

Video Sound Collaboration System for Huddle Rooms

CS-700

Video Conference System / Système de vidéoconférence

ビデオ会議システム / 视频会议系统

Operations Guide



Always update the firmware to the latest version.

Please refer to the user's manual that provides detailed information on how to use the product.

You can download the latest firmware and user's manual from the following website:

<https://uc.yamaha.com/products/video-sound-bar/huddle-room-system/>

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Yamaha CS-700 Installation and Operation Guide
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July 2018 (Rev 1.1)

Online Resources

Resource	Website
Yamaha Unified Communications	uc.yamaha.com
Yamaha CS 700	uc.yamaha.com/products/video-sound-bar/huddle-room-system/
Customer Support	uc.yamaha.com/support

Contents

Online Resources	3
Contents	4
Introduction.....	7
About this Manual	7
Abbreviations	7
Trademarks.....	7
Getting Started	8
Content and Component Overview.....	8
CS-700 Unit.....	8
Installing the system	11
Bracket installation	11
Placing the CS-700 unit on the bracket	12
Connecting the CS-700	12
Installing unit in Bracket.....	13
Secure unit	13
Setting up the system.....	14
Connecting the Power.....	14
Connecting to a Computer – USB 3.0	15
Select device.....	15
Connecting to an IP Network for System Management	16
Discovering IP Address	16
Connecting Extension Mics	17
Using Cable Management.....	17
Adjusting Vertical Camera Angle	17
User Interface	19
CS-700	19
Web User Interface (Web-UI).....	19
Service Application.....	36
Installation & Configuration	36

Using the Service Application	42
Basic Operations.....	54
USB Connected Video Conferencing – BYOD (Bring Your Own Device)	54
USB Connected Video Conferencing – DIR (Device in Room)	54
Controlling the Video Image	54
Bluetooth Pairing and Activation	55
Aux-IN Audio Support	55
Configuring the CS-700.....	56
Configuring using the Web User Interface.....	56
Configuring using the Service Application.....	56
Configuring using a Provisioning Server, Option 66	56
Configuring using a Provisioning Server, Option 150	57
Provisioning file.....	58
Sample device configuration file.....	58
Provisioning file parameters (All Models).....	59
Using the Application Programming Interface (API)	74
USB API functions.....	74
Telnet / IP interface.....	77
USB/Telnet CLI Commands	77
Upgrading the Device Firmware.....	91
Through the Web UI.....	91
Through the Service Application	91
From the Provisioning Server.....	91
Appendix	92
Session Control Functionality Details per Third Party Application	92
Using Windows Computers.....	92
Using Mac Computers	92
USB 3.0 Extension Cables.....	92
SNMP Support Details.....	93
SNMP MIB for the CS-700	94
Dial Plan.....	97

Dial Plan Syntax	97
Dial Plan Examples	98
Optimize Windows for CS-700 Audio	99
Troubleshooting	100
Reboot.....	100
Restore Factory Defaults	100
Cannot Access Web UI.....	100
Lost Password	101
Low Camera Image Quality (Far-end video)	101
Misaligned Camera Image (Far-end video).....	102
No Camera Image at Far-end	102
Technical Specifications	103
Date code.....	104
Limited Warranty and Limitation of Liability.....	106
Limited Warranty	106
Exclusions and Remedies.....	107
WARRANTY EXCLUSION.....	107
Limitation of Liability	108
Disclaimer.....	108
Governing Laws.....	108
Open Source Software	109

Introduction

Thank you for choosing the Yamaha CS-700 Video Sound Collaboration System. This Video Sound Collaboration System allows you to provision your Huddle Room or small multipurpose conference room for all forms of multimedia Unified Communications using popular video collaboration applications, as well as independent VOIP-based conference call support. With Yamaha CS-700 products, video and audio performance is optimized for the Huddle Room space to deliver class-leading performance, ensuring every word of the conversation is heard, and every visual nuance is captured.

The complete CS-700 family includes all of the following models

- CS-700AV – Audio/Video/Management Model
- CS-700SP – Audio/Video/SIP/Management Model
- CS-700DL – Audio/Video/Collaboration/Management Model
- CS-700DS - Audio/Video/Collaboration/SIP/Management Model

Where there is a difference in capabilities or configuration, the document will highlight that explicitly.

About this Manual

Abbreviations

In this manual, the product names are described as follows.

- Yamaha CS-700: the product
- Microsoft® Windows®: Windows
- macOS®: macOS

Trademarks

- Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and other countries.
- Mac and macOS are registered trademarks of Apple Inc.
- Chrome OS is a trademark or registered trademark of Google Inc.
- Bluetooth® is a registered trademark of the Bluetooth SIG and is used by Yamaha in accordance with a license agreement.
- NFC logo (N-Mark) is a trademark or registered trademark of NFC Forum, Inc.

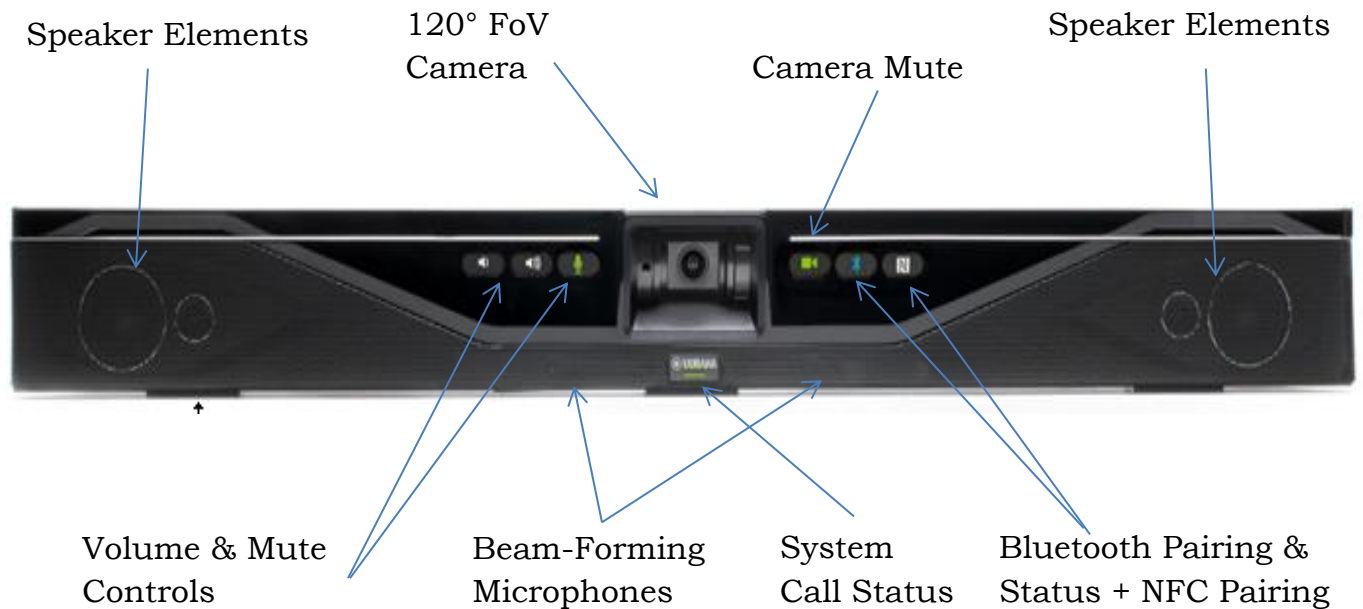
Getting Started

Content and Component Overview

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

CS-700AV, CS-700SP	CS-700DL, CS-700DS
CS-700 Sound/Camera Unit	CS-700 Sound/Camera Unit
Wall Mounting Bracket	Wall Mounting Bracket
Region Specific Power Cord	Region Specific Power Cord
Power Supply	Power Supply
Ethernet Cable	Ethernet Cable
USB Cable	USB Cable
Instructions	Instructions
	HDMI Cable

CS-700 Unit



The main CS-700 Unit contains all the major components of the CS-700 System, including 4 Speaker Elements, 4 beam forming microphones, the optimized 120° FoV HD camera, and front-panel control buttons for: volume up/down, MIC mute, Camera mute, Bluetooth pairing, NFC Bluetooth pairing. A system status indicator shows the state of the system.

Volume Control & Mute

The speaker volume can be increased or decreased using the volume up and volume down buttons. The microphones are muted using the mute button. The mute/unmute button is only functional when microphones are activated.

The microphone mute button provides a colored indication of mute status. Three different microphone states correspond to the color of the LEDs.

Speaker / Volume State	Volume LED Color
Speaker Volume Buttons Enabled	White
Speaker Volume Buttons Not Enabled	OFF

Microphone/Mute State	MIC LED Color
Active microphones, unmuted	Green
Active microphones, muted	Red
Microphones not active	OFF

Camera Mute

The camera can be “muted” to prevent active video transmission. The camera video stream is substituted with a “pause image” to the far-end when the Camera Mute button is pressed.

The camera mute button provides a colored indication of the camera mute status. The camera mute LED will toggle between green (unmuted) and red (muted) when pressed.

Camera Streaming State	Camera MUTE LED Color
Active camera, unmuted	Green
Active camera, muted	Red
Camera not active	White
Camera software upgrade in process	Slow Flash Red

Bluetooth Indicator and NFC Pairing

The Bluetooth indicator shows whenever the CS-700 is in active pairing mode (flashing blue) or has actively connected with a local Bluetooth device (steady blue). The NFC pairing indicator enables Bluetooth devices capable of NFC pairing to do so with the CS-700.

Bluetooth Pairing	Bluetooth LED Color
Bluetooth Enabled, No Connection	White
Bluetooth Initializing	Slow Flash White
System Software Update In Process	Fast Flash White
Bluetooth Connecting	Slow Flash Blue
Bluetooth Pairing In Process	Fast Flash Blue
Bluetooth Enabled, Active Connection	Solid Blue
Bluetooth Service Not Enabled	OFF

Bluetooth NFC Pairing	NFC LED Color
Bluetooth Enabled + NFC Pairing Enabled	White
Bluetooth Service, NFC Not Enabled	OFF

System Call Status Indicator

The System Call Status Indicator located immediately below the Yamaha logo shows whenever the CS-700 is actively engaged in a call or not. It also shows whenever a hardware failure has been detected with display of RED color. The following color codes have been assigned:

Bluetooth NFC Pairing	System Status LED Color
Not in Call (BT, VOIP), or USB Connected but NO Video/Audio Stream	White
CS-700 Unit OFF or Booting-UP	OFF
Call Active (BT, VOIP), or USB Connected and Video/Audio stream active.	Green
Call on Hold	Flashing Green
Hardware Failure Detected	Red

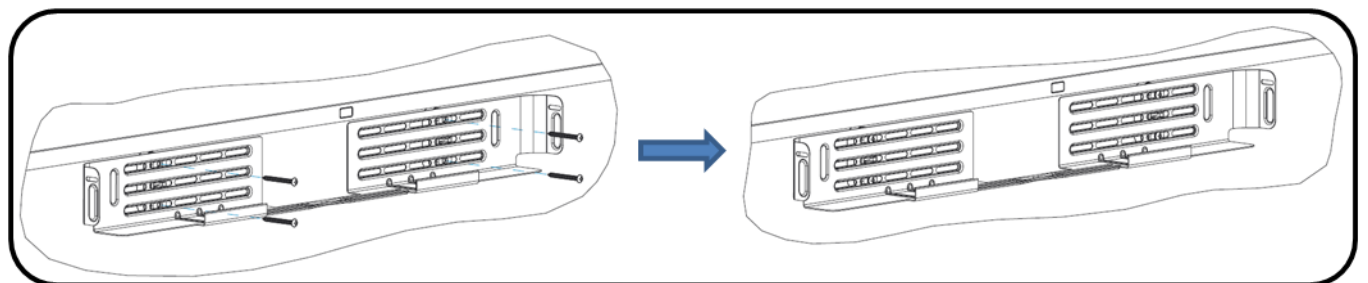
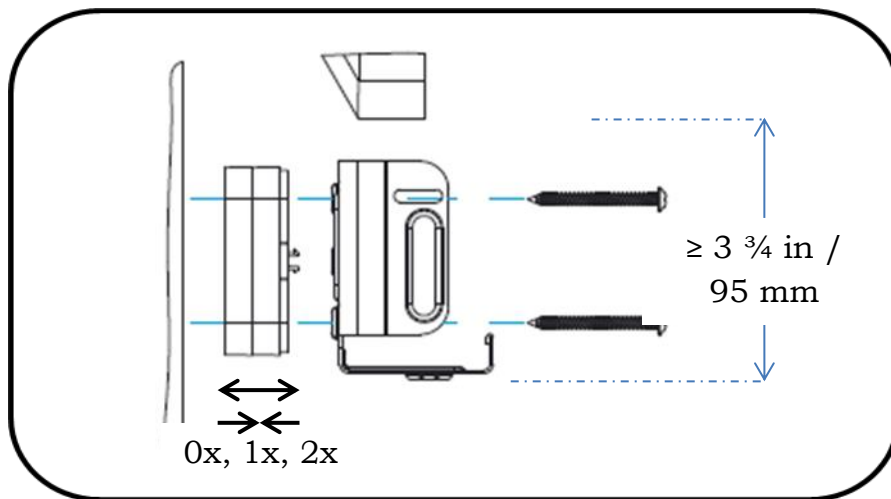
Installing the system

The CS-700 unit is designed to be mounted to the huddle-room wall using the bracket included with the unit. The recommended mounting location is directly adjacent to the display unit, typically just below it, with an optimal distance above the conference room table of 10-18 inches (25 – 45 cm). This provides an optimum camera perspective for the far-end.

If the CS-700 unit is used in conjunction with a touch-screen or electronic white board, the preferred installation location is immediately above the screen.

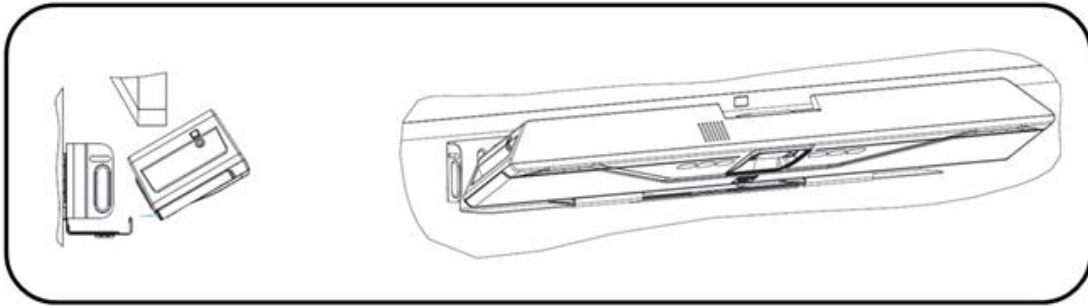
Bracket installation

Install the bracket with 4 appropriate screws on the wall, spacing two pair of screws as far apart as possible. Ensure that the bracket is tight to the wall or the spacers to avoid vibration. If installed below the display ensure that the distance is big enough to fit the CS-700 unit. You can adjust the depth of the installation by using the appropriate number of spacers (0-2) on each side. Maximum mounting height is 2m / 6' 8" from the floor. Always use 4 screws.



Placing the CS-700 unit on the bracket

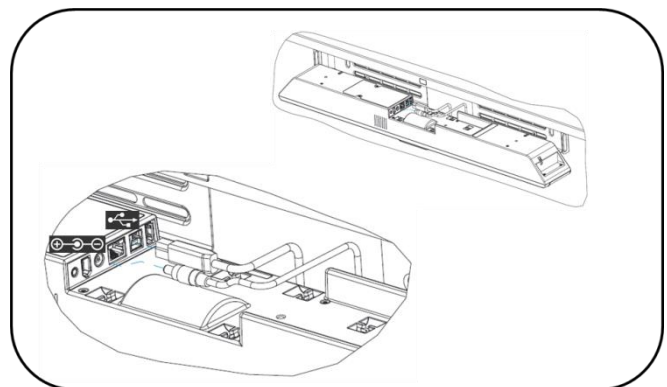
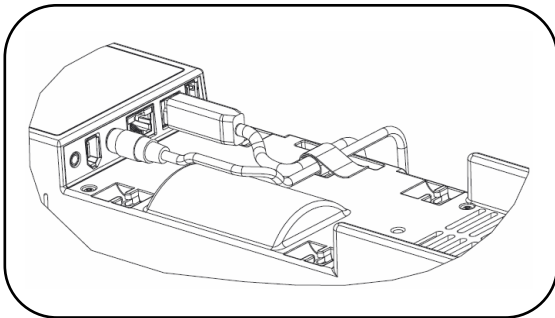
Position the CS-700 in such a way that the two hooks in the front of the bracket fit into the cavities on the lower part of the CS-700. Ensure that the CS-700 is safely held by the hooks.



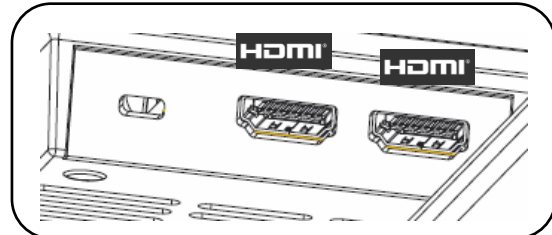
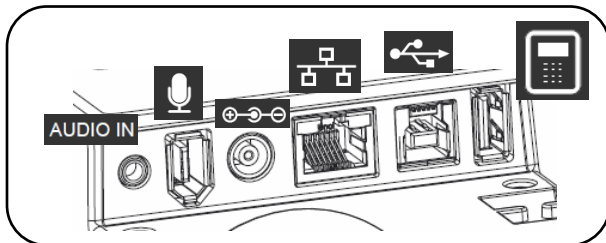
Connecting the CS-700

Once the CS-700 is safely positioned on the hooks of the bracket, connect the power cable and the USB cable to the CS-700 as shown. If it is planned to manage the CS-700 using the web browser, also connect the network cable into the corresponding connector.

Secure the cable using the provided cable ties to the CS-700 unit.

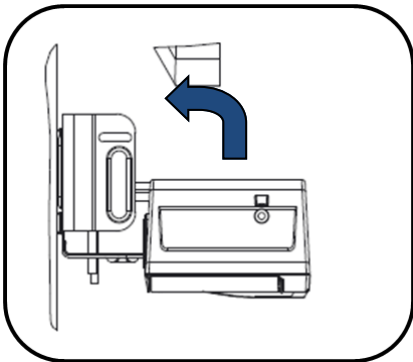
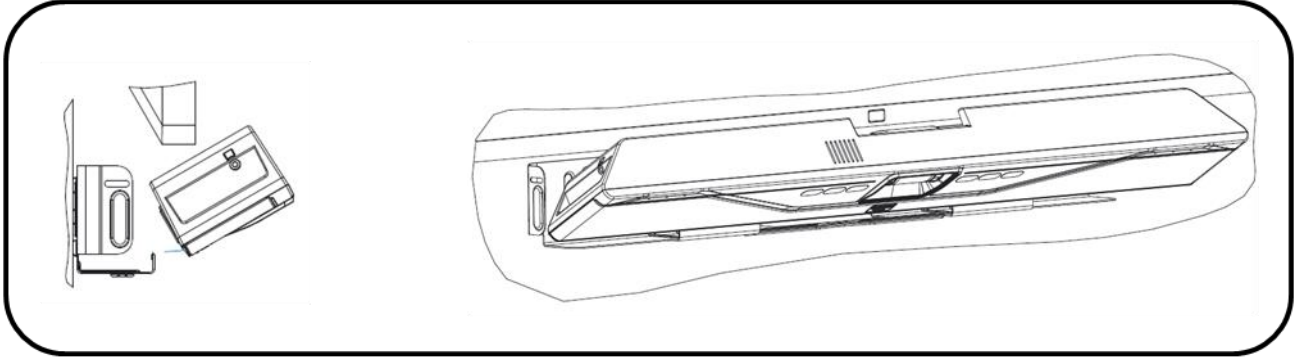


-DS / -DL



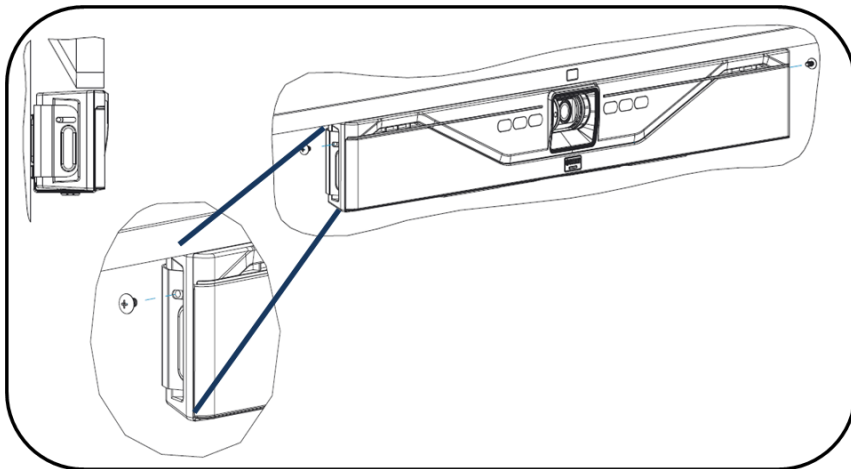
Installing unit in Bracket

Once all cables are correctly connected and secured, tilt the CS-700 back on the bracket and push it pack into the bracket.



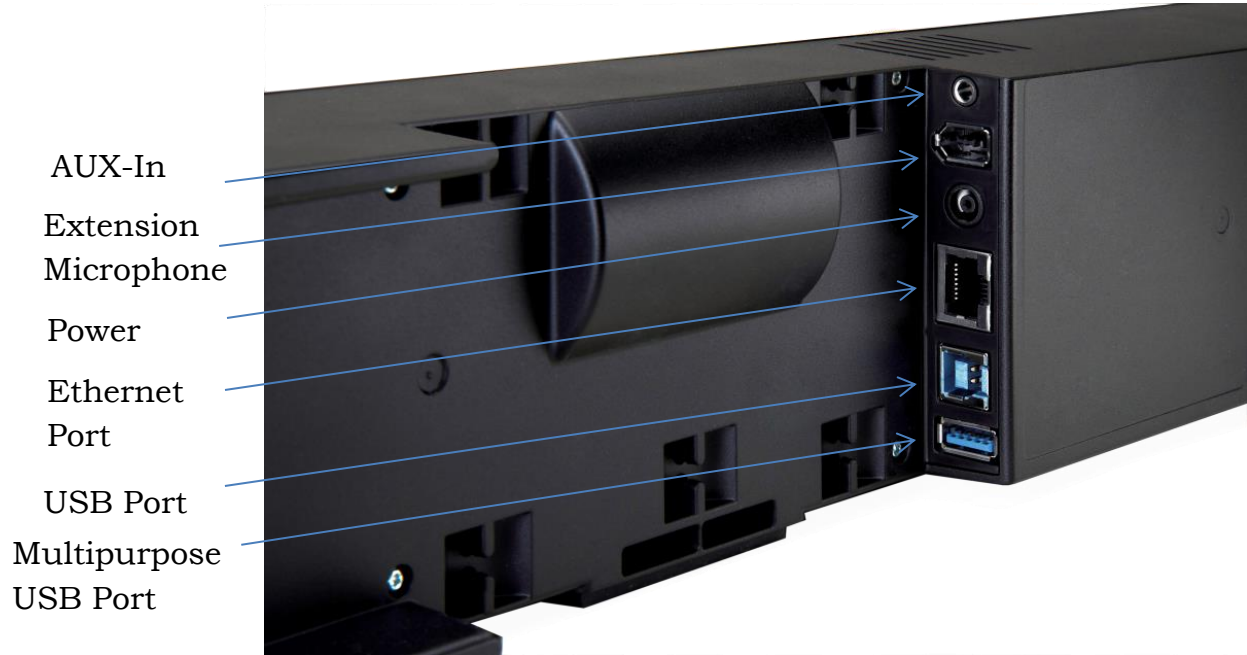
Secure unit

Secure the CS-700 unit in the bracket with the provided machine screws.



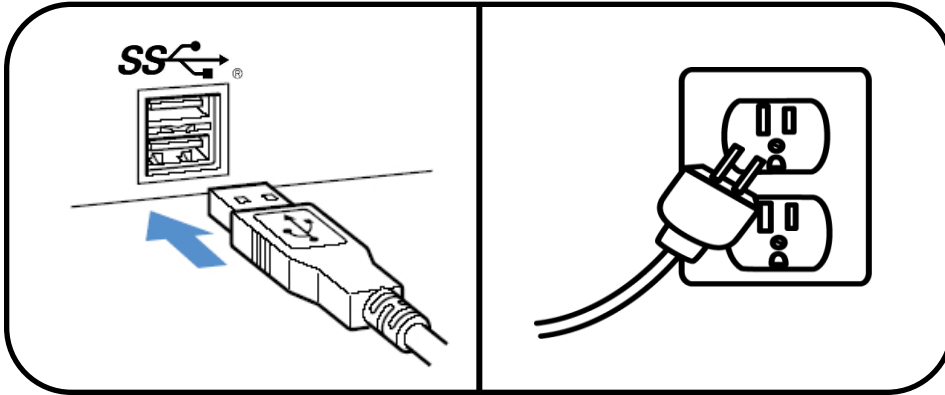
Setting up the system

All connectors can be found on the back of the main CS-700 unit.



Connecting the Power

Connect one end of the power supply cable into the Power Connector on the CS-700 back panel. Connect the other end of the Power Supply into your country-specific power extension cable, and connect the cable into the mains power. No power button is provided to ensure constant unit power; the CS-700 will immediately begin the boot-up sequence once the power connection is fully made.



Connecting to a Computer – USB 3.0

Using the included USB 3.0 cable, connect the USB Type-B side of the cable into the port identified by the icon on the back of the CS-700 unit.

Connect the other end of the cable to the USB 3.0 port on the computer running the third party softphone, webinar, or conferencing application. Connect the CS-700 USB cable directly into the attached PC device. If a USB 3.0 cable longer than the length of the one provided is required, please ensure that extension cables are fully USB 3.0 compliant and certified for video applications. Find a list of approved USB 3.0 extension cables in the appendix.

Be sure the PC USB Port supports USB 3.0. The camera of the CS-700 will send an uncompressed 1080p HD image over HD 3.0.

Note: The CS-700 will also support USB 2.0 connections with a reduced image resolution of 360p. If limited video quality is observed, verify that the USB port on the PC is truly 3.0.

The computer may detect new driver software and install it; wait until the install has completed before continuing.

For optimal audio performance when using a Windows computer, please follow the instructions in the appendix section. No additional configuration is required when using macOS or Chrome OS devices.

Select device

In your operating system select the “Yamaha AudioVideo Device” as your default audio playback and recording device.

In your unified communications application, select the CS-700 as the Video device.

Connecting to an IP Network for System Management

Note, the CS-700 does not require Network Management in order to operate. The Plug-and-play nature of the USB connection is sufficient to enable CS-700 to function. However if any network management features, including network configuration, access to Web-UI, SNMP, and any SIP/VOIP connectivity (for models CS-700SL, CS-700DS) is required, than an IP Network Connection is necessary.

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 network access. The CS-700 does not support PoE and is powered from a separate power supply.

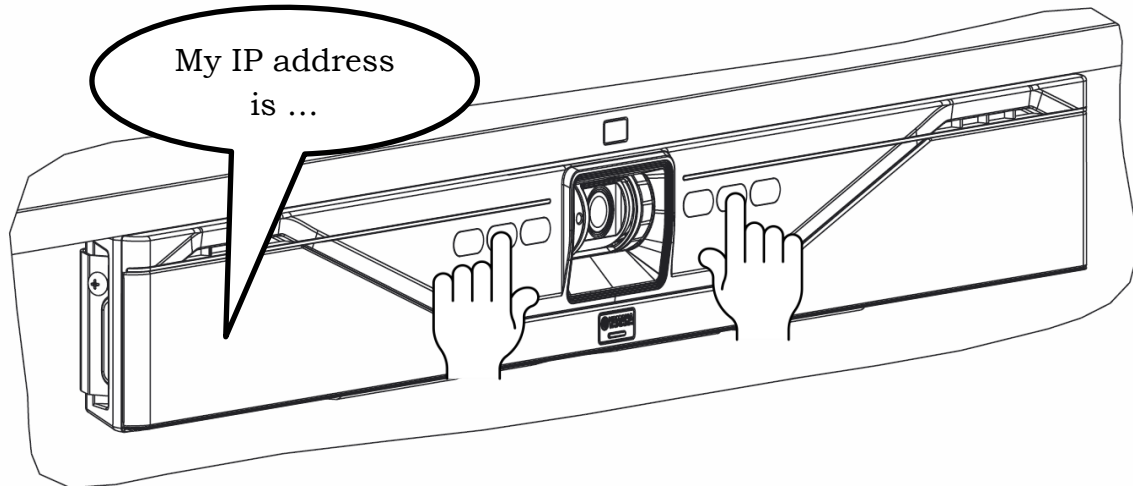
If the Ethernet cable needs to be removed, depress the lever on the connector and pull the cable out gently. Using force when removing this cable may damage the cable and render it useless.

Discovering IP Address

The IP Address is assigned to the CS-700 either through the DHCP protocol, or statically via direct CS-700 configuration.

When using DHCP, the IP Address assigned to the CS-700 unit can be discovered three ways.

- Audible IP Address Reporting. Depress and hold the “Volume-UP” and “Bluetooth” buttons simultaneously for 5 seconds. The CS-700 Unit will produce an audio-report of the currently assigned IP Address. If no address is assigned, the unit will reply “No address found”.



- Connected PC via USB Cable, operating the “Service Application”. The Service Application will provide a method of identifying the current IP and MAC addresses of the CS-700 unit. The Service Application is used by System Administrators.
- Interrogation of DHCP Server Leased IP Address List, and association with MAC Addresses. Known CS-700 MAC addresses will provide a remotely managed estate of CS-700 units to be mapped to IP Addresses.

Connecting Extension Mics

The CS-700 offers a single Extension Microphone with Mute-Control as an option. Connect the extension microphone into the CS-700 connector where indicated. Only the Yamaha extension microphone is qualified for operation on this port. The extension microphone includes a 25-feet (7.50 meter) cable.

Using Cable Management

To help secure the cables connected to the CS-700 main unit, indents are provided on the back casing to support the included “hook-and-loop” cable ties. Cables can be secured and tied-off on the back of the CS-700 to ensure robust cable connections.

Adjusting Vertical Camera Angle

The CS-700 offers a manual vertical camera angle adjustment. This adjustment is performed just once during initial unit installation, to properly align the camera field of view with the table-top and conference participants. The adjustment is made using a small/medium screwdriver inserted and pressed into the adjustment hole on the left-side of the camera, then rotate the camera assembly up or down to the desired angle. As the camera rotates, mechanical

detents within the camera mechanism will lock the camera into position. You will hear clicking sounds as the detents engage.



Camera Angle Adjustment

Procedure for camera angle adjustment

1. Connect a PC through the CS-700 USB cable, and enable UC software, a local PC camera application, or the Service Application.
2. Engage the UC Software / PC application / Service Application to display the CS-700 camera onto the local PC screen. This provides immediate feedback as to how the room appears on the far-side of a video conference.
3. Engage the Camera Vertical Angle Adjustment as described above to achieve a well-aligned capture of meeting room participants around the table. Alignment should balance participants in the middle of the video shot.

Note: The camera angle is adjusted simply by rotating the camera assembly up or down using the screwdriver shaft – there is no actual screw to adjust.

User Interface

CS-700

The CS-700 unit provides volume up, volume down, audio mute, camera mute, Bluetooth Pairing and Bluetooth NFC controls and indicators on the front of the unit.

Volume Up/Down buttons affect the sound power from the CS-700, with corresponding increasingly or decreasingly loud “beeps” occurring with each press.

CS-700 will default the sound level to a pre-set value following each new USB connection session.

Mute status is reflected on the color of the Mute Buttons.

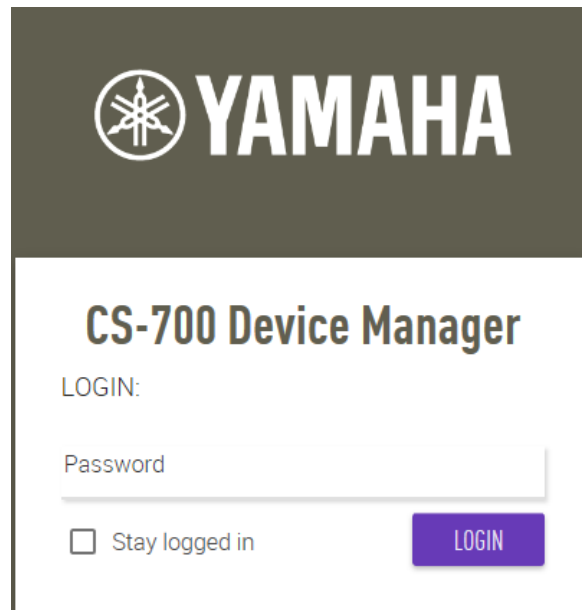
- Audio microphone Mute not-enabled is green, while enabled is red. The button will be OFF whenever the button is disabled as a configuration option.
- Camera Mute not-enabled is green, while enabled is red. The button will glow white whenever the Camera is not active, and will be OFF whenever the button is disabled as a configuration option.

CS-700 front panel audio controls (Volume, Mute) are synchronized with audio controls on the attached Computer Operating System, enabling control from both locations. See the section “Session Control Functionality Details” in the appendix for more information.

Web User Interface (Web-UI)

The CS-700 supports an internal webserver and web-based user interface (ie Web-UI), providing configuration and operations access to the unit over a standard web browser. This interface is intended for use by System Administrators, not end-users, and is only available through the IP network interface. Using the IP address of the CS-700, the Web-UI can be accessed using a web browser by entering the IP address in the URL line. Supported browsers are Microsoft Edge, Google Chrome, and Mozilla Firefox.

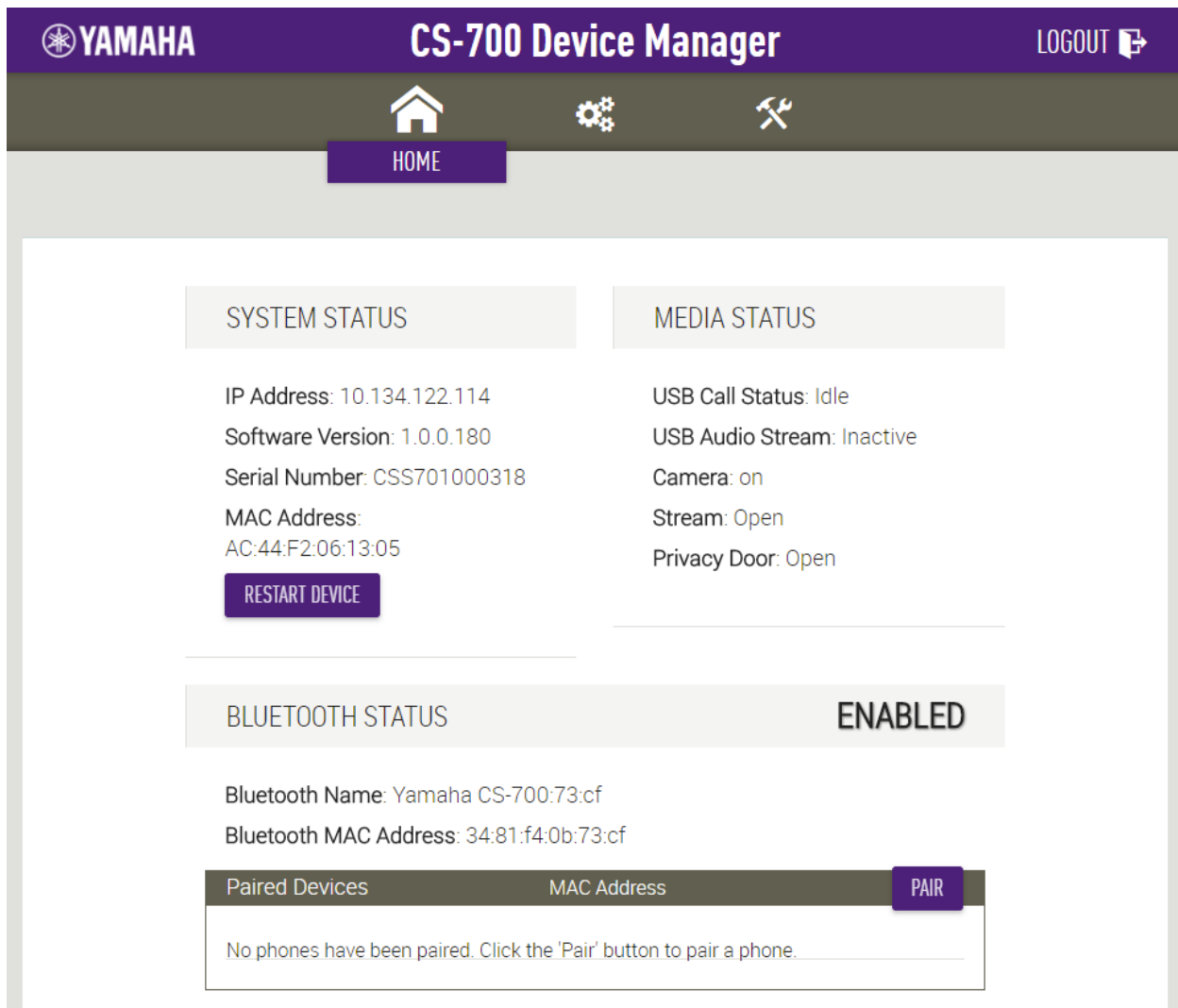
When accessing the CS-700 Web-UI webserver, the login page will be displayed. A password is required to log in to the device. Unless the password was previously changed, the factory default password is 7386.

The image shows a login page for the Yamaha CS-700 Device Manager. At the top, there is a dark grey header with the Yamaha logo (a three-pronged tuning fork inside a circle) and the word "YAMAHA" in white, bold, uppercase letters. Below the header, the page has a white background. The title "CS-700 Device Manager" is centered in a bold, dark grey font. Underneath the title, the word "LOGIN:" is displayed. Below that is a text input field labeled "Password". At the bottom left of the form, there is a checkbox followed by the text "Stay logged in". To the right of the checkbox is a purple rectangular button with the word "LOGIN" in white, uppercase letters.

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 unit, 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 or the web-browser window is closed.

Home Screen

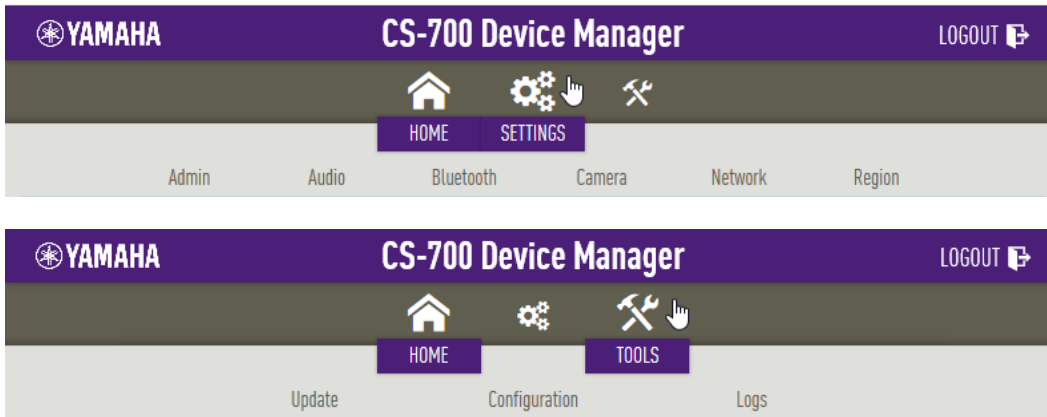
Once logged in, the web interface will display the home screen. The home screen provides current status information about the CS-700 unit, including System Status, Media (USB, streaming) status, and Bluetooth status.



The home screen allows initiating an immediate restart of the device, by clicking on the Restart Device box.

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

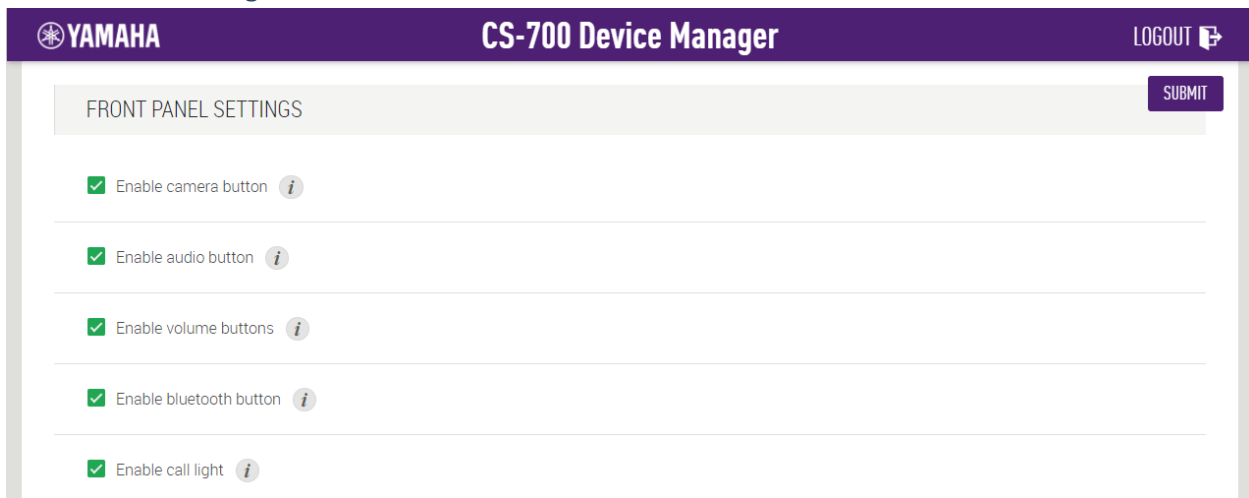
The Security Settings section allows the operator to change the system password. The password has a minimum length of four digits, any other characters are not allowed. Once a valid password has been entered, it needs to be entered a second time to protect against typos and unwanted changes.

System Name allows the operator to change the reported name of the CS-700 unit, instead of using the MAC address.

When “Require HTTPS” is enabled, the web interface will switch from http to https. Please note that when using HTTPS, the CS-700 device does not have a certified security certificate and the web browser will warn of a potentially unsecure connection.

“Enable Telnet access” allows the Telnet interface into the CS-700 to be opened. Changing this setting will reboot the CS-700 unit. Username and password for the Telnet access are **roomcontrol** and **Yamaha-CS-700**, respectively.

Front Panel Settings

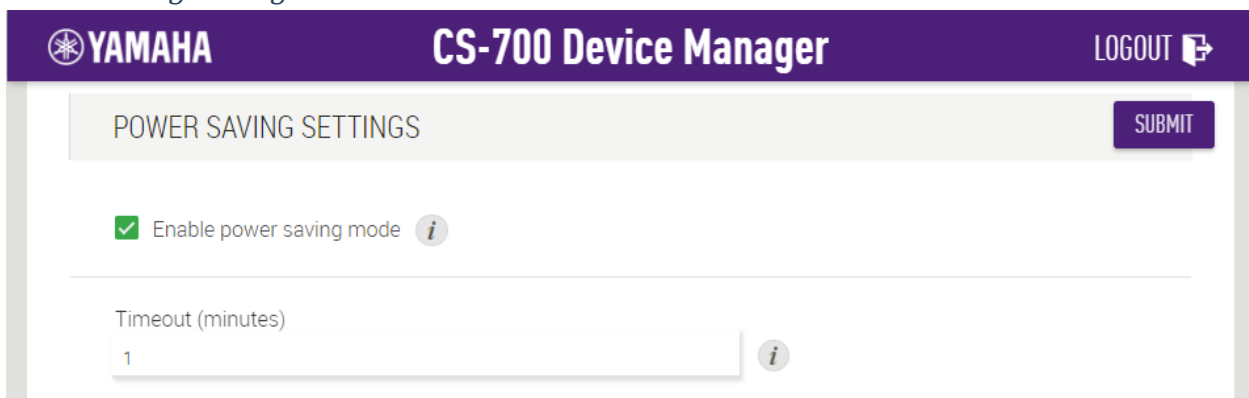


The screenshot shows the 'Front Panel Settings' page in the Yamaha CS-700 Device Manager. The page has a purple header with the Yamaha logo, 'CS-700 Device Manager', and a 'LOGOUT' button. Below the header is a 'FRONT PANEL SETTINGS' section with a 'SUBMIT' button. There are five settings, each with a checked checkbox and an information icon:

- Enable camera button *i*
- Enable audio button *i*
- Enable volume buttons *i*
- Enable bluetooth button *i*
- Enable call light *i*

All of the front-panel CS-700 control buttons can be individually enabled or disabled through these check boxes. De-selecting the respective setting will disable the corresponding front panel button and light.

Power Saving Settings



The screenshot shows the 'Power Saving Settings' page in the Yamaha CS-700 Device Manager. The page has a purple header with the Yamaha logo, 'CS-700 Device Manager', and a 'LOGOUT' button. Below the header is a 'POWER SAVING SETTINGS' section with a 'SUBMIT' button. There is one setting with a checked checkbox and an information icon:

- Enable power saving mode *i*

Below this setting is a text input field for 'Timeout (minutes)' with the value '1' and an information icon *i*.

The CS-700 unit will automatically enter into Power Saving Mode whenever idle state is detected, and re-energize when activity is detected. This feature is controlled through the Enable Power Saving Mode checkbox. When the power savings setting is enabled, the user can select the time (in minutes) after which

the system will go into power savings mode. This feature is set by factory default with a 20 minute power savings time.

The CS-700 will wake up when activity is detected, either on the Aux in, the USB connection, or a button is pressed. Please allow about 10 seconds for the system to wake up.

When the SIP interface is configured on the CS-700SP or CS-700DS version, due to the requirements of the network and SIP interface, the unit will not go into sleep mode.

The screenshot displays the Yamaha CS-700 Device Manager web interface. At the top, there is a purple header with the Yamaha logo, the text "CS-700 Device Manager", and a "LOGOUT" button with a user icon. Below the header, the "SNMP SETTINGS" section is highlighted in light gray and includes a "SUBMIT" button. The "SNMP SETTINGS" section contains a checked checkbox for "Enable SNMP" with an information icon, followed by four text input fields: "Server address", "Read-only community" (containing "public"), "Device location" (containing "unknown"), and "Contact name" (containing "unknown"). Each field has an information icon. Below this is the "DEPLOYMENT SERVER SETTINGS" section, also highlighted in light gray. It contains two checked checkboxes: "Enable deployment server" and "Enable automatic server discovery", both with information icons. At the bottom, there is a "Provisioning interval (minutes)" label with an information icon, a horizontal slider, and a text input field containing the value "1440".

SNMP Settings

The CS-700 will report SNMP MIB events (Traps) and provide status updates to SNMP polls when this feature is enabled with the Enable SNMP box. Provide the SNMP server IP address to complete the process. See the Appendix for details on the SNMP MIB and traps supported.

Deployment Server Settings

The Deployment Server Settings allows specifying automatic ways to download configuration data and firmware upgrade to the CS-700 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 CS-700 will download the configuration data at start-up.

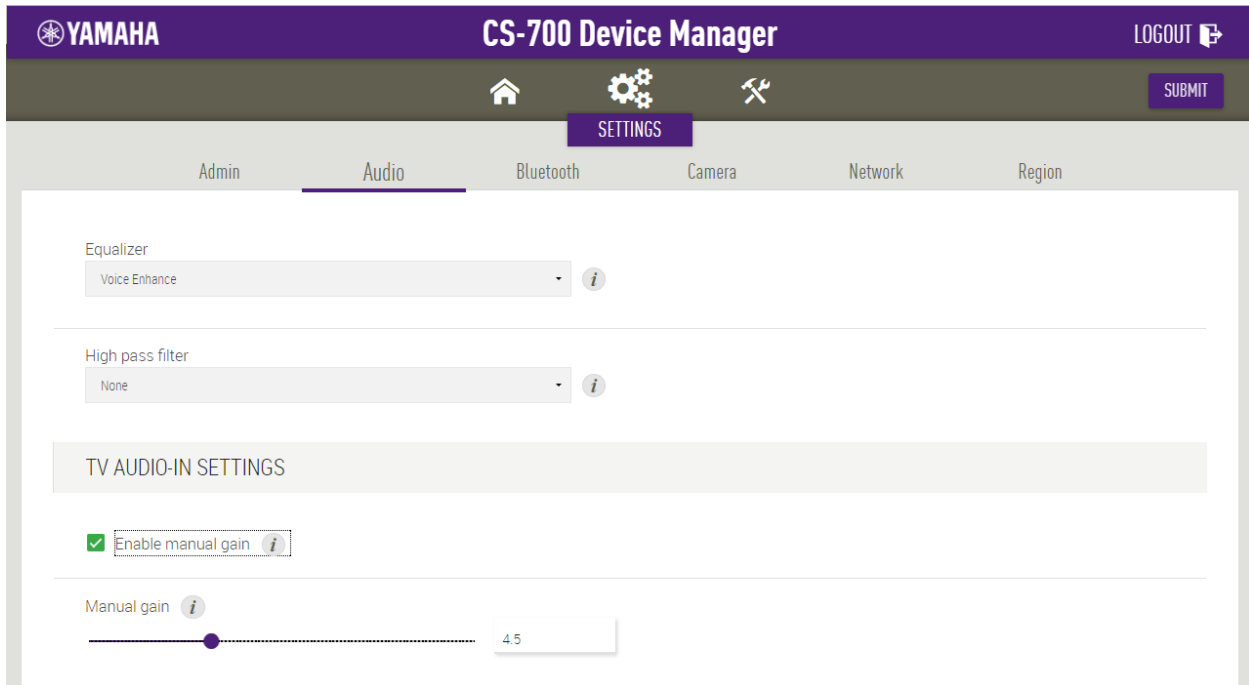
Using DHCP option 66, the return can be a TFTP address or an http address. Option 150, a list of TFTP servers or http addresses might be delivered back. When using the static server addresses, TFTP addresses or HTTP addresses might be provided.

When using the deployment server, the CS-700 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). Default is set for 24-hours (1440 minutes). At the end of a provisioning interval, if a change to the configuration file is identified, the CS-700 will reboot and restart using the new configuration file, including any firmware updates included in the configuration. The re-configuration and reboot will ONLY occur once any ongoing sessions have terminated and the unit has returned to idle state.

Audio

The Audio section of the Settings menu supports managing the audio behavior of the CS-700.



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.

The TV Audio-In Settings allow gain-control of the AUX-in input sound source. The default setting is automatic gain control. Enabling manual gain allows the Operator to select a pre-defined gain level from -12dB to +40dB.

Bluetooth Settings

The screenshot shows the Yamaha CS-700 Device Manager interface. At the top, there is a purple header with the Yamaha logo, the title "CS-700 Device Manager", and a "LOGOUT" button. Below the header is a navigation bar with icons for Home, Settings, and Tools, and a "SUBMIT" button. The main content area is titled "SETTINGS" and has tabs for Admin, Audio, Bluetooth (selected), Camera, Network, and Region. The Bluetooth settings are displayed in a white box with a light gray border. It includes four sections: "Enable Bluetooth" with a checked checkbox and an information icon; "Enable NFC" with a checked checkbox and an information icon; "Device name" with a text input field containing "Yamaha CS-700:73:cf" and an information icon; and "Pairing pin" with a text input field containing "0000" and an information icon. At the bottom, there is a "Pairing and connection timeout (seconds)" section with a slider and an input field set to "60".

The “Enable Bluetooth” box allows system-wide control of all Bluetooth capability. De-selecting this box will shut-down Bluetooth communications to the CS-700 and disable the Bluetooth and NFC front-panel indicator buttons. System defaults to Bluetooth-enabled.

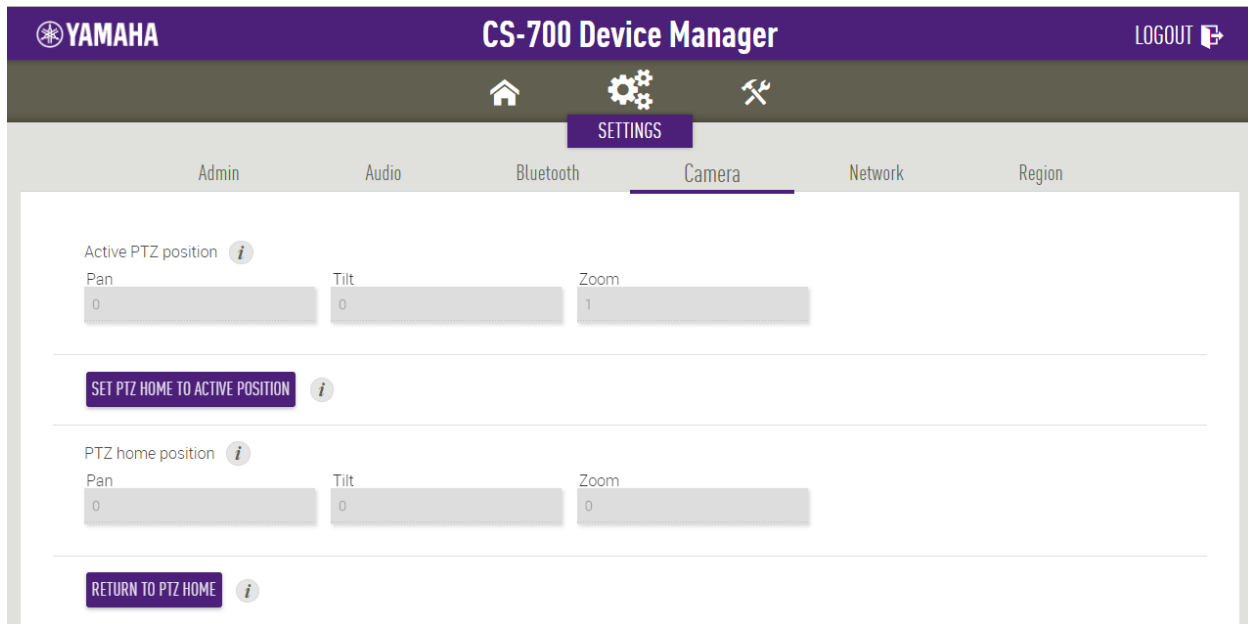
The “Enable NFC” box allows control over the NFC pairing feature. De-selecting this box will disable the NFC pairing feature associated with the NFC front-panel indicator button. System defaults to NFC-enabled.

The Device Name allows modification of the Bluetooth Basic Rate advertised device name. The default value is Yamaha cs-700 <MAC of this device>.

The Pairing PIN defines the 4-digit Bluetooth Basic Rate PIN for pairing, with default set to “0000”.

The Pairing and Connection Timeout setting allows control over the Bluetooth Basic Rate pairing mode and connection mode timeout in seconds. After this time, pairing mode or the connecting mode will terminate. A value of 0 indicates no timeout. The default value is 60 sec.

Camera Settings



The Web-UI provides information on the current Pan, Tilt, and Zoom (PTZ) settings of the camera. It does not allow changing these settings. PTZ settings can be changed using the Service Application described later in the document, or using UC applications that offer camera control.

Note that in the CS-700 Pan and Tilt settings are only effective when Zoom has been set to a value greater than one.

The ZOOM setting allows the Operator to electronically adjust the camera Zoom up to about 2.25x from default.

Pan and Tilt default to zero, Zoom defaults to one.

Clicking the “Set PTZ Home to Active Position” button preserves the current Pan/Tilt/Zoom settings as the camera home position. The CS-700 will return to this position whenever a USB connection is re-established.

“Return to PTZ Home” will reset the active PTZ settings to the PTZ home settings.

Network

The screenshot shows the 'Network' settings page in the Yamaha CS-700 Device Manager. The page has a purple header with the Yamaha logo, 'CS-700 Device Manager', and a 'LOGOUT' button. Below the header is a navigation bar with icons for Home, Settings, and Tools, and a 'SUBMIT' button. The 'SETTINGS' tab is active, and the 'Network' sub-tab is selected. The settings are as follows:

Setting	Value
Enable DHCP	<input checked="" type="checkbox"/> <i>i</i>
IP address	10.134.122.243 <i>i</i>
Subnet mask	255.255.252.0 <i>i</i>
Default gateway	10.134.122.1 <i>i</i>
Primary DNS	10.134.122.10 <i>i</i>
Secondary DNS	<i>i</i>

The Network section allows specifying the IP configuration for the CS-700. Factory default, the device is set to DHCP enabled and no further IP settings are required. However, if a static IP address is to be assigned, “Enable DHCP” needs to be unchecked, and the static IP parameters can be provided.

The screenshot shows the 'Authentication Settings' page in the Yamaha CS-700 Device Manager. The page features a purple header with the Yamaha logo, the title 'CS-700 Device Manager', and a 'LOGOUT' button. Below the header, the main content area is titled 'AUTHENTICATION SETTINGS' and includes a 'SUBMIT' button. The settings are as follows:

- Enable 802.1x authentication *i*
- Authentication method: MD5 (dropdown menu)
- Username: (This field is required.)
- Password: (This field is required.)

Authentication Settings provides the option to enable 802.1x authentication on the CS-700. 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 CS-700.

Region

The screenshot shows the 'Region' settings page in the CS-700 Device Manager. The page has a purple header with the Yamaha logo, 'CS-700 Device Manager', and a 'LOGOUT' button. Below the header is a navigation bar with icons for Home, Settings, and Tools, and a 'SUBMIT' button. The 'SETTINGS' menu is active, and the 'Region' sub-menu is selected. The main content area shows a 'Time zone' dropdown menu set to '0.00 GMT' with an information icon.

In the Regions menu, the Time zone setting allows selection of the time zone the CS-700 is being used in, managing date and time reported in network management and logging. Factory default is GMT.

Time Settings

The screenshot shows the 'Time Settings' page in the CS-700 Device Manager. The page has a purple header with the Yamaha logo, 'CS-700 Device Manager', and a 'LOGOUT' button. Below the header is a navigation bar with icons for Home, Settings, and Tools, and a 'SUBMIT' button. The 'TIME SETTINGS' section is active. The main content area shows several settings: 'Date format' set to 'MM/DD/YYYY' with an information icon; an unchecked checkbox for 'Enable 24 hour time format' with an information icon; and four text input fields for 'Network time server 1' (containing '0.pool.ntp.org'), 'Network time server 2', 'Network time server 3', and 'Network time server 4', each with an information icon.

In the Time Settings section the date format used 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. Factory default is MM/DD/YYYY and 12 hour format.

The CS-700 supports up to 4 network time servers to provide NTP time information. These can be local servers or network servers.

Region: Daylight Savings Settings

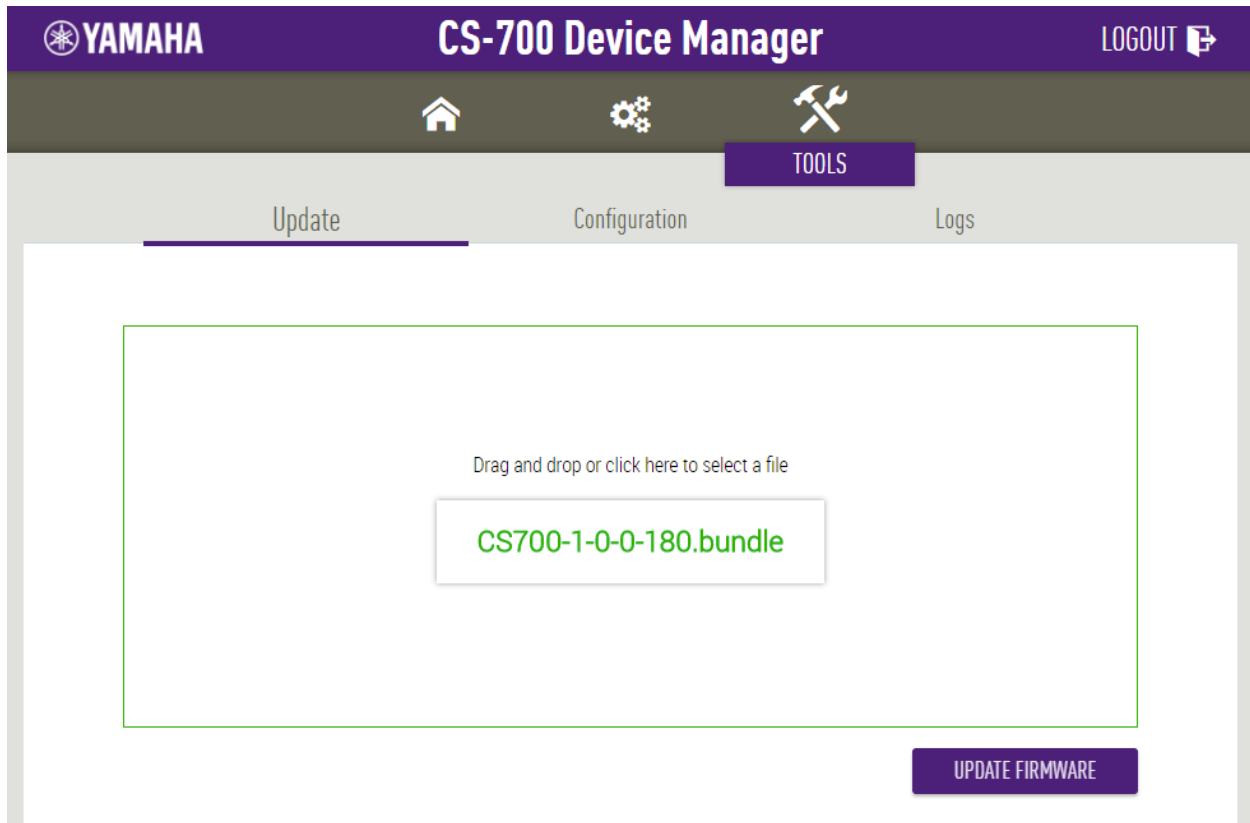
The screenshot shows the 'DAYLIGHT SAVING SETTINGS' page in the Yamaha CS-700 Device Manager. At the top, there is a purple header with the Yamaha logo on the left, 'CS-700 Device Manager' in the center, and a 'LOGOUT' button on the right. Below the header, the page title 'DAYLIGHT SAVING SETTINGS' is displayed in a light grey bar, with a 'SUBMIT' button to its right. The main content area features a checked checkbox labeled 'Enable Daylight Saving Time adjustment' with an information icon. Below this, there are two sections for configuring daylight saving time. The first section, 'Daylight Saving Time start time', has dropdown menus for Month (March), Week (Second), Day (Sunday), and Hour (2 AM). The second section, 'Daylight Saving Time end time', has dropdown menus for Month (November), Week (First), Day (Sunday), and Hour (2 AM). Each dropdown menu has a small downward arrow icon.

Daylight Savings settings allow to enable or disable Daylight Savings time. 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.

Tools

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

Update



Update allows upgrading the device firmware of the CS-700 using an image bundle on your local PC. Only valid firmware files can be used for an upgrade. Latest firmware can be found on <https://uc.yamaha.com/products/video-sound-bar/huddle-room-system/>.

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. Give the unit several minutes to thoroughly reboot.

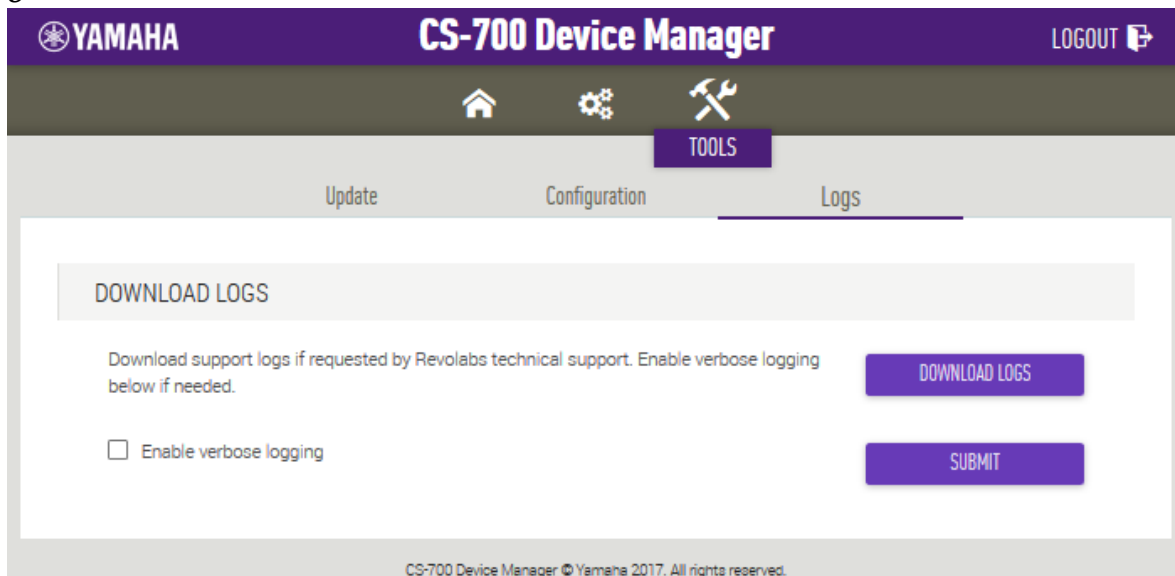
Configuration

The screenshot shows the 'Configuration' page of the Yamaha CS-700 Device Manager. The page has a dark purple header with the Yamaha logo and 'CS-700 Device Manager' text, and a 'LOGOUT' button. Below the header is a navigation bar with icons for Home, Settings, and Tools. The 'TOOLS' menu is active, showing sub-options for 'Update', 'Configuration', and 'Logs'. The main content area is divided into three sections: 'EXPORT CONFIGURATION', 'IMPORT CONFIGURATION', and 'RESET DEFAULTS'. The 'EXPORT CONFIGURATION' section includes a text description and an 'EXPORT CONFIGURATION' button. The 'IMPORT CONFIGURATION' section features a large file upload area with the text 'Drag and drop or click here to select a file' and an 'IMPORT CONFIGURATION' button. The 'RESET DEFAULTS' section contains five checkboxes for 'Audio settings', 'Camera settings', 'Restore factory defaults', 'Network settings', and 'Bluetooth settings', along with a 'RESET DEFAULTS' button.

The configuration page allows Exporting and re-Importing the current configuration of the CS-700. This is specifically of interest if several CS-700 devices are to share identical configurations. The first CS-700 can be fully configured and exported as a “Golden Reference” configuration for the rest of the CS-700 estate. Subsequent CS-700 units can “duplicate” the Golden Configuration by re-Importing the original configuration file. 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 Logs section allows downloading logging information from the CS-700 for analysis. By Factory Default, verbose logging is not enabled and not required. Access to logging information is typically only required when environmental issues with connected USB devices are experienced, and usually are shared with Customer Support.

Service Application

The CS-700 device can also be configured and managed through a PC connected via USB using a software client called the “Service Application”. The Service Application enables the locally attached Computer to gain access to the CS-700 configuration and operating parameters over the USB cable. Under these conditions, the Network IP link is not required and can be disconnected

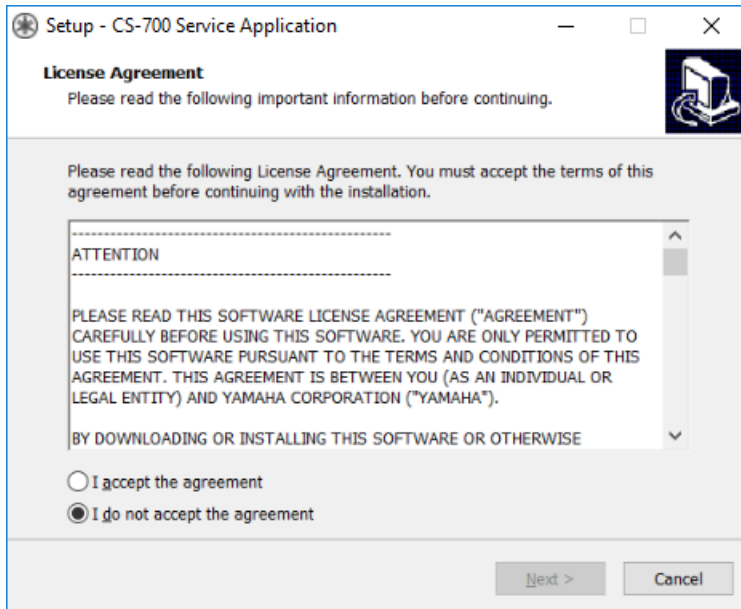
The Service Application is designed for use by CS-700 Installation Teams and System Administrators who choose to directly maintain systems, rather than accessing remotely over IP. It can also be used for maintenance tasks while directly being connected to the CS-700 system. The service application also allows adjusting the camera’s Pan, Tilt, and Zoom settings and can be used to adjust the home setting of the camera.

The scope of capabilities in the Service Application is detailed in the following sections.

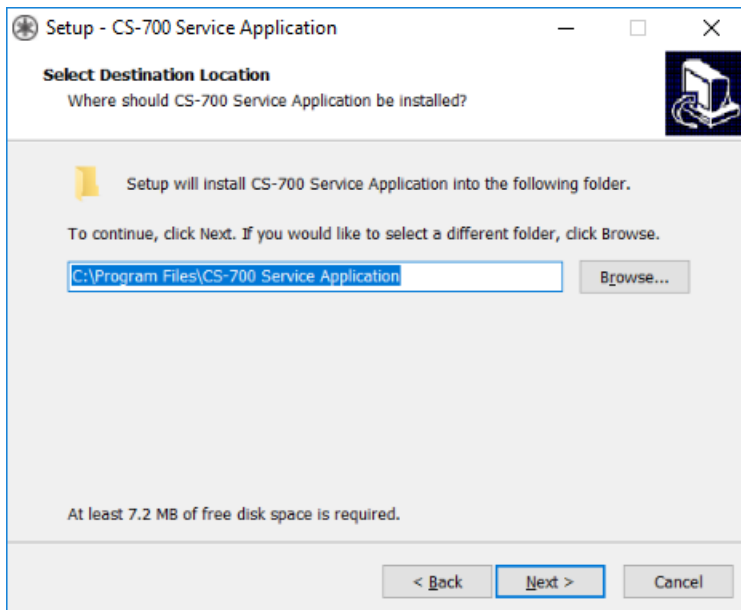
Installation & Configuration

For windows installations, download the service application installer from <https://uc.yamaha.com/products/video-sound-bar/huddle-room-system/>.

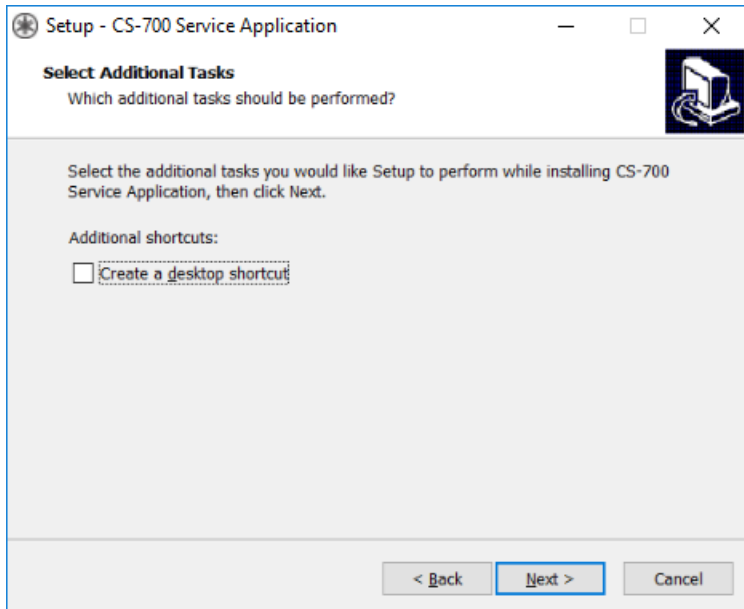
Running the installer application, it first asks to accept the license agreement. Please read the agreement and if you accept them, indicate this below and continue with the installation. If you do not agree with the terms of the license agreement, please cancel the installation process and delete all copies of the installer application.



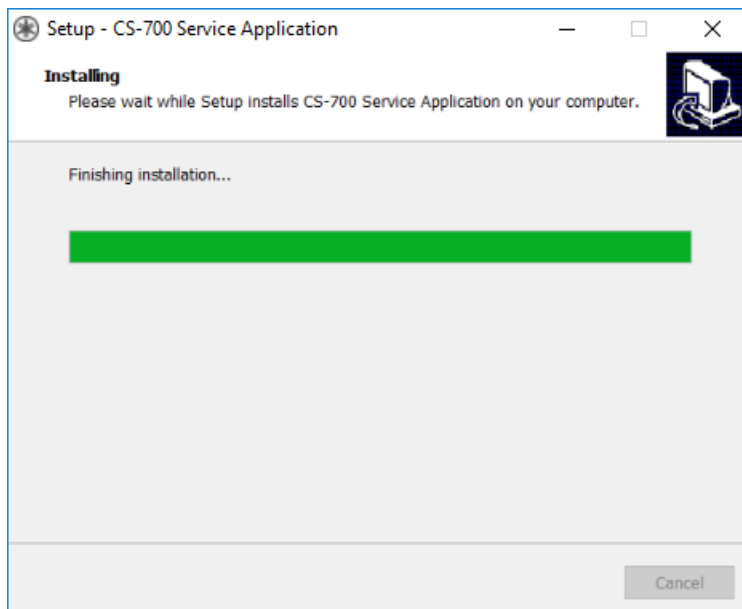
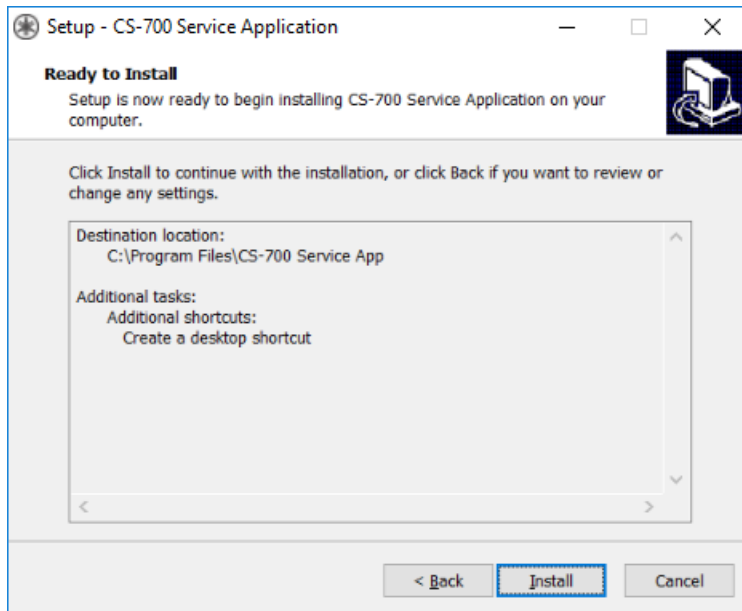
Next the installer requires the path where the application shall be installed. Please accept the path, or provide the location where the application shall be installed.



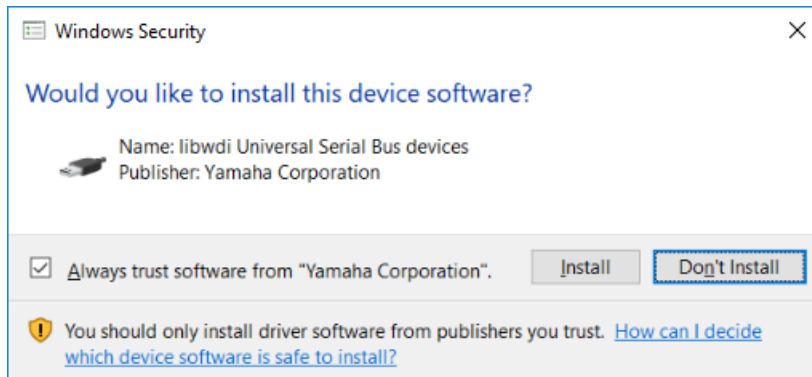
On the next screen select if a desktop shortcut is required:



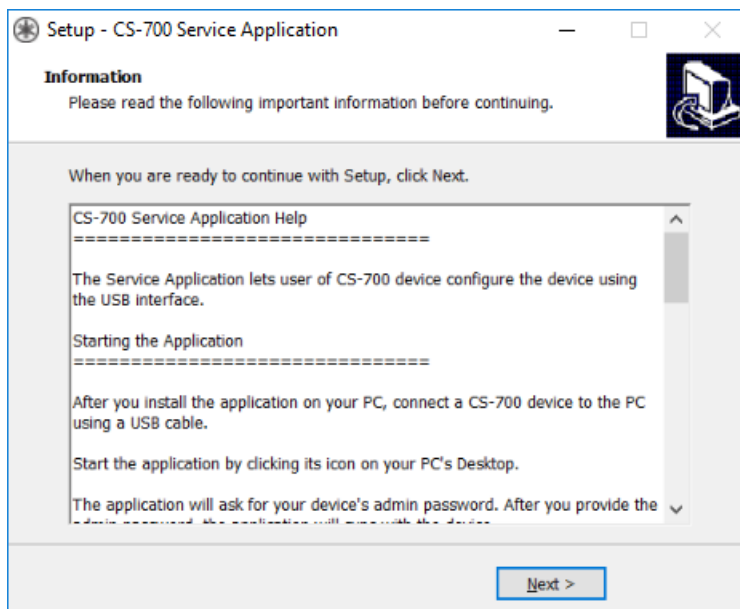
Finally, please confirm the selections and start the installation process.



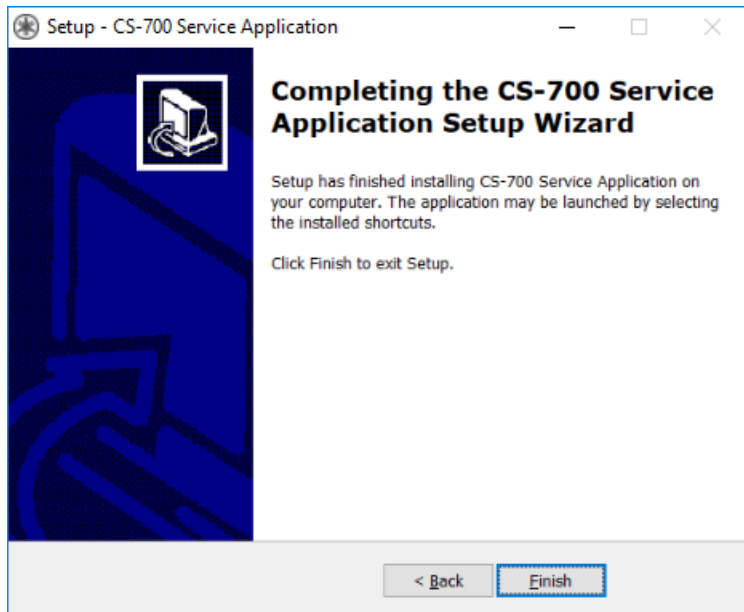
The service application requires an additional device driver for the USB interface which requires confirmation:



Finally, a window with help information is provided.



And lastly, the installation process provided a success message after a successful installation.

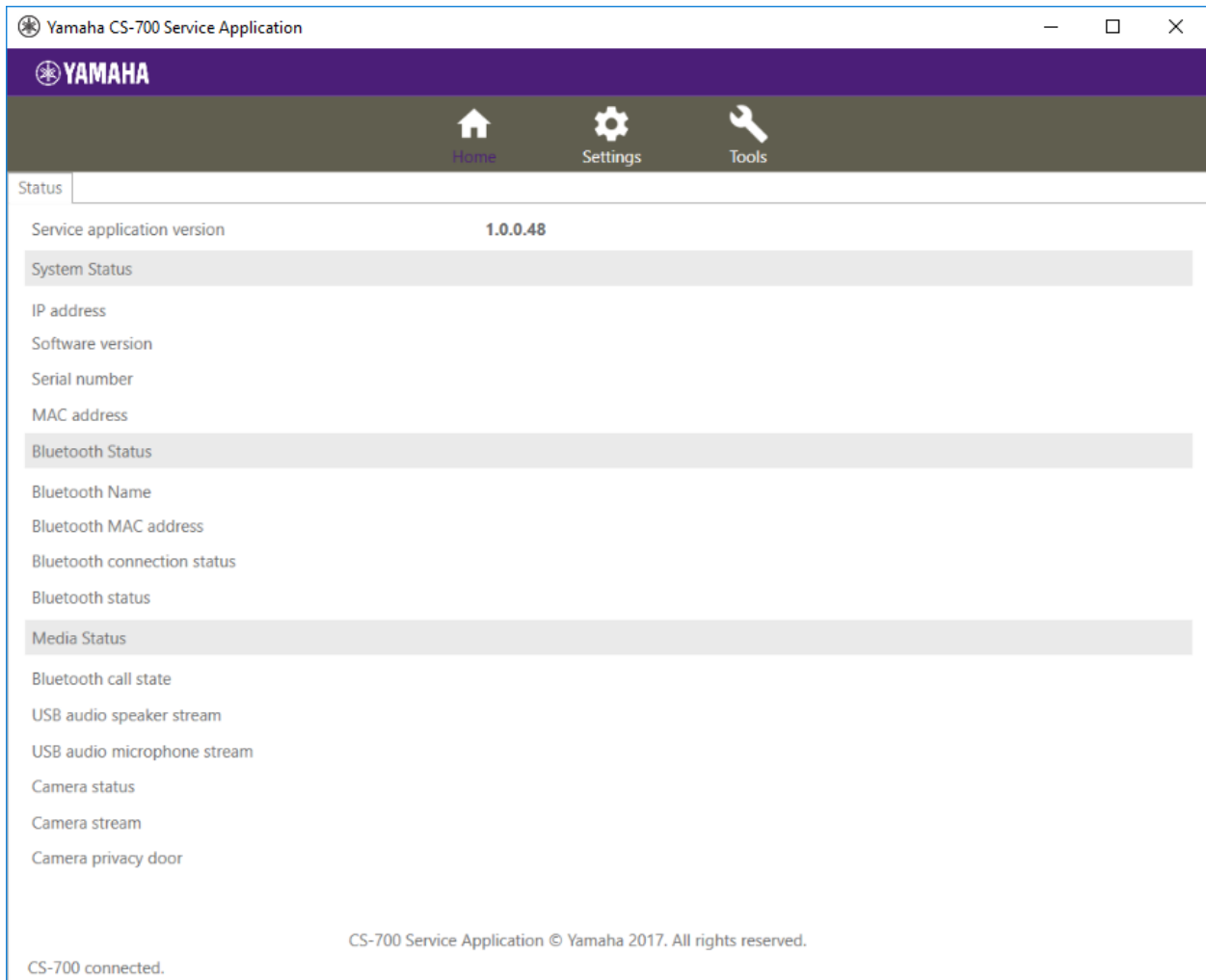


Using the Service Application

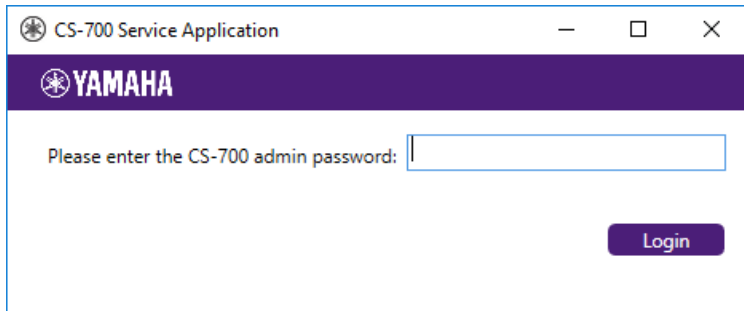
The service application supports similar functionality to the web user interface. However, in some areas it supports less, e.g. in network management, while in others it supports more, e.g. in video control. See the following sections for the supported functionality in the service application.

Start-up

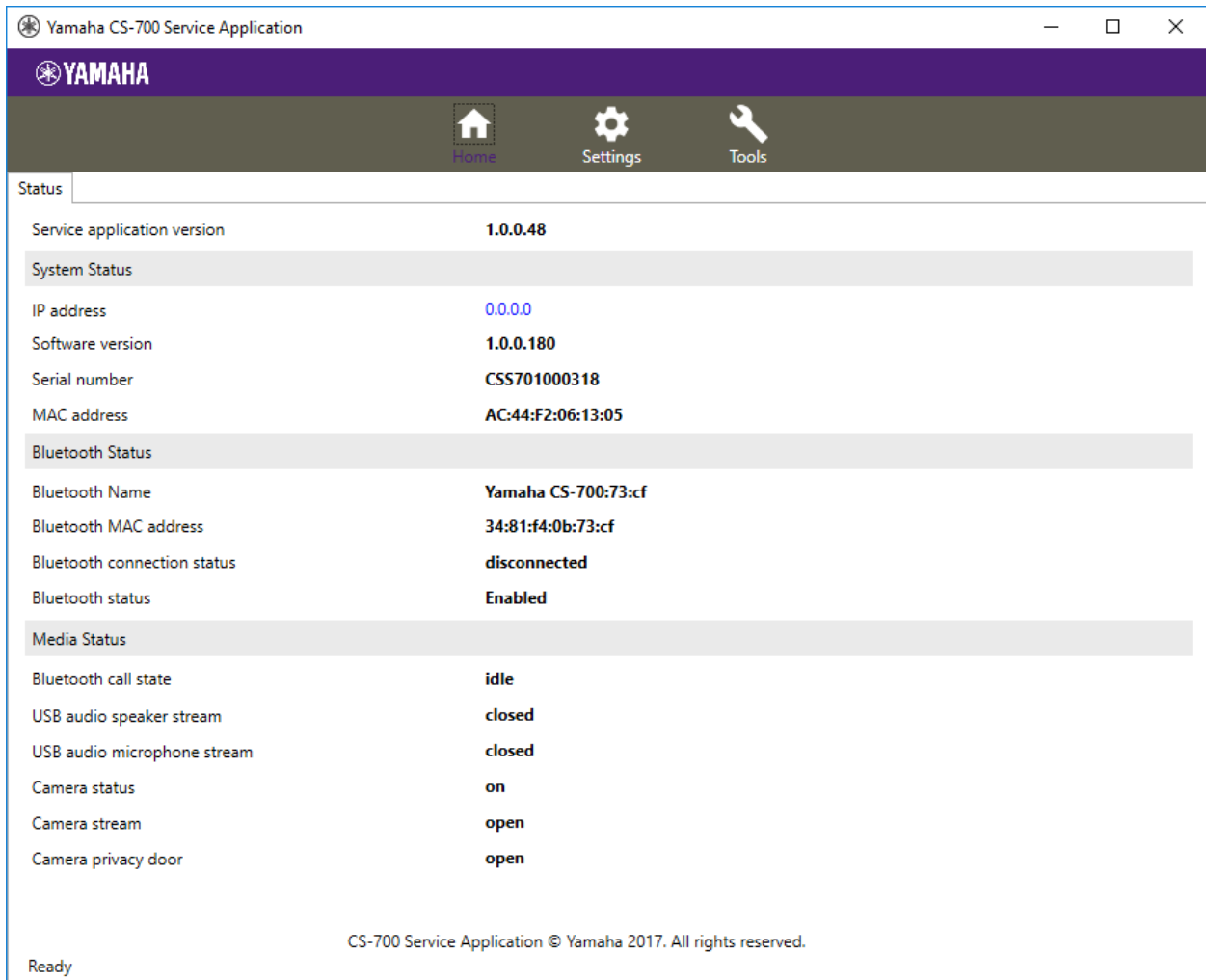
When starting the service application, a start-up window will be displayed. On the bottom of the application window the current status of the USB connection is displayed.



If a CS-700 device is connected and detected on an USB connection, the service application will request the password to access the system. The password is the same as used for any user interface and factory preset to 7386.



Once the application logged into the CS-700 device, the home tab will show status information of the unit.



Admin

The Admin area under the Settings menu allows setting system parameters.

The screenshot shows the Yamaha CS-700 Service Application interface. At the top, there is a navigation bar with 'Home', 'Settings', and 'Tools' icons. Below this is a tabbed menu with 'Admin', 'Audio', 'Bluetooth', 'Camera', and 'Network'. The 'Admin' tab is active, showing a 'Security Settings' section with fields for 'System password', 'Re-enter System password', and 'System name' (containing 'CS-700 AC:44:F2:06:12:3C'). Below that is a 'Front Panel Settings' section with five checked checkboxes: 'Enable camera button', 'Enable audio button', 'Enable volume button', 'Enable Bluetooth button', and 'Enable call light'. The 'General Settings' section includes a checked checkbox for 'Enable power saving mode' and a 'Power saving timeout (minutes)' field set to '20'. A purple 'Submit' button is located at the bottom right. The footer contains the text 'Ready' and 'CS-700 Service Application © Yamaha 2017. All rights reserved.'

To change the password provide a new one of at least 4 digits lengths. Other characters are not allowed in the password. Once a valid password has been entered, it needs to be entered a second time to protect against typos and unwanted changes.

System Name allows the operator to change the reported name of the CS-700 unit, instead of using the MAC address.

All of the front-panel CS-700 control buttons can be individually enabled or disabled through these check boxes. De-selecting the respective setting will disable the corresponding front panel button and light.

The CS-700 unit will automatically enter into Power Saving Mode whenever idle state is detected, and re-energize when activity is detected. This feature is

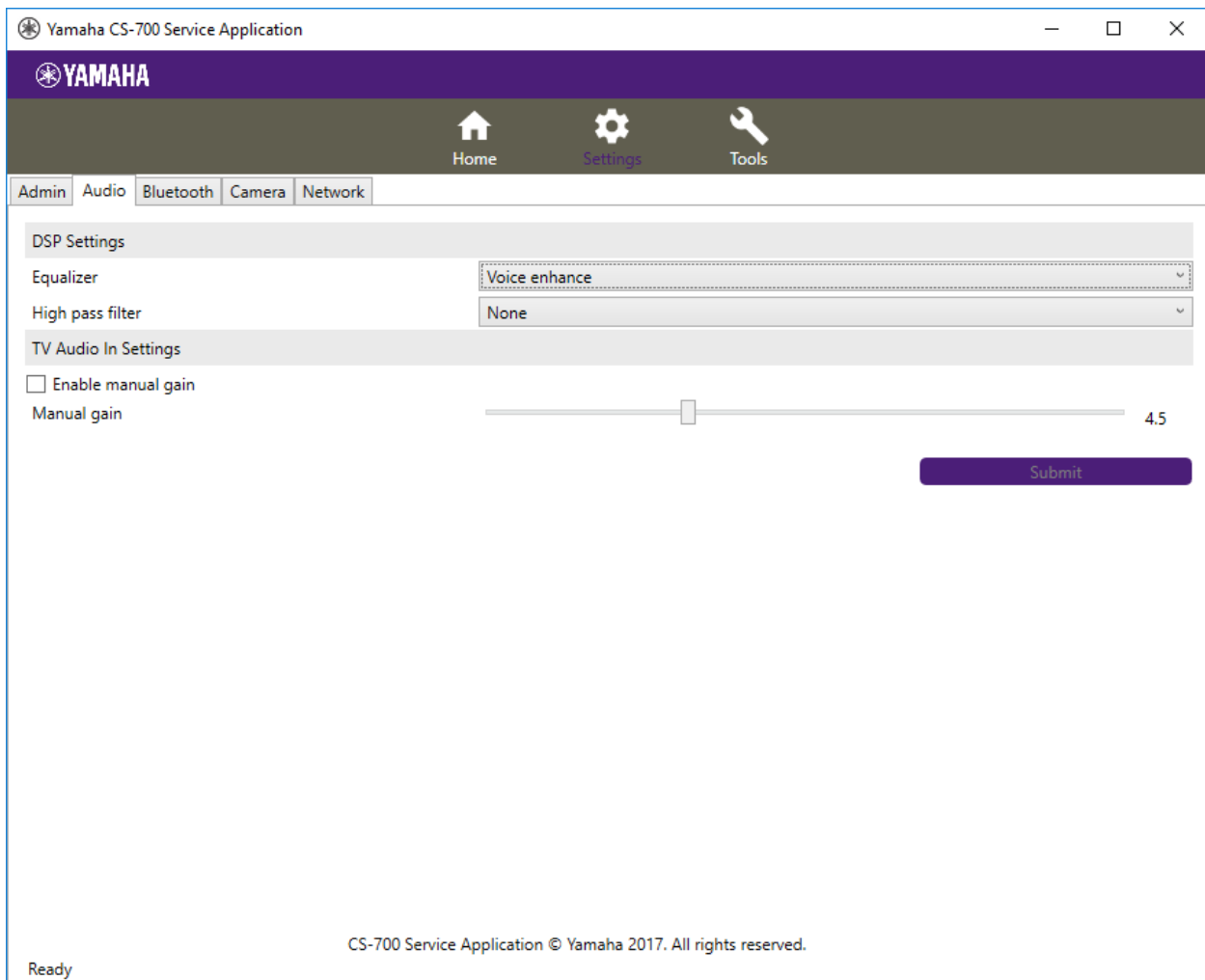
controlled through the Enable Power Saving Mode checkbox. When the power savings setting is enabled, the user can select the time (in minutes) after which the system will go into power savings mode. This feature is set by factory default with a 20 minute power savings time.

The CS-700 will wake up when activity is detected, either on the Aux in, the USB connection, or a button is pressed. Please allow about 10 seconds for the system to wake up.

When the SIP interface is configured on the CS-700SP or CS-700DS version, due to the requirements of the network and SIP interface, the unit will not go into sleep mode.

Audio

The Audio settings area under the Settings menu allows changing settings in the digital signal processor (DSP) and allows impacting the gain on the auxiliary input (TZ audio).



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.

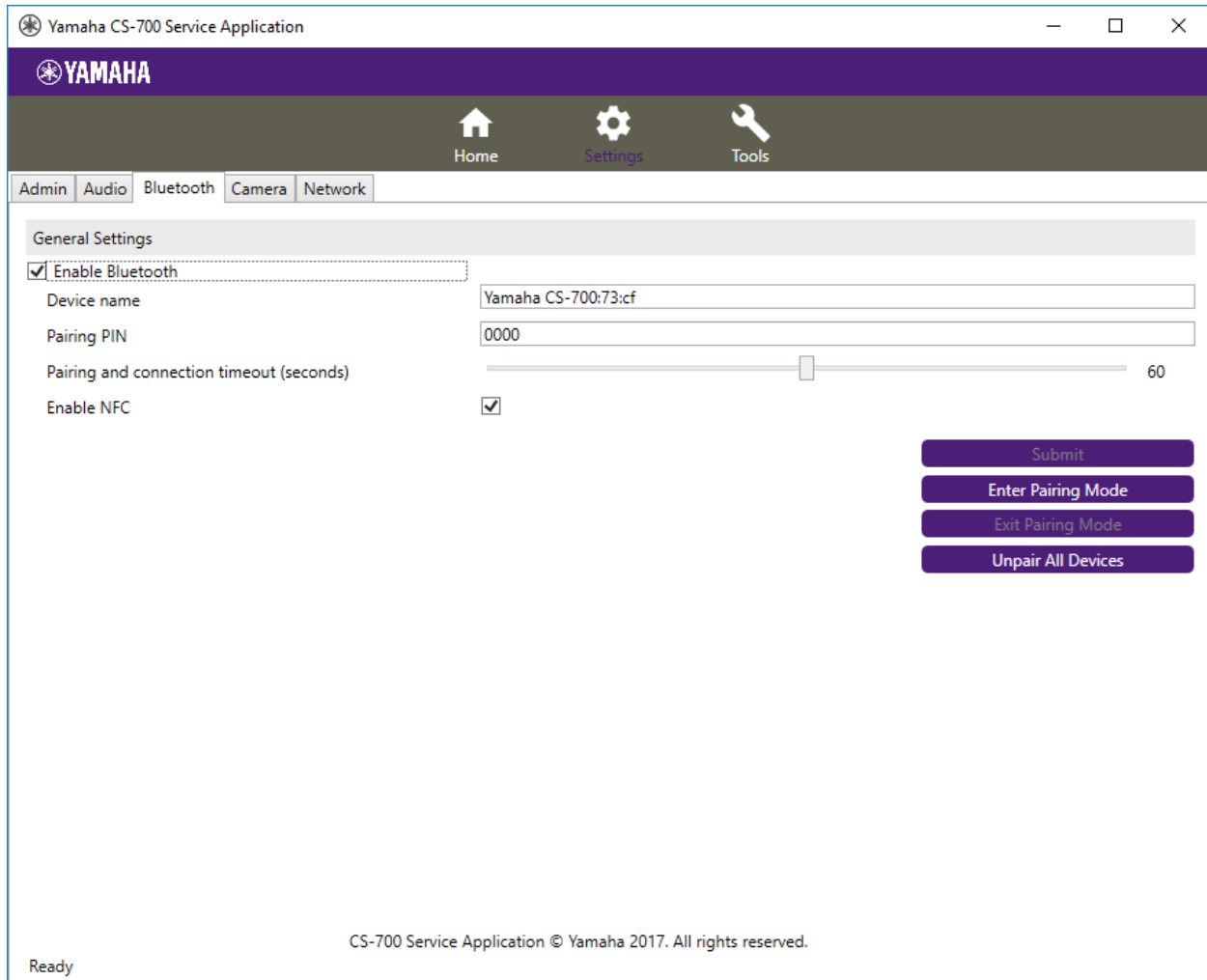
The High Pass filter affects the microphones and can be used to filter out low frequency noises in the room. The high pass filter can be disabled (None), or set to the provided frequencies of 110Hz, 140Hz, 175Hz, or 225Hz.

The TV Audio-In Settings allow gain-control of the AUX-in input sound source. The default setting is automatic gain control. Enabling manual gain allows the Operator to select a pre-defined gain level from -12dB to +40dB.

Note: The signal received on the Aux-in port is not mixed into the USB output stream. It is only played back in the room using the speakers supporting a sound bar application of the CS-700.

Bluetooth

In the Bluetooth menu settings affecting the Bluetooth connectivity can be adjusted.



The “Enable Bluetooth” box allows system-wide control of all Bluetooth capability. De-selecting this box will shut-down Bluetooth communications to the CS-700 and disable the Bluetooth and NFC front-panel indicator buttons. The system default is Bluetooth-enabled.

The Device Name allows modification of the Bluetooth advertised device name. The default value is Yamaha CS-700:<last 4 characters of MAC of this device>.

The Pairing PIN defines the 4-digit Bluetooth Basic Rate PIN for pairing, with default set to “0000”.

The Pairing and Connection Timeout setting allows control over the Bluetooth Basic Rate pairing mode and connection mode timeout in seconds. After this

time, pairing mode or the connecting mode will terminate. A value of 0 indicates no timeout. The default value is 60 sec.

The “Enable NFC” box allows control over the NFC pairing feature. De-selecting this box will disable the NFC pairing feature associated with the NFC front-panel indicator button. System defaults to NFC-enabled.

When clicking Enter Pairing Mode the Yamaha CS-700 starts to broadcast its Bluetooth information and can now be found from other Bluetooth devices. Exit Pairing Mode will end the broadcast of the Bluetooth information. Unpair All Devices will remove all Bluetooth information of previously paired devices.

Camera

The Camera tab allows invoking the electronic Pan/Tilt/Zoom settings of the CS-700. Pan and Tilt will only work when the camera has zoomed in. Zoom values are from 1 – 22, Tilt from -18 to +18, Pan from -30 to +30. At the maximum zoom of 22, the camera offers a 45 degree field of view.

Once satisfied with the settings, they can be stored as PTZ Home. The PTZ Home settings are automatically applied every time a new USB connection is being made to the CS-700. Clicking on Go to PTZ Home will restore the camera to the stored PTZ home values.

Finally, the power line for anti-flicker setting allows selecting the frequency of the power line. In environments using florescent lighting the image of the CS-700 might be flickering unless the frames per second sent adjust to the power frequency.

Yamaha CS-700 Service Application

YAMAHA

Home Settings Tools


Admin Audio Bluetooth Camera Network

Pan 0

Tilt 0

Zoom 0

Camera Ready!



Save as PTZ Home

Go to PTZ Home

General Settings

Power line frequency for anti-flicker

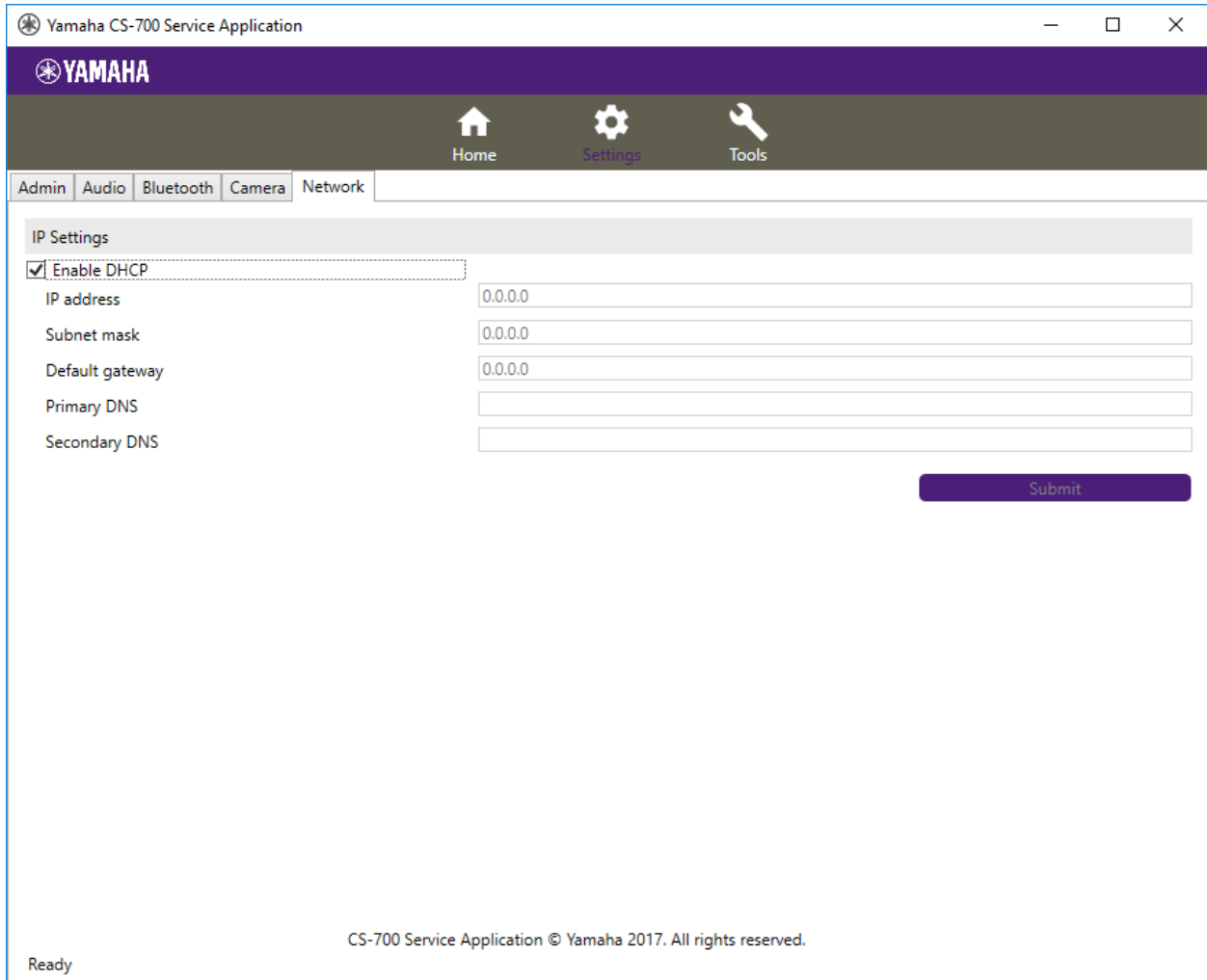
Submit

Ready

CS-700 Service Application © Yamaha 2017. All rights reserved.

Network

The Network section allows specifying the IP configuration for the CS-700. Factory default, the device is set to DHCP enabled and no further IP settings are required. However, if a static IP address is to be assigned, “Enable DHCP” needs to be unchecked, and the static IP parameters can be provided.



The screenshot shows the Yamaha CS-700 Service Application interface. At the top, there is a purple header with the Yamaha logo and three navigation icons: Home (house), Settings (gear), and Tools (wrench). Below the header is a menu bar with tabs for Admin, Audio, Bluetooth, Camera, and Network. The Network tab is selected. The main content area is titled "IP Settings" and contains a form with the following fields:

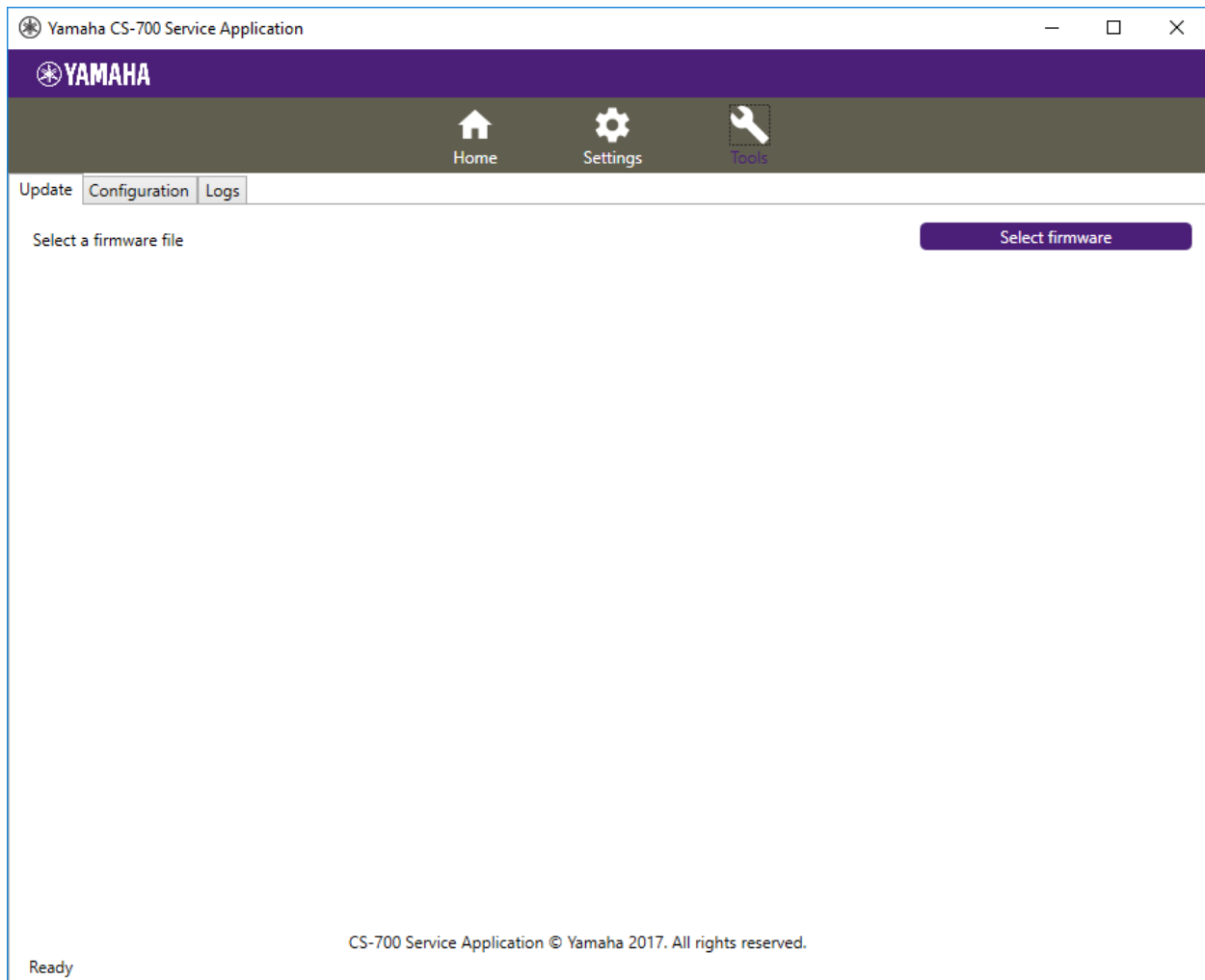
- Enable DHCP
- IP address: 0.0.0.0
- Subnet mask: 0.0.0.0
- Default gateway: 0.0.0.0
- Primary DNS: (empty)
- Secondary DNS: (empty)

A purple "Submit" button is located at the bottom right of the form. At the bottom of the page, there is a footer that reads "Ready" on the left and "CS-700 Service Application © Yamaha 2017. All rights reserved." on the right.

Update

The update section allows updating the firmware of the Yamaha CS-700. After clicking on “Select firmware” browse to the location where the firmware file is being stored and select it.

Uploading the firmware file using USB will take several minutes, a progress indicator is shown on the bottom of the screen.

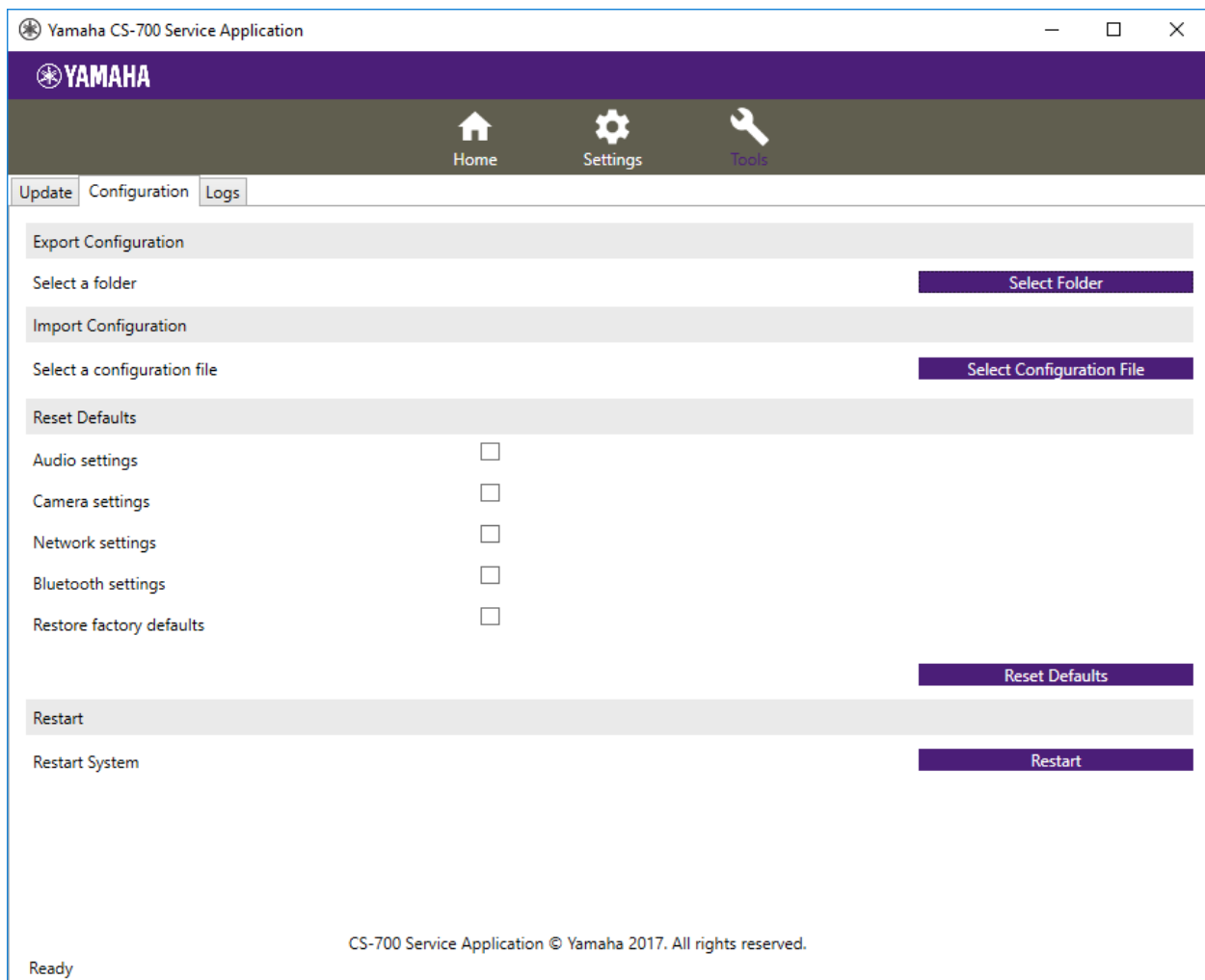


Configuration

The configuration tab allows Exporting and Importing configuration information of the CS-700. This is specifically of interest if several CS-700 devices are to share identical configurations. The first CS-700 can be fully configured and exported as a “Golden Reference” configuration for the rest of the CS-700 estate. Subsequent CS-700 units can “duplicate” the Golden Configuration by re-Importing the original configuration file. 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 Factory Defaults restores all settings back to the original settings.

Selecting Restart will reboot the product.



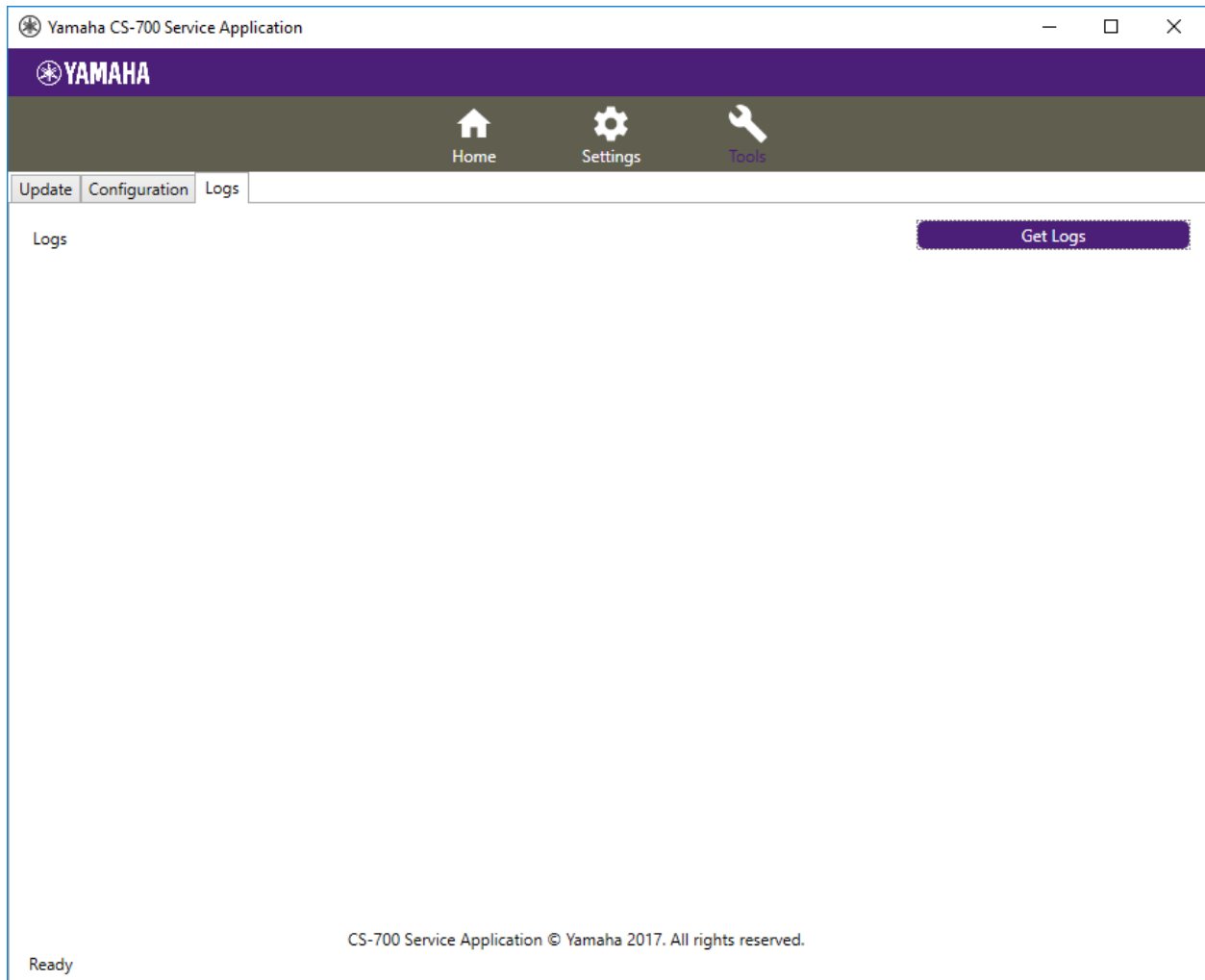
The screenshot shows the Yamaha CS-700 Service Application interface. At the top, there is a navigation bar with the Yamaha logo and three icons: Home, Settings, and Tools. Below this is a tabbed interface with 'Update', 'Configuration', and 'Logs' tabs. The 'Configuration' tab is active, showing several sections:

- Export Configuration:** A section with a 'Select a folder' label and a 'Select Folder' button.
- Import Configuration:** A section with a 'Select a configuration file' label and a 'Select Configuration File' button.
- Reset Defaults:** A section with a list of settings and checkboxes:
 - Audio settings
 - Camera settings
 - Network settings
 - Bluetooth settings
 - Restore factory defaultsA 'Reset Defaults' button is located at the bottom right of this section.
- Restart:** A section with a 'Restart System' label and a 'Restart' button.

At the bottom of the page, there is a status bar with the text 'Ready' on the left and 'CS-700 Service Application © Yamaha 2017. All rights reserved.' on the right.

Logs

The Logs section allows downloading logging information from the CS-700 for analysis. Access to logging information is typically only required when environmental issues with connected USB devices are experienced, and usually are shared with Yamaha Customer Support.



Basic Operations

USB Connected Video Conferencing – BYOD (Bring Your Own Device)

1. To use the CS-700 with popular Unified Communications (UC) Software, connect your Computer to the CS-700 main USB cable using a USB 3.0 compatible port, and select the Yamaha CS-700 Audio Device and Yamaha CS-700 Camera on your Computer.
2. Log-in to the UC Software and establish the video conference session.
3. Adjustments to volume can be made through the Computer Operating System or directly on the CS-700 front panel.
4. Adjustments to camera settings such as contrast and brightness can be made through the UC software configuration menus.
5. For Models containing Display Link (CS-700DL and CS-700DS), drivers for the Display Link technology are required on the Computer. These can be sourced from displaylink.com, and should be included with any standard company software load for BYOD computers. Once the drivers are installed, the Display Link connected display will appear as another available display within the computer operating system Display Control Menu.

USB Connected Video Conferencing – DIR (Device in Room)

To use the CS-700 with a permanently connected device in the conference room, follow the instructions described above in the BYOD section, points 2 through 4. The organization's IT department will pre-load the installed computer as required during the installation process, and Display Link is generally not employed for Device In Room use cases.

Controlling the Video Image

Some Unified Communication (UC) applications do support changing camera settings. The CS-700 does support several of these settings like pan, tilt, and zoom, but also brightness, contrast, backlight compensation, and others. When changing any of these settings using the UC application, the CS-700 will return to its factory default values and "PTZ Home" settings once the USB connection is interrupted. A new user entering the room to use the CS-700 will find the system back with the preset values.

Bluetooth Pairing and Activation

Press the Bluetooth button on the CS-700 front panel and hold until it flashes blue, indicating that pairing mode has begun. Once in pairing mode, accept the pairing request from “Yamaha CS-700 <mac address>” (or the name assigned by the System Administrator) as indicated on your hand-held device. Once pairing completes, the Bluetooth key on CS-700 will glow steady blue, indicating an active Bluetooth connection is present.

At this point, audio from the Bluetooth connected device will be redirected onto the CS-700 speakers, and automatically mixed with other audio sources connected to CS-700, such as USB-based audio. Audio in from the MIC array will be redirected to the mobile device.

The Bluetooth connection will remain engaged until any of several actions occurs:

- The User deactivates the connection from the mobile device.
- The User moves out of range of the Bluetooth signal.
- The User ceases to transfer data over the connection, and a connection timeout occurs.

Note: the connection timeout is a configurable parameter, set either through Web-UI or a configuration file. When set to 0, the connection will never drop from data inactivity.

Aux-IN Audio Support

To utilize the CS-700 as a room speaker system such as for the display in TV mode, connect your source of audio via a standard 3.5mm stereo jack connector on the back of the unit. Gain is automatically adjusted by default and the Volume Up/Down controls will manage the sound level. Gain can be manually set as well, configurable through the Web-UI, the Service Application, or from a configuration file.

Configuring the CS-700

This section will provide details on how to configure the CS-700 device. The information provided here is general and provides the details of how to access the configuration settings on the CS-700 and to enter in specific information.

There are three methods to configure the CS-700: from the Web UI over IP network, using the Service Application on a local USB-attached PC, or using a provisioning server and provisioning file with DHCP Option 66 or 150.

Configuring using the Web User Interface

Refer to the Web-UI description section and follow through all required configuration menus to achieve the desired configuration result. Be sure to “Submit” each configuration change before moving to another menu page, or settings will be lost.

Once all desired configuration changes have been made and submitted, take the time to export the system configuration to an external file for future use, either to restore the current unit or to provide a baseline configuration for other units in your installation.

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

Configuring using the Service Application

Refer to the Service Application description section and follow through all configuration menus to achieve the desired results.

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

Configuring using a Provisioning Server, Option 66

Option 66 allows IP Devices to download their configuration from a TFTP server. When an enabled IP device boots, 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 device 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>

An FTP server needs to be configured as

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

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

Once the CS-700 receives the address information of that server, it tries to access configuration files on that server to auto-configure the device during start-up. The configuration file for the specific CS-700 device needs to be named <MAC-address of device>.xml.

Any configuration data provided from the configuration files will overwrite configuration that might have been entered in the CS-700 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 Devices to download their configuration from a list of TFTP servers. When an IP device 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 device 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>"

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

Once the CS-700 receives the address information of these servers, the device will try to access configuration files on these servers to auto-configure the device during start-up. The configuration file for the specific CS-700 device needs to be named <MAC-address of CS-700>.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. Please note that all letters need to be upper case in the file name.

```
<provisioning include="enterprise.xml, department.xml">
    <config
        sys.password="1234"
    />
</provisioning>
```

Include files

Filename: **enterprise.xml**

```
<provisioning>
    <firmware version="1.0.0.180">CS-700-1-0-0-180.bundle</firmware>
    <config
        audio.eq="0"
        audio.def-speaker-volume="5"
        audio.high-pass-filter="3"
    />
</provisioning>
```

Filename: **department.xml**

```
<provisioning>
  <config
    net.ntp1="0.pool.ntp.org"
    net.ntp2="1.pool.ntp.org"
    sys.provisioning-interval="1440"
    sys.dst-enabled="1"
    sys.dst-start-rules="3:2:1:2"
    sys.dst-end-rules="11:1:1:2"
    sys.time-zone="6"
    sys.twenty-four-hour-time="0"
    sys.date-format="MM/DD/YYYY"
  />
</provisioning>
```

Provisioning file parameters (All Models)

The following table lists the attributes that can be provided as part of a provisioning file for CS-700, applicable to all models. If a specific attribute is not provided and the value is not set in the device, the default value as described will be used.

Property	Type	Values	Default Value	Description
sys.systemname	TEXT	System name string. Default value is the product name concatenated with the MAC address	Product name and MAC Address	Specifies the system name.
sys.md5-password	TEXT	Password string.	7386	Administrator password for the device, stored as MD5 sum.
sys.enable-btn-camera	BOOLEAN	0 : Disable button 1 : Enable button	1	Enable/disable the camera button on the main unit.
sys.enable-btn-audio	BOOLEAN	0 : Disable button 1 : Enable button	1	Enable/disable the microphone mute button on the main unit.
sys.enable-btn-volume	BOOLEAN	0 : Disable button 1 : Enable button	1	Enable/disable the speaker volume buttons on the main unit.
sys.enable-btn-bluetooth	BOOLEAN	0 : Disable button 1 : Enable button	1	Enable/disable the Bluetooth button on the main unit.
sys.enable-led-call	BOOLEAN	0 : Disable LED 1 : Enable LED	1	Enable/disable the call state LED on the main unit.

Property	Type	Values	Default Value	Description
sys.region	INDEXED_OPTION	1 : Argentina 2 : Australia 3 : Belgium 4 : Brazil 5 : Canada 6 : Chile 7 : China 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 (default) 24 : Venezuela	23	Region in which device is operating, setting by index.
sys.dst-enabled	BOOLEAN	0 : Disable DST 1 : Enable DST	1	Enables the system to automatically adjust the time according to Daylight Savings Time (DST) rules. If enabled, the DST rules must be provided. If disabled, the system will not adjust for DST.
sys.dst-start-rules	TEXT	String format: month:week:day:hour Default value is set for US	3:2:1:2	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. A value of 5 for the week indicates "last week".
sys.dst-end-rules	TEXT	String format: month:week:day:hour Default value is set for US	11:1:1:2	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. A value of 5 for the week indicates "last week".

Property	Type	Values	Default Value	Description
sys.time-zone	INDEXED_OPTION	0 : -11:00 American Samoa 1 : -10:00 Hawaii 2 : -9:00 Alaska 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 (default) 14 : +1:00 Berlin/Paris 15 : +2:00 Athens 16 : +3:00 Kuwait 17 : +3:30 Tehran 18 : +4:00 Abu Dhabi 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	13	Time zone setting by index. Default is GMT (13).
sys.require-https	BOOLEAN	0 : Do not require HTTPS 1 : Require HTTPS	0	Configure require https setting, 0 - do not require, 1 - require.

Property	Type	Values	Default Value	Description
sys.power-saving-mode	BOOLEAN	0 : Power save mode is off 1 : Power save mode is on	1	Configure power saving mode setting, 0 - off, 1 - on.
sys.power-saving-time	NUMBER	timeout : Power save timeout in minutes	20	Configure power saving time in minutes.
sys.provisioning-interval	NUMBER	1 .. 44640 : Provisioning interval in minutes	1440	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.snmp-enable	BOOLEAN	0 : Disable SNMP 1 : Enable SNMP	0	Enable or disable SNMP support. Disabled (0) means that SNMP is not supported. Enabled (1) means that SNMP is available.
sys.snmp-community	TEXT	Read-only community string.	public	Specifies the SNMP read-only community string used for queries from the server and transmitted traps. Read-only indicates the authorization level. The device does not support write operations initiated through SNMP.
sys.snmp-contact-name	TEXT	Contact name.		Specifies the contact name, typically the system administrator. This string is informational and can include an email address. It is not associated with traps.
sys.snmp-device-location	TEXT	Device location.		Specifies the location of the device for informational purposes.
sys.snmp-address	TEXT	IP address or DNS name.		Specifies SNMP server address to which traps will be sent. If left blank, this will disable traps.
sys.recent-call-enabled	BOOLEAN	0 : Disable recent call list 1 : Enable recent call list	1	Enables or disable the Recent Calls list.
audio.eq	NUMBER	1 : Voice 2 : Bass boost 3 : Treble boost	1	EQ setting used to adjust the speaker frequencies to your preference for the room and the types of calls.
audio.high-pass-filter	INDEXED_OPTION	0 : None 1 : 110 Hz 2 : 140 Hz 3 : 175 Hz 4 : 225 Hz	0	High-Pass filter setting. 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.analog-audio-in-mode	BOOLEAN	0 : Automatic gain setting 1 : Manually specify gain setting	0	For the TV audio in port, select the gain setting mode, either auto or manual.
audio.analog-audio-in-gain	NUMBER	-12.0 .. 40.0 : Manual gain setting	4.5	For the TV audio in port, if analog-audio-in-mode is manual, then this is the gain value in dB.

Property	Type	Values	Default Value	Description
audio.ring-tone	INDEXED_OPTION	0 .. 5 : Ring-tone index	0	VoIP ring-tone selection.
audio.ringer-volume	TEXT	1 .. 18 : Ringer volume level	13	Configure VoIP ringer volume. 1 : 18.
audio.speaker-volume	TEXT	1 .. 18 : Speak volume level	9	Configure speaker volume for calls. 1 : 18.
camera.camera-ptz-home	TEXT	String format: <pan> <tilt> <zoom> pan: <-30 .. 30> tilt: <-18 .. 18> zoom: <1 .. 22>	0 0 1	Default PTZ settings for home position. When the device detects that the upstream USB connection has been established, either at startup or after a USB disconnection and re-connect, it will revert to the PTZ home settings.
bt.bt-enable	BOOLEAN	0 : disable 1 : enable	1	Enable or disable Bluetooth basic-rate.
bt.bt-name	TEXT	Name of device. Default value is the product name concatenated with the system's Bluetooth MAC address	"Yamaha CS-700 " + Bluetooth MAC address	The Bluetooth basic-rate device name advertised over the air.
bt.bt-pin	TEXT	pin : 4-digit string	0000	The Bluetooth basic-rate pin for pairing. Pins are 4 digits.
bt.bt-pair-timeout	NUMBER	0 : No timeout 1-120 : Pairing timeout in seconds	60	Bluetooth basic-rate pairing timeout in seconds. After this time, the pairing mode will stop. A value of 0 indicates no timeout.
Bt.enable-nfc	BOOLEAN	0 : Disable NFC and NFC LED 1 : Enable NFC and NFC LED	1	Enable/disable NFC and the NFC logo LED.
ble.ble-enable	BOOLEAN	0 : Disable BLE 1 : Enable BLE	0	Enable or disable Bluetooth low energy (BLE). BLE is used for wireless connections to the dialer tablet.
net.dhcp	BOOLEAN	0 : Disable DHCP 1 : Enable DHCP	1	Enables or disables DHCP. If DHCP is disabled, the Static IP Address, Subnet Mask, and Default Gateway must be specified.
net.ip	TEXT	IP address		Static IP Address assigned to the phone.
net.subnet	TEXT	IP address		Subnet Mask to determine the subnet to which the device belongs.
net.gateway	TEXT	IP address		The Default Gateway is the device's default router on the IP network.

Property	Type	Values	Default Value	Description
net.dns1	TEXT	IP address		Address of the primary Domain Name System (DNS) server.
net.dns2	TEXT	IP address		Address of the secondary Domain Name System (DNS) server.
net.vlan	INDEXED_OPTION	0 : Manually specify VLAN ID 1 : Disable VLAN 2 : Automatically detect VLAN ID	2	Specifies VLAN behavior and support for the device. 'Automatic' (2) should be used in environments that provide a Voice VLAN with automatic detection, in which case the device 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' (0) and specify the ID in the VLAN ID field, net.vlan-id. 'Disabled' (1) switches off VLAN capabilities.
net.vlan-id	NUMBER	1 .. 4095 : VLAN ID	3	The manually specified LAN ID, from 1-4095. If the VLAN mode is automatic, this is the detected VLAN ID if VLAN is active.
net.ntp1	TEXT	IP address or URL or DNS name.	0.pool.ntp.org	Configure first NTP (Network Time Protocol) server address.
net.ntp2	TEXT	IP address or URL or DNS name.	1.pool.ntp.org	Configure second NTP (Network Time Protocol) server address.
net.ntp3	TEXT	IP address or URL or DNS name.	2.pool.ntp.org	Configure third NTP (Network Time Protocol) server address.
net.ntp4	TEXT	IP address or URL or DNS name.		Configure fourth NTP (Network Time Protocol) server address.
net.dot1x-enabled	BOOLEAN	0 : Disable 802.1x authentication 1 : Enable 802.1x authentication	0	Enables 802.1x authentication to access the network. When enabled, the 802.1x MD5 authentication requires a username and password.
net.dot1x-identity	TEXT	username : String		Set a 802.1x authentication identity – required for MD5 and PEAP.
net.dot1x-password	TEXT	password : String		Set a 802.1x authentication password – required for MD5 and PEAP.
voip.registrar	TEXT	IP address or DNS name		The IP address or DNS name of the SIP registrar server. Required for VoIP call support.
voip.registrar-backup	TEXT	IP address or DNS name		The IP address or DNS name of a failover SIP registrar.
voip.realm	TEXT	Realm string	*	Realm of the credential to authenticate against the VoIP 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.

Property	Type	Values	Default Value	Description
voip.proxy	TEXT	IP address or name. Separate multiple addresses by a comma. Add ";lr" suffix for loose routing.		The outbound SIP proxy server's IP address or name. 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.reg-use-proxy	INDEXED_OPTION	0 : No proxy 1 : Outbound only 2 : Acc only 3 : All	0	Indicates whether the SIP proxy server(s) specified in "proxy" property 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.user	TEXT	SIP username.		SIP username for the account used to authenticate with the SIP registrar and proxies. Required for VoIP support.
voip.password	TEXT	SIP user password.		SIP password for the account used to authenticate with the SIP registrar and proxies. Required for VoIP support.
voip.id	TEXT	SIP ID.		SIP ID used for SIP registration. If this field is left blank, the voip.user (Username) field will be used as the ID.
voip.name	TEXT	VoIP Display Name.		VoIP Display Name. The Display Name is shown when an outbound call is made. If no Display Name is provided, the Username will be used. Please note that the IP PBX might override the Display name sent by the device and replace it with names configured in the PBX.
voip.reg-timeout	NUMBER	1 .. 604800 : Registration timeout in seconds	60	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	NUMBER	1 .. 604800 : Auto re-registration retry interval in seconds	300	Configure auto re-registration retry interval in seconds. If SIP registration is unsuccessful, this property specified the time duration between retry attempts in seconds.
voip.use-timer	INDEXED_OPTION	0 : Inactive 1 : Optional 2 : Mandatory 3 : Always	1	Specify the preference for using SIP session keep-alive timers.
voip.timer-se	NUMBER	90 .. 604800 : Session timer in seconds	1800	The expiration period (seconds) 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. It is measured in seconds and must be greater than 90.

Property	Type	Values	Default Value	Description
voip.timer-min-se	NUMBER	1 .. 604800 : Minimum session timer value in seconds	90	SIP session timer minimal expiration period (seconds). This is the minimum period that the device 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	BOOLEAN	0 : Disable reliable provisional responses 1 : Enable reliable provisional responses	0	Implements reliable SIP provisional responses. 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	BOOLEAN	0 : Disable NAT 1 : Enable NAT	1	Configure whether SIP traversal behind NAT is disabled. 0 - no, 1 - yes. Used for device behind a symmetric NAT (Network Address Translation). When enabled, the device 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.dtmf-method	TEXT	0 : RTP - RFC2833 1 : SIP INFO 2 : In-band	0	DTMF signaling method.
voip.dtmf-rtp-payload-type	TEXT	96 .. 127	96	Specify the dynamic RTP payload type for DTMF transport using RTP.

Property	Type	Values	Default Value	Description
voip.media-onhold-method	BOOLEAN	0 : M line only -- RFC3264 1 : M and C line -- RFC2543	0	The Media on Hold method setting allows switching the Media on Hold behavior between the different RFC definitions. 'M line only (RFC3264)' (0) 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)' (1) 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 added.
voip.use-srtp	INDEXED_OPTION	0 : Disabled -- Do not use SRTP; always use RTP 1 : Optional -- Use the optional disposition for SRTP in SDP; if the remote end supports SRTP then use SRTP; otherwise use RTP 2 : Mandatory -- Force use of SRTP; if the remote end does not support SRTP the call does not connect	0	Controls Secure Real-time Transport Protocol (SRTP) usage.
voip.rtp-port	NUMBER	1024 .. 65535 : Port number	4000	Base port number for VoIP 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.set-qos	BOOLEAN	0 : Disable QoS 1 : Enable QoS	0	Option to enable 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.udp-tcp-selection	BOOLEAN	0 : UDP 1 : TCP	0	Transport that will be used for SIP messages, 0 - UDP, 1 - TCP.
voip.local-port	NUMBER	1024 .. 65535 : Port number	5060	Specifies the local port for SIP transport. The range is 1024 to 65535.
voip.ip-addr	TEXT	ip-address : IP address		Configure optional address to advertise as the address of this transport. Can specify any address or hostname for this field. For example, it can point to the public address of a NAT router where port mappings have been configured for SIP.

Property	Type	Values	Default Value	Description
voip.bound-addr	TEXT	ip-address : IP address		Configure bound IP address we intend to use.
voip.no-refer-sub	BOOLEAN	0 : Disable suppressing subscription 1 : Enable suppressing subscription	0	Enable or disable suppress subscription during transfer. 0 - disable, 1 - enable. 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 subscriptions when transferring calls. The option is disabled by default. (See IETF RFC 4488.)
voip.min-size	BOOLEAN	0 : Do no use compact format 1 : Use compact format.	0	Use compact SIP message format. 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.allow-strict	BOOLEAN	0 : Enable strict routing 1 : Disable strict routing	0	Allow strict routing for SIP registration proxies. 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".

Property	Type	Values	Default Value	Description
voip.stun-srv	TEXT	stun-address : String. IP address, domain name, or host name, and optional port number. Separate multiple addresses by comma.		Specifies the STUN (Session Traversal Utilities for NAT) server IP address or name 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	BOOLEAN	0 : Disable ICE 1 : Enable ICE	0	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.)
voip.ice-regular	BOOLEAN	0 : Regular nomination method 1 : Aggressive nomination method	1	ICE nomination method. 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.

Property	Type	Values	Default Value	Description
voip.ice-max-hosts	NUMBER	0 : No maximum 1 .. 10 : Maximum number of host candidates	5	Maximum number of ICE host candidate. 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	BOOLEAN	0 : Do not disable RTCP 1 : Keep RTCP disabled	0	Option to not disable the RTCP component in ICE. Selecting "0" will enable RTCP, 1 keeps RTCP disabled.
voip.use-turn	BOOLEAN	0 : Disable TURN 1 : Enable TURN	0	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	address : String. The format is either 'DOMAIN:PORT' or 'HOST:PORT'.		TURN server domain name or hostname, and port. The format is either 'DOMAIN:PORT' or 'HOST:PORT'
voip.turn-user	TEXT	User name.		Username to authenticate against the TURN server.
voip.turn-passwd	TEXT	Password.		Password to authenticate against the TURN server.
voip.turn-tcp	BOOLEAN	0 : Do not use TCP; use UDP 1 : Use TCP	0	Configure whether to use TCP on TURN relay; otherwise use UDP. 0 - no, 1 - yes.
voip.codec1	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	1	Highest prioritized codec. At least one codec different from "None" has to be selected in voip.codec1-voip.codec5.

Property	Type	Values	Default Value	Description
voip.codec2	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	2	Second highest prioritized codec. At least one codec different from "None" has to be selected in voip.codec1-voip.codec5.
voip.codec3	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	3	Third highest prioritized codec. At least one codec different from "None" has to be selected in voip.codec1-voip.codec5.
voip.codec4	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	4	Fourth highest prioritized codec. At least one codec different from "None" has to be selected in voip.codec1-voip.codec5.
voip.codec5	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	5	Lowest prioritized codec. At least one codec different from "None" has to be selected in voip.codec1-voip.codec5.
voip.ptime	NUMBER	10 .. 60 : ptime interval in ms	20	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.mwi	BOOLEAN	0 : Disable MWI signalling 1 : Enable MWI signalling	0	Enable displaying the message waiting indicator (MWI) on the 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.vm-number	TEXT	VoIP voicemail number		The number that is dialed when voicemail is called from the UI.

Property	Type	Values	Default Value	Description
voip.do-not-disturb	BOOLEAN	0 : Disable DND 1 : Enable DND	0	Configure do-not-disturb (DND) setting. 0 - disable, 1 - enable.
voip.auto-answer	NUMBER	0 : Disable auto-answer 100 .. 699 : RESPONSE to send when answering	0	Auto answer incoming VoIP calls. 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.
voip.duration	NUMBER	0 : No maximum 1 .. 10080 : Maximum VoIP call duration in minutes	0	Specifies the maximum VoIP 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. 0 indicates no maximum call duration.
voip.dial-plan	TEXT	dialplan : Dial plan string.		Specifies the VoIP dial plan string. See the User's Guide for a detailed description of dial plan settings.
voip.always-forwarding	BOOLEAN	0 : Disable 1 : Enable	0	Enable or disable forwarding all incoming VoIP calls to the specified number.
voip.always-forwarding-num	TEXT	VoIP dialing number		Forward all incoming VoIP calls to the specified number.
voip.busy-forwarding	BOOLEAN	0 : Disable 1 : Enable	0	Enable or disable forwarding 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	VoIP dialing number		Forward incoming calls to the specified number if the local phone is in 'Do Not Disturb' mode or if both lines are busy.
voip.noanswer-forwarding	BOOLEAN	0 : Disable 1 : Enable	0	Enable or disable forwarding incoming VoIP 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	VoIP dialing number		Forward incoming VoIP calls to the specified number if the call is not answered within the duration specified in the 'noanswer-delay' attribute.
voip.noanswer-delay	NUMBER	2 .. 30 : Seconds to wait before forwarding a call	10	Number of seconds to wait before forwarding an unanswered incoming call to the 'noanswer-forwarding-num' number.

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

Using the Application Programming Interface (API)

The Yamaha CS-700 provides an interface to integrate into third party applications to control and manage the unit directly without the use of Yamaha's management interfaces. The API allows accessing the CS-700 unit either over an USB connection or the network. Use cases are for example integrations with room control systems.

The API and full documentation of the interface can be downloaded from <https://uc.yamaha.com/products/video-sound-bar/huddle-room-system/>. The API is available in form of C-libraries for Windows, macOS and Chrome OS operating systems.

Please see the following sections for the description of a subset of the available functions and commands.

USB API functions

CsDevComm_Mode enum

Description: Enumeration of USB connections type. The client should specify the connection type, Auto, HID, or Bulk, at the start of a session. Auto will select Bulk if available otherwise HID. Bulk is preferable when upgrading firmware.

Syntax:

```
typedef enum {  
    CsDevComm_Mode_Auto = 0,  
    CsDevComm_Mode_Hid,  
    CsDevComm_Mode_Bulk,  
    CsDevComm_Mode_Num  
} CsDevComm_Mode;
```

devAttach

Description: Establish USB communication with a device.

Syntax:

```
EXPORT int __cdecl devAttach(int mode, void(*debug_callback)(char *msg),  
                             void(*event_callback)(int type));
```

Parameters:

Parameter	Description
mode	The USB connection mode, either Auto, HID or bulk, chosen from enum CsDevComm_Mode.
debug_callback	Pointer to callback function to handle debug messages.
msg	Pointer to debug message.

event_callback	Pointer to callback function to handle events.
type	Type of event as listed in table below.

Return Values:

Value	Description
-1	General error
0	Success
1	No device connected
2	Failed authentication

Event Types:

Type	Description
0xFF	Device disconnected

devDetach

Description: Disconnect session.

Syntax:

```
EXPORT void __cdecl devDetach(void);
```

Return Values:

Value	Description
-1	General error
0	Success

isConnected

Description: Get the USB connection status.

Syntax:

```
EXPORT int __cdecl isConnected(void);
```

Return Values:

Value	Description
-1	General error
0	Not connected
1	Connected HID
2	Connected Bulk

coreCliCmd

Description: Send a CLI-format command to the device. Commands are listed in the section “USB/Telnet CLI Commands”.

Syntax:

```
EXPORT int __cdecl coreCliCmd(char *cmd, char* rsp, int len);
```

Parameters:

Parameter	Description
cmd	CLI command string (see “USB/Telnet CLI Commands”)
rsp	Pointer to response string
len	Bytes available in response string

Return Values:

Value	Description
-1	General failure
0	Success

notifCtrl

Description: Enable/disable notifications and register a callback function to handle CLI-format notifications. The notifications are defined in the section “USB/Telnet CLI Commands”. Notifications are automatically disabled if the device is disconnected.

Syntax:

```
EXPORT int __cdecl notifCtrl(int mode, void(*notif_callback)(char *msg));
```

Parameters:

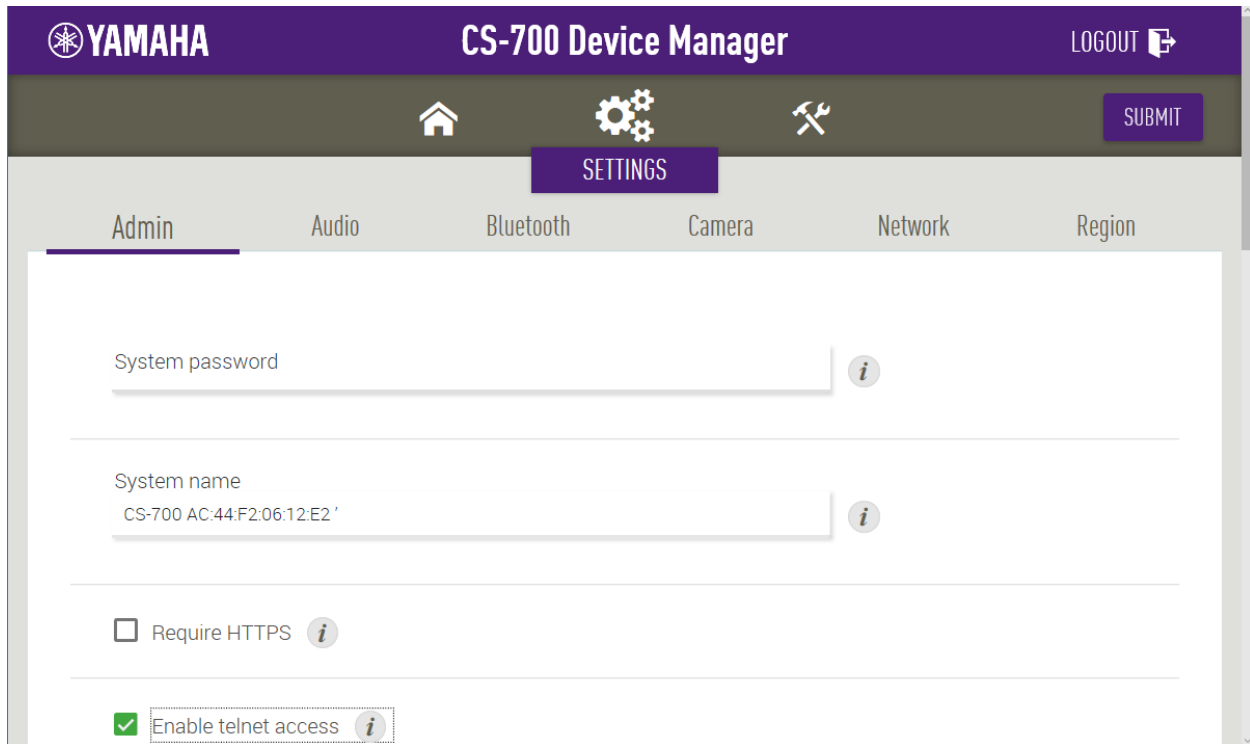
Parameter	Description
mode	Enable/disable notifications
notif_callback	Pointer to callback function to handle CLI notification
msg	Callback function parameter: Notification message string (see section “USB/Telnet CLI Commands”)

Return Values:

Value	Description
-1	General failure
0	Success

Telnet / IP interface

To use an IP connection for the control, with the CS-700 being the server, the “Enable telnet access” check box on the Admin Settings page of the web UI has to be checked.



Start the telnet connection by connecting to the IP address of the CS-700 unit, providing the standard Telnet port number 23. The username is **roomcontrol** and the password is **Yamaha-CS-700**, both case sensitive. Once connected, CLI commands as listed in the next section can be sent to the CS-700.

USB/Telnet CLI Commands

Below a subset of the available commands is listed including the properties, status items and parameters that are available. Notifications are identified with their corresponding property or status item. Sample on using these commands using CLI are provided.

The command syntax is as follows:

<parameter>	Items in angle brackets are parameters
<"call-status">	A quoted item represents the name of a parameter further described in the Parameters section.
<0 1 2>	A list of possible values are separated by vertical bars.
<connected disconnected>	An unquoted parameter is a literal value.

<0..10>	A range of values is separated by an ellipsis.
<"paired"> [<"mac"> <"name">]	Square brackets designate optional parameters.
[<"mac"> <"name">]+	A list of repeating values is designated by a plus sign.

For properties, the description lists the actions that can be performed on the property, including:

- get – property can be read; this is true of all properties
- set – property can be set
- notify – when the property changes, a notification is sent to registered clients

echo

Description: Enable / Disable screen echo on the telnet interface.

Property Actions: set

Command Definition:

Action	Definition
set	set echo <0 1>

Parameters:

Parameter	Description
0	Turn off screen echo
1	Turn on screen echo

CLI Format Examples:

```
set echo 1
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

usb-conn-status

Description: Query USB connection status.

Property Actions: get, notify

Command Definition:

Action	Definition
get	get usb-conn-status
response	val usb-conn-status <0 1>
notify	notify sys.usb-conn-status <0 1>

Parameters:

Parameter	Description
0	USB is not connected.
1	USB is connected.

Format Examples:

```
get usb-conn-status  
val usb-conn-status 1
```

```
notify sys.usb-conn-status 1
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

speaker-volume

Description: Configure speaker volume for calls. 1 : 18.

Property Actions: set, get, notify

Default Value: 9

Command Definition:

Action	Definition
get	get speaker-volume
response	val speaker-volume <1..18>
set	set speaker-volume <1..18>
notify	notify audio.speaker-volume <1..18>

Parameters:

Parameter	Description
1-18	Volume setting

Format Examples:

```
get speaker-volume  
val speaker-volume 12
```

```
set speaker-volume 12
```

```
notify audio.speaker-volume 12
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

ringer-volume

Description: Configure VoIP ringer volume. 1 : 18.

Property Actions: set, get, notify

Default Value: 13

Command Definition:

Action	Definition
get	get ringer-volume
response	val ringer-volume <1..18>
set	set ringer-volume <1..18>
notify	notify audio.ringer-volume <1..18>

Parameters:

Parameter	Description
1-18	Ringer volume level Default value is 13

Format Examples:

```
get ringer-volume  
val ringer-volume 7
```

```
set ringer-volume 7
```

```
notify audio.ringer-volume 7
```

Supported Products: CS700-SP, CS700-DS

mute

Description: Mute microphones.

Property Actions: set, get, notify

Default Value: 0

Command Definition:

Action	Definition
get	get mute
response	val mute <0 1>
set	set mute <0 1>
notify	notify audio.mute <0 1>

Parameters:

Parameter	Description
0	Unmute mics
1	Mute mics

Format Examples:

```
get mute  
val mute 0
```

```
set mute 0
```

```
notify audio.mute 0
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

camera-mute

Description: Camera video "mute" state.

Property Actions: set, get, notify

Default Value: 0

Command Definition:

Action	Definition
get	get camera-mute
response	val camera-mute <0 1>
set	set camera-mute <0 1>
notify	notify camera.camera-mute <0 1>

Parameters:

Parameter	Description
0	Camera video is not muted
1	Camera video is muted

Format Examples:

```
get camera-mute  
val camera-mute 0
```

```
set camera-mute 0
```

```
notify camera.camera-mute 0
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

camera-pan

Description: Camera's digital pan setting. Camera can only be panned when zoomed in.

Property Actions: set, get, notify

Default Value: 0

Command Definition:

Action	Definition
get	get camera-pan
response	val camera-pan <-30..30>
set	set camera-pan <-30..30>
notify	notify camera.camera-pan <-30..30>

Parameters:

Parameter	Description
-30 - 30	Pan setting

Format Examples:

```
get camera-pan
val camera-pan 0
```

```
set camera-pan 0
```

```
notify camera.camera-pan 0
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

camera-tilt

Description: Camera's digital tilt setting. Camera can only be tilted when zoomed in.

Property Actions: set, get, notify

Default Value: 0

Command Definition:

Action	Definition
get	get camera-tilt
response	val camera-tilt <-18..18>
set	set camera-tilt <-18..18>
notify	notify camera.camera-tilt <-18..18>

Parameters:

Parameter	Description
-18 - 18	Tilt setting

Format Examples:

```
get camera-tilt
val camera-tilt 0
```

```
set camera-tilt 0
```

```
notify camera.camera-tilt 0
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

camera-zoom

Description: Camera's digital zoom setting. When zoom is set to 1, the pan and tilt settings will be forced to 0.

Property Actions: set, get, notify

Default Value: 1

Command Definition:

Action	Definition
get	get camera-zoom
response	val camera-zoom <1..22>
set	set camera-zoom <1..22>
notify	notify camera.camera-zoom <1..22>

Parameters:

Parameter	Description
1 - 22	Zoom setting

Format Examples:

```
get camera-zoom  
val camera-zoom 1
```

```
set camera-zoom 1
```

```
notify camera.camera-zoom 1
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

cam-apply-defaults

Description: Apply the camera's default PTZ settings. These settings are also automatically applied when the device detects that the upstream USB connection has been established, either at startup or after a USB disconnection.

Command Definition:

Action	Definition
execute	cam-apply-defaults

Parameters: None

Format Examples:

```
cam-apply-defaults
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

status

Description: Query a call status.

Property Actions: get, notify

Command Definition:

Action	Definition
get	get status <1..3 usb bt>
response	val status <1..3 usb bt> <"call-status">
notify	notify call.status <1..3 usb bt> <"call-status">

Parameters:

Parameter	Description
1	VoIP line 1
2	VoIP line 2
3	VoIP line 3 (used for transfer)
usb	USB line
bt	Bluetooth line
call-status	String as shown below for each call type.
VoIP Calls	
idle	Initialization state.
incoming	Receiving incoming VoIP call.
calling	Initiating outgoing VoIP call.
failed	Outgoing call attempt failed; it is followed by "disconnected" when the attempt is disconnected.
connected	Call is connected.
onhold	Call is on hold.
connected-in-conf	Call is in a conference.
disconnected	Not in a call or phone is not registered.
update	The call is transferred by the far end (with some call managers the call state will remain "connected" after the transfer).
missed	Incoming VoIP call missed due to Do-Not-Disturb.
USB Calls	
active	USB audio is active.
incoming	Incoming USB call signal is received from host.
inactive	USB audio is not active.
onhold	USB audio is on hold.
connected-in-conf	Call is in a conference.
BT Calls	
active	BT audio is active.
incoming	Incoming BT call signal is received from connected phone.
inactive	BT audio is not active.
onhold	BT audio is on hold.
connected-in-conf	Call is in a conference.

Format Examples:

```
get status 1
val status 1 connected
```

```
notify call.status 1 connected
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

status-all

Description: Query all call status. See "call-status" property for description of status types.

Property Actions: get

Command Definition:

Action	Definition
get	get status-all
response	val status-all line1:<"voip1-status"> line2:<"voip2-status"> line3:<"voip3-status"> bt:<"bt-status"> usb:<"usb-status">

Parameters:

Parameter	Description
voip1-status	VoIP line 1 call status
voip2-status	VoIP line 2 call status
voip3-status	VoIP line 3 call status
bt-status	Bluetooth call status
usb-status	USB call status

Format Examples:

```
get status-all
val status-all line1:onhold line2:connected line3:disconnected bt:idle usb:idle
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

dial

Description: Dial a VoIP call using the given number.

Command Definition:

Action	Definition
execute	dial <"1..3"> <"number">

Parameters:

Parameter	Description
1 / 2 / 3	VoIP line 1 / VoIP line 2 / VoIP line 3 (used for transfer)
number	VoIP number to dial

Format Examples:

```
dial 1 7823
```

Supported Products: CS700-SP, CS700-DS

answer

Description: Answer an incoming call.

Command Definition:

Action	Definition
execute	answer <1..2 usb bt>

Parameters:

Parameter	Description
1	VoIP line 1 (-SP, -DS model only)
2	VoIP line 2 (-SP, -DS model only)
usb	Answer USB call
bt	Answer BT call

Format Examples:

```
answer 1
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

hangup

Description: Hang up the given call.

Command Definition:

Action	Definition
execute	hangup <1..3 usb bt>

Parameters:

Parameter	Description
1	VoIP line 1
2	VoIP line 2
3	VoIP line 3 (used for transfer)
usb	USB call
bt	Bluetooth call

Format Examples:

```
hangup 1
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

hold

Description: Hold the given call.

Command Definition:

Action	Definition
execute	hold <1..2 usb bt all>

Parameters:

Parameter	Description
1	VoIP line 1
2	VoIP line 2
usb	USB call/audio
bt	BT call
all	All active calls

Format Examples:

```
hold 1
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

resume

Description: Resume the given call.

Command Definition:

Action	Definition
execute	resume <1..2 usb bt>

Parameters:

Parameter	Description
1	VoIP line 1
2	VoIP line 2
usb	USB call/audio
bt	BT call

Format Examples:

```
resume 1
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

swap

Description: Swap the source call with the target call, used for swapping held calls.

Command Definition:

Action	Definition
execute	swap <"held-line-id"> <"active-line-id">

Parameters:

Parameter	Description
held-line-id <1..2 usb bt>	Line ID of call that is currently on hold; this call will be resumed
active-line-id <1..2 usb bt>	Line ID of call that is currently active; this call will be placed on hold

Format Examples:

```
swap 1 2
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

join

Description: Join the source call to target call, used for conferencing calls in progress.

Command Definition:

Action	Definition
execute	join <"line-id1" "mix-state"> <"line-id2" "mix-state"> [<"line-id3" "mix-state">] [<"line-id4" "mix-state">]

Parameters:

Parameter	Description
line-id1 <1..2 usb bt>	Line ID of call 1
line-id2 <1..2 usb bt>	Line ID of call 2
line-id3 <1..2 usb bt>	Line ID of call 3 (optional)
line-id4 <1..2 usb bt>	Line ID of call 4 (optional)
mix-state	
0	Keep line separate (do not mix)
1	Join line to conference (mix)

Format Examples:

Join VoIP calls 1 and 2, do not mix USB and BT calls:

```
join 1 1 2 1 usb 0 bt 0  
join 1 1 2 1
```


Separate all calls from a conference (do not mix the calls)

```
join 1 0 2 0 usb 0 bt 0
```

Supported Products: CS700-AV, CS700-SP, CS700-DL, CS700-DS

transfer

Description: Transfer the source call to target call, used for supervised transfer. After the successful transfer, both lines are released.

Command Definition:

Action	Definition
execute	transfer <"source-line-id"> <"target-line-id">

Parameters:

Parameter	Description
source-line-id <1..2>	Line ID of call being transferred
target-line-id <3>	Line ID of call to which the source will be transferred

Format Examples:

```
hold 1  
dial 3 5551212  
transfer 1 3
```

Supported Products: CS700-SP, CS700-DS

do-not-disturb

Description: Configure do-not-disturb (DND) setting.

Property Actions: set, get, notify

Default Value: 0

Command Definition:

Action	Definition
get	get do-not-disturb
response	val do-not-disturb <0 1>
set	set do-not-disturb <0 1>
notify	notify voip.do-not-disturb <0 1>

Parameters:

Parameter	Description
0	Disable DND
1	Enable DND

Format Examples:

```
get do-not-disturb  
val do-not-disturb 0
```

```
set do-not-disturb 0
```

```
notify voip.do-not-disturb 0
```

Supported Products: CS700-SP, CS700-DS

dtmf

Description: Send DTMF number or digit string on given VoIP line. This is not to dial a number, but to send DTMF tones during an active call.

Property Actions: set

Command Definition:

Action	Definition
set	set dtmf <1..3> <"digits">

Parameters:

Parameter	Description
1 / 2 / 3	VoIP line 1 / VoIP line 2 / VoIP line 3 (used for transfer)
digits	dtmf digit or string of dtmf digits

Format Examples:

```
set dtmf 1 5233
```

Supported Products: CS700-SP, CS700-DS

Upgrading the Device Firmware

From time to time, new device firmware might be made available to upgrade the functionality and feature set of the CS-700 device. Download such software from <https://uc.yamaha.com/products/video-sound-bar/huddle-room-system/>. The software is packaged as a bundle file which is applied to the CS-700 directly through the provisioning file, or through the Web-UI, or through the Service Application. The file will have a naming convention with suffix “.bundle” at the end.

Through the Web UI

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.

Through the Service Application

The CS-700 firmware can be upgraded from a directly-attached PC through the Service Application. Refer to the Service Application 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="1.0.0.112">CS-700-1-0-0-180.bundle</firmware>
```

Refer to the section on configuring CS-700 devices using provisioning servers and option 66 or option 150 for more details.

Appendix

Session 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 CS-700 device are communicated and reflected on both sides. Audio integration is not directly done with the applications.

Using Mac Computers

Audio volume and mute is integrated with the operating system. Volume changes in the operating system and the CS-700 device are communicated and reflected on both sides. Audio integration is not directly done with the applications.

USB 3.0 Extension Cables

The following USB extenders have been tested for use with the CS-700 and shown good results. Please note that we cannot give guarantees that these products will work in all environments. The distance supported by each USB extender varies and is defined by the manufacturer's specifications:

- Startech Active USB 3.0 USB-A to USB-B Cable, M/M, 10M/30 Feet – SKU # USB3SAB10M.
- Cable Matters SuperSpeed USB 3.0 Type A Male to Female Active Extension Cable 5 Meters/16.4 Feet

SNMP Support Details

The CS-700 includes an SNMP agent that can be configured to provide SNMP support.

The table below describes the SNMP configuration settings that the CS-700 administrator must configure to enable SNMP.

snmp-enable	Enable or disable SNMP support. Disabled (0) means that SNMP is not supported. Enabled (1) means that SNMP is available. Default is 0.
snmp-address	Specifies SNMP server address to which traps will be sent. Leave blank to disable traps.
snmp-community	Specifies the SNMP read-only community string used for queries from the server and transmitted traps. Read-only indicates the authorization level. The device does not support write operations initiated through SNMP. Default value is 'public'.
snmp-contact-name	Specifies the contact name, typically the system administrator. This string is informational and can include an email address. It is not associated with traps.
snmp-device-location	Specifies the location of the device for informational purposes.

The following read-only properties and traps are supported.

Read-only Properties

- Serial number
- MAC address
- Base FW version
- USB connection active (0,1)
- USB microphone audio stream active (0,1)
- USB speaker audio stream active (0,1)
- USB video stream active (0,1)
- Bluetooth connection active (0,1)
- VoIP call active (0,1)

Traps

- USB connection state changes
- Dialer battery level is low (<10%)

SNMP MIB for the CS-700

```
REVOLABS-MIB DEFINITIONS ::= BEGIN

    IMPORTS
        OBJECT-TYPE, NOTIFICATION-TYPE, MODULE-IDENTITY, enterprises FROM SNMPv2-SMI
        OBJECT-GROUP FROM SNMPv2-CONF
        DisplayString FROM SNMPv2-TC
    ;

yamahaAgentMIB MODULE-IDENTITY
    LAST-UPDATED "201705010000Z"
    ORGANIZATION "www.revolabs.com"
    CONTACT-INFO
        "postal: Revolabs
          144 North Rd
          Sudbury, MA 01776
          email: cloudsupport@revolabs.com"
    DESCRIPTION
        "Defines monitoring structures for the Yamaha Net-SNMP agent."
    REVISION "201705010000Z"
    DESCRIPTION "Initial revision"

    ::= { enterprises 1182 }

    revolabs          OBJECT IDENTIFIER ::= { yamahaAgentMIB 7386 }
    revolabsTraps     OBJECT IDENTIFIER ::= { revolabs 1 }
    revolabsTrapsObjects OBJECT IDENTIFIER ::= { revolabsTraps 1 }

--
-- CS-700 objects
--

serial OBJECT-TYPE
    SYNTAX DisplayString
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Serial number of type String."
    ::= { revolabs 11}

serial OBJECT-TYPE
    SYNTAX DisplayString
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "MAC address of type String."
    ::= { revolabs 12}

version OBJECT-TYPE
    SYNTAX DisplayString
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "Base version of type String."
    ::= { revolabs 13}

version OBJECT-TYPE
```

```

SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"USB connection active (0,1) of type String."
 ::= {revolabs 14}

version OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"USB microphone audio stream active (0,1) of type String."
 ::= {revolabs 15}

version OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"USB speaker audio stream active (0,1) of type String."
 ::= {revolabs 16}

version OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"USB video stream active (0,1) of type String."
 ::= {revolabs 17}

version OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Bluetooth connection active (0,1) of type String."
 ::= {revolabs 18}

version OBJECT-TYPE
SYNTAX DisplayString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"VoIP call active (0,1) of type String."
 ::= {revolabs 19}

--
-- CS-700 traps
--

usbconnTrap OBJECT-TYPE
SYNTAX      DisplayString
MAX-ACCESS  accessible-for-notify
STATUS      current
DESCRIPTION "USB connection trap data"
 ::= { revolabsTrapsObjects 1 }

usbconnTrapHit NOTIFICATION-TYPE
OBJECTS     { usbconnTrap }
STATUS      current
DESCRIPTION "Generated when USB connection state changes"
 ::= { revolabsTraps 1 }

```

```
dialerBattTrap OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  accessible-for-notify
    STATUS      current
    DESCRIPTION "Dialer battery trap data"
    ::= { revolabsTrapsObjects 2 }

dialerBattTrapHit NOTIFICATION-TYPE
    OBJECTS     { dialerBattTrap }
    STATUS      current
    DESCRIPTION "Generated when Dialer battery level is low"
    ::= { revolabsTraps 2 }

END
```


Dial Plan

The CS-700SP and CS-700DS 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

Optimize Windows for CS-700 Audio

To configure the CS-700 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 Yamaha CS-700 Device.
5. Select “Set as Default Device” from the menu.
6. Right click on the Yamaha CS-700 Device again.
7. Select “Set as Default Communication Device” from the menu.
8. Right click on Yamaha CS-700 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 Yamaha CS-700 Device.
18. Select “Set as Default Device” from the menu.
19. Right click on the Yamaha CS-700 Device again.
20. Select “Set as Default Communication Device” from the menu.
21. Right click on the Yamaha CS-700 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 Web UI, click on the “Restart Device” button on the home page and confirm the selection to reboot the system. Or from the Service Application, select “Restart system” in the Configuration Menu.

Removing the CS-700 device from power by disconnecting the Power connector will also shut down the unit. Reconnecting the unit will power it up again.

Finally, pressing the “Volume down” and “Bluetooth” areas for 5 seconds will also reboot the unit.

The Center Position Status LED should glow various colors during the boot process, and complete with White showing. The unit will sound a chime nearing the end of the booting process. Wait several minutes for reboot to complete, and for DHCP to assign an IP address.

Restore Factory Defaults

From the Web UI or the Service application, 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 UI

Check that the IP Address being used is correct. The IP Address of the CS-700 device is provided by simultaneously pressing and holding the “Volume-UP” and “Bluetooth” buttons on the front panel for five seconds. The CS-700 unit will announce the currently assigned IP Address. Input the whole IP Address, including periods, into the URL bar of the browser to access the Web UI. Verify this address is not conflicting with anything else on the network.

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 no IP Address is assigned, check that DHCP service is enabled on the network. If the application is set for NON-DHCP service, than IP Address configuration will need to occur through the Service Application with a directly attached PC. See the section on Service Application.

If access issues continue, reboot the unit and re-verify that a valid IP Address is assigned by the network following several minutes of boot-up using the method described above.

Lost Password

If the Web-UI and Service application password has been changed from factory default (7386), and the new password has been lost – access to the unit can be recovered in two ways.

1. Use Option-66 and TFTP server with provisioning file to reset the password. See section on Provisioning Server and Provisioning File to understand how to perform this operation. This will only work if the CS-700 unit is configured to attempt automatic provisioning (factory default). If the unit has automatic provisioning disabled, this method will not work.
2. Contact Customer Service with the MAC Address of the unit in question. Customer Service is capable of generating an override password given the MAC address.

Low Camera Image Quality (Far-end video)

Several factors can contribute to low-image quality delivered to the far-end of the video conference. The CS-700 is the physical end-point of a system of components that connect each-end of a video conference. All components in the chain must be validated to ensure the highest quality video is ultimately received. Several factors along the system chain include the following:

- USB Connection from CS-700 to the local PC device. This link must be at full 3.0 specification to ensure sufficient bandwidth necessary to support HD-video transfers.
 - This connection must be point-to-point; no USB HUBs.
 - This connection must use the USB 3.0 cable provided with CS-700, or if an extension is used, make sure that ONLY pre-approved extension cables are used.
 - The PC Port must support USB 3.0 for optimal video performance
- UC Software Video Management. Many Unified Communications Systems will often manage the transmitted video quality across the network to a lower-than-HD level to enhance reliable delivery. While CS-700 will deliver true HD camera video to the UC software via USB 3.0, the UC software may down-sample the video to lower resolutions.
- Network bandwidth and service consistency. Network drop-outs and bandwidth restrictions can clearly affect the UC software and end-to-end

connection, with greatest impact being degraded video quality, either with a resolution down-grade below HD, or through video artifacts and freezes during network service interruptions.

- Optimize Camera Settings. Assuming video degradation is not resolution or bandwidth related, various other camera settings can be optimized through the UC Software Control Panel/Camera Settings, including contrast, brightness, sharpness, Hue, and others.
- Check that the Power line frequency for anti-flicker is set correctly. When using fluorescent lighting, using the wrong frequency setting might lead to a flicker in the image. The frequency can either be set from the UC application if supported, or from the Service Application's Camera menu.

Misaligned Camera Image (Far-end video)

If the camera is projecting a poorly framed (misaligned) image to the far-end. Or the conference room is configured such that the CS-700 is not symmetrically aligned with the Table and/or the display, causing the camera field of view to be misaligned.

In these cases adjust the vertical camera angle (see section Setting Up the System), then make additional camera pan/tilt/zoom adjustments as necessary to optimize for your room using the Service application.

No Camera Image at Far-end

- Ensure that Camera Mute is not enabled (showing red). If Camera Mute is enabled, the far end should see a large "pause" image.
- Ensure that UC Software properly sees and enables the Yamaha CS-700 Camera device within the software settings.

Technical Specifications

Power adapter	
Model Number	ADP-38DR A
Bluetooth Specifications	
Bluetooth specification version	2.1 + EDR
Supported profiles	HFP (1.6), A2DP
Supported Codecs	SBC, mSBC, CVSD
Wireless output	Class 2
Maximum communication distance	10 m
Radio frequency (Operational frequency)	2,402 MHz to 2,480 MHz
Maximum output power (EIRP)	4.0 dBm (2.5 mW)
Audio	
Speaker Bar	4 Speaker elements with tweeter and mid-Woofer on left and right
Speaker Frequency Response	160 – 20,000 Hz
Max SPL	90 dB at 1m
Microphones	4 microphone dynamic beamforming array with human voice activity detection
Microphone Coverage	180 degrees audio pickup, best results within 12 feet / 3.60m
Microphone Frequency Response	160 – 16,000 Hz
Full Duplex Audio	Yes
Echo Cancellation	Ultra-wideband adaptive AEC
LED indicator	Call activity and microphone mute/unmute
Video	
Camera Sensor	High Definition CMOS
Image resolution	1080p, 30 fps (USB 3.0/3.1) 640 x 360, 30 fps (USB 2.0)
Privacy	Digital privacy control
LED Indicators	Camera activity and video stream mute/unmute
UVC Support	UVC 1.5
Field of View	120 degrees diagonally
Maximum Zoom	2.25
Interfaces	
Mount Connector	Wall Mount Bracket for above or below display mounting
USB Port	USB with strain relief Audio, video, HID and graphics display supported over USB 2.0 and 3.0/3.1
Multipurpose USB port	USB port supporting external USB devices, a tablet as wired dialer, or an IP over USB connection.
Ethernet	RJ 45, 10M / 100M
Bluetooth®	Yes. HFP and A2DP support
Aux Audio Input	3.5mm Stereo
HDMI (2)	(2) HDMI connectors on CS-700DL and CS-700DS models with Display Link
SIP (-SP and -DS models only)	
Call Handling	Make, Answer, Hold, Resume, Transfer (Blind and Supervised), Forwarding, Do not disturb, Redial, Call

	Timer, Call ID, Speed Dial, Missed Call Notifications, Voice Mail Notifications (Call Manager configured)
Call Bridging	Supports Bridging SIP and USB Calls. Join, Split, Hold, Resume, 2+1+1 Lines: Up to 2 SIP calls, 1 USB call, 1 Bluetooth® call, plus the user
Codecs	G.711 (A-law and μ -law), G.722, G.726, G.729
DTMF Support	RTP event, SIP in-band, SIP info package
Security	SRTP/SRTCIP Support (RFC 1889), IETF SIP support (RFC 3261 and companion RFCs), SSIP, Password protected configuration files, Password protected login
Network & Provisioning	DHCP or Static IP, Server Based Central Provisioning, Web Portal for Individual Unit Configuration
Compliance	
Safety	IEC60065, IEC60950, IEC62368
EMC	CISPR13/CISPR22/CISPR32/ FCC/J55013/ ETSI EN 300 328 / ETSI EN 302 291-2 / ETSI EN 300 330-2 EN55024/ CISPR24 or 35 and ETSI EN 301 489-1
Environmental	RoHS, Reach, WEEE
Warranty	
Global except for EU	1 Year return to factory
European Union	2 Year return to factory
Size, Weight, Power, Operating Temperature	
Height	3.9in/98.75mm
Length	2.7in/68.5mm
Width	34.in/861.7mm
Weight (incl. bracket)	7.3 lbs/3.3kg
Input Voltage (power supply)	100-240 VAC
Input Current (power supply)	1A
Input Frequency (power supply)	50-60 Hz
Input Voltage (CS-700)	15V
Input Current (CS-700)	2.4A
Power consumption (max)	36 W
Power consumption (network stand-by)	1.6 W
Stand-by time	20 minutes (user selectable)
Power Cord Length	10ft/3m - Please order correct SKU for regional power cord requirements
Operating Temperature	32 to 104 °F (0 to 40 °C)
Storage Temperature	-22 to 131 °F (-30 to 55 °C)
Operating / Storage Relative Humidity	20%-85% (non-condensing)
Maximum operating altitude	2,000m

Date code

The date code on the CS-700 label indicates when the product was manufactured. The first digit indicates the year.

First digit	Calendar year
7	2017
8	2018

9	2019
0	2020
1	2021

The second and third digits indicate the calendar week in that year – from 01 at the beginning of the year to 52 (or 53).

Limited Warranty and Limitation of Liability

Limited Warranty

Yamaha Unified Communications warrants to the end user (“Customer”) that this product will be free from significant defects in workmanship and materials, under normal use and service, for one year from the date of purchase from Yamaha Unified Communications or its authorized reseller provided the customer provides proof of purchase that demonstrates that the product is still within the warranty period and contacts Yamaha Unified Communications customer service, regarding warranty claims, within the warranty period. Yamaha Unified Communications’s sole obligation under this express warranty shall be, at Yamaha Unified Communications’s option and expense, to repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or if neither of the two foregoing options is reasonably available, Yamaha Unified Communications may, in its sole discretion, refund to Customer the purchase price paid for the defective product upon Customer’s return of the defective product. All products that are replaced will become the property of Yamaha Unified Communications. Replacement products or parts may be new or reconditioned. Yamaha Unified Communications warrants any replaced or repaired product or part for ninety (90) days from shipment, or the remainder of the initial warranty period, whichever is longer. Products returned to Yamaha Unified Communications must be issued a valid Return Material Authorization (“RMA”) number. To request an RMA, contact Yamaha Unified Communications Customer Service. Prior to receiving an RMA, the product must be first troubleshot and determined to be defective by a Yamaha Unified Communications Technical Support Technician. Product returned to Yamaha Unified Communications must have a valid RMA # clearly marked on the outside of the shipping container and the serial number and model of the returned product must match the RMA. Products returned without a RMA number will be returned to the customer. The product must contain all of the original accessories and be properly packaged. Products returned to Yamaha Unified Communications must be sent prepaid, and it is recommended that they be insured or sent by a method that provides for tracking of the package. Responsibility for loss or damage does not transfer to Yamaha Unified Communications until the returned item is received by Yamaha Unified Communications. The repaired or replaced item will be shipped to Customer, via standard economy shipping methods and at Yamaha Unified Communications’s expense, not later than thirty (30) days after Yamaha Unified Communications receives the defective

product, and Yamaha Unified Communications will retain risk of loss or damage until the item is delivered to Customer. Any customer request for expedited shipping will be considered on a case-by-case basis and will be at the sole expense of the customer. Any product found to be not covered under the terms of this warranty, per the exclusions listed below, will be treated as an out-of-warranty service and will be billed to the customer according to the Yamaha Unified Communications Product Repair Policy. The sole exceptions to the terms of this warranty are those listed as part of the Yamaha Unified Communications DOA Replacement Policy.

Exclusions and Remedies

Yamaha Unified Communications will not be liable under this limited warranty if its testing and examination disclose that the alleged defect or malfunction in the product does not exist or results from:

- ▶ Failure to follow Yamaha Unified Communications's installation, operation, or maintenance instructions;
- ▶ Product modification or alteration, including but not limited to modification or removal of the serial number.
- ▶ Use of common carrier communication services accessed through the product;
- ▶ Failure of Consumable Components and Accessories including but not limited to batteries and cables.
- ▶ Abuse, misuse, negligent acts or omissions of Customer and persons under Customer's control; or
- ▶ Acts of third parties or products, acts of God, accident, fire, lightning, power surges, outages, or other hazards, or any other cause outside of Yamaha Unified Communications's reasonable control.

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Governing Laws

This Limited Warranty and Limitation of Liability shall be governed by the laws of the Commonwealth of Massachusetts, USA, and by the laws of the United States, excluding their conflicts of laws principles. The United Nations Convention on Contracts for the International Sale of Goods is hereby excluded in its entirety from application to this Limited Warranty and Limitation of Liability.

Open Source Software

The following table lists the open source software in the CS-700 products and the respective licenses under which these software packages are used.

The specific Open Source software packages used in the CS-700 product are:

Name	Version	License Type
psp_linux	12.0	GNU GPLv2
psp_omap	3.20.00.14	GNU GPLv2
mtd-utils	1.0	GNU GPLv1
udev	055	GNU GPLv2
busybox	1.00	GNU GPLv2
buildroot	2013.08.1	GNU GPLv2
glibc	2.3.3	GNU LGPLv2.1
Tecla Library	1.6.2	Free Software License
cURL	7.33.0	MIT
OpenSSH	6.8	BSD
CMU Flite	2.0.0	Free Software License
Evttest	1.23	GNU GPLv2
OpenLLDP	0.4alpha	GNU GPLv2
pjsip	2.2.1	GNU GPLv2
ezXML	0.8.6	MIT
BlueZ Interface	5.46	GNU GPLv2
Net-SNMP	5.7.3	BSD

The different software licenses and license templates can be found on the internet at the following addresses:

License Type	Supplier Name / Web Address
GNU GPLv1	https://www.gnu.org/licenses/gpl-1.0.html
GNU GPLv2	http://www.gnu.org/licenses/gpl-2.0.html
GNU LGPLv2.1	http://www.gnu.org/licenses/lgpl-2.1.html
BSD	http://opensource.org/licenses/BSD-2-Clause
MIT	http://opensource.org/licenses/MIT
Free Software License	http://www.astro.caltech.edu/~mcs/tecla/LICENSE.TERMS

Source code for these open source software packages can be obtained by contacting Yamaha Unified Communications at uc-customersupport@music.yamaha.com.

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