USER MANUAL

EK CAST

280053

Chromecast™ devices management server.

V05

TABLE OF CONTENTS

Introduction.

Description.

EK CAST server is a Chromecast™ device management server for both, physical and integrated ones in televisions (check for implemented models).

EK CAST improves the multimedia entertainment experience of guests in the hotel room, allowing them to enjoy both their own multimedia content and those of their Streaming providers on the television.

Main features.

- Flexible configuration of the guest user interface shown on the television which allows to configure logos, colours, background, weather information and pictures or videos carrousel with customized text messages as a digital signage system.
- Configuration of the maximum number of users which can be linked to the same Chromecast™ device.
- Configuration of the terms and privacy policy.
- Configuration of domain and HTTPS
- Automatic and manual detection of new Chromecast™ devices in the network.
- Status monitoring of Chromecast™ devices.
- Remote activation and deactivation of Chromecast™ devices.
- Option to unlink user devices from the Chromecast™.
- Option to arrange the Chromecast™ devices by groups.
- Real-time information about the number of users connected to each Chromecast™ device, about the contents which the guests are reproducing and the loaded applications.
- Usage report generation of last 7 days in PDF format.
- Exportation of raw data in CSV or XLS format for subsequent analysis for marketing purposes.
- It allows to load an external customer created webpage into Chromecast™ by entering its url in the system.
- System is able to support Chromecast™ integrated in TV sets (check for implemented models).

Contents.

V1:

1. 1 x EK CAST.
2. 1 x 1 x Power cord.

V2:

1. 1 x EK CAST.
2. 1 x 1 x Power cord.

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Interfaces, connection and access to the equipment.

Interfaces.

V1:

	1. HDMI Port I: It is not useful for the user. Only usable by Technical Support. 2. ETH1 port: LAN port to connect to the Chromecast network. 3. PORT ETH2: Port that connects with exit to internet. 4. Serial Port: No use for client, only for SAT. 5. Power: Power is located on the back of the equipment.

V2:

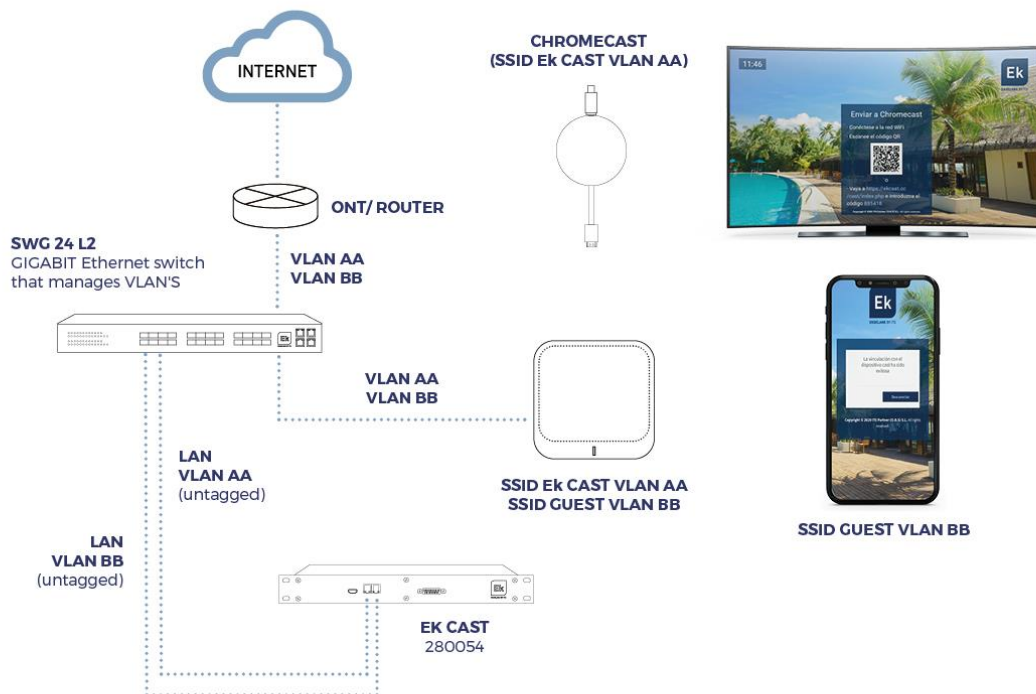|	
	1. HDMI Port I: It is not useful for the user. Only usable by Technical Support. 2. LAN 1 port: LAN port to connect to the Chromecast network. 3. LAN 2 port: Port that connects with exit to internet. 4. Serial Port/USB: No use for client, only for SAT. 5. Power: Power is located on the back of the equipment.

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Connection.

It is mandatory, in order to install the EK CAST service correctly, to take into account that the network must be ready to manage the mDNS traffic properly and not block it.

The WAN port (LAN2/ETH2) should be connected to the main network with Internet connection. The **LAN port (LAN1/ETH1)** should be connected to the network where the Chromecast™ devices will be connected. The main network and the Chromecast™ network must be completely separated by means of two VLANs with the following requirements:

- The first VLAN (VLAN BB in the below picture) could be the native VLAN, it should be available in the WAN port of the equipment, and it must have Internet connection. It is also needed a DHCP server in this VLAN which will provide IPs to all the devices of the guests (PCs, tablets and mobile phones).
- The second VLAN (VLAN AA in the below picture) should be available in the LAN port of the equipment. It is also needed a DHCP server in this VLAN (the equipment is able to work as a DHCP server) and it must have Internet connection; this DHCP server will provide IPs to all Chromecast™ devices managed by the EK CAST. Only the Chromecast™ devices should connect to this VLAN.

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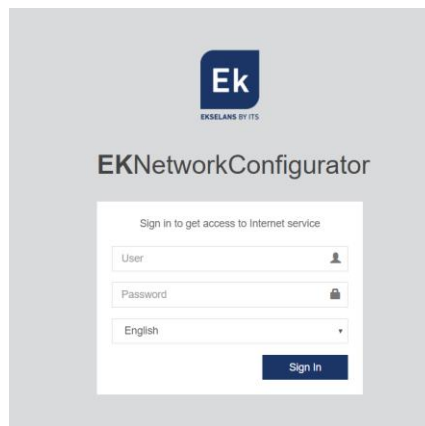
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Access to the equipment

1.   Connect the ethernet port of the PC which will be used to configure the EK CAST with the WAN port of the **EK CAST**. In the EK CAST there is a sticker with its IP address, usually **172.16.5.209**. Configure the PC network adapter with a static IP in the subnet that the EK CAST, for example **172.16.5.**10. This step can also be done connecting the PC in the same switch which the EK CAST is connected to; both the PC and the EK CAST should be connected to ports assigned to the same untagged VLAN.
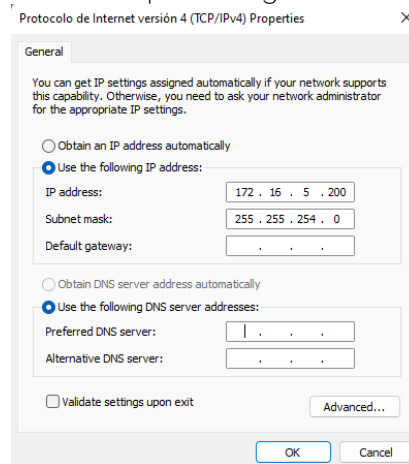
2.   Open the EK CAST assigned IP address adding the port number 9090 in a web browser. For example, if the EK CAST address is 172.16.5.209 the URL to write in the browser will be http://172.16.5.209:9090.


3.   Enter the default user and password: **admin / password**

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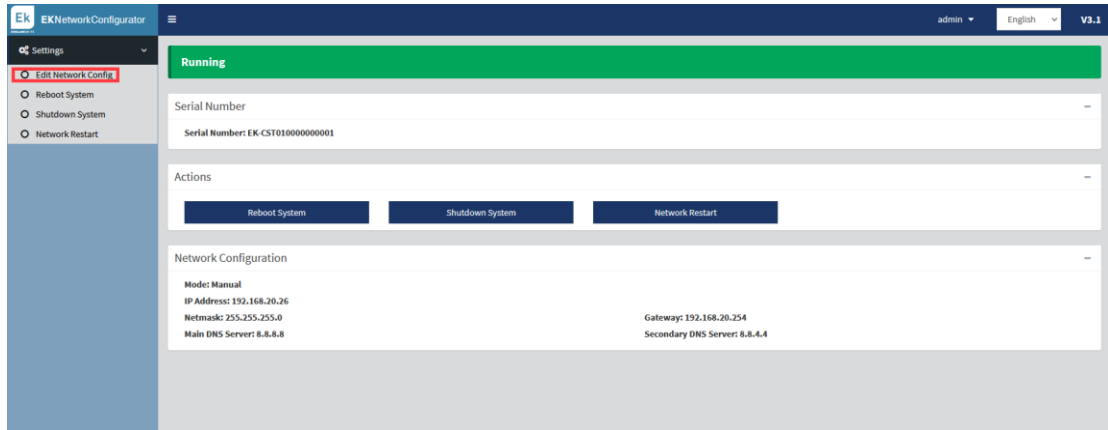Phone: +34935839543 · info@ek.plus · www.ek.plus

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Equipment configuration

An IP address in the WAN interface of the EK CAST must be configure within the main network. This will allow the access to the server from the main network and the remote update of the equipment. EK CAST must have an internet connection to work properly.
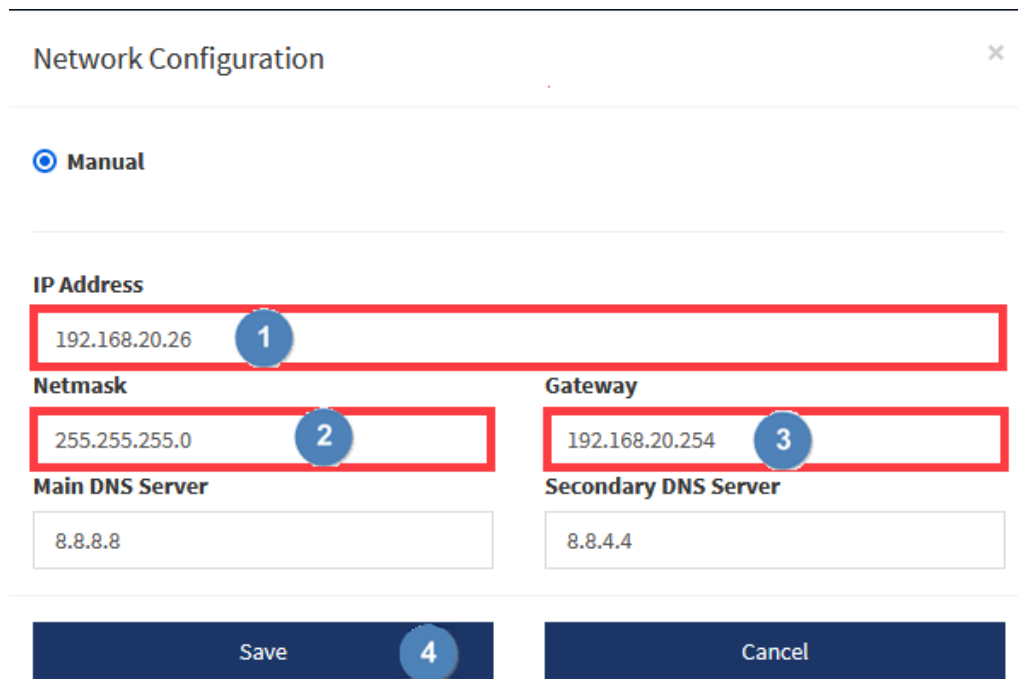
Once logged in the equipment, the following screen will be shown:
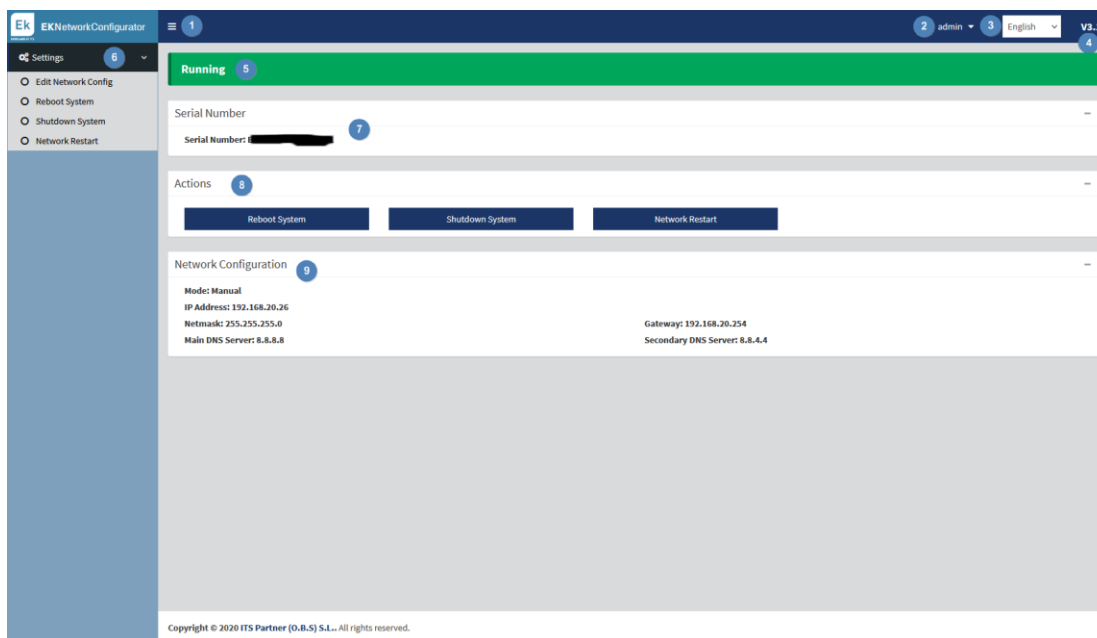
1.	**Drop down button**: it allows to show or to hide the settings in the left menu.
2.	**User**: user used to login in the current session. It is important not to lose the password because only the "admin" user can change the password of all the users.
3.	**Language:** current language selected for the Network Configurator user interface manager.
4.	**Version:** current version of the Network Configurator tool.
5.	**Status**: it shown the EK CAST status. When the status is "Running" it means the EK CAST is running perfectly; if another status is shown, connection and network configuration should be reviewed.
6.	**Settings:**
•	**Edit Network Config:** it allows to set the network configuration parameters.
•	**Reboot System:** it reboots the equipment.
•	**Shutdown System:** it switches off the EK CAST gracefully. This is the correct way to switch off the equipment.
•	**Network restart**: it restarts the network ports.
7.	**Serial number**: Serial number or license number assigned to the equipment.
8.	**Actions**: Direct access to the operations available in the Settings menu.
9.	**Network Configuration**: it shows the current network configuration. In order to configure the equipment to work in a network, the next steps should be followed:
1.	Select "Edit Network Config" in the left menu.

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2.   Configure an IP inside the local network, with the right subnet mask and gateway in order to provide Internet connection to the equipment. Once all these parameters are configured, press the Save button to save configuration. The following picture is just an example, the parameter values should be adapted to each local network configuration.
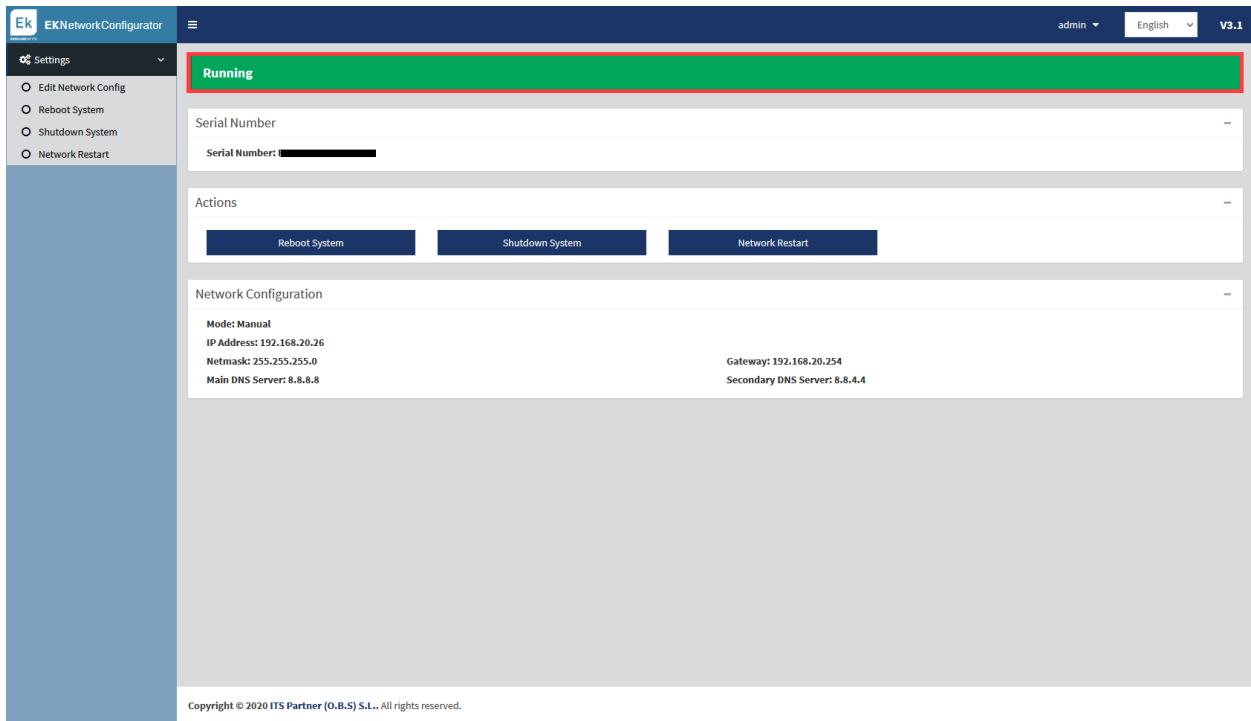

3.   Accept configuration

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🌐 192.168.10.26:9090

A wrong network configuration can cause the system to be unnacesible. Do you want to proceed with the changes?

OK   Cancel

4.   Once configured the network parameters of EK CAST, connect PC again to the main network enabling DHCP or setting manually the previous IP address, netmask and gateway. Then, connect the EK CAST WAN port to the main network. Now the EK CAST will be accessible through the IP address configured in step 2.
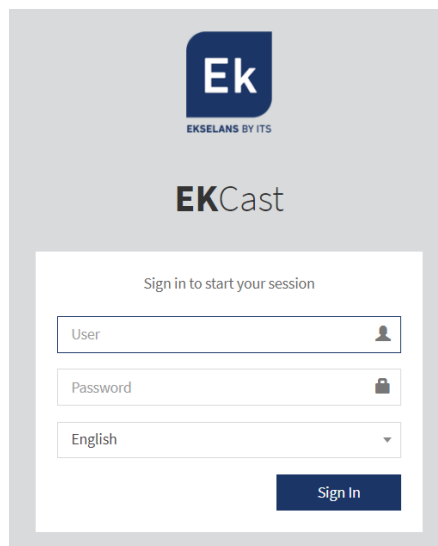
If the configuration is properly done, after some minutes, on the main window, the "Running" word and the green colour will be shown in the Status area.

EK Network Configurator   admin ▼   English ▼   V3.1

⚙ Settings ▼
○ Edit Network Config
○ Reboot System
○ Shutdown System
○ Network Restart

Running

Serial Number   —
Serial Number:

Actions   —
Reboot System   Shutdown System   Network Restart

Network Configuration   —
Mode: Manual
IP Address: 192.168.20.26
Netmask: 255.255.255.0   Gateway: 192.168.20.254
Main DNS Server: 8.8.8.8   Secondary DNS Server: 8.8.4.4

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Access to the configuration interface and general view.

Access to the configuration interface

After the system is properly configured and running, it is possible to access to the configuration interface of the EK CAST in the URL https://<configured IP>/manager. For example, https://172.16.5.209/manager.

User: **admin** Password: **Admin123.**

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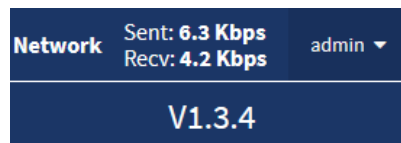
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Main Information.

It includes all the information related to the CPU, memory, network bandwidth, logged user, language and SW version which is shown on the top of the main window.
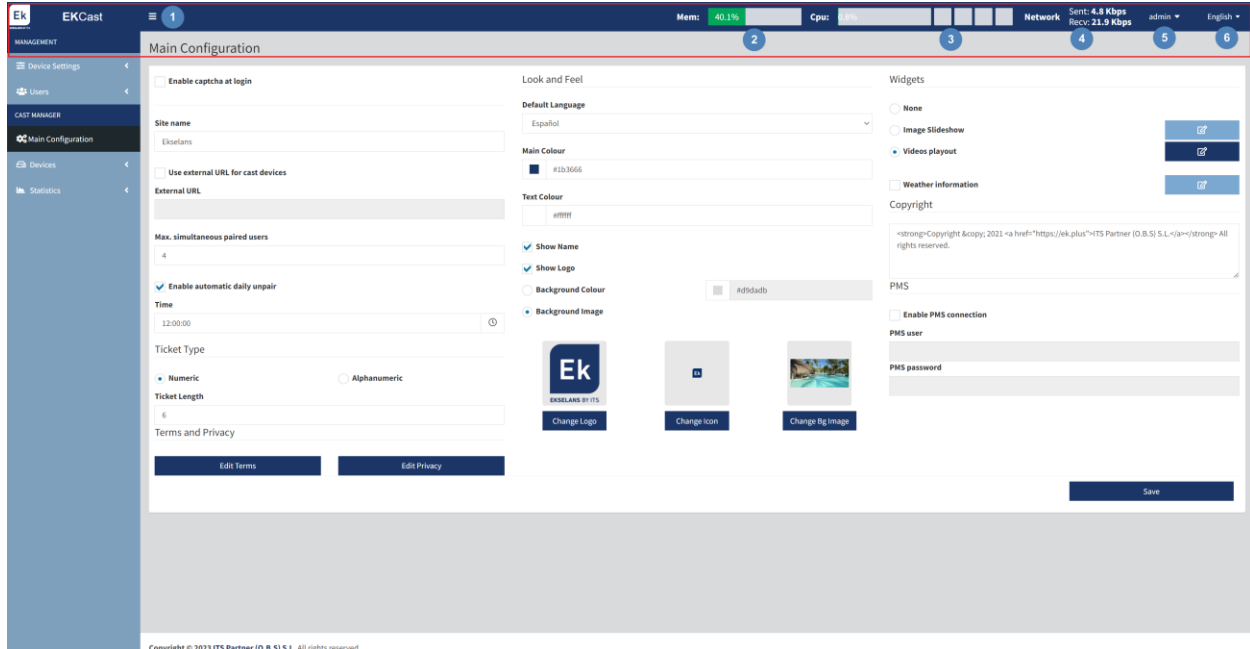
1.   **Drop down button:** it allows to show or to hide the left menu.
2.   **Mem:** it shows the current memory used by the system.
3.   **CPU:** it shows the total CPU load and the load of each core.
4.   **Network:** it shows the current network traffic.
5.   **Admin:** this menu shows the current version of EK CAST and allows to modify the password of the current user and to logout.

6.   **Language**: it allows to select the language used in the EK CAST user interface manager.

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Management.

It is possible to modify the network configuration of EK CAST, the users who can access to the manager and the permissions of them.

Device settings.

When **Device settings** is select in the left menu, the WAN and LAN general information of the EK CAST is shown on the main window. In the **Device settings** menu, the following submenus are available:

- **Edit WAN Network Config**: it allows to modify the WAN network configuration.
- **Edit LAN Network Config**: it allows to modify the LAN network configuration.
- **Domain and local DNS server**: it allows to configure a domain and to use the device as a DNS server.
- **Reboot System**: it allows to reboot the EK CAST device.
- **Shutdown System**: it allows to shutdown the EK CAST gracefully.
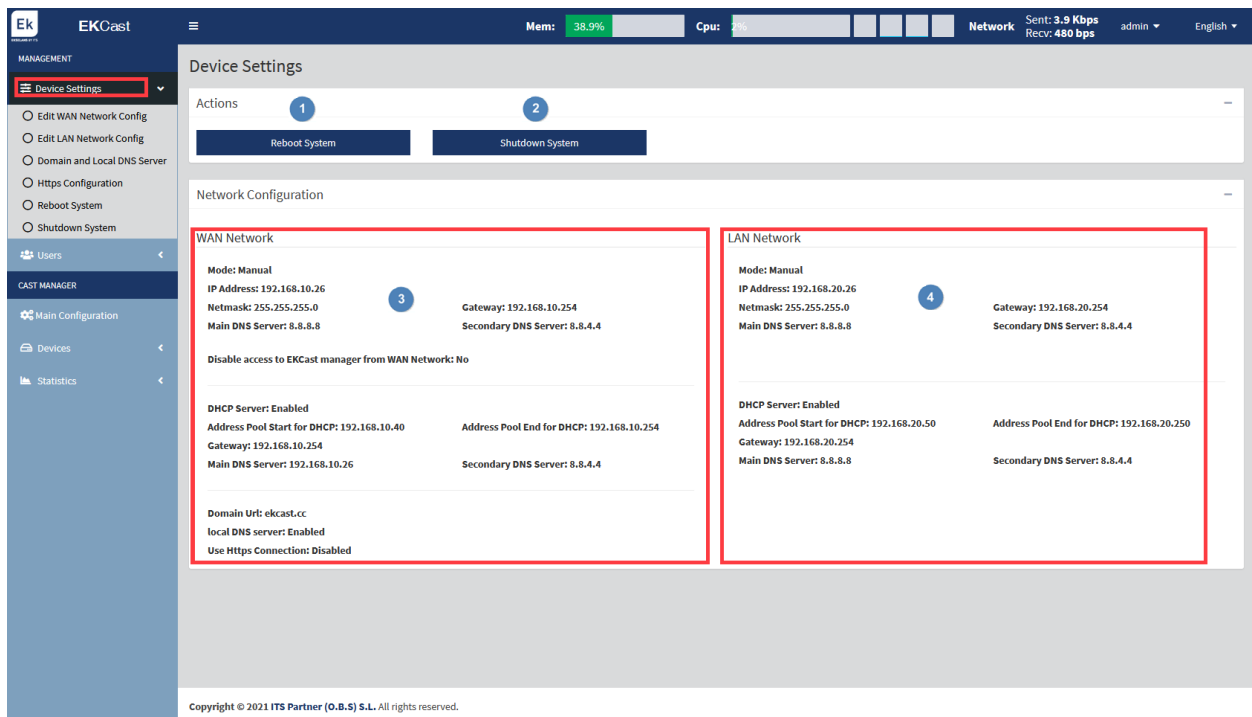
1. **Reboot System:** this button reboots the EK CAST equipment.
2. **Shutdown System:** this button switches off the EK CAST equipment gracefully. It is strongly recommended to use always this button to shutdown the equipment.
3. **WAN network:** this area shows all the WAN network configuration.
4. **LAN network:** this area shows all the LAN network configuration.

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Edit WAN network configuration

This is the same network configuration set with the Network Configuration tool (via the port 9090) which can also be reconfigured through this menu.
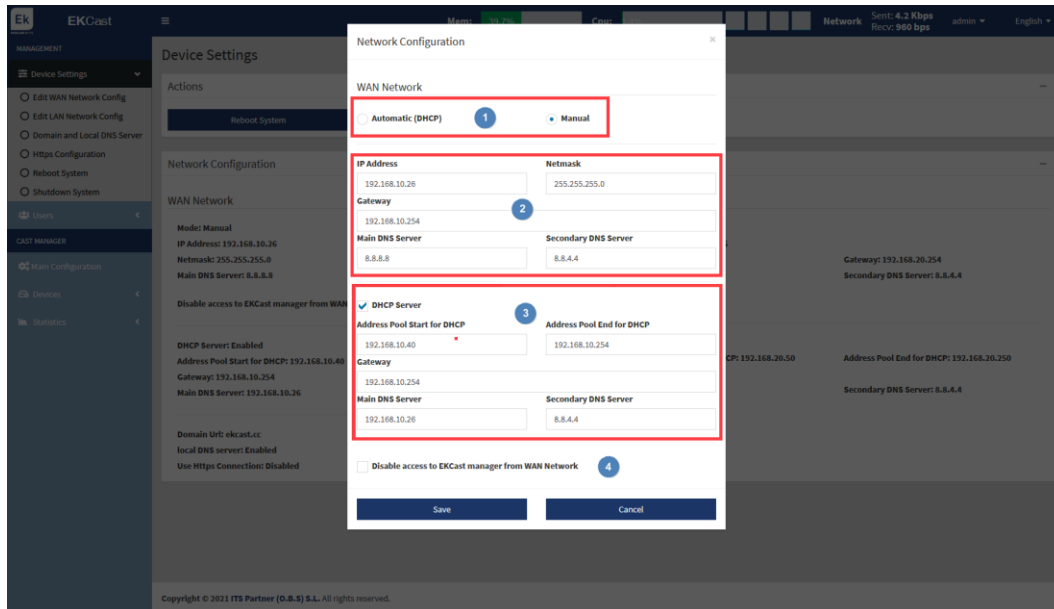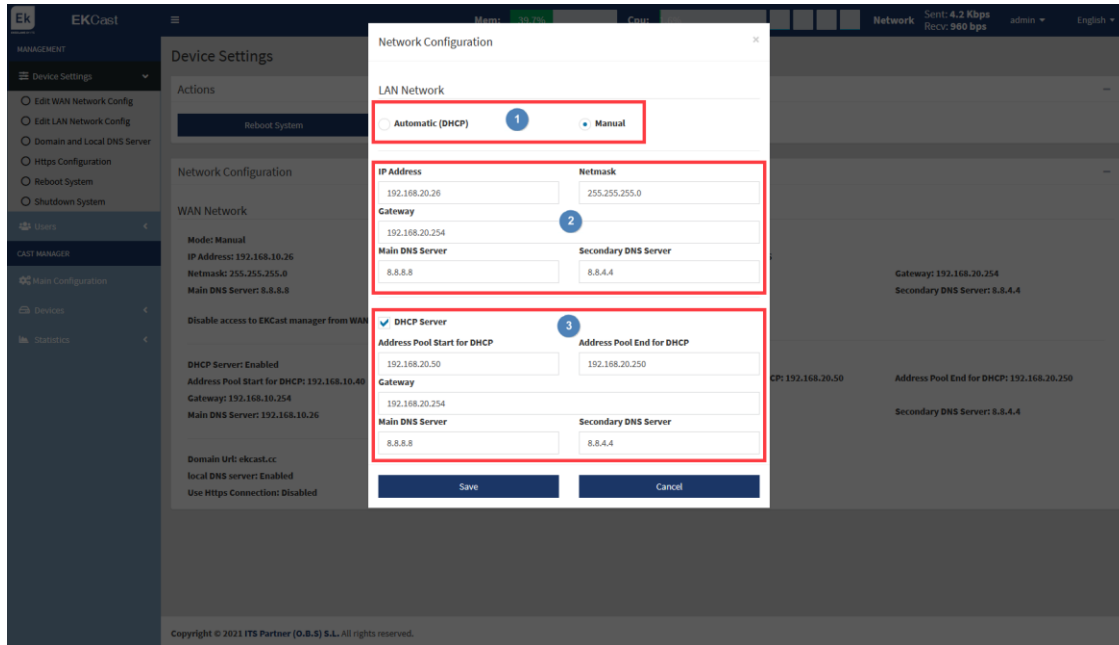

1.   Connection mode.
o   **Automatic (DHCP):** EK CAST will get all the IP configuration from a DHCP server.
o   **Manual:** All the IP configuration must be configured manually.
2.   Network parameters:
o   **IP Address:** the IP address of the EK CAST through the WAN port.
o   **Netmask:** the subnet mask of the EK CAST in the WAN port.
o   **Gateway:** the EK CAST gateway in the WAN port.
o   **Main DNS Server:** the main domain name system server to be used through the WAN port.
o   **Secondary DNS Server:** the secondary domain name system server through the WAN port.
3.   DHCP server: if it is enabled (ticked) the EK CAST will work as a DHCP server and the following parameters can be configured:
o   **Address Pool Start for DHCP:** the first IP address which will be assigned by the DHCP server.
o   **Address Poll End for DHCP:** the last IP address which will be assigned by the DHCP server.
o   **Gateway:** the gateway to be configured in the devices which will receive an IP address by the DHCP server.
o   **Main DNS Server:** the main domain name system server which will be configure in the devices which will receive an IP address by the DHCP server.
o   **Secondary DNS Server:** the secondary domain name system server which will be configure in the devices which will receive an IP address by the DHCP server.
4.   Disable access to EKCast manager from WAN Network: if it is ticked, the access to the EK CAST from the WAN interface is blocked. To enable this option is recommended for security reasons.

Once configured all the parameters, press Save button to apply the changes.

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Edit LAN network configuration

This is the network configuration which will be used in the network where the Chromecast™ devices will be connected.

1. Connection mode.
o **Automatic (DHCP):** EK CAST will get all the IP configuration from a DHCP server.
o **Manual:** All the IP configuration must be configured manually.
2. Network parameters:
o **IP Address:** the IP address of the EK CAST through the LAN port.
o **Netmask:** the subnet mask of the EK CAST in the LAN port.
o **Gateway:** the EK CAST gateway in the LAN port.
o **Main DNS Server:** the main domain name system server through the LAN port.
o **Secondary DNS Server:** the secondary domain name system server through the LAN ort.
3. DHCP server: if it is enabled (ticked) the EK CAST will work as a DHCP server for the Chromecast™ devices network and the following parameters can be configured:
o **Address Pool Start for DHCP:** the first IP address which will be assigned by the DHCP server.
o **Address Poll End for DHCP:** the last IP address which will be assigned by the DHCP server.
o **Gateway:** the gateway to be configured in the Chromecast™ devices which will receive an IP address by the DHCP server.
o **Main DNS Server:** the main domain name system server which will be configure in the Chromecast™ devices which will receive an IP address by the DHCP server.
o **Secondary DNS Server:** the secondary domain name system server which will be configure in the Chromecast™ devices which will receive an IP address by the DHCP server.

Once configured all the parameters, press Save button to apply the changes.

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Domain and local DNS server

Through this menu, it is possible to configure an URL, instead of an IP, to access the EK CAST web front-end and to link the guests' devices to the Chromecast™ devices. This URL will appear on the televisions once the Chromecast™ devices have been added and enabled. If this URL is not configured, the EK CAST IP address will be shown instead.
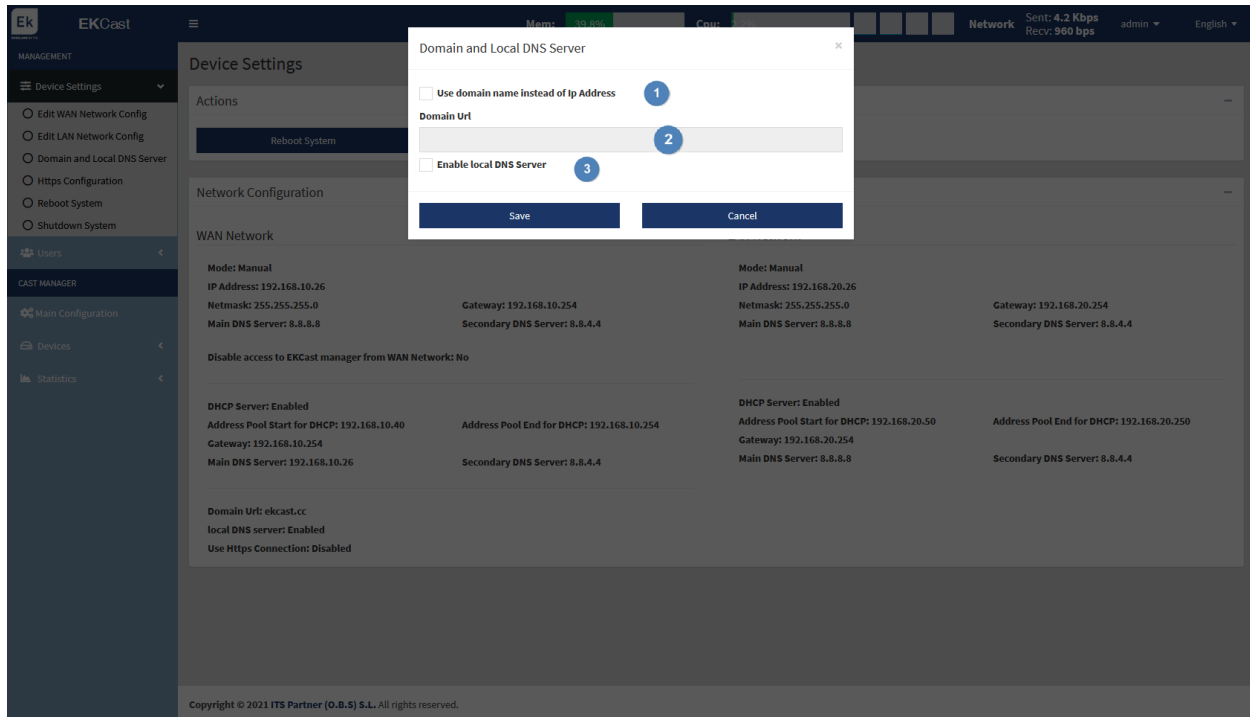

1.   **Use domain name instead of Ip Address:** If it is ticked a domain name will be used instead of the IP address to access to the EK CAST web front-end. When this option is enabled, the following parameters could be configured.

2.   **Domain URL:** it is the domain which will be shown on the television to link the guests' devices to the Chromecast™ instead of the EK CAST WAN IP address.

3.   **Enable local DNS Server:** if it is enabled, the EK CAST MIN works as a DNS server.

Once configured all the parameters, press Save button to apply the changes.

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Https Configuration.

This menu allows to enable or disable the HTTPS protocol to access the EK CAST web front-end. When HTTPS is enabled the connection to the EK CAST will be done in a secure way.
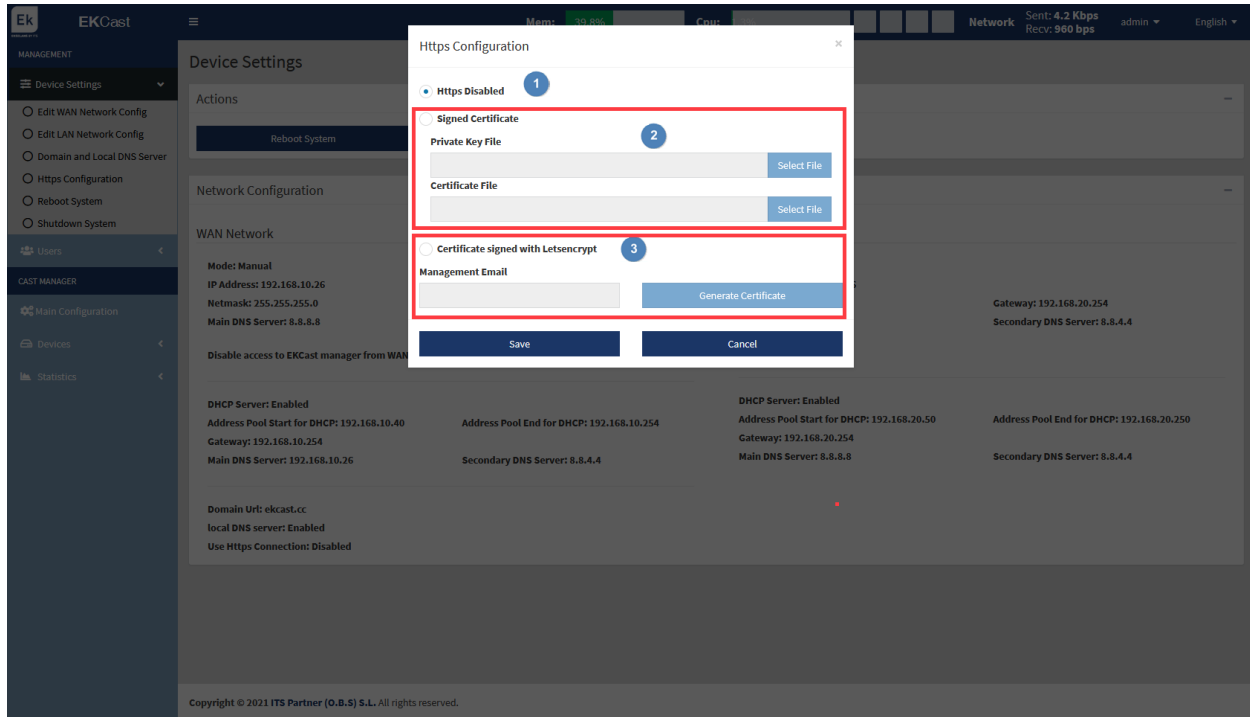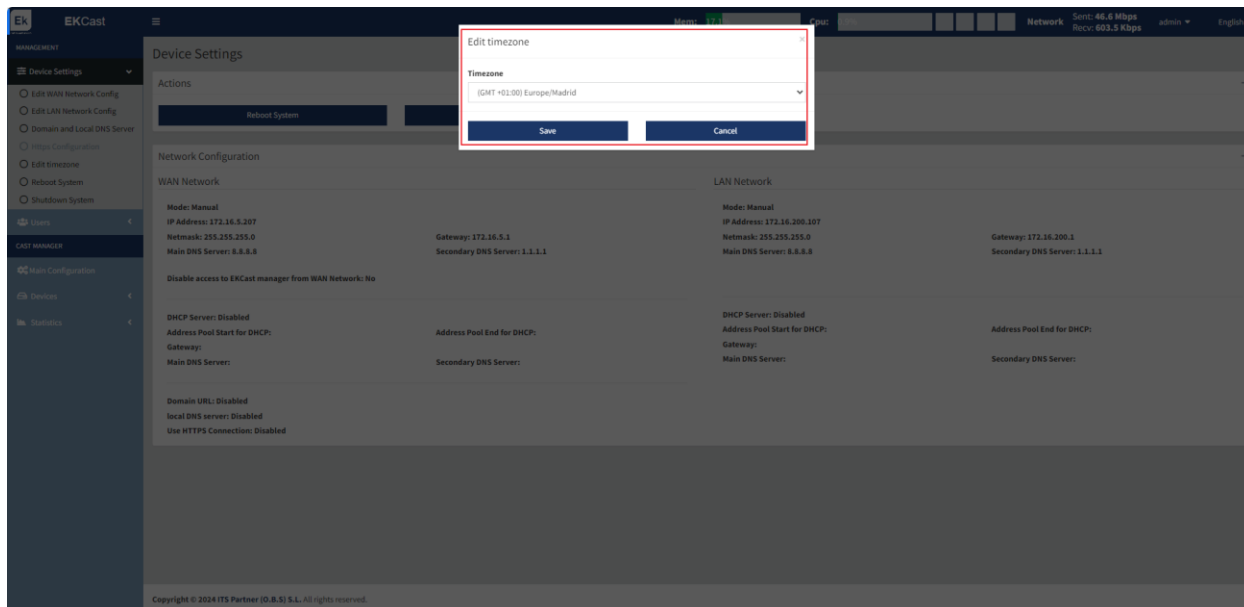

1.   **Https Disabled:** if it is selected, HTTPS is disabled, and no additional configuration is required.

2.   **Signed certificate:** if it is selected, a private key file and a certificate file must be selected in order to HTTPS works properly.

3.   **Certificate signed with Letsencrypt:** if it is selected, a Letsencrypt certificate (https://letsencrypt.org/) will be generated pressing the Generate Certificate button; a management email must be provided in order to generate the Letsencrypt certificate.

When Signed certificate or Certificate signed with Letsencrypt are selected, it is needed to set two NAT entries for port 443 and port 80 in the router which provides Internet connection in order to have remote access to the EK CAST through both ports.

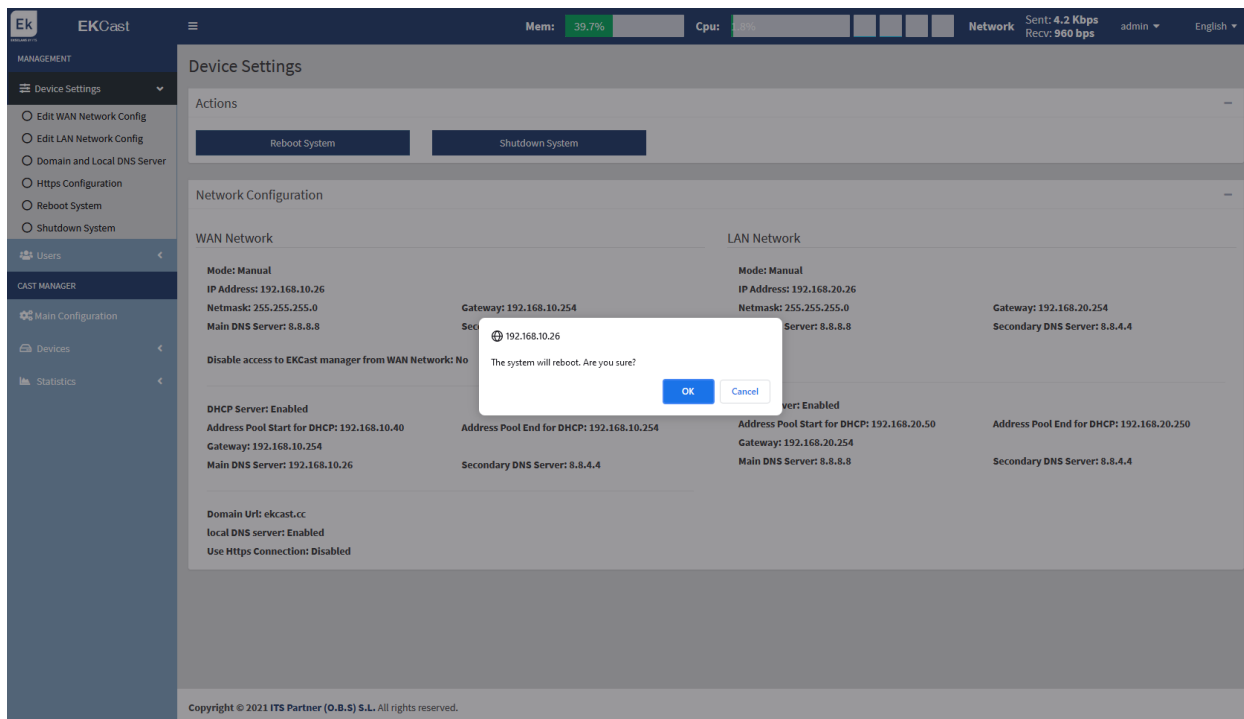Once configured all the parameters, press Save button to apply the changes.

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Edit time zone.

Thanks to this option we can reconfigure the time zone of the server.

Reboot system.

It restarts the EK CAST device.

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Shutdown system.

It shutdowns the device in gracefully way. This is the right way to switch off the device.

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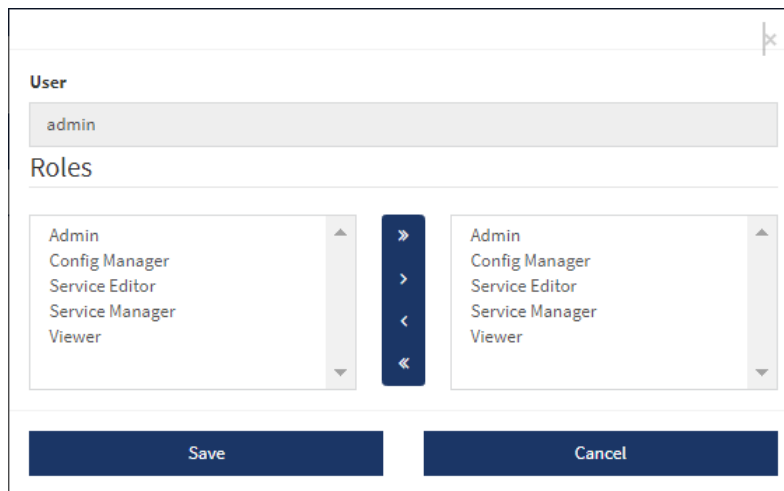Phone: +34935839543 · info@ek.plus · www.ek.plus

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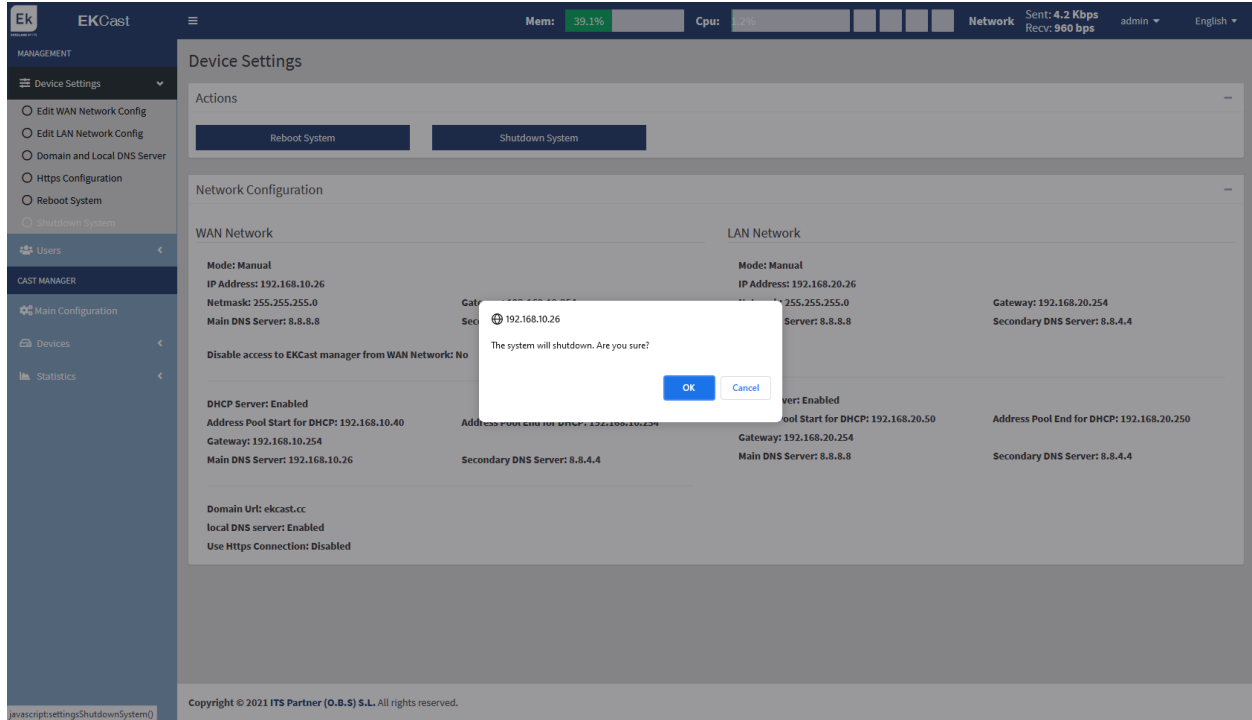
Users

This menu allows to manage the users which can access to the EK CAST manager. From this menu it is possible to create and delete them. Single and multiple selection are possible.
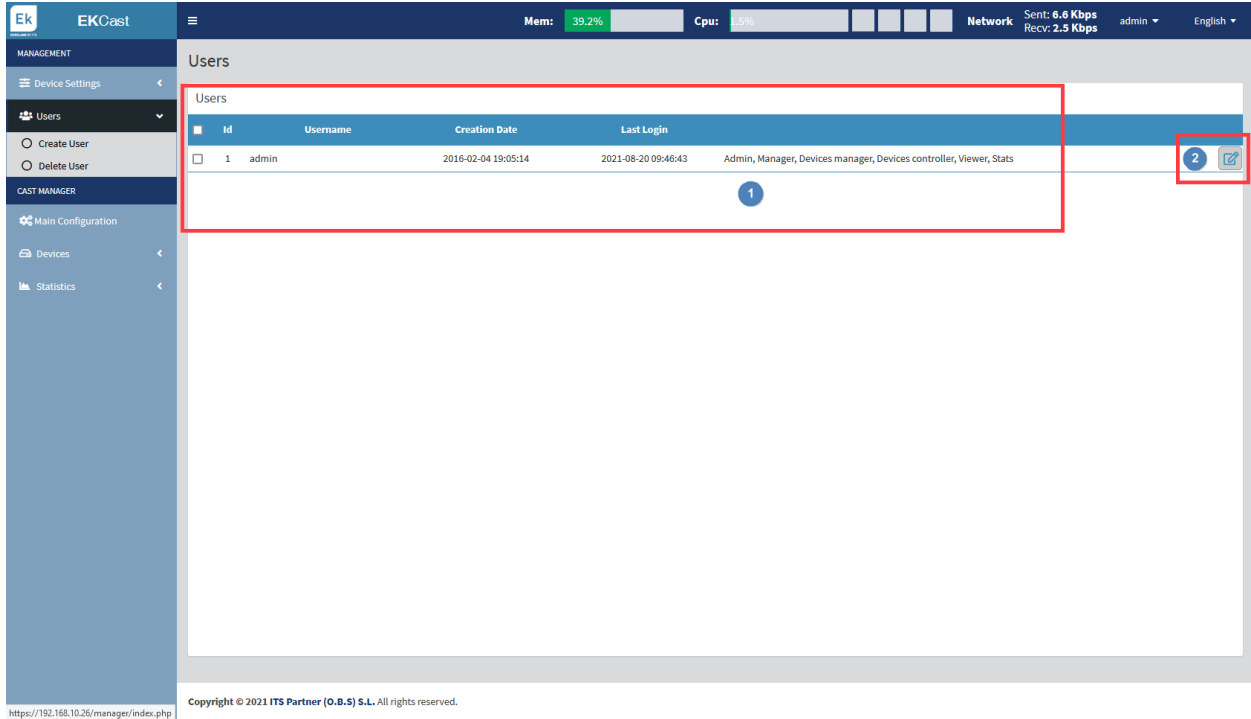

1.   Created users' information: in this area, the user creation date, the last login and the assigned permissions are shown.
2.   Edit button: it allows to edit user's permissions (roles). When this button is pressed, the following window is shown where it is possible to add permissions to the user (moving permissions from the left side to the right side using '>>' and '>' buttons) or to delete permissions to the user (moving permission from the right side to the left side using '<' and '<<' buttons).

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Create user.

It allows to create a user which could access to the EK CAST manager. It is possible to assign permissions to the new user moving them from the left side to right side pressing the '>>' and '>' buttons.
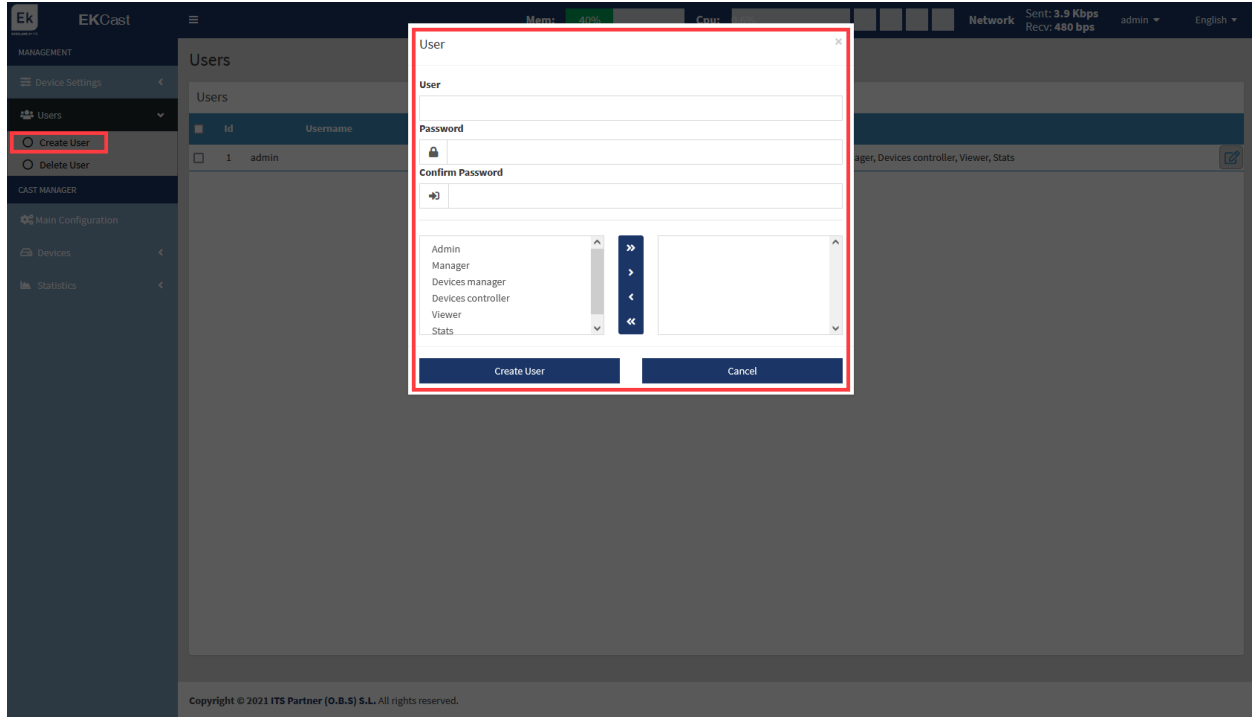
Once configured all the user parameters the "**Create User**" button should be pressed to create the new user.

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Delete user.

It allows to delete the users which are selected in the main panel.

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Cast Manager.

The following menus allow to manage and to configure the Chromecast™ devices.

Main Configuration.

From this panel, it is possible to configure the appearance of the Chromecast™ application on the televisions, for example, the widgets and banners, the tokens to be used to link the guest's devices and the Chromecast™ device.
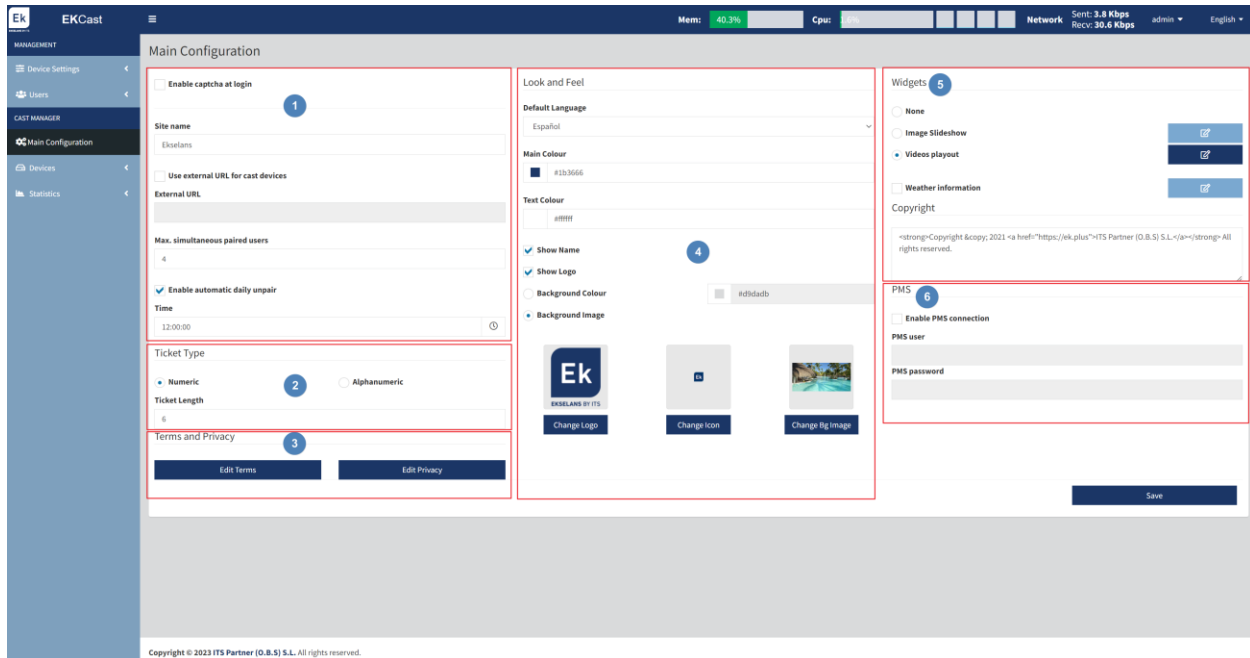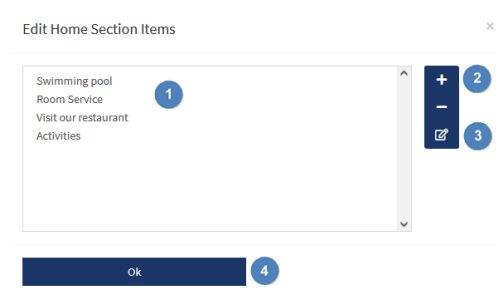

1. Main configuration.
o **Enable captcha at login:** If it is enabled, a captcha (a type of challenge–response test to increase the login security) is shown to login the EK CAST manager.
o **Site name:** name of the system in the network which will be shown on the television.
o **Use external URL for cast devices:** An external url can be assigned to perform the cast.
o **Max. Simultaneous paired users:** Maximum number of customers which can be paired linked simultaneously to each Chromecast™ device.
o **Enabled automatic daily unpair:** if it is enabled, all the guests' devices will be unlinked from the Chromecast™ devices daily at the configure time.
o **Time:** it is the time when the Chromecast devices will be unlinked form the guests' devices daily if "Enabled automatic daily unpair" option is enabled.
2. Ticket type:
o **Numeric:** if it is selected, the ticket (token) shown on the television for the pairing process with the Chromecast™ device will be numeric.
o **Alphanumeric:** if it is selected, the ticket (token) shown on the television for the pairing process with the Chromecast™ device will be alphanumeric.
3. Terms and Privacy:
o **Edit terms:** this button allows to edit the terms of use of the EK CAST service which will be shown to the guests.
o **Edit privacy:** this button allows to edit the privacy policy of the EK CAST service which will be shown to the guests.
4. Look And Feel:
o **Default language:** it allows to select the default language of the EK CAST application.

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o   **Main color:** it sets the main colour used in the front-end of the EK CAST application.

o   **Text color:** it sets the text colour used in the front-end of the EK CAST application.

o   **Show name:** if it is ticked, the configured **site name** is shown on the EK CAST application.

o   **Show Logo:** if it is ticked, the configured logo is shown on the EK CAST application.

o   **Background color:** if it is ticked, the configure colour will be used in the background of the EK CAST application shown on the television.

o   **Background image:** if it is ticked, the configure background image will be used in the background of the EK CAST application shown on the television.

5.   Widgets / Copyright:

o   **None:** No se muestra ninguna extensión.

o   **Image slider:** if it is ticked, a carrousel of images will appear on the EK CAST application shown on the television. To configure the pictures, the edit button should be pressed to show the following window:

1.   Added pictures.
2.   Buttons to add (+) or delete (-) pictures.
3.   Edit button to modify the current pictures configured.
4.   Ok button to apply the configuration.

o   **Videos Playout:** We can enable a series of images to be displayed continuously on the Chromecast™ screen:
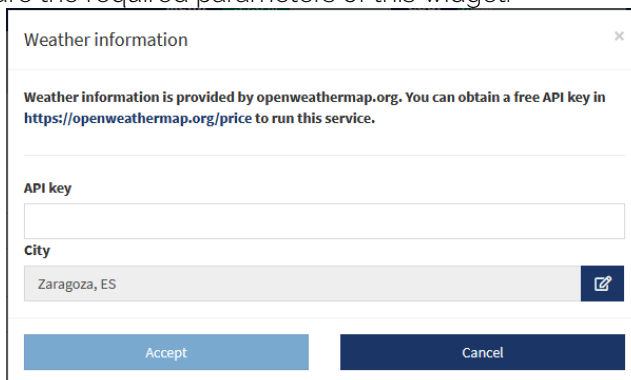

5.   Added pictures.
6.   Buttons to add (+) or delete (-) pictures.
7.   Edit button to modify the current pictures configured.
8.   Ok button to apply the configuration.

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o **Weather Information:** if it is ticked, a widget with the weather information will be shown on the EK CAST application shown on the television. If this option is enabled, it is needed to press the edit button [⧉] to configure the required parameters of this widget.

It is needed to follow the steps explained in https://openweathermap.org/price to get a free API key. This website has nothing to do with EK.

o **Copyright:** Form to edit the copyright text shown on the EK CAST application shown on the television.

6. **PMS**: We can integrate a PMS if necessary.

Once configured all the parameters of the **Main Configuration** panel, the "**Save**" button should be pressed to save the new configuration.

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Devices.

This menu allows to view all the Chromecast™ devices which are enabled in the EK CAST system. From this menu, it is also possible to manage all the Chromecast™ devices, to add or to delete them, to send messages to them and to group them.
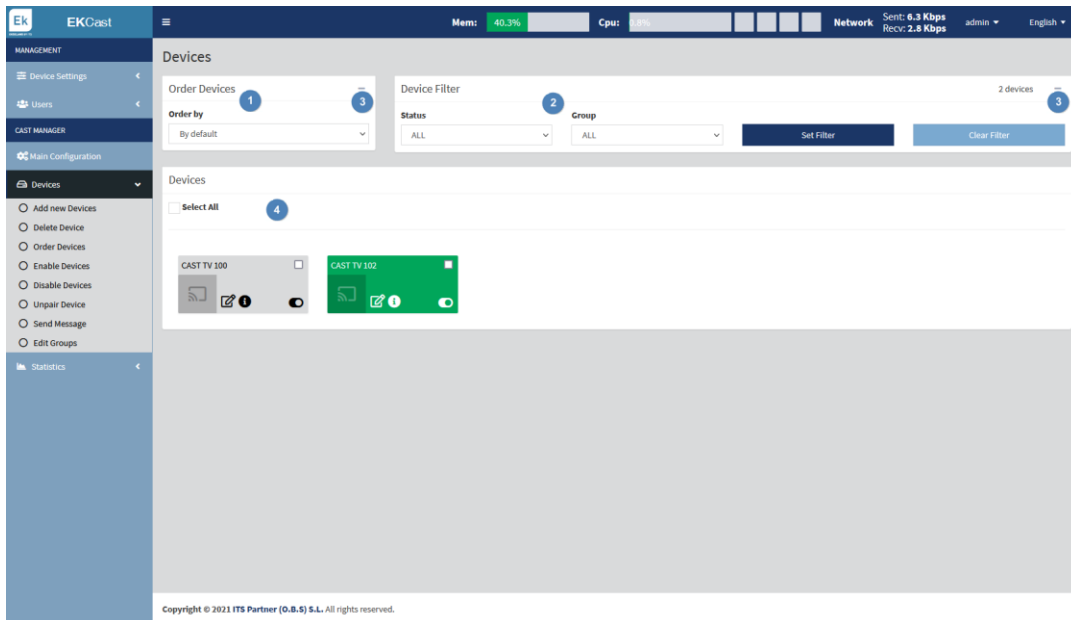
1.   **Order Devices criteria combo box:** it allows to select the sort criteria for the Chromecast™ devices shown in the device list.
2.   **Device Filter combo boxes:** it allows to select the filter to be applied to the list of Chromecast™ device below. The **Status** filter allows to select the ALL/Enabled/Disabled/Unregistered values. The **Group** filter allows to select all or any of the groups created using the menu option "**Edit groups**".
3.   **Buttons to hide (-) or to show (+):** they allow to show or to hide the "Order Devices" and the "Device Filter" panels.
4.   **Devices list:** it show all the available Chromecast™ devices and their status.
        Chromecast V3:

        Chromecast V4:
Connected by Wifi.

Wired connection.

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5.   **Edit button:** it allows to edit different parameters of the Chromecast™ device.

o   Mode:
o   Chromecast: It is the normal mode if we install an external Chromecast™.
o   TV: This mode is for TVs that have Chromecast™ built in. QR will only be displayed when the TV enters Chromecast™ mode.
o   Description: the description of the Chromecast™ device.
o   PMS identifier: Identifier needed to link if we use a PMS system.
o   MAC address: the MAC address of the Chromecast™ device.
o   Group: this combo box allows to select the group, previously created, where this Chromecast ™ device will be included.
o   Country: this combo box allows to select the country of the guests using this Chromecast™ device. This will modify the behaviour of EK CAST service in order to take into account the country of the guests.
6.   **Information button:** it shows information about the device:

7.   **Enable/disable button:** it allows to enable or disable this Chromecast™ device. These two types of status are shown as follows:
a.   Enabled: the device is shown in green colour. This means that the device is added to the system, it is detected, and it can manage casting requests.
b.   Disabled: the device is shown in red colour. This means that the device is added to the system, it is detected but it cannot manage casting requests.
c.   Enabled, but no internet outlet: In orange. This tells us that the Chromecast™ is seen on the network, but has no stable internet outlet, so it does not work properly.
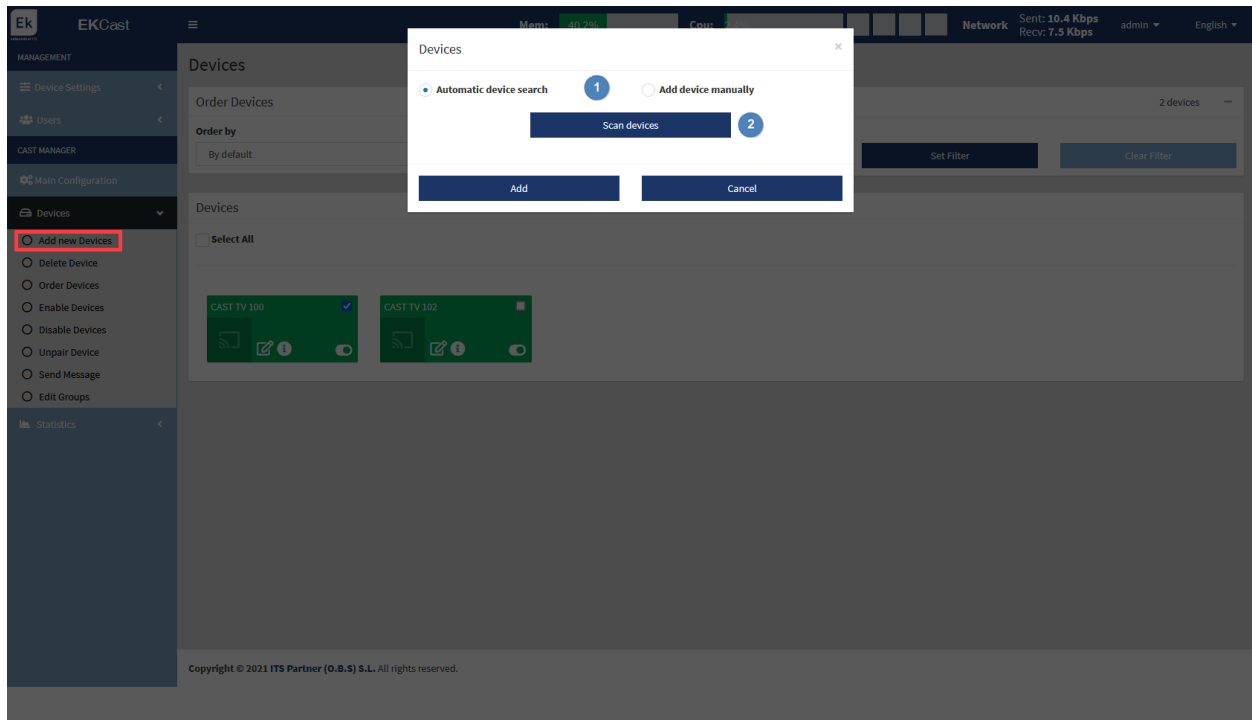8.   **Tick to mark:** this tick allows to select this Chromecast™ device to apply any action only on it, for example, to delete it.
9.   **Linked devices:** if there are guest's devices linked to this Chromecast™ device, this symbol will appear. When the mouse pointer is placed over this symbol, the number of guest's devices linked to this Chromecast™ device will be shown.
10.   **Service loaded in the Chromecast™ device:** this provides information about the application which the guest is using in the Chromecast™ device in real time.

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Add new devices.

This menu option allows to add new Chromecast™ devices to the EK CAST system.

1.   **Adding mode type**:
a.   Automatic device search: if this option is selected, as soon as the Scan devices button is pressed an automatic search of Chromecast™ device is done through the LAN port of the EK CAST. After this search, it is possible to select the Chromecast™ devices to be added to the system.
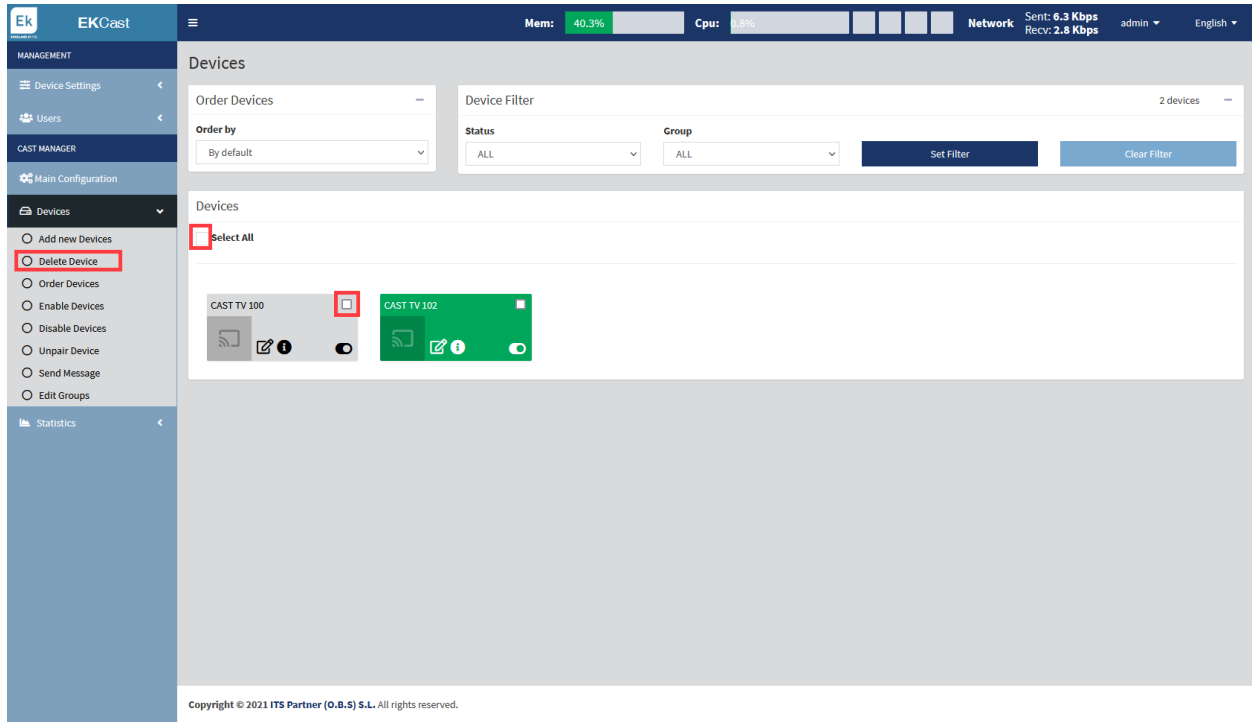b.   Add device manually: if this option is selected, one or several Chromecast™ devices can be added manually, selecting the number of devices to be added and setting a common name for all the devices. After pressing the Add button, the new Chromecast™ devices will be added to the system with the same name so it is needed to edit each Chromecast™ device to set the MAC address of each device and to set a different name for each one.
2.   **Scan devices button**: Once the **Automatic device search** option is selected, the **Scan device** button should be pressed to start the device search.

Once selected the Chromecast™ devices to be added, the Add button must be pressed.

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Delete devices.

This menu option allows to delete Chromecast™ devices from the EK CAST system.

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Order devices.

This menu option allows to sort the Chromecast™ devices in the EK CAST system, in a custom way.
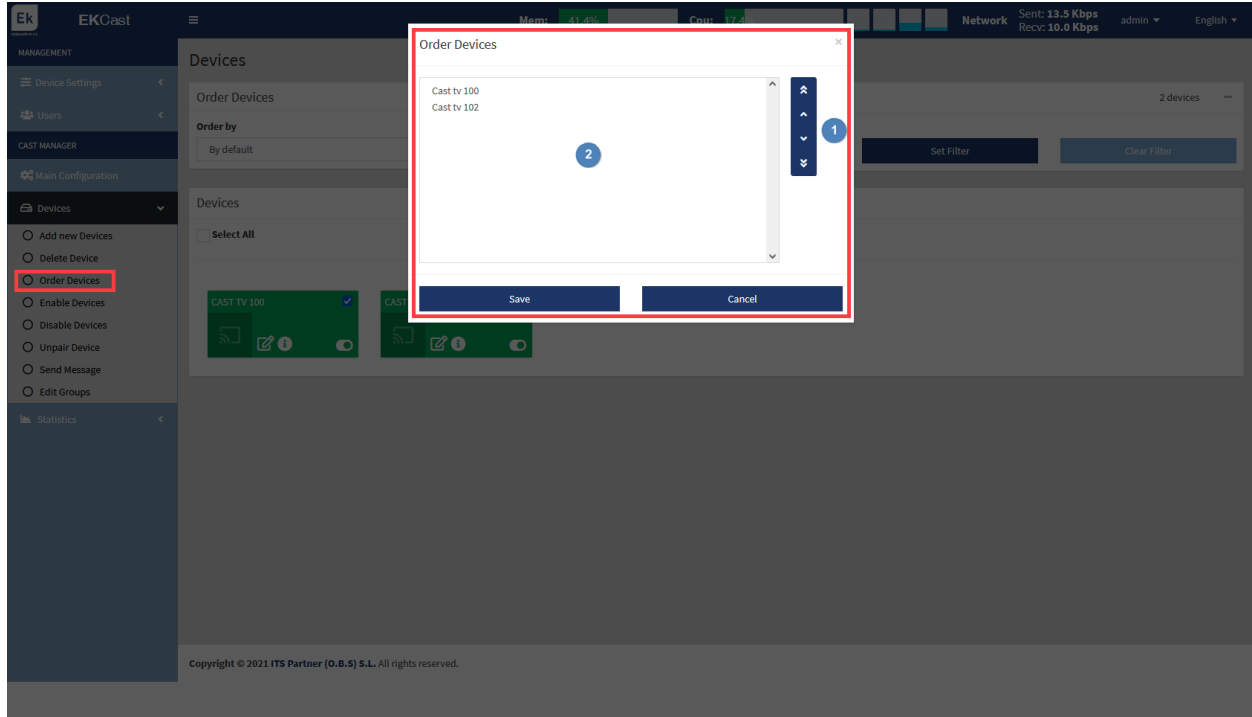

1.   **Arrow buttons to sort:** these buttons allow to modify the position of the selected Chromecast™ device.

2.   **Device list:** this is the list of Chromecast™ devices available and their current positions in the EK CAST system. If a position modification of a Chromecast™ device is required, the devices should be selected in this list before using the arrow buttons.

Once sorted the Chromecast™ devices, the Save button should be pressed.

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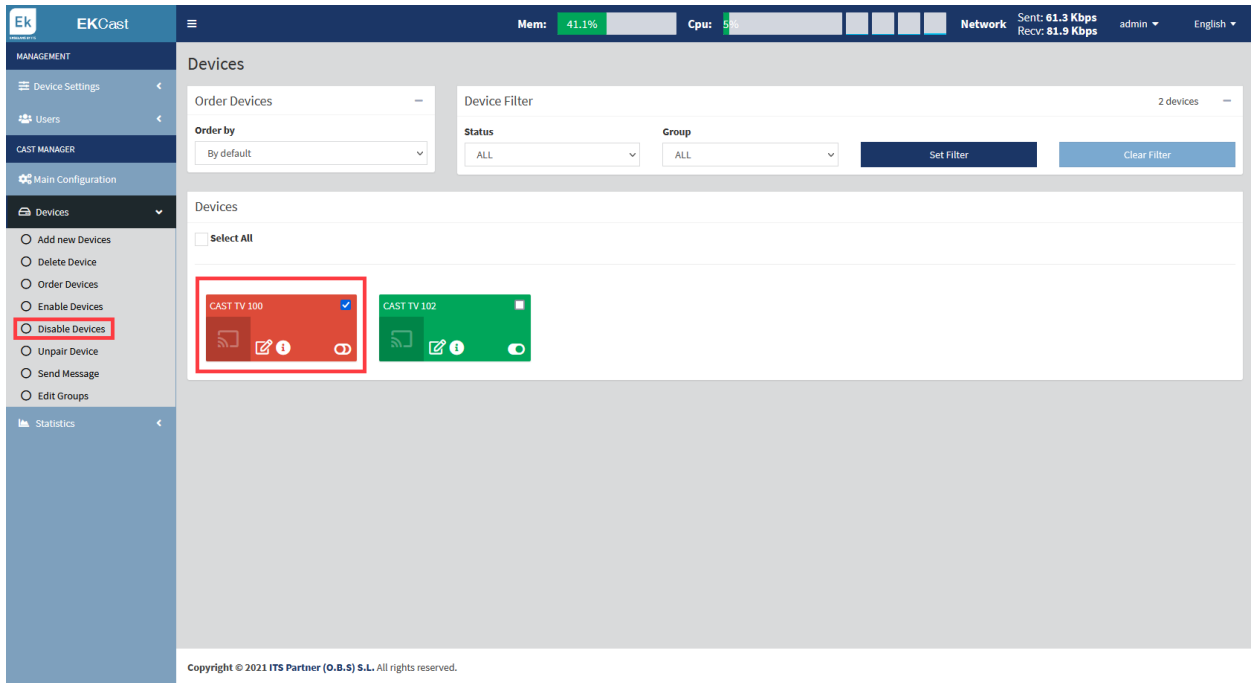Phone: +34935839543 · info@ek.plus · www.ek.plus

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Enable devices.

This menu option allows to enable Chromecast™ devices for casting. As soon the Chromecast™ devices are enabled, they get the green colour in the devices list.
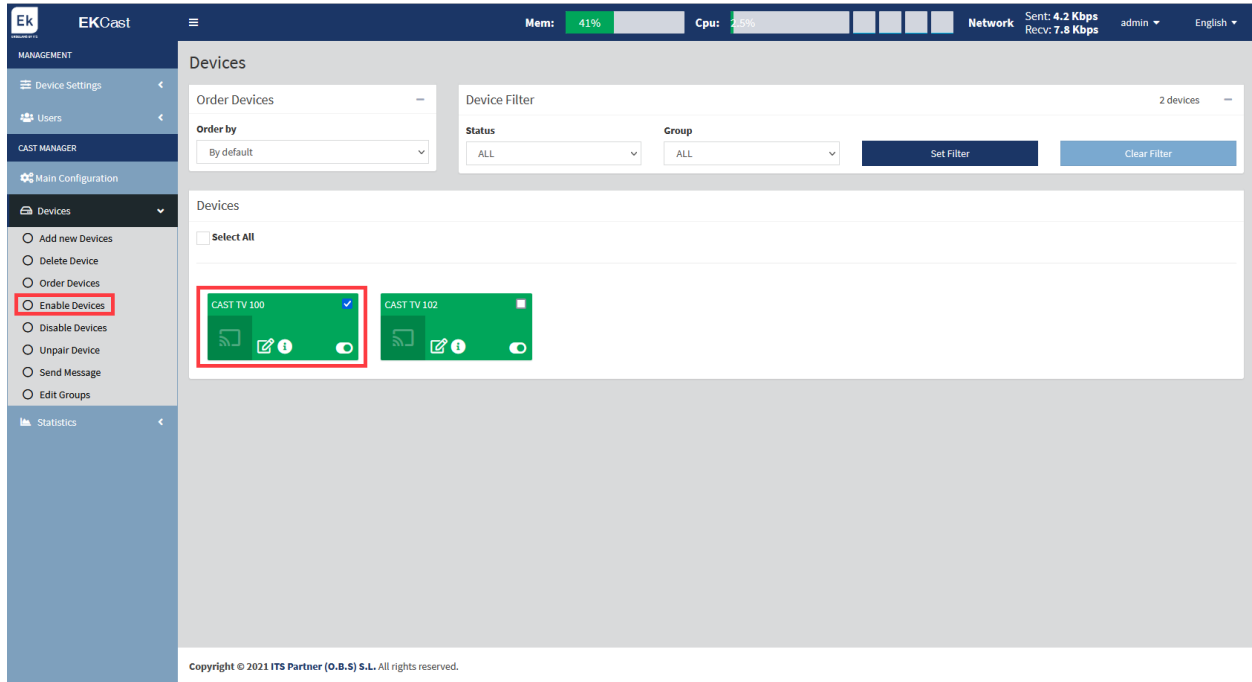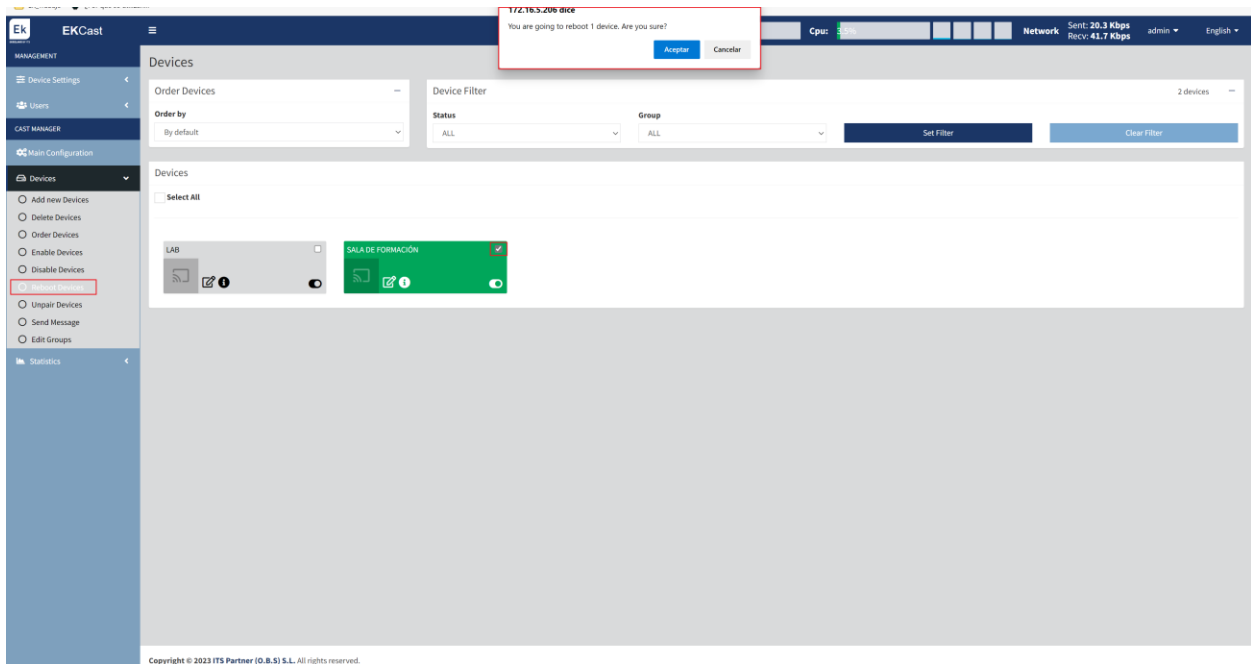

Disable devices.

This menu option allows to disable Chromecast™ devices for casting. As soon the Chromecast™ devices are disabled, they get the red colour in the devices list.

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Reboot Devices.

Allows to reboot selected devices.

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EKSELANS BY ITS
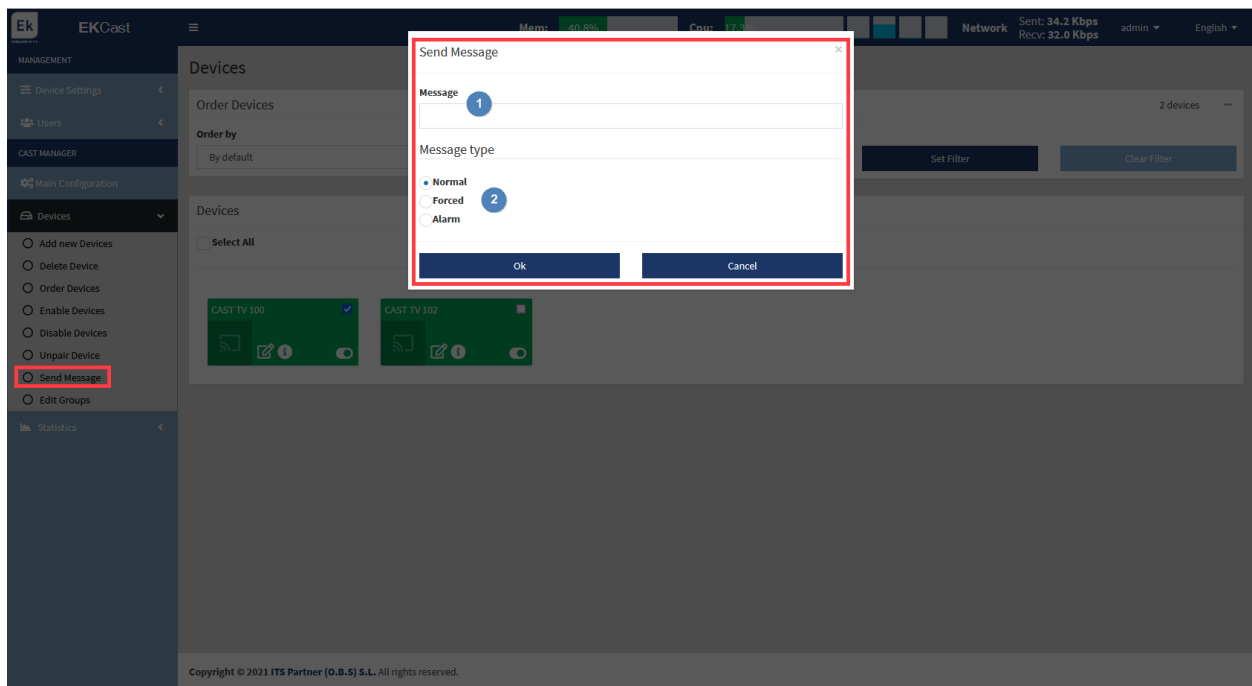
Unpair device.

This menu option allows to unlink the guest's devices currently linked to a Chromecast™ device.
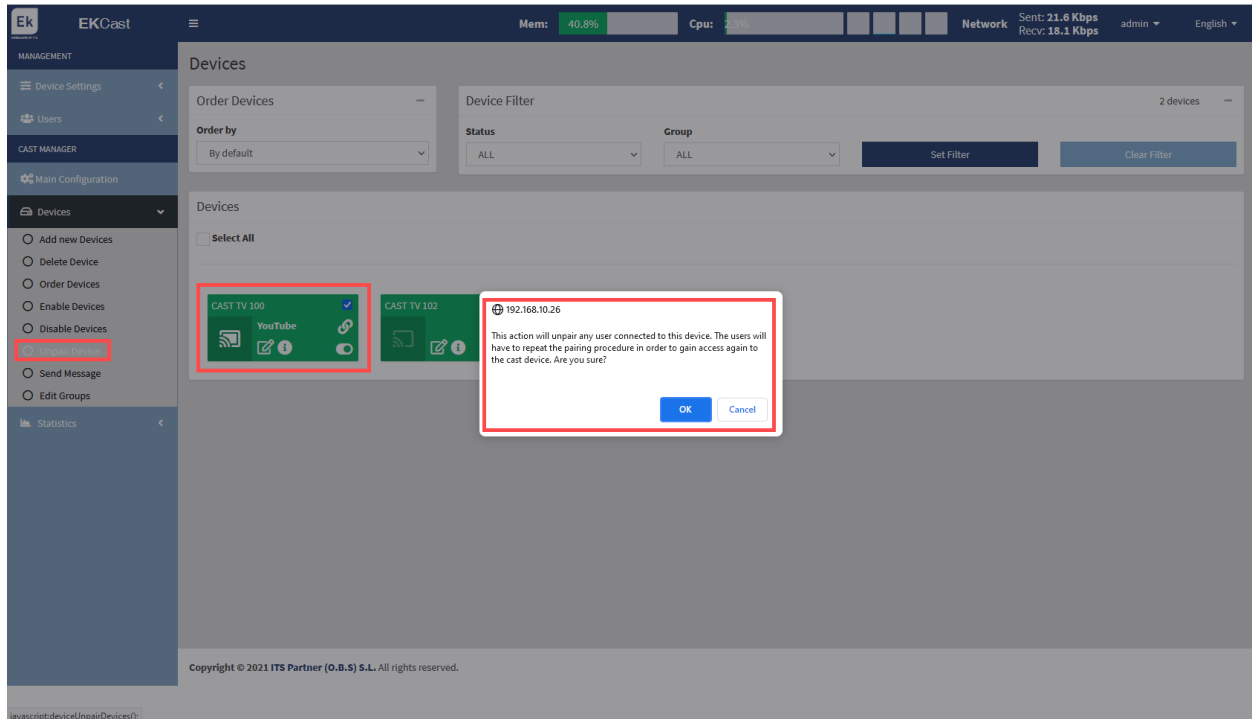
Send message.

This menu option allows to send a message to one or several Chromecast™ devices to be shown on the televisions.

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1.   **Message**: Message to be sent to the selected Chromecast™ devices.
2.   **Message type**: there are three types of messages which can be sent to the Chromecast™ devices:
a.   **Normal:** This message doesn't interrupt the casting. If the Chromecast™ device is not casting, the message will be shown on the television immediately; if the Chromecast ™ device is casting, the message will be shown on the television when the casting finishes.
b.   **Forced:** This message interrupts the casting and it is always shown immediately on the television.
c.   **Alarm:** This message interrupts the casting, it is always shown immediately on the television, and it is shown in red, blinking, simulating an emergency alarm.

The message will be sent as soon as the OK button is pressed.

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Edit groups.

This menu option allows to create groups to include the Chromecast™ devices inside.
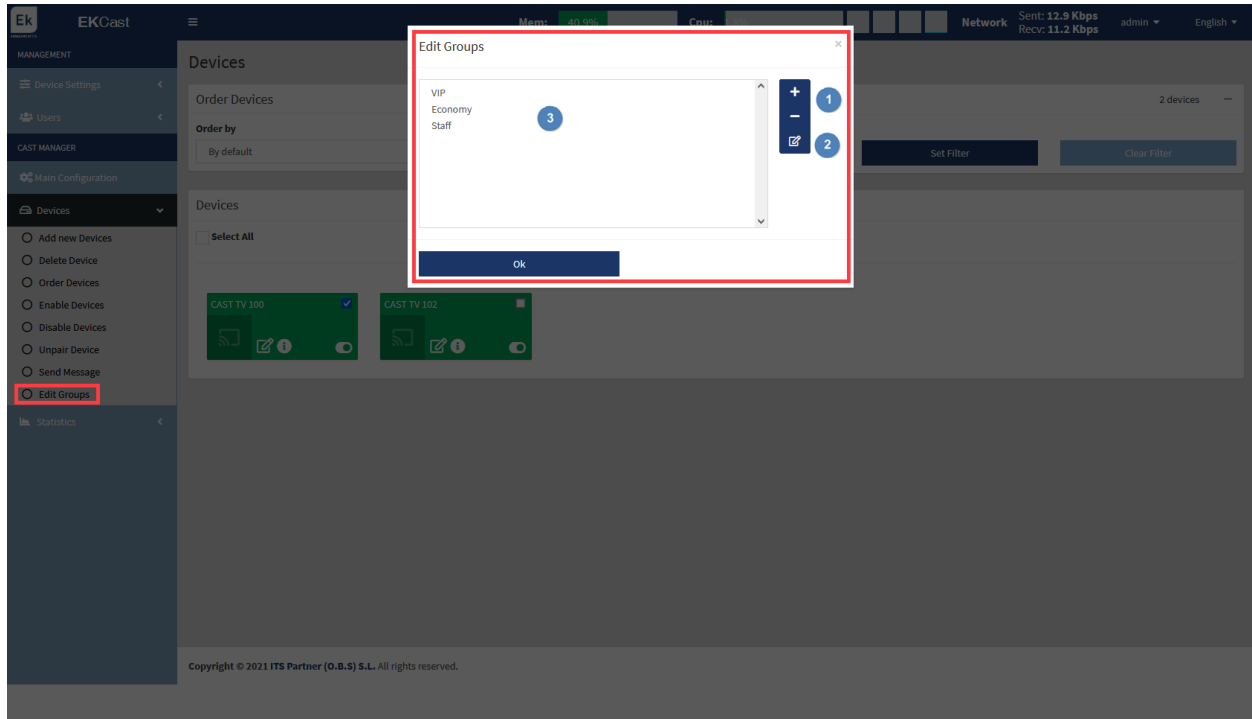
1.   **Add/Delete buttons**: they allow to add (+) or to delete (-) groups.
2.   **Edit button**: it allows to edit a created group.
3.   **Groups list**: it shows the list of groups currently available.

For example, when the '+' button is pressed the following pop-up window is shown:

1.   **Name**: Name of the group to be created.

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Statistics.

In the statics menu, it is possible to check in real time the number of connections to the Chromecast™ devices and to analyse the current applications loaded in the Chromecast™ devices.
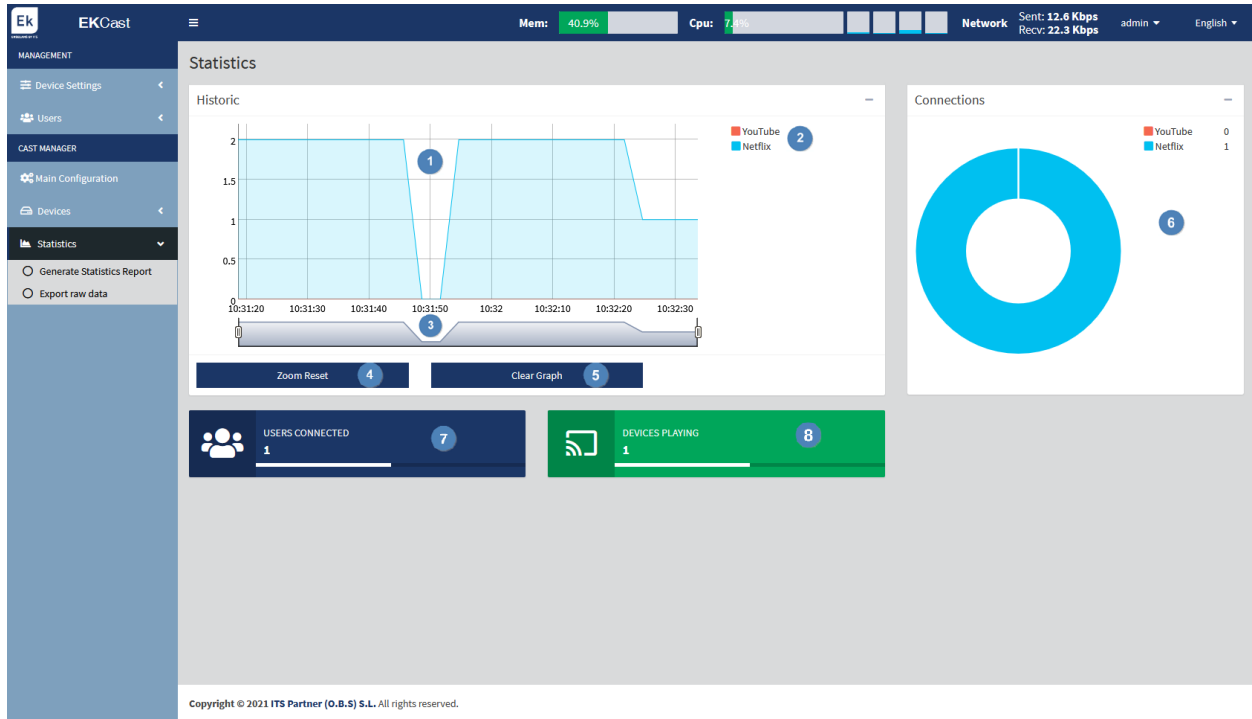
1.   **Historic**: it is a graph in real time which provides information about the number of Chromecast™ which are casting and the kind of services which are loaded in these devices.
2.   **Colour used in the historic graph for each service.**
3.   **Zoom:** it is possible to adjust the time scale of the historic graph.
4.   **Zoom Reset button:** it allows to reset the zoom done to the time scale of the historic graph.
5.   **Clear Graph:** it deletes the current graph.
6.   **Connections:** it is a connection graph which allows to see quickly the number of current connections to the Chromecast™ devices and the most popular services loaded in these devices.
7.   **Users connected:** it is the number of users connected to the Chromecast™ devices in real time.
8.   **Devices playing:** it is the number of Chromecast™ devices casting contents in real time.

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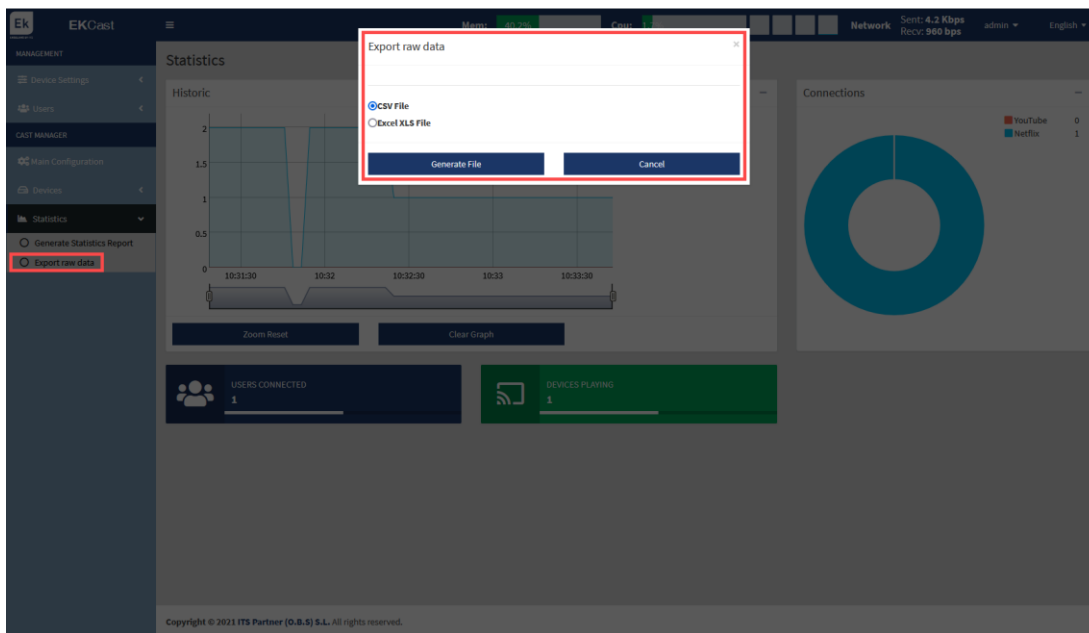
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Generate statistics report.

This menu allows to generate a statistics report in PDF format between two dates.
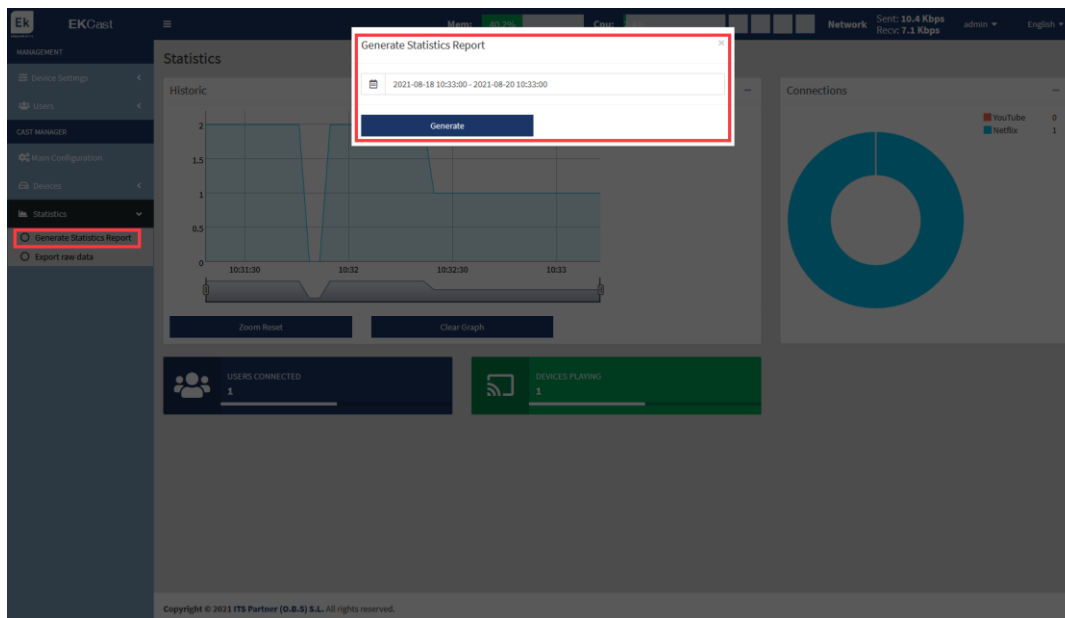
The report is automatically downloaded locally as soon as the Generate button is pressed.

Export raw data.

This menu allows to export directly the raw data stored in the EK CAST both in CSV format and Excel XLS format.

The file is downloaded locally in the selected format as soon as the Generate File button is pressed.

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FAQ.

- We don't have access to the equipment: We connect directly to the WAN port. Then we verify that we are within the IP range of the equipment, as standard it comes with **172.16.5.209 mask 255.255.255.0.** We try to ping that IP if it responds we must be able to access it through the IP **172.16.5.209:9090.**

- The most common errors that the Chromecast will show us on the screen are:
  - Chromecast V3:
    - The "Code 0 Out of Service" **screen appears**: It is necessary to do a scan using the Add new devices.In case of scanning and not appearing, the installation should be checked to detect possible connectivity problems.
    - "Out of Service Code 1" **appears on the TV screen**: The Chromecast is added but not enabled.
    - Google screen appears: Your Chromecast can't establish a network connection.
  - Chromecast V4:
    - It appears on the television screen **"Out of Service Code 0.** A scan is required using the Add new devices. In case of scanning and not appearing, the installation should be checked to detect possible connectivity problems.
    - "Out of Service Code 1" **appears on the TV screen**: The Chromecast is added but not enabled.
    - "Code 200" **appears on the TV screen**: Your Chromecast can't establish a network connection to the internet.

- We cannot cast if the Chromecast™ is in orange status: We must verify the connection of the Chromecast™ with which we want to cast, since it does not have a connection with a stable internet output.

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