

Televes®



coaxbox

Ref. 769330
Art. Nr. COAXBOX

EN CoaxBox

User's guide

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Important safety precautions

1. Read these instructions.
2. Keep these instructions.
3. Read carefully every warning.
4. Follow all the instructions.
5. Do not use this device near water.
6. Wipe the equipment with a dry cloth.
7. Do not block ventilation holes. Perform its installation following the instructions of the manufacturer.
8. Do not place the devices near any heat sources such as radiators, heat registers, stoves, or other devices (including amplifiers) that produce heat.
9. Do not pinch or step on the network cable; pay special attention to plugs, power outlets and at the point where the cords connect to the product.
10. Only use attachments/accessories specified by the manufacturer.
11. Only use forklifts, platforms, tripods, supports or tables specified by the manufacturer or sold with the device. If a forklift is used, take particular care when moving both the forklift and the devices to avoid injury from tip-over.
12. Unplug this device during electrical storms or when it is not going to be used for a long period of time.
13. Every repairation must be requested to a qualified service. Repairation must be requested when the device is damaged in any way, e.g., when the network cable or the plug are damaged, when liquid has been spilled or objects have fallen into the device, when the equipment has been exposed to rain or humidity, in case of malfunction or fall.

Warning

- To reduce fire or electrical shock hazards, do not expose the device to rain or humidity.
- The device must not be exposed to falls or water splashes. Do not place objects or containers with liquids – such as glasses – on or near the device.

How to use the equipment safely

- Use the device within the recommended power range. Power source: 196-253V~ 50/60Hz.
- If any liquid is spilled or an object falls into the device, immediately contact the technical service.
- To unplug the device from the power outlet, always pull on the plug, never on the cord.
- Do not plug the device to the power outlet until every other connection has been completed.
- The power outlet must be near the device and easily accessible.
- Unplug the device from the power outlet before opening its cover.

Safe installation

- Room temperature must not exceed 45°C (113 °F).
- Do not place the device near any heat sources or in locations with high humidity.
- Do not place the device in a location that is unstable or subject to excessive vibration.
- Place the device in a clear area to allow appropriate ventilation.
- Do not place on the device naked flames such as lit candles.

Symbols



For indoor-use only.



Equipment meeting the safety requirements specified for Class II equipment.



The present product must not be disposed of as normal household waste. It must be handed over to a designated collection point for the recycling of waste electrical and electronic equipment (WEEE).



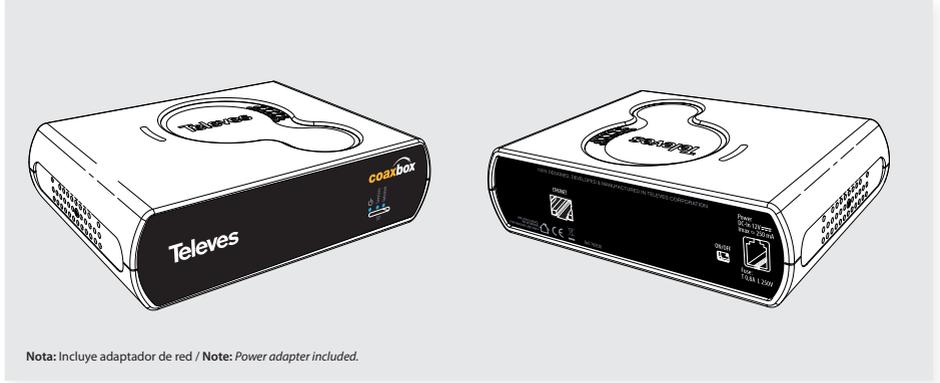
Compliant with CE marking.

2. Product overview

2.1 CoaxData CoaxBox

Ref. 769330 CoaxBox is a device fitted with software services to manage CoaxData networks.

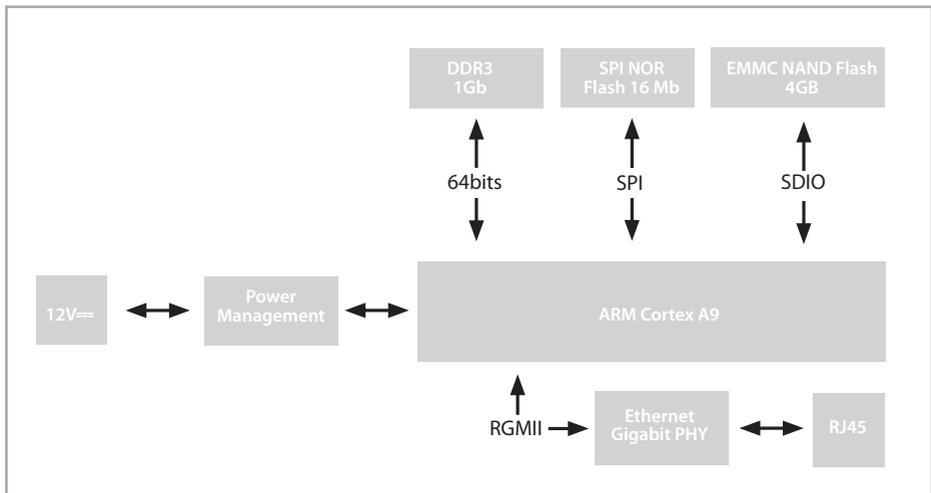
It will allow you to provision and monitor CoaxData networks in a simple and intuitive way.



Technical features

- Ref. 769330 CoaxBox is equipped with a powerful ARM iMX.6 dual-core CPU to perform monitoring and management tasks on one or several CoaxData networks.
- It includes a 000BASE-T Ethernet connector to connect the device to the installation.
- It includes an RJ9 power connector with an anchor tab to prevent incidental disconnections.

Block diagram: Main Functionalities



Main Functionalities

- Monitoring of the status of the coaxial network through the Access Control application.
- Monitoring and provisioning of 769301 devices through the CoaxProv application.
- LEDs indicating that the device has accessed the Internet successfully and that the services are being executed properly.

System Requirements

- Plug and Play. It does not require any additional software or driver.
- To use this device, a PC with Ethernet interface is required.
- Web browser compatible with HTML5. Recommended browsers are Mozilla Firefox or Google Chrome.

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2.2 Other CoaxData devices

Ref. 769330 is complemented with the CoaxData 1Gbps product range:

- Ref. 769201 CoaxData™ 1Gbps-HDTV
- Ref. 769202 CoaxData™ 1Gbps-HDTV with SFP
- Ref. 769203 CoaxData™ 1Gbps-HDTV 1xEth
- Ref. 769301 CoaxData™ 1Gbps-HDTV Coax+Wifi
- Ref. 769220 CoaxData™ Diplexer filter TV-Data 2-68 MHz/87-2150 MHz
- Ref. 769210 CoaxData™ Optical adapter SFP 1000 Base-X 2 F.O.

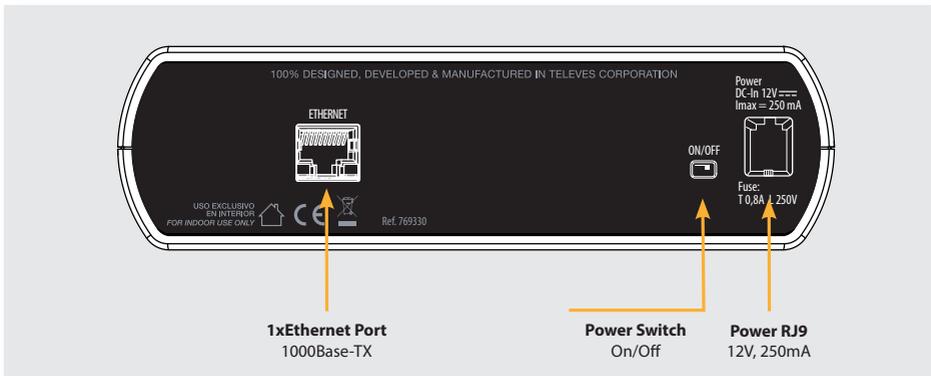
<p>Ref.769201 CoaxData™ 1Gbps HDTV</p> 	<p>Ref.769202 CoaxData™ 1Gbps HDTV con SFP</p> 	<p>Ref.769203 CoaxData™ 1Gbps HDTV 1xEth</p> 
<p>Ref.769301 CoaxData™ 1Gbps HDTV - Coax+Wifi</p> 	<p>Ref.769210 CoaxData™ SFP Module 1000 Base-X</p> 	<p>Ref.769220 CoaxData™ 1Gbps Diplexer filter TV-Data 2-68MHz/87- 2150MHz</p> 

2.3. Package contents



N°	Description
1	CoaxData CoaxBox
2	Power supply 12Vdc with RJ9 connector

3. Getting to know your CoaxBox



3.1. Device connections

1xEthernet RJ-45

A 1000BASE-T Ethernet connector to connect your CoaxBox to either a PC/laptop or to the switch of the CoaxData Master. It allows for auto-negotiation with the host to reach the maximum speed of the link. Auto-MDIX avoids the use of cross-over Ethernet cables.

RJ9 power connector

A female RJ9 connector to power the 12Vdc device. The RJ9 connector features a built-in anchor tab that prevents incidental disconnections from the power supply.

ON/OFF switch

Switch to turn on/off the device. The frontal LED indicates that the device is on and in service.

Expansion slot for SDCard

This connector allows to increase storage capacity of your CoaxBox, which is, by default, its internal 4GB eMMC. Use this slot to increase the capacity of your device or to allow updating.

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3.2. Device LEDs



Power LED

It indicates that the device is powered properly:

- **Green:** The power is on and in operation.
- **Off:** The power is off. Make sure that the switch is turned to the ON position and that the power supply is connected properly to the RJ9 connector.

Services Led

This LED indicates that the services of your CoaxBox are being executed correctly:

- **Green:** Services are being executed.
- **Off:** Management services are failing or not being executed properly.

Internet Led

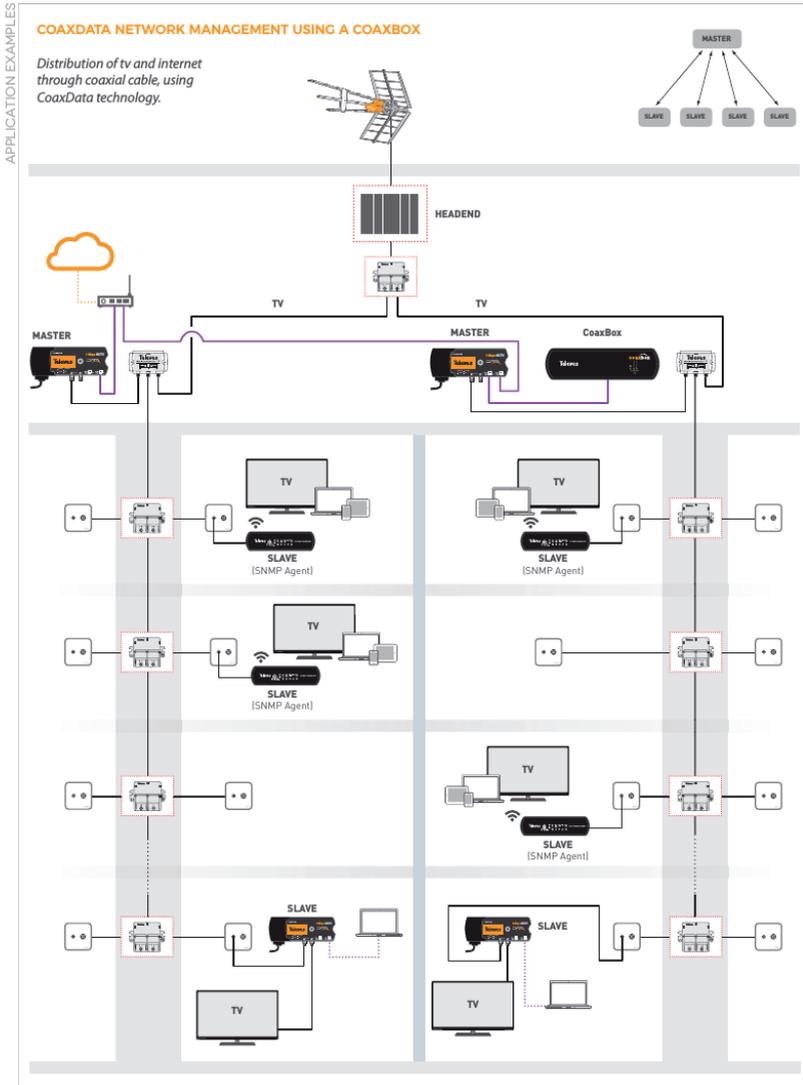
This LED shows the status of the device connection to the Internet:

- **Green:** The device has access to the Internet.
- **Off:** The device has no access to the Internet. Check all the connections of your device. If the LED is still off, check your access to the Internet by using the device supplied by your provider.

4. Installing your CoaxBox

The picture below shows an example of a CoaxBox installation in a CoaxData network. The CoaxBox is installed in the headend and is connected straight to the master of the installation. It collects reports on the devices and processes them for later description of alarm generation – via email or snmp – for the installer.

Ref. 769301 slave devices have their Snmp Agent enabled and configured to submit reports to the CoaxBox.



5. Configuring your CoaxBox

By default, the device includes an Ethernet connector with two IP interfaces:

- eth0: a DHCP client is configured in this interface.
- eth0:1: alias interface with fixed IP 169.254.1.254.

Acceso básico al producto / Basic access to the product:

Dirección IP/ IP Address: 169.254.1.254/24

Servicios/services CoaxBox:

ssh (root/76coax93Box30): root@ 169.254.1.254

Web (Admin/Televes1): http://169.254.1.254:15712

NMSLite (Admin/Televes1): http://169.254.1.254:15710

Access Control (Admin/Televes1): http://169.254.1.254:15708

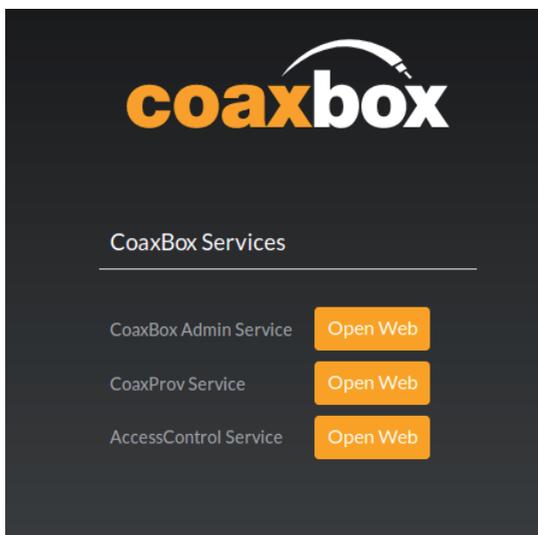
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5.1. Web CoaxBox

The device includes a Web in port 80 including all the services. By selecting one service, the web redirects the browser to the corresponding service.

Below you will find the available services:

- Management web: Device management (port 15712).
- CoaxProv: 769301 devices management (port 15710).
- AccessControl: Coaxdata devices management (port 15708).



5.2. Management Web



Use the following account to access the CoaxBox web service:

CoaxBox Management Web

Web: `http://169.254.1.254:15712`

User: Admin

Password: Televes1

5.3 Accessing the equipment via SSH

The most immediate way to access the unit is via ssh. Configure an IP of network 169.254.1.253/24 in the host and enter the following ssh command to access.

```
$ sshpass -p 76Coax93Box30 ssh -o StrictHostKeyChecking=no root@169.254.1.254  
root@coaxdataservices:~
```

Through this terminal, you can execute any command on the CoaxBox, install new packages, remove/add services or even reboot the unit.

5.4 Network interfaces configuration

If you want to replace the configuration of the eth0 interface by an interface with static IP instead of a DHCP interface.

MODULE CONFIG

NETWORK CONFIGURATION

Network Interfaces Routing and Gateways

Hostname and DNS Client Host Addresses

Apply Configuration

Click this button to activate the current boot-time interface and routing settings, as they normally would be after a reboot. **Warning** - this may make your system inaccessible via the network, and cut off access to Webmin.

Go to **Network>Network Interfaces** to display the system interfaces as shown below:

MODULE INDEX

NETWORK INTERFACES

Active Now Activated at Boot

Interfaces listed in this table will be activated when the system boots up, and will generally be active now too.

Select all Invert selection Add a new interface. Add a new bridge.

Name	Type	IPv4 address	Netmask	IPv6 address	Activate
<input type="checkbox"/> eth0	Ethernet	From DHCP	From DHCP		Yes
<input type="checkbox"/> eth0:1	Ethernet (Virtual)	169.254.1.254	255.255.255.0		Yes
lo	Loopback	No address configured	None		Yes

Select all Invert selection Add a new interface. Add a new bridge.

Delete Selected Interfaces Delete and Apply Selected Interfaces Apply Selected Interfaces

← Return to network configuration

Click on eth0, select the static configuration and then click on Save to save the interface configuration:

Boot Time Interface Parameters

Name eth0

Activate at boot? Yes No

No address configured
 From DHCP
 From BOOTP
 Static configuration

IPv4 address

IPv4 address:

Netmask:

Broadcast: Automatic

IPv6 addresses

IPv6 disabled
 From IPv6 discovery
 Static configuration

IPv6 address:

Netmask:

MTU

Default

Virtual interfaces

1 (Add virtual interface)

Hardware address

Default

Save Delete and Apply **Delete**

In Network Interfaces menu, select eth0 interface and click on Apply Selected Interfaces to apply the configuration previously saved:

Welcome, Admin
Televes

coaxbox
Logs Refresh Admin

- Webmin
- System
- Servers
- Others
- Networking**
- Network Configuration
- Hardware

MODULE INDEX

NETWORK INTERFACES

Active Now: Activated at Boot

Interfaces listed in this table will be activated when the system boots up, and will generally be active now too.

Select all | Invert selection | Add a new interface. | Add a new bridge.

Name	Type	IPv4 address	Netmask	IPv6 address	Activate
<input checked="" type="checkbox"/> eth0	Ethernet	From DHCP	From DHCP		Yes
<input type="checkbox"/> eth0:1	Ethernet (Virtual)	169.254.1.254	255.255.255.0		Yes
<input type="checkbox"/> lo	Loopback	No address configured	None		Yes

Select all | Invert selection | Add a new interface. | Add a new bridge.

Delete Selected Interfaces
Delete and Apply Selected Interfaces
Apply Selected Interfaces

[← Return to network configuration](#)

5.5 Security warnings

The device needs to be installed in an area that the installer considers safe in order to avoid possible remote attacks, since it does not have any safety mechanism in its initial status.

- The firewall is not enabled.
- Account root/76Coax93Box30 to access the device is public, like this manual. Take this into account when installing CoaxBox in your network. It is highly recommended to change it for security reasons.
- The user account to access the device is Admin/Televes1 and is public, like this manual. Take this into account when installing CoaxBox in your network. It is highly recommended to change it for security reasons.

5.6 Operation warnings

Please consider the following notes when executing CoaxBox services:

- The maximum number of reports that the CoaxProv can process on the CoaxBox is 600 reports/minute.
- If you install several CoaxBox in a CoaxData network, you can only execute one CoaxData AccessControl in each broadcast domain. Configure one of the CoaxBox to perform AccessControl.

5.7 Managing user accounts

If you want to change the system passwords for security reasons, go to **System > Change Passwords**.

MODULE CONFIG

CHANGE PASSWORDS

SELECT A USER TO CHANGE HIS OR HER PASSWORD

root	daemon	bin	sys
sync	games	man	lp
mail	news	uucp	proxy
www-data	backup	list	irc
gnats	nobody	ntp	sshd
messagebus	zabbix	mysql	Admin

Select the user you want to have its password changed:

MODULE INDEX

CHANGE PASSWORD

Changing Unix user password

Changing password for root (root)

New password

New password (again)

Force user to change password at next login?

Change password in other modules?

[← Return to user list](#)

6. CoaxBox Services

Your CoaxBox includes a series of CoaxData software services:

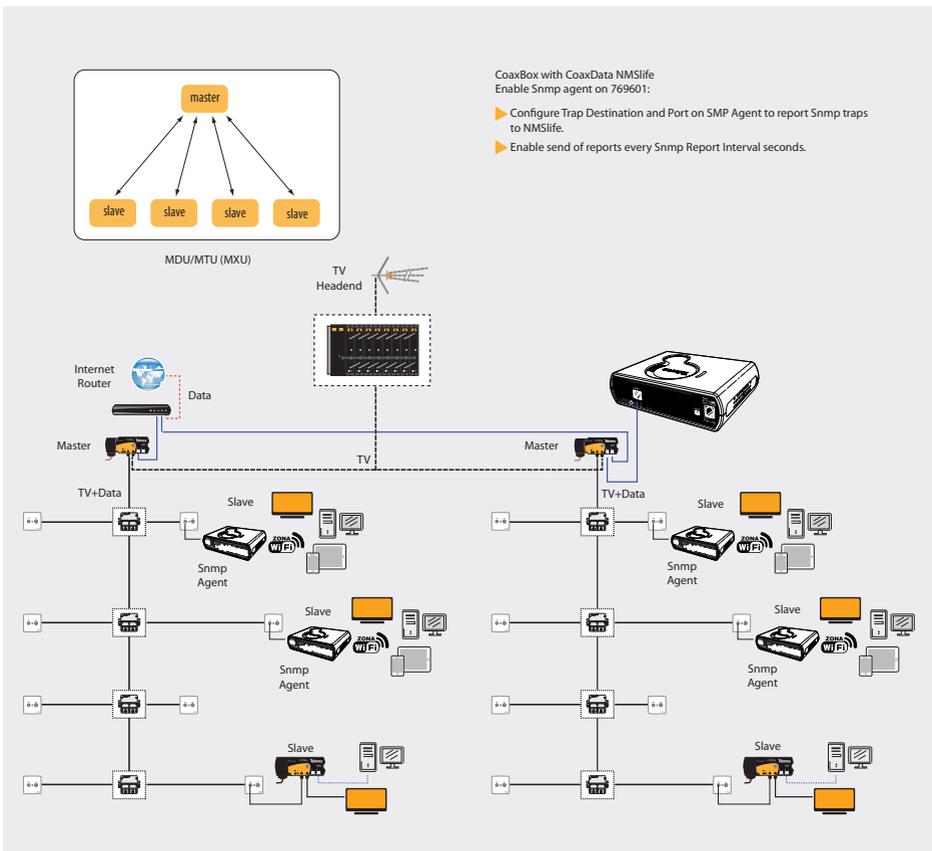
- CoaxProv: Application to control ref. 769301.
- CoaxData Access Control: Application to control CoaxData modems.

7. CoaxProv

CoaxProv™ is a tool designed to manage ref. 769301 devices. Thanks to CoaxProv™, you can provision and monitor 769301 devices in a simple and intuitive way, and check the network status. You can also check the status of both the coaxial Wi-Fi networks, as well as generate alarms when failure has been detected.

This application is specially designed for equipment manufacturers and network operators that need to manage CoaxData devices remotely and check the network status in real time.

Installation scheme



Main features of CoaxProv™

- Update of firmware and configuration of ref. 769301 devices.
- Supports massive operations to update firmware or the configuration of multiple devices.
- Embedded TFTP server for device provisioning through DHCP protocol with options 66 and 67.
- Discovery of 769301 local devices through LLDP protocol.
- Discovery of remote devices through scanning IP.
- Configuration of devices to submit reports to CoaxProv and storage them in an internal database.
- Monitoring of the device resources such as interfaces, CPU, memory and disk.
- Monitoring of coaxial links and provisioning of information on the coaxial rate, noise level and attenuation.
- Monitoring of Wi-Fi links and provisioning of information on the stations connected to the VAP and their status.
- Creation of graphics including all the information collected by the devices.
- Generation of alarms for when the device stops sending reports to CoaxProv or when it cannot obtain the configuration of the device. Follow-up of the device activity including generated events.
- Sending e-mail or SNMP traps allowing to propagate alerts to the operator's management system. An alarm filter is available to make sure that only specific alarms are propagated to the external monitoring system.
- Groups of devices. Device grouping creates shorter lists of devices so it is easier to follow them up and finding them. This is very useful for networks with a great number of devices. Groups are usually created based on the floor of a building or the name of their location..

* **It is not recommended that the number of reports exceeds 600 reports/minute:** If this quantity is exceeded for your monitoring needs, it is recommended that a number of CoaxBox devices are installed in your network and that the management network is segmented.

** **Calculate how much storage you need or use an external microSD:** The 769330 is fitted with an internal 4GB eMMC. Depending on the number of reports/minute and how long the reports are kept in the system, maximum storage might be exceeded. If your storage needs are superior to the device capacity, the CoaxProv will detect it, send an alarm and delete the oldest reports.

If you want to use an external microSD, insert the card in the expansion slot and reboot the system. The database will be automatically stored in the SD when it starts.

The microSD card must have only one partition with **ext4** file system.

7.1 CoaxProx Web interface

First, configure CoaxProv using Web port 15710.

Open the explorer on port 15710: `http://<CoaxBox_IP>:15710`

Use the following account:

- User: Admin
- Password: Televes1

Identificación requerida

http://192.168.254.117:15710 solicita su nombre de usuario y contraseña. El sitio dice: "restricted area, WARNING!!"

Nombre de usuario:

Contraseña:

7.2 Calculating storage capacity

An important parameter when using the application is the calculation of the required storage capacity. The 769330 is equipped with an internal 4GB eMMC. If the available storage is full, CoaxProv triggers an alarm and deletes the oldest records.

Capacity is monitored by the configuration parameters from database Provision>Provision>Configuration>Database Configuration.

DATABASE CONFIGURATION

Device Database Configuration. Changes Maximum device database storage size on disk, Display Interval on Charts or maximum number of events on database.

Keep Records For Last	<input style="width: 50px;" type="text" value="24 hours"/>	<p>How long database stores device info (by default 24 hours) This value indicates how many time device registers are kept on database and controls database storage disk usage (1KB per device report). Use with Caution!! 200 devices reporting every minute uses 200 MB per day.</p>
Chart Display Interval	<input style="width: 50px;" type="text" value="1 hour"/>	<p>Interval range to display values on charts (default 1 hour) High display ranges causes javascript engine on Web Browser takes long time to create charts.</p>
Max. Events	<input style="width: 50px;" type="text" value="5000"/>	Maximum Number of events stored on database.
Unprocessed Reports Threshold	<input style="width: 50px;" type="text" value="400"/>	<p>Unprocessed devices reports Threshold. When NMSLite cannot process all received device reports sends event named TLV_EXCEEDS.To solve, increase this threshold value, change report interval on devices or segment management system and install more nmslite applications on installation and configure devices to send reports to several nmslites.</p>

Repair NMSLite Database. Delete all records and restart services again

As you can see in the picture above, the records are kept for 24 hours. Each report takes up to 1KByte/report in the database. Therefore, if our system comprises 600 devices sending a report every minute, they storage capacity per day will be:

$$1\text{KB/report} \times 600 \text{ reports/minute} \times 60 \text{ min/hour} \times 24 \text{ hours} = 864000 \text{ KB} = 864\text{MB/day}$$

If we change the report conservation time (Keep Records For Last) from 24 hours to 1 week, storage requirements will be:

864MBx7días=6,04GB

Storage required is 6GB, which exceeds internal capacity: 4GB.

If you want to expand your device storage, insert an external microSD in the expansion lot of the device. The microSD must have only one partition with ext4 file system.

Reboot the system using the Management Web in port 15712: System>Boot And Shutdown>Reboot System. On boot, the system will detect a microSD and will install the same database as the one in the EMMC, without compromising any information.

7.3 Installing/Starting the service

By default, CoaxProv starts as the unit does. This service can be configured via the interface of Web Management in port 15712.

Go to options in System > Bootup And Shutdown, select service “provisioning” and perform the corresponding actions:

<input checked="" type="checkbox"/>	provisioning	Yes	
<input type="checkbox"/>	rc.local	Yes	Run /etc/rc.local if it exist
<input type="checkbox"/>	rc_gpu.S	No	
<input type="checkbox"/>	rc_mxc.S	No	
<input type="checkbox"/>	run-postinsts	No	
<input type="checkbox"/>	sgw_t_coaxbox_ledsd	Yes	
<input type="checkbox"/>	snmpd	Yes	
<input type="checkbox"/>	sshd	Yes	
<input type="checkbox"/>	xinetd	Yes	

Create a new bootup and shutdown action.

Start

Stop

Restart

Start On Boot

Disable On Boot

Start Now and On Boot

Disable Now and On Boot

- **Start/Stop/Restart:** To start/stop the service.
- **Start on Boot:** To start the service on boot.
- **Disable On Boot:** To disable the service on boot.
- **Start Now and On Boot:** To start the service on boot and now.
- **Stop Now and On Boot:** To stop the service on boot and now.

The same task can be performed via an SSH connection. Below, you will find the configuration commands of these services:

```
# To start the service
root@coaxdataservices:~# /etc/init.d/provisioning start

# To stop the service
root@coaxdataservices:~# /etc/init.d/provisioning stop

# To install the service (it will start when CoaxBox boots)
root@coaxdataservices:~# update-rc.d provisioning defaults 50 20

# To remove the service (it will not start when CoaxBox boots)
root@coaxdataservices:~# update-rc.d -f provisioning remove
```

7.4 Documentation

This application has documentation from both the Web interface and Snmp agent of 769301. Check you CoaxData documentation or contact the technical department at Televes to obtain those manuals.

DOCUMENTATION		
Document	Language	Description
CoaxProv_User_Guide_003_ES	SPANISH	Manual CoaxProv
CoaxProv_User_Guide_003_EN	ENGLISH	Manual CoaxProv (EN)
DoC-AN_CoaxData_ref769301_Snmp_Support_002_ES	SPANISH	Ref.769301 Snmp Agent
DoC-AN_CoaxData_ref769301_Snmp_Support_002_EN	ENGLISH	Ref.769301 Snmp Agent (EN)

8. CoaxData AccessControl

CoaxAccessControl™ allows the installer to configure CoaxData™ devices in a simple and intuitive way. It sets different access parameters of a device and also checks the status of both the installation and the links between devices.

8.1 Features

It configures the access mode of the 1Gbps CoaxData coaxial modems – so that the access to a device can be enabled/disabled – and sets access parameters such as the bandwidth and the users limit per modem.

It checks the installation status by determining the rate among the links of the devices.

Alarms are triggered to warn the user about any incident in the system, such as the loss or bad quality of a device link, as well as the current's network status by implementing an SNMP agent.

The system can be configured through the SNMP protocol or by means of a simple Web interface aimed

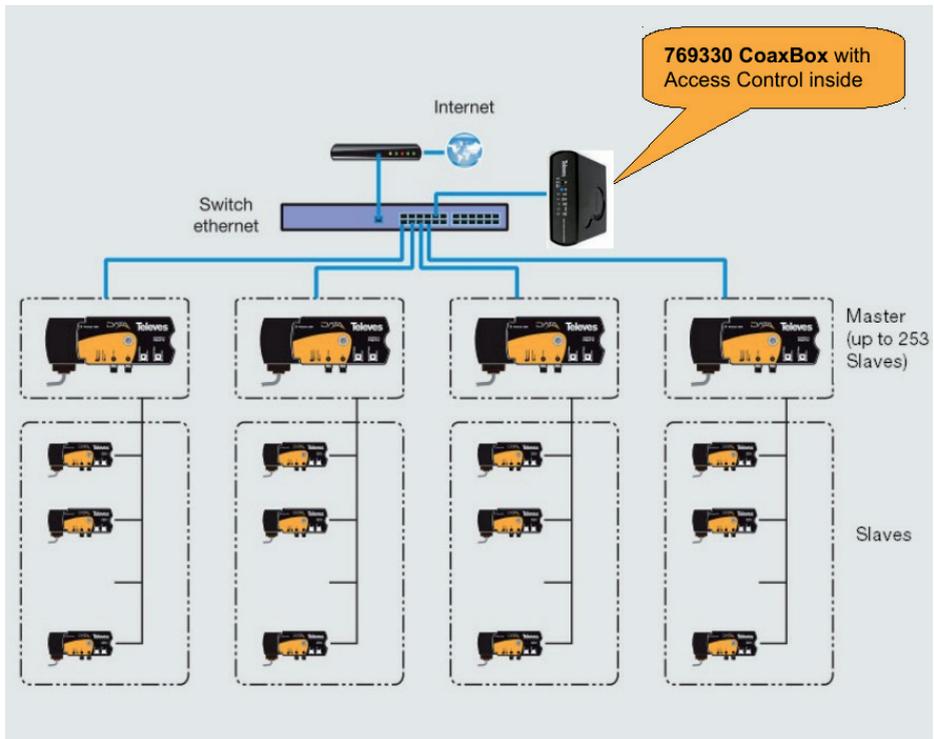
at users with no technical skills on this protocol. Full MIB specifications are provided to define every SNMP object implemented by the SNMP agent.

It generates e-mails allowing for ongoing monitoring of the system and warns about important incidents both in the management system and in the devices.

Thanks to the CoaxAccessControl™ application, the installer can configure CoaxData™ devices in a simple and intuitive way. It sets different access parameters of a device and also checks the status of both the installation and the links between devices.

* **Please note that no more than one CoaxData AccessControl application must exist in the same network segment.** There can be only one AccessControl application in a broadcast domain. Depending on the features of your network, you might need to segment monitoring and install several CoaxBox devices in your installation. Please note that only one CoaxBox can enable the access control.

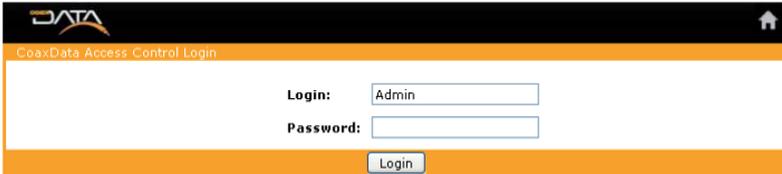
8.2 Installation scheme



8.3 Web interface

The first step to be taken by the installer is configuring the access control system by indicating the operation parameters. This step is performed through a Web port.

- Open your browser and enter: `http://<CoaxBox_IP>:15708`



- Use the following account to access.

User: Admin

Password: Televes1

8.4 Installing/Starting the service

By default, CoaxBox starts the AccessControl service at boot.

Configure the service on the management web of your CoaxBox. On System>Bootup And Shutdown, select `coaxdataaccesscontrol`.

Action	At boot?	Description
<input type="checkbox"/> alignment.sh	No	
<input type="checkbox"/> apache2	Yes	The Apache HTTP Server is an extensible server
<input type="checkbox"/> busybox-cron	No	
<input checked="" type="checkbox"/> coaxdataaccesscontrol	Yes	
<input type="checkbox"/> crond	Yes	cron is a standard UNIX program that runs user-specified
<input type="checkbox"/> dbus-1	Yes	D-Bus is a simple interprocess messaging system, used

*** Please note that several CoaxData AccessControl applications must not exist in the same network segment.** If several AccessControl applications are being executed in the same network segment, use the options shown above to disable such service.

You can also configure manually the service through an SSH terminal.

```
# To start the service
root@coaxdataservices:~# /etc/init.d/coaxdataaccesscontrol start

# To stop the service
root@coaxdataservices:~# /etc/init.d/coaxdataaccesscontrol stop

# To install the service (it will start when the CoaxBox starts)
root@coaxdataservices:~# update-rc.d coaxdataaccesscontrol defaults 50 20

# To remove the service (it will not start when the CoaxBox starts)
root@coaxdataservices:~# update-rc.d -f coaxdataaccesscontrol remove
```

8.5 Documentation

The documentation of this application includes information about both the web interface and the Snmp agent. Check your CoaxData documentation or contact Televes to get these manuals.

DOCUMENTATION		
Document	Language	Descripción
AccessControl-Manual_Web_001-ES	SPANISH	Access Control Manual Web
AccessControl-Manual_Web_001-EN	ENGLISH	Access Control Manual Web (EN)
AccessControl-Manual_Snmp_Agent_001-ES	SPANISH	Access Control Manual Snmp
AccessControl-Manual_Snmp_Agent_001-EN	ENGLISH	Access Control Manual Snmp(EN)

EN

9. CoaxBox Specifications

CPU	Processor	Cortex A9 dual Core (i.MX6 DualLite)
Memories	DDR	1GByte DDR3
	eMMC	4GBytes eMMC (solid-state drive)
	Flash	16MBytes NOR SPI (Boot)
Interfaces	Power	RJ9 12V DC
	Ethernet	RJ45 10/100/1000 Base-T Ethernet. Autocrossover
	Micro SD Slot	Micro SD connector
Leds	LED	On LED
	LED	Internet connection LED
	LED	Services LED
Services		CoaxProv™ CoaxData AccessControl™
Regulation	UNE	UNE-EN 60950-1:2007/AC:2012: product safety UNE-EN 55022:2008 radio disturbances UNE-EN 55024:2011 immunity requirements
Access Account	IP address	169.254.1.254
	Root account (SSH)	User:Root Password: 76Coax93Box30
	Admin account (Web)	User: Admin Password: Televes1
OS	Linux	Kernel Linux 3.10.53 or higher
Power	Adapter	108 - 254V~ 50/60Hz /// 12Vdc - 0.7A
	CoaxBox	12V – 250mA, 3W
Temp. Range		-5 ... +45 °C
Dimensions		165 x 120 x 48 mm
Weight		475 g

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