Implementation Guide

ShareLink 250 Series

Extron Electronics
INTERFACING, SWITCHING AND CONTROL

Contents

Introduction

The Extron ShareLink 250 Series Collaboration Gateway enables anyone to present content from a laptop, smartphone, or tablet on a display, transforming any meeting room into a collaboration space. ShareLink™ technology supports simultaneous wireless display of slides, documents, graphs, and photos from up to four devices. It is compatible with Windows® and OS X® computers as well as Apple® and Android™ smartphones and tablets. It also includes a moderator mode to ensure only approved content is displayed. In meeting rooms with sight line concerns, attendees can view slides on a personal device via a Web browser. The professional capabilities of the ShareLink 250 Series provide easy integration of personal devices into meeting and huddle rooms, interactive collaborative spaces, and larger presentation environments.

This implementation guide is intended to provide an overview of the ShareLink 250 Series operation, configuration, and network impact. There are two models available. The ShareLink 250 W has an integrated wireless access point (WAP) while the ShareLink 200 N does not have an integrated WAP and relies on a separate wireless local area network (WLAN) to provide the wireless connection of personal devices. The ShareLink 250 W and ShareLink 200 N are easy to deploy and economical solutions for Bring Your Own Device – BYOD – applications.

References to ShareLink 250 Series in this guide indicate both models unless specifically stated otherwise.

ShareLink 250 W model with integrated WAP:

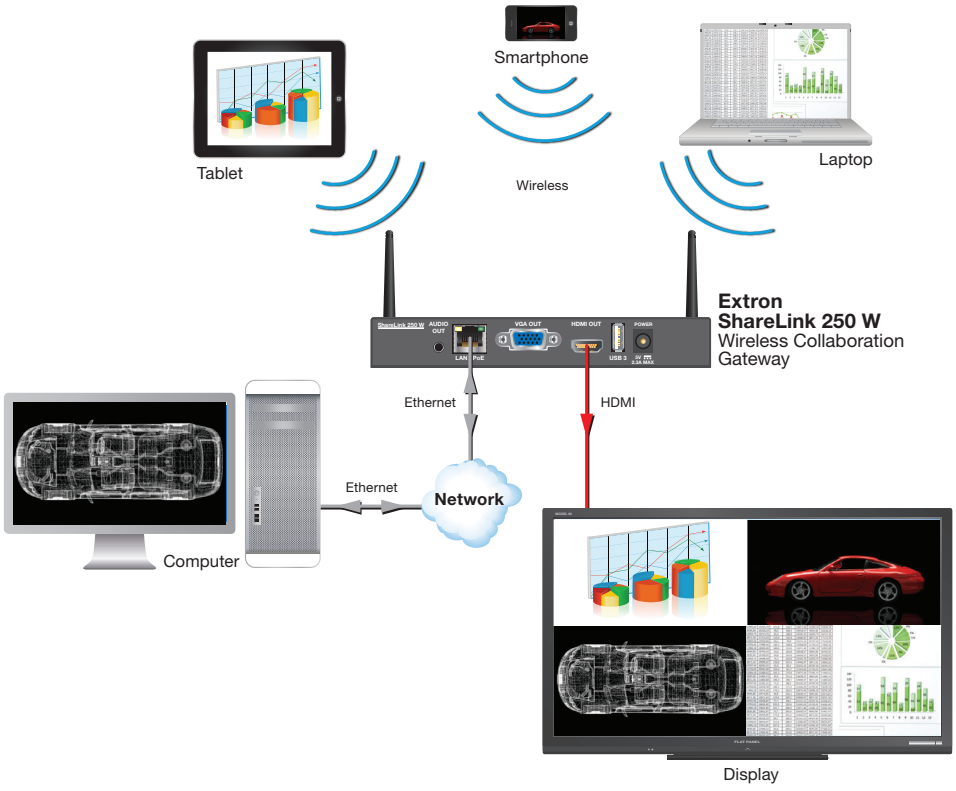


Figure 1: AV system using a ShareLink 250 W collaboration gateway.

ShareLink 200 N using an existing wireless network infrastructure:

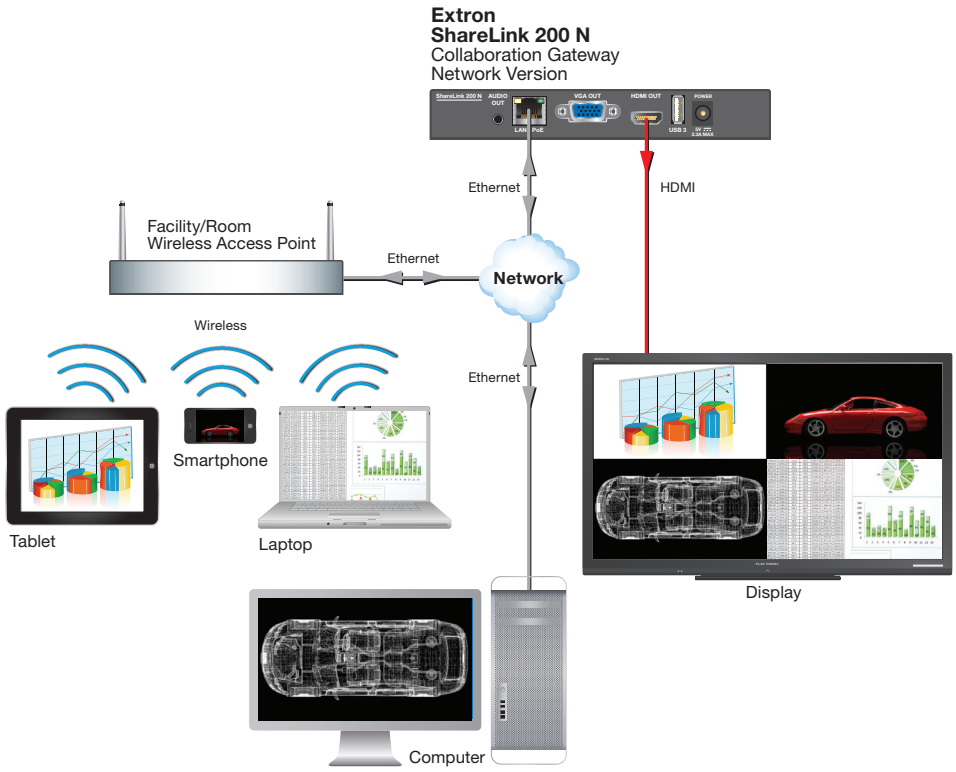


Figure 2: AV system using a ShareLink 200 N collaboration gateway.

User Experience

On-Screen Display (OSD)

The ShareLink 250 Series displays a welcome screen that includes default connection instructions for users. The image used on the welcome screen can be customized to display site-specific connection instructions and branding. The hostname, IP address, and login code will be displayed on the welcome screen.

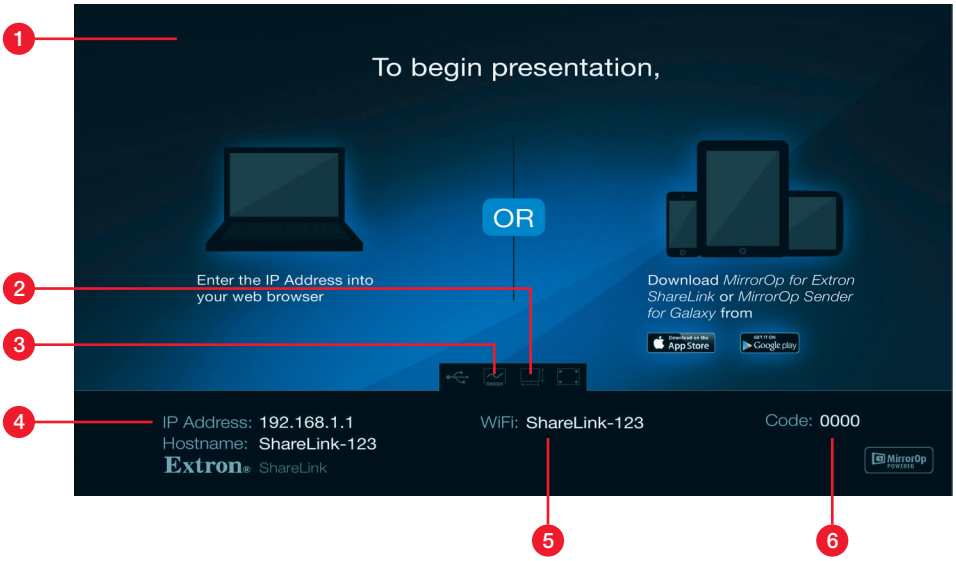


Figure 3: The welcome screen displays default connection steps for users, and it can be customized with site-specific instructions and branding.

1 Welcome Screen

The ShareLink 250 Series displays a welcome screen when there are no devices connected. This screen displays the fundamental steps required to connect a mobile device to the ShareLink 250 series. The image used for the welcome screen can be replaced with a JPG or PNG file, allowing display of custom connection instructions and to reinforce your corporate branding strategy. A replacement image can be uploaded using the configuration page.

2 Whiteboard Icon

When Human Interface Device (HID) class pointing devices are connected to the ShareLink 250 Series via one of the three (3) USB ports, selection of this icon places the unit into whiteboard mode. The white background can be changed to black. When used with a touch-sensitive monitor or similar device, this feature enables the ShareLink 250 Series to function as an electronic whiteboard. Annotation tools include red, green, and blue pen colors, as well as an eraser.

3 USB Player

The USB player feature allows presentation of video, audio, image, or Microsoft Office® files without a computer or other mobile device. In order to navigate within the USB player, we suggest that you have either a mouse or other HID class pointing device connected to the unit.

4 IP Address

The IP address of the unit is displayed on the welcome screen. A first-time user enters this address into the URL field of their preferred Web browser in order to connect to the ShareLink 250 Series unit. Options include running the Lite version of the ShareLink software, which does not require administrator rights, or downloading and installing the Pro version of the software for increased functionality.

5 Receiver Name

This is the name of the ShareLink 250 Series unit that populates during the auto-discovery process of connecting to the unit within the computer software or mobile app. By default, it is the same as the SSID – Service Set Identifier – of the WAP for the ShareLink 250 W model.

6 Code

Each ShareLink 250 Series unit can be configured to use a four-digit code to ensure users are accessing the correct ShareLink 250 Series unit. Attempting to connect either from the mobile app or the software requires entry of this code prior to sharing content on the screen.

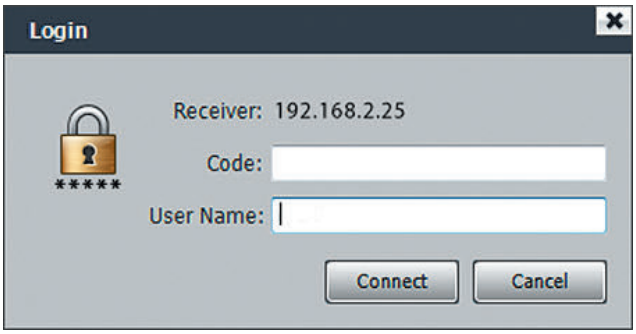


Figure 4: The ShareLink software and mobile app require a four-digit code on the login screen prior to sharing content on the display.

There are three modes of operation for the login code.

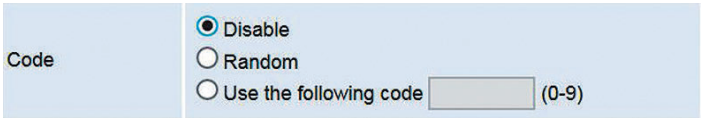


Figure 5: Three modes of operation are available for the login code.

- Disable: No login required and no dialog box will appear prior to connection.
- Random: Generates a new code after the last user disconnects from the unit or after connections are reset from the control system.
- Fixed: Allows the administrator to define a specific four-digit code that will not change.

This code also is displayed on the system status Web page of the ShareLink 250 Series, assisting help desk or other support services to remotely view and resolve any potential connection issues.

WebShare™ Technology

Extron WebShare technology allows presenters to distribute meeting content to each participant's mobile device. When enabled, presentation slides that appear on the main display are available to view via a Web browser on the device. Participants connect to the IP address of the ShareLink 250 Series unit and select the Watch Presentation option.

Figure 6: WebShare technology enables content to be distributed and viewed on participant mobile devices via a Web browser.

The WebShare feature can be set to refresh content manually or automatically based on a configurable time interval. When set to automatic refresh, the number of concurrent users can impact system performance.

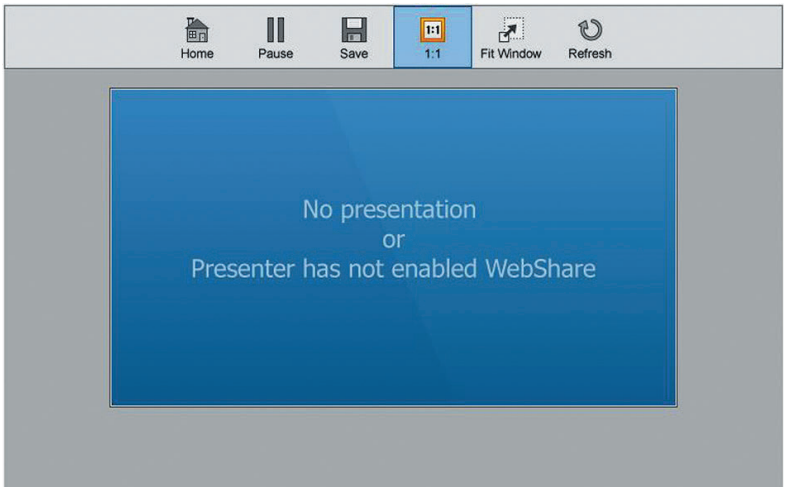


Figure 7: Access to WebShare content can be restricted if necessary.

The presenter must enable WebShare on their screen. To restrict access to the WebShare content, the presenter can configure a custom fixed access code or use the same on-screen code they use to present content. The presenter also has the option to disable the access code, which allows users to connect to the ShareLink 250 Series through WebShare without using a password.

Software Applications

The ShareLink 250 Series supports Microsoft and OS X operating systems for computers as well as iOS® and Android operating systems for mobile devices, ensuring that nearly anyone can connect and share content in rooms equipped with a ShareLink 250 Series Collaboration Gateway.

Mobile

Mobile devices, such as smartphones and tablets, use the MirrorOp™ for Extron ShareLink app available in the iTunes® or Google Play® app store. The app is free and does not require any in-app purchases. For users with Samsung® Galaxy devices, the MirrorOp Sender for Galaxy is an approved alternate app. This app allows for complete screen mirroring of Samsung Galaxy smartphones and tablets. The iOS Mirroring feature allows iOS devices to mirror their entire screen to the display as well. The ShareLink Gateway will appear in the list of AirPlay devices under the iPad or iPhone Control Center so it can be selected. This feature also can be used with Apple computers that support AirPlay video devices. The ShareLink Gateway is displayed in the list of AirPlay devices on the OS X computer. For the iOS Mirroring feature to work, the devices and the ShareLink Gateway must be on the same subnet for the iOS device or OS X computer to discover the ShareLink Gateway.

Computer Users

Lite Application

Computers running Windows or OS X use the ShareLink software application. For guest users, the Lite version can be downloaded directly from the ShareLink 250 Series to their computer, alleviating the need for administrator access rights for software installations. As a portable application, it does not permanently install any software on the computer and once closed, it leaves no software on the computer. After the presenter selects the Share button from their web browser, they are prompted to run the software by selecting Run. The “Share my Screen” popup window appears on the computer screen, enabling the user to select the screen configuration and to start/stop content sharing. If a user wants to connect to a ShareLink 250 W or ShareLink 200 N in the future, they will need to run the Lite version again.

Pro Application

For users with administrative privileges or for IT departments that would like to push software out to users, the ShareLink software has a deployable Pro version that offers enhanced features, such as the ability to share media files. For users who will connect to a ShareLink 250 W or ShareLink 200 N system frequently, this option allows them to present content from their computer without any additional steps in future meetings.

Lite Software vs. Pro Software		
	Lite Software	Pro Software
No Installation Required	✓	
Screen Sharing	✓	✓
Video Sharing		✓
Share Multiple Screens	✓	✓
WebShare	✓	✓
Advanced Settings		✓

Table 1: Comparison of features available with the Lite and Pro versions of ShareLink software.

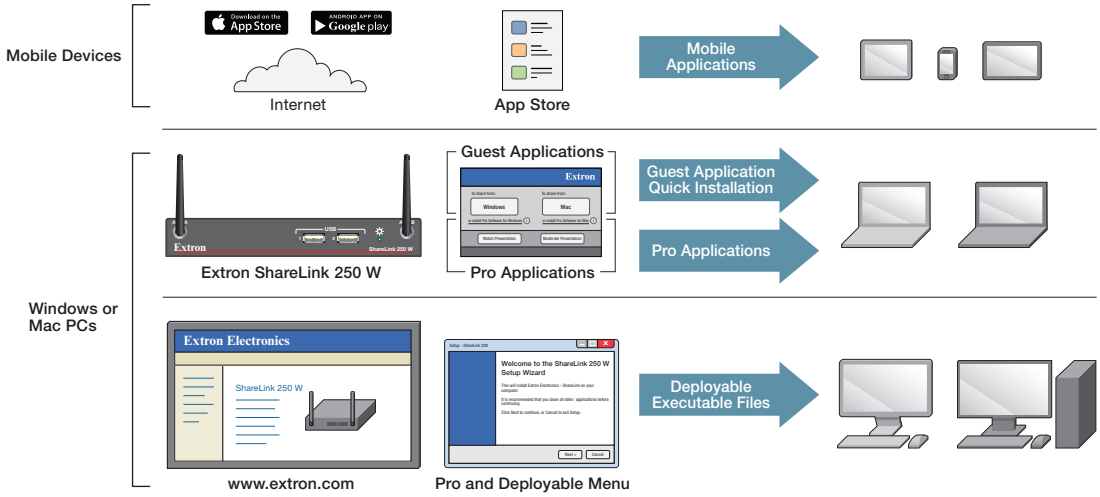
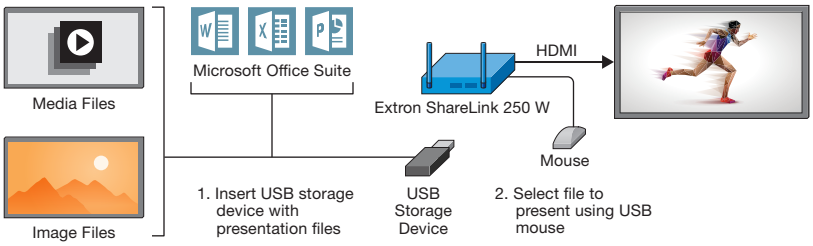


Figure 8: There are several methods by which users can connect and share content in rooms equipped with a ShareLink 250 W Collaboration Gateway.

USB Player

The integrated USB player allows for content sharing without the need for a mobile device. Office documents and media files can be displayed directly.



Item	Format
USB	FAT32
Image File	JPEG, BMP, GIF, PNG
Container File	MPEG-1, MPEG-2, MPEG-2 TS, MPEG-4, WMV9, MOV, MJPEG, MKV, ASF, DVR-M5
Video Codec	MPEG-1, MPEG-2, MPEG-2 TS, MPEG-43, WMV9(WMV3/WVC1), Quicktime, MJPEG
Audio Codec	LPCM, AAC, MP3, WMA
Application Files	Microsoft Word, Excel, PowerPoint

Note 1: Container formats will be compatible with the identified audio and video codecs
Note 2: Maximum resolution and bit rate supported is 1080p/30, 20 Mbps
Note 3: Microsoft MPEG-4 v1-3 is not supported

Figure 9: The USB players can be used to display Microsoft Office documents and media files directly from a USB storage device.

Local Control

Local control of the USB player is accomplished with a mouse connected to one of the three (3) USB ports on the ShareLink 250 Series. Alternatively, other HID class USB devices can be used, such as some touch-sensitive video displays or interactive whiteboards.

Remote Control

If a USB drive is connected to the ShareLink 250 Series, it is possible to issue Ethernet-based commands to play a designated file. This functionality is useful for enterprise-wide deployments that need to incorporate visual messaging or alerts into their facility. In the application in Figure 10, the Extron GlobalViewer Enterprise (GVE) Management System sends commands via Ethernet to the Extron IPCP Pro 550 controller which sends commands to each ShareLink 250 Series to display media from their connected USB storage device.

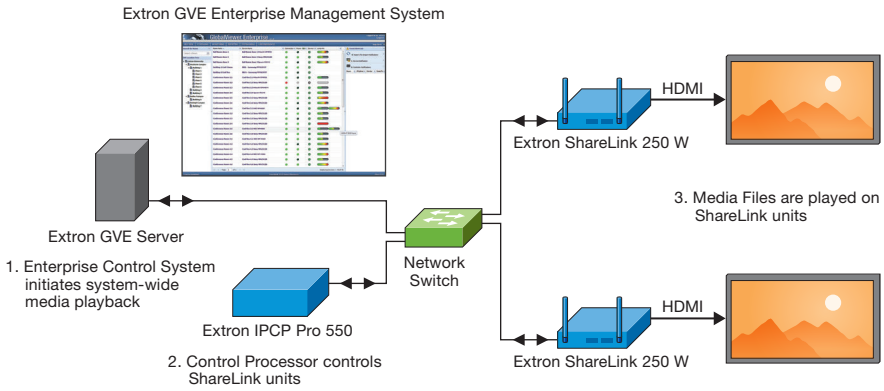


Figure 10: For enterprise-wide deployments, Ethernet-based commands can be used to play designated files, such as visual messages, if a USB drive is connected to the ShareLink unit.

Operational Modes

Collaboration

There are two modes of operation for the ShareLink 250 Series. The default operational mode is Collaboration. In this mode, all connected users are able to send content to the gateway for display on the screen. Up to four (4) devices can be displayed on the screen simultaneously. However, if another device shares content, it will displace the device in the selected quadrant.

Moderator

Not all sites benefit from such a free-form collaboration method. In presentation spaces, training rooms, and classrooms, the Moderator mode could be a better option. This allows the meeting leader to log into the ShareLink 250 Series unit and select which devices can share content, as well as how that content is displayed on the screen.

Regardless of the operational mode selected, the ShareLink 250 W and ShareLink 200 N support up to 64 connected users at any given time. Of those 64 connected users, a maximum of four (4) can be displayed simultaneously.

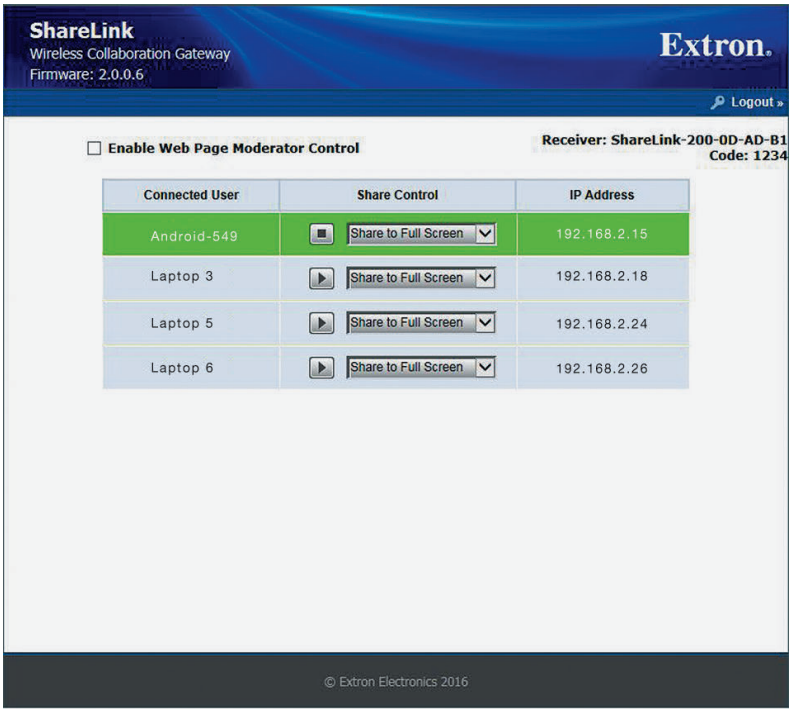


Figure 11: In Moderator mode, the meeting leader can choose which device shares content and how the content is displayed.

Control Solutions

Extron Device Driver

When deploying the ShareLink 250 Series into spaces that also use Extron control solutions for resource management, presentations, or AV system control, it is possible to control the ShareLink 250 Series as part of that deployment. To simplify integration, a device driver is available for the IPCP Pro Series of Extron control processors.

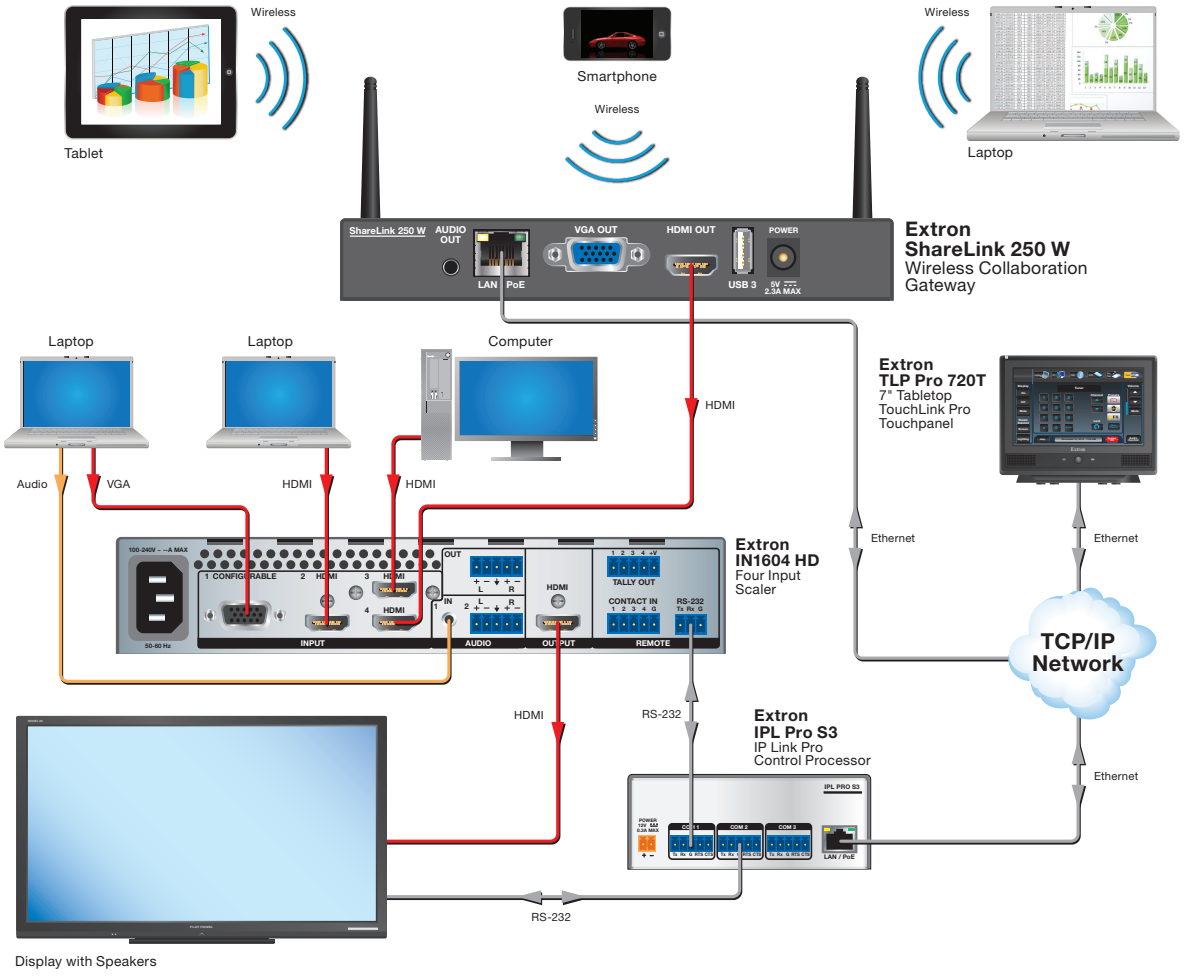


Figure 12: A ShareLink 250 W controlled by an Extron control system in a small meeting room.

Network Topologies

No two networks are the same. As such, the ShareLink 250 Series is designed to provide the tools required for you to configure it to your specific goals.

VLAN

By placing all ShareLink 250 Series devices on a dedicated VLAN, it is possible to provide separation for guest and corporate users. By establishing proper routing rules, it is possible to allow users on the corporate and guest LANs to access the ShareLink VLAN while maintaining isolation.

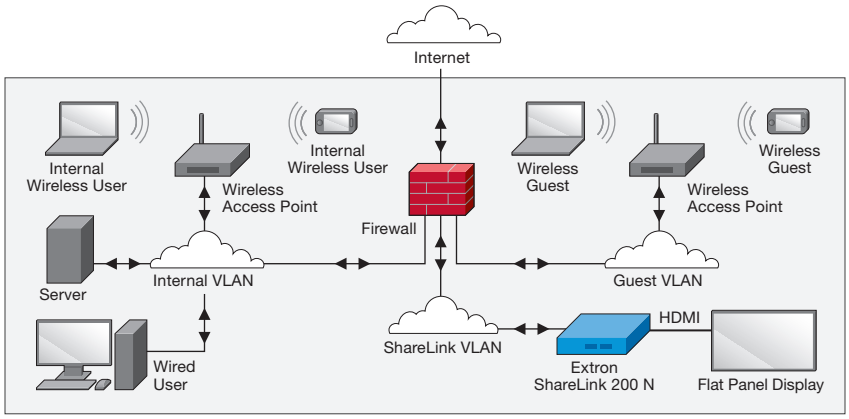


Figure 13: Configuration showing dedicated VLAN for ShareLink 250 Series units.

Air Gap

For sites that must maintain the highest level of network separation, an air-gapped solution could be the best option. By using two ShareLink 250 Series units, one on the dedicated corporate network and one on the dedicated guest network, there is no direct data connection point between the two networks. When corporate users need to collaborate with guest users, they would join the guest network.

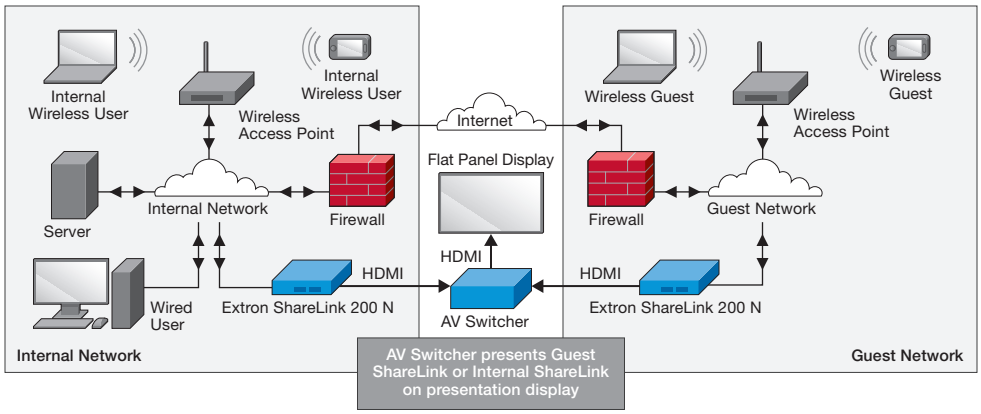


Figure 14: Two ShareLink 250 Series units in an air-gapped network setup can be used for sites that need to maintain the highest level of network separation.

Standalone

The ShareLink 250 W model features an integrated wireless access point. Using the access point, it is possible to deploy the ShareLink 250 W as a completely standalone system using the internal WAP as the sole connection point for users.

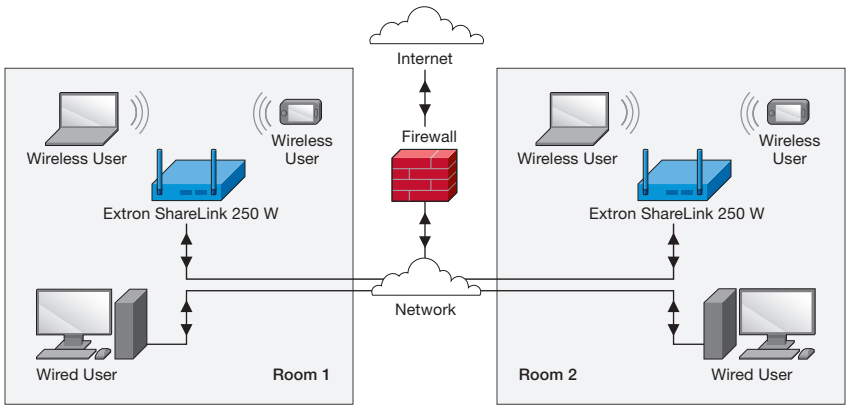


Figure 15: ShareLink 250 Series units in standalone setup.

Network Infrastructure

Wireless

Operational Environment

Deploying network devices that incorporate RF (Radio Frequency) components requires a strategy in order to ensure that the best possible operational outcomes are achieved. The 2.4 GHz and 5 GHz spectrum are unlicensed and, depending on the site conditions, could be crowded with other devices. We suggest that prior to installation, a site survey be performed and coordination with the IT department should occur in order to understand which channels are occupied. This is essential for establishing a frequency allocation plan.

The ShareLink 250 W features an integrated wireless access point (WAP) that operates at 2.4 GHz or 5 GHz using the IEEE 802.11b/g/n protocols. Some sites might prefer to use their own wireless network. In these instances, the integrated WAP of the ShareLink 250 W can be disabled, or if preferred, the ShareLink 200 N is available as a network gateway that does not include the WAP.

	2.4 GHz	5 GHz
Channels (Non-Overlapping)	3	25
Typical Range	100m (328 ft)	100m (328 ft)
Susceptible to Interference	High	Low
Easily Obstructed	No	Somewhat

Table 2: Comparison of the Benefits of 2.4 GHz and 5 GHz Wireless Networks

Real-World Signal Propagation

There are many things that impact the propagation, or coverage, of RF signals. These can be categorized as absorption, scattering, reflection, diffraction, and refraction. In addition to distorting the original signal, these phenomena also can create additional propagation paths. This multi-path signal propagation leads to reduced performance.

The 2.4 GHz Wi-Fi band uses eleven overlapping channels. Only three of those channels are non-overlapping as noted in Figure 16. Individual ShareLink 250 W units placed more than 656 ft (200 m) apart horizontally or on different floors of a commercial building are considered sparsely deployed and channel selection for the units is not critical since their signals will not reach the other units. Units placed closer together than this are considered a dense deployment and the channels for each unit should be set so that adjacent devices are not on the same channel. A common setup is shown in Figure 16 using the three non-overlapping channels 1, 6, and 11.

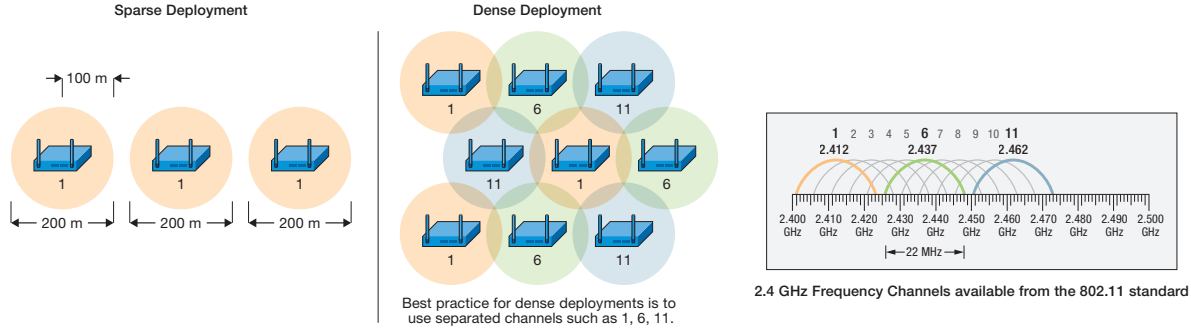


Figure 16: Channel assignments that use Sparse and Dense deployments are shown along with a layout of the available 2.4 GHz band Wi-Fi channels.

The 5 GHz Wi-Fi band uses 25 non-overlapping channels as noted in Figure 17. The ShareLink 250 W uses nine non-DFS channels (36, 40, 44, 48, 149, 153, 157, 161, 165) within the 5 GHz band. With more non-overlapping channels available in the 5 GHz band and fewer Wi-Fi networks and interference sources than the 2.4 GHz band, the 5 GHz band is often the best choice for setting up multiple ShareLink units. Similar placement requirements for sparse and dense deployments apply to ShareLink 250 W units in the 5 GHz band as in the 2.4 GHz band noted above. However, with more available channels the dense deployment options are much greater.

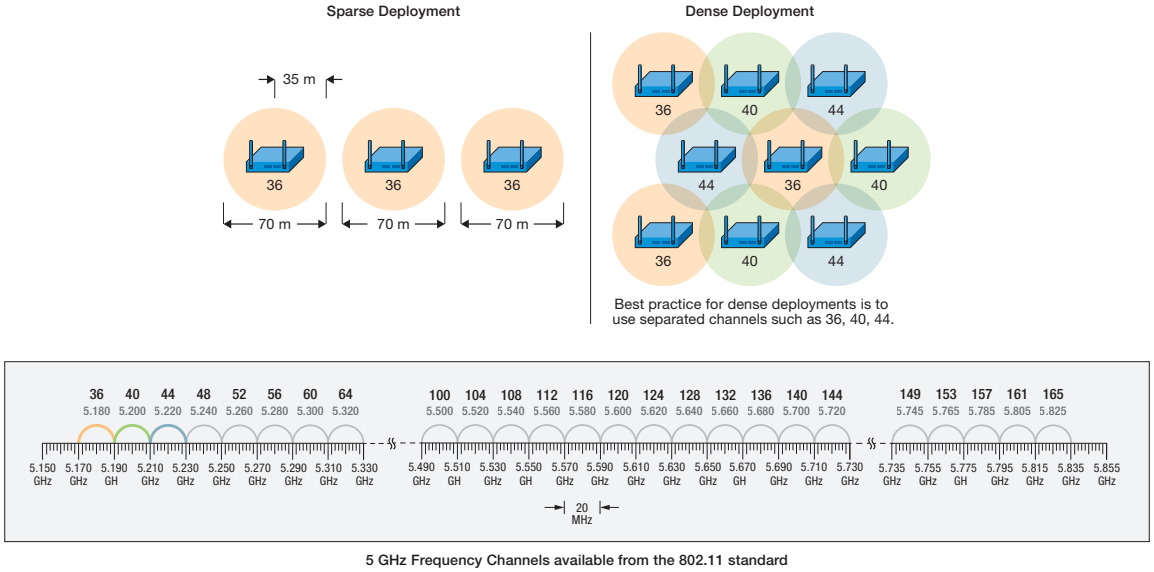


Figure 17: Channel assignments that use Sparse and Dense deployments are shown along with a layout of the available 5 GHz Wi-Fi channels

Comparison of IEEE 802.11 Standards

	802.11b	802.11g	802.11a	802.11n
Maximum signaling rate	11 Mbps	54 Mbps	54 Mbps	300 Mbps
Operating frequency band	2.4 GHz	2.4 GHz	5 GHz	2.4 & 5 GHz
Typical range	100m (328 ft)	100m (328 ft)	100m (328 ft)	150m (492 ft)
Non-overlapping channels	3	3	3	3 (2.4 GHz) 25 (5 GHz)
Interference sources	Bluetooth, Microwave Ovens, Baby monitors, etc.	Bluetooth, Microwave Ovens, Baby monitors, etc.	Cordless phones	Same as IEEE 802.11b/g at 2.4 GHz Same as IEEE 802.11a at 5 GHz

Table 3: Comparison of common IEEE 802.11 wireless standards.

Operational Modes

The wireless access point in the ShareLink 250 W can be set as an Access Point, Client, or AP Client depending on the requirements of the network design or it can be disabled if the access point is not needed.

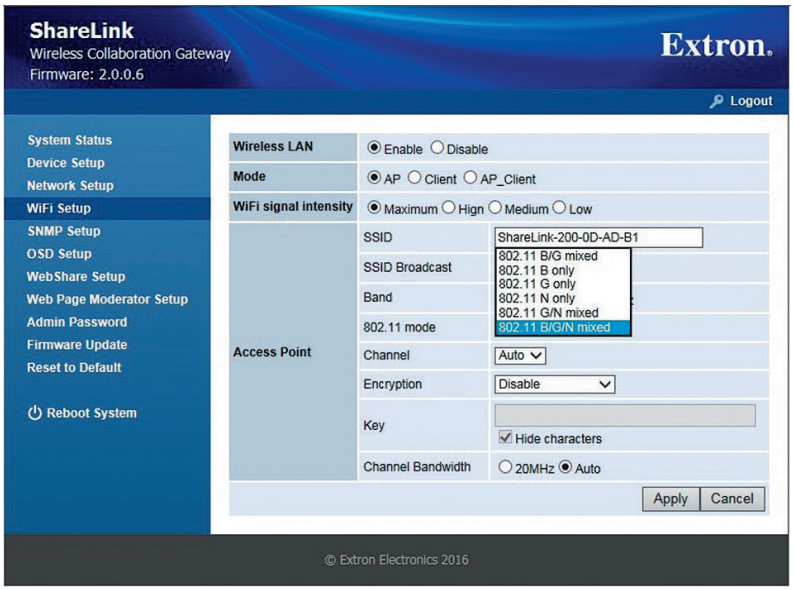


Figure 18: The wireless access point of the ShareLink 250 W can be adjusted depending on network design requirements.

Access Point (AP)

In AP mode, the ShareLink 250 W functions as a standalone access point for wireless connections and uses the built-in DHCP server to issue IP addresses. If the ShareLink 250 W is connected to a wired network connection in this mode, it will become an access point for that network. In order to manage the access of connected users, the Gatekeeper function within the Network Setup tab provides the ability to pass all, block all, or allow access only to the Internet when users connect to the wireless AP of the ShareLink 250 W.

Client

In Client mode, the ShareLink 250 W joins an existing wireless network, just like the mobile devices that are sharing the content. If credentials are required to access the wireless network, these must be entered before the ShareLink 250 W can connect.

Bridge (AP_Client)

In AP_Client mode, the DHCP server of the ShareLink 250 W is disabled and relies on another router within the network to provide access to the Internet, as well as issue and manage the IP address. This mode can be used to extend the reach of an existing wireless network.

Channel Management

It is possible to either allow the ShareLink 250 W to select the best Wi-Fi channel available or if the ShareLink 250 W is part of a larger, managed channel allocation scheme, you can select which channel it should use in order to minimize or even eliminate overlapping channel assignments that could lead to decreased performance.

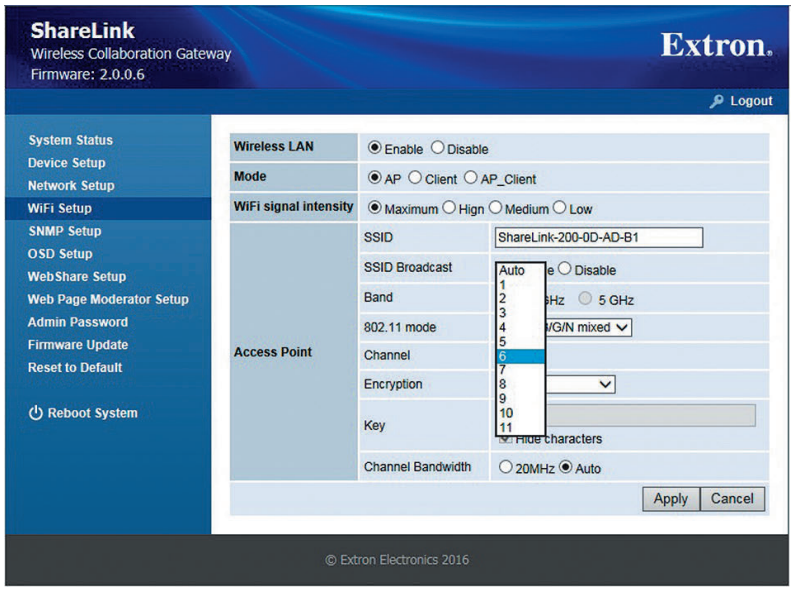


Figure 19: A Wi-Fi channel can be selected for the ShareLink 250 W to minimize or eliminate overlapping channel assignments.

Security

Having the proper network security configuration is crucial for protecting the networking infrastructure of your organization. The ShareLink 250 Series includes several features that facilitate a secure connection. The ShareLink 250 Series gateway supports integration with a RADIUS server which provides authentication, authorization, and account management for users connecting to the network. Integrating the ShareLink 250 Series with a RADIUS server eliminates the need to create separate user accounts on each unit. This provides a scalable approach to security in enterprise environments where there can be numerous ShareLink units and users that need access to these devices.

Additionally, the ShareLink 250 Series supports the IEEE 802.1x security standard. This provides port-based network access control and encapsulation of data to an authentication server such as a RADIUS server. For organizations that require these security standards, this adds another layer of security to the presentation system.

The Windows and Mac computer software applications - Pro and Lite versions - support AES 128-bit encryption of all video and control data sent between the computer and the ShareLink 250 Series. The wireless access point built into the ShareLink 250 W operates in the 2.4 GHz band. The access point can be configured to give users wireless access to share presentation content via their personal mobile devices, while the wired Ethernet connection on the ShareLink unit can provide similar connections for the internal customer network – either wired or wireless. This configuration maintains the security of your organization's wired network while allowing easy access for guests. The ShareLink 250 Series provides a gatekeeper function that can be set to prevent wireless users from accessing the internal private network, via the

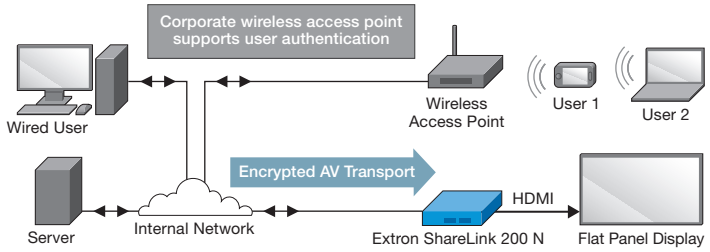


Figure 20: The ShareLink 250 Series uses a proprietary method with an encryption scheme for sending content from devices to the ShareLink 250 Series.

Port	Type	Direction	Function	Open	Notes
67 68	UDP	Both	DHCP	Optional	Note: These ports remain open in the ShareLink 250 W even when GateKeeper **All Block** is enabled.
80	TCP	Both	Web Services	Required	This port is used to access the embedded webpages.
137	TCP/UDP	Both	NetBios	Optional	This port is used by the NetBIOS naming service.
138	TCP/UDP	Both	NetBios	Optional	This port is used by the NetBIOS naming service.
161	UDP	Both	SNMP	Optional	This port is used for SNMP management.
389 443 3268	TCP	Both	Command	Required	For best performance, we recommend that ports 389, 443, and 3268 are open. At a minimum, one of these three ports needs to be open for the gateway to function properly. If only one port is open and that port is used by another application, the ShareLink 250 Series will not function properly.
445 515 8080	TCP	Both	Data	Required	This port is used for screen data.
1041	TCP	Outbound	Video	Required	This port is used for video data.
1047 1048 1049	UDP	Inbound	Discovery	Optional	These ports are used for discovery of the gateway. If closed, the discovery process could be impacted. Note: These ports remain open in the ShareLink 250 W even when GateKeeper **All Block** is enabled.
1688	TCP	Both	Audio	Recommended	This port is used for audio data.
1689	TCP		Debug	Optional	This port is used for the debugging log.
1900 50000- 65000	UDP	Both	DLNA	Required	These ports are used for streaming video data to the ShareLink 250 Series.
2869 49152 49123	TCP	Both	DLNA	Required	These ports are used for streaming video data to the ShareLink 250 Series.
3689	TCP	Both	Audio	Required	Digital Audio Access Protocol for iOS mirroring audio sharing
5353	UDP	Both	Discovery	Required	Bonjour/Avahi network discovery for iOS mirroring discovery
19996	TCP		Command	Required	This port is required for Moderator control.
25005	TCP	Both	Discovery	Required	Avahi-daemon for iOS mirroring discovery
31865	TCP		Data	Optional	This port is used by Android mobile devices.
42891 42892	TCP		Update Utility	Required	These ports are used for updating firmware.

Table 4: ShareLink 250 Series IP port usage.

ShareLink unit's Ethernet port, or to reach the Internet only by using Port 80 – which is designated for Web traffic – through the Ethernet port. These options allow easy access for presentation content while also maintaining stringent security of the organization's internal network.

Firewall Transversal

In order for the ShareLink 250 Series gateway to function correctly with the ShareLink application, it is recommended that the following firewall rules are used to allow traffic to pass on the customer's wired network. Table 4 details the ports and their functions.

Wireless Encryption

The integrated wireless access point of the ShareLink 250 W supports multiple encryption options for securing wireless communications between it and connected devices. WEP, WPA, and WPA2 Wi-Fi encryption standards are supported and RADIUS server access, for remote authentication, is enabled when either the WPA Enterprise or WPA2 Enterprise options are selected on the configuration page.

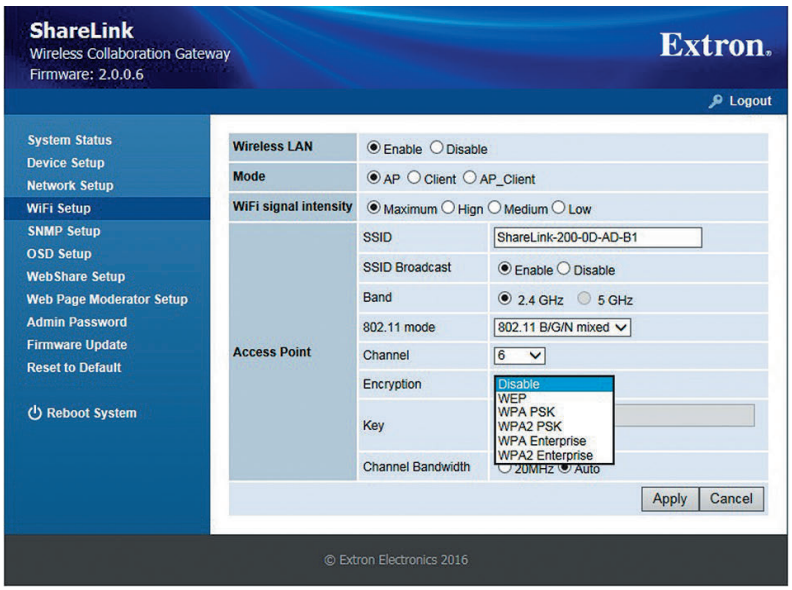


Figure 21: Multiple encryption options are available for the ShareLink 250 W.

Wired

The wireless access point of the ShareLink 250 W can be disabled, making it a network appliance that relies on another WLAN for device connections. Alternatively, the ShareLink 200 N operates only as a network appliance because it does not have the hardware to support a WAP. If the wired connection is employed and the network switch provides Power over Ethernet - PoE, the external power supply can be eliminated.

Device Considerations

Device Naming

The ShareLink 250 Series supports device naming in order to make the address scheme easier for users to understand and remember compared to the use of an IP address. The hostname can be resolved using:

- NetBIOS resolution
  - o Hostname must be 15 characters or less.
- DHCP options 12 (i.e. client hostname) and 81(i.e. client FQDN – Fully Qualified Domain Name)
- NSUPDATE for dynamic DNS servers
  - o If using a static IP address, the DNS field must be populated.
  - o If using DHCP addressing, the Domain Name field must be populated.

Room Files

A link file can be created on a computer, with the ShareLink software installed, so users can connect to a specific ShareLink without entering the IP address or login code each time. The file can be created using any text editor. Once created, rename the file extension from *.txt to *.link. Room files require a fixed login code, or no login code, since the IP address and login code are entered in the txt file. Then the file can be used to connect to the ShareLink. See the ShareLink User Guide for full information on room files.

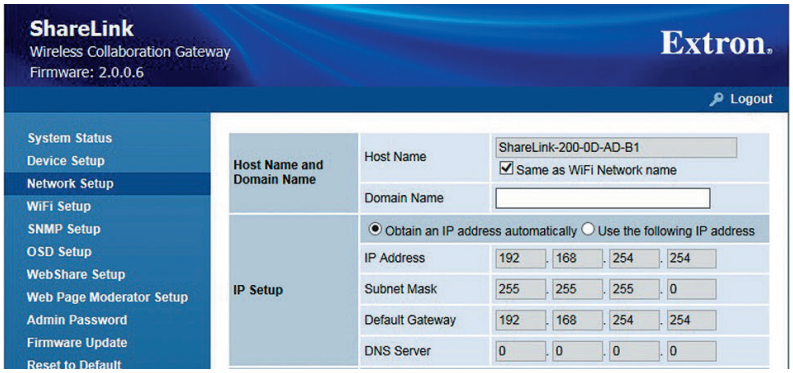


Figure 22: Network setup for the device can be accomplished through the ShareLink 250 Series embedded Web pages.

Device Administration

Setup of the ShareLink 250 Series is accomplished through the embedded Web pages of the product. Settings such as IP address, security codes, Wi-Fi configuration, and on-screen display can be adjusted after you have logged in through the Configure link on the main Web page. In order to access these settings, you must log into the gateway. The first time you login, you may receive a browser warning message. The default password is “configure” and we strongly recommend that the password be changed when the ShareLink 250 Series is deployed.

Figure 23: Use the gateway’s embedded Web pages to set up the ShareLink 250 Series unit, including updating device firmware.

Video Resolution

The ShareLink 250 Series provides analog video output on a 15-pin HD connector and digital video output on an HDMI type A connector. Both outputs are active simultaneously and the resolution can be adjusted through the Device Setup tab of the Configuration page. Whenever possible, it is suggested that the resolution selected match the native resolution of the display device.

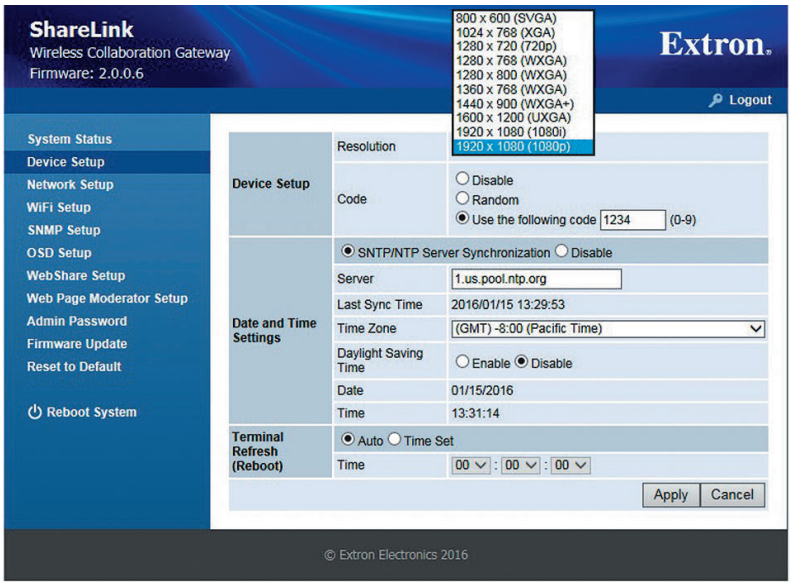


Figure 24: The video resolution of the ShareLink 250 Series can be adjusted using the Device Setup tab.

NTP Server Synchronization

For ShareLink 250 Series units that are connected to a network, it is possible to configure them for Network Time Protocol synchronization. When using NTP servers, enter the server information to automatically update the time and date of the ShareLink 250 Series unit.

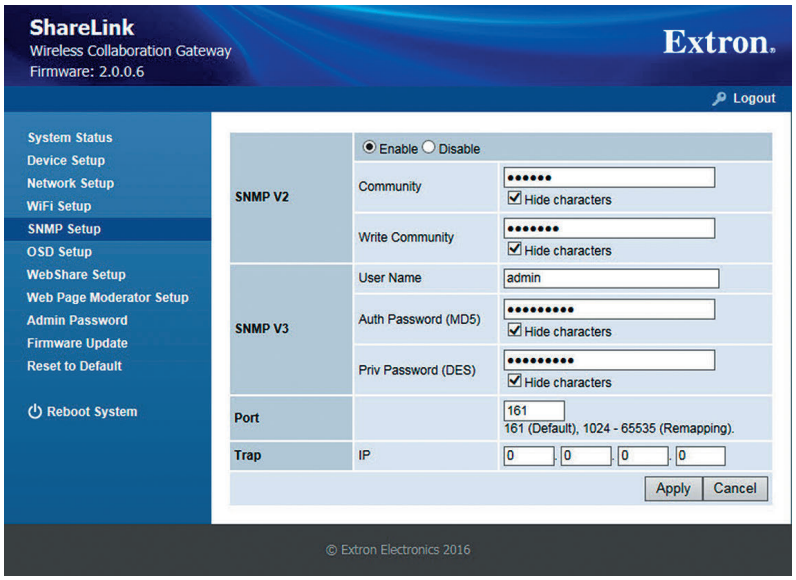


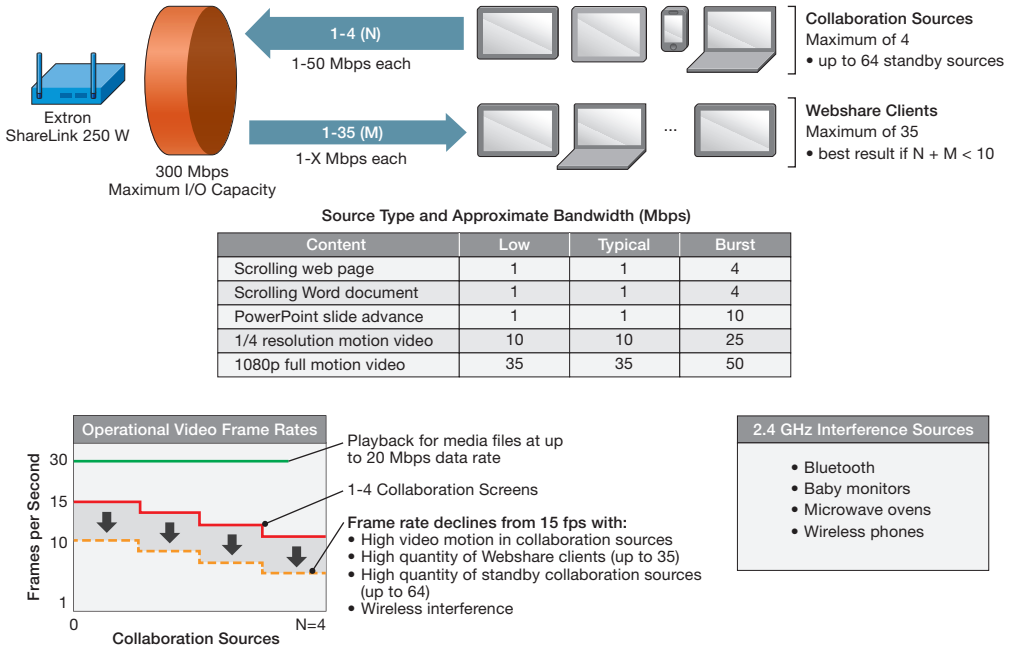
Figure 25: SNMP Configuration

SNMP Configuration

SNMP control of the ShareLink 250 Series is possible. Contact your Extron Representative for more information. To set up SNMP, you need to select the SNMP V3 mode and enter the login information. These settings can be updated from the configuration page of the ShareLink 250 Series. It is strongly recommended that if SNMP services will not be used, that these settings be disabled on the configuration page. If SNMP management is desired, it is suggested that the default values are changed.

Bandwidth

There are many factors that influence the bandwidth demands of the ShareLink 250 W and ShareLink 200 N. The greatest impact to bandwidth is whether or not the content is motion video or static images.



Source Type and Approximate Bandwidth (Mbps)

Content	Low	Typical	Burst
Scrolling web page	1	1	4
Scrolling Word document	1	1	4
PowerPoint slide advance	1	1	10
1/4 resolution motion video	10	10	25
1080p full motion video	35	35	50

Figure 26: Approximate bandwidth use based on source type.

Wi-Fi

The bandwidth used by the MirrorOp for Extron ShareLink app varies based on the content that is being shown. Sharing images, Office documents, and PDF files results in short bursts of data associated with the refresh or change in content. Figure 26 contains a ShareLink bandwidth and frame rate table which provides an approximation of the bandwidth requirements for the ShareLink 250 W operating on the network. Figure 27 is a data capture from the wireless network which depicts data throughput for a tablet displaying images. Each burst of data indicates when a new image file is displayed.

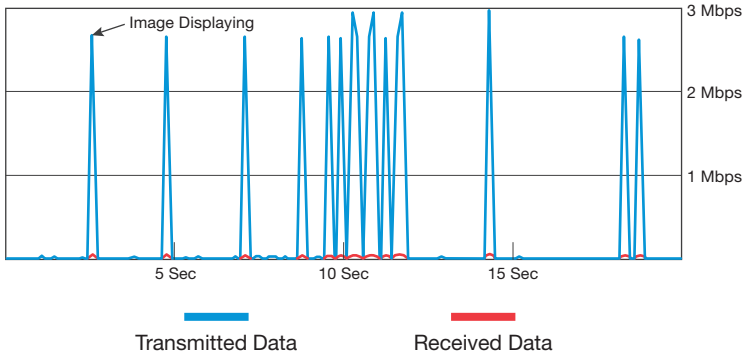


Figure 27: Wireless network data capture showing bursts of data as image files are displayed from a tablet through a ShareLink 250 W.

When sharing motion video or a video file, the bandwidth demands increase accordingly. In the example shown below, the initial data traffic peaks with the buffering of the file, then drops as playback begins.

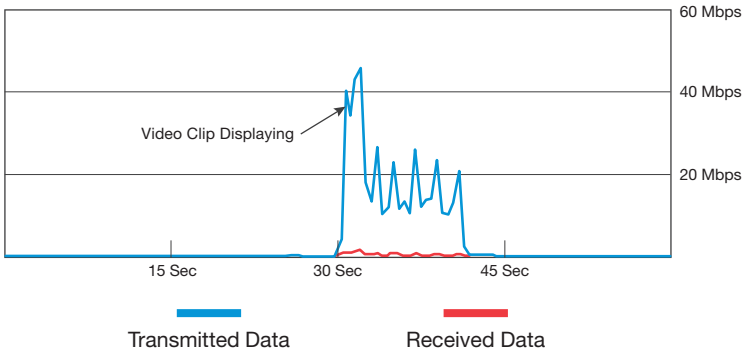


Figure 28: Wireless network data capture showing initial burst of data as video file starts to play and then subsequent buffering of the data as playback continues through a ShareLink 250 W.

Ethernet Port

The integrated Ethernet port supports IEEE 802.3, IEEE 802.3u, and IEEE 802.3ab (10/100/1000BASE-T) speeds. Power over Ethernet (PoE) 802.3at class 0 is also supported to eliminate the need for an external power supply.

Mounting

The ShareLInk 250 W and ShareLink 200 N are 1" high and three-eighths rack wide (6.51") metal enclosures that meet UL 2043 plenum ratings excluding the power supply cabling. These units support PoE and can be mounted in plenum spaces, if local codes allow, when powered via PoE using plenum rated data cables.

With their compact design, they can be mounted discreetly above ceilings or under desks or tables using optional rack mounting kits. A wall mount bracket is included with each unit. Optional mounting brackets should be used for under-desk, furniture, or rack mounting applications. Dual antennas connect to the front of the unit for easy adjustment in rack mounting applications.

Device Updates

Firmware

Firmware can be updated on a single ShareLink 250 Series unit through the embedded Web page.

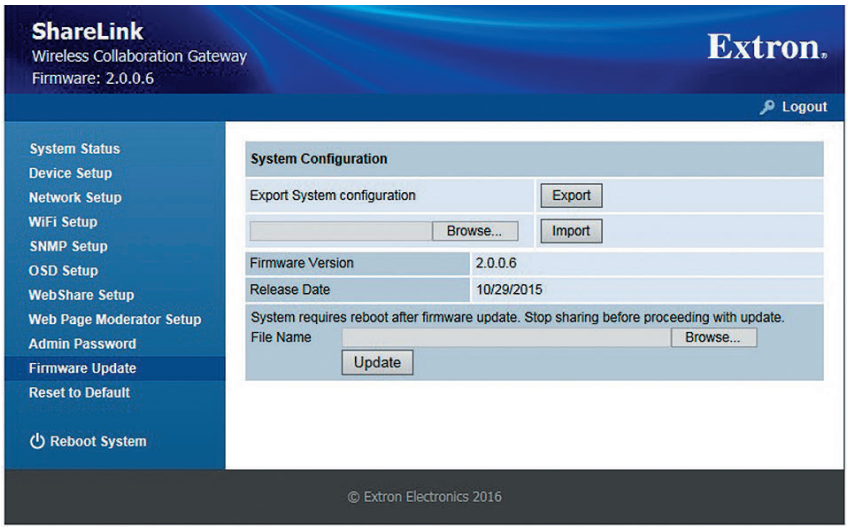


Figure 29: The embedded Web page can be used to update firmware on the ShareLink 250 W.

Notes

Extron Electronics

INTERFACING, SWITCHING AND CONTROL

Worldwide Sales Offices

Extron USA – West
Worldwide Headquarters

Extron Electronics
1025 E. Ball Road
Anaheim, California 92805
USA

Sales/Tech Support +800. 633. 9876 **USA & Canada only**
Order Support +800. 633. 9873 **USA & Canada only**
Control Systems Support +800. 633. 9877 **USA & Canada only**
+1. 714. 491. 1500
Fax +1. 714. 491. 1517

Extron USA – East

Extron Electronics
2500 N. Raleigh Boulevard
Raleigh, North Carolina 27604
USA

Sales +800. 633. 9876 **USA & Canada only**
+1. 919. 850. 1000
Fax +1. 919. 850. 1001

Extron Europe

Extron Electronics Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

Sales +800. EXTRON. S3 **Europe only**
+800. 3987. 6673 **Europe only**
+31. 33. 453. 4040
Fax +31. 33. 453. 4050

Extron Middle East

Extron Electronics Middle East FZE
Dubai Airport Free Zone
F13, PO Box 293666
Dubai
United Arab Emirates

Sales +971. 4. 299. 1800
Fax +971. 4. 299. 1880

Extron Asia

Extron Electronics Asia Pte Ltd
135 Joo Seng Road, #04-01
Singapore 368363
Singapore

Sales +800. S3. EXTRON **Asia only**
+800. 7339. 8766 **Asia only**
+65. 6383. 4400
Fax +65. 6383. 4664

Extron Japan

Extron Electronics Japan
Kyodo Building
16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

Sales +81. 3. 3511. 7655
Fax +81. 3. 3511. 7656

Extron China

Extron Electronics Shanghai Co Ltd
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Sales +4000. EXTRON **China only**
+4000. 398766 **China only**
+86. 21. 3760. 1568
Fax +86. 21. 3760. 1566

S3 Sales & Technical Support Hotline

USA +800. 633. 9876 **USA only**
+1. 714. 491. 1500
Europe +800. EXTRON. S3 **Europe only**
+800. 3987. 6673 **Europe only**
+31. 33. 453. 4040

Middle East +971. 4. 299. 1800
Asia +65. 6383. 4400
Japan +81. 3. 3511. 7655
China +4000. 398766 **China only**

24-Hour Technical Support

+800. 633. 9876 then press 3 **USA & Canada only**
Calls are returned within 30 minutes.

Office Hours

USA 7:00 am - 5:30 pm **Mon-Fri** PST
Europe 9:00 am - 6:00 pm **Mon-Fri** GMT+1
Middle East 8:30 am - 5:30 pm **Sun-Thu** GMT+3

Asia 8:30 am - 5:30 pm **Mon-Fri** GMT+8
Japan 9:00 am - 6:00 pm **Mon-Fri** GMT+9
China 8:30 am - 5:00 pm **Mon-Fri** GMT+8

Web Site

www.extron.com

Open Account Information

Qualified accounts may receive Net 30 day payment terms upon approved credit and acceptance of Extron's international credit policy. A Purchase Order is required by e-mail, fax, or mail. **USA only**

International Shipping Terms

Ex Works Extron Anaheim, Ex Works Extron Amersfoort, Ex Works Extron Singapore, Ex Works Extron Shanghai, and Ex Works Extron Dubai.

Special Orders & Handling

Next day shipment for stock items ordered by 2:00 pm PST is standard. **USA only**

Powered Product Warranty

Three years parts and labor. Touchscreen display and overlay components carry a one year parts and labor warranty, while the electronic components are covered by the Extron three year warranty.

***System INTEGRATOR*® Speaker Warranty**

Five years parts and labor.

Cable Performance Warranty

Limited lifetime. Extron Cable Products will be free from defects in material and workmanship for as long as you or your customer own the cable.

Additional Information

Please refer to Extron business policies for full details.

3-2017
68-2997-01
Rev. B
Letter - English - NP