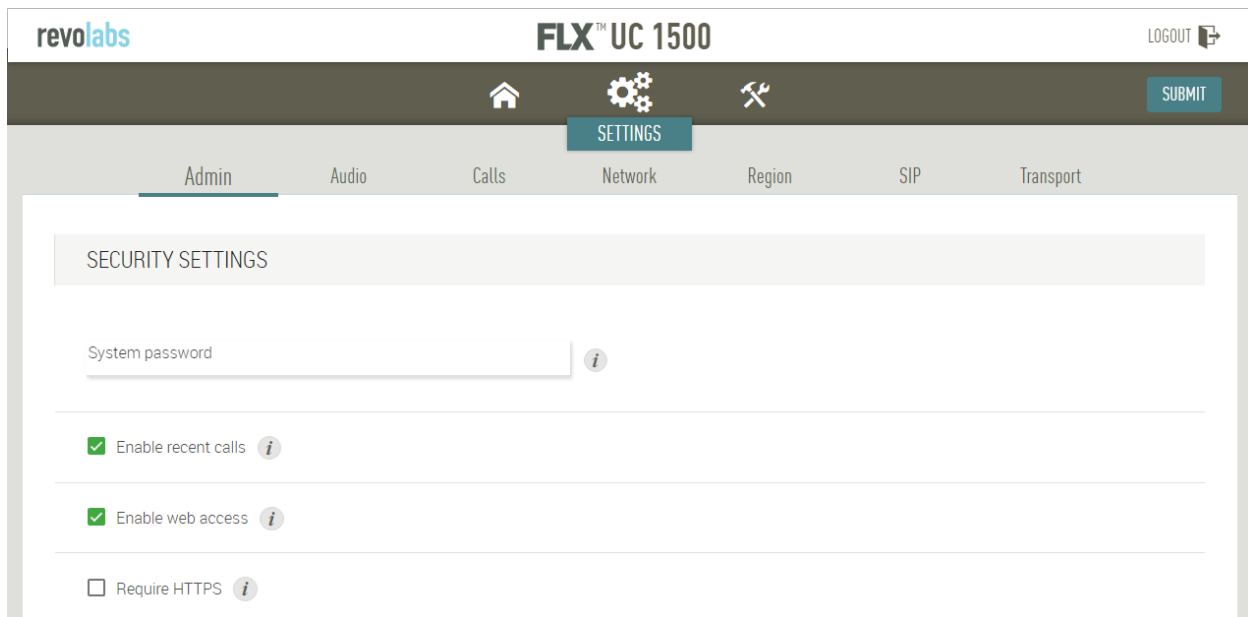
Please note that for any changes to take effect, the “submit” button on the web page has to be clicked. Otherwise changes will get lost when leaving the page without clicking “submit” before.

## **Settings**

### *Admin*

The admin tab allows setting of several administrative parameters.

### *Security Settings*



The Security Settings section allows the user to change the system password. Any change to the password will affect access to the protected submenus on the dialer as well as web UI access. The password has a minimal length of four digits, any other characters are not allowed. Once a valid password has been entered, it needs to be entered a second time to protect against typos and unwanted changes.

If recent calls is enabled, the phone will keep a list of recent phone calls in its memory which can be browsed using the dialer.

Enabling the web access setting allows the FLX UC unit to be accessed using a web browser. If this setting is disabled, web access is not possible to the phone and the setting needs to be changed either through the dialer, or a parameter change as part of a DHCP auto configuration.

When Require https is enabled, the web interface will switch from http to https. Please note that when using https, as the device cannot have a certified security certificate, your web browser will warn you of a potentially unsecure connection.

### *Dialer Restrictions*

### DIALER RESTRICTIONS SETTINGS

Disable call audio modification *i*

Disable dialer language selection *i*

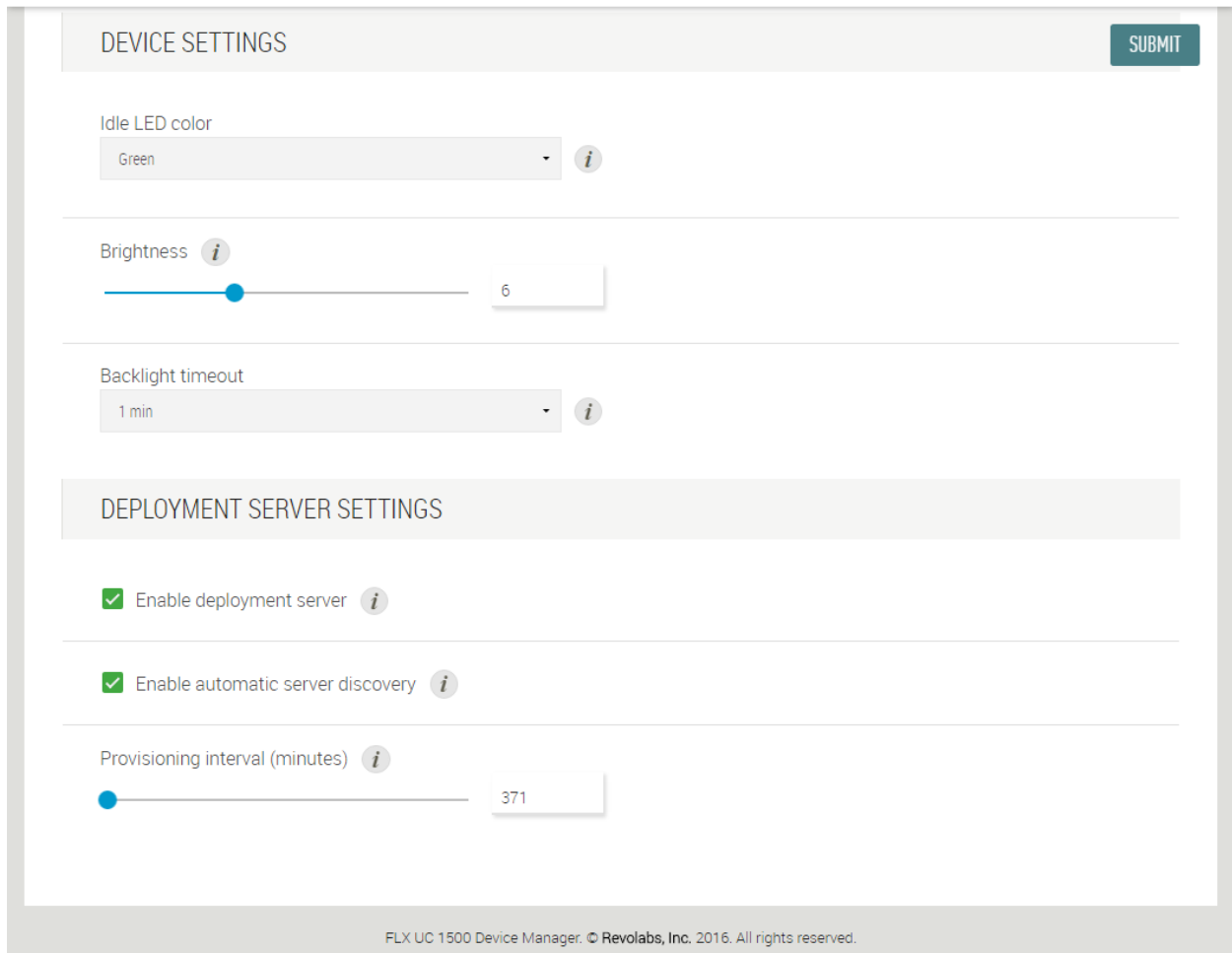
Disable call forwarding modification *i*

Disable recent call modification *i*

Disable contacts modification *i*

Disable Do Not Disturb (DND) setting *i*

The Dialer Restrictions section allows disabling some features in the dialer interface. Selecting the respective restriction will disable or remove the corresponding options in the dialer user interface.



DEVICE SETTINGS SUBMIT

Idle LED color  
Green i

Brightness i  
6

Backlight timeout  
1 min i

DEPLOYMENT SERVER SETTINGS

Enable deployment server i

Enable automatic server discovery i

Provisioning interval (minutes) i  
371

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The Idle LED color setting allows defining the behavior and color of the mute LEDs on the main unit and the dialer when no audio activity is present (no VoIP or USB call, USB interface inactive).

Brightness and Backlight timeout impact the backlight behavior of the dialer.

### Deployment Server Settings

The Deployment Server Settings allows specifying automatic ways to download configuration data to the phone on a reboot.

Factory Default, the system is set to support automatic server discovery for a deployment server using DHCP option 66 and DHCP option 150.

When deployment server is enabled but automatic server discovery is disabled, a primary (and secondary) deployment sever can be statically entered from which the phone will download the configuration data at start-up.

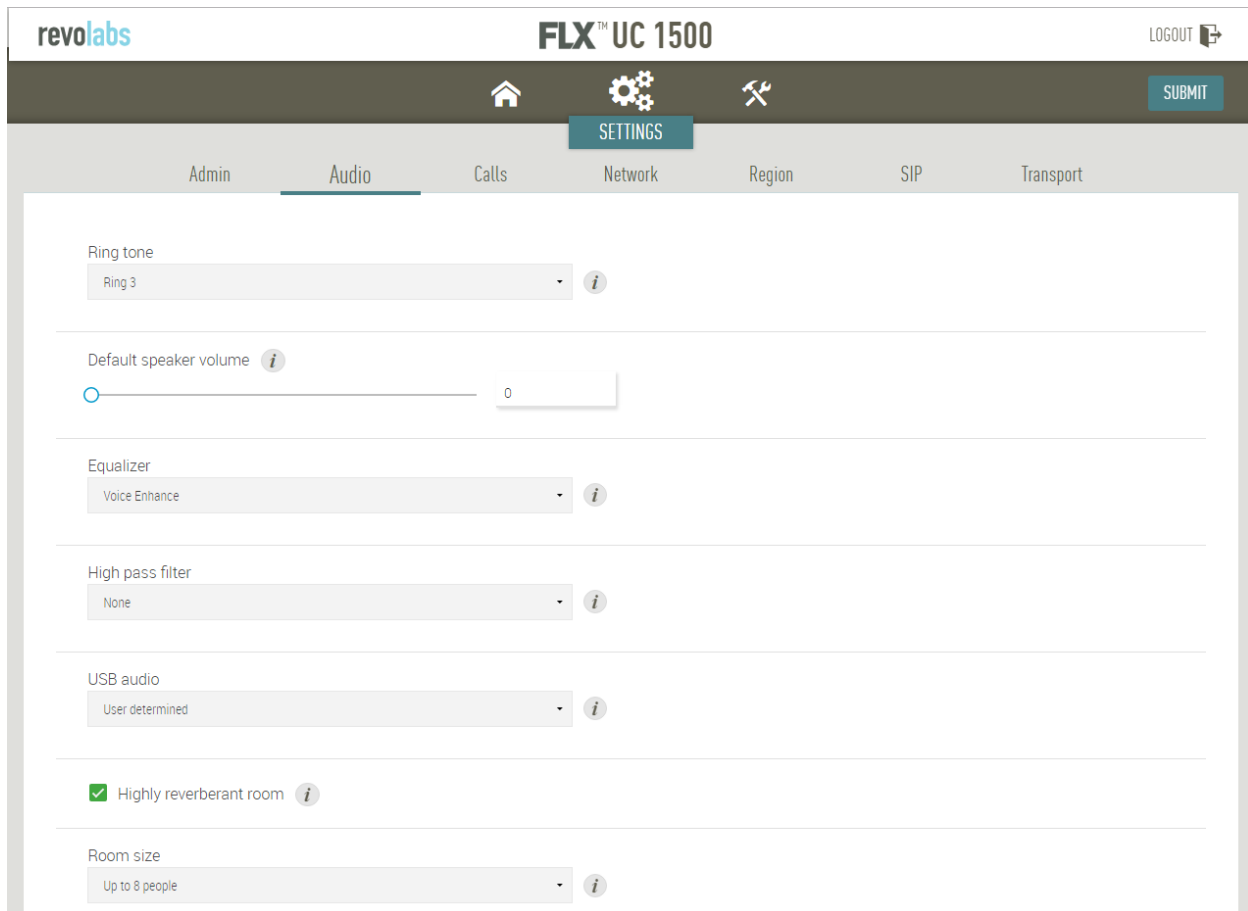
Using DHCP option 66, the return can be a tftp address or an http address. Option 150, a list of tftp servers or http addresses might be delivered back. When using the static server addresses, tftp addresses or http addresses might be provided.

When using the deployment server, the FLX UC 1000 or FLX UC 1500 will look for a file named <<MAC-address of unit>>.xml in the provided location(s). See the remote configuration section for sample configuration and a list of the available configuration parameters.

The provisioning interval allows specifying the time interval when a system should re-check for possible configuration changes. This interval can be set between 1 minute and 31 days (44,640 minutes). If a change to the configuration file is determined, the phone will reboot and restart using the new configuration file.

### *Audio*

The Audio section of the Settings menu supports managing the audio behavior of the UC FLX 1000 and UC FLX 1500 phone.



The Ring tone dropdown menu allows choosing from a list of available ringtones for the phone. The selected Ringtone will play on the phone once “Submit” has been clicked to save changes to the ringtone.

Default speaker volume allows specifying a default loudness of the phone. When all active calls end, the system will automatically return to that setting. Or on a reboot, the system will return to that volume setting. “0” will disable this function.

The Equalizer setting allows selecting one of a list of pre-defined speaker equalizations. The available choices are Voice Enhance, Bass Boost, and Treble Boost.

The High Pass filter affects the microphones and can be used to filter out low frequency noises in the room. The high pass filter can be disabled (None), or set to the provided frequencies of 110Hz, 140Hz, 175Hz, or 225Hz.

USB Audio can be set to Always Enabled, Always Disabled, User Determined, or USB calls only. On “Always Enabled” the USB audio path for the microphones and speakers is always open unless the USB call is put “on hold” from the dialer. The “Always Disabled” setting disables the USB audio path and it cannot be enabled from the dialer. “User Determined” allows the user to switch USB audio on and off from the dialer. And finally “USB calls only” allows the USB audio path only to be activated when the connected device signals that a USB call is in progress. This depends on the UC application.

The Highly reverberant room setting activates a filter that limits audio frequencies found in reverberant rooms. The FLX UC 1000 and FLX UC 1500 conference phones have been designed to provide the truest audio experience, capturing the audio in the room as it is experienced in the room itself. However, specifically when used with codecs limiting the audio to a narrow frequency bandwidth, this might cause an over-representation of low frequencies. The Highly reverberant room setting limits these frequencies.

Room size allows specifying the size of the room in which the FLX UC 1000 or FLX UC 1500 is being used. It affects the behavior of the gain control to ensure that in larger rooms everybody is heard, and in smaller rooms sounds that are not coming from the meeting itself are not gained.

revolabs **FLX™ UC 1500** LOGOUT

MEDIA SETTINGS SUBMIT

Audio codec *i*

Enabled

- G.722
- G.711 μ-law (PCMU)
- G.711 A-law (PCMA)
- G.726

Disabled

- G.729

Codec ptime override (ms) *i*

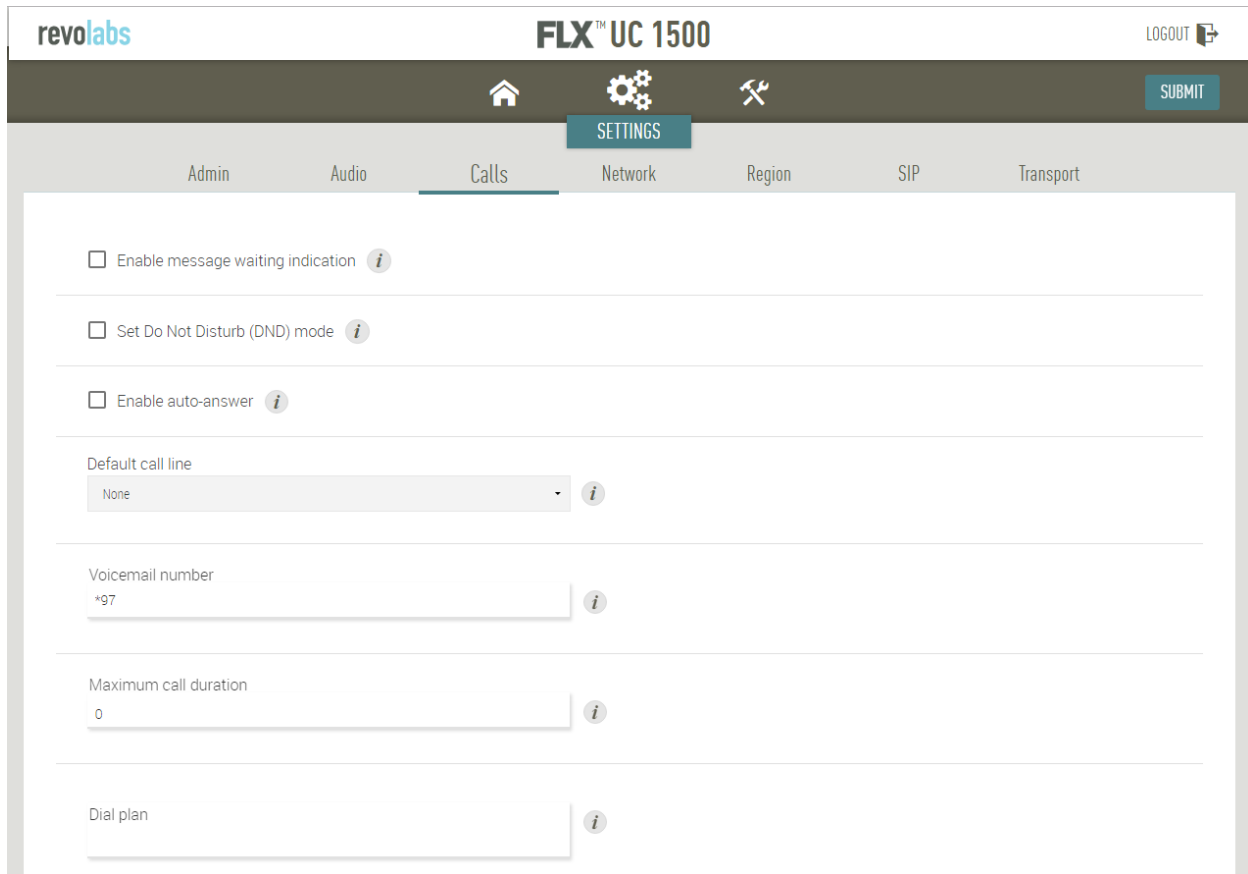
20

In the Media Settings the audio codecs used for VoIP calls and supported by the FLX UC 1000 and FLX UC 1500 can be enabled, arranged in priority, or disabled. This is done by dragging and dropping them into the respective area or position.

Supported codecs on the FLX UC 1000 and FLX UC 1500 are G.711 u-law and G.711 a-law, G.722, G.726, and G.729.

The Codec ptime override can be set to values between 10 and 100 milliseconds. Factory preset is 20 ms.

## Calls



The screenshot shows the 'Calls' settings page in the FLX UC 1500 web interface. The page is titled 'Calls' and is part of the 'SETTINGS' section. The settings are as follows:

- Enable message waiting indication *i*
- Set Do Not Disturb (DND) mode *i*
- Enable auto-answer *i*
- Default call line: None *i*
- Voicemail number: \*97 *i*
- Maximum call duration: 0 *i*
- Dial plan: *i*

The “Enable message waiting indication” allows a voicemail symbol to appear on the quick-reference bar at the top of the Dialer screen when a voice message waiting. Voice Message indication requires the extension to be configured to support voicemail.

Checking the “Set Do Not Disturb (DND) mode” activates DND on the phone. While activated incoming callers will be immediately forwarded into voicemail if it is configured for the phone or receive a busy tone and the device will not ring. Missed calls will still be recorded in the recent calls list as long as collection of recent call information is enabled.

A phone that has “Enable Auto Answer” checked will automatically go off-hook when a call arrives and answer that call without user input.

“Default Call Line” allows specifying the behavior of the off-hook button on the dialer and the main unit. If the default call line is VoIP, the phone will go into telephone dialing mode when off-hook is pressed. If the default line is USB,

pressing the off-hook button will send a start-call signal over the USB HID interface to the connected device.

The “Voicemail number” field allows to configure which number is called from when the voicemail menu is selected in the dialer.

Maximum call duration allows limiting calls to a specific length, and causes calls to end after the specified time. Setting the maximum duration of “0” or leaving it blank disables the maximum duration and allows for calls of any length.

The “Dial Plan” field allows specifying a dial plan for the phone. The syntax for the dial plan is described in detail in the Advanced Operations section of this manual.

The screenshot shows the 'revolabs' interface for the 'FLX™ UC 1500' device. The page title is 'FORWARDING SETTINGS'. There are three options, each with an unchecked checkbox and an information icon (i):

- Always forward *i*
- Forward on busy *i*
- Forward on no answer *i*

A 'SUBMIT' button is located in the top right corner of the settings area. A 'LOGOUT' button with a user icon is in the top right corner of the page header.

Forwarding Settings allow specifying automatic forwarding behavior of the phone. Selecting any of these will require a phone number to be entered to which calls will be forwarded. When selecting “Forward on no answer” a timeout has to be defined after which the call will be forwarded.

revolabs **FLX™ UC 1500** LOGOUT

SETTINGS

Admin Audio Calls **Network** Region SIP Transport

Enable DHCP *i*

IP address  
10.134.122.145 *i*

Subnet mask  
255.255.252.0 *i*

Default gateway  
10.134.122.1 *i*

Primary DNS  
10.134.122.10 *i*

Secondary DNS *i*

Voice VLAN  
Automatic *i*

The Network section allows specifying the IP configuration for the phone. Factory default, the phone is set to DHCP enabled and no further IP settings are required. However, if a static IP address is to be assigned to the phone, “Enable DHCP” needs to be unchecked, and the static IP parameters can be provided.

If a VLAN is used for Voice traffic, the Voice VLAN option allows to specify whether the VLAN should be detected automatically or whether a manual VLAN identifier is provided. If no VLAN is used for Voice traffic disable this option. The FLX UC 1000 and FLX UC 1500 phones support LLDP to discover VLANs.

## Authentication Settings

revolabs FLX™ UC 1500 LOGOUT

AUTHENTICATION SETTINGS SUBMIT

Enable 802.1x authentication *i*

Authentication Settings provides the option to enable 802.1x authentication on the FLX UC phones. To enable 802.1x authentication, check the Enable 802.1x authentication setting. Supported authentication types are MD5 and Protected EAP (Protected Extensible Authentication Protocol). A username and password are needed to complete the authentication process. If Protected EAP (Protected Extensible Authentication Protocol) is selected the server-side public key certificate will need to be uploaded to the FLX UC 1000 or FLX UC 1500.

## Region

Regions settings allow to change localization of the FLX UC units.

revolabs FLX™ UC 1500 LOGOUT

SETTINGS SUBMIT

Admin Audio Calls Network Region SIP Transport

System language  
English *i*

Regional call progress tones  
USA *i*

Time zone  
-5:00 Eastern Time *i*

System Language affects the user interface of the dialer. Chinese, English, French, German, Italian, Japanese, Portuguese, and Spanish are supported.

Call progress tones define the tones heard during call set up and other phone related tones. Several different audio tones as they are found in different countries and regions are supported.

Time zone allows to select the time zone the phone is being used in, managing date and time shown in the dialer screen.

### Time Settings


The screenshot shows the 'Time Settings' page in the FLX UC 1500 web interface. The page has a header with the 'revolabs' logo on the left, 'FLX™ UC 1500' in the center, and a 'LOGOUT' button with a user icon on the right. Below the header is a 'TIME SETTINGS' section with a 'SUBMIT' button. The settings include: a 'Date format' dropdown menu currently set to 'MM/DD/YYYY' with an information icon; a checkbox for 'Enable 24 hour time format' which is unchecked; and four text input fields for 'Network time server 1' through '4', each with an information icon. The values in the input fields are '0.pool.ntp.org', '1.pool.ntp.org', '2.pool.ntp.org', and an empty field for the fourth server.

In the Time Settings section the date format used in the dialer can be selected. Date can be set as MM/DD/YYYY, DD/MM/YYYY, or YYYY/MM/DD. The time display can be changed between 24 hour format and 12 hour format.

The FLX UC phones support up to 4 network time servers to provide NTP time information. These can be local servers or network servers.

DAYLIGHT SAVING SETTINGS

SUBMIT

Enable Daylight Saving Time adjustment 

Daylight Saving Time start time 

Month	Week	Day	Hour
March	Second	Sunday	2 AM

Daylight Saving Time end time 

Month	Week	Day	Hour
November	First	Sunday	2 AM

Daylight Savings settings allow to enable or disable Daylight Savings time for the phone display. If enabled, rules for the start date and time as well as the end date and time need to be provided. Factory default US daylight savings time is enabled and configured.

The screenshot displays the web interface for the FLX UC 1500 device. At the top, the 'revolabs' logo is on the left, 'FLX™ UC 1500' is in the center, and 'LOGOUT' with a user icon is on the right. Below this is a dark navigation bar with icons for Home, Settings (active), and Tools, and a blue 'SUBMIT' button. Underneath is a light gray menu with tabs for Admin, Audio, Calls, Network, Region, SIP (selected), and Transport. The main content area is titled 'REGISTRATION SETTINGS' and contains four input fields: 'Registrar' (with '1.1.1.1' entered), 'Backup registrar', 'VoIP realm' (with '\*' entered), and 'Proxy'. Each field has an information icon (i) to its right. At the bottom, there is a checkbox labeled 'Use proxy for registration' with an information icon (i).

In this menu the SIP configuration settings are located configuring the FLX UC 1000 or FLX UC 1500 with the call manager.

Registrar and Back-up registrar (if configured) are the IP addresses or server names of the Call Manager. If configured, a Proxy address can be provided, and an indicator whether the proxy should also be used for registration. The VoIP realm, typically “\*”, can also be provided.

Username 1111	<i>i</i>	<b>SUBMIT</b>
Password .....	<i>i</i>	
User ID 1111	<i>i</i>	
Display name Test	<i>i</i>	
Registration timeout 60	<i>i</i>	
Registration retry interval 300	<i>i</i>	

The next section contains the user name, User ID and password for the logon to the Call Manager. Please note that Call Managers often use different names for these parameters and a correct mapping is required for the logon to the call manager to be successful.

## Configuration Settings

revolabs **FLX™ UC 1500** LOGOUT

CONFIGURATION SETTINGS **SUBMIT**

Use SIP session timers  
Optional ⓘ

Session timers expiration  
1800 ⓘ

Session timers min expiration  
90 ⓘ

Require reliable SIP provisional response ⓘ

Enable SIP traversal behind symmetric NAT ⓘ

Suppress SIP event subscription during call transfer ⓘ

Allow strict routing ⓘ

Minimize SIP message size ⓘ

The Configuration Settings section offers several advanced SIP settings. These parameters should be aligned with the call manager configuration.

revolabs **FLX™ UC 1500** LOGOUT

DTMF signaling method **SUBMIT**  
RTP (RFC2833) ⓘ

DTMF RTP payload type ⓘ  
96

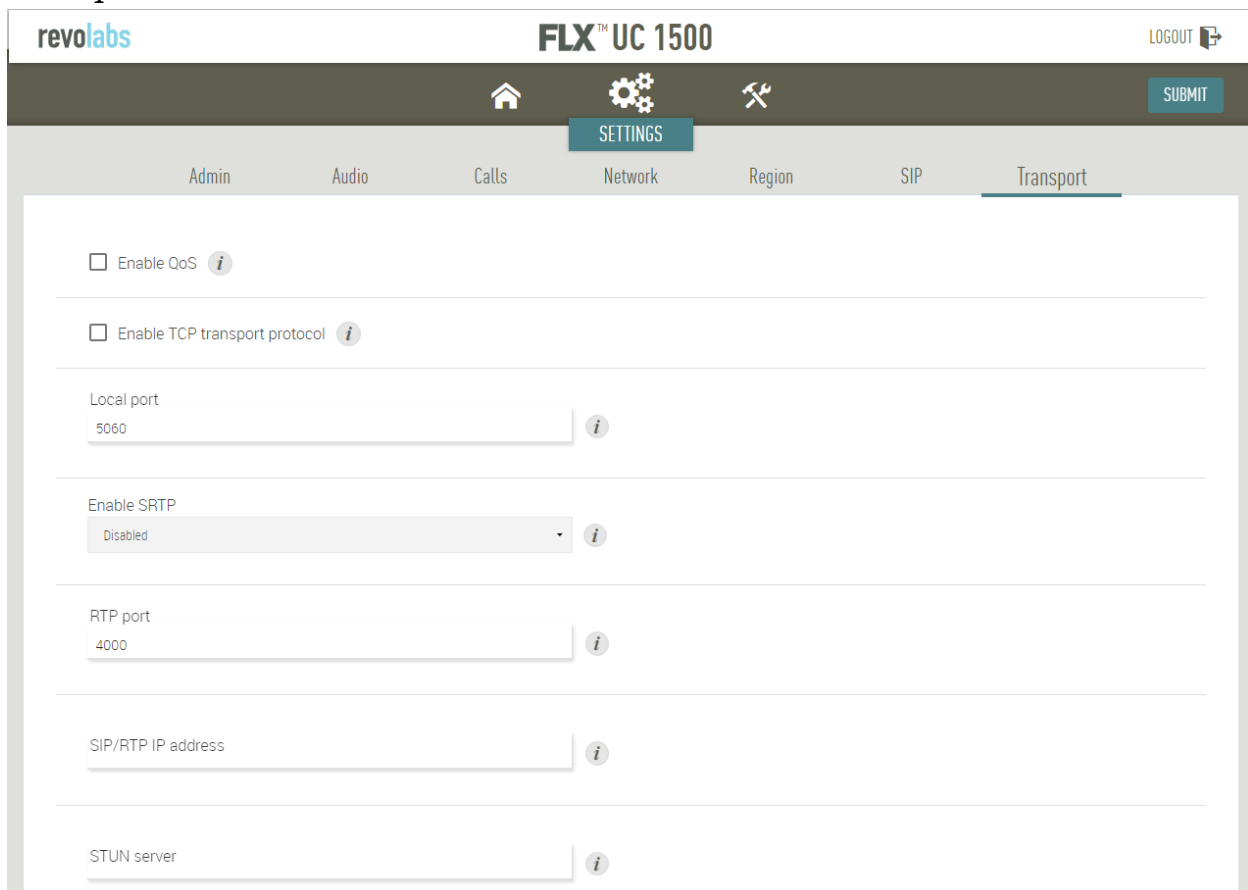
Media on-hold method ⓘ  
M line only (RFC3264)

The FLX UC 1000 and FLX UC 1500 phones support several means to transport DTMF information entered during a call to the far end. This setting should be consistent with the method supported by the call manager.

The SIP standard defines the payload range for DTMF tones. Some call managers do not accept all of the payload types, select the supported payload type in this setting.

Lastly, some call managers require RFC 2543 for on-hold media. For these call managers, change the Media on-hold message to that value.

### Transport



The screenshot shows the management interface for the FLX UC 1500. The top navigation bar includes the 'revolabs' logo, the device name 'FLX™ UC 1500', and a 'LOGOUT' button. Below this is a dark navigation bar with icons for Home, Settings (selected), and Tools, along with a 'SUBMIT' button. The main content area has a tabbed interface with 'Admin', 'Audio', 'Calls', 'Network', 'Region', 'SIP', and 'Transport' (selected). The 'Transport' section contains several settings:


- Enable QoS *i*
- Enable TCP transport protocol *i*
- Local port: 5060 *i*
- Enable SRTP: Disabled *i*
- RTP port: 4000 *i*
- SIP/RTP IP address *i*
- STUN server *i*

The Transport section of the management interface allows configuring specific transport methods based on call manager settings and network and firewall configurations.


If QoS is enabled, SIP and media packages are tagged to indicate QoS requirements.

Typically SIP messages are sent using UDP (if available). By checking Enable TCP transport protocol these messages are sent using TCP instead.


The remaining parameters on this page allow to specify the ports used for communication from the device, enable secure RTP, and ICE, TURN, and STUN settings. These parameters should reflect the call manager and network environment in which the FLX UC 1000 or FLX UC 1500 is used.

**revolabs** **FLX™ UC 1500** [LOGOUT](#) 

ICE SETTINGS [SUBMIT](#)

Enable ICE 

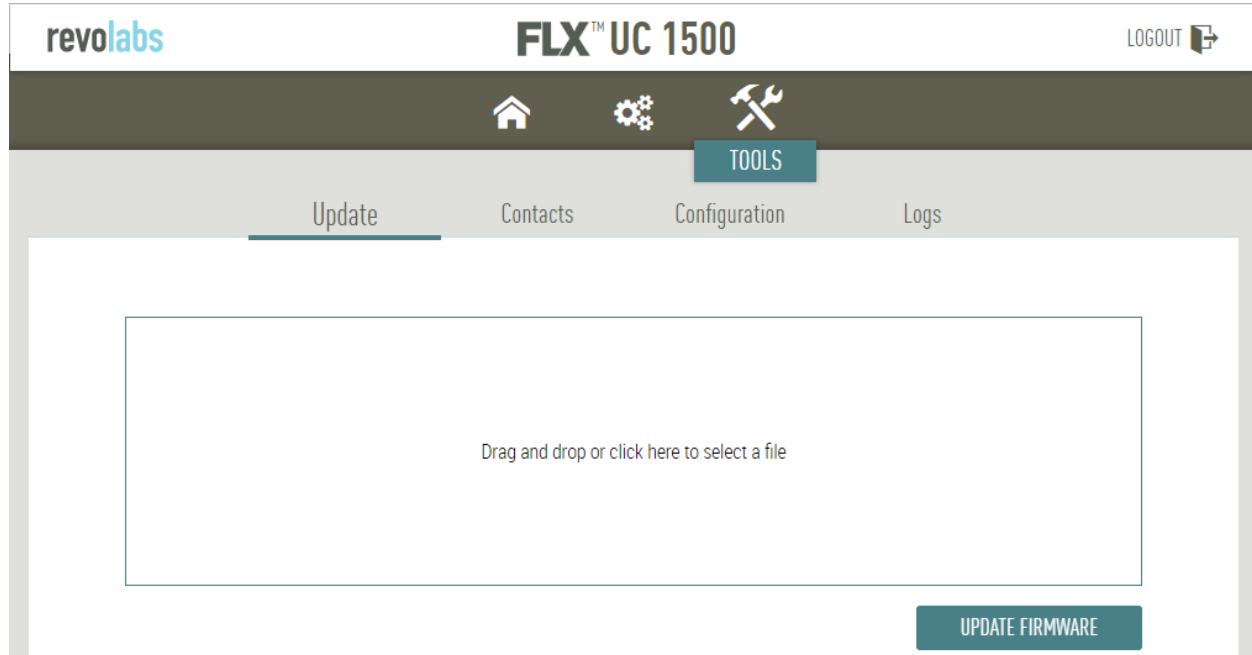
TURN SETTINGS

Enable TURN relay 

## Tools

The Tools section of the management interface allows importing and exporting data, resetting the configuration, and upgrading the firmware version.

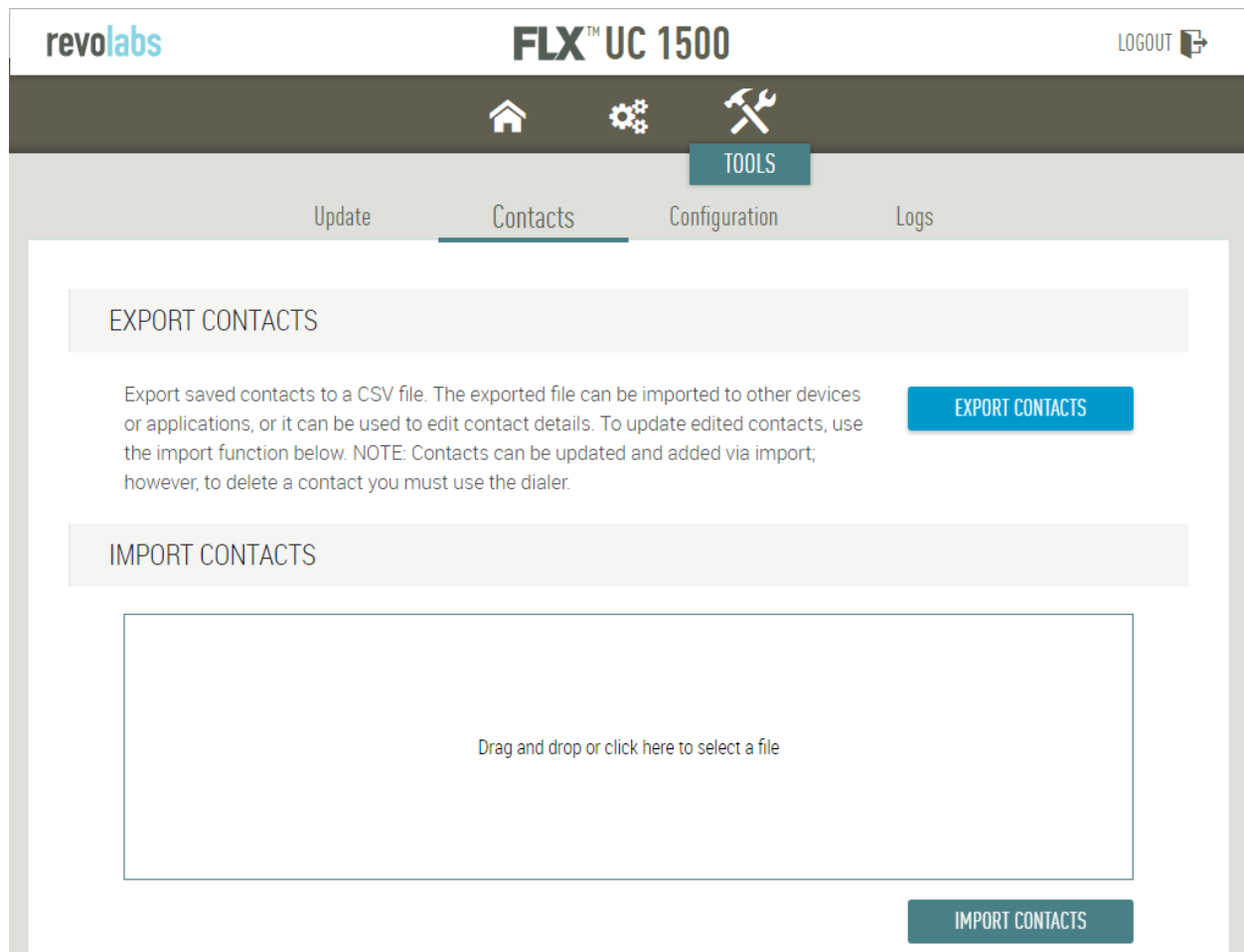
### Update



Update allows upgrading the device firmware of the FLX UC 1000 or FLX UC 1500. Only valid firmware files can be used for an upgrade. Latest firmware can be found on Revolabs' website ([www.uc.yamaha.com](http://www.uc.yamaha.com)).

The website allows “drag and drop” of a file, or when clicking in the box a file browser will open to select the firmware file.

Once the firmware file has been identified, clicking the “Update Firmware” button will initiate the upgrade. Once the upgrade is complete, the device will restart, and the boot-up chime will sound.



The Contacts section allows to export the current contact list from the FLX UC phone, or to upload a list to the phone.

“Export Contacts” creates a contacts.csv file that is downloaded to the connected device. The parameters in the CSV file are Name (contact name), mobile, work, home (the associated telephone numbers), default (whichever of the three numbers – mobile, work, home – should be used as the default), speed (the assigned speed-dial number), and key (a system generated identifier).

Contacts can also be imported using the Import Contacts section. Contacts imported that way are merged with the contacts list that may already exist on the phone. Leave the key field empty when importing a list.

The maximum number of contacts supported on a FLX UC 1000 or FLX UC 1500 is 100.

## Configuration

revolabs **FLX™ UC 1500** LOGOUT

Home Settings **TOOLS** Logs

Update Contacts **Configuration** Logs

### EXPORT CONFIGURATION

Export device configuration to an XML file. This will export all settings except the system password and the SIP password.

**EXPORT CONFIGURATION**

### IMPORT CONFIGURATION

Drag and drop or click here to select a file

**IMPORT CONFIGURATION**

### RESET DEFAULTS

SIP settings  Contacts

Audio settings  Call history

Network settings  Restore factory defaults

**RESET DEFAULTS**

The configuration page allows downloading the current configuration of the FLX UC 1000 or FLX UC 1500 phone. This is specifically of interest if several phone are supposed to be configured in a similar way. It allows to configure the first phone, export the configuration, and then import the relevant parameters of that configuration file into other FLX UC systems. For a description of the configuration parameters see the provisioning section further down in this manual.

System defaults can be restored in a granular way by selecting which settings of the configuration to reset to defaults and then clicking the “Reset Defaults” button. Restore to Factory Defaults restores all settings back to the original settings.

## Logs

The screenshot displays the web interface for the FLX UC 1500. At the top left is the 'revolabs' logo, and at the top center is the product name 'FLX™ UC 1500'. A 'LOGOUT' button with a user icon is in the top right. Below the header is a navigation bar with icons for Home, Settings, and Tools. Underneath, a menu contains 'Update', 'Contacts', 'Configuration', and 'Logs', with 'Logs' being the active tab. The main content area is titled 'DOWNLOAD LOGS' and includes the text: 'Download support logs if requested by Revolabs technical support. Enable verbose logging below if needed.' There are two blue buttons: 'DOWNLOAD LOGS' and 'SUBMIT'. A checkbox labeled 'Enable verbose logging' is checked.

The Logs section allows downloading logging information from the phone for analysis. Factory Default, verbose logging is not enabled and not required. Access to logging information is typically only required when environmental issues with call managers or connected USB devices are experienced.

## **Basic Operations**

### **SIP phone operations**

Prior to making any SIP based phone calls on the FLX UC 1000 or FLX UC 1500, the conference phone must be registered with a call manager.

### **Dialing a Number**

There are several ways to dial a telephone number from the FLX UC 1000 or FLX UC 1500 dialer.

If the phone is configured for VoIP as the default call line, press the green off-hook button provides dial tone and allows a number to be entered. The phone will use a time-out period to determine that the number is completely entered, and dial the number.

A phone configured for VoIP as the default call line will also enter the dialer screen automatically if numbers are entered. Once all numbers are entered, pressing the off-hook button will have the phone dial the entered number.

Whether the phone is configured default VoIP or USB, pressing the “New Call” button on the dialer will bring up an additional question to select VoIP or USB. If VoIP is selected, the dialer screen opens and a number can be dialed.

And lastly, the dialer screen can be entered from the Main Menu by selecting the “Dialer” sub menu.

To dial a number that begins with a plus sign (“+”), press and hold the 0 button until the “+” appears. Please note that the call manager needs to be configured to allow dial strings including the “+” symbol.

To include pauses in the dial string, press and hold the “\*” key. Pauses are identified by a “,” symbol in the dial string.

### **Redialing a Number**

The Redial button will redial the last number used to place an outgoing call.

To redial a different number from the recent calls list, open the recent calls list by either pressing the [Calls] soft key at the bottom of the screen, or select the “Recents” menu from the Main Menu. Using the navigation buttons select the desired number and press the green off-hook button to initiate the call, or

choose the [More >] soft key and then press the [Dial] soft key at the bottom of the screen to redial that number.

### **Dialing a Contact**

To dial a contact, from the Main Menu, select Contacts. Select the desired contact from the list using the navigation keys. To call the *Default* number of the contact press the [Dial] soft key at the bottom of the screen or press the green off-hook buttons. To dial one of the non-default numbers of the contact open the contact, then select the desired number with the navigation keys before pressing the [Dial] soft key at the bottom of the screen or pressing the green off-hook button.

### **Initiating a second call while another call is active**

Select [New Call] along the bottom of the screen, enter the second number, and press the [Dial] soft key or the green off-hook button to establish the second call. The first call will be put on hold. To switch between calls, select the desired call in the display using the navigational keys, and then press the [Swap] button at the bottom of the screen. This will make the selected call active, and put the previous call on hold. To join the two calls in a conference call press the [Join] soft key.

### **Answering an Incoming Call**

While on a call, answer an incoming call by hitting the green off-hook button on the dialer or base. The previously active call will be put on hold.

### **Ignoring an Incoming Call**

To ignore the incoming call, select it through the dialer and press the [Ignore] button. Alternatively, press the red on-hook button on either base or the dialer.

### **Hanging Up a Call**

Pressing the red on-hook button will hang up active calls.

### **USB Audio**

To use the FLX UC 1000 or FLX UC 1500 for USB audio, the USB settings in the system needs to be configured by selecting USB Always Enabled, USB User Determined, or USB Calls Only.

If the system is not to be used for USB audio it is recommended to select USB Always Disabled as the USB setting.

When USB is Always Enabled, the audio connection to the connected device is always sending and receiving audio data, unless the audio channel is put on hold. If User Determined is selected, audio is only sent and received when [USB On] is selected from the Dialer. Otherwise audio is not being sent or received, and the dialer screen shows USB Audio as Inactive.

USB Calls Only limits USB audio connections to the connected device only to cases in which the UC application used identifies USB activities as USB calls. USB audio can only be sent when a USB call has been detected and the FLX UC device has been notified about it.

The FLX UC devices support integration of audio control with the operating system of the attached device, and call control (hang-up and answer) with Third Party Conferencing Applications. Audio control integration is supported with Windows 10, Mac OS, and Chrome OS. Call control is supported by using HID (human interface device) commands on the USB connection. Some UC applications support HID commands natively and therefore can directly exchange these commands with the FLX UC device. For other applications the HID commands need to be transformed into application specific commands. Please refer to the section on the FLX UC Device Manager on more detail on which applications are supported.

## **Conference USB and SIP Calls**

The FLX UC 1000 or FLX UC 1500 can have two simultaneous SIP VoIP calls and the USB audio line active at the same time. Any combination of these calls can be joined into a conference.

To set up a conference call when no calls are active, initiate the first call, then press the [Conf] button at the bottom of the screen and start the second call. Both calls will now be active and in a conference call with one another.

To set up a conference call when more than one call is already active, select one call using the navigation keys, and make it the active call (not on hold). Then select the second call you wish to include in the conference using the navigation keys, and press the [Join] button at the bottom of the screen. This will create a conference call. The third call can be included in the same conference call by selecting it using the navigation keys and pressing [Join] again.

Pressing the [Split] button at the bottom of the screen while the conference call is selected will separate the conference call. All calls will be separate and put on hold. To continue with one participant select the call using the navigation keys and press [Resume] to activate it. To end any of the calls select it using the navigational keys and press the on-hook button.

**NOTE:** Hanging up on a conference call you are hosting will hang up on the connection between the active calls. The conference will not continue after you leave. Hanging up on a conference you called into will only remove you from the conference, not affect the other callers.

The FLX UC 1000 and FLX UC 1500 support a maximum of three lines for incoming and outgoing calls (two SIP calls, one USB call). If the maximum of calls is reached, no more calls can be made. Call forwarding can be set up to forward a caller who calls in while the SIP lines are busy.

## **Using Do Not Disturb**

When Do Not Disturb mode is active the device will not ring when calls are coming in. Depending of the setup, the far end calling the FLX UC 1000/FLX UC 1500 will receive a busy tone, or if call forwarding is configured, will be redirected to the call forwarding number. The Do Not Disturb feature can be configured using the dialer or the web UI.

# **Configuring the FLX UC 1000 or FLX UC 1500 for your VoIP Network**

This section will provide details on how to configure the device to connect to a call manager. The information provided here is general to any call manager, and provides the details of how to access the configuration settings on the FLX UC 1000 or FLX UC 1500 to enter in the specific call manager information.

Some sample configuration for specific call managers, including the mappings of fields, is provided in the appendix of this manual. The Yamaha Unified Communications, Inc. web site at [uc.yamaha.com](http://uc.yamaha.com) provides more information and samples for several call managers.

There are three methods on how the FLX UC 1000 or FLX UC 1500 can be configured on the network –from the Web UI, using the dialer, or using a provisioning server with DHCP Option 66 or 150.

## **Configuring using the Web User Interface**

All SIP configuration parameters are available in the Settings - SIP Settings and the Settings – Transport menus.

Once the required configuration information is entered on each of the sides, click the “Submit” button on the top right of the screen to save the changes.

It is recommended to reboot the device once all configuration changes have been performed.

## **Configuring using the Dialer**

The Dialer is not the recommended way to configure the phone as entry, specifically of characters, through the dial pad is time consuming.

A small set of the SIP settings can be accessed and configured from the Dialer. From the Main Menu, select Settings, Admin Settings, and then the VoIP Settings for a list of the available configurations items.

Select any configuration item and press the [Edit] button at the bottom of the screen to enter editing mode. After providing the necessary information, hit the [Apply] button to save the changes.

Once all settings have been changed, return to the “Admin Settings” menu and select the “Reboot” option. Rebooting the device will apply the changes.

## **Configuring using a Provisioning Server, Option 66**

Option 66 allows IP Phones to download their configuration from a TFTP server. When an IP Phone starts, it sends a request to the DHCP server for an IP address. In addition to the IP address the DHCP server send additional information back to the phone as configured on the DHCP server. Option 66 is a configuration item that allows providing the address or hostname of a TFTP or HTTP server to the device.

An http server needs to be configured as

```
http://<server address>
```

A ftp server needs to be configured as

```
ftp://<server address>/user="<username>"&pass="<password>"
```

and where <username> and <password> are the username and password required to access the tftp server.

Once the FLX UC 1000 or FLX UC 1500 receives the address information of that server, it tries to access configuration files on that server to auto-configure the phone during start-up. The configuration file for the specific FLX UC phone needs to be named <MAC-address of phone>.xml.

Any configuration data provided from the configuration files will overwrite configuration that might have been entered in the phone previously.

A list of the available parameters with a short description is provided further down in this manual. A set of sample configuration files is also provided.

## **Configuring using a Provisioning Server, Option 150**

Option 150 allows IP Phones to download their configuration from a TFTP server. When an IP Phone starts, it sends a request to the DHCP server for an IP address. In addition to the IP address the DHCP server sends additional information back to the phone as configured on the DHCP server. Option 150

is a configuration item that allows providing a list of addresses or hostnames of TFTP or HTTP servers to the device.

Http servers needs to be configured as

```
http://<server address>
```

Ftp servers needs to be configured as

```
ftp://<server address>/user="<username>"&pass="<password>"
```

and where <username> and <password> are the username and password required to access the tftp server.

Once the FLX UC 1000 or FLX UC 1500 receives the address information of these servers the device will try to access configuration files on these servers to auto-configure the phone during start-up. The configuration file for the specific FLX UC phone needs to be named <MAC-address of phone>.xml.

Any configuration data provided from the configuration files will overwrite configuration that might have been entered in the phone previously.

## Provisioning file

The provisioning file is in xml format. The syntax of the file is

```
<provisioning [include="{comma separated list of include files}"]>
```

```
  [<config {list of config parameters} />]
```

```
  [<firmware version="{firmware version}">{firmware file name}</firmware>]
```

```
</provisioning>
```

Where [] indicates an optional parameter and {} indicate a description of the content to be provided.

The “config” tag contains all configuration settings that pertain to the device, while the “firmware” tag includes the latest firmware version and firmware file name.

## Sample device configuration file

Filename: **F0DEF1A064E6.xml** for the unit with the MAC address f0:DE:F1:A0:64:E6

```
<provisioning include="enterprise.xml, department.xml">
```

```
<config voip.id="test" voip.name="test" voip.user="test" voip.password="test" />
</provisioning>
```

### ***Include files***

Filename: **enterprise.xml**

```
<provisioning>
  <firmware version="2.6.0.294">FLX-UC-1500-2-6-0-294.bundle</firmware>
  <config
    voip.registrar="200.200.210.240"
    voip.registrar-backup=""
    voip.realm="*"
    voip.reg-use-proxy="0"
    voip.proxy=""
  />
</provisioning>
```

Filename: **department.xml**

```
<provisioning>
  <config
    net.ntp1="0.pool.ntp.org"
    net.ntp2="1.pool.ntp.org"
    sys.provisioning-interval="1440"
    sys.led-behavior="0"
    sys.dst-enabled="1"
    sys.dst-start-rules="3:2:1:2"
    sys.dst-end-rules="11:1:1:2"
    sys.time-zone="13"
    sys.twenty-four-hour-time="0"
    sys.date-format="MM/DD/YYYY"
    sys.region="23"
    sys.language="1"
    audio.usb-audio="3"
    audio.ringer-volume="7"
    audio.speaker-volume="7"
    voip.ptime="20"
    voip.codec1="0"
    voip.codec2="1"
    voip.codec3="2"
    voip.codec4="3"
    voip.codec5="4"
  />
</provisioning>
```

## Provisioning file parameters

The following table lists the attributes that can be provided as part of a provisioning file. If a specific attribute is not provided and the value is not set in the phone, the default value as described will be used.

Config attributes	Default Value	Type	Values	Description
voip.registrar		TEXT	""	The IP address or DNS name of the SIP registrar server. Required.
voip.registrar-backup		TEXT	""	The IP address or DNS name of a failover SIP registrar, it should be configured with the failover or secondary SIP registrar IP address or domain name if applicable. If no failover or secondary SIP registrar is present in the VoIP infrastructure, this field should be left blank. When this field is specified, the phone will register with the primary SIP registrar (The 'Registrar' field) if it is accessible. If the primary SIP registrar becomes inaccessible via UDP or TCP, the phone will attempt to register with the backup registrar. If the phone successfully registered with the backup registrar, it will switch to the backup registrar to perform outgoing calls and receive incoming calls. While the phone is registered with the backup registrar, it will monitor the primary SIP registrar connection. Once the primary SIP registrar becomes available again, the phone will roll back to register with the primary registrar and route SIP traffic from/to the primary registrar.
voip.proxy		TEXT	""	Enter the outbound SIP proxy server's IP address or name here. If there are multiple SIP proxies, separate the addresses by a comma. Also note that if the allow strict routing option is set and you have a SIP proxy that is configured for loose routing, add the designation after the proxy's address, for example, '10.134.129.101;lr'.
voip.id		TEXT	""	This holds the phone's SIP ID used for SIP registration. If this field is left blank, the voip.user (User name) field will be used as the ID.
voip.name		TEXT	""	Voip.name (Display name) is shown when an outbound call is made. If no Display Name is provided, the User name will be used. Please note that the IP PBX might override the Display name sent by the FLX UC and replace it

Config attributes	Default Value	Type	Values	Description
				with names configured in the PBX.
voip.password		TEXT	""	The password for the account used to authenticate with the SIP registrar and proxies. Required.
voip.user		TEXT	""	The username for the account used to authenticate with the SIP registrar and proxies. Required.
voip.reg-use-proxy	0	BOOLEAN	0="False" 1="True"	Indicates whether the SIP proxy server(s) specified in the Proxy field should be used when registering. Selecting this option will add the listed proxy server(s) to the route headers of the SIP REGISTER request.
voip.realm	*	TEXT	""	Realm of the credential to authenticate against the server. The value here must match the realm sent by the server in the WWW-Authenticate or Proxy-Authenticate header in the 401/407 response. An asterisk (*) causes the endpoint to respond to any realms.
voip.reg-timeout	60	NUMBER	1 - 604800	Registration Timeout is the optional timeout for SIP account registration, in seconds. The default is 60, and the maximum is 604800, which is 7 days.
voip.rereg-delay	300	NUMBER	1 - 604800	If SIP registration is unsuccessful, this field specified the time duration between retry attempts in seconds.
voip.use-timer	1	INDEXED_OPTION	0="Inactive", 1="Optional", 2="Required"	Specify the preference for using SIP session keep-alive timers. During a SIP session, if SIP session timers are active, the SIP User Agent (UA) periodically sends INVITE or UPDATE requests (also called refresh requests) to keep the SIP session alive. The interval and use of the keep-alive is determined at call negotiation. If one of the UAs in a call does not receive the refresh request within the expiration timeout period, it will terminate the session. The available options are: Inactive - Session Timers will not be used in any session, except if explicitly required in the remote request. Optional - Session Timers will be used in all sessions whenever the remote supports and uses it. Required - Session Timers support will be a requirement for the remote to be able to establish a session.

Config attributes	Default Value	Type	Values	Description
voip.timer-se	1800	NUMBER	90 - 604800	The expiration period is the interval at which the phone will consider the SIP session timed out if it does not receive a refresh message from the remote phone. At call negotiation, the nodes will negotiate the expiration period to be used for the session. If the negotiated value is less than the session timer's minimum expiration, then the session timer minimum expiration is used instead. It is measured in seconds and must be greater than 90.
voip.timer-min-se	90	NUMBER	1 - 604800	This is the minimum session timer expiration period that the FLX UC will accept when negotiating the expiration period with the remote phone. If the session timer expiration duration is less than this value, this value is used instead. It is measured in seconds.
voip.use-100rel	0	BOOLEAN	0="False" 1="True"	Implements reliable SIP provisional responses. By default the setting is unchecked. SIP is a request-response type of protocol with two types of responses: provisional and final. Final responses are sent reliably, using an ACK to ensure receipt. Provisional responses by default are not sent reliably and do not require an ACK; however, in some cases, such as for PSTN interoperability support, reliability of provisional types of responses is needed. Choose this option to add the PRACK (provisional ACK) message support for reliability.
voip.auto-update-nat	1	BOOLEAN	0="False" 1="True"	Used for FLX UC behind a symmetric NAT (Network Address Translation). When enabled, FLX UC will keep track of the public IP address from the response of the REGISTER request. If it detects that the address has changed, it will unregister the current Contact, update the Contact with the transport address obtained from the Via header, and register a new Contact to the SIP registrar. This option will also update the public name of the UDP transport if STUN is configured.
voip.no-refer-sub	0	BOOLEAN	0="False" 1="True"	When transferring a SIP call, the SIP REFER process automatically establishes a temporary event subscription to notify the party initiating the transfer about the receiver's status in handling the REFER. In some cases these event subscriptions and notifications are not needed, such as when forking is not used. Enable this option to suppress the automatic event

Config attributes	Default Value	Type	Values	Description
				subscriptions when transferring calls. The option is disabled by default. (See IETF RFC 4488.)
voip.allow-strict	0	BOOLEAN	0="False" 1="True"	By default, proxies specified for SIP registration will be configured as loose-routing proxies. The loose-routing designation will be automatically appended to each proxy address when the proxy is added to the SIP Route header. Older proxies may be strict-routing (see IETF RFC 2543), not supporting loose routing (see IETF RFC 3261). Enable this option if you are using strict-routing proxies. If this option is enabled and you are specifying one or more loose-routing proxies in the Proxy field, then you must manually add the suffix to each loose-routing proxy address. For example, "10.134.123.101;lr".
voip.min-size	0	BOOLEAN	0="False" 1="True"	The SIP protocol specifies that header field names can be in the full name form or in the abbreviated form. Abbreviated form is useful when messages might be too large to be carried on the available transport, for example when exceeding UDP's Maximum Transmission Unit (MTU). Enable this option to encode SIP headers in their short forms to reduce size. By default, the option is not enabled and SIP headers in outgoing messages will be encoded in their full names. (See SIP protocol standard, IETF RFC 3261.)
voip.dtmf-method	0	INDEXED_OPTION	0="RTP (RFC2833)" 1="SIP INFO" 2="Inband"	Select the signaling method for transmitting DTMF tones, either via RTP (RFC2833), SIP INFO messages, or in-band.
voip.dtmf-rtp-payload-type	96	NUMBER	96 - 127	Specify the payload type for DTMF RTP signaling.
voip.media-onhold-method	0	INDEXED_OPTION	0="M line only (RFC3264)" 1="M and C line (RFC2543)"	The Media on hold method setting allows switching the Media on Hold behavior between the different RFC definitions. 'M line only (RFC3264)' implements the functionality according to RFC3264. In the INVITE message SDP body, the attribute 'a=sendonly' is set to a designated media stream to put media on-hold. 'M and C line (RFC2543)' implements the functionality according to RFC2543. In the INVITE message SDP body, the connection line ip is set to '0.0.0.0' (e.g. 'c= IN IP4 0.0.0.0'), and the attribute 'a=inactive' is

Config attributes	Default Value	Type	Values	Description
				added.
voip.vm-number		TEXT	""	Provides the number that is dialed when voicemail is called from the main menu.
voip.use-srtp	0	INDEXED_OPTION	0="Disabled" 1="Optional" 2="Mandatory"	Controls Secure Real-time Transport Protocol (SRTP) usage. These are the available options: Disabled - Do not use SRTP; always use RTP. Optional - Use the optional disposition for SRTP in SDP. If the remote end supports SRTP, then use SRTP; otherwise, use RTP. Mandatory - Force use of SRTP. If the remote end does not support SRTP, the call does not connect.
voip.rtp-port	4000	NUMBER	1024 - 65535	This is the base port number for RTP. RTP is originated and received on even port numbers, and the associated RTCP uses the next higher odd port number. The range is 1024 to 65535.
voip.udp-tcp-selection	0	INDEXED_OPTION	0="UDP" 1="TCP"	Selects the transport that will be enabled for SIP messages.
voip.local-port	5060	NUMBER	1024 - 65535	Specifies the local port for SIP transport. The range is 1024 to 65535.
voip.stun-srv		TEXT	""	Optional. Specifies the STUN (Session Traversal Utilities for NAT) server to use to determine if the phone is behind a NAT, the type of NAT, and the public address of the phone. The field can contain a comma separated list of servers. Each server can be a domain name, host name, or IP address, and it may contain an optional port number. (For STUN see IETF RFC 5389.)
voip.use-ice	0	BOOLEAN	0="False" 1="True"	This option enables the use of the ICE (Interactive Connectivity Establishment) protocol for NAT traversal. ICE takes advantage of STUN and TURN to identify candidates (IP addresses and ports) for communication, evaluating and prioritizing the candidate pairs to select the best route. Expensive candidates, such as using a media relay, are selected only as a last resort. (For ICE see IETF RFC 5245.)

Config attributes	Default Value	Type	Values	Description
voip.ice-regular	1	INDEXED_OPTION	0="Regular" 1="Aggressive"	When using ICE, select the preferred ICE Nomination Method. To validate candidate pairs (IP addresses and ports for the local and remote nodes), FLX UC sends STUN binding requests as part of the media connectivity tests. When a candidate is nominated for use, a STUN binding request is sent with a flag indicating that the candidate pair is nominated. There are two nomination methods that can be used: Regular -For Regular Nomination, FLX UC validates candidate pairs with initial STUN binding requests, and then selects a valid candidate pair by sending another STUN binding request with a flag indicating that the pair is nominated. Aggressive -For Aggressive Nomination, FLX UC does not wait to set the nominated flag in a second STUN binding request, but rather sets the flag in the STUN binding requests for all of the candidate pairs. The ICE processing completes when the first pair successfully passes connectivity checks. The aggressive method is faster but does not always result in the optimal path being selected.
voip.ice-max-hosts	5	NUMBER	0 - 10	An ICE host candidate is an actual local transport address in the host. Host transport addresses are obtained by binding to attached network interfaces. These interfaces include both physical interfaces and virtual interfaces such as VPN. This option specifies the maximum number of local ICE host candidates that may be used in evaluating candidate pairs when determining the best route. A value of 0 indicates that there is no maximum.
voip.ice-no-rtcp	0	BOOLEAN	0="False" 1="True"	Select this option to not disable the RTCP component in ICE. Selecting "0" will enable RTCP, 1 keeps RTCP disabled.
voip.use-turn	0	BOOLEAN	0="False" 1="True"	Enables the use of a TURN (Traversal Using Relay NAT) relay when using ICE. A TURN relay is a media relay server residing on the public internet which can relay media data packet between clients. TURN relays are used when other preferred mechanisms are not available, such as STUN or direct connectivity. If TURN is enabled, the other TURN settings (server, username and password) must also be specified.
voip.turn-srv		TEXT	""	Specifies the TURN server domain name or hostname. The format is either 'DOMAIN:PORT' or 'HOST:PORT'

Config attributes	Default Value	Type	Values	Description
voip.turn-user		TEXT	""	Specifies the username to authenticate against the TURN server.
voip.turn-passwd		TEXT	""	Specifies the password to authenticate against the TURN server.
voip.turn-tcp	0	BOOLEAN	0="False" 1="True"	If set to True uses TCP to communicate with the TURN server, otherwise UDP.
voip.set-qos	0	BOOLEAN	0="False" 1="True"	Selecting this option enables QoS (Quality of Service) tagging for SIP and media. For layer 3, at the Internet layer, the DiffServ (Differentiated Services) precedence level is Class 3. The Differentiated Services Code Point (DSCP) in the IP header is set to 24 (0x18). For layer 2, IEEE 802.1p tagging is supported.
voip.codec1	1	INDEXED_OPTION	0="None" 1="G.722" 2="G.711 u-law (PCMU)" 3="G.711 A-law (PCMA)" 4="G.726" 5="G.729"	Highest prioritized codec. At least one codec different from "None" has to be selected in voip.codec1-voip.codec5.
voip.codec2	2	INDEXED_OPTION	0="None" 1="G.722" 2="G.711 u-law (PCMU)" 3="G.711 A-law (PCMA)" 4="G.726" 5="G.729"	Second highest prioritized codec. At least one codec different from "None" has to be selected in voip.codec1-voip.codec5.
voip.codec3	3	INDEXED_OPTION	0="None" 1="G.722" 2="G.711 u-law (PCMU)" 3="G.711 A-law	Third highest prioritized codec. At least one codec different from "None" has to be selected in voip.codec1-voip.codec5.

Config attributes	Default Value	Type	Values	Description
			(PCMA)" 4="G.726" 5="G.729"	
voip.codec4	4	INDEXED_OPTION	0="None" 1="G.722" 2="G.711 u-law (PCMU)" 3="G.711 A-law (PCMA)" 4="G.726" 5="G.729"	Fourth highest prioritized codec. At least one codec different from "None" has to be selected in voip.codec1-voip.codec5.
voip.codec5	5	INDEXED_OPTION	0="None" 1="G.722" 2="G.711 u-law (PCMU)" 3="G.711 A-law (PCMA)" 4="G.726" 5="G.729"	Lowest prioritized codec. At least one codec different from "None" has to be selected in voip.codec1-voip.codec5.
voip.ptime	20	NUMBER	10 - 60	The ptime (packetization interval) value for a codec determines the length of time in milliseconds represented by the media in an RTP packet which is used to transmit audio traffic. The valid range is 10-60.
voip.auto-answer	0	BOOLEAN	0="False" 1="True"	Allows automatically answering phone calls even if not physically at the location where the phone is located. We recommend enabling this feature only for test purposes. If the phone is set to Do Not Disturb or if there are no available lines, the Forward rules will apply. If there are no Forward rules specified, the incoming call will be sent to voice mail. If voice mail is not supported, the call will be rejected.

Config attributes	Default Value	Type	Values	Description
voip.duration	0	NUMBER	0 - 10080	Specifies the maximum call duration in minutes. When the call duration reaches the maximum duration, the call will be automatically terminated. The maximum limit is 10,080 minutes, or 7 days. A 0 indicates no maximum call duration.
voip.mwi	0	BOOLEAN	0="False" 1="True"	Enable displaying the message waiting indicator (MWI) on the FLX UC device and enable receiving message waiting notifications from the PBX. The PBX must be configured to support voice mail for the registered user in order for this feature to work properly.
voip.always-forwarding	0	BOOLEAN	0="False" 1="True"	Forward all incoming calls to the specified number.
voip.always-forwarding-num		TEXT	""	Number for calls to be sent to.
voip.busy-forwarding	0	BOOLEAN	0="False" 1="True"	Forward incoming calls to the specified number if the local phone is in 'Do Not Disturb' mode or if both lines are busy.
voip.busy-forwarding-num		TEXT	""	Number for calls to be sent to.
voip.noanswer-forwarding	0	BOOLEAN	0="False" 1="True"	Forward incoming calls to the specified number if the call is not answered within the duration specified in the 'noanswer-delay' attribute.
voip.noanswer-forwarding-num		TEXT	""	Number for calls to be sent to.
voip.noanswer-delay	4	NUMBER	2 - 30	Number of seconds to wait before forwarding an unanswered incoming call to the 'noanswerforwarding-num' number.
voip.do-not-disturb	0	BOOLEAN	0="False" 1="True"	Puts the phone in Do Not Disturb mode.
audio.speaker-volume	7	NUMBER	1 - 13	Sets the speaker volume for the call. The range of values is 1-13.
audio.ringer-volume	7	NUMBER	1 - 13	Sets the speaker volume for the ring tone played when the phone receives an incoming call. The range of values is 1-13.
audio.ring-tone	0	INDEXED_	0="Ring1"	Select from one of the six provided ring tones, Ringer 1-Ringer 6.

Config attributes	Default Value	Type	Values	Description
		OPTION	1="Ring2" 2="Ring3" 3="Ring4" 4="Ring5" 5="Ring6"	
audio.eq	0	INDEXED_OPTION	0="Voice Enhance" 1="Bass Boost" 2="Treble Boost"	Adjust the speaker frequencies to your preference for the room and the types of calls.
audio.high-pass-filter	0	INDEXED_OPTION	0="None" 1="110 Hz" 2="140 Hz" 3="175 Hz" 4="225 Hz"	High-Pass filters are provided to adjust to room and application requirements. Use the High-Pass filter in rooms that have a high background noise in the low frequencies (air conditioning, lighting fixtures, etc.). All filters are bi-quad filters, reducing the signal by 6dB per octave.
audio.usb-audio	3	INDEXED_OPTION	0="" 1="Always enabled" 2="Always disabled" 3="User determined" 4="USB Calls"	Controls the PC USB audio mode via the following options: Always Enabled - Two-way audio will always be transmitted to PC as long as USB audio connection is present. Always Disabled - Audio is not transmitted or received on the PC USB port. User Determined - Audio is always transmitted from PC to speaker, but microphone audio is only transmitted to PC as user permits. USB Calls – Only USB calls answered/dialed, or USB calls initiated via button press enable microphone transmission.
audio.default-call-line	voip	OPTION	"voip" "usb" "none"	Selects the preference for the default call line.
audio.room-size	3	INDEXED_OPTION	0="" 1="Small" 2="Medium" 3="Large"	Allows tuning mic sensitivity and speaker loudness for room sizes. Each setting assumes an approximate distance between people in the room and their closest microphone. Small approximates this distance at 2.5 to 5 feet or 80 cm to 1.5 meters, and Large approximates this distance at 10 to 20 feet or 3 to 6 meters.

Config attributes	Default Value	Type	Values	Description
audio.reverberant-room	0	BOOLEAN	0="False" 1="True"	Enables improved audio support for highly reverberant rooms.
audio.def-speaker-volume	0	NUMBER	0 - 18	Select an optional default speaker volume, or set to 0 to disable. If a default is selected, the FLX will reset to the default volume when all active calls have ended, as well as on reboot. If set to 0, there is no default speaker volume, and the FLX UC will remember the last volume setting.
sys.password		TEXT	""	This is the administrator password for the device. Only numeric values can be provided.
sys.md5-password		TEXT	""	This is the administrator password for the device, stored as MD5 sum. This has higher priority than sys.password, and overwrites values provided in sys.password.
sys.web-enabled	1	BOOLEAN	0="False" 1="True"	Enables the FLX UC web interface. If access is enabled, users can browse to the FLX UC using a web browser. If disabled, any web-access is rejected. Once web access is disabled, it can only be enabled again by an administrator from the dialer or this configuration setting during a restart.
sys.language	1	INDEXED_OPTION	1="English" 2="Spanish" 3="German" 4="French" 5="Italian" 6="Portuguese" 7="Chinese" 8="Japanese"	Sets the dialer language from the list of available languages.
sys.region	23	INDEXED_OPTION	1="Argentina" 2="Australia" 3="Belgium" 4="Brazil" 5="Canada" 6="Chile" 7="China"	Selects the country or region the FLX UC device is being used in.

Config attributes	Default Value	Type	Values	Description
			8="Costa Rica" 9="France" 10="Germany" 11="Hong Kong" 12="India" 13="Israel" 14="Italy" 15="Japan" 16="Malaysia" 17="Mexico" 18="New Zealand" 19="Singapore" 20="South Africa" 21="Taiwan" 22="United Kingdom" 23="USA" 24="Venezuela"	
sys.date-format	MM/DD/YYYY	OPTION	"MM/DD/YYYY" "DD/MM/YYYY" "YYYY/MM/DD"	Selects the date format used for the dialer display.
sys.twenty-four-hour-time	0	BOOLEAN	0="False" 1="True"	Enables 24 hour time format.
sys.time-zone	13	INDEXED_OPTION	0="-11:00 American Samoa" 1="-10:00 Hawaii" 2="-9:00 Alaska"	Select the local time zone of the phone.

Config attributes	Default Value	Type	Values	Description
			3="-8:00 Pacific Time" 4="-7:00 Mountain Time" 5="-6:00 Central Time" 6="-5:00 Eastern Time" 7="-4:30 Caracas" 8="-4:00 Atlantic Time" 9="-3:30 Newfoundland" 10="-3:00 Brazil / Argentina" 11="-2:00 Mid Atlantic" 12="-1:00 Azores" 13="0:00 GMT" 14="+1:00 Berlin/Paris" 15="+2:00 Athens" 16="+3:00 Kuwait" 17="+3:30 Tehran" 18="+4:00 Abu Dhabi"	

Config attributes	Default Value	Type	Values	Description
			19="+4:30 Kabul" 20="+5:00 Islamabad" 21="+5:30 Mumbai" 22="+5:45 Kathmandu" 23="+6:00 Dhaka" 24="+6:30 Yangon" 25="+7:00 Bangkok" 26="+8:00 Beijing/Hong Kong" 27="+9:00 Tokyo" 28="+9:30 Adelaide" 29="+10:00 Sydney" 30="+11:00 New Caledonia" 31="+12:00 Auckland" 32="+13:00 Nuku'alofa"	
sys.dst-enabled	1	BOOLEAN	0="False" 1="True"	Enables the system to automatically adjust the time according to the specified Daylight Savings Time (DST) rules. If enabled, the DST rules must

Config attributes	Default Value	Type	Values	Description
				be provided. If disabled, the system will not adjust for DST.
sys.dst-start-rules	3:2:1:2	TEXT	""	Indicates the month, week, day (Sunday = 1, Saturday = 7) and hour when daylight savings time starts. The default is the US DST rule of the second Sunday in March at 2 AM.
sys.dst-end-rules	11:1:1:2	TEXT	""	Indicates the month, week, day (Sunday = 1, Saturday = 7) and hour that the time changes. The default is the US DST rule of the first Sunday in November at 2 AM.
sys.recent-call-enabled	1	BOOLEAN	0="False" 1="True"	Enables or disable the Recent Calls list on the FLX UC.
sys.led-behavior	0	INDEXED_OPTION	0="Off" 1="Amber" 2="Green"	Selects the LED behavior when the device is not in a call and USB audio is not in use. While in a call or while USB audio is active, the LEDs will be green when not muted and red when muted.
sys.provisioning-interval	1440	NUMBER	1 - 44640	Specify the provisioning interval for the device, in minutes. The default value is 1440 (1 day), and the maximum interval is 44640 (31 days).
sys.ui-mask	0	NUMBER	0 - 63	This is a 6-bit mask used to disable features on the Dialer. Set the following bits to 1 to disable the features as listed below: Bit 0 - Disable call audio modification (+1) Bit 1 - Disable dialer language selection (+2) Bit 2 - Disable call forwarding modification (+4) Bit 3 - Disable recent call modification (+8) Bit 4 - Disable contacts modification (+16) Bit 5 - Disable Do Not Disturb (DND) setting (+32)

Config attributes	Default Value	Type	Values	Description
sys.require-https	0	INDEXED_OPTION	0="Off" 1="On"	Enables the HTTPS-only FLX UC web application. When set to on, the web application is only accessible via HTTPS, which ensures all web traffic is encrypted by full 256-bit AES encryption end-to-end. When accessing the HTTPS web application, the browser may show a security warning, which must be bypassed. To disable the security warning, this attribute must be set to Off. When set to Off, the web application is accessible using HTTP.
net.dhcp	1	BOOLEAN	0="False" 1="True"	Enables or disables DHCP. If DHCP is disabled, the Static IP Address, Subnet Mask, and Default Gateway must be provided in the fields below.
net.ip		TEXT	""	The Static IP Address assigned to the phone.
net.subnet		TEXT	""	Subnet Mask to determine the subnet to which the phone belongs.
net.gateway		TEXT	""	The Default Gateway is the phone's default router on the IP network.
net.dns1		TEXT	""	Address of the primary Domain Name System (DNS) server.
net.dns2		TEXT	""	Address of the secondary DNS server.
net.vlan	2	INDEXED_OPTION	0="Enabled" 1="Disabled" 2="Automatic"	Specifies VLAN behavior and support for the FLX UC device. 'Automatic' should be used in environments that provide a Voice VLAN with automatic detection, in which case the FLX UC will determine the VLAN identifier and register in that network. If the environment uses Voice VLAN but the Voice VLAN ID cannot be detected, choose 'Enabled' and specify the ID in the VLAN ID field, net.vlan-id. 'Disabled' switches off VLAN capabilities.
net.vlan-id		TEXT	""	Manually specify a VLAN identifier.
net.ntp1	0.pool.ntp.org	TEXT	""	Specifies the IP addresses of NTP (Network Time Protocol) servers.
net.ntp2	1.pool.ntp.org	TEXT	""	Specifies the IP addresses of NTP (Network Time Protocol) servers.
net.ntp3	2.pool.ntp.org	TEXT	""	Specifies the IP addresses of NTP (Network Time Protocol) servers.
net.ntp4	3.pool.ntp.org	TEXT	""	Specifies the IP addresses of NTP (Network Time Protocol) servers.

Config attributes	Default Value	Type	Values	Description
net.dot1x-enabled	0	BOOLEAN	0="False" 1="True"	Enables 802.1x authentication to access the network. When enabled, the 802.1x authentication type and the required credentials also need to be specified. MD5 authentication requires a username and password. Protected EAP (Protected Extensible Authentication Protocol) uses a public-private key mechanism to authenticate devices. You will need to install onto your UC device the server-side public key certificate, and you need to specify an anonymous identity, username and password.
net.dot1x-auth-method	MD5	OPTION	"PEAP" "MD5"	Choose a method for 802.1x authentication
net.dot1x-identity		TEXT	""	Set a 802.1x authentication identity – required for MD5 and PEAP
net.dot1x-password		TEXT	""	Set a 802.1x authentication password – required for MD5 and PEAP
net.dot1x-anonymous-identity		TEXT	""	Set a 802.1x authentication anonymous identity – required for PEAP
display.brightness	7	NUMBER	1 - 15	Adjusts the brightness of the FLX UC dialer LCD display.
display.backlight-time	3	INDEXED_OPTION	1="15 sec" 2="30 sec" 3="1 min" 4="2 min" 5="5 min" 6="10 min" 7="Never"	Sets the duration of the FLX UC dialer LCD display backlight.

Firmware attributes	Default Value	Type	Values	Description
version		TEXT	""	Provide the firmware version.

# Advanced Operations

## Dial Plan

The FLX UC 1000 and FLX UC 1500 support the use of a dial plan to reject numbers that are not allowed to be dialed or auto-translate numbers to a different format than the one entered. This is helpful for example when the local dial plan requires a special digit to be dialed first to get an outbound line (e.g. “9”), but the inbound call numbers do not reflect that. The dial plan allows adding the leading “9” to a number stored in recent calls, allowing the number to be re-dialed.

## Dial Plan Syntax

Dial plans consist of a series of rules for dialing numbers. Rules are separated by the “|” character.

The rules explain how input numbers represented by the digits and characters that can be entered while dialing (0 - 9, \*, #, +) will either be transformed into a different string using the same digits and characters, or that it will be rejected.

To simplify defining the rules, placeholders and modifiers are used when defining the possible dial strings.

'x' represents any one number ('0' - '9')

'[]' represents one of the numbers in the brackets

*[389] means '3' or '8' or '9'*

*[3-9] means '3' or '4' or ... or '8' or '9'*

'.' indicates any number of repetitions of the previous digit

*01. matches "0", "01", "011", "0111", etc.*

'<:>' represents a substitution '<' dialed sequence ':' substitute sequence '>'

*<8:9> substitutes a dialed 8 with a 9.*

*<8:1650>xxxxxxx" matches "85551212" and dials "16505551212"*

*<9:>xxxxxxx removes a leading 9 ahead of a 7-digit number*

*<:604>xxxxxxx prepends 604 to all seven digit numbers*

',' generates inter-sequence (dial) tones

*9,1xxxxxxxxxx sends a dial tone after the user presses '9' until '1' is pressed.*

'!' is used to reject a sequence by placing it at the end of the sequence  
*1900xxxxxxxx! will reject 900 area code numbers*

'^' is used to exclude digits in the set of the range []  
*[^15] includes 0, 2, 3, 4, 6, 7, 8, 9 i.e. [02346789]*  
*[^2-4] includes 0, 1, 5, 6, 7, 8, 9 i.e. [0156789]*

## **Dial Plan Examples**

Example 1:

This dial plan accepts only US-style 1 + area-code + local-number, with no restrictions on the area code and number:

- 1 xxx xxxxxxxx

Example 2:

This plan allows seven-digit US-style dialing, and automatically inserts a 1 + 212 (local area code) in the transmitted number:

- 1 xxx xxxxxxxx | <:1212> xxxxxxxx

Example 3:

For an office environment, the following plan requires a user to dial 8 as a prefix for local calls and 9 as a prefix for long distance. Neither prefix is transmitted when initiating the call.

- <9:>1 xxx xxxxxxxx | <8:1212>xxxxxxx

Example 4:

This dial plan allows US-style long distance, but blocks 9xx area codes:

- 1 [2-8]xx [2-9]xxxxxxx

## Device Manager

The FLX UC 500 has native support for the volume, mute and call controls for a number of softphones, conferencing or webinar applications. Where native support is provided, no additional software needs to be loaded on the PC, Mac or Chromebook device. For some unified communications applications that do not support native integration with a USB device, Revolabs provides a device manager application that translates USB commands into application commands. The current list of natively supported applications as well as applications supported using the device manager software can be found on the Yamaha Unified Communications, Inc. product support webpages:

FLX UC 1000: <http://www.revolabs.com/uc1000>

FLX UC 1500: <http://www.revolabs.com/uc1500>

## Installation & Configuration

### For Windows operating systems

1. Download the device manager installer from the product support webpage.

FLX UC 1000: <http://www.revolabs.com/uc1000>

FLX UC 1500: <http://www.revolabs.com/uc1500>

Start the set up file to install the application on the PC.

2. Connect the FLX UC 1000 or FLX UC 1500 device to the PC via USB. Device drivers might be installed when the unit is connected for the first time to the computer.
3. Navigate to Start > All Programs > Revolabs > FLX UC Device Manager and open the device manager application.
4. Click on Settings and select the application that is being used with the FLX UC device from the drop down list.
  - a. For Skype, select Configure to start a menu allowing application-specific configuration of the hot keys for hang-up and answer.
  - b. For all other softphone applications, click OK.

*Note: The softphone and device status are displayed in the FLX UC Device Manager Home Screen.*

## **For Macintosh operating systems**

1. Download the device manager installer from the product support webpage.

FLX UC 1000: <http://www.revolabs.com/uc1000>

FLX UC 1500: <http://www.revolabs.com/uc1500>

2. Double click on the .dmg file.
3. When prompted, drag the FLX UC Device Manager to the Applications folder.
4. Connect the device to the computer. Device drivers might be installed when the unit is connected for the first time to the computer.
5. Click on “Preferences...” and select the application from the drop down menu that you plan to use with the FLX UC device.

## **For Chrome OS**

1. Obtain the Chrome version of the Device Manager from Google’s Chrome Web Store: <https://chrome.google.com/webstore/category/apps>
2. Search for the application by company (“Revolabs”) or by product name (“FLX UC 1000” or “FLX UC 1500”).
3. Follow the instructions provided through the app store to install the Chrome version of the Device manager.

## **Upgrading the Device Firmware**

From time to time Revolabs might make new device firmware available to upgrade the functionality and feature set of FLX UC device. Download such software from Yamaha Unified Communications, Inc. website.

### **Through the Web Interface**

The upgrade firmware file can be used on the Tools-Update section of the web user interface to upgrade the unit. Refer to the Web UI section of this manual for more details on how perform the upgrade.

### **From the Provisioning Server**

To upgrade systems using the provisioning server the firmware element in the provisioning file needs to be changed. The version attribute value needs to be changed to the correct firmware version of the file that is provided. The element value needs to be updated to the file name of the corresponding firmware bundle.

```
<firmware version="2.6.0.294">FLX-UC-1500-2-6-0-294.bundle</firmware>
```

Refer to the section on configuring FLX UC devices using provisioning servers and option 66 or option 150 for more details.

# **Compliance**

## **FCC Notice to Users**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Users are not permitted to make changes or modify the equipment in any way. Changes or modifications not expressly approved by Yamaha Unified Communications Inc. could void your authority to operate this equipment under Federal Communications Commission's rules.

## **Radio and Television Interference**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

You may also find helpful the following booklet, prepared by the FCC: “How to Identify and Resolve Radio-TV Interference Problems.” This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402

## Industry Canada Notice to Users

Operation is subject to the following two conditions:

1. This device may not cause interference and
2. This device must accept any interference, including interference that may cause undesired operation of the device

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

## Notice to European Customers



Yamaha UC EMEA  
190, High Street,  
Tonbridge, Kent,  
TN9 1BE,  
UK.

Declare that for the hereinafter mentioned product model numbers, the presumption of conformity with the applicable essential requirements has been approved in accordance with the Electromagnetic Compatibility (EMC) Directive 2004/108/EC, and RoHS II Directive 2011/65/EU.

<b>Model Number:</b>	<b>Description:</b>
10-FLXUC1000	FLX UC 1000
10-FLXUC1500	FLX UC 1500

Any unauthorized modification of the products voids this Declaration.

For a copy of the original signed declaration of conformity, please contact Yamaha Unified Communications, Inc. at the above address.

## WEEE Notification

The Waste Electrical and Electronic Equipment (WEEE) directive (2012/19/EU) is intended to promote recycling of electrical and electronic equipment and their components at end of life.

According to the requirement of the WEEE legislation the following user information is provided to customers for all branded Revolabs products subject to the WEEE directive.



“The symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.”

## Environmental Requirements

Temperature	40° to 105° F (5° to 40° C)
Operating Humidity	20% to 80%, non-condensing

## Appendix

### Call Control Functionality Details per Third Party Application

#### Using Windows Computers

Audio volume and mute is integrated with the operating system. Volume changes in the operating system and the FLX UC device are communicated and reflected on both sides. Audio integration is not directly done with the applications.

Application	Integration	Off Hook Key	On Hook Key
Broadsoft UC-One	Management Application	Answer	Hang-up, Reject
Cisco IP Communicator	Management Application	Answer, Redial	Hang-up
Cisco Jabber	Management Application	Answer	Hang-up, Reject
GoToMeeting	Management Application	N/A	End Meeting
Microsoft Skype for Business	Native	Answer	Hang-up, Reject
Skype	Management Application	Answer	Hang-up, Reject
Vidyo	Native	N/A	End Meeting
WebEx	Management Application	N/A	End Meeting
X-Lite	Management Application	Answer	Hang-up

#### Using Apple Computers

Audio volume and mute is integrated with the operating system. Volume changes in the operating system and the FLX UC device are communicated and reflected on both sides. Audio integration is not directly done with the applications.

Application	Integration	Off Hook Key	On Hook Key
Cisco Jabber	Management Application	Answer	Hang-up

GoToMeeting	Management Application	N/A	End Meeting
Microsoft Skype for Business	Management Application	Answer	Hang-up
Skype	Management Application	Answer	Hang-up
VidyoRoom	Native	Start meeting	End Meeting, Reject
WebEx	Management Application	N/A	End Meeting
X-Lite	Management Application	Answer	Hang-up
ZoomRoom	Native	Answer	End Meeting, Reject

## Known Issues

This section includes the known issues with Build 294 of the FLX UC 1000 and FLX UC 1500.

1. Call control (i.e. call hang up and answer) not supported for Skype version 6.22 or higher on Mac platforms.
2. Call control (i.e. call hang up and answer) not supported for Go To Meeting version 7.1 or higher. Currently supported version is 6.4.12.
3. When using Vidyo Version 3.5.0 and 3.5.2 and end the call by touching the hang up cap touch button on the device, and the hang up button is pressed more than once, the application will display a blank window, and the application will need to be closed before the application will start working again.
4. The FLX UC 1000 uses hotkeys to issue commands to applications that do not provide an API for call control. When using hotkeys, the softphone window that is active will have the hotkey issued to it. This may cause the user to have to press the accept call button multiple times or notice a delay when attempting to answer an incoming call.
5. With a Cisco Unified Communications Manager (CUCM), if the session timer on the FLX UC 1000 is configured for less than the minimum required by the call manager, call transfer will not operate as expected and will drop the call.
6. With certain call managers, third party conference phone support in the call manager doesn't provide call ID when forwarding or transferring calls. This has been seen with CUCM, Asterix, and OnSip.

When a call is forwarded or transferred with the FLX UC 1000, the ID displayed will be in accordance with the information in the "Call Forwarding Behavior" section of this document.

7. When using a third party conferencing application, with Caller A and caller B in the call, if Caller A places the call on hold, caller B will not get any indication that the call is on hold. If Caller B then places the call on hold, the hold status on the dialer will show on hold. Once caller A resumes, the call will resume but the dialer on Caller B's side will still show on hold.

8. If the USB connection to the FLX UC 1000 and FLX UC 1500 is unplugged while audio is being played from an internet browser on the computer running Windows 7 or Windows 8, and then the USB connection is plugged back in, the browser may freeze or fail to pipe the audio back over the FLX UC 1000 or 1500 when it is reconnected.

Additional items might be added as found.

## Configuring the FLX UC 1000 / 1500 in Windows

To configure the FLX UC device as the default device and to improve audio follow this **one-time** setup procedure:

1. Right click on the speaker icon in the lower right hand corner of the Windows taskbar.
2. Select Sounds from the menu.
3. Click the Playback tab.
4. Right click on the Revolabs Telephony Device.
5. Select “Set as Default Device” from the menu.
6. Right click on the Revolabs Telephony Device again.
7. Select “Set as Default Communication Device” from the menu.
8. Right click on the Revolabs Telephony Device one more time.
9. Select Properties from the menu.
10. If there is an “Enhancements” tab, click on it.
11. Check the “Disable all enhancements” box.
12. Click on the Advanced tab.
13. Select “2 channel, 24 bit, 48000 Hz (Studio Quality)” from the drop-down menu under Default Format.
14. Click “Test.” You should hear the test jingle.
15. Click “Apply”, then “OK”.
16. Click the Recording tab.
17. Right click on the Revolabs Telephony Device.
18. Select “Set as Default Device” from the menu.
19. Right click on the Revolabs Telephony Device again.
20. Select “Set as Default Communication Device” from the menu. You should see the green VU-meter moving next to Revolabs Telephony Device.
21. Right click on the Revolabs Telephony Device one more time.
22. Select Properties from the menu.
23. Click on the Levels tab.
24. Set the Microphone level to 50.
25. Click “OK”.
26. Click “OK” to close the Sound Window.

## **Troubleshooting**

### **Reboot**

From the Dialer, enter the Main Menu using the “menu” button. Then navigate to the “Settings” menu and open “Admin Settings”.

(Admin Settings is password protected with the same password as the Web UI. If this has not been set to a different number, the default password is 7386.)

Using the navigation keys scroll down to the “Reboot” option. Selecting the option by pressing OK and confirming the selection will reboot the device.

From the Web UI, click on the “Restart Device” button on the home page and confirm the selection to reboot the system.

Removing the FLX UC device from power by disconnecting the IP connector will also shut down the unit. Reconnecting the unit will power it up again.

### **Restore Factory Defaults**

From the Dialer, access Admin Settings through the “Settings” menu on the Main Menu. Using the navigation keys scroll down to the option “Reset Data” option, and open that menu. Select all areas that should be reset and press the [Reset] soft key at the bottom of the screen.

From the Web UI, open the “Configuration” menu under the “Tools” menu. On the bottom of the page, under the header “Reset Defaults”, select the areas you wish to reset, then click the “Reset Defaults” button on the right side of the page.

### **Cannot Access Web User Interface**

Check that the IP Address being used is correct. The IP Address of the device is provided in the “Info” menu of the dialer screen. Input the whole IP Address, including periods, into the URL bar of the browser to access the Web UI.

Please note that if “https” is selected for the web interface, browsers might provide warnings as no known certificate can be provided. Ignore these warnings to access the web interface.

If the IP Address is correct, enter Admin Settings on the dialer through the “Settings” option on the Main Menu. Scroll down to the “Web Access” option, and make sure the box is checked. If it isn’t, use “OK” or [Select] to turn it on,

then reboot the device using the “Reboot” option in the same menu. When the device turns on, check the IP address once more. The Web UI should now be accessible.

## **Change language**

Start on the home screen.

Press the “menu” button to the left of the screen.

Press the number “7” on the keypad (settings menu).

Press the number “1”.

Select your language from the list.

If this does not work, the language selection has been disabled from the web user interface. In that case the language can only be changed using the web UI.

## **USB Audio call Answering and Hang-Up not working**

Verify that the application you are attempting to use is either natively supported or supported by the current FLX UC 1000 /1500 Device Manager. The current list is as follows:

- Broadsoft UC One
- Cisco IP Communicator
- Cisco Jabber
- GoToMeeting
- Microsoft Lync
- Skype
- WebEx
- X-Lite
- Vidyo
- Zoom

If the program is not supported by the Device Manager the call answering and hang-up features might not work. If the program is supported, then the Device Manager may be out of date. Close the Manager before attempting to update it.

Follow the instructions in the Device Manager section of the manual to set up the FLX UC Device Manager.

## Call Forwarding Behavior

	Transfer		Forward	
	A calls B xfer to C		A calls B fwd to C	
Server	ID shown on A	ID shown on C	ID shown on A	ID shown on C
CUCM	B	B	B	A
Asterisk	B	B	B	A
Avaya	C	A	B	A
3CX	B	A*	B	A
OnSip	C	A	B	A
Broadsoft	B	B	B	A

\* Before "C" answers, "B" is shown, afterwards "A"

## **Specific Call Manager Configuration**

For configuration details with several market leading call managers, please visit the Support-Knowledge Base area on Yamaha Unified Communications, Inc.' website.