Dante16 AES67

User Manual

DANTE-AES67® DIGITAL AUDIO CONVERTER

LDA audioTech

INDEX

1. INTRODUCTION

Dante16 is an advanced device designed to integrate and convert IP audio channels between the **Dante** protocol and the **AES67** standard. This equipment stands out for its ability to centrally manage up to **16 channels**, which simplifies the administration and conversion of audio from any location.

One of the main advantages of Dante16 is its ease of use, allowing efficient and centralized management of audio channels. This not only optimizes operational efficiency but also provides a secure and reliable infrastructure for the management and conversion of digital audio in **PA/VA systems**.

2. INPUTS AND OUTPUTS

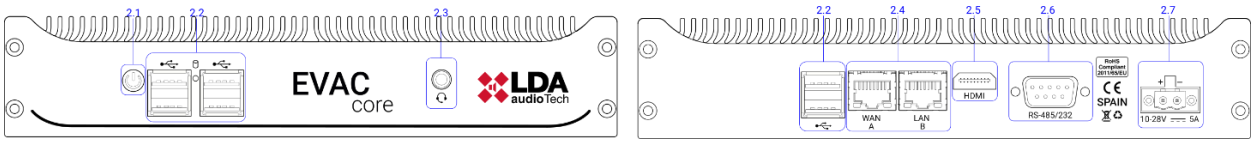

Figure 1. Front and back panels of Dante16 device.

2.1. Power button

Turn the device on and off. Note that the device turns on automatically when connected to the electrical current.

2.2. USB Ports

Allows the connection of standard input and output peripherals, such as a keyboard or a storage unit.

2.3. Audio input and output port

3.5mm female **CTIA** type jack connector.

2.4. Ethernet Ports

Two ethernet ports, one for connection to the Internet with label **A** and one for connection to **EN54-16** systems with label **B.**

2.5. HDMI port

Video output of the device.

2.6. RS-485/232 port

9-pin **Sub-D** type connector for **RS-485** or **RS-232** communications.

NOTE: by default, it is configured as **RS-485**, for the **RS-232** configuration it must be ordered at the factory.

2.7. Power input

2-pin **Euroblock** type connector.

3. INSTALLATION

3.1. Rack mounting

Along with the **Dante16** device, the necessary parts for mounting and rack installation are supplied:

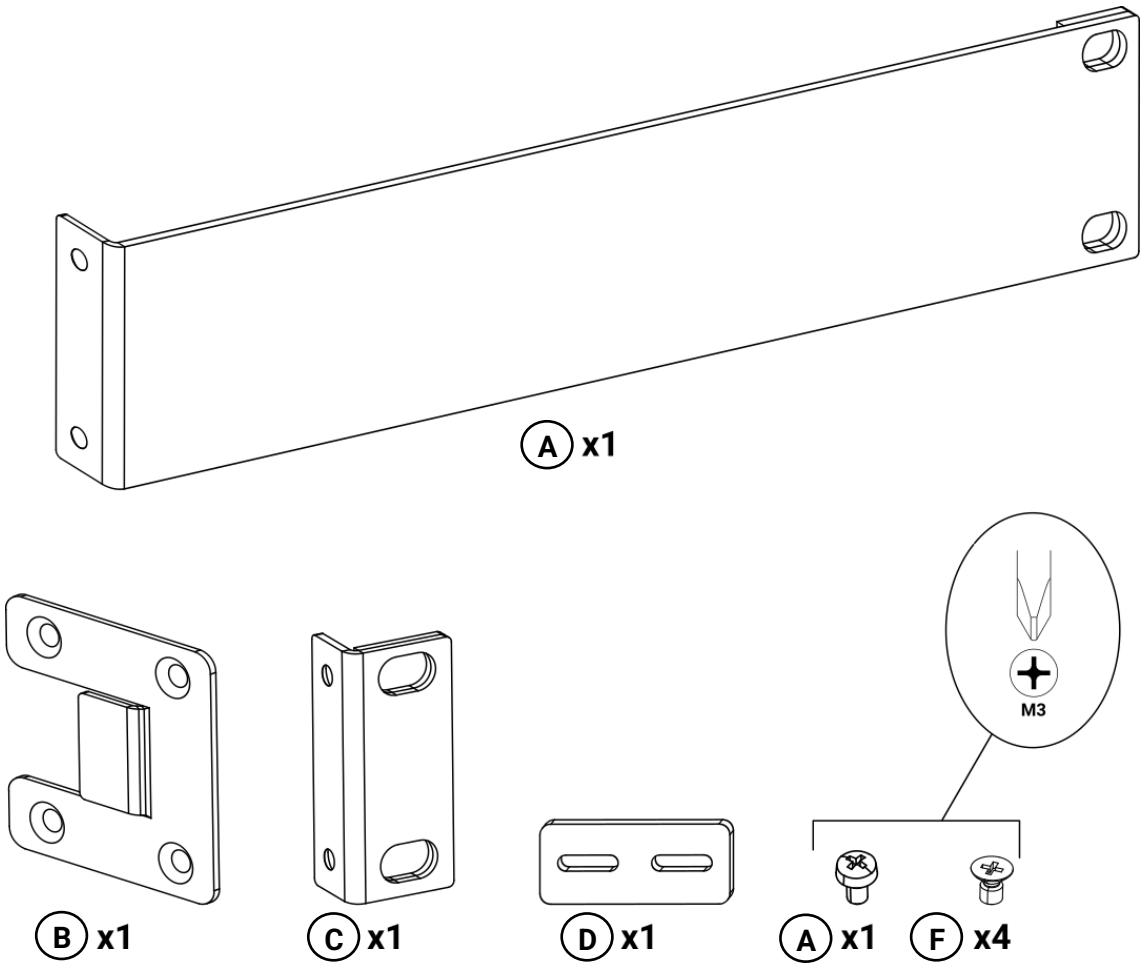

Figure 2. Parts supplied for rack mounting

A. 1 × Long fixing bracket.
B. 1 × Side Binding Plate.
C. 2 × Short fixing bracket.
D. 1 × Rear Junction Plate.
E. 1 × M3 pan head screw.
F. 4 × M3 countersunk screws.

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3.1.1. Single-device rack mounting

For the rackmount of a single device, the following parts will be used:

A. 1 × Long fixing bracket.
C. 1 × Short fixing bracket.
F. 4 × M3 countersunk screws.

Mounting the short fixing bracket using two countersunk screws:

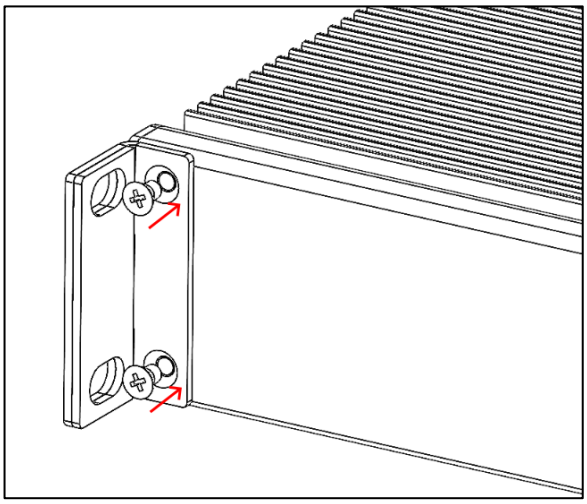

Figure 3. Short ear assembly

Mounting the long fixing bracket using two countersunk screws:

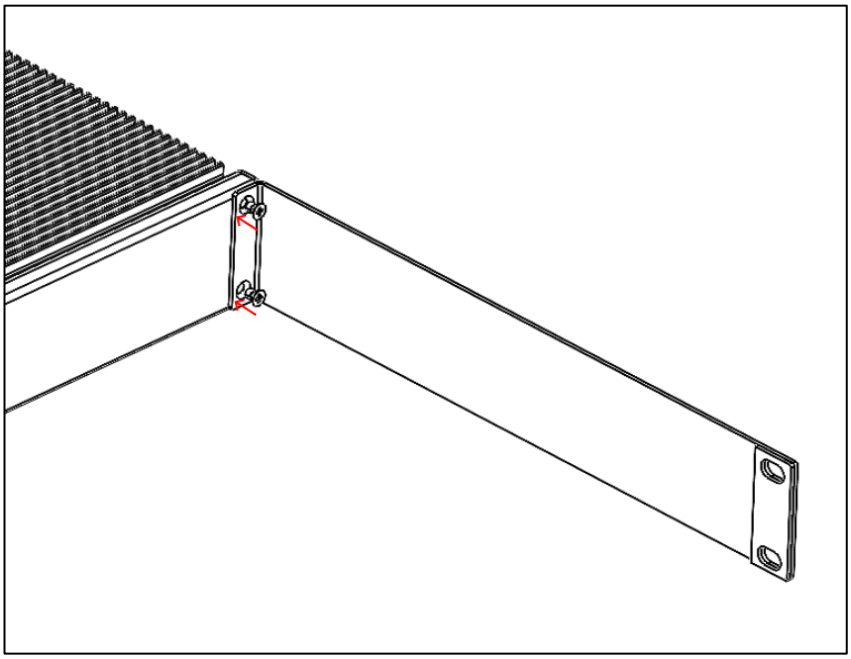

Figure 4. Long ear assembly

Rack-ready device:

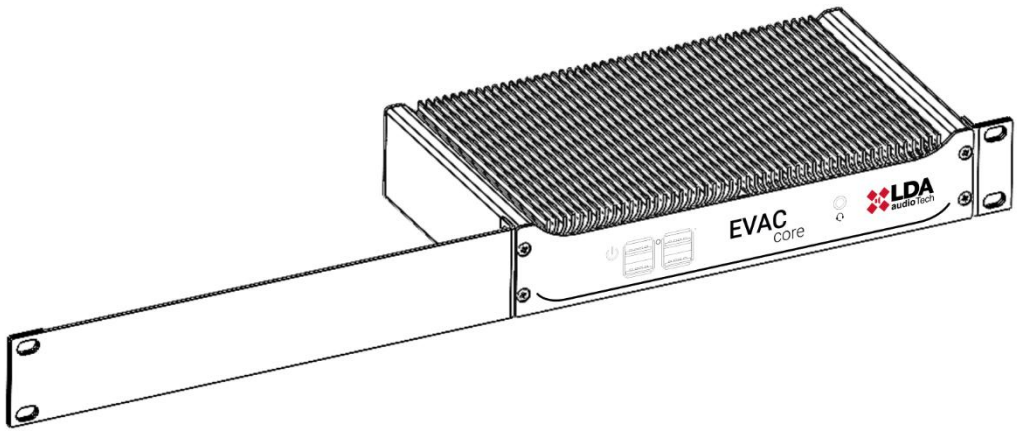

Figure 5. Rackmount of a single Dante device16

3.1.2. Two-devices rack mounting

The following parts shall be used for the joint rack mounting of two devices:

B. 2 × Side Binding Plate.
C. 2 × Short fixing bracket.
D. 1 × Rear Junction Plate.
E. 2 × M3 pan head screw.
F. 8 × M3 countersunk screws.

Fastening the short fixing bracket using two countersunk screws:

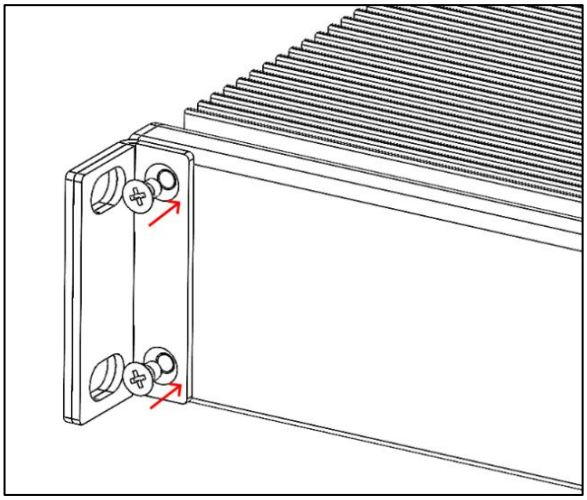

Figure 6. Short ear support

Clamping the side joint plate using two countersunk screws:

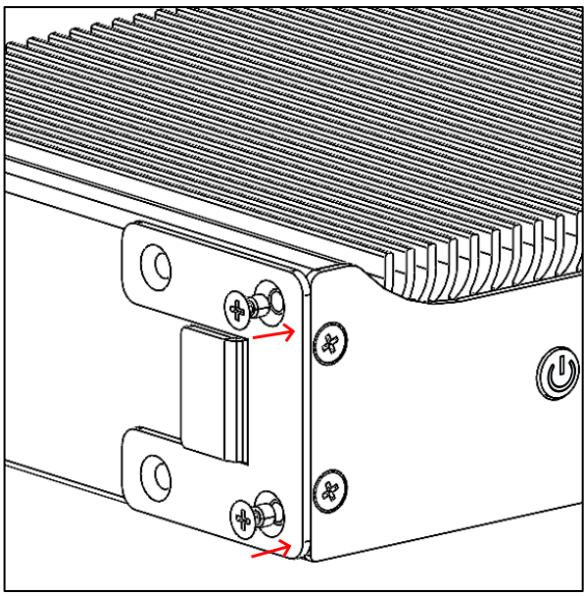

Figure 7. Side plate fastening

On the second **Dante16** device, the short clamping bracket and the side joint plate shall be mounted on the opposite sides to those of the first device. In addition, the side joint plate must be placed with its ends pointing in the opposite direction, so that the union of both devices is stabilized by the insertion of both tabs between them:

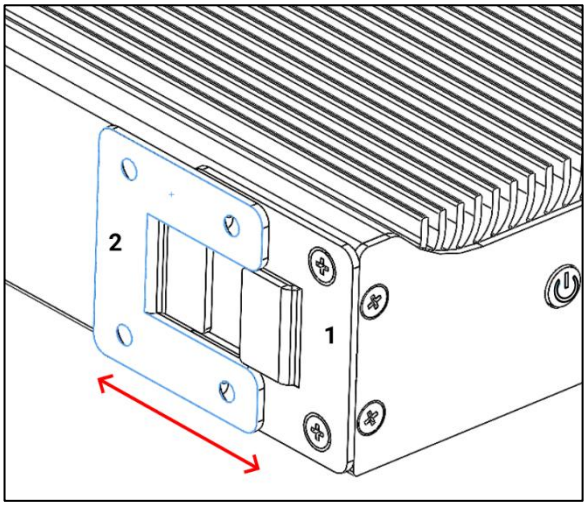

Figure 8. Insertion of the side plate of both devices

Once both devices have been fixed by means of the side joint plate and to reinforce it, the rear joint plate will be fastened using the pan screws of both devices:

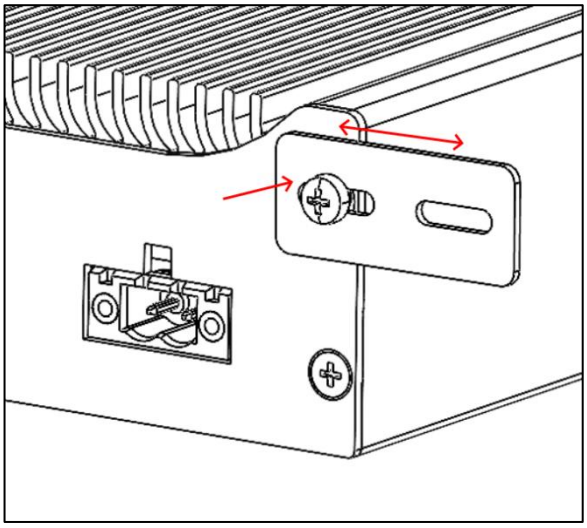

Figure 9. Rear plate fastening

Schematic summary of the assembly of two **Dante16** devices with all the parts, after which both will be ready for rack installation:

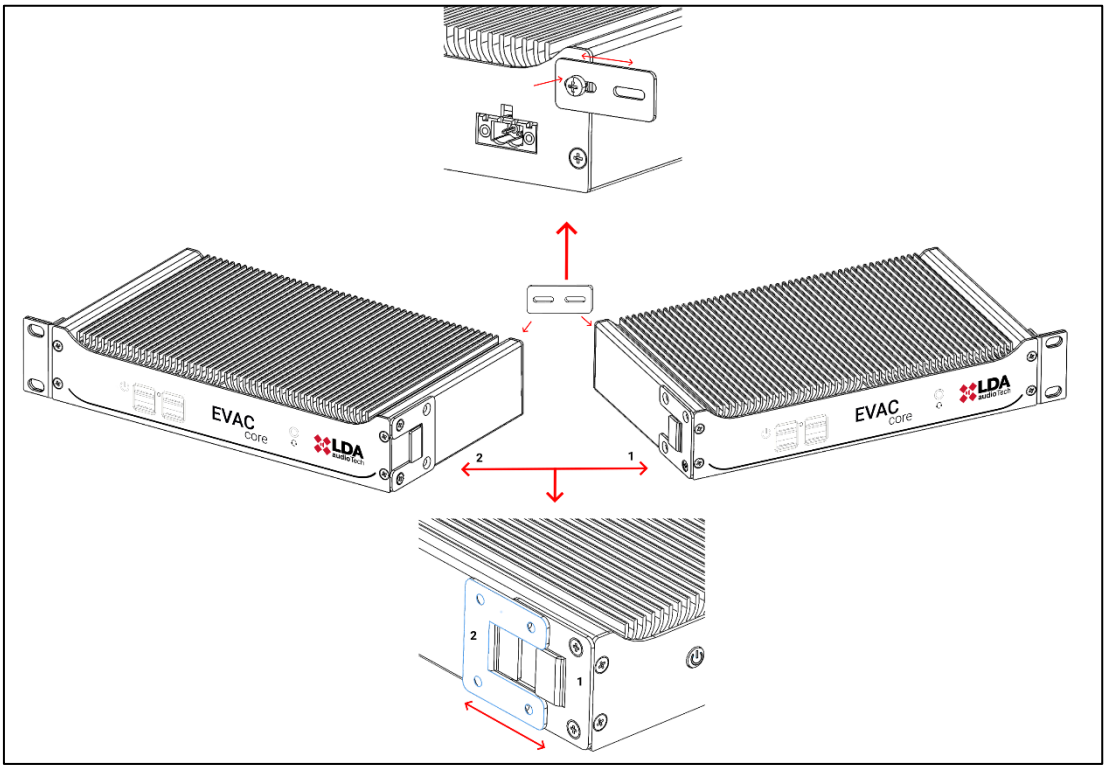

Figure 10. Rack-mount scheme for two Dante devices16

3.2. Device connection

The Dante16 device can be integrated into a NEO+ and NEXO system, for this you have to connect in one of the ethernet ports to the audio network (Dante and AES67) and the other to the control network of the NEO+ and NEXO system.

- **Port A:** Audio Data Network, on this port both Dante and AES67 will be transmitted.
- **Port B:** Control Data Network, the data will be transmitted for the configuration of the device.

NOTE: Ports A and B cannot be connected to the same network, if the Dante-AES67 audio and control networks are mixed, only Port A can be connected, leaving port B unconnected. If connected, the Dante-AES67 transmission/conversion may not work properly.

4. HDMI CONSOLE

Plugging a monitor into the **HDMI** port will display the system console where you can display messages regarding:

- **Starting** or **ending** the **Dante16** service, both at startup and at its end after a shutdown or restart of the device or service.
- **Device identifier**. Value that will present the following format:

  Dante16-aabbcc

- Where "***aabbcc"*** is a six-character alphanumeric string that can contain both numbers and lowercase letters. An example of a possible device identifier could be:

  Dante16-645649

- **Status** and **configuration** of **LAN** and **WAN** network interfaces, updating the values when any changes occur in them.
- Indication of whether the last boot occurred due to activation of the **watchdog** of the Dante16 device.

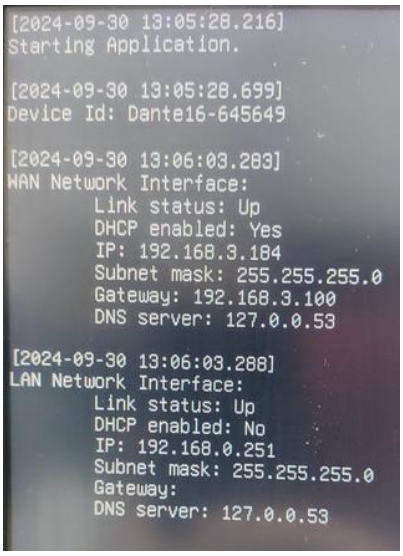

Figure 11. HDMI console

5. DEVICE CONFIGURATION WEBSITE

To access the web application, it will be necessary to have a computer with an up-to-date web browser and connected to the same local network as the **LAN** port of the **Dante16** device. In the browser's address bar, enter the following device URL, which will have the following format:

https://dante16-aabbcc.local

The string "***dante16-aabbcc***" corresponds to the device identifier, in which, as described in the previous point, "***aabbcc***" is an alphanumeric string of six characters that can contain both numbers and lowercase letters. A possible URL could be:

https://dante16-645649.local

It is also possible to use the IP address of the **LAN** interface. Out of the box, this address is set to "**192.168.0.251**":

https://192.168.0.251

Once the URL is entered into the browser, you will be taken directly to the login page of the local website of the **Dante16** device. This page is the gateway for device configuration and management.

5.1. Download certificate for local website

If, once the website has loaded, the following message appears:

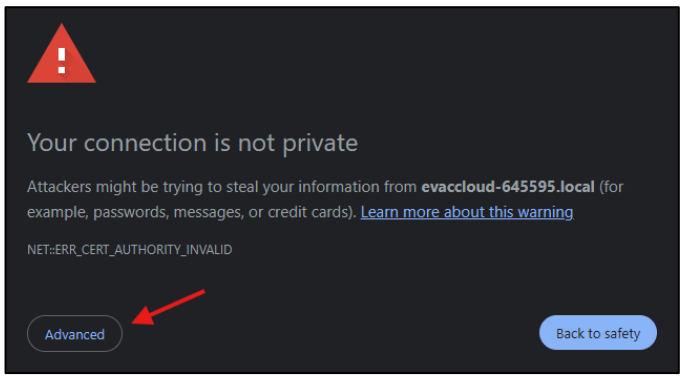

Figure 12. Privacy error

You will have to click on the ***"Advanced settings"*** button located in the bottom left corner. The window with the warning message will expand to show additional information:

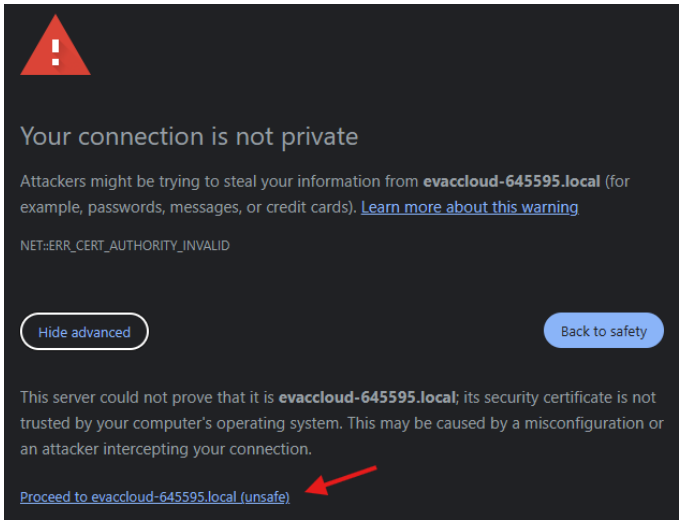

Figure 13. Privacy error 2

Next, click on the ***"Access..."*** link at the bottom, where the URL entered in the browser will be displayed.

The screenshots shown belong to **Google Chrome**, with other browsers warning windows very similar to those shown here will be displayed.

After you have followed all the steps described above, the login page of the local website of the Dante16 device will finally be displayed:

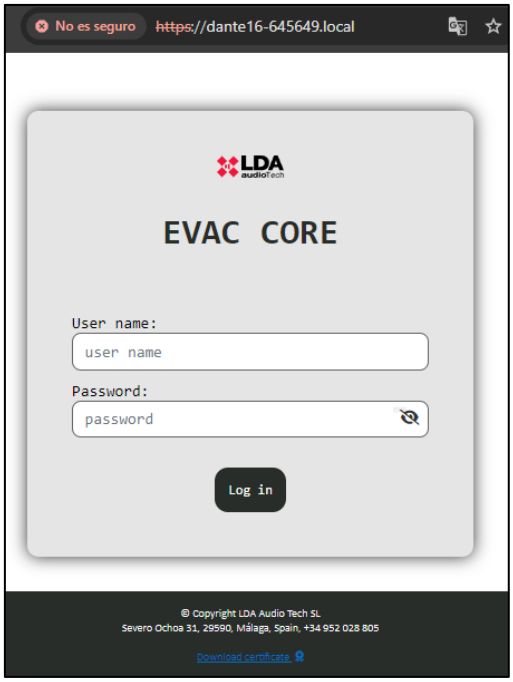

Figure 14. Login page

At the bottom or footer of the website page, a link is shown with the text ***"Download certificate"***:

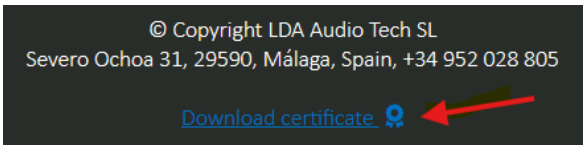

Figure 15. Download certificate

By clicking on this link, you will proceed with the download of the certificate that, once installed, will allow secure access to the local website.

Once downloaded, you must go to the folder where the certificate file has been saved and double-click on it to start the certificate installation wizard:

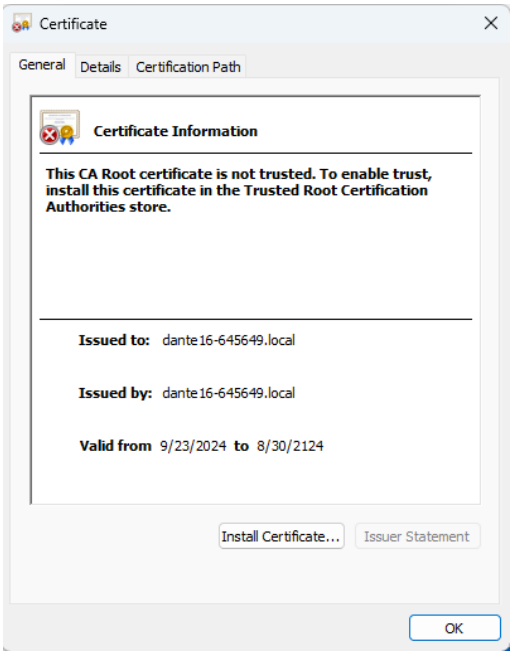

Figure 16. Certificate

Click on the "***Install certificate...***" button and select the **"Current user"** *option in the* ***"*Storage location"** *section* and click on the "***Next***" *button*:

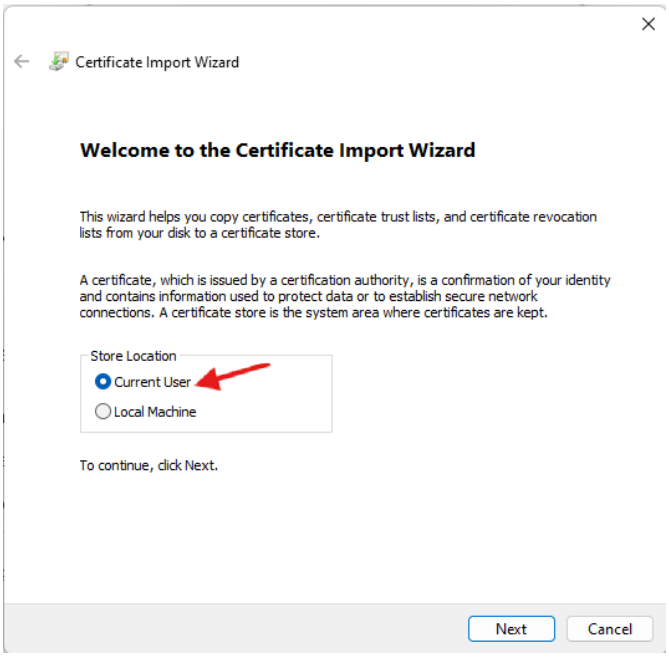

Figure 17. Certificate installation wizard

Select the option "**Place all certificates in the following storage**" and click the "**Browse...**" button:

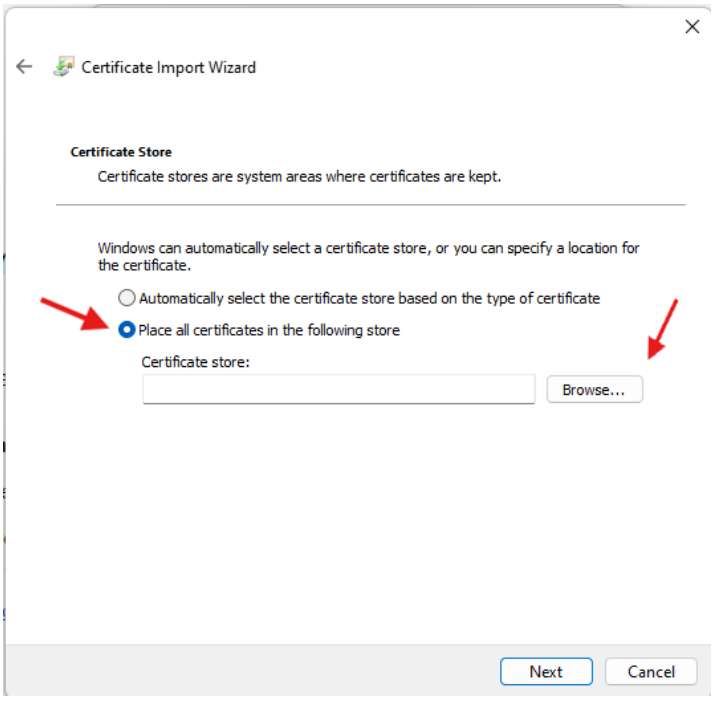

Figure 18. Certificate store

Select the "**Trusted Root Certification Authorities**" option in the new window and click the "**OK**" button:

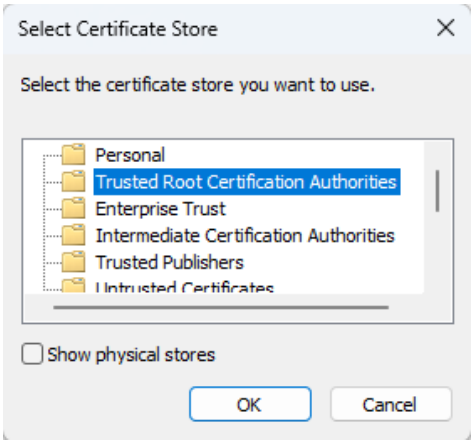

Figure 19. Certificate store selection

The pop-up window will close, and you would have to press the "**Next**" button:

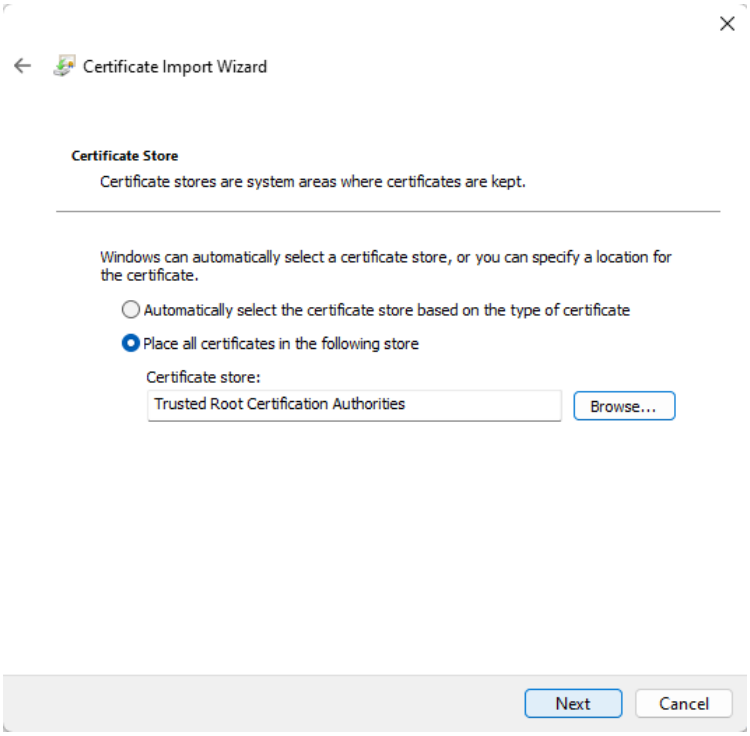

Figure 20. Certificate store acknowledgment

Finally, you must click on the "**Finish**" button:

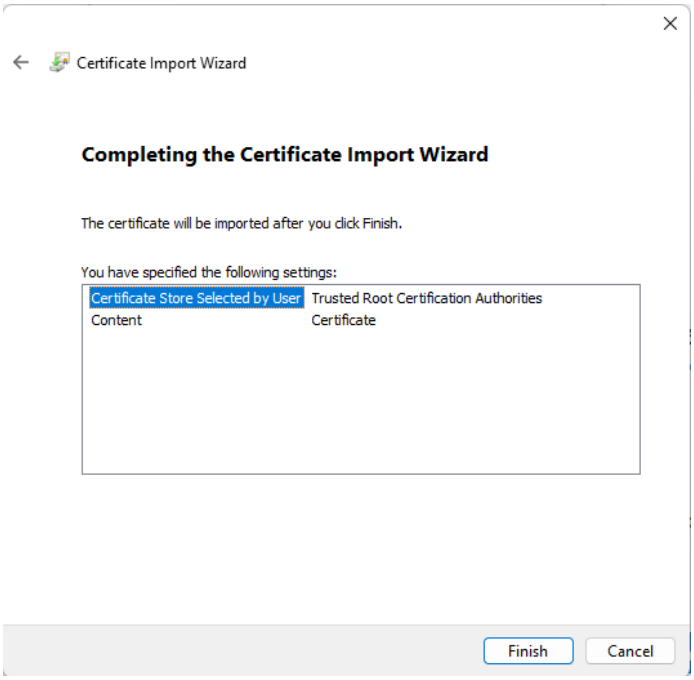

Figure 21. Completing the Install Certificates Wizard

Confirm the installation by pressing the "**Yes**" button:

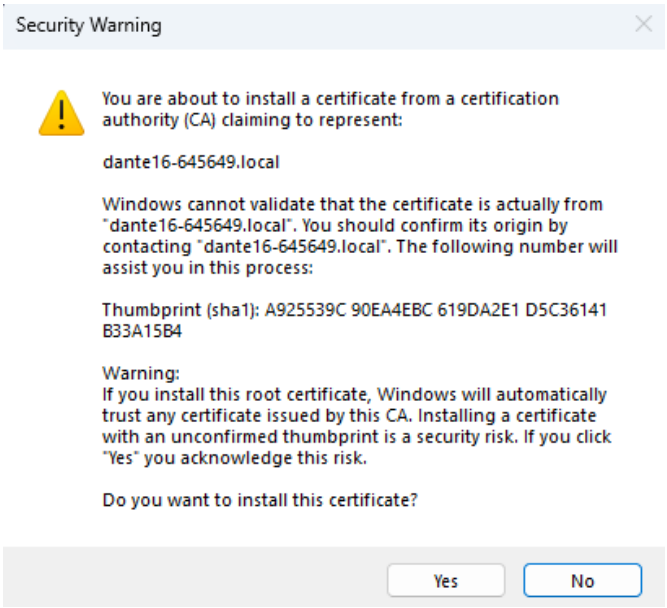

Figure 22. Safety warning when installing certificate

If everything has gone well, the confirmation message will appear:

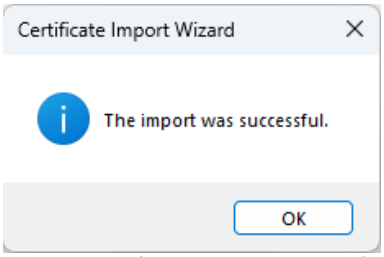

Figure 23. Certificate installation confirmation

It is advisable to restart the web browser by closing all its windows. Once restarted, reloading the device's local website will no longer display the notice that the website is not secure:

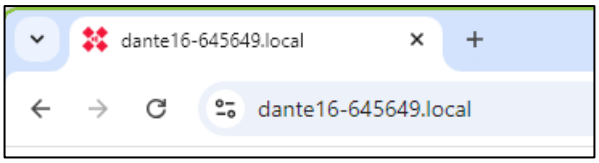

Figure 24. URL to access the website

6. LOGIN

Once you access the Dante16 website, the first page shown is the login page. On this page, you must enter the credentials provided, which include the username and password assigned to access the device settings (see section *7.3.3 Administration/Users*).

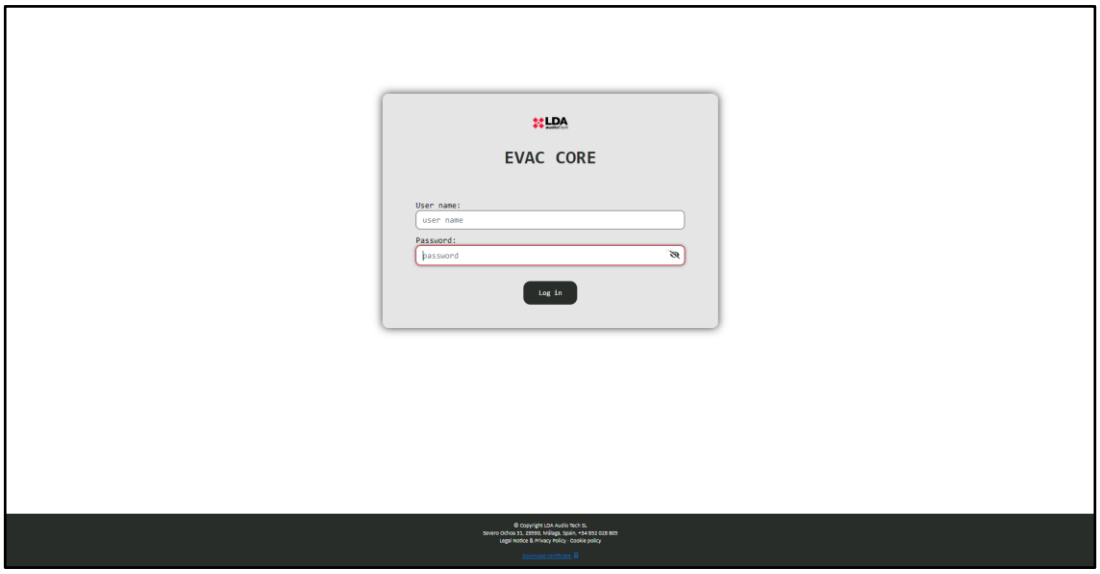

Figure 25. Login page

The system comes factory configured with an access account with the following credentials:

- Username: **core**
- Password: **G2BepK2Hj%mcKY**

7. CONTENT DISTRIBUTION

Once logged in, you access the main Dante page, where you can distinguish three main areas.

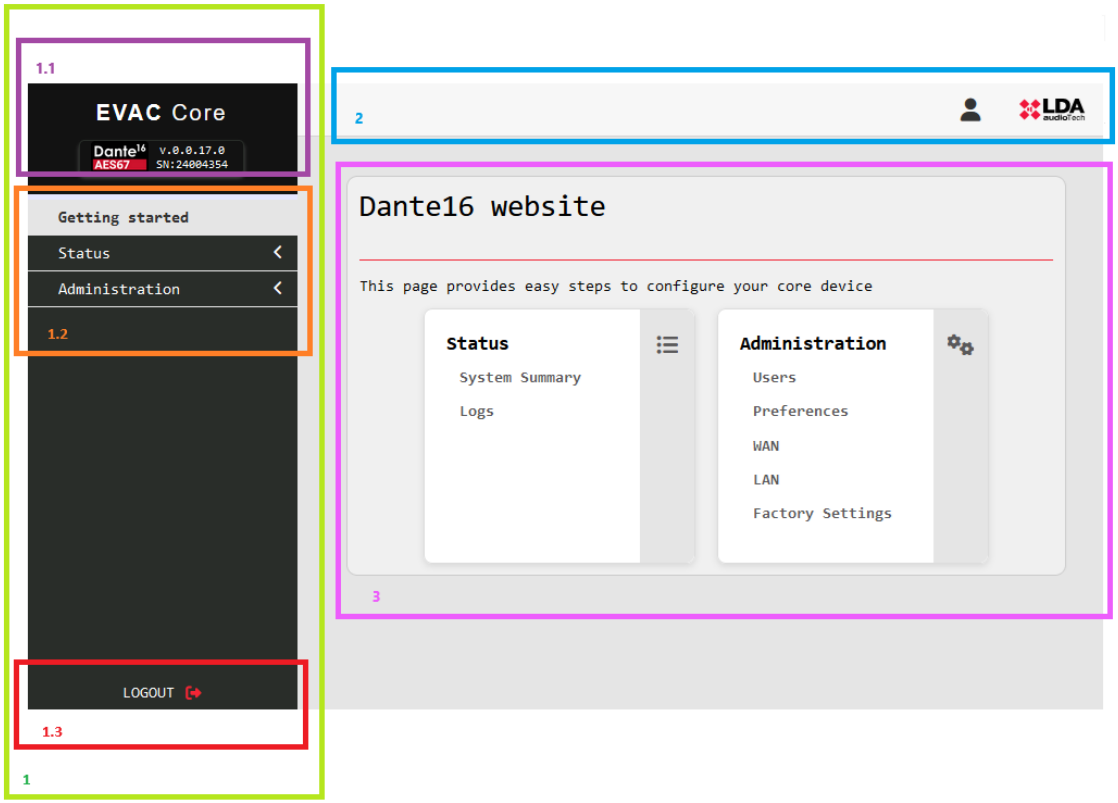

Figure 26. Content distribution

1 Side menu.
   - 1.1 Header.
   - 1.2 Drop-down menu.
   - 1.3 Logout.

2 Top bar.

3 Content.

7.1. Side menu

7.1.1. Header

Located in the upper left, it shows the main parameters that identify the device, **Model**, **application version** and **serial number**:

Figure 27. Side menu header

- **Device model:** In this case it is a **Dante16** model.
- **Device Version:** The number of **software version** that is running on the device.
- **Serial number:** This value is a unique identifier, which will be necessary if you contact the technical support department of **LDA Audio Tech**.

7.1.2. Drop-down menu

Secondly, there is the drop-down menu, which organizes the available screens into main groups and subgroups.

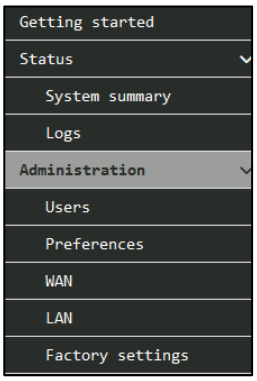

Figure 28. Side drop-down menu

7.1.3. Logging Out

Thirdly, within the side menu, there is the button to log out of the user.

Figure 29. Sign-out button

7.2. Top Bar

The top bar displays, on its far right, basic information and Dante16 user session control features.

7.2.1. User Panel

Figure 30. Top bar

On the right is the "  " icon that when clicked displays a small window that offers information and basic functions about the logged-in user's account:

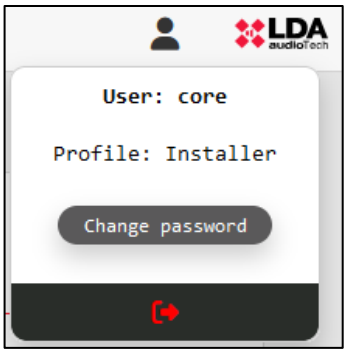

Figure 31. User information drop-down menu

- **User:** Displays the name of the user who is logged in.
- **Profile:** Displays the profile corresponding to the user.
- **Change password:** Allows the user to change their current password to a new one. Only local users can change their password to access the device's local website.

Figure 32. Login user password change window

- **Logout:** Ends the current session in the Dante16 web application, returning to the authentication page.

Figure 33. Logout

7.3. Content

7.3.1. Getting started

This section of the website is the one that is displayed by default after accessing the user's correct authentication and offers shortcuts organized according to the groups of content available.

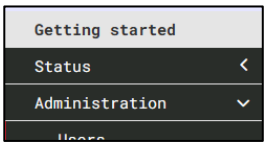

Figure 34. Getting started menu

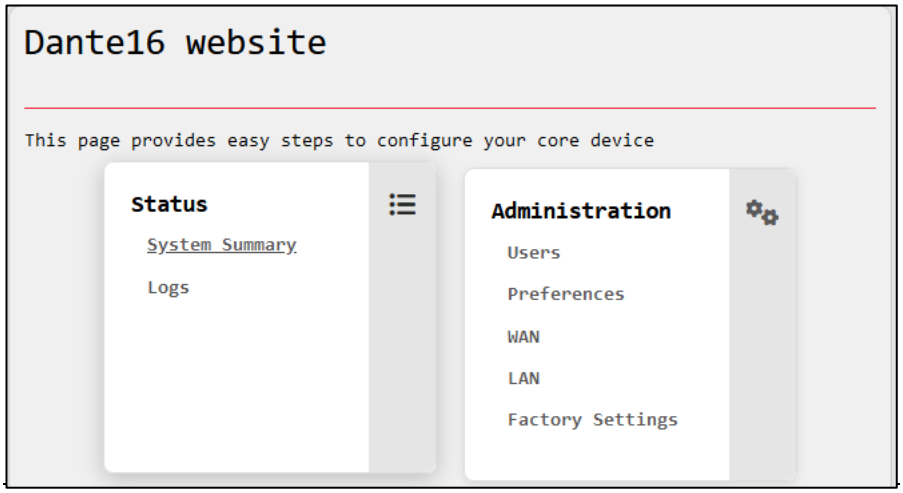

Figure 35. Getting Started window

To access a specific screen, simply hover over the name of the desired content and click.

This structure makes it easy to navigate and access the various functionalities and configurations of Dante16 in an intuitive and efficient way.

7.3.2. Status

The sections of this section group the basic information of the system, and its activity log are grouped together.

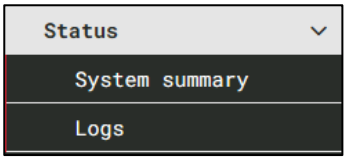

Figure 36. Staus Menus

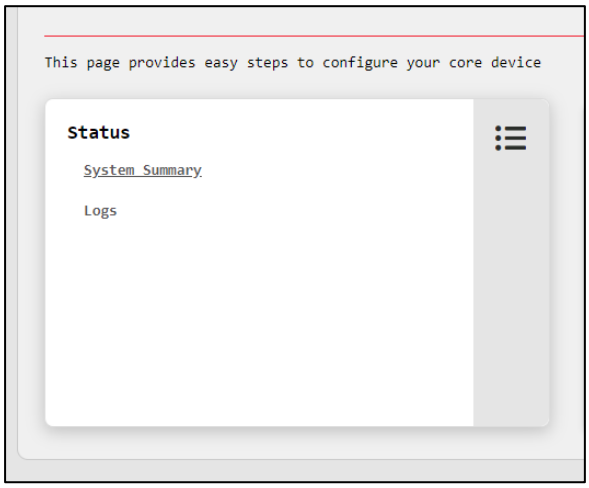

Figure 37. Shortcut selection

(a) System summary

This screen shows a summary of the data from the **Dante16** device. The information has the System section and is detailed below:

- **Serial number:** Serial number of the Dante16 device.
- **Version number:** The current version of the device software.
- **Device Id:** Device identifier.

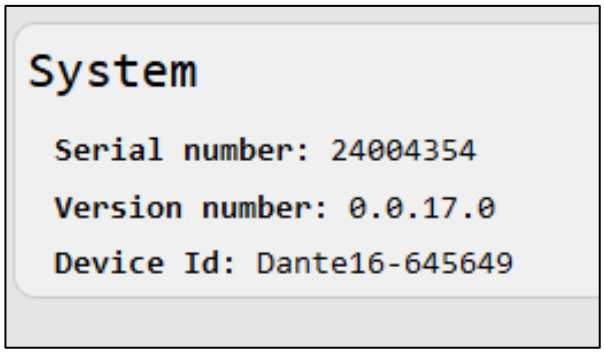

Figure 38. System summary

(b) Logs

On this screen, you can request the download of the log containing the system activity log. By default, the activity log will not be displayed automatically but must be requested manually by clicking on the "**Show Logs**" button.

Figure 39. Logs

After pressing this button, the log will be loaded in the content panel, providing detailed information about the activities and events recorded by the **Dante16** device.

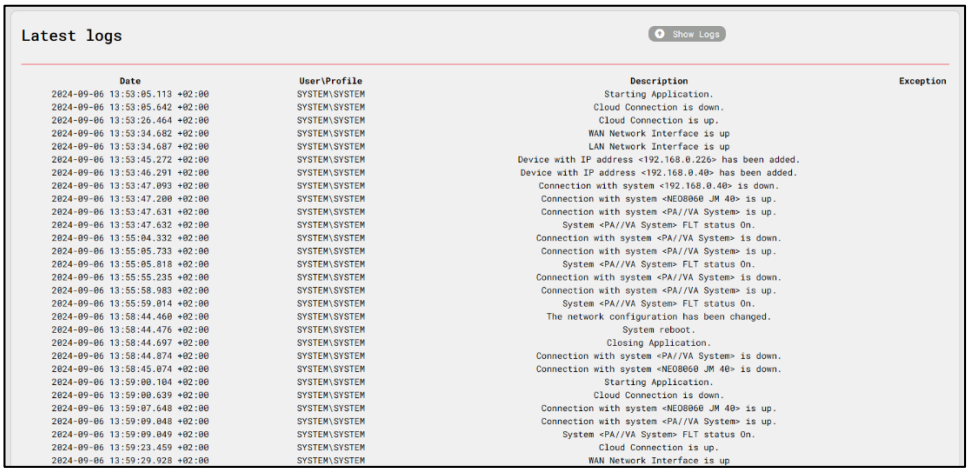

Figure 40. Log downloaded

The columns display the following information:

- **Date:** The UTC date and time when the log entry was logged. The time can be set in the *7.3.3(b) Preferences*
- **User\Profile:** User and profile whose activity has produced the log entry point. For system-specific actions, the string "**SYSTEM\SYSTEM**" will be displayed.
- **Description:** Descriptive text of the recorded action or event.
- **Exception:** If the entry logs an error, this column will display extended information about the error.

7.3.3. Administration

The administration submenu gives access to the configuration of different functional sections of the **Dante16** system.

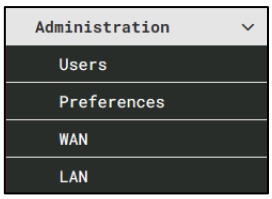

Figure 41. Administration submenu

(a) Users

This section presents a table that lists existing local users. Local users are those who can only access the device's local website through its **LAN** interface. All users listed here will have an **installer** profile.

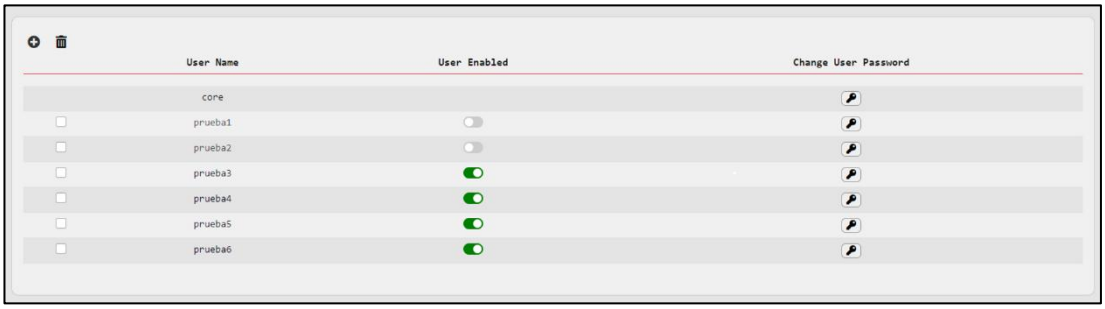

Figure 42. List of users

The columns in the table display the following information:

- **User Name:** Unique identification of the user in the system.
- **User Enabled:** Indicates whether a user has access to the device's local website enabled.

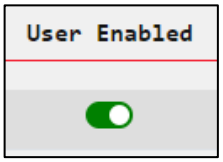

Figure 43. Enabled user

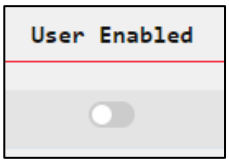

Figure 44. Disabled user

- **Change User Password:** This column shows a button that when clicked allows you to change the user's password. This procedure will be described in detail later.

On the upper left corner of the table are the buttons to **add** and **remove** users. Both actions will be described in detail later.

(a).1. Add a new user

By pressing the first of the buttons mentioned above, a new user can be added to the system to access the local website. To add a new user, you will have to enter a **name**, **password and password confirmation**.

All added users will have an **Installer** profile.

Figure 45. Window to add a new user

The password must contain at least 14 alphanumeric characters, one uppercase and one symbol or special character

If any of the fields are left blank or contain an invalid value, a related error message will be displayed:

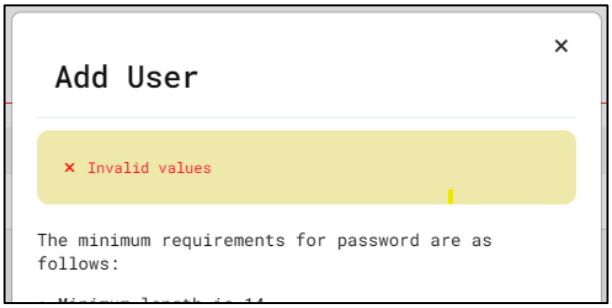

Figure 46. New user: Invalid value

(a).2. Delete existing user

Users can be removed from the list using a multi-selection process. This procedure requires that the users to be removed must be selected by checking the boxes on the left side of each row.

The current user cannot delete himself, which is why the checkbox is not displayed in his row in the table.

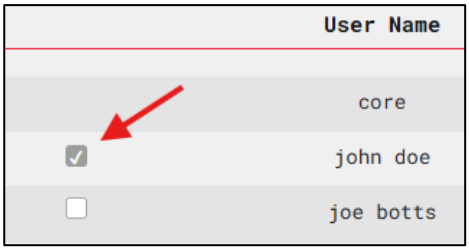

Figure 47. User selection

Once you have selected the users you want to delete, you must click on the button to the right of the button to add new users. This method of multi-selection and deletion facilitates efficient user management in **Dante16**, allowing multiple changes to be made quickly and accurately as needed.

Before deleting the selected users, you will be prompted to confirm this action using a dialog box.

Figure 48. Confirmation to delete user

(a).3. Enabling or Disabling Users

By clicking on a user's switch in the **"User Enabled"** column, you can change their enabling status.

A user can't disable themselves, so their row in the user table won't see the enable switch.

Each time this switch is clicked to enable or disable a user; a dialog box will be displayed requesting confirmation of the action.

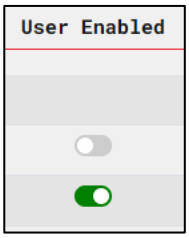

Figure 49. User Enabled

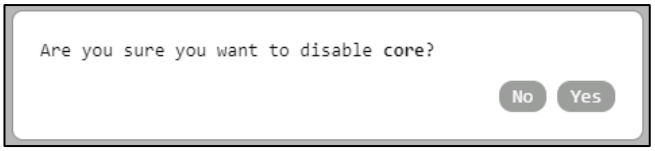

Figure 50. Confirmation to disable user

Disabled users will not be able to access the local **Dante16** website until they are enabled by another user.

(a).4. Changing user passwords

By clicking on the key icon located to the right of a user's row, a dialog box will appear through which they can change their current password.

Figure 51. Password Change Button

In the case of the user currently logged in, the current password will also be requested.

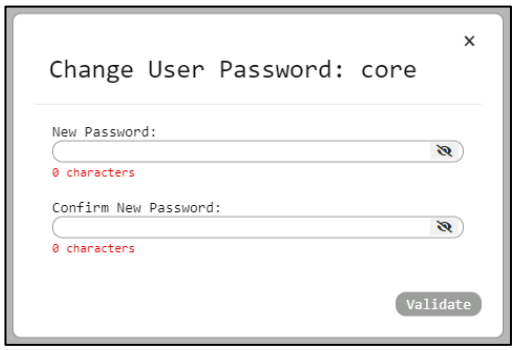

Figure 53. A dialog box for changing a user's password

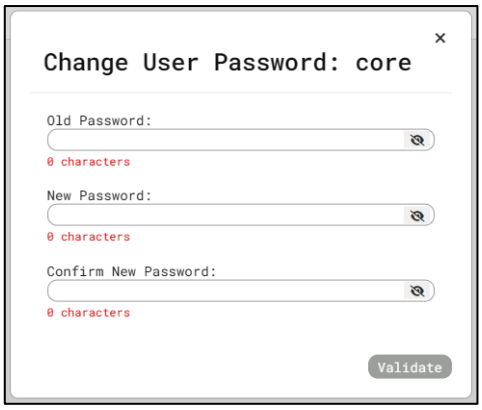

Figure 52. Dialog box for changing the current user's password

(b) Preferences

In this section you can set the time zone in which the device is located.

Figure 54. Preferences window

The time zone is presented as a drop-down menu that allows you to select from the different options available.

To apply the new selected time zone setting, the **"Apply Changes"** button must be clicked. This button is located at the bottom right of the preference container.

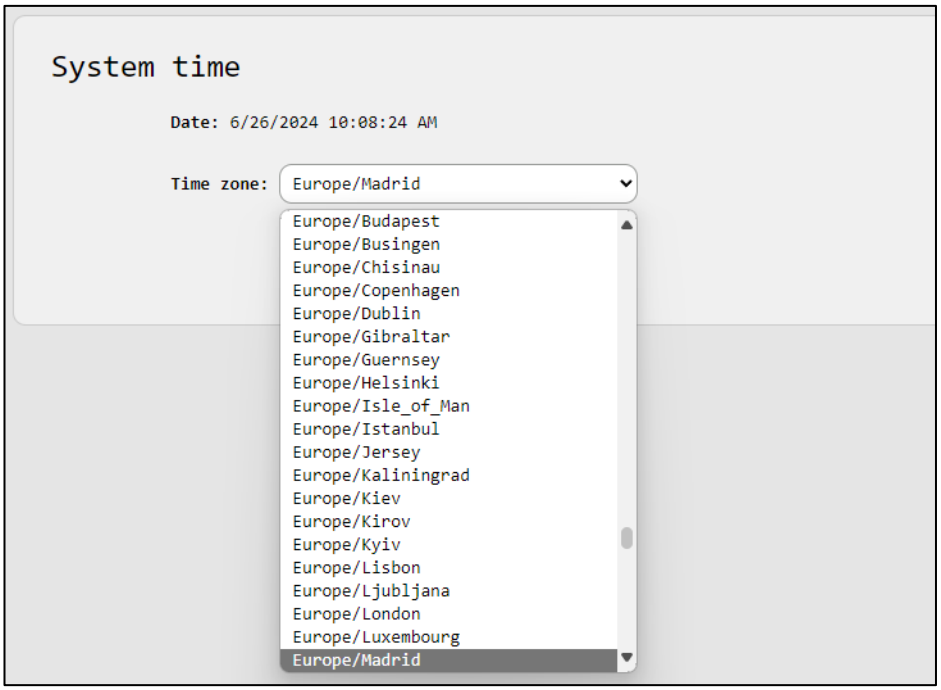

Figure 55. Time zone selection

(c) WAN

In this section, you can change the parameters of the device's ethernet **WAN** interface. Port **A** is intended to supply access to the **Dante/AES67 network**.

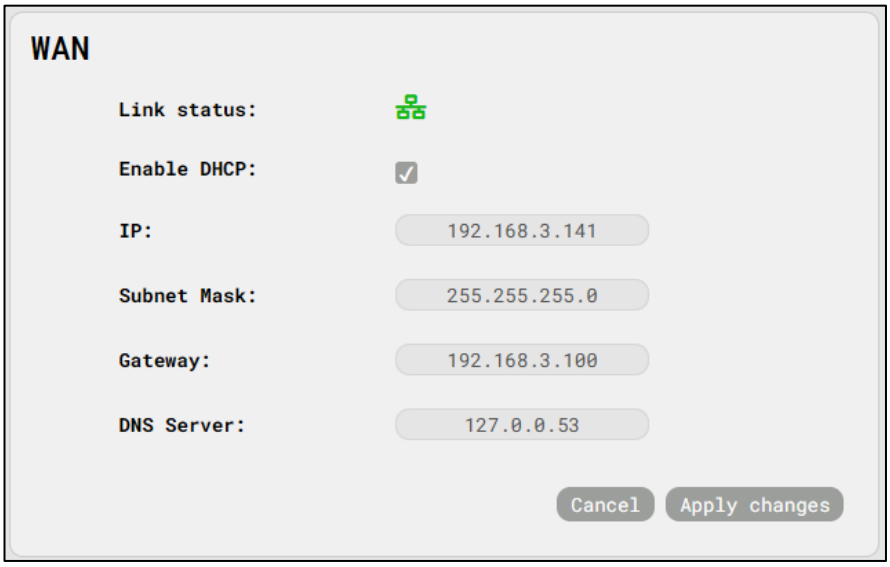

Figure 56. WAN interface configuration

- **Link status:** It is an indicator of port status, if the icon is green, it means that there is a physical connection between the equipment and the network infrastructure that gives access to the Dante / AES67 network. Conversely, the icon will be red in case there is no physical connection.
- **Enable DHCP:** Enables/disables the **DHCP** (Dynamic Host Configuration Protocol) connection protocol. **DHCP** allows "auto-negotiation" of network configuration. By default, it is enabled. To be able to manually configure the rest of the network parameters, you will have to disable this one.
- **IP:** It is the IP address that the device has, it is only allowed to configure the IP address in version 4 (IPv4) of the protocol.
- **Subnet Mask:** This is the network mask of the network interface.
- **Gateway:** This is the gateway's IP address, which acts as a gateway between the appliances or devices in the network infrastructure to which port A is connected.
- **DNS Server:** This is the address of the desired DNS server for the internet connection.

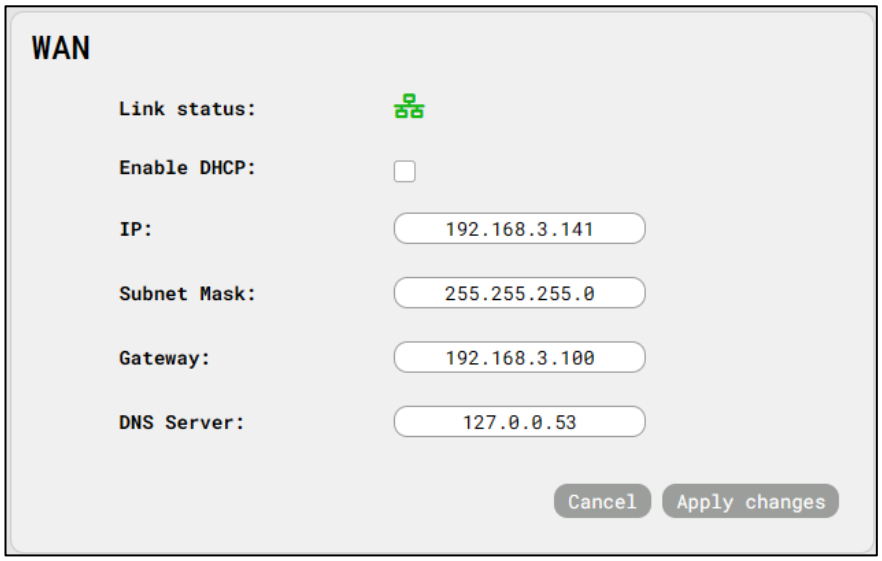

Figure 57. DHCP WAN disabled

Clicking on the "**Cancel**" button will restore the current value of each parameter that has been modified, undoing any unapplied changes.

To apply any changes to the WAN's interface settings, you will need to click on the "**Apply changes**" button. The device will automatically restart to apply the new network parameters.

(d) LAN

Here you can configure the parameters of the LAN ethernet port. This port is intended for communication between the **Dante16** device and systems connecting to the local network, either for monitoring or remote access.

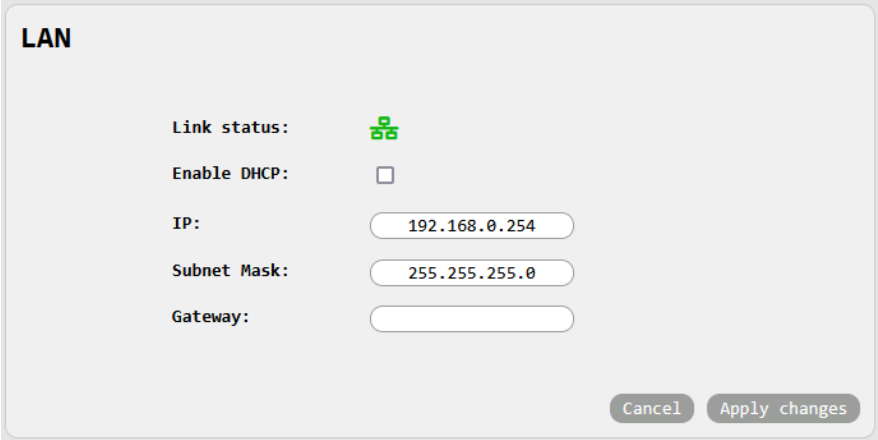

Figure 58. LAN interface configuration

- **Link status:** It is an indicator of port status, if the icon is green, it means that there is a physical connection between the device and the local network infrastructure. Conversely, the icon will be red in case there is no physical connection.
- **Enable DHCP:** Enables/disables the **DHCP** (Dynamic Host Configuration Protocol) connection protocol. The **DHCP protocol** allows for "auto-negotiation" of network configuration. By default, it is disabled. To be able to configure the rest of the parameters, you will have to disable this one.
- **IP:** It is the IP address that the device has, it is only allowed to configure the IP address in version 4 (IPv4) of the protocol. By default, it has the value of **192.168.0.251** for **Dante16** devices.
- **Subnet Mask:** It is the network mask of the device, whose function is to indicate to the device which part is the IP address, including the subnet, and which part is the one corresponding to the host. Default has the value: **255.255.255.0**
- **Gateway:** This is the gateway address, which acts as a gateway between the appliances or devices in the network infrastructure to which the port connects. By default, the Gateway is unconfigured, i.e. blank.

Clicking on the **"Cancel"** button will restore the current value of each parameter that has been modified, undoing any unapplied changes.

To apply any changes to the LAN's interface settings, you will need to press the **"Apply changes"** button. The device will automatically restart to apply the new network parameters.

(e) Factory settings

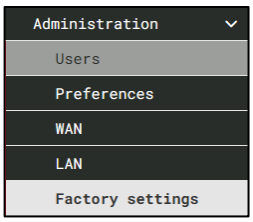

Figure 59. Factory settings

In the **"Factory Settings"** section, there are two groups of parameters and functions.

(e).1. System settings

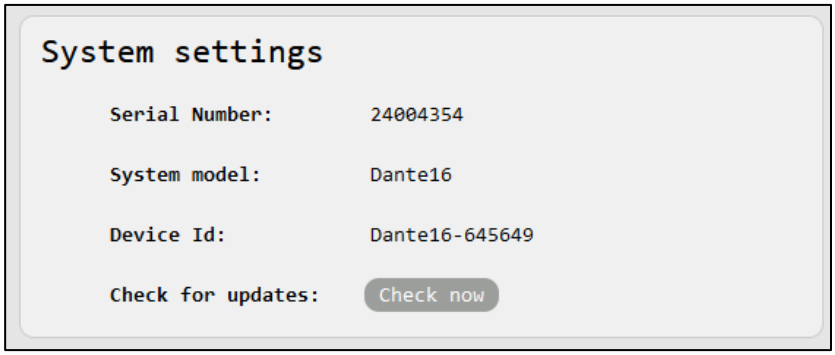

Figure 60. System settings

- **Serial number:** Displays the unique serial number of the Dante16 device.
- **Model:** Displays the model of the device.
- **Device Id:** This is the identifier of the device.
- **Check for updates:** Displays the **"Check now"** button. When you press it, if the internet connection is available via the **WAN** interface, it will check if there is a new version of the internal software of the **Dante16** device.

If after pressing the **"Check now" button**, the device verifies that it is already updated to the latest version of the software, the following message will be displayed:

"The system is up to date with the latest version."

On the other hand, if it is verified that a new version of the software is available, the text of the **"Check now"** button will change to **"Upgrade"** and a message will appear indicating the number of the software:

"A new version is available ..."

In the latter case, you will have to press the **"Upgrade" button** to download the new version. When the download is complete, your device will automatically restart the new version of the internal software to be installed.

IMPORTANT: Do not turn off or interrupt power to the Dante16 device during the update process, as this may cause damage to the system and take it out of service.

During this process, the browser will lose connection with the device, so it will be necessary to close the window or tab where the local website is loaded and reload it in a new window or tab to check that the update has been carried out successfully and all the parameters are still correct.

(e).2. System Reset

Figure 61. System reset

- **Factory reset**: Action that will reset the **Dante16** device to its factory default settings, removing all custom settings, such as local users, monitored devices, or configured remote access points. **WAN** and **LAN** configurations will also be restored to factory settings and the system activity log will also be deleted.
- **Reboot**: Performs a reboot of the device while maintaining its current settings.

Before performing either of these two actions, confirmation will be requested using a dialog box.

8. DANTE / AES67 MANAGEMENT

To manage it, as with any other Dante-compatible product, it will be necessary to use Audinate's free software, **Dante Controller**.

It can be downloaded from the following URL: https://my.audinate.com/support/downloads/dante-controller.

8.1. Audio Default Settings (AES67)

The **Dante16** device is configured by default with the transmission of 2 AES67 multicast streams:

239.117.1.100:5004 for channels 1 through 8.

239.113.1.100:5004 for channels 9 to 16.

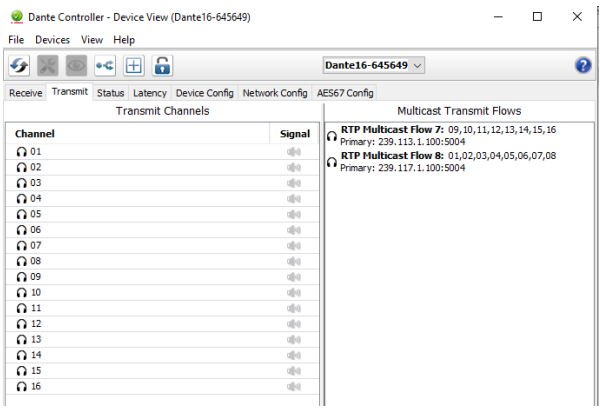

Figure 62. AES67 Transmission Configuration

To **receive** an **AES67** multicast stream, the first two octets of the transmit address must match those configured in the **AES67 Config** tab. The first octet, **239**, is not configurable. The second octet is configurable and defaults to **3**.

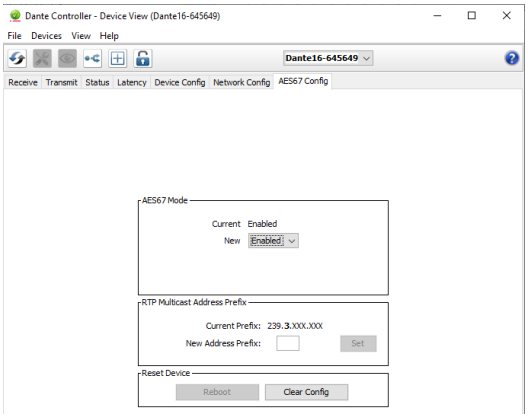

Figure 63. AES67 Reception Configuration

Dante16 will retransmit any Dante channel routed to an input, to its respective AES67 output. That is, when routing a **Dante input** to input channel X, it will be immediately available on channel X of **AES67 output**.

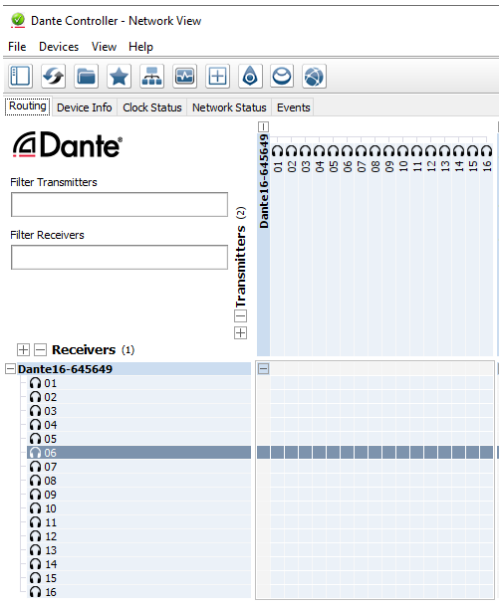

Figure 64. Dante Matrix

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