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Devio
System Administration Utility (SAU)
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Introduction

Biamp Devio® is a product suite consisting of a control device called the Devio CR-1, Devio DTM-1 (Table Microphone) and/or Devio DCM-1 (Ceiling Microphone) and management software called the Devio System Administration Utility (SAU).

Devio by Biamp is designed to enhance Unified Communications and Collaboration. The Devio CR-1 and microphones are primarily intended to be used in small work spaces that can accommodate up to five people (often referred to as huddle rooms) and facilitate audio and video conferencing using common services like Microsoft Skype and Lync (also known as Skype for Business), Citrix GoToMeeting, Cisco WebEx, and Google Hangouts.

Additional Help resources and product information are available at www.support.biamp.com/devio.

Management Interface

The Devio System Administration Utility (SAU) is a computer application that provides technology administrators a simple interface for managing Biamp Devio CR-1 products.

For more information, including the SAU software download details, please review the [Devio System Administration Utility](#) section.

Web Interface

The local Web-based interface also allows both installers and system administrators to manage the system locally by connecting a laptop or tablet directly to the CR-1 unit via an Ethernet connection and can be used to review device status, manage basic device settings, and initiate the Auto Setup process.

Quick Start

Basic Installation Process

- 1 - Unpack all components.
- 2 - Connect components.

- a - Select a location for the microphone that will minimize the space it utilizes on work surfaces while making it accessible for connection to laptop's via USB 3.0 cable. Secure the CR-1 in this location by mounting the included bracket.
- b - Install the included microphone.
 - i) For the Devio DTM-1 tabletop microphone:
 - a. Select a location for the Devio DTM-1 microphone that puts it in the center of where conversation will occur.
 - b. Remove the mounting plate from the bottom of the DTM-1.
 - c. Secure the mounting plate and drill a hole in the table surface to feed the Cat-5 cable through the opening on the mounting plate, or remove the tab on the mounting plate to feed the Cat-5 cable out the side opening.
 - d. Connect Cat-5 cable with RJ-45 field terminated connector to the port the red arrow is pointing at, and reconnect the microphone to the mounting plate.
 - ii) For the Devio DCM-1 ceiling microphone:
 - a. Select a location for the microphone that puts it above the center of the meeting room table
 - b. The DCM-1 plenum box is designed to be mounted on a ceiling tile (requires a 7/8 inch or 22 mm hole) or, in rooms without a drop ceiling, to a beam or using a junction box.
 - c. Remove the plenum box lid and mount the plenum box in the selected location
 - d. Feed the DCM-1 pendant mic cable and bushing into the plenum box, and secure using the lock nut.
 - e. Connect the pendant mic cable to the plenum box board
 - f. String the seismic cable through the hole on the side of the plenum box, and secure to an eye bolt using the seismic cable tensioner
 - g. Reattach the plenum box lid
 - h. Lastly, pinch the pendant mic height adjustment assembly to complete the installation
- c - Connect Devio CR-1 to the beamforming microphone using CAT-5 cable with RJ-45 field terminated connectors.
- d - Connect Devio CR-1 to user supplied speaker using 18awg speaker cable or RCA cable.
- e - Connect Devio CR-1 to one or two HDMI®-equipped displays, with the following considerations:
 - i) By default, Devio CR-1 can connect to one HDMI-equipped display, supported via HDMI connection from computer to the Devio CR-1.
 - ii) Optionally, the "Enable USB Video" option allows the Devio CR-1 to connect to up to two HDMI-equipped displays, supported via USB 3.0 connection from computer to the Devio CR-1. This option requires DisplayLink USB Graphics Software drivers, which can be installed automatically or manually.
- f - If connecting to a camera for video conferencing, connect to the Devio CR-1 via back panel USB port (or alternatively a front panel USB port).
- g - Optionally, connect the Devio CR-1 to the network via CAT-5 cable to enable remote monitoring and management.
- h - Connect power supply to Devio CR-1.
- i - Connect power supply to power source.

3 - When the front panel LED Power Indicator lights green, press the Auto Setup button on the rear of the Devio CR-1. Wait for the AutoSetup LED.

a - Please be quiet during Auto Setup.

b - A series of announcements and sounds will be generated to optimize input and output levels for room acoustics and placement of speaker and microphone.

c - The LED Auto Setup Status Indicator will illuminate green when successfully completed, or red if an issue is encountered.

1.

Note

The LED Microphone Status Indicator will remain off until a computer is connected to the Devio CR-1 via the USB 3.0 cable, in which case it will turn green. If the LED Microphone Status Indicator is red the microphone is not fully connected.

4 - The Devio system is now ready for use.

a - Using the provided USB 3.0 Type-A to Type-B cable, connect the CR-1 to a computer.

i) For video, connect CR-1 to computer via user-supplied HDMI cable, or alternatively enable USB Video to allow for video over USB 3.0 connection.

b - The first connection may take a few minutes as the USB enumeration process discovers and/or installs the required drivers.

c - Devio will appear as an Echo Cancelling Speakerphone in computer's audio accessories, the computer's desktop can be mirrored or extended onto HDMI displays, and other USB-connected accessories (like a camera) will be discovered and available to your computer.

5 - Connect to the Devio CR-1 using the System Administration Utility (SAU) via network connection to manage or change other settings, including:

a - Enable USB Video –check this setting to enable HDMI output over USB 3.0. This option requires DisplayLink USB Graphics Software drivers, which can be installed automatically or manually.

b - Enable Headset Interface – check this setting to enable Devio CR-1 as a speakerphone for a desk phone via headset port connection and to bridge callers directly into soft codec audio conferences. Sidetone should be disabled on the connected desk phone to avoid the introduction of echo to the call – sidetone cannot be disabled on all desk phones, please work with telephone service administrators to verify this capability.

License Terms

Biamp Devio SAU End User License Agreement

IMPORTANT—READ CAREFULLY: This End User License Agreement (“EULA”) is a legal agreement between you (either an individual or a single entity) the end user of the Devio SAU (“End User”) and Biamp Systems Corporation (“Biamp”) for the Biamp software known as Biamp’s Devio™ System Administration Utility, together with any associated media, printed materials and “online” or electronic documentation (collectively, the “Devio SAU”). Use of the Devio SAU constitutes End User’s acceptance of this Agreement. If End User does not accept this Agreement, End User is not authorized to use the Devio SAU.

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You are authorized to activate and use the Devio SAU only if (a) you are not a competitor of Biamp and you do not provide services to a competitor of Biamp, (b) you have acquired an audio system that contains one or more Devio hardware products that you use for one or more rooms, and (c) you agree to the terms and conditions set forth in the EULA.

Section 2. Limited Software License.

Subject to the terms and conditions of this EULA, Biamp grants to you a limited, non-exclusive, non-transferable, personal license to install, run and use one copy of the machine-readable, object code form of the Devio SAU solely for End User’s operation of Biamp Devio hardware products for End User’s own, internal operations as an end user.

Section 3. User Documentation.

You may make and use a reasonable number of copies of the documentation provided by Biamp with the Devio SAU; provided, that you use such copies only for purposes described in Section 2 of this Agreement and you do not republish or redistribute any copy (either in hard copy or electronic form) to any third party.

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End User may make copies of the Devio SAU only to the extent necessary for End User to exercise the limited license granted in Section 2 of this Agreement, on the condition that End User includes on each copy all notices and legends that appear on or contained in the Devio SAU or any medium containing the Devio SAU.

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Section 12. Export Restrictions.

You acknowledge that the Devio SAU is subject to U.S. export restrictions. You agree to comply with all applicable laws and regulations that apply to the Devio SAU, including without limitation the U.S. Export Administration Regulations.

Section 13. U.S. Government License Rights.

All Devio SAU provided to the U.S. Government is provided with the commercial license rights and restrictions described in this EULA. By installing, copying or using the Devio SAU, the U.S. Government agrees that the Devio SAU is "commercial computer software" or "commercial computer software documentation" within the meaning of FAR Part 12.

Section 14. Termination.

Without prejudice to any other rights, Biamp may terminate this EULA if you do not abide by the terms and conditions contained herein. In such event, you must cease use of the Devio SAU and destroy all copies of the software and all of its component parts.

Section 15. Assignment.

You may not transfer or assign your rights under this EULA to any third party. Any such transfer or assignment in violation of the foregoing restriction will be void.

Section 16. Governing Law; Jurisdiction.

Unless expressly prohibited by local law, this EULA is governed by the laws of the State of Oregon, U.S.A. without regard to any conflict of law principles to the contrary. The 1980 U.N. Convention on Contracts for the International Sale of Goods or any successor thereto does not apply. You hereby irrevocably submit to jurisdiction of the state and federal courts located in Portland, Oregon with respect to any proceeding under this EULA or relating to the Devio SAU. You will not prosecute any action, suit, proceeding or claim arising under or by reason of this EULA except in such courts.

Section 17. Severability.

If any provision of this EULA is held by a court of competent jurisdiction to be invalid, illegal, or unenforceable, the remainder of this EULA will remain in full force and effect.

Section 18. Entire Agreement. This EULA sets forth the entire agreement of Biamp and you with respect to the Devio SAU and the subject matter hereof and supersedes all prior and contemporaneous understandings and agreements whether written or oral.

Section 19. Amendment.

Biamp reserves the right to make changes to this EULA from time to time in Biamp's sole discretion. If Biamp makes changes to this EULA, Biamp will notify you of such changes, such as by sending an email or providing notice on Biamp's website. The amended EULA will be deemed effective 30 days after notice or posting. If you do not agree to any amended EULA, you must discontinue your use of the licensed software.

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System Administration Utility

Product Information

The Devio System Administration Utility (SAU) is a computer application that provides technology administrators a simple interface for managing Biamp Devio CR-1 products deployed on their networks.

The intended user of the SAU is an AV support specialist or IT manager who is responsible for monitoring, managing and maintaining one or many Devio systems.

System Administration Utility Compatibility

Minimum Hardware

Intel Core i3 or higher PC with a 64-bit processor, or AMD 64-bit processor PC (Phenom II or higher)

- 4 GB RAM
- 4 GB available hard disk space
- 2 Network interfaces

Operating System

The Devio System Administration Utility is a Microsoft Windows application that will run on Windows 7, 8 and 10 operating systems.

Web Interface Browser Compatibility

Additionally, a web browser can be used to connect to and configure individual elements of a Devio CR-1 systems. The following desktop web browsers are supported:

- Chrome 31+
- Firefox 34+
- Safari 7.1+ on Mac OSX
- IE 10+ on Windows

Date of Initial Publication or Update

February 09, 2017

System Administration Utility

Overview

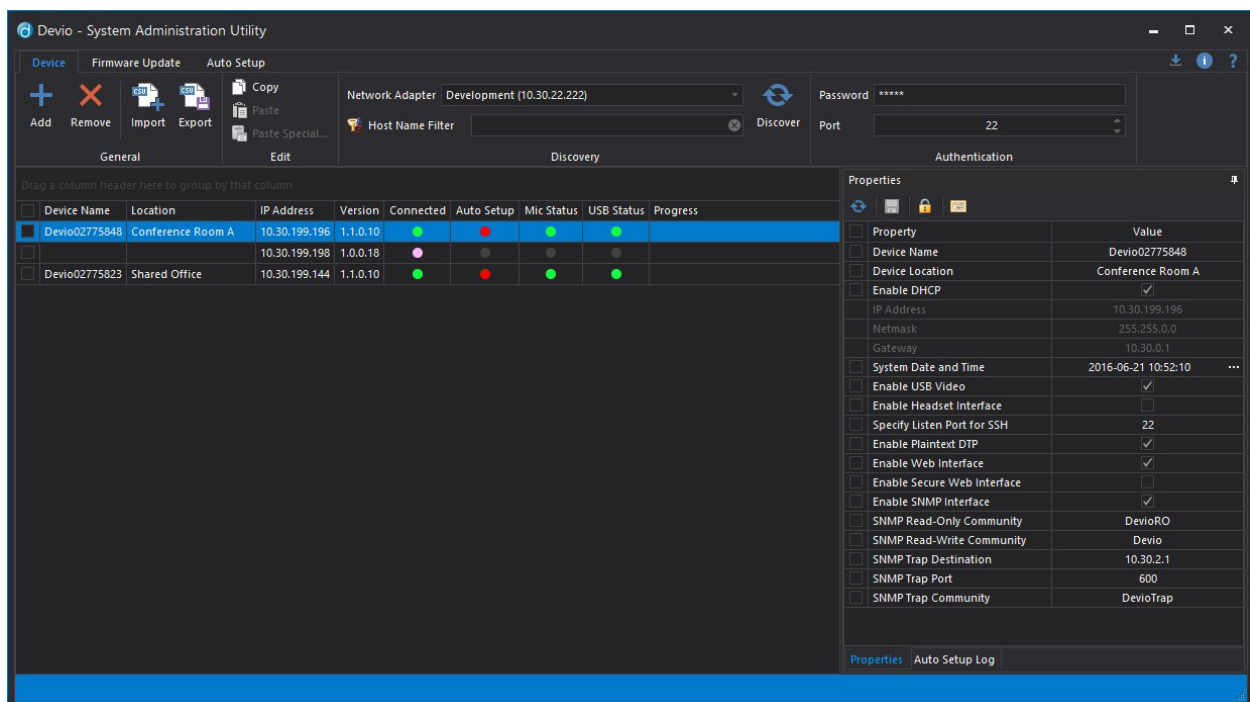
The Devio System Administration Utility (SAU) is a Windows application. It provides the following features:

- Discovery of all Devio CR-1 devices on a network, additional Devio devices can be manually imported
- Snapshot view of device information and status for discovered devices
- Management of device properties including designation of SNMP Trap Destination and network settings
- Execution of scheduled or immediate firmware updates
- Remote initiation of Auto Setup process and activity log
- Import CSV files with IP addresses of expected devices

User Interface

The user interface of the SAU is made up of the following items:

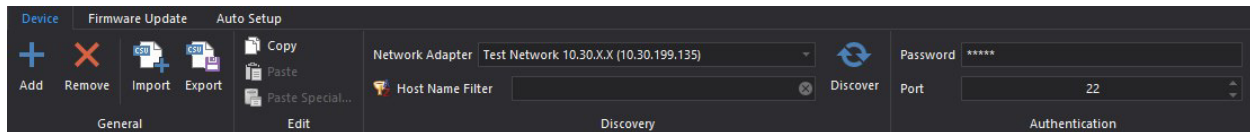
- [Top ribbon](#) with menus and tools for quickly accessing core functionality.
- [Device table](#) which lists and displays status information for the discovered Devio CR-1 devices.
- [Properties sheet](#) for accessing and modifying device settings.



Menus

Top Ribbon and Menus

Device Menu



Name	Description
Add	Allows units to be added to the layout tree by entering in the IP address or Hostname
Remove	Removes the selected device or devices from the layout tree
Import	Allows a Comma Separated Values (CSV) list to be used to add units via IP address
Export	Downloads a Comma Separated Values (CSV) list of all selected devices IP addresses
Copy	Places all selected devices IP addresses on to the Windows clipboard
Paste	Places IP addresses on the Windows clipboard into the device list. (Copied from Text editors and similar programs)
Paste Special	Allows for individual properties of a copied device to be pasted to other devices
Network Adapter	Allows selection of the active network interface or interfaces used for Devio device discovery
Host Name Filter	Filters the device list to show only devices with host names containing the defined characters
Discover	Refreshes the discovered device list
Password	The device password being used. By default this is 'devio'. To view status, manage settings, schedule firmware updates, etc. of multiple Devio devices simultaneously in the SAU a consistent device password must be used. If different passwords are used among Devio devices, the SAU will only be able to manage those devices using the password currently entered in the "Device Password" field although other devices may still be displayed.

Port	Sets the SSH port used to authenticate with the devices in the device list. Default value is Port 22
------	--

Firmware Update Menu

Device	Firmware Update	Auto Setup
Archive File Name	C:\Users\spaterson\Desktop\DevioCr1_1.1.0.2.dfa	...
Scheduler	Not Set	Start
General		Options

Name	Description
Archive File Name	Name of selected device firmware archive (.DFA file)
Scheduler	The date and time that a firmware update will occur, "Not Set" will begin a manual update with the press of the "Start" button
Start	Begins a scheduled or manual firmware update
Perform Auto Setup after firmware update	When checked the Auto Setup process will occur after the scheduled firmware update has been performed.
Perform Auto Setup Sequentially	Rooms will have an audio recalibration performed in successive order. This is useful if acoustical spaces may audibly interfere with each other during the auto setup process.

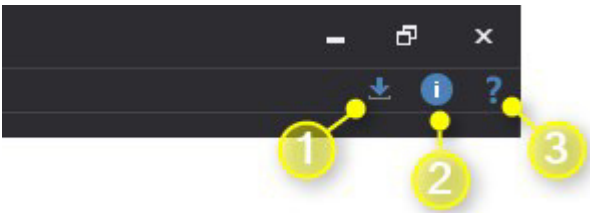
Auto Setup Menu

Device	Firmware Update	Auto Setup
Start	Perform Auto Setup Sequentially	
General	Options	

Name	Description
------	-------------

Start	Will begin the Auto Setup process. Audible prompts will advise on process steps and status on completion.
Perform Auto Setup Sequentially	Rooms will have an audio recalibration performed in successive order. This is useful if acoustical spaces may audibly interfere with each other during the auto setup process.

Software Information



Name	Description
1	Check for software updates
2	See information about software
3	Open the help

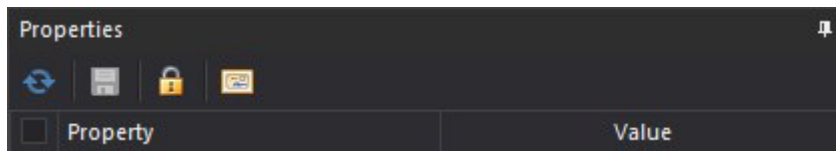
Docking Window

Properties and Auto Setup Log tabs are available in a docking window. This window is docked on the right side of the interface by default, but can be a floating or docked window and can be pinned open or set to auto-hide.

Properties

Properties of each device are displayed in a table. The Properties toolbar is used to refresh, save, import certificates and change passwords.

Properties Toolbar



Name	Description
Refresh	Refreshes the properties of the current selected device
Save	Saves and applies changes to the selected Devio CR-1 devices
Change password	Changes password on the selected device
Install SSL Certificate	Add an SSL certificate for HTTPS connections to the web interface. Devio is shipped by default with a self signed certificate. This allows encrypted access to the web interface, however an 'Invalid Certificate' warning must be bypassed unless a certificate provided by an appropriate certificate authority generated for the FQDN in use. This will allow the warning to be negated. The certificate must be of a .PEM file type.
Select all and Column Headings	A 'select all columns' tick box toggles the selection of all the property items.

Installing SSL Certificates

SSL certificates for HTTPS connections to the web interface are installed using the “Install SSL Certificate” tool on the properties toolbar. If a single Devio device is selected in the device list the certificate file window will allow the selection of a single .PEM file. If multiple devices are selected the certificate file window will facilitate selection of a folder containing certificates whose filenames match the hostnames of the selected devices.

For example, **Devio02775768.pem** for a Devio device with host name **Devio02775768**.

Properties Settings

The Properties Settings dialog is made up of three columns. The first column has a check box to select which property items will be applied when the 'Save' button is selected. The second column is the list of available properties and the third column shows the accompanying property value.

Properties		
<input type="checkbox"/>	Property	Value
<input type="checkbox"/>	Device Name	Devio02775768
<input type="checkbox"/>	Device Location	Unknown
<input type="checkbox"/>	Enable DHCP	<input checked="" type="checkbox"/>
	IP Address	10.21.12.81
	Netmask	255.255.255.0
	Gateway	10.21.12.9
<input type="checkbox"/>	System Date and Time	2016-05-10 05:12:59 ...
<input type="checkbox"/>	Enable USB Video	<input type="checkbox"/>
<input type="checkbox"/>	Enable Headset Interface	<input type="checkbox"/>
<input type="checkbox"/>	Specify Listen Port for SSH	22
<input type="checkbox"/>	Enable Plaintext DTP	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Enable Web Interface	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Enable Secure Web Interface	<input type="checkbox"/>
<input type="checkbox"/>	Enable SNMP Interface	<input checked="" type="checkbox"/>
<input type="checkbox"/>	SNMP Read-Only Community	DevioRO
<input type="checkbox"/>	SNMP Read-Write Community	Devio
<input type="checkbox"/>	SNMP Trap Destination	0.0.0.0
<input type="checkbox"/>	SNMP Trap Port	162
<input type="checkbox"/>	SNMP Trap Community	Devio

Editable Fields

Device Name

The device hostname of the Devio CR-1.

Device Location

A user defined location description.

Enable DHCP

Allows an IP address to be configured via a DHCP server. When disabled a manual IP address, Gateway and NetMask must be defined.

System Date and Time

The current system date and time configured on the CR-1. A customized time can be specified in this field, or the CR-1 can be requested to synchronize to the clock of the connected computer.

Enable USB Video

Enables or disables HDMI video from computer over USB connection to Devio CR-1 utilizing DisplayLink USB graphics technology.

Enable Headset Interface

Enables or disables 4-pin Phoenix connection to desktop phones via headset interface.

Specify Listen Port for SSH

Specifies the port Devio uses to receive requests for new SSH sessions.

Enable Plaintext DTP

DTP commands will be sent over plain text when enabled. If disabled, the SSH console will allow for authentication and secure DTP connections.

Enable Web Interface

Enable HTTP/HTTPS web browser access to Devio's web server.

Enable Secure Web Interface

Enable HTTPS access to provide an encrypted tunnel for any data being sent between a web browser and Devio's CR-1 web server. By default, unencrypted HTTP is used.

Enable SNMP Interface

Enables the SNMP Interface to allow configuration and reporting of Devio specific information to a network management system.

SNMP Read-Only Community

The community string used to restrict access to read only SNMP objects.

SNMP Read-Write Community

The community string used to restrict access to read write SNMP objects.

SNMP Trap Destination

A SNMP trap can be specified as part of enabling SNMP device monitoring. This is the IP address of the notification server.

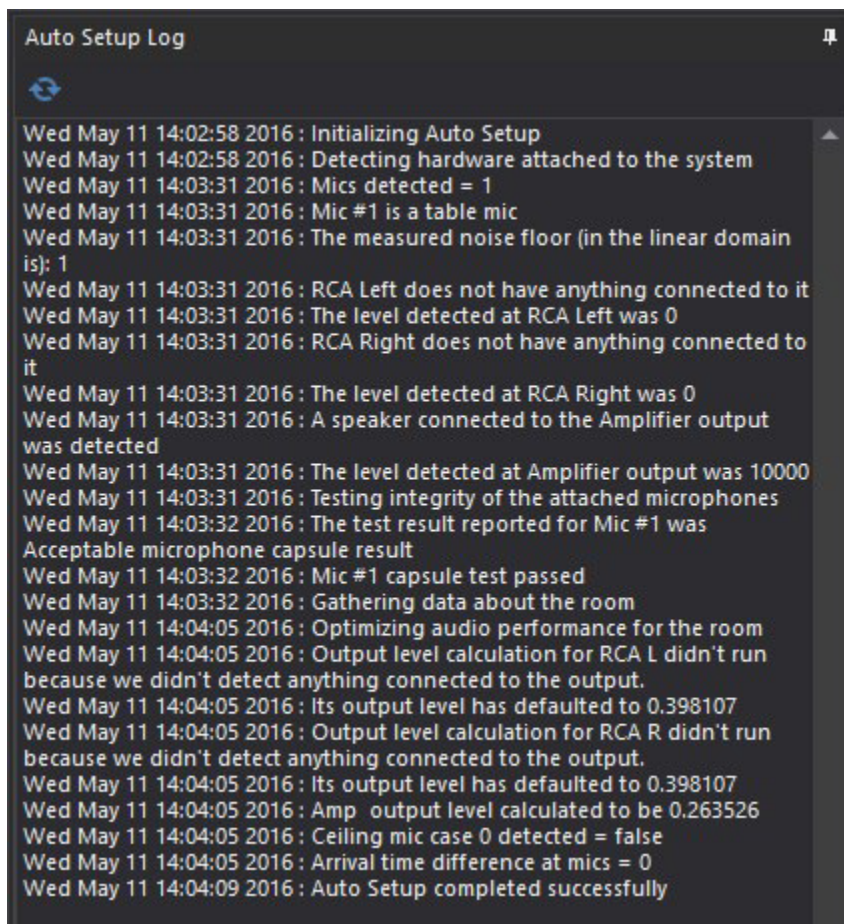
SNMP Trap Port

The port used to connect to the notification receiver.

SNMP Trap Community

The community string used for sending SNMP traps to the notification receiver.

Auto Setup Log



Name	Description
Refresh	Refreshes and shows the log messages of the currently selected device

Device Table

Overview

The device table is used to manage the Devio devices available to the system managers. It lists the discovered devices and allows individual devices to be added or removed.

Note - Device Passwords	
To view status, manage settings, schedule firmware updates, etc. of multiple Devio devices simultaneously in the SAU a consistent device password must be used. If different passwords are used among Devio devices, the SAU will only be able to manage those devices using the password currently entered in the “Device Password” field.	
If a device appears in the list without showing its Device Name, Version and Indicators, please confirm the specific CR-1 device’s password is correctly entered in the “Device Password” field .	

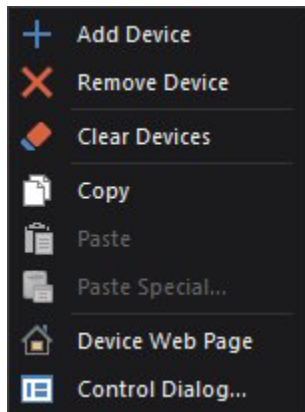
<input type="checkbox"/> Device Name	IP Address	Version	Connected	Auto Setup	Mic Status	USB	Progress
<input checked="" type="checkbox"/>	10.30.199.179						
<input type="checkbox"/> Fred	10.30.199.144	1.0.0.6					
<input type="checkbox"/>	10.30.199.110						

Name	Description
Check Box	Allows individual or all devices to be selected. Once selected group settings can be adjusted such as sending firmware or property tab settings
Device Name	The hostname of the device, must be unique from other Devio devices on the network
Location	A field used to identify the device. This is an optional field.
IP Address	The IP address of the device
Version	The device firmware version
Connected	The Connection status of the device. <ul style="list-style-type: none">• Green when the device has an active network connection and the password is correct• Amber when the password is invalid• Pink when the device firmware needs to be updated to the current version• Unlit when unit can not be reached over the network
Auto Setup	The Room Intelligibility Enhancement status.

	<ul style="list-style-type: none"> • Green when Auto Setup has been run successfully • Amber when Auto Setup is in progress • Red if Auto Setup needs to be run or has previously failed • Unlit when unit can not be reached over the network or an incorrect password has been specified
Mic Status	<p>The Status of the connected microphones.</p> <ul style="list-style-type: none"> • Green when one or two DTM-1 or DCM-1 microphones are connected • Red when no microphones are connected • Unlit when unit can not be reached over the network or an incorrect password has been specified
USB Status	<p>The status of the incoming USB connection.</p> <ul style="list-style-type: none"> • Green when a valid USB connection is seen • Unlit when no USB connection is active or when unit can not be reached over the network or an incorrect password has been specified
Progress	The firmware update progress (only populates during a firmware update)

Right Click Context Menu

A context menu will appear when right clicking on the main area (not the Title bar of the table)

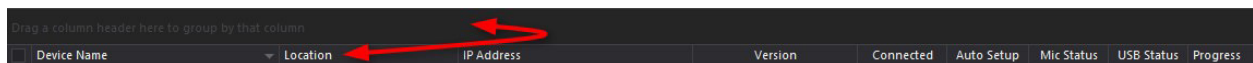


Name	Description
Add Device	Adds a device
Remove Device	Removes a device
Clear Devices	Removes all devices from the list

Copy	Places all selected devices IP addresses on to the Windows clipboard
Paste	Places IP addresses on the Windows clipboard into the device list
Paste Special	Allows for individual properties of a copied device to be pasted to other devices
Device Web Page	Opens the webpage of the selected device. The device password will be required (Factory default is "devio")
Control Dialog	Opens the control dialog of the selected device.

Drag Column Header Here

Devices can be grouped by location by dragging the Location column into the panel immediately above the grid. Once this occurs the grid view will be grouped by location. To revert to normal view, drag the Location column back into the grid.



Control Dialog

Overview

The control dialog can be used to customize the audio levels and settings of the Devio CR-1. In most cases, the Auto Setup process will sufficiently optimize these settings for the room the CR-1 and DTM-1/DCM-1 are installed into.

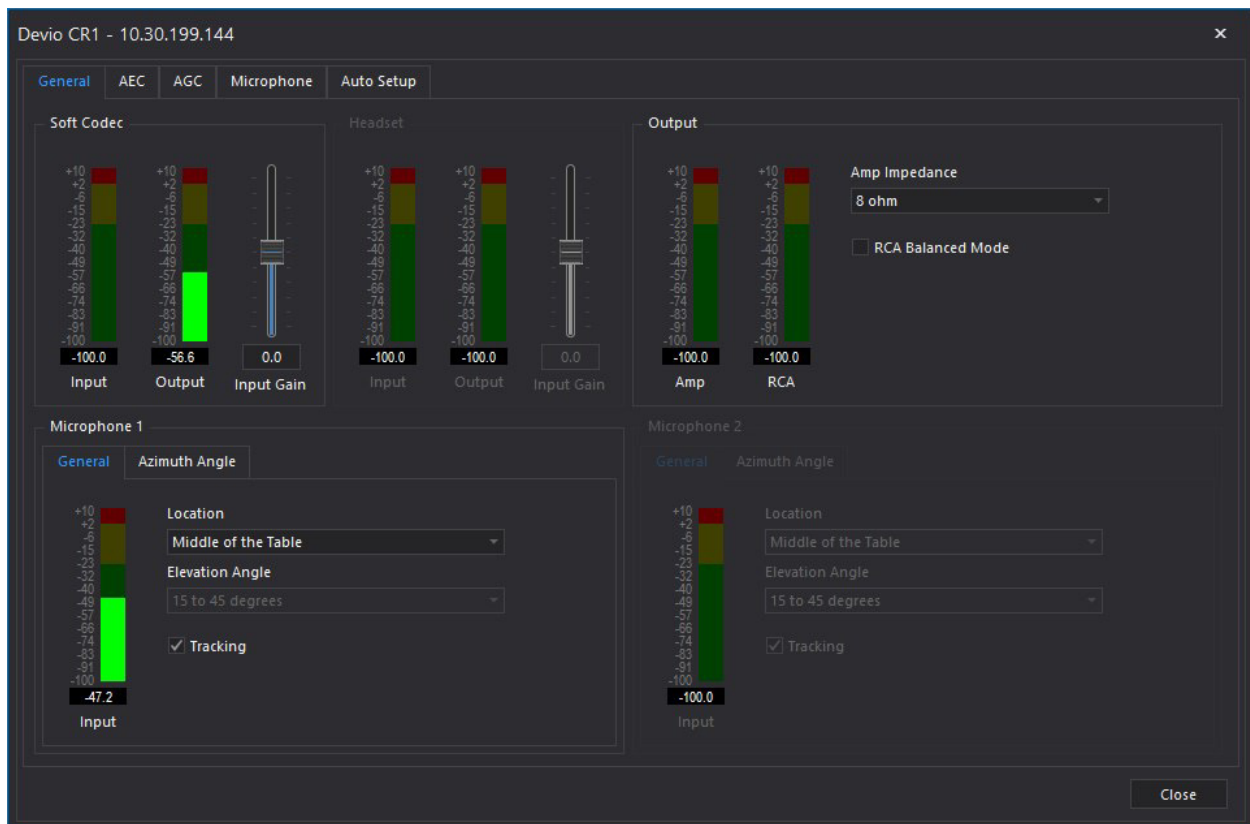
The following control tabs are available:

- [General Tab](#)
- [AEC Tab](#)
- [AGC Tab](#)
- [Mic EQ Tab](#)
- [Auto Setup Tab](#)

General Tab

This tab is useful for observing levels associated with various aspects of the Devio unit:

- **Soft Codec** – Input and output levels being sent and received via computer connection soft codec conferencing systems
- **Headset** – Input and output levels being sent and received via headset jack connection to telephone
- **Output** – Output levels being sent to connected speakers
- **Microphone 1 (and 2)** – Input levels being received from the connected DTM-1 or DCM-1('s). Location setting optimizes performance for the DTM-1 based on placement in middle of table (three active 120 degree zones for full 360 degree coverage) or end of table (one active 120 degree zone). Be sure that the Biamp logo is facing forward as this is the “front” of the microphone. Elevation Angle setting optimizes performance for DCM-1 based on height of microphone and width of conference room table, with four 30° angle selections. The Azimuth angle tab provides visual representation of where microphone is receiving audio.

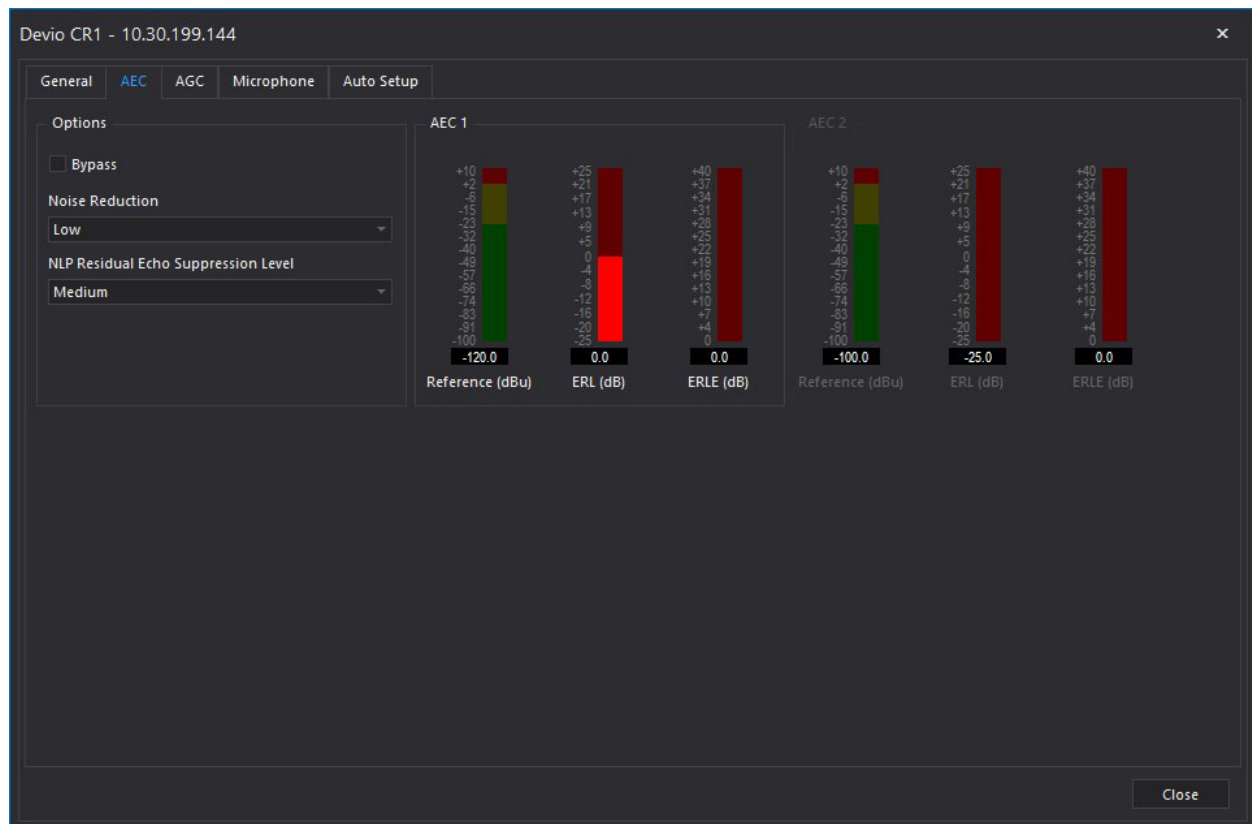


Azimuth Angle Tab



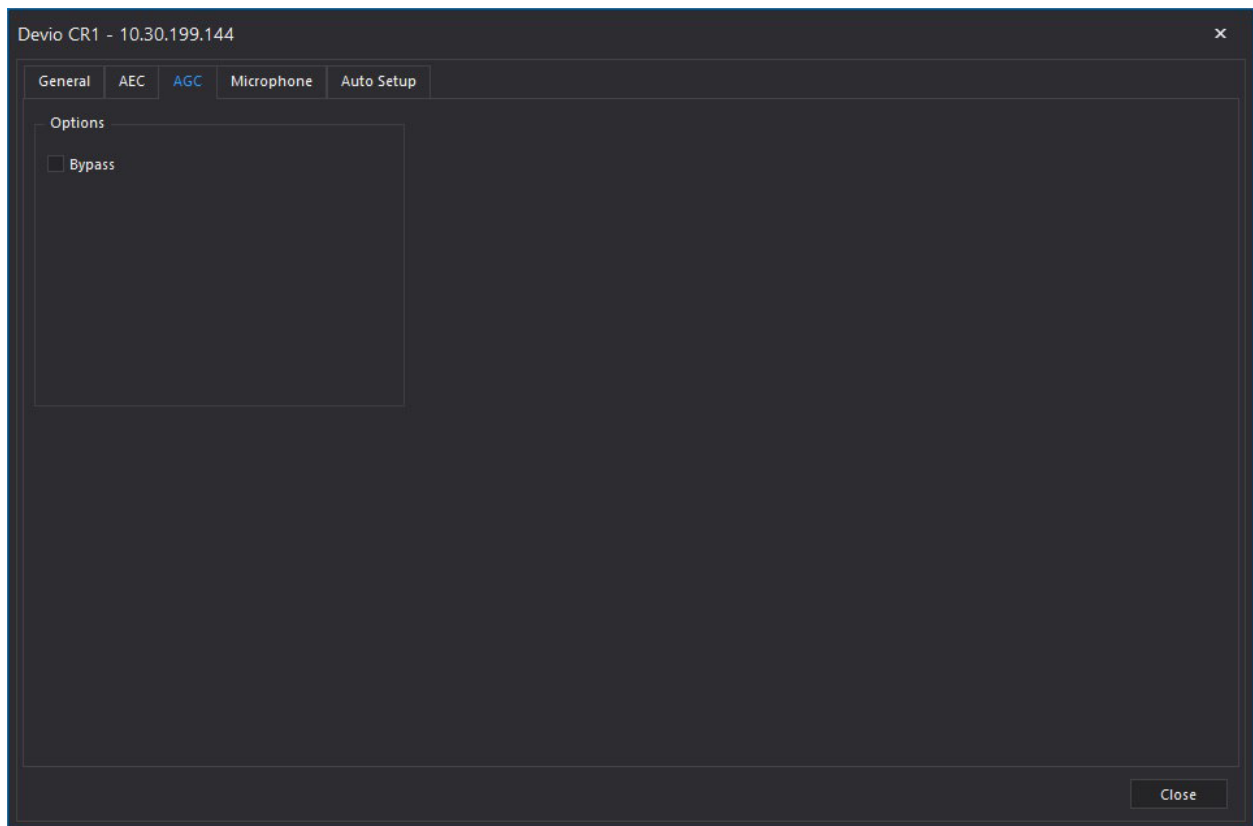
AEC Tab

This tab shows levels pertaining to acoustic echo cancellation capabilities of the Devio CR-1. The Noise Reduction and NLP Residual Echo Suppression Level settings enable advanced tuning in difficult or noisy environments.



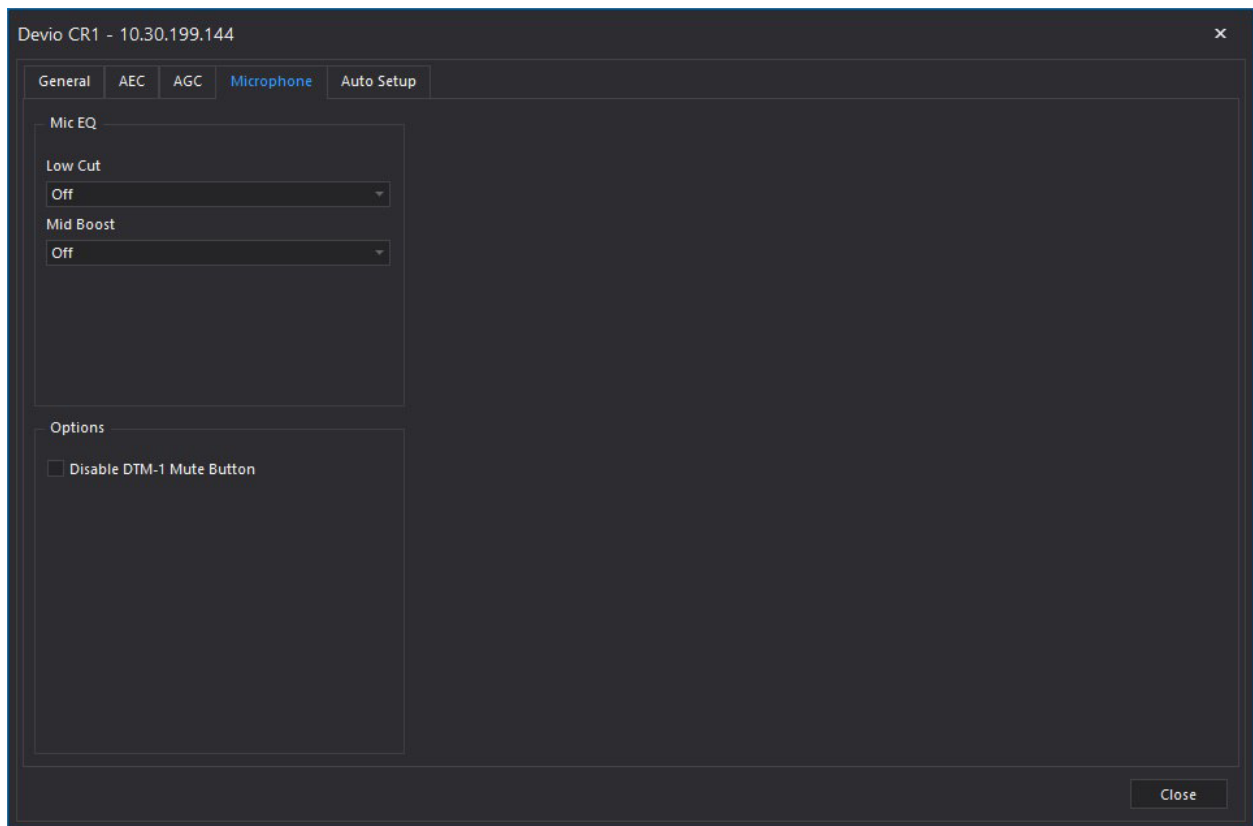
AGC Tab

This tab offers the ability to disable Automatic Gain Control.



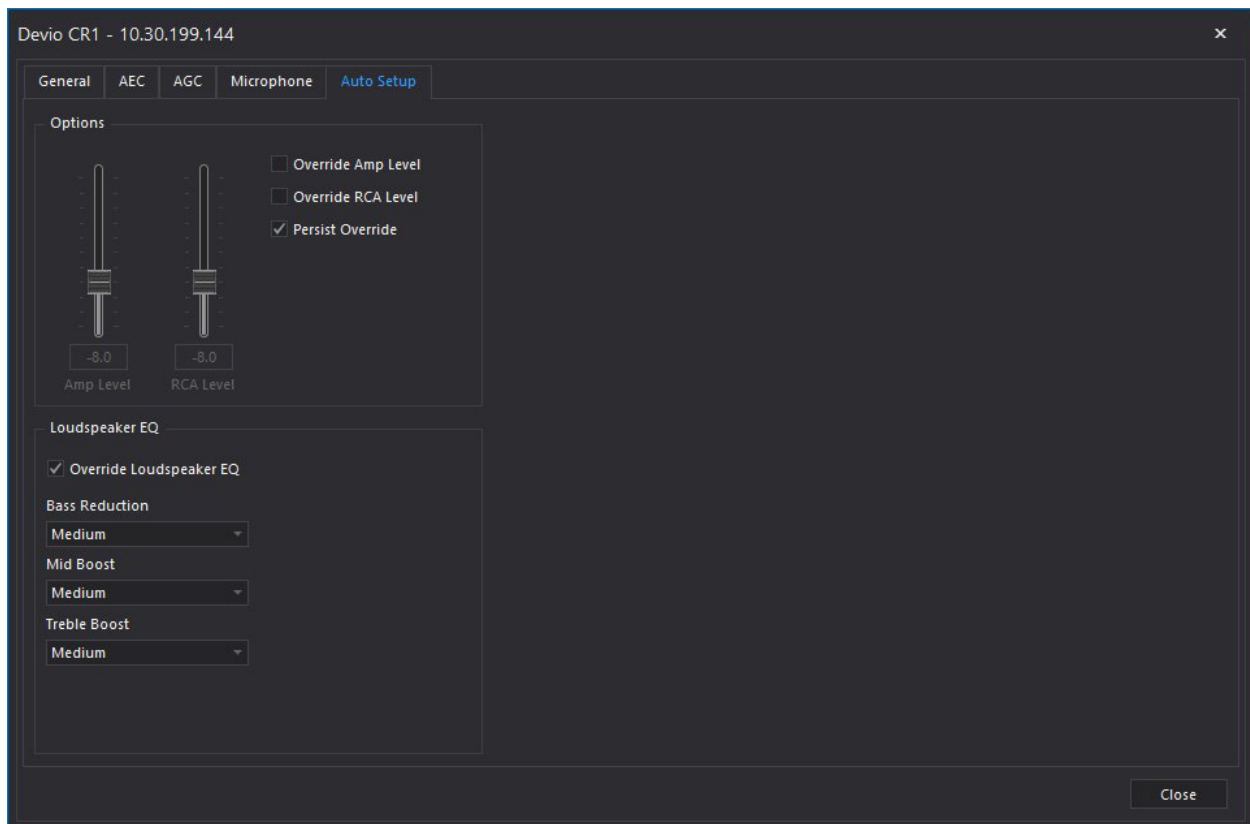
Microphone Tab

Apply equalization to the microphone inputs. Option to disable the physical mute button on the microphone.



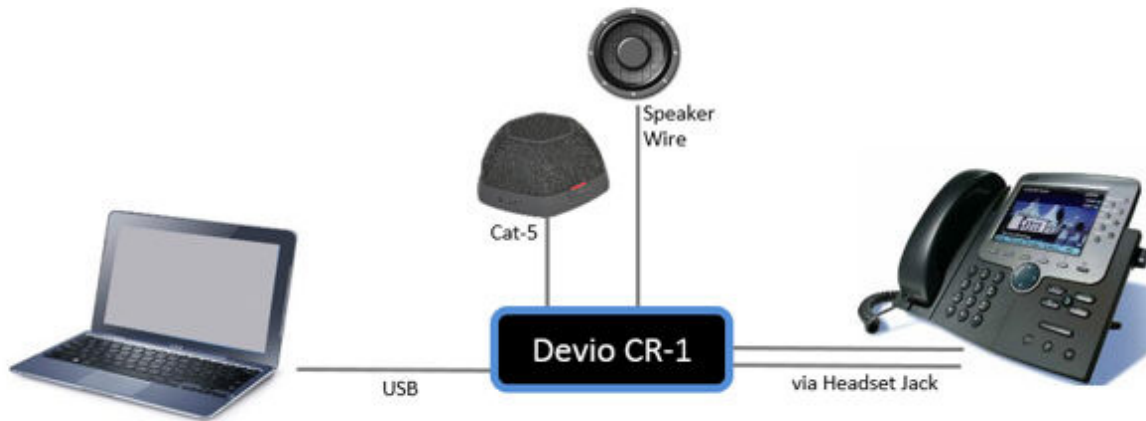
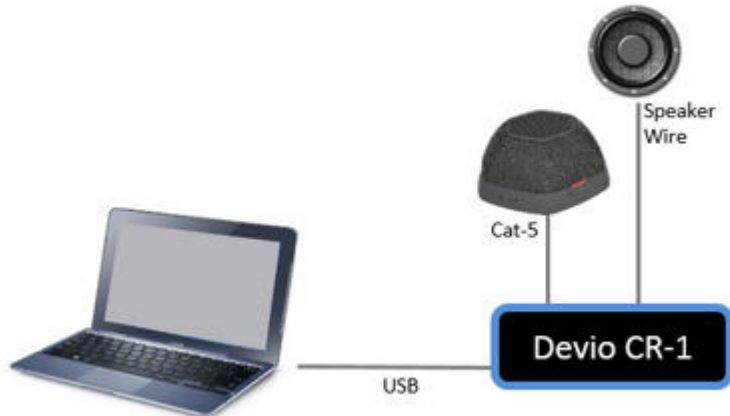
Auto Setup Tab

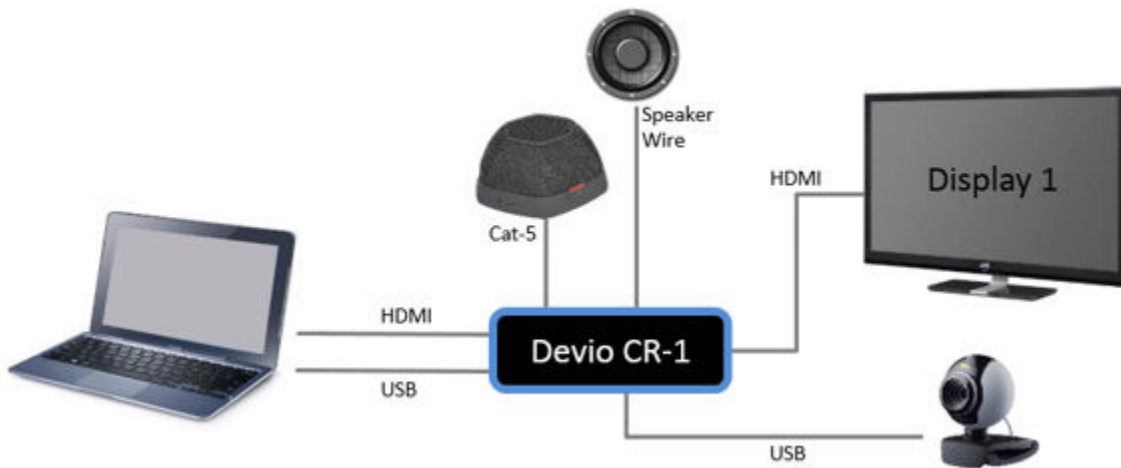
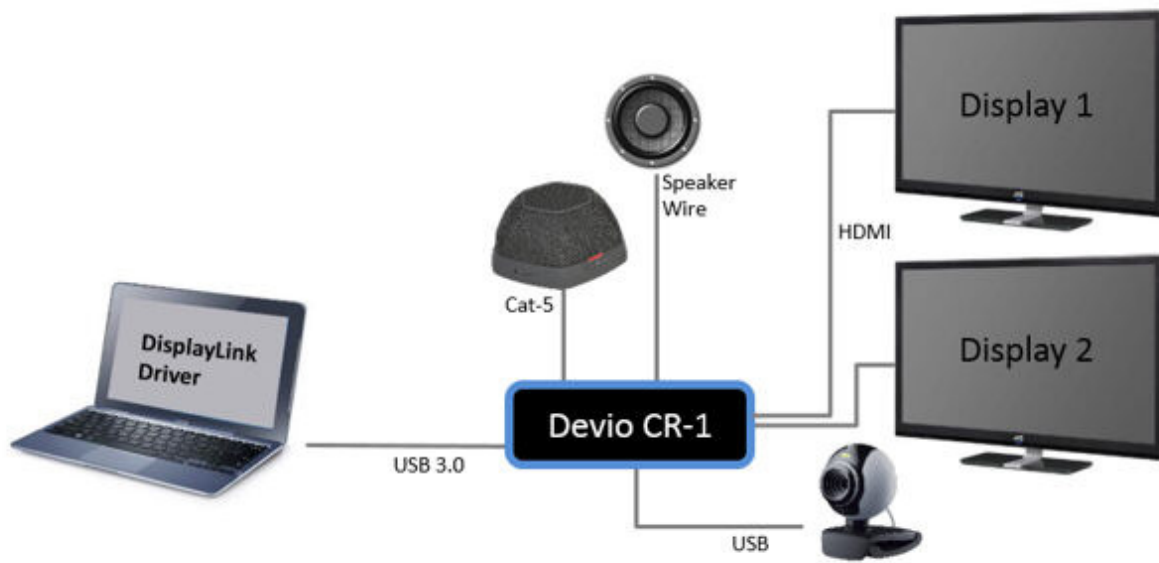
The tab offers the ability to adjust the settings established by Auto Setup.



Installation and Maintenance

Basic Installation Scenarios



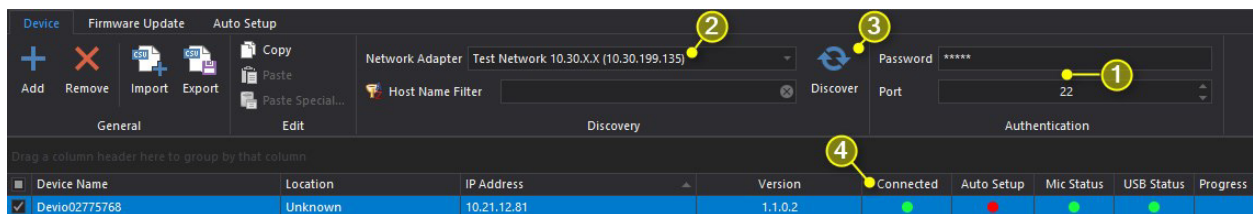


Discover Devices and Update Firmware

Device discovery

In the Device Tab

1. Confirm the correct device password and port is entered (the default password is 'devio' and the default port '22').
2. Select the correct network adapter.
3. Select **Discover**. All discovered CR-1's will be shown.
4. The green 'connected' indicator or the pink 'update required' indicator will be shown if the password and port settings are correct.



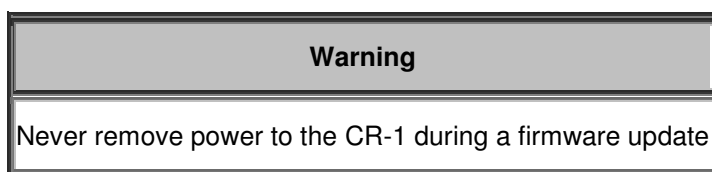
Performing a Firmware update

The Devio CR-1 will require occasional firmware updates. The Devio DTM-1 and DCM-1 do not require firmware updates.

The SAU must be used to perform all firmware update tasks. A manual or schedule firmware update can be performed.

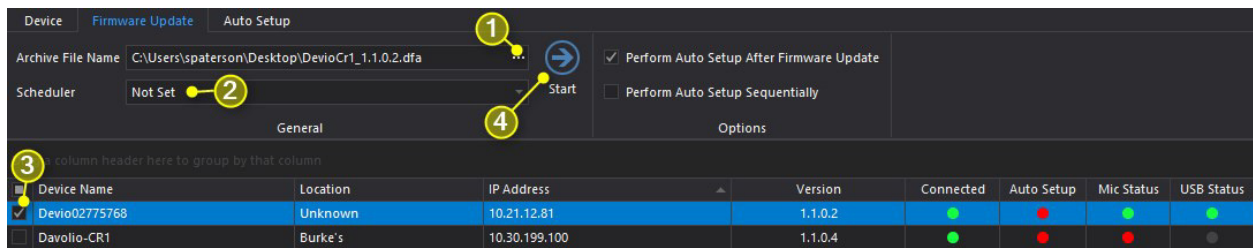
Prerequisites

- Devio SAU installed and running
- Devio firmware archive file (.dfa) available on a local file location
- One or more Devio CR-1 devices on a network segment discoverable from the PC running the Devio SAU.



Manual firmware update

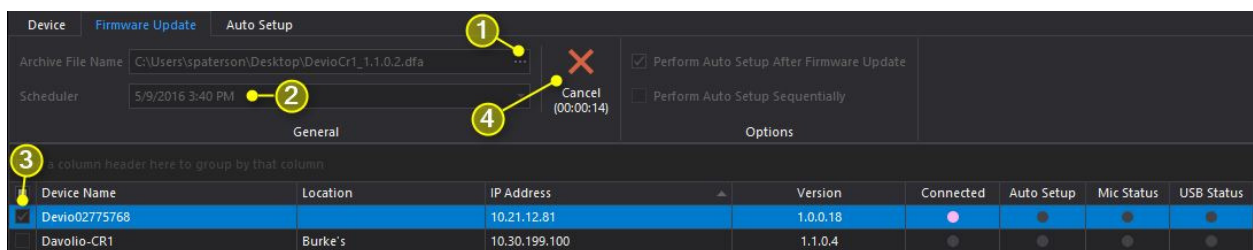
In the Firmware Update Tab



1. Select the period of ellipsis in the Archive File Name text box. Navigate to the required .dfa archive file on your local file location.
2. Leave the schedule as 'Not Set'. If a scheduled time has been set, this can be overwritten by selecting Clear. The option box will default back to 'Not Set'.
3. Select the device or devices that require a firmware update in the tree.
4. Select **Start**.
5. A firmware update will be performed. The progress bar will update and the device will be re-discovered after the process is complete.
6. If the Perform Auto Setup After Firmware Update has been selected the device will automatically perform a recalibration of the audio configuration once the update process completes.
7. If Perform Auto Setup Sequentially is selected the rooms will have an audio recalibration performed in successive order. This is useful if acoustical spaces may audibly interfere with each other during the auto setup process.

Scheduled firmware update

In the Firmware Update Tab



1. Select the period of ellipsis in the Archive File Name text box. Navigate to the required .dfa archive file on your local file location.
2. Use the drop down arrows to select the time and date dialog.
3. Select the device or devices that require a firmware update in the tree.
4. Select **Start**. A Cancel Option will be shown with a countdown.
5. A firmware update will be performed once the scheduled time is reached. The SAU must remain open and available. If the SAU is closed the firmware update will be stopped.
6. The progress bar will update and the device will be re-discovered after the process is complete.
7. If the Perform Auto Setup After Firmware Update has been selected the device will automatically perform a recalibration of the audio configuration once the update process completes.
8. If Perform Auto Setup Sequentially is selected the rooms will have an audio recalibration performed in successive order. This is useful if acoustical spaces may interfere audibly with each other during the auto setup process.

Front Panel Indicator Lights

Refer to the [Device Table](#) page for indicator status behavior in the SAU or the [Device Configuration](#) page for indicator status in the web page.

Name	Description
Power	<p>The Power status of the device.</p> <ul style="list-style-type: none">• Green when the device is receiving power• Unlit when unit is not receiving power
Microphone	<p>The Status of the connected microphones.</p> <ul style="list-style-type: none">• Green when one or two DTM-1 or DCM-1 microphones are connected and a computer is connected to the USB port of the device• Red when no microphones are connected or no computer is connected to the USB port of the device• Amber when the device is booting• Unlit when a connection is not detected from the USB port of the device to a computer
Auto Setup	<p>The Room Intelligibility Enhancement status.</p> <ul style="list-style-type: none">• Green when Auto Setup has been run successfully• Amber when Auto Setup is in progress or the device is booting• Red if Auto Setup needs to be run or has previously failed

System Control and Monitoring

Devio Text Protocol

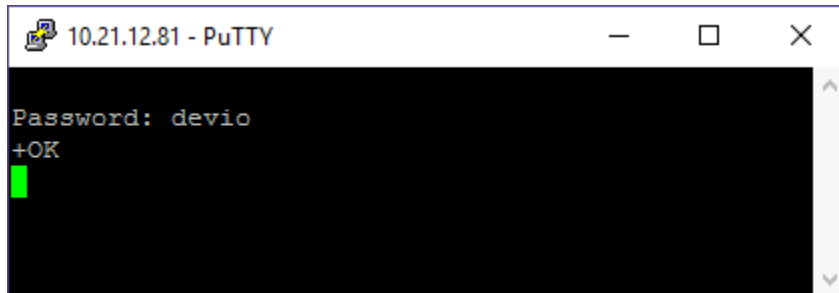
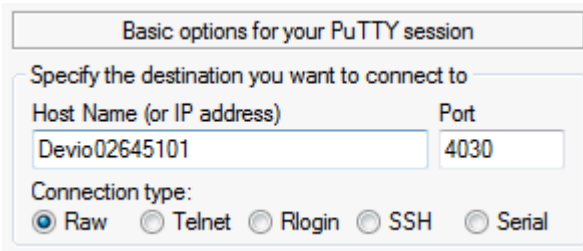
Using a terminal emulator the Devio API can be accessed via the CR-1 Management port.

The connection used by a Devio CR-1 if 'Plain Text DTP' is enabled in the device Properties is RAW. If Plain Text DTP is disabled, an SSH session is required. User authentication is required upon connection to either method. The password configured on the unit is required.

Once authenticated, additional commands can be actioned.

RAW Connection settings

1. Enter the IP address or hostname of the device
2. Connection Type: Raw
3. Port: 4030
4. Open the connection and enter a carriage return <CR> to access the password prompt
5. Enter the device password (default 'devio')



SSH Connection settings

1. Enter the IP address or hostname of the device
2. Connection Type: SSH
3. Port: *<as specified in the device properties sheet in the SAU>*
4. Open the connection
5. Enter the user: **biampdtp** <-this is fixed and is unable to be modified
6. Enter the device password (default is 'devio' and will be masked)
7. *Optional:* Enter **DEVICE get appVersion**, or other DTP command for a response to confirm authentication. If authentication fails, an **Access denied** response will be given and the password prompt presented again

Basic options for your PuTTY session

Specify the destination you want to connect to

Host Name (or IP address) Port

Connection type:
☐ Raw ☐ Telnet ☐ Rlogin ☒ SSH ☐ Serial

```

10.21.12.81 - PuTTY
login as: biampdtp
biampdtp@10.21.12.81's password:
DEVICE get appVersion
+OK "value":"1.1.0.2"

```

Syntax

The command structure is formatted in the following manner:

<Instance_Tag> <Command> <Attribute> [value]

- **Instance_Tag:** is always required. Is case sensitive. See the [Instance Tag](#) section for more information.
- **Command:** is always required. This can be requesting, setting or resetting an Attribute. See the [Command](#) section for more information.
- **Attribute:** is always required. Review the [Attribute](#) section for more details.
- **Value:** Is shown in [Brackets] and may be required depending on the Command or Attribute being referenced. If not required a value should not be defined. See the [Value](#) section for more information.

A number of [response strings](#) will be shown for correct and incorrect commands.

Example
<pre> DEVICE get appVersion +OK "value":"1.1.0.4" DEVICE get microphoneType +OK "value":"1" </pre>

Instance Tag

The Instance Tag defines an instruction and function for a Hardware item to perform. It is case sensitive and must be in capital letters.

Instance Tag	Attribute Description
DEVICE	The CR-1 that the third party system is connected to.

Command

The Command field specifies what is to be done. The following table lists the Attribute commands that are supported. These are case sensitive and the availability of the command would depend on the Attribute. The following table shows the Commands which only apply to Attribute Codes. An Attribute Code may not support all of them, but it will support at least one.

Command	Attribute Description
get	An attribute to be read. The value will be returned in response
set	An attribute to be set to a specific value
reset	Sets the attribute back to the factory default setting

Attribute

The Attribute Code defines the portion of the CR-1 to be controlled.

Attribute Description	Attribute Code	Command
Application Version	appVersion	get
SNMP Version	snmpVersion	get
Microphone Type	microphoneType	get
Number of Microphones	numberOfMicrophones	get
Line Fault	lineFault	get
Call in Progress	callInProgress	get
Microphone Audio Present	micAudioPresent	get
Far-end Audio Present	farEndAudioPresent	get
Upstream USB Connection Type	usbConnection	get

Auto Setup Status	autoSetupStatus	get
Password	password	set
Device Name	deviceName	get / set / reset
Device Location	location	get / set / reset
Enable DHCP	enableDHCP	get / set / reset
SNMP Trap Destination	trapDestination	get / set / reset
Gateway	gateway	get / set / reset
IP Address	ipAddress	get / set / reset
Netmask	netmask	get / set / reset
System Date and Time	systemTime	get / set / reset
Start Auto Setup	initiateAutoSetup	set
Amplifier Load Impedance	ampLoadImpedance	get / set / reset
Master Microphone Mute	masterMicMute	get / set / reset
Enable Headset	enableHeadset	get / set / reset
Enable USB Video	enableUsbVideo	get / set / reset

Value

Whenever a 'set' command is specified a Value is required. A 'get' or 'reset' typically doesn't require a Value to be specified.

Response strings

Devio Text Protocol will provide feedback if a command is incorrect. The response will vary depending on the command. The error responses for the most common types of external programming errors include:

- can't forward a request to a device that's not on the network
- if an invalid address is used
- if an invalid attribute or service for a block type (it might be valid for a different object)
- the request doesn't make sense given the current state of the device
- case-and-spelling errors of various kinds

Please refer to the table below for some examples and details of some of the expected error responses.

Command String	Message	Resolution
	+OK	The command was understood and completed successfully
	-ERR <Fault Description>	-ERR will always precede a fault description. Please confirm the command was formatted correctly

Devio SNMP

What is SNMP?

Simple Network Management Protocol (SNMP) is an application–layer protocol for exchanging management information between network devices.

SNMP is one of the widely accepted protocols to manage and monitor network elements. A Devio CR-1 comes with a SNMP agent. These agents have to be enabled and configured to communicate with the network management system (NMS).

Devio uses SNMP v2c.

SNMP basic components

SNMP consists of

- SNMP Manager
- Managed devices
- SNMP agent
- Management Information Database Otherwise called as Management Information Base (MIB)

SNMP Manager:

A manager or management system is responsible for communicating with SNMP agents implemented on the network devices. This is typically a management computer that is used to run one or more network management systems.

SNMP Manager's key functions

- Queries agents
- Gets responses from agents
- Sets variables in agents
- Acknowledges asynchronous events from agents

Managed Devices:

A managed device or the network element is a part of the network that requires some form of monitoring and management. A Devio would be a managed device.

SNMP Agent:

A Devio CR-1 uses an SNMP agent to collect information from the device locally and makes it available to a SNMP manager. It stores and retrieves the management information as defined in the MIB. It will respond to requests or can be configured to signal events to a network port automatically (also known as a Trap port)

Management Information database or Management Information Base (MIB)

Every Devio CR-1 maintains an information database describing the managed device parameters. The SNMP manager uses this database to request specific information and can pass the information as needed to a Network Management System (NMS). This commonly shared database between the Agent and the Manager is called Management Information Base (MIB).

MIB files are the set of questions that a SNMP Manager can ask the agent. A MIB contains

- A standard set of statistical and control values defined for hardware nodes on a network.
- A private set of statistical and control values with values specific to a particular agent (such as a Devio CR-1).

MIB structure and Object Identifier

Management Information Base (MIB) is a collection of Information for managing network element. The MIBs list any managed objects identified by the Object Identifier (Object ID or OID). Each OID is unique and denotes specific characteristics of a managed device. When queried the value returned of each identifier could be different.

Every Object ID is organized hierarchically in MIB. The MIB hierarchy can be represented in a tree structure with individual variable identifiers. A typical object ID will be a dotted list of integers. For example, the OID in RFC1213 for "sysDescr" is .1.3.6.1.2.1.1.1

Basic commands of SNMP

The simplicity in information exchange has made SNMP a widely accepted protocol. A very concise set of commands is used. A Devio device makes use of the following commands:

- GET - The GET operation is a request sent by the manager to the managed device. It is performed to retrieve one or more values from the managed device.
- SET - This operation is used by the managers to modify or assign the value of the Managed device.
- TRAPS - Unlike the above commands which are initiated from the SNMP Manager, TRAPS are initiated by the Agents. It is a signal to the SNMP Manager by the Agent on the occurrence of an event.

Typical SNMP communication

Being the part of TCP/IP protocol suite, the SNMP use User Datagram Protocol (UDP) packets transmitted via IP.

Default Port Settings

- SNMP - port 161
- TRAP- port 162

SNMP version

Devio makes use of SNMPv2c as defined in RFC 1901, RFC 1905, RFC 1906, RFC 2578. It uses Community based security.

Devio SNMP Browser

Introduction

The Simple Network Management Protocol is an internet protocol that facilitates monitoring and control of devices over an IP network. The Biamp Devio CR-1 incorporates an SNMP agent for this purpose. The objects accessible via the SNMP agent are documented in the Devio-MIB. The MIB (Management Information Base) is a database describing the information available on the corresponding networked device. Devio supports SNMP v2c.

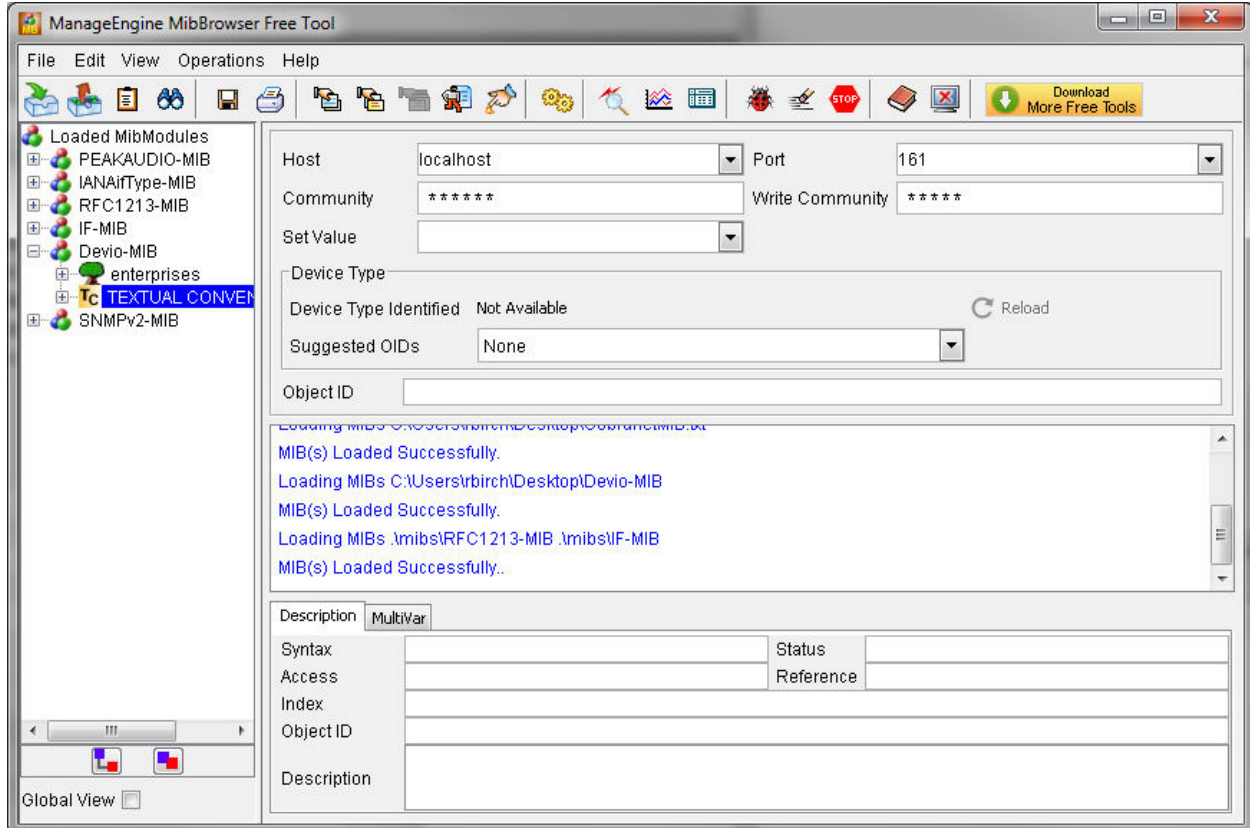
SNMP MIB Browser

An SNMP MIB browser is a software application that is used to read and write objects exposed via the SNMP agent running on a particular networked device. The available objects are published in a MIB (Management Information Base). This document describes the data type, range and accessible of each object. It also specifies the SNMP OID (object identifier) used by the SNMP protocol to uniquely identify a particular object to the agent running on the networked device – in this case the Devio CR-1.

ManageEngine MibBrowser

A free MIB browser is available from ManageEngine which is what we'll use for this example.

- Once the application is installed, it needs to be configured for use with a particular Devio CR-1 device.
- Run the application.
- Load the MIB



Configuration for get and set operations

Available objects are displayed in a tree structure on the left hand side. Objects with a red cross icon adjacent to the label are read-only and those without the cross are read/write. Details of the selected object are displayed on the Description tab below the output window on the right hand side.

Now that the Devio MIB has been loaded, type the IP address of the Devio CR-1 into the text box labelled "Host" on the panel on the right hand side. Set the "Community" to DevioRO and "Write Community" to Devio, or to the values specified in the SNMP Read-Only Community field and the SNMP Read-Write Community in the device's properties (in the SAU). It should now be possible to get the value of any object in the Devio-MIB tree. All read/write objects can now be set.

Getting an SNMP object

To get the value of an SNMP object first right click on the variable in the MIB tree on the panel on the left hand side then select "GET". If all is well you should see the value reported in the output window on the right hand side panel.

Setting an SNMP object

To set the value of an SNMP object first type its value into the "Set Value" text box. Now right click on the variable in the MIB tree on the panel on the left hand side then select "SET". If successful the new value will be reported in the output window on the right hand side panel.

SNMP Traps

A networked device may need to alert a management system when some critical aspect of its operation changes. Rather than have the manager poll each device on the network for changes, the device itself sends an unsolicited notification to the manager alerting it to the change. This is a "trap" in SNMP terms. The networked device – in this case the Devio CR-1 – need only know the IP address of the trap receiver to generate traps.

The Devio CR-1 System Administration Utility provides property that can be used to specify the IP address of the receiver – "SNMP Trap Destination".

NOTE: If using the ManageEngine TrapViewer make sure the IP address used is the primary network adaptor of your PC. It will not work if you use any other adaptor.

Running the trap receiver

The ManageEngine MibBrowser also serves as a trap receiver. Open the trap receiver from the "View" menu by selecting "Trap Viewer".

Add the Devio trap community to the list of traps the viewer will listen for

- Verify that "Port" is set to 162, or whatever value has been configured in the SAU device properties.
- type Devio in the "Community" text box
- click the "Add" button - This will add "162:Devio" to the TrapList.
- Finally click the "Start" button to begin listening for traps.
- Make sure the Devio CR-1 has its "System Trap Destination" property set to the IP address of the primary network adaptor of the PC running the TrapViewer. It will not work if you use any other adaptor.

A simple test for the Devio CR-1 SNMP trap system is to unplug a correctly operating microphone from the device. If the trap viewer has been configured correctly you should see one trap when the microphone is disconnected and another when it is reconnected.

To obtain a detailed representation of the trap information right click one of the trap entries in the list and select "Show details". The "Trap Details" windows will appear.

SNMP

Introduction

This is a summary of information regarding objects below the devioSnmp MIB object, which is defined within the **Devio-MIB** MIB document as **.1.3.6.1.4.1.44457.1**.

Contents

- [Scalar Objects](#)
- [Notifications](#)
- [Textual Conventions](#)
- [Tree View](#)

SCALAR OBJECTS

Name	Type	Access	OID	Description
1 deviceName	OCTETSTR Legal Lengths: 0 .. 50 DisplayString	ReadWrite	.1.3.6.1.4.1.44457.1.1.1	Note: this object is based on the DisplayString TEXTUAL-CONVENTION. The host name associated with this Devio CR-1 device.
2 appVersion	OCTETSTR Legal Lengths: 0 .. 12 DisplayString	ReadOnly	.1.3.6.1.4.1.44457.1.1.2	Note: this object is based on the DisplayString TEXTUAL-CONVENTION. Devio application version. Version is stored as a 12-character string AA.BB.CC.DD where APP_VER_MAJ = AA APP_VER_INT_MAJ = BB APP_VER_INT_MIN = CC APP_VER_MIN = DD

3 snmpVersion	OCTETSTR Legal Lengths: 0 .. 12 DisplayString	ReadOnly	.1.3.6.1.4.1.44457.1.1.3	Note: this object is based on the DisplayString TEXTUAL-CONVENTION. Devio SNMP version. Version is stored as a 12-character string AA.BB.CC.DD where SNMP_VER_MAJ = AA SNMP_VER_INT_MAJ = BB SNMP_VER_INT_MIN = CC SNMP_VER_MIN = DD						
4 deviceLocation	OCTETSTR Legal Lengths: 0 .. 50 DisplayString	ReadWrite	.1.3.6.1.4.1.44457.1.1.4	Note: this object is based on the DisplayString TEXTUAL-CONVENTION. The physical location of the Device CR-1 device.						
5 systemTime	OCTETSTR Legal Lengths: 0 .. 50 DisplayString	ReadWrite	.1.3.6.1.4.1.44457.1.1.5	Note: this object is based on the DisplayString TEXTUAL-CONVENTION. The current system date and time. Format: yyyy-MM-dd hh:mm:ss						
6 usbConnection	INTEGER <table><tr><td>Value</td><td>Label/Meaning</td></tr><tr><td>0</td><td>disconnected</td></tr><tr><td>2</td><td>usb2</td></tr></table>	Value	Label/Meaning	0	disconnected	2	usb2	ReadOnly	.1.3.6.1.4.1.44457.1.1.6	An enumeration to identify the Upstream USB port connection type. Either : disconnected(0), usb2(1) or usb3(2)
Value	Label/Meaning									
0	disconnected									
2	usb2									

	<table><tr><td>3</td><td>usb3</td></tr></table>	3	usb3											
3	usb3													
7 productId	OCTETSTR Legal Lengths: 0 .. 40 DisplayString	ReadOnly	.1.3.6.1.4.1.44457.1.1.7	Note: this object is based on the DisplayString TEXTUAL-CONVENTION. Product Identification.										
1 microphoneType	<table><tr><td colspan="2">INTEGER</td></tr><tr><td>Value</td><td>Label/Meaning</td></tr><tr><td>0</td><td>unknown</td></tr><tr><td>1</td><td>table</td></tr><tr><td>2</td><td>ceiling</td></tr></table>	INTEGER		Value	Label/Meaning	0	unknown	1	table	2	ceiling	ReadOnly	.1.3.6.1.4.1.44457.1.2.1	An enumeration to identify the type of a particular microphone. Either : unknown(0), table(1) or ceiling(2)
INTEGER														
Value	Label/Meaning													
0	unknown													
1	table													
2	ceiling													
2 numberOfMicrophones	INTEGER32 Legal values: 1 .. 2	ReadOnly	.1.3.6.1.4.1.44457.1.2.2	Number of microphones expected										
3 lineFault	INTEGER TruthValue (ENUM list below)	ReadOnly	.1.3.6.1.4.1.44457.1.2.3	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Microphone line fault 1 - true, 2 - false										
1 masterMute	INTEGER TruthValue (ENUM list below)	ReadWrite	.1.3.6.1.4.1.44457.1.3.1	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Master mute enable 1 - true, 2 - false										
2 softCodecInputGain	OCTETSTR Legal Lengths: 1 .. 32 FloatString	ReadWrite	.1.3.6.1.4.1.44457.1.3.2	Note: this object is based on the FloatString TEXTUAL-CONVENTION. Soft codec input gain (dB)										

3 headsetInputGain	OCTETSTR Legal Lengths: 1 .. 32 FloatString	ReadWrite	.1.3.6.1.4.1.44457.1.3.3	Note: this object is based on the FloatString TEXTUAL-CONVENTION. Headset input gain (dB)
4 overrideLineLevel	INTEGER TruthValue 1 - true, 2 - false	ReadWrite	.1.3.6.1.4.1.44457.1.3.4	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Override the Auto Setup line output level 1 - true, 2 - false
5 lineOutputLevel	OCTETSTR Legal Lengths: 1 .. 32 FloatString	ReadWrite	.1.3.6.1.4.1.44457.1.3.5	Note: this object is based on the FloatString TEXTUAL-CONVENTION. Line output level (dB)
6 overrideAmpLevel	INTEGER TruthValue (ENUM list below)	ReadWrite	.1.3.6.1.4.1.44457.1.3.6	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Override the Auto Setup amplifier output level 1 - true, 2 - false
7 ampOutputLevel	OCTETSTR Legal Lengths: 1 .. 32 FloatString	ReadWrite	.1.3.6.1.4.1.44457.1.3.7	Note: this object is based on the FloatString TEXTUAL-CONVENTION. Amplifier output level (dB)
8 callInProgress	INTEGER TruthValue (ENUM list below)	ReadOnly	.1.3.6.1.4.1.44457.1.3.8	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Call in progress 1 - true, 2 - false

9 micAudioPresent	INTEGER TruthValue (ENUM list below)	ReadOnly	.1.3.6.1.4.1.44457.1.3.9	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Microphone audio present 1 - true, 2 - false
10 farEndAudioPresent	INTEGER TruthValue (ENUM list below)	ReadOnly	.1.3.6.1.4.1.44457.1.3.10	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Far end audio present 1 - true, 2 - false
11 ampLoadImpedance	INTEGER32 Legal values: 0 .. 1	ReadWrite	.1.3.6.1.4.1.44457.1.3.11	Amplifier load impedance
12 enableHeadset	INTEGER TruthValue (ENUM list below)	ReadWrite	.1.3.6.1.4.1.44457.1.3.12	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Enable Headset Interface 1 - true, 2 - false
1 enableUsbVideo	INTEGER TruthValue (ENUM list below)	ReadWrite	.1.3.6.1.4.1.44457.1.4.1	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Enable USB Video 1 - true, 2 - false
1 autoSetupStatus	INTEGER Value Label/Meaning 0 fault 1 disabled 2 configuring 3 initialising 4 detectingHardware 5 testingCapsules	ReadOnly	.1.3.6.1.4.1.44457.1.5.1	Auto Setup analysis status: 0 - fault, 1 - disabled, 2 - configuring, 3 - initialising, 4 - detectingHardware, 5 - testingCapsules,

	6 measuringRoom 7 analysingRoom 8 idle			6 - measuringRoom, 7 - analysingRoom, 8 - idle
2 autoSetupInitiate	INTEGER TruthValue (ENUM list below)	ReadWrite	.1.3.6.1.4.1.44457.1.5.2	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Initiate Auto Setup configuration 1 - true, 2 - false
3 speakerEqOverride	INTEGER TruthValue (ENUM list below)	ReadWrite	.1.3.6.1.4.1.44457.1.5.3	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Override the speaker EQ configured during Auto Setup 1 - true, 2 - false
4 speakerEqBassReduction	INTEGER Value Label/Meaning 0 off 1 low 2 medium 3 high	ReadWrite	.1.3.6.1.4.1.44457.1.5.4	Select the bass reduction setting for speaker equalization. Either : off(0), low(1), medium(2), high(3)
5 speakerEqMidBoost	INTEGER Value Label/Meaning 0 off 1 low 2 medium 3 high	ReadWrite	.1.3.6.1.4.1.44457.1.5.5	Select the mid boost setting for speaker equalization. Either : off(0), low(1), medium(2), high(3)
6 speakerEqTrebleBoost	INTEGER Value Label/Meaning 0 off 1 low 2 medium 3 high	ReadWrite	.1.3.6.1.4.1.44457.1.5.6	Select the mid boost setting for speaker equalization. Either : off(0), low(1), medium(2), high(3)
7 agcBypass	INTEGER TruthValue (ENUM list below)	ReadWrite	.1.3.6.1.4.1.44457.1.5.4	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Bypass automatic gain control

				1 - true, 2 - false										
8 aecBypass	INTEGER TruthValue (ENUM list below)	ReadWrite	.1.3.6.1.4.1.44457.1.5.5	Note: this object is based on the TruthValue TEXTUAL-CONVENTION. Bypass automatic echo cancellation 1 - true, 2 - false										
9 aecNoiseReductionLevel	<div>INTEGER</div> <table><tr><th>Value</th><th>Label/Meaning</th></tr><tr><td>0</td><td>off</td></tr><tr><td>1</td><td>low</td></tr><tr><td>2</td><td>medium</td></tr><tr><td>3</td><td>high</td></tr></table>	Value	Label/Meaning	0	off	1	low	2	medium	3	high	ReadWrite	.1.3.6.1.4.1.44457.1.5.6	An enumeration to specify the AEC noise reduction level. Either : off(0), low(1), medium(2), high(3)
Value	Label/Meaning													
0	off													
1	low													
2	medium													
3	high													
10 aecEchoSuppressionLevel	<div>INTEGER</div> <table><tr><th>Value</th><th>Label/Meaning</th></tr><tr><td>0</td><td>off</td></tr><tr><td>1</td><td>low</td></tr><tr><td>2</td><td>medium</td></tr><tr><td>3</td><td>high</td></tr></table>	Value	Label/Meaning	0	off	1	low	2	medium	3	high	ReadWrite	.1.3.6.1.4.1.44457.1.5.7	An enumeration to specify the AEC non-linear processing echo suppression level. Either : off(0), low(1), medium(2), high(3)
Value	Label/Meaning													
0	off													
1	low													
2	medium													
3	high													

Notifications

Notification: usbConnectionNotification

Notification Name	usbConnectionNotification
-------------------	---------------------------

In MIB	Devio-MIB
Registered at OID	.1.3.6.1.4.1.44457.1.6.1.1
Notification Description	A notification used to indicate a change in the Devio device's USB connection
Mandatory Objects	usbConnection

Notification: microphoneConnectedNotification

Notification Name	microphoneConnectedNotification
In MIB	Devio-MIB
Registered at OID	.1.3.6.1.4.1.44457.1.6.1.2
Notification Description	A notification used to indicate a change in the state of the Devio microphone connections.
Mandatory Objects	microphoneConnected

Notification: lineFaultNotification

Notification Name	lineFaultNotification
In MIB	Devio-MIB
Registered at OID	.1.3.6.1.4.1.44457.1.6.1.3
Notification Description	A notification used to indicate a change in the state of the microphone line fault indicator.
Mandatory Objects	lineFault

Notification: autoSetupStatusNotification

Notification Name	autoSetupStatusNotification
In MIB	Devio-MIB
Registered at OID	.1.3.6.1.4.1.44457.1.6.1.4
Notification Description	A notification used to indicate a change in the state of the room intelligibility enhancement status.
Mandatory Objects	autoSetupStatus

Notification: callInProgressNotification

Notification Name	callInProgressNotification
In MIB	Devio-MIB
Registered at OID	.1.3.6.1.4.1.44457.1.6.1.5
Notification Description	A notification used to indicate a call in progress or a hang-up.
Mandatory Objects	callInProgress

Textual Conventions

These TEXTUAL-CONVENTIONS are used in other parts of the document above. They are SNMP's way of defining a datatype that is used repeatedly by other MIB objects. Any implementation implementing

objects that use one of these definitions must follow its DESCRIPTION clause as well as the DESCRIPTION clause of the object itself.

Name	Type	Description	
FloatString	OCTETSTR	A floating-point number represented in string form and limited to a total of 32 characters. It allows representation of a floating point number in precision's ranging from 1 to 30 decimal places	
TruthValue	INTEGER	Represents a boolean value.	
	Value Label/Meaning		
	1		true
	2	false	
DisplayString	OCTETSTR	<p>Represents textual information taken from the NVT ASCII character set, as defined in pages 4, 10-11 of RFC 854. To summarize RFC 854, the NVT ASCII repertoire specifies:</p> <ul style="list-style-type: none">the use of character codes 0-127 (decimal)the graphics characters (32-126) are interpreted as US ASCIINUL, LF, CR, BEL, BS, HT, VT and FF have the special meanings specified in RFC 854- the other 25 codes have no standard interpretationthe sequence 'CR LF' means newlinethe sequence 'CR NUL' means carriage-returnan 'LF' not preceded by a 'CR' means moving to the same column on the next line.The sequence 'CR x' for any x other than LF or NUL is illegal. <p>(Note that this also means that a string may end with either 'CR LF' or 'CR NUL', but not with CR.)</p> <ul style="list-style-type: none">Any object defined using this syntax may not exceed 255 characters in length.	

Tree View

```

+--devioSnmp(1)
|
+--devData(1)
| |
| +-- -RW- String  deviceName(1)
| |   Textual Convention: DisplayString

```

```

| |      Size: 0..50
| +-- -R-- String   appVersion(2)
| |      Textual Convention: DisplayString
| |      Size: 0..12
| +-- -R-- String   snmpVersion(3)
| |      Textual Convention: DisplayString
| |      Size: 0..12
| +-- -RW- String   deviceLocation(4)
| |      Textual Convention: DisplayString
| |      Size: 0..50
| +-- -RW- String   systemTime(5)
| |      Textual Convention: DisplayString
| |      Size: 0..50
| +-- -R-- EnumVal  usbConnection(6)
| |      Values: disconnected(0), usb2(2), usb3(3)
| +-- -R-- String   productId(7)
| |      Textual Convention: DisplayString
| |      Size: 0..40
|
+---micData(2)
| |
| +-- -R-- EnumVal  microphoneType(1)
| |      Values: unknown(0), table(1), ceiling(2)
| +-- -R-- Integer32 numberOfMicrophones(2)
| |      Range: 1..2
| +-- -R-- EnumVal  lineFault(3)
| |      Textual Convention: TruthValue
| |      Values: true(1), false(2)
|
+---audioData(3)
| |
| +-- -RW- EnumVal  masterMute(1)
| |      Textual Convention: TruthValue
| |      Values: true(1), false(2)
| +-- -RW- String   softCodecInputGain(2)
| |      Textual Convention: FloatString
| |      Size: 1..32

```



```

| +-- -RW- String  headsetInputGain(3)
| |    Textual Convention: FloatString
| |    Size: 1..32
| +-- -RW- EnumVal  overrideLineLevel(4)
| |    Textual Convention: TruthValue
| |    Values: true(1), false(2)
| +-- -RW- String  lineOutputLevel(5)
| |    Textual Convention: FloatString
| |    Size: 1..32
| +-- -RW- EnumVal  overrideAmpLevel(6)
| |    Textual Convention: TruthValue
| |    Values: true(1), false(2)
| +-- -RW- String  ampOutputLevel(7)
| |    Textual Convention: FloatString
| |    Size: 1..32
| +-- -R-- EnumVal  callInProgress(8)
| |    Textual Convention: TruthValue
| |    Values: true(1), false(2)
| +-- -R-- EnumVal  micAudioPresent(9)
| |    Textual Convention: TruthValue
| |    Values: true(1), false(2)
| +-- -R-- EnumVal  farEndAudioPresent(10)
| |    Textual Convention: TruthValue
| |    Values: true(1), false(2)
| +-- -RW- Integer32 ampLoadImpedance(11)
| |    Range: 0..1
| +-- -RW- EnumVal  enableHeadset(12)
| |    Textual Convention: TruthValue
| |    Values: true(1), false(2)
|
+---videoData(4)
| |
| +-- -RW- EnumVal  enableUsbVideo(1)
| |    Textual Convention: TruthValue
| |    Values: true(1), false(2)
|
+---autoSetupData(5)

```

```

| |
| +-- -R-- EnumVal  autoSetupStatus(1)
| |     Values: fault(0), disabled(1), configuring(2), initialising(3), detectingHardware(4),
testingCapsules(5), measuringRoom(6), analysingRoom(7), idle(8)
| +-- -RW- EnumVal  autoSetupInitiate(2)
| |     Textual Convention: TruthValue
| |     Values: true(1), false(2)
| +-- -RW- EnumVal  speakerEqOverride(3)
| |     Textual Convention: TruthValue
| |     Values: true(1), false(2)
| +-- -RW- EnumVal  speakerEqBassReduction(4)
| |     Values: off(0), low(1), medium(2), high(3)
| +-- -RW- EnumVal  speakerEqMidBoost(5)
| |     Values: off(0), low(1), medium(2), high(3)
| +-- -RW- EnumVal  speakerEqTrebleBoost(6)
| |     Values: off(0), low(1), medium(2), high(3)
| +-- -RW- EnumVal  agcBypass(7)
| |     Textual Convention: TruthValue
| |     Values: true(1), false(2)
| +-- -RW- EnumVal  aecBypass(8)
| |     Textual Convention: TruthValue
| |     Values: true(1), false(2)
| +-- -RW- EnumVal  aecNoiseReductionLevel(9)
| |     Values: off(0), low(1), medium(2), high(3)
| +-- -RW- EnumVal  aecEchoSuppressionLevel(10)
| |     Values: off(0), low(1), medium(2), high(3)
|
+--devioSnmpNotificationPrefix(6)
|
+--devioSnmpNotifications(1)
|
+--usbConnectionNotification(1)
+--microphoneConnectedNotification(2)
+--lineFaultNotification(3)
+--autoSetupStatusNotification(4)
+--callInProgressNotification(5)

```

Devio Web Interface

Credentials Page

Make sure your computer is on the same network as the Devio CR-1. Open a web browser and type in the IP address or Hostname of the unit. The default device Hostname is formatted as **Devio<serial-number>**.

Dependent on the Browser you may have to format the url with http:// or https://

Correct security credentials will have to be entered before proceeding. The factory default password is "devio".

Examples
<p>To connect to a CR-1 using IP address 10.30.199.111</p> <p>Open your browser of choice. Go to HTTP://10.30.199.111 or if the secure web interface is enabled, go to HTTPS://10.30.199.111</p>
<p>To connect to a CR-1 using hostname of Devio02564784</p> <p>Open your browser of choice. Go to HTTP://Devio02564784 or if the secure web interface is enabled, go to HTTPS://Devio02564784</p>

Once correct credentials are entered, the [Device Configuration](#) page will be shown.

Device Configuration

Overview

The Devio web interface enables network settings to be configured. Two tabs are available.



- Settings tab
- Auto Setup tab

The web interface shows the current status of the CR-1 and has a number of tabs that allow different device settings to be reviewed or adjusted.

- [Page Navigation tab](#)
- [Status](#)
- [Settings](#)
- [Auto Setup](#)
- [Device Log](#)

Page Tab

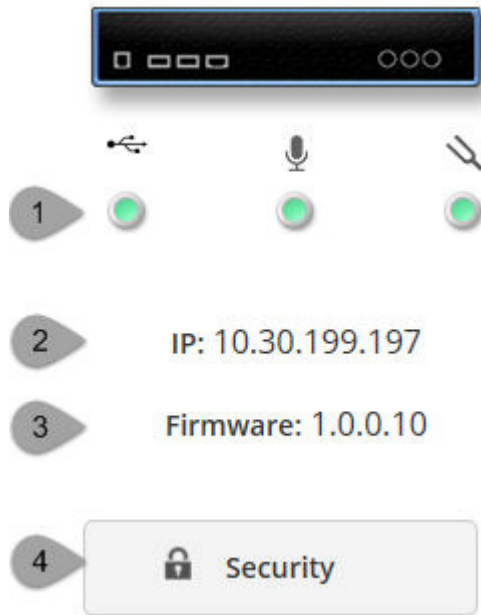
The right hand side of the web interface allows for toggling between the Settings and Auto Setup tabs.

Item	Description
	Settings Tab
	Auto Setup Tab

Device Status

On the left of the web interface there is a device information column that displays current status indicators, IP address, firmware level and access to security settings of the Biamp Devio CR-1.

The factory default password for a devio CR-1 is "devio".

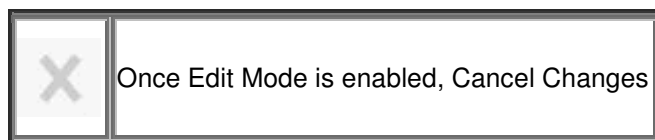


Item	Description
1	CR-1 current status indicators: <ul style="list-style-type: none"> USB: Green when a valid USB connection is seen, unlit when no USB connection is active Microphone: Green when one or two DTM-1 or DCM-1 microphones are connected, red when no microphones are connected Auto Setup: Green when Auto Setup has been run successfully, amber when Auto Setup is in progress, red if Auto Setup needs to be run or has previously failed
2	Indicates the current IP address the CR-1 is using
3	Indicates the current device Firmware version
4	Security opens a credential dialog and allow users to update the password credentials of the device

Settings

A number of device and network editable fields can be reviewed and adjusted on the Settings tab.

Item	Description
	Enter Editing Mode
	Apply Changes



Device Name:	<input type="text" value="Devio02775768"/>
Device Location:	<input type="text" value="Unknown"/>
Enable DHCP:	<input checked="" type="checkbox"/>
IP Address:	<input type="text" value="10.21.12.81"/>
NetMask:	<input type="text" value="255.255.255.0"/>
Gateway:	<input type="text" value="10.21.12.9"/>
System Date and Time:	<input type="text" value="2016-05-12 13:43:02"/>
Synchronize to PC Clock:	<input type="checkbox"/>
Enable USB Video:	<input type="checkbox"/>
Enable Headset Interface:	<input type="checkbox"/>
Specify Listen Port for SSH:	<input type="text" value="22"/>

Editable Fields

Device Name

The Device and Hostname of the Devio CR-1

Device Location

A user defined location description

Enable DHCP

Allows an IP address to be configured via a DHCP server. When disabled a manual IP address, Gateway and NetMask must be defined.

System Date and Time

The current system date and time configured on the CR-1. A customized time can be specified in this field.

Synchronize to PC Clock

Can be used to update the current date and time on the CR-1 to match the date and time of the connected PC.

Enable USB Video

Enables or disables HDMI video from computer over USB connection to Devio CR-1 utilizing DisplayLink USB graphics technology.

Enable Headset Interface

Enables or disables 4-pin Phoenix connection to desktop phones via headset interface

Specify Listen Port for SSH

Specifies the port Devio uses to receive requests for new SSH sessions.

Enable Plain Text DTP

DTP commands will be sent over plain text when enabled. If disabled, the SSH console will allow for authentication and secure DTP connections.

Enable Web Interface

Enable HTTP/HTTPS web browser access to Devio's web server.

Enable Secure Web Interface

Enable HTTPS access to provide an encrypted tunnel for any data being sent between a web browser and Devio's CR-1 web server.

Enable SNMP Interface

Enables the SNMP Interface to allow configuration and reporting of Devio specific information to a network management system.

SNMP Read-Only Community

The community string used to restrict access to read only SNMP objects.

SNMP Read-Write Community

The community string used to restrict access to read write SNMP objects.

SNMP Trap Destination

A SNMP trap can be specified as part of enabling SNMP device monitoring. This is the IP address of the notification receiver.

SNMP Trap Port

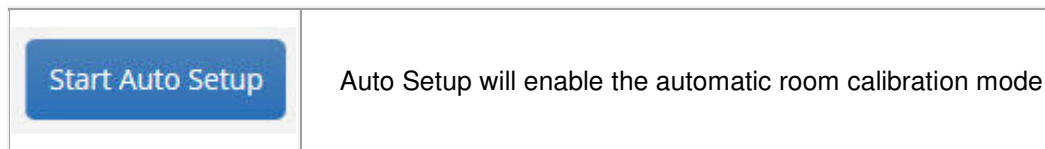
The port used to connect to the notification receiver.

SNMP Trap Community

The community string used for sending SNMP traps to the notification receiver.

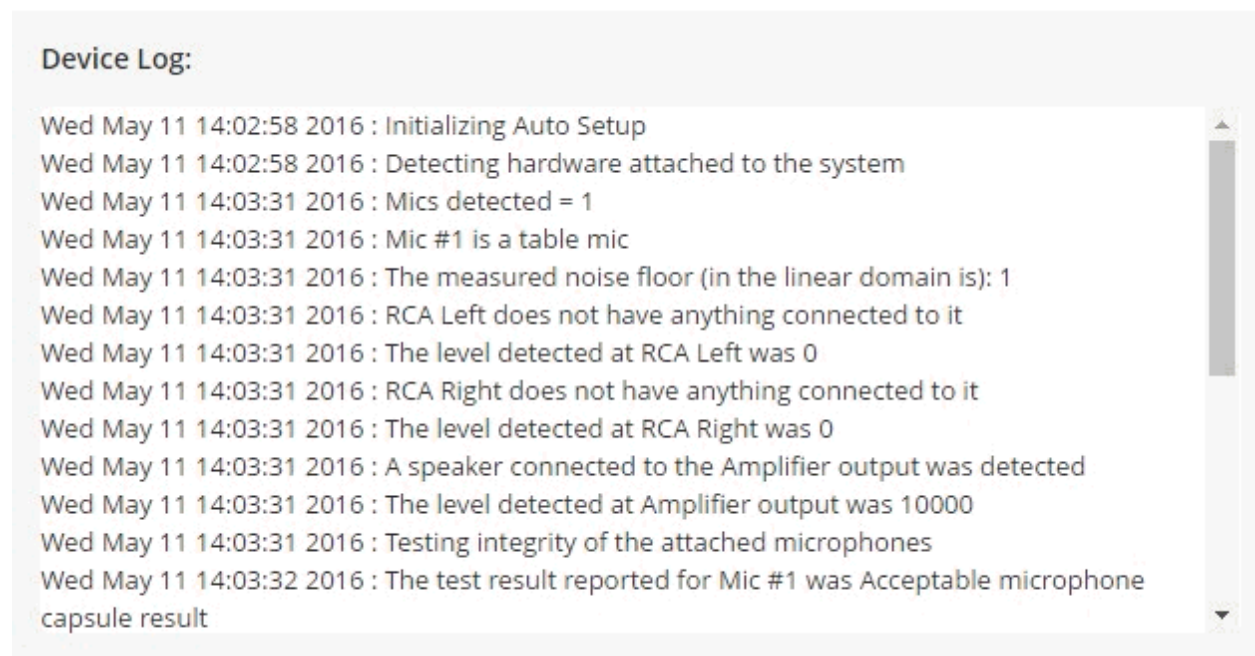
Auto Setup

In the Auto setup tab page there is a 'Start Auto Setup' option. This will enable the auto room tuning process to calibrate the system audio. The system will prevent the Auto Setup from running if a call is in progress.



Device Log

The Device log displays the most recent events reported by the Devio CR-1.



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openssl-1.0.2d package

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lighttpd-1.4.35 package

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attr-2.4.47, busybox-1.22.1, dcron-3.2, iptables-1.4.21, linux-3.16, logrotate-3.8.7, sysvinit-2.88, u-boot-34780, nmbd-3.6.24 packages

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avahi-0.6.31, libc-4.9.1 packages

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jquery-ui-timepicker-addon

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