VXT1836
Wireless Video Extender Kit
User Guide

Version 6.55

Table of Contents

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device is going to be operated in 5.15~5.25GHz frequency range, it is restricted in indoor environment only.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

IMPORTANT NOTE:
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Preface

Welcome to the VXT1836 Wireless Video Extender solution from Celeno Communications. The User's Guide will help you to understand the Wireless Video Extender (VXT) solution, how to install it, configure it and troubleshoot problems.

Who should use this guide

This User's Guide assumes that the reader has basic to intermediate computer and internet skills. All the basic computer networking, Internet, and other information required to configure the home network and the devices is provided herein.

Support Information

info@celeno.com

For support inquiries, please contact our field application engineers at support@celeno.com.

Introduction

1

Celeno provides high performance Wi-Fi chips and software for HD home networking applications.

Celeno's OptimizAir™ breakthrough technology enables service providers and consumers to quickly and simply deploy wireless home networks that can securely deliver multiple streams of carrier-quality SDTV and HDTV, and any other multimedia content throughout the home. The Celeno solution is optimized toward Quality of Experience (QoE) and performance consistency in both capacity and coverage.

The Wireless Video Extender (VXT) 1836 solution is a "Celeno-Powered" multi-function unit – that can be set as an "Access Point" or as a "Station" device. Building a Wireless Video network requires two or more VXT1836 units communicating with each other - enabling distribution of high-definition video streams from one central location to a TV set in the house without replacing existing routers, gateways, set-top boxes or laying out new cables across the house.

Your Wireless Video Extender unit may be used as a:

- **Wireless Video Extender Access Point (AP) ()**
  i.e. connected to home gateway or cable/DSL modem
- **Wireless Video Extender Station (STA) ()**
  i.e. connected to set-top box or media storage/player

Please Note:

A minimum of two units are required to establish a wireless video extender network

- One unit should be configured as an **Access Point**
- One or more units configured as **Stations** can be associated with the wireless video extender AP

Knowing your VXT1836 Kit

Package Contents

Your VXT1836 Kit contains the following items:

1. One VXT1836 wireless video extender unit
2. One CAT5 cable
3. One power transformer for the VXT1836 device
4. One "Quick Installation Guide"

Note: You would need at least two VXT1836 kits to establish a network

Hardware Overview

The VXT1836 unit is a dual function "Access Point" or "Station" device.

The VXT1836 is powered by Celeno's CL1800 802.11n WiFi chipset that employs sophisticated algorithms and techniques, such as Beam Forming, to reliably stream High Definition video to any location in the home.

The VXT1836 unit set as "Access Point" connects to the video source which can be a gateway, a cable/DSL modem or a DVR/PVR device.

The VXT1836 unit set as "Station" connects to the video receiving set-top box device.

The VXT1836 devices have been designed to be placed on a desktop. All of the cables exit from the rear of the devices. The status display LEDs are located at the front of the devices and are easily visible.

Figure 1: VXT1836

The following table describes the connectors on the rear panel of the VXT1836 device:

Table 1: VXT1836 Rear Panel – Connectors and Buttons

Name	Description
AP/STA Mode Switch	Sets the device functionality as Access Point or Station
WPS Button	WPS button for easy unit association in the network
Reset	Reset and restore defaults button.
LAN2 / LAN1	2 Ethernet ports, each may be used for Data or Management
Power In	DC power input. 12 VDC.

The following table describes the LED indications on the front panel of the VXT1836 Device.

Table 2 - VXT1836 LEDs

Name	Color	Description
Power	Green	The device is powered on.
	Red	The device has entered a power save mode.
	Off	The device is powered off.
AP/STA Mode	Blue	The device is running as Access Point (AP)
	Green	The device is running as Station (STA)
LAN1 / LAN2	Green	The LAN port is connected to a network device.
	Off	The LAN port is either not connected or there is no activity on the link.
WPS	Green	WPS pairing was successfully completed. This is a temporary state that lasts for 2 minutes.
	Flashing Green	WPS pairing is in progress. This is a temporary state that lasts for 2 minutes or until WPS pairing succeeds.
	Off	Default.
WLAN 5G	Green	**Access Point Behavior** - At least one Station is associated with the Access Point. **Station Behavior** – The Station is associated with an Access Point and can receive at least one high definition video stream.
	Flashing Green	**Station Behavior** – The Station is associated with an Access Point but does not have enough capacity to receive constantly high definition video streams.
	Off	**Access Point Behavior** - No Stations are associated with the Access Point. **Station Behavior** – The Station is not associated with an Access Point.

Note: The Mode LED indicates the current active mode. To change the mode a unit power cycle is required. Following the power cycle the mode LED will reflect the change.

The following LED combinations describe special indications:

Combination –The WLAN, LAN and WPS LEDs are flashing simultaneously for 10 seconds.

Description – The device is undergoing a "Restore Defaults" procedure.

Combination –The WLAN, LAN and WPS LEDs are flashing in sequence for 10 seconds.

Description – The device is undergoing a "Software Upgrade" procedure.

Combination –WLAN LED is flashing

Description – The AP device is currently performing a Channel Activity Check (CAC) process.

Setting Up your VXT1836 Unit

Setting up the system involves the following steps:

- Unit mode (AP/STA) device setting
- Powering up your device
- Pairing your device
- Placing and connecting your device

After performing these steps, you can start streaming High Definition video through the VXT1836 Kit.

- Changing your computer's IP address

After performing this additional step, you can use the VXT1836 Management Application to configure and manage your VXT1836 device. (Refer to Managing the VXT1836 Device on page 19).

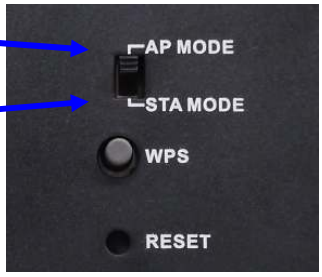
Unit Mode (AP/STA) Setting

To set/modify the VXT1836 device operating mode:

1. Make sure the unit is UNPLUGGED from the 12V A/C adapter – check that all LEDs are off.
2. Change the AP/STA Mode switch at the back of the unit to the desired mode:

Switch on top position for "AP" (Access Point) mode

Switch on bottom position for "STA" (Station) mode



Note: Only a single VXT1836 unit should be set as an AP in the network, the remaining units should be set as STAs.

Powering Up your Devices

To power up the VXT1836 device:

3. Plug in the 12V A/C adapter and connect it to the VXT1836 device.

   Use the recommended AC/DC power adaptor which was supplied in the kit.

Using a power supply with a different voltage rating then the one included with the VXT1836 device will cause damage and void the warranty for this product.

Note: There is no On/Off switch. Once you connect the power adapter, the VXT1836 device powers up.

4. Wait several seconds while the VXT1836 device performs a reset.

Pairing your Devices

To pair the VXT1836 Access Point and VXT1836 Station devices:

1. Place the VXT1836 set as Access Point and the VXT1836 set as Station devices between 1 to 3 meters from each other.
2. Pair the devices by pressing the WPS button on the back panel of each device. You can release the button as soon as the WPS LED begins flashing.

Note: The WPS buttons of both devices (Access Point and Station) should be pressed within 2 minutes period. The buttons can be pressed in any order.

3. Wait for the pairing process to complete by watching the LEDs on the devices:
   - While pairing is in progress the WPS LED is flashing
   - After successful pairing the WPS LED stays on for 2 minutes.

Placing and Connecting your Devices

To place and connect your VXT1836 set as Access Point device:

1. Place the VXT1836 set as Access Point device on an easily accessible surface near the home gateway, Cable/DSL Modem or DVR/PVR device.
2. Plug one end of the Ethernet cable into the LAN port of the gateway device and the other end into one of the Ethernet ports of the VXT1836 Access Point (LAN1 or LAN2).

To place and connect your VXT1836 set as Station device:

1. Place the VXT1836 set as Station device on an easily accessible surface near the set-top box.
2. Plug one end of the Ethernet cable into the LAN port of the set-top box device and the other end into one of the Ethernet ports of the VXT1836 (LAN1 or LAN2).

Note: Two network devices can be simultaneously connected to the VXT1836 unit e.g. a set-top box and a network media storage or media player.

3. Make sure that the WLAN 5G LED is solid green

If the WLAN LED is turned off, or flashing (on the Station device), try to reposition the device to a more elevated location and as far as possible from large metallic objects.

Completing the installation:

You have finished installing your VXT1836 device. To test your connectivity, turn on the TV and set-top box and watch any available channel.

Note: To install additional VXT1836 Station devices, repeat the above procedure for each new VXT1836 Station device.

Connecting to Your VXT1836 Device

The VXT1836 operating as an **Access Point** is pre-configured with the following IP parameters:

- IP Address: 10.0.0.2
- Net Mask: 255.0.0.0

The VXT1836 operating as a **Station** is pre-configured with the following IP parameters:

- IP Address: 10.0.0.10
- Net Mask: 255.0.0.0

In order to connect your management computer to the VXT1836 device, connect the VXT1836 device directly to your computer and change the IP address of your computer so that it is on the same subnet as the VXT1836 device (by default 10.x.x.x). Since this disconnects your computer from your computer network, you may need to restore this setting later.

To change the IP address of your computer:

1. Connect an Ethernet cable between one of the Ethernet ports of the VXT1836 device and the Ethernet port of your computer.
2. On Windows XP:
    i. From your computer's desktop, click **Start > Settings > Network Connections** and double-click the LAN connection for your computer network. The Local Area Connection Status window appears.

ii. From the General tab, click **Properties**. The Local Area Connection Properties window appears.

3. On Windows 7:
   i. From your computer's desktop, click **Start>Control Panel**, click on **Network and Sharing Center**
   ii. Select **Change Adaptor Settings**, and following right click on **Local Area Connection** and click on **Properties**. The Local Connection Area Properties Window appears.
4. Select **Internet Protocol (TCP/IP)** and click **Properties**. The Internet Protocol (TCP/IP) Properties window appears.

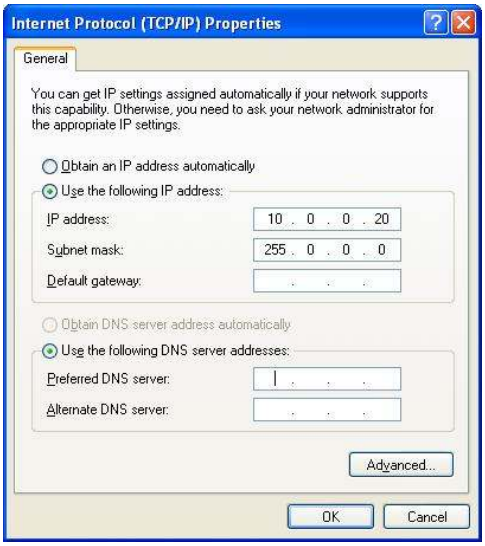


Figure 2: Internet Protocol (TCP/IP) Properties Window

5. Make a note of the current settings in this window. You will need to know these settings when reconnecting your computer to your computer network.
6. Check **Use the following IP address** and type an IP address in the same subnet as the VXT1836, in the following format: 10.x.x.x. Be sure to use an IP address that is different from the IP address of your VXT1836 device which is either 10.0.0.2 or 10.0.0.10 by default.
7. Click **OK** to save the information and close the Internet Protocol (TCP/IP) Properties window.
8. Click **OK** to close the Local Area Connection Properties window.
9. Click **Close** to close the Local Area Connection Status window

Management - Getting Started

The VXT1836 Management Application is a web-based tool that enables you to manage and configure your VXT1836 device. This chapter describes how to navigate through the VXT1836 Management Application:

Note: Ensure that you have connected an Ethernet cable between your computer and the VXT1836 device.

Logging into the VXT1836 Management Application

Figure 3 - VXT1836 Management Application – Login Screen

The VXT1836 Management Application is password protected. To access its functions you first need to successfully log in:

1. Type the username and password into the appropriate fields and click on the *Login* button.
2. On successful login you will be forwarded to a VXT1836 Management Application configuration screen.

Note: The default username and password are *admin*, *admin* respectively. To change these values refer to Performing Administration on page 44.

Navigating the VXT1836 Management Application

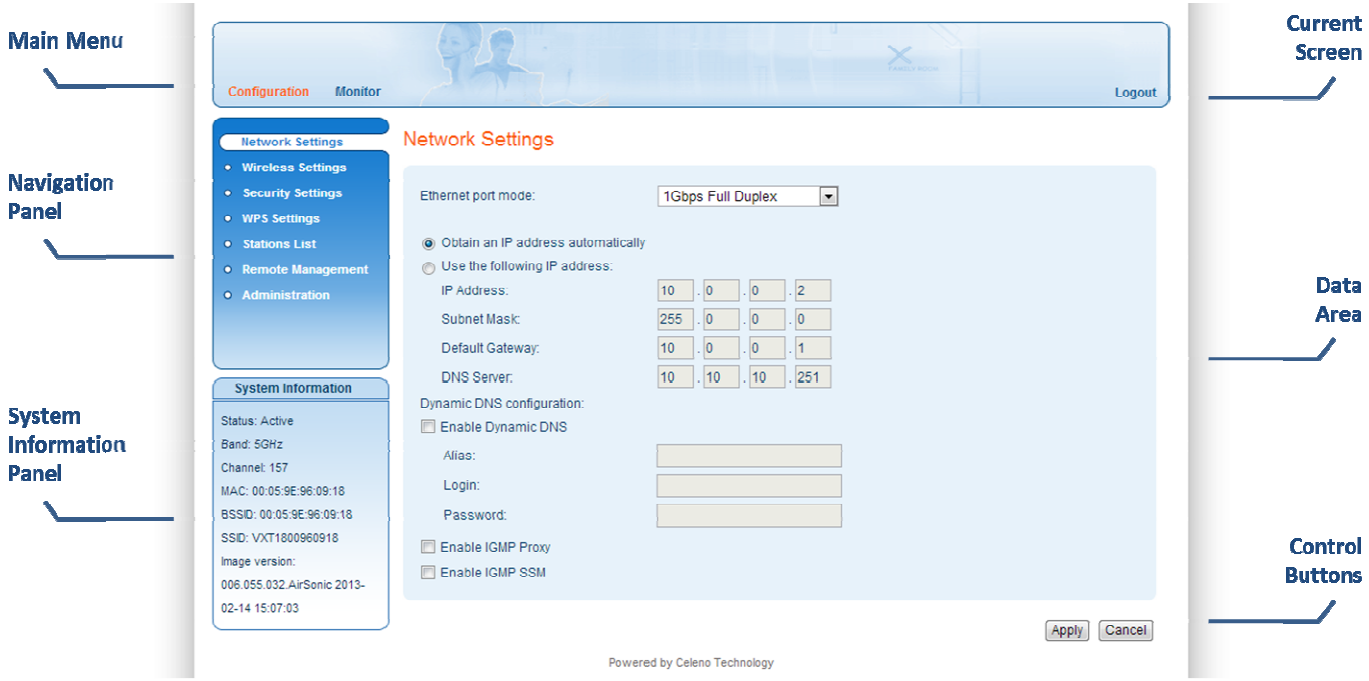


Figure 4: VXT1836 Management Application Window

The VXT1836 Management Application contains the following controls and areas to help you navigate to all its parameters.

- **Main Menu** – Enables you to access the functions of the VXT1836 Management Application. The Main Menu is divided into the following submenu items: Configuration, Monitor and Logout.
- **Navigation Panel** – Displays the configuration screens available for each submenu item.
- **Current Screen** – Displays the name of the current configuration screen.
- **System Information Panel** – Displays system status information. This panel is always visible and displays the following information:
  - **Status** – Indicates whether the system is currently active or inactive.
  - **Band** – Indicates that the system is currently transmitting in the 5 GHz radio band.

- **Channel** – The index number of the channel currently in use.
- **MAC** – The local MAC Address of the device.
- **BSSID** – Basic Service Set Identifier. This field uniquely identifies each BSS. You cannot configure this parameter using the VXT1836 Management Application.
- **SSID** – Service Set Identifier. The code attached to beacon frames and connection establishment frames.
- **Image Version** – The current software image version of the device.

- **Data Area** – For each configuration screen, the Data Area displays the relevant parameters and controls.
- **Control Buttons** – Enable you to perform operations related to the current configuration screen.

Note: You can logout of the application anytime by selecting the Logout menu item at the upper right corner of the screen.

Note: The VXT1836 device can be set as an Access Point or as a Station (using the external AP/STA mode switch). Each mode of operation has different configuration screens.

Managing the VXT1836 Device

The VXT1836 Management Application is a user-friendly application that enables you to configure and control all the parameters of the VXT1836. The main menu contains the following options:

- Configuration
- Monitor

Note: Clicking Cancel in any of the VXT1836 Management Application windows discards any unsaved changes you have made. The VXT1836 Management Application then re-queries the VXT1836 device and refreshes the display.

Configuring the VXT1836 Device

Defining Network Settings

To define network settings:

1. From the main menu of the VXT1836 Management Application, click **Configuration**. Then click **Network Settings** on the navigation panel. The Configuration, Network Settings window appears.

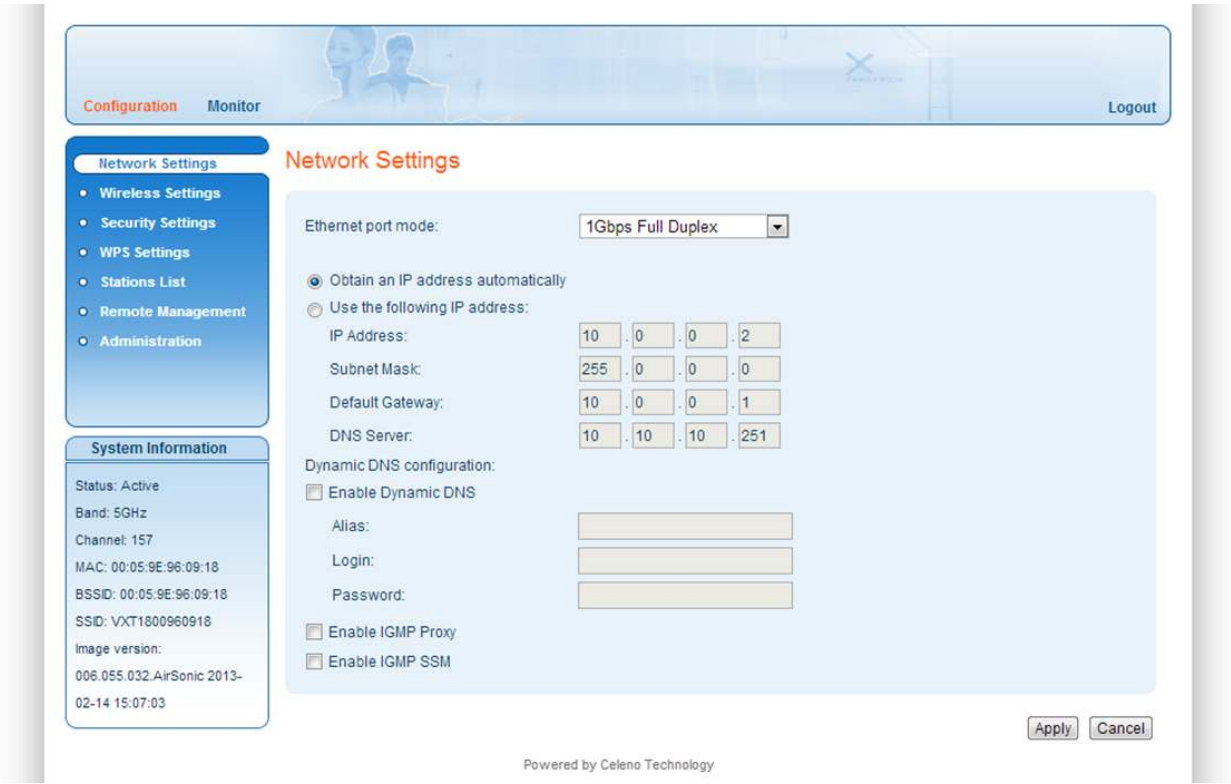


Figure 5: VXT1836 Management Application – Configuration, Network Settings Window

The following table describes the parameters you can configure from this window:

Table 3: VXT1836 Configuration – Network Parameters

Parameter	Description
Ethernet port mode	The properties of the Ethernet (LAN) port of the device: Can be either auto negotiated up to 1Gbps or fixed to 100Mbps.
Obtain an IP address automatically	When selected, the device acts as a DHCP client and obtains its IP properties automatically.
IP Address	The IP address of the VXT1836 device (under static IP setting)
Subnet Mask	The subnet mask of the VXT1836 device. (under static IP setting)
Default Gateway	The default gateway of the VXT1836 device. (under static IP setting)
DNS Server	The DNS server of the VXT1836 device. (under static IP setting)
Enable Dynamic DNS	When checked the VXT1836 device will use dynamic DNS protocol to register its alias into the DNS server. This will allow accessing the device using the given alias instead of its IP address.
Alias	The given hostname of the VXT1836 device
Login and Password	The login credentials of the DNS server/home router.
Enable IGMP Proxy*	The device will operate as an IGMP Proxy
Enable IGMP SSM*	The device will support IGMP SSM

2. Click **Apply** to update the settings immediately. The system displays an update message.
3. Click **OK** and wait for the system to restart.

* AP only parameter

Defining Wireless Settings

To define wireless settings in Access Point mode:

1. From the main menu of the VXT1836 Management Application, click **Configuration** and from the Navigation Panel, click **Wireless Settings**. The Configuration, Wireless Settings window appears.

Figure 6: VXT1836 Management Application – Configuration, Wireless Settings Window (AP)

The following table describes the parameters you can configure from this window:

Table 4: VXT1836 Configuration – Wireless Parameters (AP)

Parameter	Description
Broadcast SSID	When checked, the system broadcast its SSID in beacon and probe response frames.
SSID	Service set identifier. The code attached to beacon frames and connection establishment frames. The SSID is a string of ASCII characters.
Beacon Interval	The time interval between beacon frames sent out by the system. Possible values: 20 – 999 milliseconds.
Country code	Your country of operation. This device will automatically limit the allowable channels determined by the current country of operation. Incorrectly entering the country of operation may result in illegal operation and may cause harmful interference to other systems.
Frequency (Channel)	Select the desired channel from the dropdown list, or let the system select the best working channel automatically by choosing 'Auto' from the drop down list.
Rate	The transmission rate (MCS). Possible values: 0-15, and Auto. Selecting auto lets the system dynamically adapt the transmission rate to suit current network conditions.
Channel bandwidth	The bandwidth that system occupies: 20MHz / 40MHz.
Channel hopping	Determines the system behavior when interference is detected: Always – Change channel as soon as interference is detected on the current radio channel. Conditional – Change channel as soon as interference is detected only if no video is being streamed through the system.
DLS	When checked the system employs the direct link protocol to enable direct client to client communication. Use this option when client devices in your network can stream video to each other, such as in a Multi-Room DVR deployment.

Parameter	Description
WMM	When checked the system performs traffic classification and prioritization according to the WI-FI Multimedia interoperability certification program. This will ensure that your voice and video streams will not be impaired by other types of traffic.  Use this option only if you are certain that the voice and video streams that enter the system are marked with DSCP to indicate their priority.

2. Click **Apply** to update the settings immediately. The system displays an update message.
3. Click **OK** and wait for the system to restart.

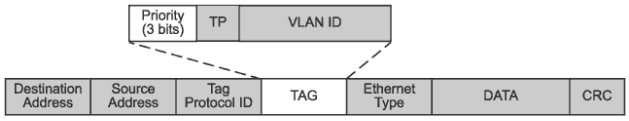
Understanding Quality of Service in VXT1836

VXT1836 implements Quality of Service in the downlink direction (AP to stations). Enabling Quality of Service is done by checking the WMM checkbox in the Wireless Setting configuration menu.

1. Once enabled, the traffic classification is implemented according to the following rule:
   - If the data is VLAN tagged, classification is based on VLAN PRIORITY (Layer2)
   - If the data is untagged, classification is based on DSCP (Layer 3)
2. The incoming data from the Ethernet port is mapped to the proper wireless access category according to the classification rules explained below.
3. The transmission air scheduling is than performed according to the following order:
   a. VoIP Access Category of managed devices (VXT1836 clients)
   b. VoIP Access Category of unmanaged devices
   c. Video Access Category of managed devices
   d. Video Access Category of unmanaged devices
   e. Rest of data (Data, and Background) first of managed followed by unmanaged

VLAN based Classification

Once the data received for transmission is tagged, classification is based on the 802.1p priority:



In such cases, mapping of the 802.1p priority bit to User Priority is according to the following:

802.1p	*User Priority*
7	*0*
5, 6	*1*
	2
4	*3*
3	*4*
1	*5*
2	*6*
0	*7*

DSCP based Classification

In case the data received for transmission is untagged, classification is based on DSCP which is part of the TOS Byte:

In such cases, the mapping of the DSCP to User Priority is accoring to the following:

DSCP	*User Priority*
0	*0*
8	*1*
16	*2*
24	*3*
32	*4*
40	*5*
48	*6*
56	*7*

User Priority is in-turn mapped to Wi-Fi Multimedia (WMM) Access Category aligned with the Wi-Fi Alliance recommendation as listed below:

User Priority	WMM Access Category	Traffic Type
0	BE	Best Effort
1	BK	Background
2	BK	Background
3	BE	Best Effort
4	VI	Video
5	VI	Video
6	VO	Voice
7	VO	Voice

To define wireless settings in Client mode:

1. From the main menu of the VXT1836 Management Application, click **Configuration** and from the Navigation Panel, click **Wireless Settings**. The Configuration, Wireless Settings window appears.

Figure 7: VXT1836 Management Application – Configuration, Wireless Settings Window (STA)

The following table describes the parameters you can configure from this window:

Table 5: VXT1836 Configuration – Wireless Parameters (STA)

Parameter	Description
Rate	The transmission rate (MCS). Possible values: 0-15, and Auto. Selecting auto lets the system dynamically adapt the transmission rate to suit current network conditions.
Channel bandwidth	The bandwidth that system occupies.

2. Click **Apply** to update the settings immediately. The system displays an update message.
3. Click **OK** and wait for the system to restart.

Defining Security Settings (Access Point Mode Only)

To define Security settings:

1. From the main menu of the VXT1836 Management Application, click **Configuration** and from the Navigation Panel, click **Security Settings**. The Configuration, Security Settings window appears.

The VXT1836 device can be configured to operate in one of the following security modes:

- **Unsecured** – Wireless security is disabled, any client can associate to the VXT1836 Access Point and the wireless signal is passed unencrypted.
- **WEP** – Stands for Wireless Equivalent Privacy. It is the legacy 802.11 security standard and provides only basic security. WEP can be easily cracked and it is recommended to use WPA2 instead.
- **WPA2/PSK** - Stands for WiFi Protected Access. It is based on the IEEE 802.11i standard and uses AES/TKIP encryption algorithm. WPA2 is much more secure then WEP, it provides best in class encryption and user authentication. It is recommended that you enable WPA2 at all times.

 To be able to use Wireless Protected Setup (WPS) features (See at page 32), it is required that you enable the WPA2/PSK security mode.

To define WEP settings:

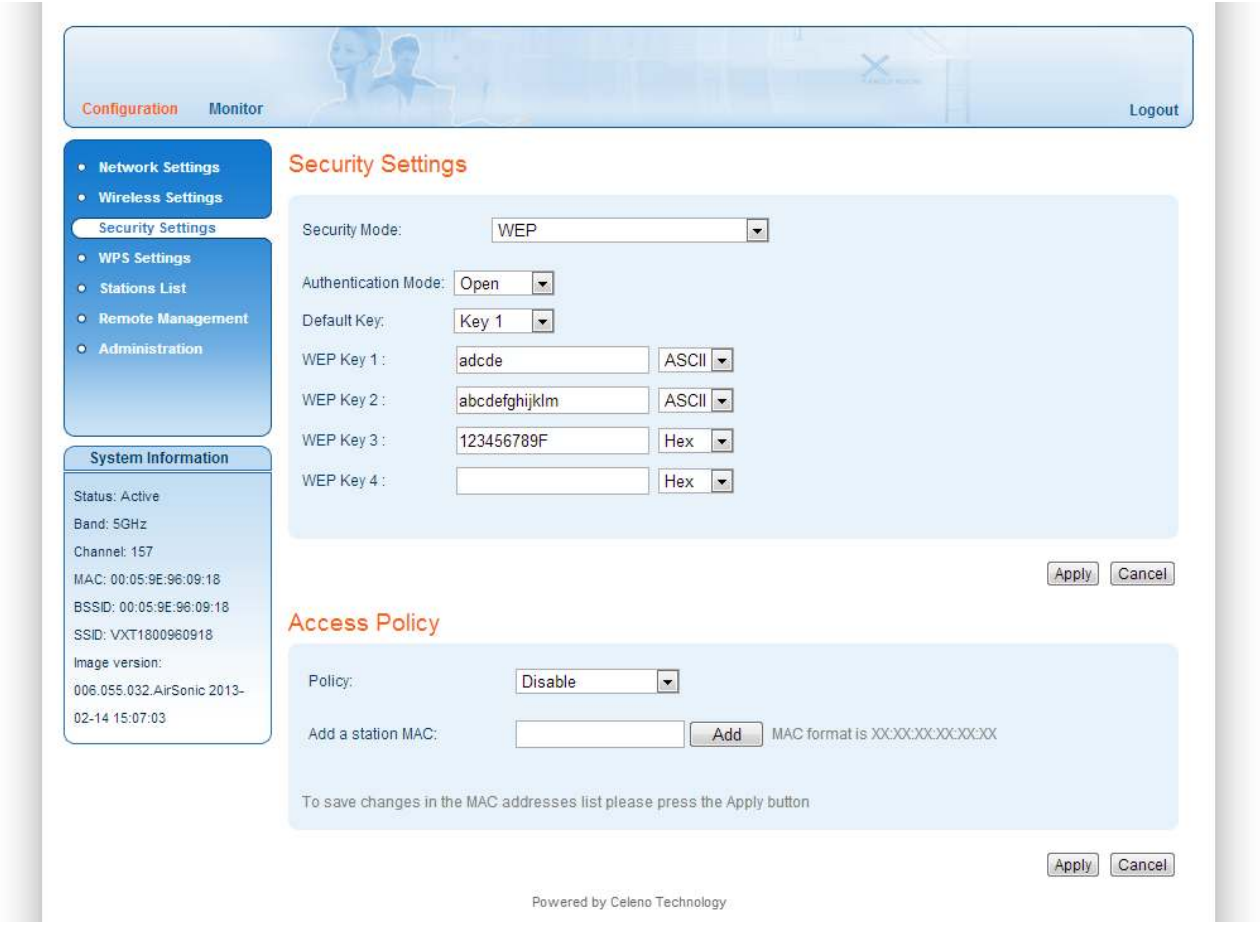


Figure 8 - VXT1836 Management Application – Configuration, Security Settings Window, WEP Mode

Table 6: VXT1836 Configuration – Security Parameters, WEP mode.

Parameter	Description
Security Mode	The selected security mode. Possible values: Disable, WEP and WPA2-PSK.
Authentication Mode	The selected authentication mode. Possible values are Open and Shared.
Default Key	The index of the encryption key that will be used for transmissions.
WEP Key 1-4	The WEP encryption keys. Keys can be entered either as normal alpha-numeric characters or as hexadecimal digits.

To define WPA2-PSK settings (default):

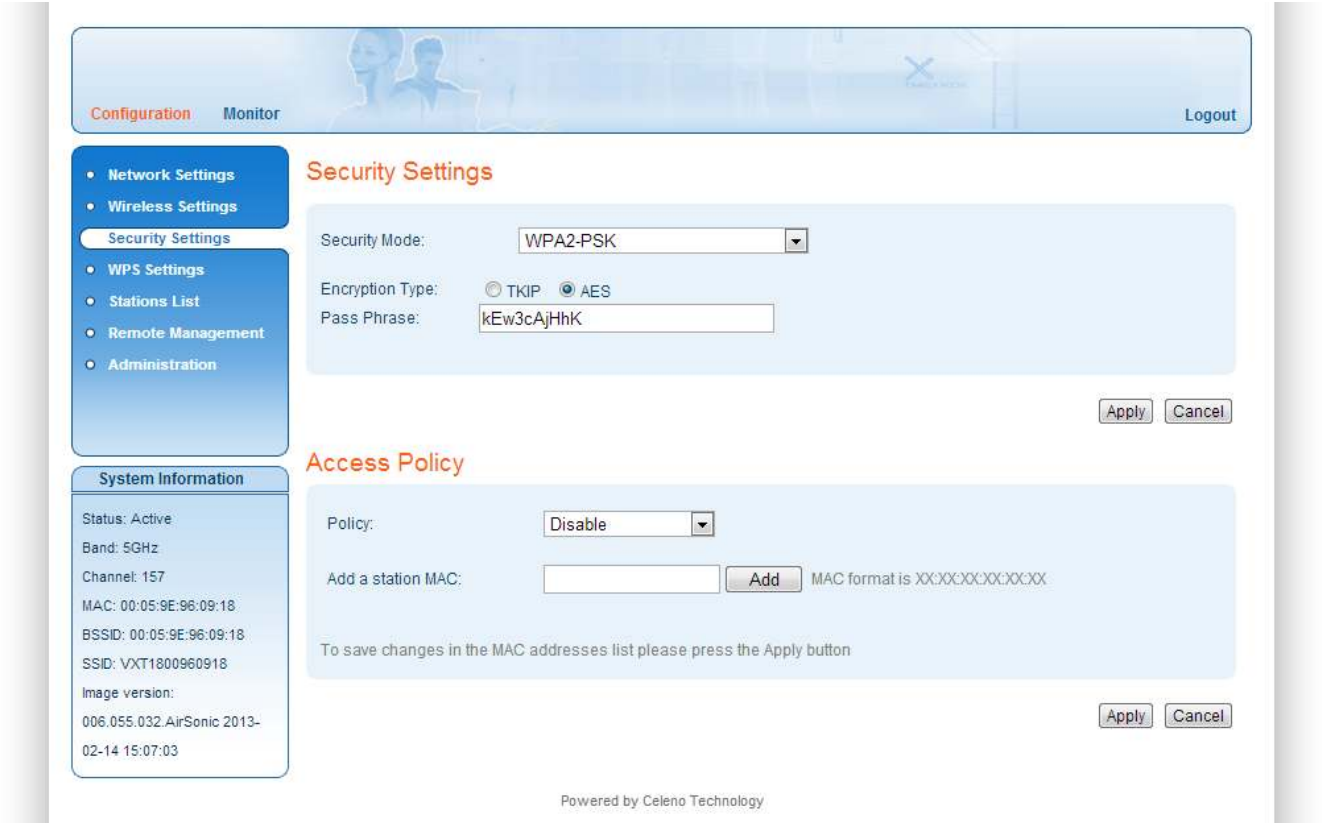


Figure 9 - VXT1836 Management Application – Configuration, Security Settings Window, WPA2-PSK Mode

Table 7: VXT1836 Configuration – Security Parameters, WPA2-PSK mode.

Parameter	Description
Security Mode	The selected security mode. Possible values: Disable, WEP and WPA2-PSK.
WPA Algorithm	The selected encryption algorithm. Possible values: AES (recommended) and TKIP.
Pass Phrase	The security pass phrase to be used for generating the WPA2 encryption keys. The pass phrase can be 8 to 63 bytes long.

Access Policies:

The VXT1836 device can be configured to control which wireless client devices can associate with it. The available access policies are:

- **Disable** – Any wireless client device can associate with the VXT1836 Access Point.
- **Allow** – A white list of allowed MAC addresses determines which wireless client devices are allowed to associate with the VXT1836 Access Point.
- **Reject** – A black list of banned MAC addresses determines which wireless client devices are not allowed to associate with the VXT1836 Access Point.

Table 8 VXT1836 Configuration – Access Policy Parameters.

Parameter	Description
Policy	The selected Access Policy. Possible values: Disable Allow and Reject.
Add a station MAC	Enter a MAC address of a wireless client device and press the Add button to add it to the list of allowed/banned wireless client devices. Press the Delete button to remove a wireless client device from the list.

2. Click **Apply** to update the settings immediately. The system displays an update message.
3. Click **OK** and wait for the system to restart.

Defining WPS Settings

WPS is a standard for easy and secure setup of wireless home networks, created by the WiFi Alliance. The VXT1836 Kit implements two WPS pairing methods:

The WPS-PBC configuration method allows you to pair VXT1836 Access Point and client devices using a push button (See Pairing your Devices on page 13).

The WPS-PIN configuration method allows you to pair VXT1836 Access Point and client devices by entering the PIN code of the client device in the VXT1836 Access Point WEB UI.

To define WPS settings in Access Point mode:

1. From the main menu of the VXT1836 Management Application, click **Configuration** and from the Navigation Panel, click **WPS Settings**. The Configuration, WPS Settings window appears.

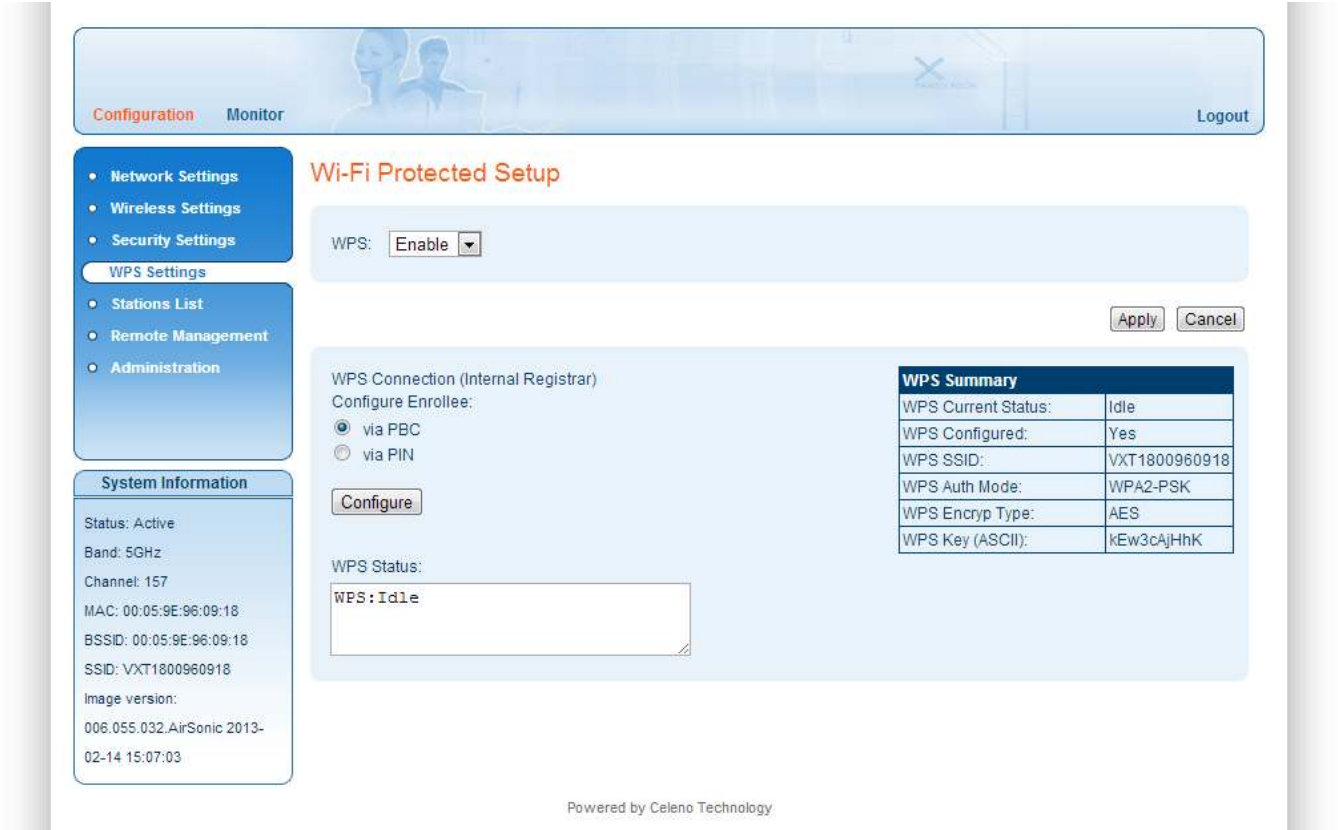


Figure 11: VXT1836 Management Application – Configuration, WPS Settings Window

The following table describes the actions that can be performed from this window:

Table 11: VXT1836 Configuration – WPS Parameters

Parameter	Description
WPS	Enable / Disable WPS.
WPS Connection	The pairing method. Can be either WPS-PBC or WPS-PIN.
PIN	The PIN code of the wireless client device (under WPS-PIN)
Configure	Initiates a WPS pairing procedure
WPS Status	Indicates the status of the WPS pairing procedure
WPS Summary	Displays a quick summary of the WPS parameters

2. Click **Apply** to update the settings offline. The system stores the new settings and prompts you to restart the system.
3. Click **YES** and wait for the system to restart.

Note: A WPS-PBC pairing procedure can also be initiated by pressing the WPS button on the front panel of the device.

To define WPS settings in Client mode:

1. From the main menu of the VXT1836 Management Application, click **Configuration** and from the Navigation Panel, click **WPS Settings**. The Configuration, WPS Settings window appears.

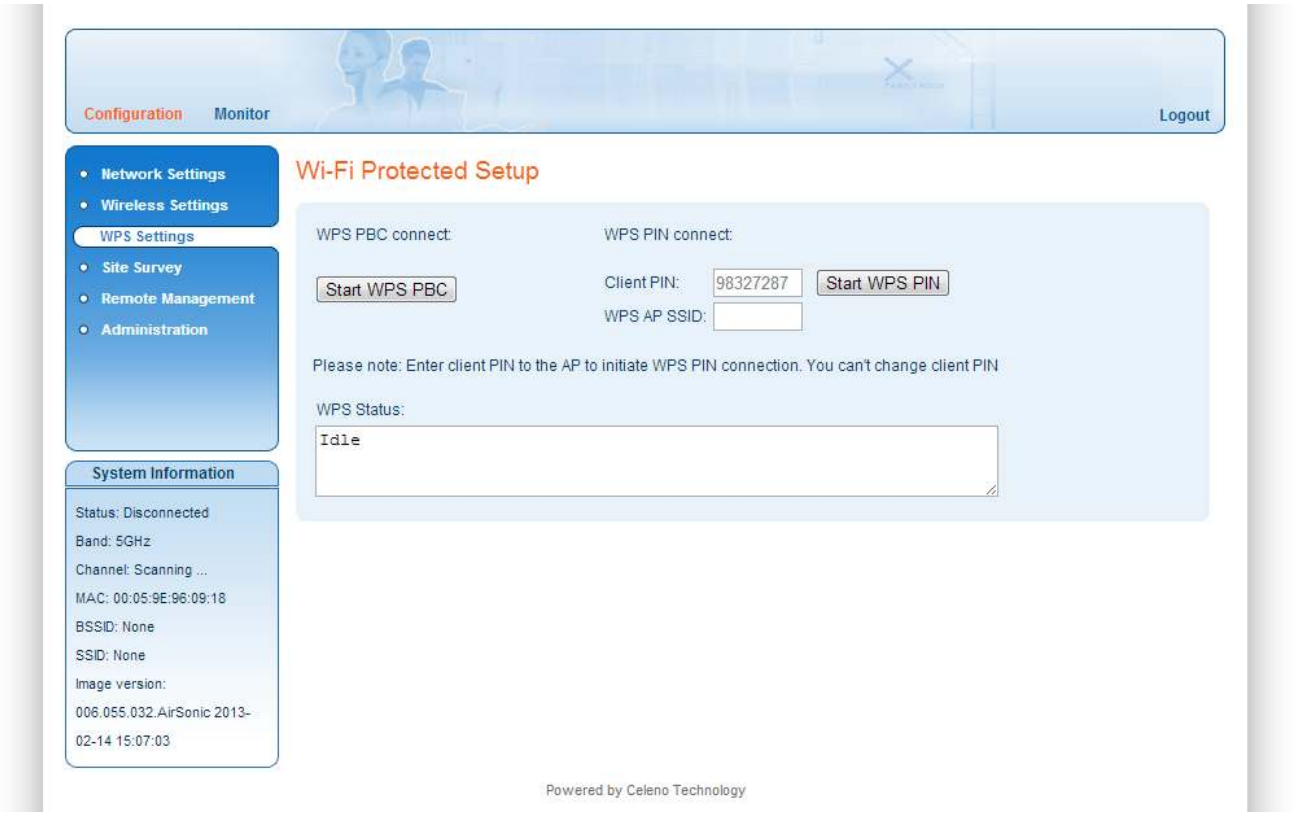


Figure 102: VXT1836 Management Application – Configuration, WPS Settings Window

The following table describes the actions that can be performed from this window:

Table 12: VXT1836 Configuration – WPS Parameters

Parameter	Description
Start WPS PBC Button	Initiates a WPS-PBC pairing procedure
Start WPS PIN Button	Initiates a WPS-PIN pairing procedure
Client PIN	A read only field that displayed the PIN code of the wireless client device. This PIN code should be entered into the appropriate field on the VXT1836 AP device WEB UI when performing a WPS-PIN pairing procedure
WPS AP SSID	This field is required for unit certification only to allow the unit to act as WPS registrar, there is no need to use it in normal mode operation
WPS Status	Indicates the status of the WPS pairing procedure

2. Click **Apply** to update the settings offline. The system stores the new settings and prompts you to restart the system.
3. Click **YES** and wait for the system to restart.

Note: A WPS-PBC pairing procedure can also be initiated by pressing the WPS button on the front panel of the device.

Site Survey (Client Mode Only)

The site survey window allows you to find and connect the VXT1836 client to a wireless Access Point.

To find and connect to a wireless Access Point:

1. From the main menu of the VXT1836 Management Application, click **Configuration** and from the Navigation Panel, click **Site Survey**. The Configuration, Site survey window appears.

Figure 113: VXT1836 Management Application – Configuration, Site Survey Window

The following table describes the parameters in the site survey table:

Table 93: VXT1836 Configuration – Site Survey table

Parameter	Description
SSID	Service Set Identifier. The code attached to beacon frames and connection establishment frames.
BSSID	Basic Service Set Identifier. This field uniquely identifies each BSS.
RSSI	The signal quality between the Access Point and the Client.
Channel	The wireless channel that the Access Point is operating in.
Encryption	The encryption scheme used by the Access Point.
Authentication	The Authentication scheme used by the Access Point.
State	Indicates if this is an Ad-Hoc connection or an infrastructure network.

2. Select the Access Point you want to connect to and click the **Connect** button.
3. Click **Apply** and wait several seconds for the Client to connect.

Clicking the **Rescan** button initiates a new site survey scan and may temporary interrupt the service to the wireless Client.

Stations List (Access Point Mode Only)

The Stations List window presents a list of clients connected to the VXT1836 Access Point.

Figure 124: VXT1836 Management Application – Configuration, Associated Stations List Window

The following table describes the parameters in the stations list:

Table 104: VXT1836 Configuration – Stations List

Parameter	Description
MAC Address	The MAC Address of the associated client.
Rate	The modulation (physical data rate) that the Access Point services the Client with.
Bandwidth	The bandwidth that the Access Point uses when sending data to the Client.

Configuring Remote Management

The VXT1836 implements mechanisms that enable its remote management and trouble shooting.

- Remote Logging – When enabled, the VXT1836 periodically uploads event and performance monitoring logs to a pre-designated FTP server.
- UPnP – When enabled, the VXT1836 uses UPnP to access the home gateway device and configure its port mapping table to enable accessing it remotely.
- NTP – When enabled, the VXT1836 uses NTP protocol to obtain date & time.
- TR-069 – When enabled, the VXT1836 device can be remotely provisioned using the TR-069 management protocol.

To configure Remote Management settings in Access Point mode:

1. From the main menu of the VXT1836 Management Application, click **Configuration** and from the Navigation Panel, click **Remote management**. The Configuration, Remote Management window appears.

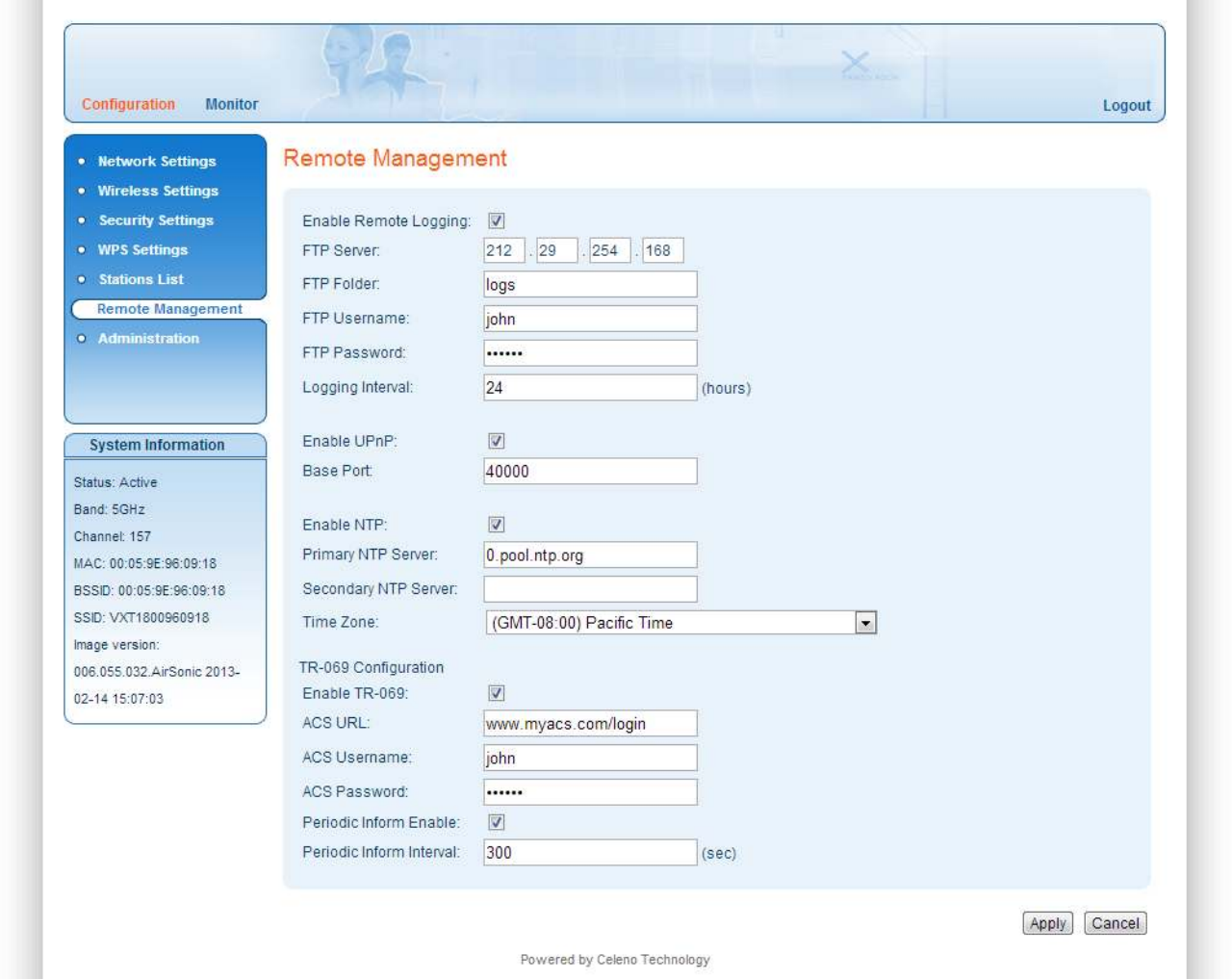


Figure 13: VXT1836 Management Application – Configuration, Remote Management Window

The following table describes the actions that can be performed from this window:

Table 11: VXT1836 Configuration – Remote Management

Parameter	Description
Enable Remote Logging	Enable / Disable Remote logging.
FTP Server	The IP address of the FTP server onto which the logs will be uploaded.

Parameter	Description
FTP Folder	The folder name into which the logs will be uploaded.
FTP Username	The FTP user name.
FTP Password	The FTP password.
Logging Interval	The period in hours of the scheduled log uploads.
Enable UPnP	Enable / Disable UPnP based port mapping configuration in the Home Gateway.
Base Port	The port at the Home Gateway that the device will be mapped to. In case that the selected port is already mapped in the gateway, the next available port will be used.
Enable NTP	Enable / Disable time synchronization with an NTP server.
Primary NTP Server	The IP address of the primary NTP server
Secondary NTP Server	The IP address of the secondary NTP server
Time zone	The time zone the device resides in.
Enable TR-069 Configuration	Enable / Disable remote provisioning using the TR-69 management protocol.
ACS URL	The URL of the remote ACS (Automatic Configuration Server)
ACS Username/Password	The login credentials of the ACS.
Periodic Inform Enable	When enabled the VXT1836 device connect periodically to the ACS.
Periodic Inform Interval	The time interval in seconds between periodic connection attempts.

2. Click **Apply** to update the settings offline. The system stores the new settings and prompts you to restart the system.
3. Click **YES** and wait for the system to restart.

To configure Remote Management settings in Client mode:

1. From the main menu of the VXT1836 Management Application, click **Configuration** and from the Navigation Panel, click **Remote management**. The Configuration, Remote Management window appears.

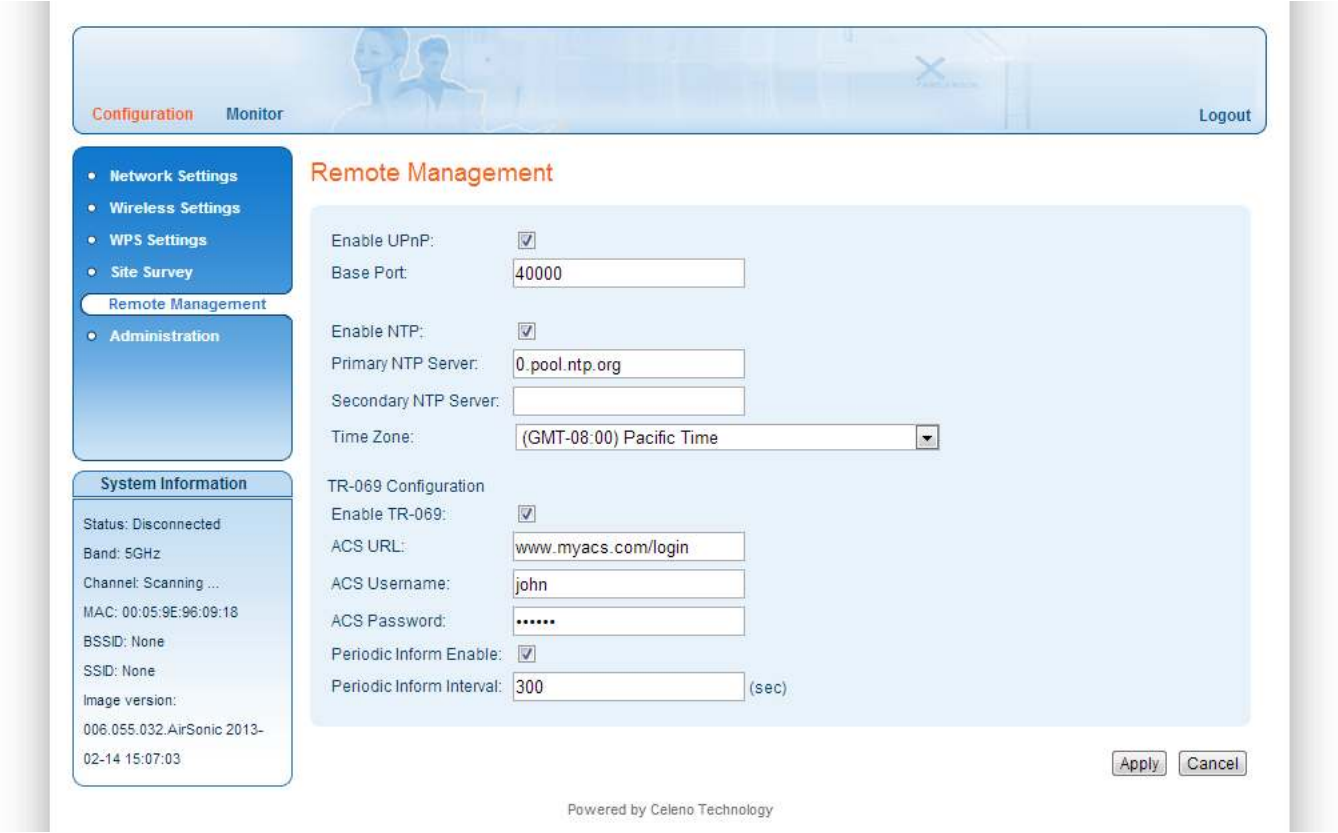


Figure 14: VXT1836 Management Application – Configuration, Remote Management Window

The following table describes the actions that can be performed from this window:

Table 12: VXT1836 Configuration – Remote Management

Parameter	Description
Enable UPnP	Enable / Disable UPnP based port mapping configuration in the Home Gateway.
Base Port	The port at the Home Gateway that the device will be mapped to. In case that the selected port is already mapped in the gateway, the next available port will be used.
Enable NTP	Enable / Disable time synchronization with an NTP server.
Primary NTP Server	The IP address of the primary NTP server
Secondary NTP Server	The IP address of the secondary NTP server
Time zone	The time zone the device resides in.
Enable TR-069 Configuration	Enable / Disable remote provisioning using the TR-69 management protocol.
ACS URL	The URL of the remote ACS (Automatic Configuration Server)
ACS Username/Password	The login credentials of the ACS.
Periodic Inform Enable	When enabled the VXT1836 device connect periodically to the ACS.
Periodic Inform Interval	The time interval in seconds between periodic connection attempts.

2. Click **Apply** to update the settings offline. The system stores the new settings and prompts you to restart the system.
3. Click **YES** and wait for the system to restart.

Performing Administration

To perform administration:

1. From the main menu of the VXT1836 Management Application, click **Configuration** and from the Navigation Panel, click **Administration**. The Configuration, Administration window appears.

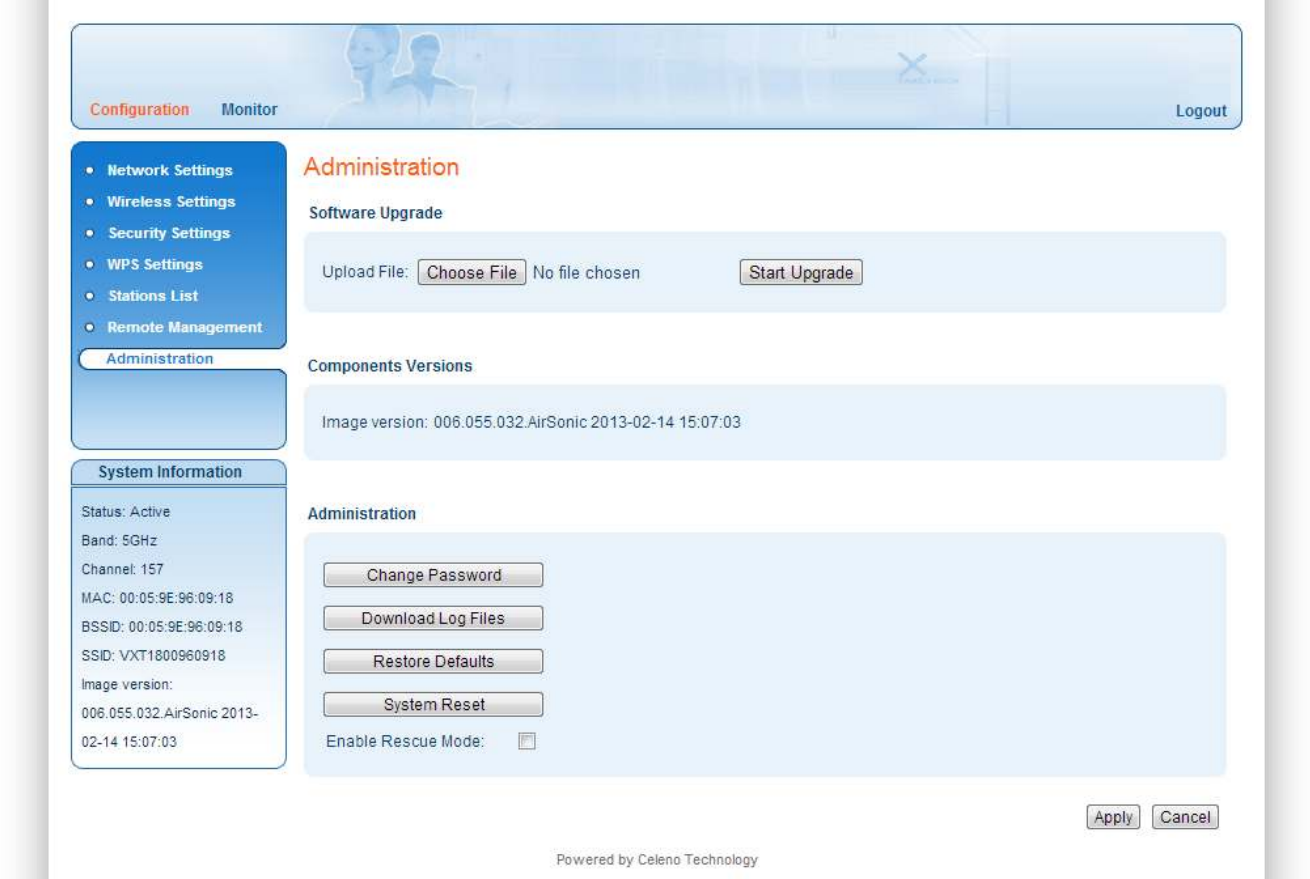


Figure 15 - VXT1836 Management Application – Configuration, Administration Window

The Configuration, Administration window is divided into the following sections:

- Software Upgrade
- Flash Components
- Control Buttons

To perform Software Upgrade:

1. Click the **Choose File** button, select the new image file and press **Open**.
2. Click the **Start Upgrade** button; confirm the action by pressing **OK** in the confirmation window and wait for the action to finish.
3. After the Software Upgrade finishes you can see the new software version number in the System Information Panel.

Do not power off or reset the VXT1836 device while Software Upgrade is in progress.

To change the password of the VXT1836:

1. Click the **Change Password** Button. The following window appears:

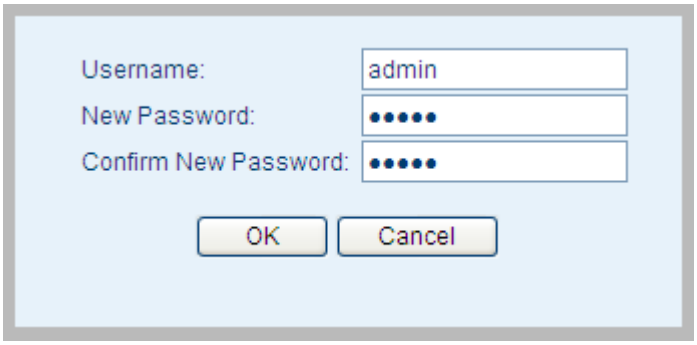


Figure 16 - VXT1836 Management Application – Change Password Window

2. Fill the new password details in the change password window and press **OK**.
3. After the successful completion of the operation you will be prompted to login again.

Note: Only a single user (admin) is supported in the current release.

To download log files from the VXT1836 device:

1. Click the **Download Log Files** Button.
2. A confirmation window will prompt you to confirm the download.

To restore the VXT1836 configuration to factory defaults:

1. Click the **Restore Defaults** Button; confirm the action by pressing *OK* in the confirmation window and wait for the action to finish.

Note: You can also restore the VXT1836 device to factory defaults by pressing and holding the Reset button for 10 seconds.

To reset the VXT1836 device:

1. Click the **Reset** button; confirm the action by pressing **OK** in the confirmation window and wait for the action to finish.

Note: You can also reset the VXT1836 device by pressing shortly on the Reset button.

To enable/disable rescue mode

1. Click the **Enable rescue mode** checkbox; confirm the action by pressing **OK** in the confirmation window and wait for the action to finish. For further explanation see troubleshooting section.

Monitoring the VXT1836 Device

The VXT1836 Management Application Monitor displays information about the current status of your VXT1836 Device. The system continually monitors a variety of network parameters and displays them in the Counters window.

Viewing System Parameters

To view System Parameters:

- From the main menu of the VXT1836 Management Application, click **Monitor**. The Monitor, Counters window appears.

Figure 17: VXT1836 Management Application – Monitor, Counters Window

A

Troubleshooting VXT1836 Kit

Basic setup	
Symptom	Advised solution
The Power LED is off	Make sure that: • The power cord is connected to the device and that the power adapter is properly connected to a functioning power outlet. • You are using the power adapter that was supplied with the product.
The LAN LED is off	Make sure that: • The LAN cable connectors are securely plugged in at the wireless video extender device and at the network device (gateway, modem or set-top box). • The connected network device is turned on. • You are using the correct cable type for your Ethernet equipment that is at least UTP CAT5 with RJ45 connectors.
The WLAN LED is not on	• Make sure that you have completed a successful pairing procedure as described in "Pairing your Devices" on page 13 herein.
You are seeing artifacts on the TV screen	• Make sure that the wireless video extender devices are placed according to the recommendation in Placing and Connecting your on page 13 herein.
No access to the VXT1836	• Make sure that your computer IP address is

Basic setup	
Symptom	Advised solution
web control pages.	10.XXX.YYY.ZZZ and its subnet mask is 255.0.0.0. • If your VXT1836 IP address has been changed, please assign the computer an IP address in the same range as the VXT1836 IP Address. *Remember*: Whenever a change is made in the Setup of the Access Point, the **Apply** button must be used to save the settings to the Access Point. *Remember*: The Access Point control web page is not accessible from the wireless client/adapter segment.

Using Rescue Mode:

Rescue mode enables the VXT1836 client to update its firmware version from the AP. If enabled, this mode can be used for one of two purposes:

- To synchronize firmware versions between AP and client.
- To recover the client in the case of firmware damage.

How to perform firmware upgrade in rescue mode:

1. In order to update the client firmware version from the AP, connect both devices via Ethernet cable while both of them are off.
2. Power up the AP device and wait one minute until boot process finishes.
3. Power up client device and monitor the process through LED behavior. It may take up to 5 minutes.
4. At first, client power LED will blink for 5 seconds. After that, all LEDs on both AP and client will be solid on for about 2 minutes. Next, client power LED will be off for 5 seconds and then both devices will reboot themselves. As the boot process ends you can power off the two boards and reconnect them within the network topology as you wish.

