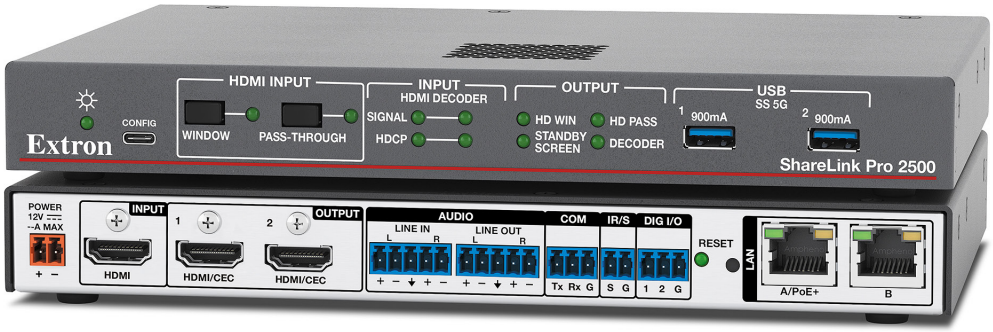
Extron

ShareLink Pro 2500

4K Dual Screen Wireless Presentation System



User Guide

Collaboration Systems

68-3824-01, Rev. D
08 26

Safety Instructions

Safety Instructions • English

WARNING: This symbol, ⚠, when used on the product, is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

ATTENTION: This symbol, ⚠, when used on the product, is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

For information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the Extron Safety and Regulatory Compliance Guide, part number 68-290-01, on the Extron website, www.extron.com.

تعليمات السلامة • العربية

تحذير: هذا الرمز، ⚠، عند استخدامه على المنتج، مخصص لتنبيه المستخدم فيما يتعلق بوجود جهد كهربائي غير معزول على الغلاف الخارجي للمنتج وهو ما قد ينطوي على مخاطر حدوث صدمة كهربائية.

انتبه: هذا الرمز، ⚠، عند استخدامه على المنتج، مخصص لتنبيه المستخدم بتعليمات التشغيل والصيانة الهامة (الخدمة) في المواد التي يتم توفيرها مع المعدات.

للحصول على المزيد من المعلومات حول إرشادات السلامة، والتوافقات التنظيمية، والتوافق الكهرومغناطيسي/المجال الكهرومغناطيسي، وإمكانية الوصول، والموضوعات ذات الصلة، يُرجى مراجعة دليل السلامة والتوافق التنظيمي الخاص بإكسترون، الجزء رقم 68-290-01، على موقع إكسترون، www.extron.com.

Sicherheitsanweisungen • Deutsch

WARUNG: Dieses Symbol ⚠ auf demProdukt soll den Benutzer darauf aufmerksam machen, dass im Inneren des Gehäuses dieses Produktes gefährliche Spannungen herrschen, die nicht isoliert sind und die einen elektrischen Schlag verursachen können.

VORSICHT: Dieses Symbol ⚠ auf dem Produkt soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Weitere Informationen über die Sicherheitsrichtlinien, Produkthandhabung, EMI/EMF-Kompatibilität, Zugänglichkeit und verwandte Themen finden Sie in den Extron-Richtlinien für Sicherheit und Handhabung (Artikelnummer 68-290-01) auf der Extron-Website, www.extron.com.

Instrucciones de seguridad • Español

ADVERTENCIA: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de voltaje peligroso sin aislar dentro del producto, lo que puede representar un riesgo de descarga eléctrica.

ATENCIÓN: Este símbolo, ⚠, cuando se utiliza en el producto, avisa al usuario de la presencia de importantes instrucciones de uso y mantenimiento estas estan incluidas en la documentación proporcionada con el equipo.

Para obtener información sobre directrices de seguridad, cumplimiento de normativas, compatibilidad electromagnética, accesibilidad y temas relacionados, consulte la Guía de cumplimiento de normativas y seguridad de Extron, referencia 68-290-01, en el sitio Web de Extron, www.extron.com.

Instructions de sécurité • Français

AVERTISSEMENT : Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur la présence à l'intérieur du boîtier du produit d'une tension électrique dangereuse susceptible de provoquer un choc électrique.

ATTENTION : Ce pictogramme, ⚠, lorsqu'il est utilisé sur le produit, signale à l'utilisateur des instructions d'utilisation ou de maintenance importantes qui se trouvent dans la documentation fournie avec l'équipement.

Pour en savoir plus sur les règles de sécurité, la conformité à la réglementation, la compatibilité EMI/EMF, l'accessibilité, et autres sujets connexes, lisez les informations de sécurité et de conformité Extron, réf. 68-290-01, sur le site Extron, www.extron.com.

Istruzioni di sicurezza • Italiano

AVVERTENZA: Il simbolo, ⚠, se usato sul prodotto, serve ad avvertire l'utente della presenza di tensione non isolata pericolosa all'interno del contenitore del prodotto che può costituire un rischio di scosse elettriche.

ATTENTZIONE: Il simbolo, ⚠, se usato sul prodotto, serve ad avvertire l'utente della presenza di importanti istruzioni di funzionamento e manutenzione nella documentazione fornita con l'apparecchio.

Per informazioni su parametri di sicurezza, conformità alle normative, compatibilità EMI/EMF, accessibilità e argomenti simili, fare riferimento alla Guida alla conformità normativa e di sicurezza di Extron, cod. articolo 68-290-01, sul sito web di Extron, www.extron.com.

Instrukcje bezpieczeństwa • Polska

OSTRZEŻENIE: Ten symbol, ⚠, gdy używany na produkt, ma na celu poinformować użytkownika o obecności izolowanego i niebezpiecznego napięcia wewnątrz obudowy produktu, który może stanowić zagrożenie porażenia prądem elektrycznym.

UWAGI: Ten symbol, ⚠, gdy używany na produkt, jest przeznaczony do ostrzegania użytkownika ważne operacyjne oraz instrukcje konserwacji (obsługi) w literaturze, wyposażone w sprzęt.

Informacji na temat wytycznych w sprawie bezpieczeństwa, regulacji wzajemnej zgodności, zgodność EMI/EMF, dostępności i Tematy pokrewne, zobacz Extron bezpieczeństwa i regulacyjnego zgodności przewodnik, część numer 68-290-01, na stronie internetowej Extron, www.extron.com.

Инструкция по технике безопасности • Русский

ПРЕДУПРЕЖДЕНИЕ: Данный символ, ⚠, если указан на продукте, предупреждает пользователя о наличии неизолированного опасного напряжения внутри корпуса продукта, которое может привести к поражению электрическим током.

ВНИМАНИЕ: Данный символ, ⚠, если указан на продукте, предупреждает пользователя о наличии важных инструкций по эксплуатации и обслуживанию в руководстве, прилагаемом к данному оборудованию.

Для получения информации о правилах техники безопасности, соблюдении нормативных требований, электромагнитной совместимости (ЭМП/ЭДС), возможности доступа и других вопросах см. руководство по безопасности и соблюдению нормативных требований Extron на сайте Extron: , www.extron.com, номер по каталогу - 68-290-01.

安全说明 • 简体中文

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注意: ⚠ 产品上的这个标志意在提示用户, 设备随附的用户手册中有重要的操作和维护(维修)说明。

关于我们产品的安全指南、遵循的规范、EMI/EMF 的兼容性、无障碍使用的特性等相关内容，敬请访问 Extron 网站，www.extron.com，参见 Extron 安全规范指南，产品编号 68-290-01。

安全記事 • 繁體中文

警告: 若產品上使用此符號，是為了提醒使用者，產品機殼內存在未隔離的危險電壓，可能會導致觸電之風險。

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有關安全性指導方針、法規遵守、EMI/EMF 相容性、存取範圍和相關主題的詳細資訊，請瀏覽 Extron 網站:**www.extron.com**，然後參閱《Extron 安全性與法規遵守手冊》，準則編號 68-290-01。

安全上のご注意 • 日本語

警告: この記号 が製品上に表示されている場合は、筐体内に絶縁されていない高電圧が流れ、感電の危険があることを示しています。

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安全上のご注意、法規厳守、EMI/EMF適合性、その他の関連項目については、エクストロンのウェブサイト **www.extron.com** より『Extron Safety and Regulatory Compliance Guide』(P/N 68-290-01) をご覧ください。

안전 지침 • 한국어

경고: 이 기호가 제품에 사용될 경우, 제품의 인클로저 내에 있는 접지되지 않은 위험한 전류로 인해 사용자가 감전될 위험이 있음을 경고합니다.

주의: 이 기호가 제품에 사용될 경우, 장비와 함께 제공된 책자에 나와 있는 주요 운영 및 유지보수(정비) 지침을 경고합니다.

안전 가이드라인, 규제 준수, EMI/EMF 호환성, 접근성, 그리고 관련 항목에 대한 자세한 내용은 Extron 웹 사이트(**www.extron.com**)의 Extron 안전 및 규제 준수 안내서, 68-290-01 조항을 참조하십시오.

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FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. The Class A limits provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference. This interference must be corrected at the expense of the user.

ATTENTION:

- The Twisted Pair Extension technology works with unshielded twisted pair (UTP) or shielded twisted pair (STP) cables; **but to ensure FCC Class A and CE compliance, STP cables and STP Connectors are required**.
- La technologie extension paires torsadées fonctionne avec les câbles paires torsadées blindées (UTP) ou non blindées (STP). Afin de s'assurer de la compatibilité entre FCC Classe A et CE, les câbles STP et les connecteurs STP sont nécessaires.

NOTES:

- This unit was tested with shielded I/O cables on the peripheral devices. Shielded cables must be used to ensure compliance with FCC emissions limits.
- For more information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the **Extron Safety and Regulatory Compliance Guide** on the Extron website.

Battery Notice

This product contains a battery. Do not open the unit to replace the battery. If the battery needs replacing, return the entire unit to Extron (for the correct address, see the Extron Warranty section on the last page of this guide).

CAUTION: Risk of explosion. Do not replace the battery with an incorrect type. Dispose of used batteries according to the instructions.

ATTENTION : Risque d'explosion. Ne pas remplacer la pile par le mauvais type de pile. Débarrassez-vous des piles usagées selon le mode d'emploi.

Conventions Used in this Guide

Notifications

The following notifications are used in this guide:

ATTENTION:

- Risk of property damage.
- Risque de dommages matériels.

NOTE: A note draws attention to important information.

Specifications Availability

Product specifications are available on the Extron website, **www.extron.com**.

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Introduction

This section covers the following:

- **About the ShareLink Pro 2500**
- **Features**

About the ShareLink Pro 2500

The ShareLink Pro 2500 is a 4K dual screen wireless presentation system that enables anyone to present wireless or wired content from their computers, tablets, or smartphones onto a display for easy collaboration.

It features streaming technology that supports simultaneous display of up to four content sources, including an HDMI-connected device. The HDMI input supports wired connections from any connected source in the room. To support a wide range of environments, the ShareLink Pro 2500 has collaboration and moderator modes that facilitate both open and restrictive environments.

The ShareLink Pro 2500 provides easy integration of AV and mobile devices into meeting, huddle, collaboration, and presentation spaces.

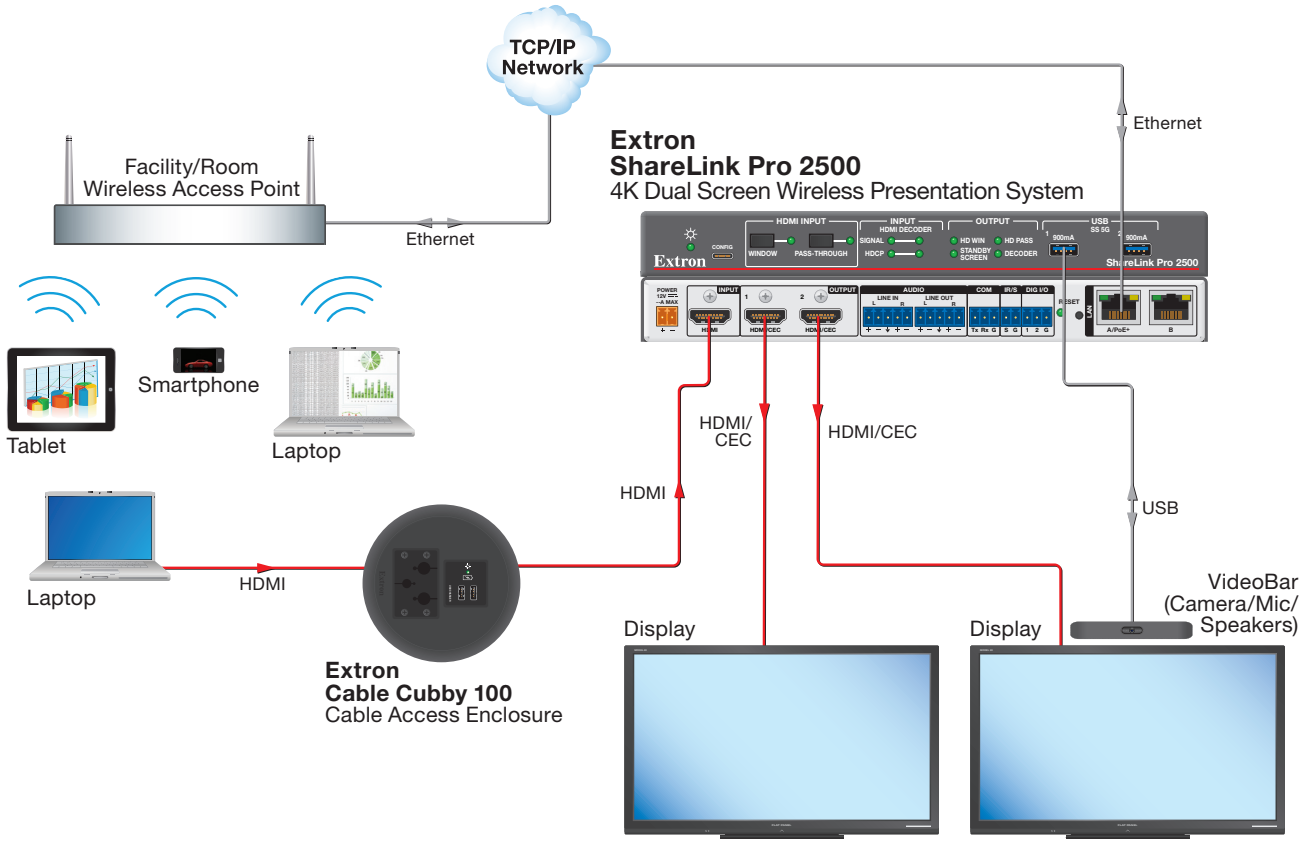


Figure 1. ShareLink Pro 2500 Application Diagram

Features

- **Provides full screen mirroring for all devices** — Display the entire screen of your device through the wireless presentation system for more fluid and easy collaboration sessions.
- **ConferenceShare enables wireless use of room cameras for UC meetings** — Facilitates wireless sharing of content from USB meeting room devices, such as cameras or microphones, for use in Microsoft Teams, Zoom, or other UC meetings.
- **Dual HDMI output supports displaying shared content on multiple displays**
- **Dual HDMI output supports displaying computer and video resolutions up to 4K —** Supports resolutions up to 4096x2160 with 4:4:4 chroma sampling at 8 bits of color.
- **WebShare shares content via a web browser** — Enables content sharing via a standard web browser, without the need to download software. This is ideal for users who want to share content quickly without installing anything on their computer. Works with Chrome™ browser supported on Windows®, macOS, and Chrome operating systems.
- **Wirelessly share content from mobile devices** — Connects a wide variety of devices to the system wirelessly or through a wired LAN connection.
- **Wireless and wired sources can collaborate simultaneously** — HDMI input enables wired users or sources to collaborate simultaneously with wireless users in the same session.
- **Supports Mac and Windows computers as well as Apple® and Android™ tablets and smartphones**
- **Dedicated app provides consistent user experience across platforms** — Similar interface for all platforms makes it easy for users to assist one another or move between devices regardless of how they connect and share content.
- **View up to four pieces of content simultaneously from any connected user** — Fosters collaboration and discussion by comparing multiple sources concurrently and reduces or eliminates the need to switch between sources for more effective collaboration.
- **H.264 Streaming Signage feature displays H.264 content on the ShareLink Pro 2500 when users aren't connected or sharing —** Content from Extron SME and SMP encoders and streaming media processors can be selected as well as any H.264 live stream - Digital Signage LinkLicense required.
- **Expo Mode enables the ShareLink Pro 2500 to display dynamic content as an alternative to the welcome screens —** Temporarily display H.264 streams, videos, or image content instead of BYOD shared content for unique events, announcements, or signage - Digital Signage LinkLicense required.
- **HDMI output supports computer and video resolutions up to 4K** — Resolutions up to 4096x2160 with 4:4:4 chroma subsampling at 8 bits of color.
- **HDCP compliant** — Ensures display of content-protected media on HDMI input and output for interoperability with other HDCP-compliant devices.
- **EDID Minder automatically manages EDID communication between HDMI connected devices** — EDID Minder ensures that all sources power up properly and reliably output content for display.
- **Collaboration mode allows any attendee to display content and control the presentation** — Enables content display from any connected device to enhance interactivity in brainstorming sessions, team meetings, and other collaborative environments.
- **Moderator mode ensures only approved user content is displayed** — Enables the moderator to select which users can access the display and how the content is displayed.
- **Display codes ensure content is delivered only to the selected display devices** — Randomly generated or user-defined display authentication codes prevent unintentional sharing or display of content to an adjacent space.

- **WebShare technology displays slide images on attendees personal devices via a web browser** — The ShareLink Pro 2500 enables meeting content to display on a participant mobile device. This is ideal for attendees who cannot easily view the main display.
- **128-bit data encryption** — A variety of security protocols ensure that all content transmitted between devices and the ShareLink Pro 2500 is fully encrypted and secure.
- **Power over Ethernet (PoE+)** allows the ShareLink Pro to receive power and communication over a single Ethernet cable, eliminating the need for a local power supply.
- **Fully customizable welcome screen** — Multiple configuration options to show, hide, or customize information on the welcome screen, so users can quickly connect and begin sharing their content.
- **Connects to an existing wireless network** — Leverages an existing wireless network infrastructure for the connection of mobile devices.
- **Includes user-friendly software for screen mirroring, sharing, and advanced control** — Provides both an executable that does not require administrator access rights and a version that can deployed by IT administrators.
- **Video screen saver** — The ShareLink Pro 2500 can be set to automatically mute video and sync output to the display device when no active connections are detected, automatically entering the display into standby mode to conserve energy, reducing costs and promoting panel life.
- **Front panel security lockout** — Prevents unauthorized use in non-secure environments. Set via Extron PCS software.
- **Easy setup and commissioning with Extron PCS** – Product Configuration Software — Conveniently configure multiple products using a single software application.
- **Display control options including CEC over HDMI connection**
- **Automatic input cable equalization to 50 feet (15 meters)** — Actively conditions incoming HDMI signals to compensate for signal loss when using long HDMI cables, low quality HDMI cables, and source devices with poor HDMI signal output
- **Compatible with Extron mounting solutions** — Easy mounting with Extron low-profile and under-desk mounts, under-table kits, and rack-shelf options.
- **1 inch (2.5 cm) high, half rack width metal enclosure** — Compact, low profile enclosure allows discreet installation within a lectern or behind a flat panel display.
- **Extron Pro Series Secure Control** — The ShareLink Pro 2500 is designed to work natively with Extron Pro Series control systems via dedicated Secure Platform Interface that provides encrypted communication at all times between an Extron Pro Series control processor and the ShareLink Pro 2500 wireless presentation system.

Installation

This section covers the following:

- **Rear Panel Features and Cabling**
- **Front Panel Features and Cabling**
- **Using the Standby Screen**

Rear Panel Features and Cabling

The following section covers rear panel features and cabling procedures. If mounting is necessary before connecting cables, see **Mounting** on page 92.

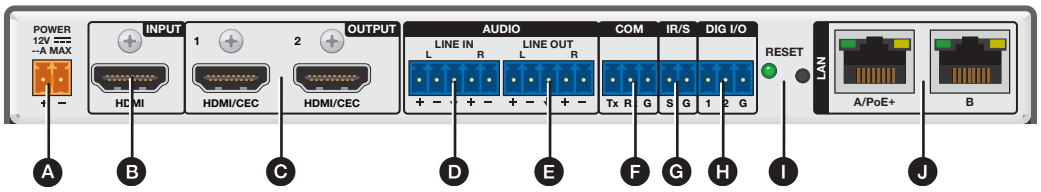


Figure 2. Rear Panel

A **Power input** — Connect the power supply (sold separately) to this two-pole captive screw connector (see the **Power Notifications** on page 6 for important information).

> **NOTES:**
>
> - Alternatively, the PoE+ port can be used to power the ShareLink Pro via a Power over Ethernet (PoE+) source device.
> - If both power options are connected (12 V power supply and PoE+), 12 VDC has precedence.

B **HDMI input** — Connect an HDMI source device to this input.

> **NOTE:** For HDMI connections (B and C), use an Extron LockIt Cable Lacing Bracket to secure the HDMI connector to the device (see **HDMI Connection** on page 6).

C **HDMI outputs** — Connect HDMI displays to these female HDMI connectors. These independent HDMI outputs (primary and secondary) can be mirrored or matrixed (allowing different content to be routed to each output). Output 1 must be connected to a display before Output 2 can be used. Output 2 can be disabled using PCS or SIS commands.

> **NOTE:** Pass-through mode is only supported on HDMI output 1.

D **Audio input** — Connect a microphone for ConferenceShare to this 5-pole, 3.5 mm captive screw connector. This input can be mixed with the audio output signal using PCS or SIS commands. See figure 3 for unbalanced or balanced input wiring.

E **Audio output** — Connect a balanced or unbalanced stereo (or dual mono) line level audio device to this 5-pole 3.5 mm captive screw connector. Wire the connector as shown below.

> **ATTENTION:**
>
> - For unbalanced audio, connect the sleeves to the ground contact. DO NOT connect the sleeves to the negative (–) contacts.
> - Pour l'audio asymétrique, connectez les manchons au contact au sol. Ne PAS connecter les manchons aux contacts négatifs (–).

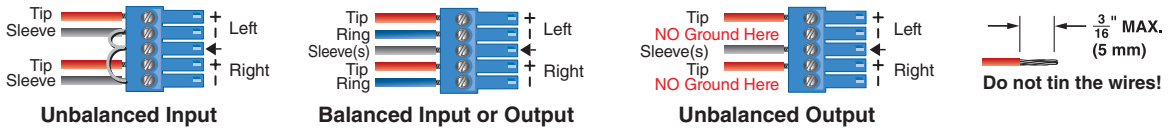
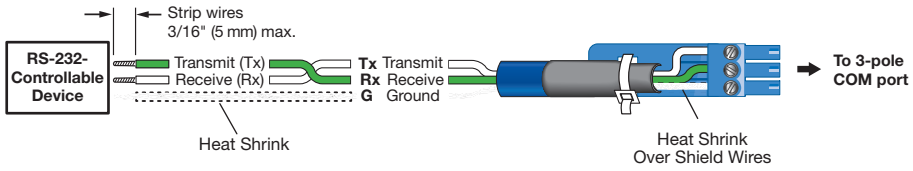


Figure 3. Audio Output Captive Screw Connector Wiring

F **COM port** (see **figure 2** on the previous page) — Connect an RS-232 controllable device to this 3-pole captive screw connector. Wire the connector as shown below.

> **NOTE:** If you use cable that has a drain wire, tie the drain wire to ground at both ends.



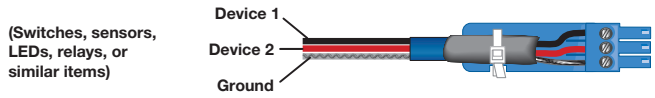
COM port default protocol:

- 9600 baud
- 8 data bits
- No parity
- 1 stop bit
- No flow control

G **IR/Serial port** — Connect a device that is IR or RS-232 controllable to this 2-pole captive screw connector. Wire the connector as shown below.



H **DIG I/O port** — Connect devices such as switchers, sensors, LEDs, relays or other devices that accept a TTL signal. This port can be used to monitor or trigger events and functions (toggle digital output or issue commands). Wire the connector as shown below. Configure this port as a digital input or output, with or without +5 VDC pull-up.



I **Reset button and LED** — Use this button to reset the device (see **Reset Modes** on page 7 for details on the various resets and LED states).

J **LAN ports** — Use an Ethernet cable to connect a network switch, hub, router, or PC to these RJ-45 ports. The LAN A port can also be used for Power over Ethernet (PoE+).

> **NOTE:**
>
> **Default IP settings**:
>
> - IP address:
> - LAN A: `192.168.253.254`
> - LAN B: `192.168.254.254`
> - DHCP:
> - LAN A: On
> - LAN B: Off
> - Gateway IP address: `0.0.0.0`
> - Subnet mask: `255.255.255.0`
> - DNS address: `0.0.0.0`
> - Link speed and duplex level: `autodetected`
>
> **LED indicators**:
>
> - Left LED (amber) indicates link speed: **1 blink per second**: 10 Mbps, **2 blinks per second**: 100 Mbps, **3 blinks per second**: 1 Gpbs
> - Right LED (green) indicates a link is active.

> **NOTE:** When changing the VLAN on the same physical LAN port, after removing the cable, wait a minimum of 15 seconds before applying the new connection/VLAN.

Power Notifications

ATTENTION:

- If not provided with a power supply, this product is intended to be supplied by a UL Listed power source marked “Class 2” or “LPS” and rated output 12Vdc, minimum 3.0 A, or 56 Vdc (PoE+), minimum 0.8 A.
- Si le produit n’est pas fourni avec une source d’alimentation, il doit être alimenté par une source d’alimentation certifiée UL de classe 2 ou LPS, avec une tension nominale 12 Vcc, 3,0 A minimum, ou 56 Vcc (PoE+), 0,8 A minimum.

- Unless otherwise stated, the AC/DC adapters are not suitable for use in air handling spaces or in wall cavities.
- Sauf mention contraire, les adaptateurs AC/DC ne sont pas appropriés pour une utilisation dans les espaces d’aération ou dans les cavités murales.

- The installation must always be in accordance with the applicable provisions of National Electrical Code ANSI/NFPA 70, article 725 and the Canadian Electrical Code part 1, section 16. The power supply shall not be permanently fixed to a building structure or similar structure.
- Cette installation doit toujours être en accord avec les mesures qui s’applique au National Electrical Code ANSI/NFPA 70, article 725, et au Canadian Electrical Code, partie 1, section 16. La source d’alimentation ne devra pas être fixée de façon permanente à une structure de bâtiment ou à une structure similaire.

- Power over Ethernet (PoE) is intended for indoor use only. It is to be connected only to networks or circuits that are not routed to the outside plant or building.
- L’alimentation via Ethernet (PoE) est destinée à une utilisation en intérieur uniquement. Elle doit être connectée seulement à des réseaux ou des circuits qui ne sont pas routés au réseau ou au bâtiment extérieur.

HDMI Connection

To secure an HDMI cable to an HDMI connector, use an Extron LockIt Plus Lacing Bracket and a tie wrap.

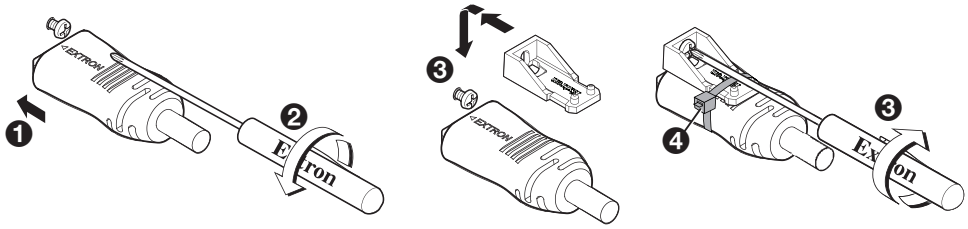


Figure 4. Installing the LockIt Plus Cable Lacing Bracket

1. **Plug in the cable** – Connect the HDMI cable to the HDMI port (see figure 4, ❶).
2. **Loosen the screw** – Slightly loosen the mounting screw (do not remove it) (❷).
3. **Attach the bracket** – Place the bracket over the screw, and then tighten the screw to secure the bracket (❸). Do not overtighten the connector mounting screw.
4. **Secure the cable** – Tighten the tie wrap around the connector and bracket, and cut off the extra length (❹).

ATTENTION:

- Connect and pull the tie wraps until they are secure. Do not overtighten.
- Connectez et tirez les serre-câbles jusqu’à ce qu’ils soient sécurisés. Ne pas trop serrer.

Reset Modes

The rear panel **Reset** button can activate four different reset modes (see the table below for a summary of each reset mode and LED state).

NOTE: Review the reset modes carefully. Some reset modes delete all user-loaded content.

Reset Mode Summary		
Mode	**Activation**	**Result**
Use Factory Firmware Resets the firmware to the factory version temporarily if an incompatibility issue arises with the current firmware.	Hold down the recessed **Reset** button while applying power to the device. **NOTE:** After this reset, update the device with the latest firmware version. Do not operate the device with the firmware version that results from this reset.	The device reverts to the factory default firmware for a single power cycle. All user files and settings are maintained. **NOTE:** If this reset was made by mistake or is no longer desired, cycle power to the device again to restore the firmware version running prior to the reset.
Reset to Factory Defaults Resets all device settings to default values but retains user-loaded files and IP settings. **NOTE:** This reset is the equivalent of SIS command ZXXX (see page 80).	Hold down the **Reset** button (for about 3 seconds) until the Reset LED blinks once. Then, press the **Reset** button again momentarily (<1 second).	The device reverts all settings to the default values except: • IP related settings • User-loaded files and configurations **NOTE:** • This mode does not affect passwords. • The Reset LED blinks four times in quick succession during the reset, then remains on.
Reset Network Settings Resets the IP settings back to factory defaults.	Hold down the **Reset** button for about 6 seconds until the Reset LED blinks twice (once at 3 seconds, then twice at 6 seconds). Then, within one second, press the **Reset** button again momentarily (for <1 second). **NOTE:** Nothing happens if the button is not pressed within one second.	The device reverts IP settings to the default values. • ARP capability is enabled. • IP address, subnet mask, gateway address, and port mapping reset to the default value. • DHCP is disabled. • Events are disabled. **NOTE:** The Reset LED blinks four times in quick succession during the reset, then remains on.

<table>
<tr><th colspan="3">Reset Mode Summary</th></tr>
<tr><th>Mode</th><th>Activation</th><th>Result</th></tr>
<tr><td>Full Factory Reset

Resets the device to default configuration.

NOTE: This reset is the equivalent of SIS command ZQQQ (see page 80).</td><td>Hold down the Reset button for about 9 seconds until the Reset LED blinks three times (once at 3 seconds, twice at 6 seconds, and thrice at 9 seconds). Then, within one second, press the Reset button again momentarily (for <1 second).

NOTE: Nothing happens if the button is not pressed within one second.</td><td>The device reverts user settings to the factory default values (firmware excluded).
• All user modifiable configuration is reset to default values, including IP settings and real-time adjustments.
• All user loaded files are deleted.

NOTE:
• Admin password resets to extron.
• The Reset LED blinks four times in quick succession during the reset, then remains on.</td></tr>
<tr><td>Toggle DHCP Client</td><td>To enable or disable the DHCP client for the LAN A port:
1. Press the Reset button five times (consecutively).
2. Release the button. Do not press the button within 3 seconds following the fifth press.</td><td>• The Reset LED blinks 6 times if the DHCP client is enabled.
• The Reset LED blinks 3 times if the DHCP client is disabled.</td></tr>
<tr><td colspan="3">NOTES:
• By default, DHCP is ON for the LAN A port and DHCP is OFF for the LAN B port. The unit uses a static IP address for the LAN B port.
• If DHCP has been enabled, when you disable DHCP, the unit reverts to using the previously-set static IP address.</td></tr>
</table>

Front Panel Features and Cabling

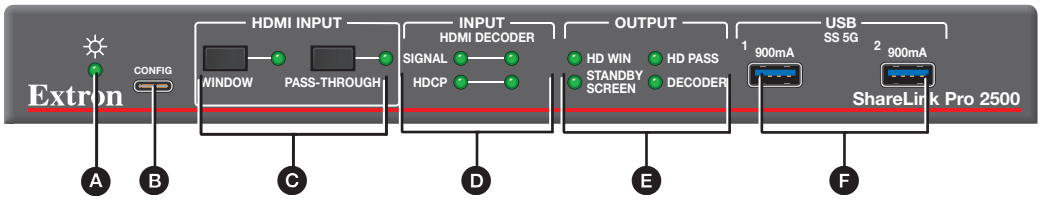


Figure 5. Front Panel

A **Power LED indicator** — Lights when the unit is powered on.

B **Configuration port** — Connect a PC to this front panel USB-C connector to configure the ShareLink Pro. The port uses IP over USB technology. The IP address is always `203.0.113.22` and CANNOT be changed. This port is also discoverable via Extron Toolbelt and Extron PCS software.

C **HDMI input selection buttons** — Use these buttons to select between HDMI window mode and pass-through mode. These modes determine how the HDMI input is presented on the output (see below for details).

NOTES:

- Selection of one mode deselects the other mode.
- In each mode, the audio status (muted or unmuted) varies depending on the audio mute setting. The following table shows the HDMI and analog audio status if audio mute is enabled or disabled.

	Window Mode		Pass-Through Mode	
Audio Mute Setting	**HDMI Audio**	**Analog Audio**	**HDMI Audio**	**Analog Audio**
Audio mute **ENABLED**	Muted	Muted	Unmuted	Muted
Audio mute **DISABLED**	Unmuted	Unmuted	Unmuted	Unmuted

- The audio mute setting can be configured using PCS or SIS commands.

- **HDMI WINDOW** button – Activates HDMI window mode, which displays the HDMI input source in addition to or alongside any content currently being shared by client devices.

  NOTE: Maximum input resolution for this mode is 4K @ 30 Hz.

- **HDMI PASS-THROUGH** button – Activates HDMI pass-through mode, which routes the HDMI input signal directly to HDMI output 1 unaltered. In this mode, neither the status bar nor decoder input streams are shown on the output.

  NOTE: Maximum output resolution for this mode is 4K @ 60 Hz.

D **Input LED indicators**:

- **HDMI Signal LED** – Lights when an HDMI signal is detected.
- **Decoder Signal LED** – Lights when one stream is detected. Flashes green when more than one stream is detected at the same time.
- **HDMI HDCP LED** – Lights when the HDMI input signal is encrypted. Turns off when the HDMI input signal is not encrypted or when HDCP authorization is disabled.
- **Decoder HDCP LED** – Lights when the decoder source signal is encrypted. Turns off when the decoder source signal is not encrypted or when HDCP authorization is disabled.

E **Output LED indicators** — These LEDs light green when the source signals are present and active on the output.

- **HD Win** – Lights green when the HDMI source is active on the output in HDMI window mode. Lights amber if HDMI pass-through mode is activated after originally being in window mode.
- **Decoder** – Lights green when at least one stream is active on the output. Lights amber if HDMI pass-through mode is activated after at least one stream was active on the output.

- **Standby Screen** – Lights green when the standby screen is active on the output. Lights amber if HDMI pass-through mode is activated while the ShareLink Pro output displays the standby screen.

  NOTE: The standby screen images are displayed only when HDMI and decoder sources are not active.

- **HD Pass** – Lights green when the HDMI source is active on the output in pass-through mode.

Ⓕ **USB port** – Connect the Extron WFA 100 Wi-Fi Miracast adapter to this port. This adapter enables anyone to share content from a Windows 10 device without installing any software (see **Mirroring a Screen Using the WFA 100 Miracast Adapter** on page 23). This port can also be used for USB peripherals when using ConferenceShare (see the *ConferenceShare User Guide* at **www.extron.com**).

Using the Standby Screen

Once the ShareLink Pro 2500 is connected and powered on, the standby screen appears on the display:

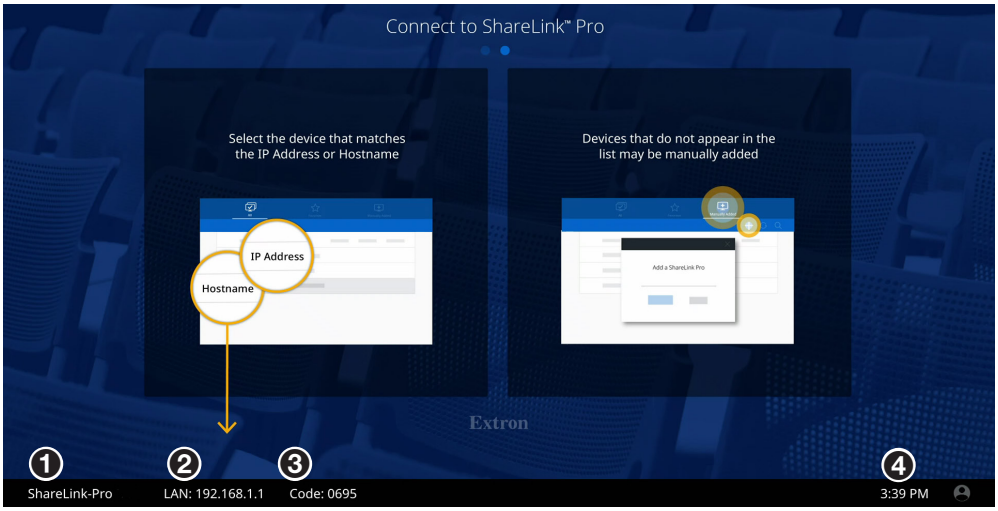


Figure 6. Standby Screen

❶ **Hostname** — Use this hostname to identify and access the ShareLink Pro 2500 during connection.

❷ **IP address** — Use this IP address to identify and access the ShareLink Pro 2500 during connection and to download the ShareLink Pro client software.

❸ **Login code** — Use this code to connect to the ShareLink Pro 2500 using the software. This code can be customized or disabled via PCS.

❹ **Time** — The time format can be adjusted via PCS.

NOTE:

- The standby screen background can be changed using PCS. For best results, make sure the desired background image matches the display output resolution.
- The status bar at the bottom of the standby screen (showing the IP addresses, hostname, and login code) is overlaid over the background image. Ensure that this portion of the background image does not contain important information as it will be covered by the status bar.
- The status bar color can also be changed using PCS.

Operation Using a Computer

Users can present from a Windows or Mac computer using the ShareLink Pro software. This section covers the following:

- **Connecting a Computer to the ShareLink Pro 2500**
- **Downloading the ShareLink Pro Software**
- **Using the ShareLink Pro Software**
- **Using the Embedded Web Page**
- **Mirroring a Screen Using the WFA 100 Miracast Adapter**

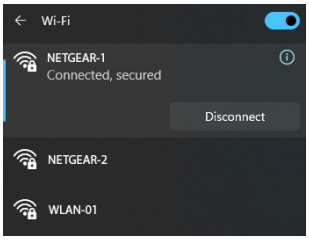
Connecting a Computer to the ShareLink Pro 2500

There are two ways to connect a computer to the ShareLink Pro 2500:

- Wirelessly, through an external wireless access point (WAP)
- Wired, through a network device

See the following instructions for your preferred connection method.

Connecting through an External WAP



1. Ensure that the external WAP and the ShareLink Pro 2500 are wired to the same network.
2. Ensure that the ShareLink Pro 2500 is powered on and that wireless network capability is enabled on your computer.
3. Open the wireless networks on your PC and connect to the external WAP.

Connecting through a Network Hub, Switch, or Router

1. Ensure that your computer is connected to the network through a hub, switch, or router.
2. Connect one of the RJ-45 connectors of the ShareLink Pro 2500 to the network device using an RJ-45 cable.

Downloading the ShareLink Pro Software

The ShareLink Pro software can be downloaded from the embedded web page or from the **Extron website**. Follow the instructions below for your preferred download method.

NOTES:

- For other details on the embedded web page, see **Using the Embedded Web Page** on page 17.
- For instructions on mirroring the computer screen using the optional ShareLink Pro WFA 100 Miracast adapter, see **Mirroring a Screen Using the WFA 100 Miracast Adapter** on page 23.

Downloading the software from the embedded Web pages

1. Ensure that your computer is connected to the ShareLink Pro 2500, either through an external WAP or through a physical network connection. The computer and the ShareLink Pro 2500 must be on the same network.
2. Open a web browser and enter the ShareLink Pro IP address into the browser.

   NOTE: The IP address is shown on the standby screen (see **figure 6**, 2 on page 10).

   The ShareLink Pro landing page opens on the browser:

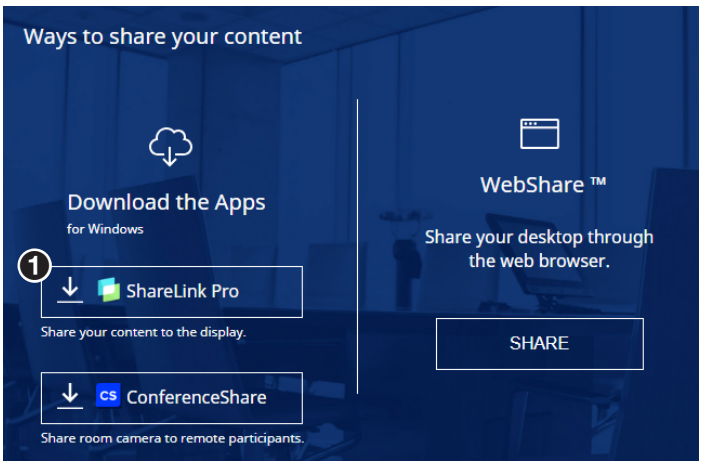


Figure 7. ShareLink Pro Landing Page

3. Click the **`ShareLink Pro`** button (see figure 7, ❶) to start the download.

   NOTE: macOS users: The .app software file is embedded in a .zip file. Some browsers automatically extract (unzip) the .app file. However, in some cases, the user may need to extract the file.

Downloading the software from the Extron website

1. On the **Extron website**, go to the **Download** tab and click **Software** (see figure 8, ❶).

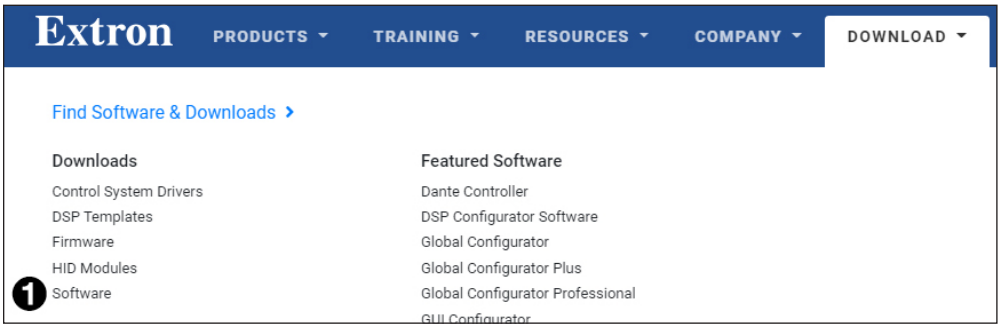


Figure 8. Download Page on the Extron Website

2. Search for ShareLink Pro in the **Search Software** field and select the file for your operating system (see figure 9).

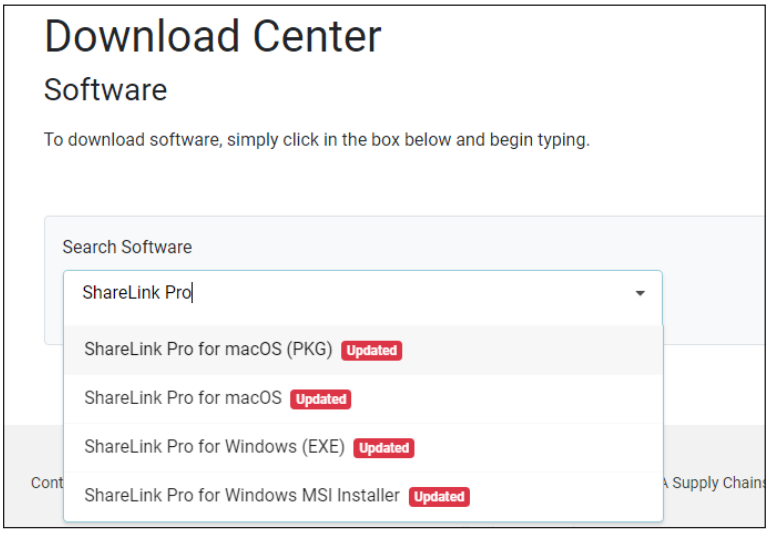


Figure 9. Software Download Link

3. Click the **Download** link on the next page to start the download. Note where the file is saved.
4. Open the saved executable (.exe) file.
5. Follow the instructions that appear on the screen to install the program.

Using the ShareLink Pro Software

Connecting to the ShareLink Pro

If the software is not yet connected to the ShareLink Pro device, follow these steps:

1. Open the ShareLink Pro software. The software searches for available devices on your network and lists them.
2. Click the desired ShareLink Pro 2500 device (see the standby screen for the device name).

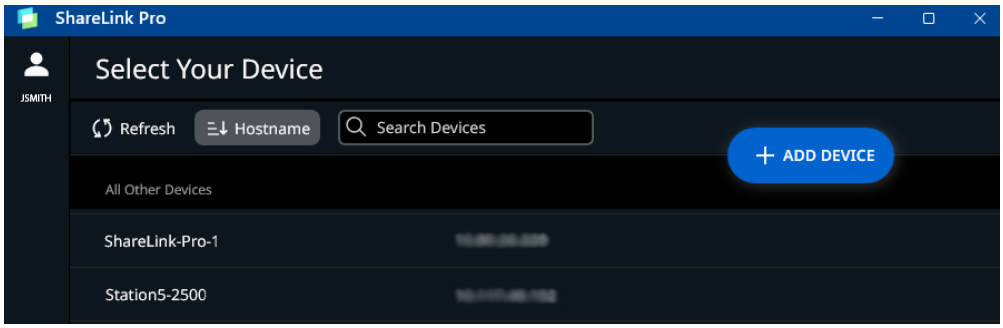


Figure 10. ShareLink Pro Devices List

NOTE:

- The ShareLink Pro software automatically discovers ShareLink Pro units in the same subnet as the client device.
- If your ShareLink Pro unit is not listed, click the **`Refresh`** button.
- If the device is still not listed, click **`Add Device`** and enter the hostname or IP address as instructed on the app screen.

3. When prompted, enter the login code and click **`Connect`**. When connection is established, the `Share` screen appears (see figure 11).

NOTE: The login code is shown on the standby screen (see **figure 6** on page 11).

Presenting Content

The Share screen shows any content that is currently being shared on the displays.

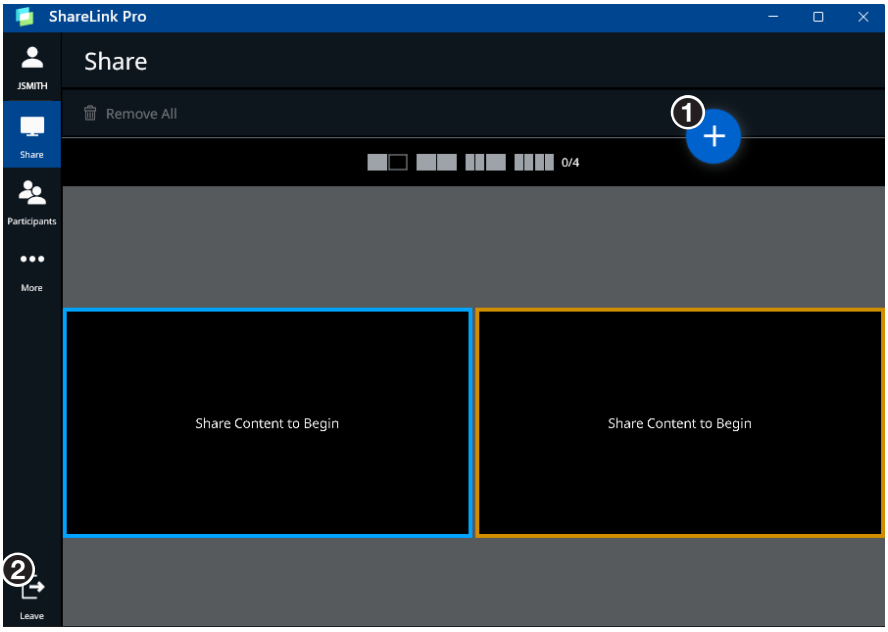


Figure 11. Share Screen

NOTES:

- Up to four pieces of content can be displayed simultaneously, and up to four presenters can stream content simultaneously. The arrangement of content on the screen is determined by the selected layout group in PCS (see **Layout Groups** on page 59).
- If two displays are connected to the ShareLink Pro 2500, the content is distrubuted accross the displays according to the dual output display configuration (see **Dual Output Display Configuration** on page 58).
- A moderator can control the content presented by participants during a session (see **Moderating a Presentation** on the next page for details).

To begin presenting content, click the + button. This opens the `Share Content` menu, showing the following presentation options:

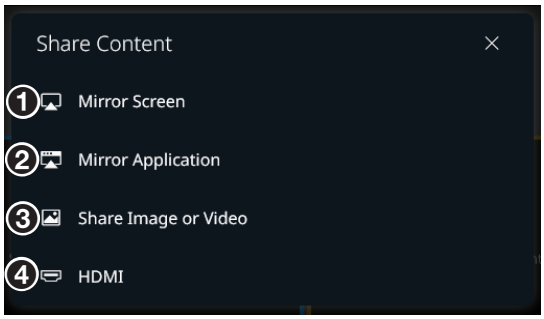


Figure 12. Share Content Menu

❶ **Mirror Screen** — Click this button to automatically mirror your computer screen on the display device.

❷ **Mirror Application** — Click this button to open a sub-menu, showing all the programs and applications currently running on your computer. Select a program or application to automatically mirror it on the display.

❸ **Share Image or Video** — Click this button to navigate to a specific video or image file on your computer. Double-click the video or image file to present it on the display.

NOTE:

The following file formats are supported:

- **Image**: BMP, JPG, PNG, TIFF
- **Video**: 264, AVI, M2T, M2TS, M4V, MKV, MOV, MP4, MPG, SDP, TS

The following codecs are supported:

- **Video**: MPEG-2, MPEG4/XviD (Simple Profile), H.264 (Baseline, Main, High, Stereo SEI Profile), VC1 (Simple, Main, Advanced Profile), WEBM VP8, MJPEG
  VP8 (Mirror Screen feature only)
- **Audio**: AAC-LC (MPEG-2 part 7, MPEG-4 part 3, sub part 4 and part 14,
  MP4 mono or stereo audio, max 384 kbps)
  PCM mono or stereo 16 kHz to 96 kHz, 16-bit to 32-bit
  OPUS (Mirror Screen feature only)

❹ **HDMI** — Click this button to share the connected HDMI source as a window.

Moderating a Presentation

The ShareLink Pro 2500 default collaboration mode (`Run-Time` mode) allows a user to display content as a participant, or to control the presentation as a moderator. In this mode, everyone in the session starts as a participant, but a user may choose to take over as moderator.

A moderator can accept or decline participants, stop shared content, and remove active participants from a session. Follow the instructions below to moderate a presentation.

> **NOTE:** The following instructions apply only when the ShareLink Pro is set to Run-Time mode (the default setting). Run-Time mode can be disabled via PCS, and changed to either of the following modes:
>
> - Full Control - No limitations to controls or sharing.
> - Moderate - Moderator manages access and sharing.

1. Click the participant icon (see figure 13, ❶), and select **`Moderator`** (❷) from the menu.

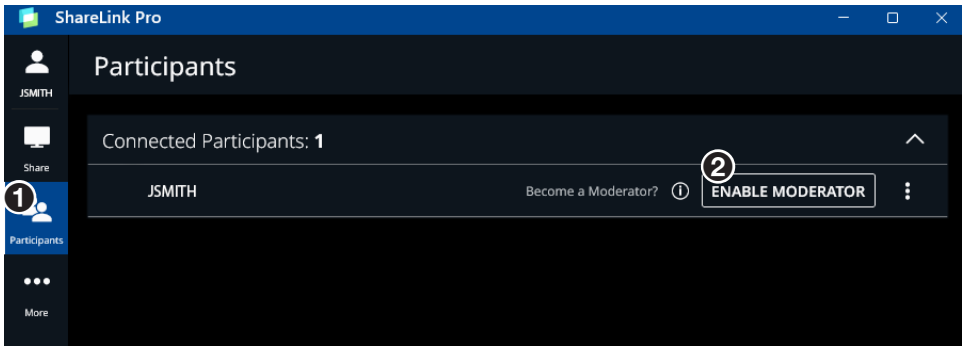


Figure 13. ShareLink Pro Software Menu

2. Click **`Enable Moderator`**.

Using the Embedded Web Page

To access the embedded web page, open your web browser and enter the ShareLink Pro IP address into the browser.

NOTE: The IP address is shown on the standby screen (see **figure 6**, 2 on page 11).

The embedded web page contains the following features:



1. **View in WebView** — See **Viewing a Presentation Using WebView** on the next page.
2. **WebShare** — See **Presenting a Desktop Using WebShare** on the next page.
3. **Admin** — See **Using the Admin Page** on page 21.

Figure 14. ShareLink Pro Landing Page

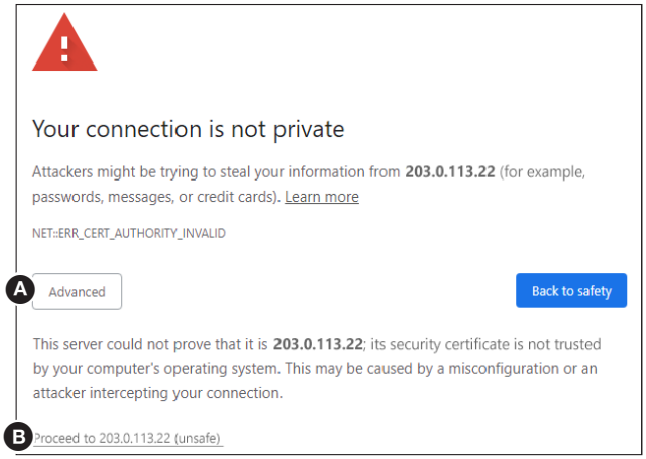
NOTE: When selecting an option on the embedded web page:

- If you do not have a trusted SSL Certificate, the browser displays a privacy notification as shown at right.

  Continue to the login dialog box as follows:

  1. Click the button that bypasses the privacy notification (for example, in Chrome, click **`Advanced`** [Ⓐ]). Explanatory text and a link appear.
  2. Click **`Proceed to`** <***`IP address`***> **`(unsafe)`** (Ⓑ) (or similar message).

     Chrome on macOS may not provide an option to proceed.



- Your IT department can provide an uploadable SSL Certificate. Once the certificate is loaded, the notification does not appear. See **Enabling Secure Connection Using SSL Certificates** on page 61 for details.

Viewing a Presentation Using WebView

The WebView feature allows audience members to view a presentation on their computers or mobile devices through a web browser. The presenter may broadcast the presentation so that the image shown on the display can be viewed remotely.

> **NOTE:** This feature can be disabled using PCS, or a password requirement can be set for using this feature.

Audience members must follow these steps to watch the presentation:

1. Open a web browser on the computer or mobile device, and enter the IP address of the ShareLink Pro 2500. The landing page opens as shown in **figure 14** on the previous page.
2. Click **`View in WebView`** (see **figure 14**, ❶). The presentation page opens in the web browser.

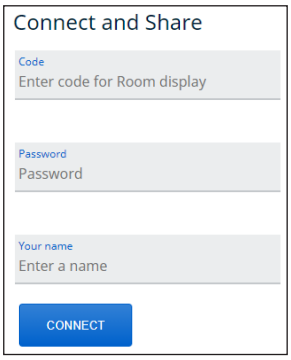
   > **NOTE:** If necessary, enable WebView in the ShareLink Pro app (see figure 19, 4 on **page 29**).

Presenting a Desktop Using WebShare

The WebShare feature allows users to present a computer desktop without installing the ShareLink Pro software. Follow these steps to present using WebShare:

> **NOTE:** NAT is required if the ShareLink Pro and the client device are on different subnets. Ensure the client device is inside the NAT to either internet or the ShareLink Pro.

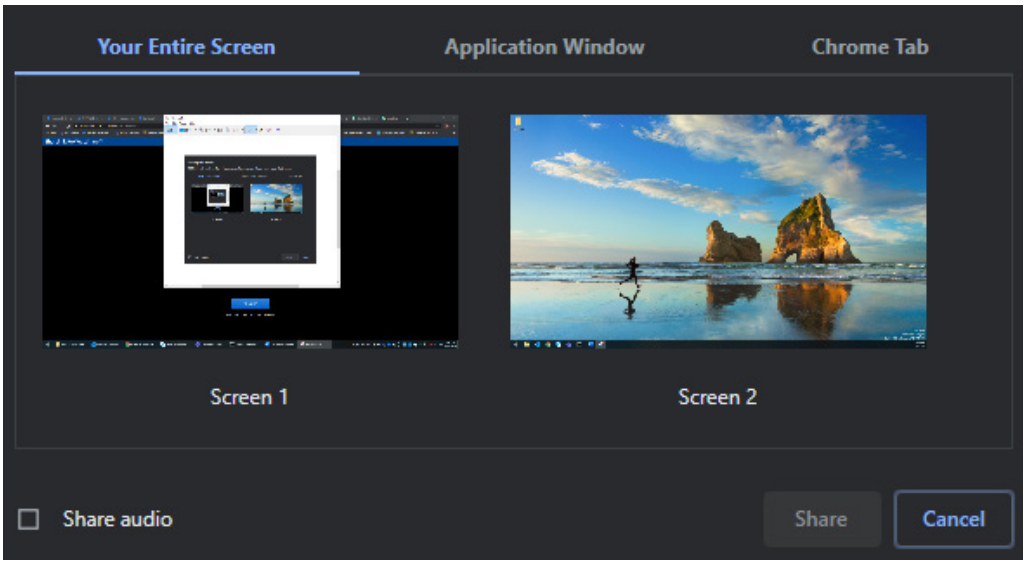
1. Open a web browser on the computer or mobile device, and enter the IP address of the ShareLink Pro 2500. The landing page opens as shown in **figure 14**.
2. Click the **`Share`** button on the landing page (see **figure 14**, ❷). The login page opens as shown below:



> **NOTE:** The Code and Password fields are shown only if they are enabled in PCS.

3. Enter a name in the `Your name` field. This name is displayed to the audience during presentation.
4. If required, enter the login code in the `Code` field (the login code is shown on the standby screen; see **figure 6**, ❸ on page 10), and enter the participant password in the `Password` field.

5. Select what you would like to share (**`Your Entire Screen`**, **`Application Window`**, or **`Chrome Tab`**).



6. Click the **`Share`** button to start sharing.

NOTE: To share your computer audio, check the Share audio checkbox.

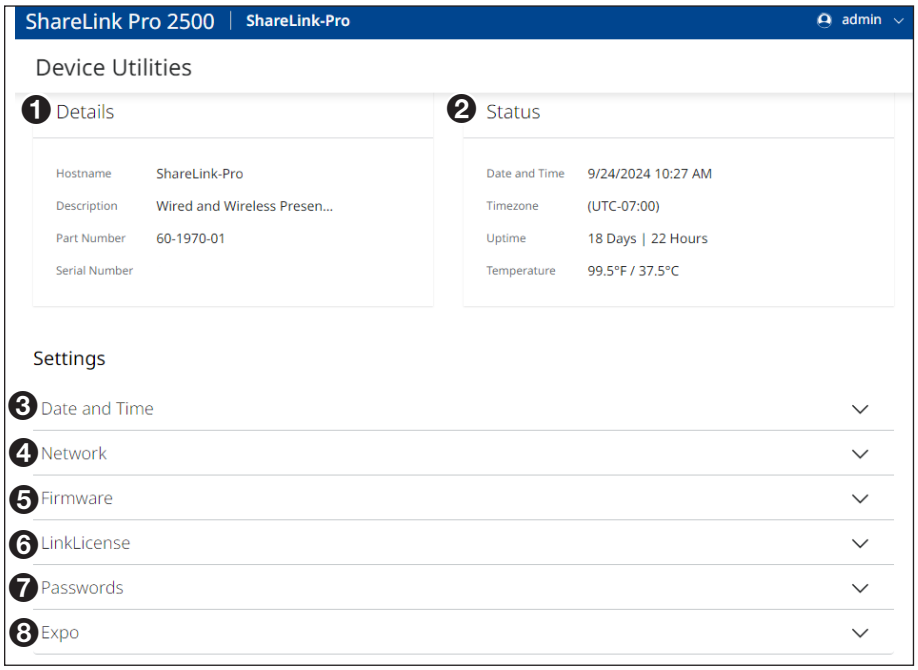
Using the Admin Page

To access the ShareLink Pro admin pages:

1. Click the settings icon on the top right corner (see **figure 14**, ❸ on page 18).
2. Enter the user name and password, and click **Login**.
   - Default user name: admin
   - Default password: extron

> **NOTE:** The factory configured password for this device has been set to the device serial number. Passwords are case sensitive. Performing a **Reset to Factory Defaults** (see page 7) sets the password to extron.

The admin page contains the following panels:



❶ **Details**
❷ **Status**
❸ **Date and Time**
❹ **Network**
❺ **Firmware**
❻ **LinkLicense** (see next page)
❼ **Passwords**
❽ **Expo**

Figure 15. ShareLink Pro 2500 Admin Page

❶ **Details** — This panel displays the ShareLink Pro device hostname, product description, part number and serial number.

❷ **Status** — This panel displays status information, including date and time, timezone, uptime and temperature.

❸ **Date and Time** — Click **Edit** to change the device time, date, and time zone. Click **Sync to PC** to automatically sync the device to the PC time zone.

❹ **Network** — Click **Edit** to change the device hostname and the network settings (IP address, subnet, and gateway IP address) for the LAN port.

❺ **Firmware** — Use this panel to update the device firmware:

1. Click **Select File** to browse to the firmware file.

   > **NOTE:** The latest firmware file can be downloaded from the Extron website (see Firmware Download on page 93).

2. Select the firmware file, and click **Update**.

❻ **LinkLicense** (see **figure 15** on the previous page) — Use this panel to upload the LinkLicense file to the ShareLink Pro 2500.

> **NOTE:** A LinkLicense unlocks the Expo feature (streaming capability) for the ShareLink Pro 2500. To redeem (activate) a LinkLicense, go to **www.extron.com/llredeem** and follow the online instructions.

If a LinkLicense has been purchased, upload the file as follows:

a. Click **`Select File`** and browse to the LinkLicense (`.ell`) file on your computer.

b. Select the file, and click **`Add`** to upload the file.

❼ **Passwords** — Click **`Edit`** to change any of the following passwords:

> **NOTE:** The factory configured password for all accounts have been set to the device serial number. Passwords are case sensitive. Performing a **Reset to Factory Defaults** (see page 7) sets the password to the defaults shown below.

- **Admin password** (default: **`extron`**) — This password is used for accessing the admin page.
- **Moderator password** (default: **`moderate`**) — This password is required to moderate a session.
- **Participant password** (default: *no password*) — This password is required to participate in a session.

Enter and confirm the new password, and click **`Save`**.

❽ **Expo** — Click **`Edit`** to open the `Expo Settings` page (see figure 16). Expo mode enables the ShareLink Pro 2500 to display dynamic content as an alternative to the welcome screens (Digital Signage LinkLicense required).

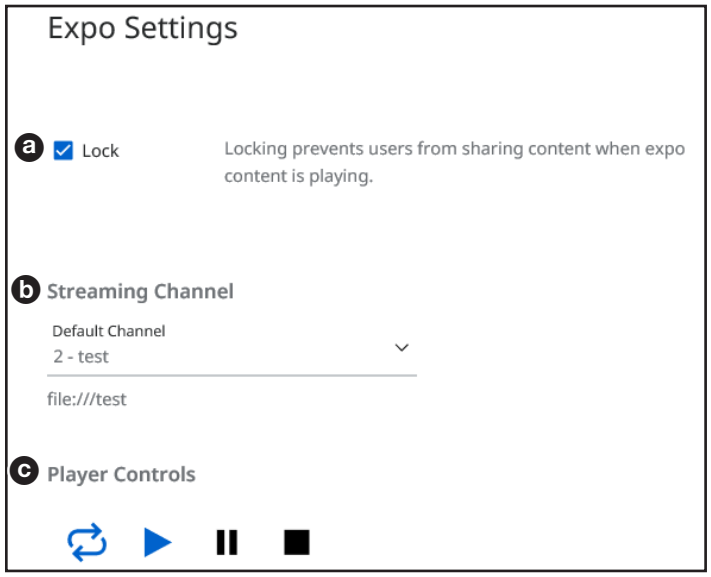


Figure 16. Expo Settings

ⓐ **Lock** — Click this checkbox to enable the Lock feature. This prevents users from sharing content when expo content is playing.

ⓑ **Streaming Channel** — Click this dropdown list to select the channel that you wish to present.

> **NOTE:** Streaming channels can be added or removed using Extron PCS (see the ShareLink Pro Help File in PCS).

ⓒ **Player Controls** — Use this panel to play, pause, and stop expo content. Click the repeat button to automatically replay expo content (🔁).

Mirroring a Screen Using the WFA 100 Miracast Adapter

About the WFA 100

The ShareLink Pro WFA 100 (sold separately) is a Wi-Fi Miracast™ adapter that enables anyone to share content from a Windows 10 device to a ShareLink Pro device without installing any software.

NOTE: Minimum requirements for Miracast:

- WFA 100 adapter
- Windows 10 client device (version 2004 or higher recommended)
- Windows Display Driver Model (WDDM) 1.3 Graphics drivers. To verify this driver version, see **Miracast Graphics Support** on page 56.
- Wi-Fi driver must support Network Driver Interface Specification (NDIS) 6.3 or newer. To verify, see **Miracast Wi-Fi Direct Support** on page 57.

There are two WFA 100 models: the **WFA 100 US** (available for the United States) and the **WFA 100 EU** (for international regions). Both models support 802.11a/b/g/n/ac wireless network standards on 2.4 and 5 GHz bands.

The **WFA 100 US** supports the following Wi-Fi channels:

- 2G channels: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
- 5G channels: 36, 40, 44, 48, 149, 153, 157, 161, 165

The **WFA 100 EU** supports the following Wi-Fi channels:

- 2G channels: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
- 5G channels: 36, 40, 44, 48

NOTE: For important considerations regarding Miracast performance quality, connection methods, configuration, and troubleshooting see Miracast Connection Using the WFA 100 on page 51.

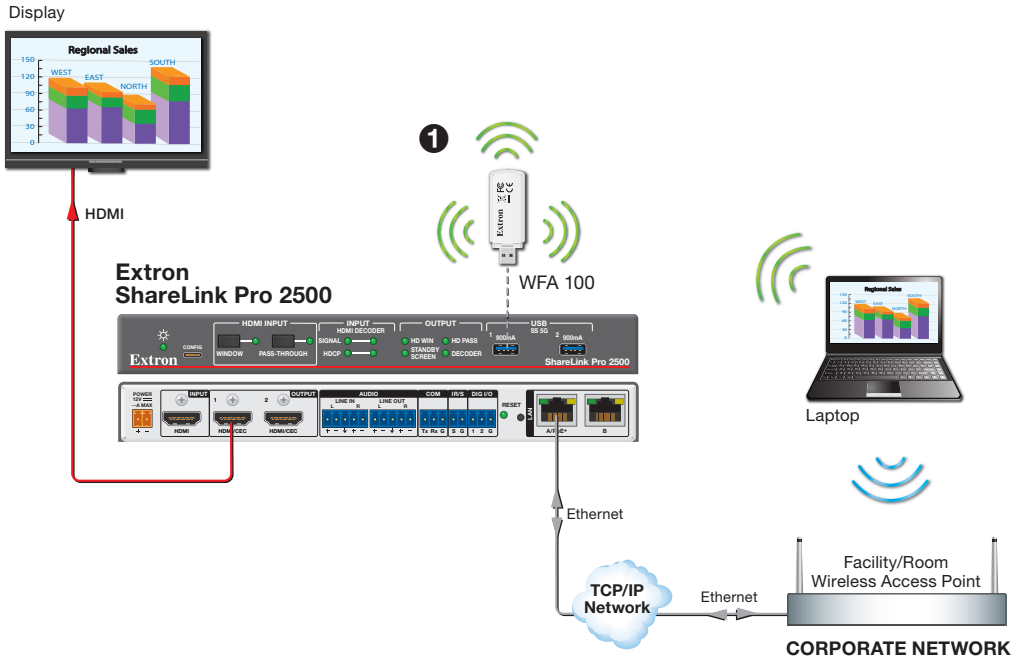
Using the WFA 100

Follow the steps on the next page to connect and mirror a Windows 10 device using the WFA 100.

NOTES:

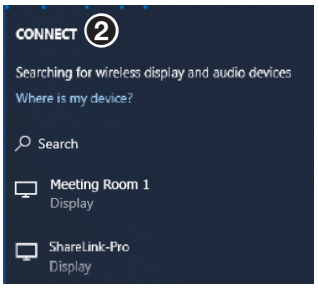
- For optimal performance, ensure that the Windows 10 device is on the same network as the ShareLink Pro.
- To improve end user experience, ensure that the enterprise wireless access points serving the Wi-Fi network maintain high signal strengths and are configured to operate on Wi-Fi channels with the least interference (ideally unoccupied and non-overlapping channels).

1. Connect the WFA 100 adapter to the ShareLink Pro front panel USB port (❶).

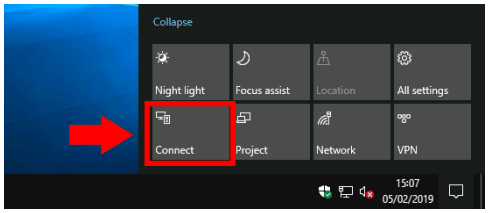


2. Ensure that Wi-Fi is enabled on the Windows 10 client device.

3. Press the **<Windows + K>** keyboard shortcut on the Windows 10 client device to open the `Connect` panel, which appears at the right of the screen (❷).



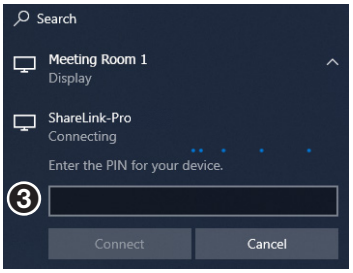
NOTE: Alternatively, click the Connect quick settings tile in Action Center (shown below) to open this panel.



The `Connect` panel shows a list of Miracast capable devices.

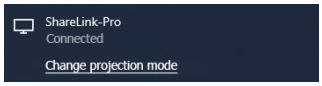
NOTE: Wi-Fi must be enabled in order to discover ShareLink Pro devices.

4. Select the desired Sharelink Pro unit from the list, and enter the display code if prompted (❸) (see the `Standby Screen` for the ShareLink Pro hostname and code).

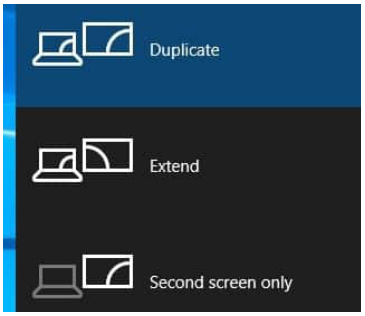


Screen sharing options

Once the ShareLink Pro is connected, the **Change projection mode** link is shown under the ShareLink Pro hostname.



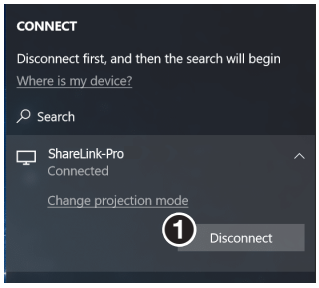
Click **Change projection mode** to see the following screen sharing options.



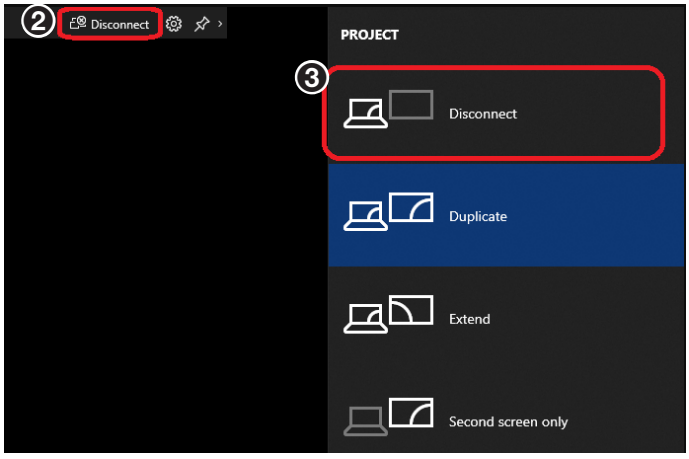
- **Duplicate** mode is the default setting, which mirrors the Windows 10 screen onto the ShareLink Pro output display. This mode is ideal for most projection and casting scenarios.
- **Extend** mode sets the ShareLink Pro output display as a second monitor.
- **Second screen only** mode sets the ShareLink Pro output display as the primary monitor.

Disconnecting from the display

To disconnect from the display, return to the Connect panel (using the **<Windows + K>** shortcut) and click the **Disconnect** (❶) button.



Alternatively, use the **<Windows + P>** shortcut to open the Project panel. Click **Disconnect** on the sharing status bar at the top of the screen (❷) or in the Project panel (❸).



NOTE: For important considerations regarding Miracast performance quality, connection methods, configuration, and troubleshooting see Miracast Connection Using the WFA 100 on page 51.

Operation Using a Mobile Device

The **ShareLink Pro Mobile App** is supported by Android and Apple mobile devices, including iPad® and iPhone®. It allows users to present photos, web pages, device screenshots, and the device camera (see instructions below).

The ShareLink Pro 2500 also supports screen mirroring for Apple devices.

This section covers the following:

- **Downloading the ShareLink Pro App**
- **Using the ShareLink Pro App**
- **Using iOS Screen Mirroring**

Downloading the ShareLink Pro App

Follow these steps to download the ShareLink Pro mobile app:

1. Ensure that the ShareLink Pro is powered and connected to the network.
2. Open the Wi-Fi networks list on your device and connect to an external WAP that is on the same network as the ShareLink Pro. Ensure that the WAP and the ShareLink Pro are wired to the same network.
3. Navigate to the ShareLink Pro landing page (see figure 17) by entering the device IP address into a browser on the mobile device (see the standby screen for the ShareLink Pro IP address).

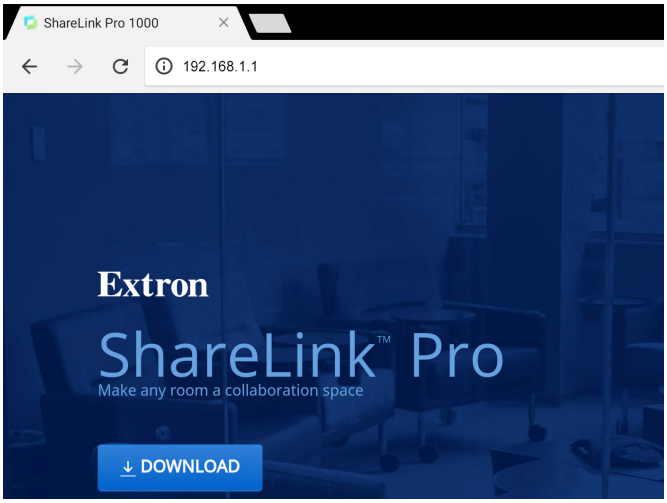


Figure 17. ShareLink Pro Landing Page

4. Select **`Download`**. The ShareLink Pro app download page opens on the app store for your device.
5. Install the app on your mobile device.

Using the ShareLink Pro App

Connecting to a ShareLink Pro Unit

Once the ShareLink Pro app is installed on the device, follow these steps to connect to the ShareLink Pro:

1. Ensure that the ShareLink Pro is powered and connected to the network.
2. Open the Wi-Fi networks list on your device and connect to an external WAP that is on the same network as the ShareLink Pro. Ensure that the WAP and the ShareLink Pro are wired to the same network.
3. Open the ShareLink Pro app and select the desired unit from the list (see the standby screen to verify the device hostname and IP address).

NOTES:

- The ShareLink Pro app automatically discovers ShareLink Pro units in the same subnet as the client device.
- To refresh, drag down and release the list. If the unit is not listed, select the ⊕ button at the bottom, and enter the hostname or IP address as instructed on the app screen.

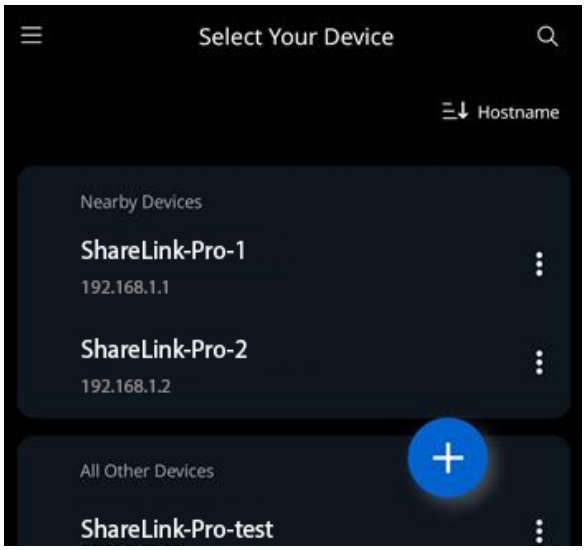
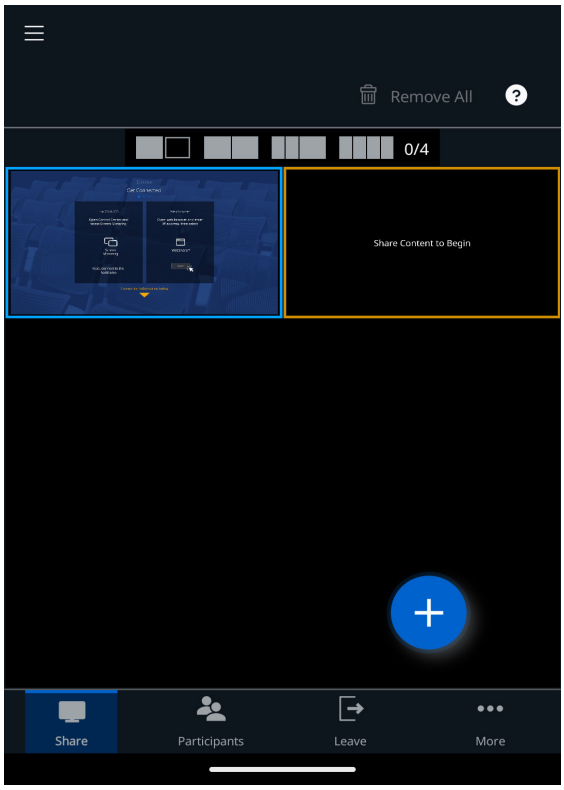


Figure 18. ShareLink Pro Devices List

4. When prompted, enter the login code shown on the standby screen.
5. When connection is established, the app shows the `Share` screen (see the next page).

Presenting Content

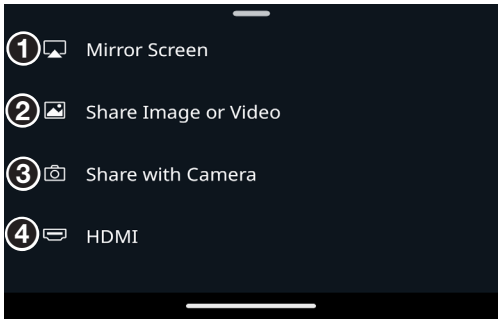
The Share screen shows any content that is currently being shared on the displays. Use the `Share` screen to present content. Select the ⊕ button to see the options below.



NOTES:

- Up to four pieces of content can be displayed simultaneously, and up to four presenters can stream content simultaneously. The arrangement of content on the screen is determined by the selected layout group in PCS (see **Layout Groups** on page 59).
- If two displays are connected to the ShareLink Pro 2500, the content is distrubuted accross the displays according to the dual output display configuration (see **Dual Output Display Configuration** on page 58).
- A moderator can control the content presented by participants during a session (see **Moderating a Presentation** on page 17 for details).

To begin presenting content, click the ⊕ button. This opens the `Share Content` menu, showing the following presentation options:



❶ **Mirror Screen** – Click this button to automatically mirror your device screen on the display device. Select **`Stop Presenting`** to stop the presentation.

> **NOTE:** For iOS devices, follow the on-screen instructions for mirroring the device screen, or see Using iOS Screen Mirroring on page 30.

❷ **Share Image or Video** – Click this button to browse to a specific video or image file on your device. Select the video or image file to present it on the display.

❸ **Share with Camera** – Click this button to share an image taken by the device camera.

> **NOTE:** For iOS devices, a Share Website option is also available to share the device web browser.

❹ **HDMI** – Click this button to share the connected HDMI source as a window.

More Options

Press the **More** button (❶) to see the following options:

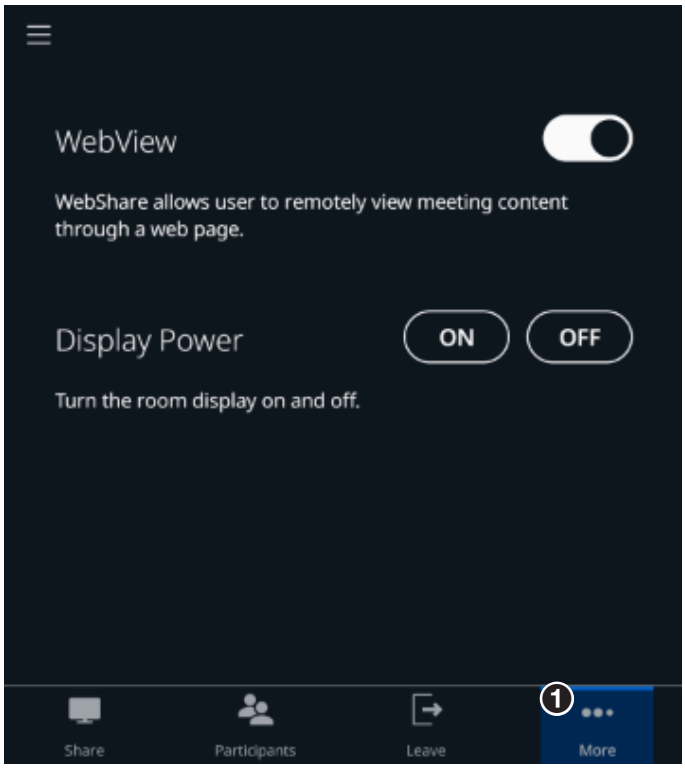


Figure 19. More Options Menu

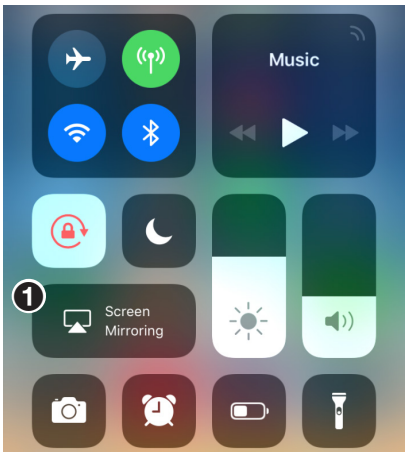
- **WebView** — Toggle this switch to enable or disable WebView.
- **Display Power** — If the display connected to the output of the ShareLink Pro supports CEC, the **ON** and **OFF** buttons may be used to send out unidirectional Power ON and Power OFF commands to the display via CEC.

Using iOS Screen Mirroring

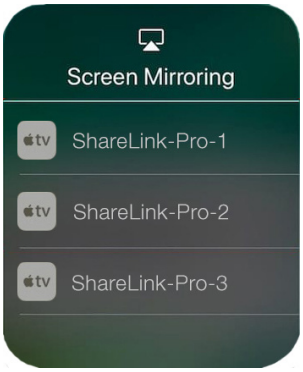
This feature allows iOS device screens to be mirrored onto the display.

1. Ensure that the ShareLink Pro 2500 is powered and connected to the network.
2. Connect your device to the ShareLink Pro 2500 through Wi-Fi (see step 2 of **Connecting to a ShareLink Pro Unit** on page 27).
3. Open the iOS device control center and select **`Screen Mirroring`** (see ❶, below).

> **NOTE:** Options may look different depending on the iOS version.



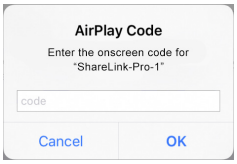
The discovered devices list appears as shown at right.



4. Select your ShareLink Pro device from the discovered devices list.

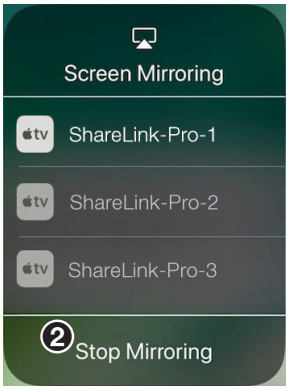
> **NOTE:** If your ShareLink Pro device is not listed because it is on a different subnet, follow the instructions on the next page.

If prompted for a code (as shown below), enter the ShareLink Pro login code (as shown on the standby screen), and press **`OK`**.



The device screen is immediately mirrored onto the display.

To stop presenting the device screen, select **`Stop Mirroring`** (see ❷, below).



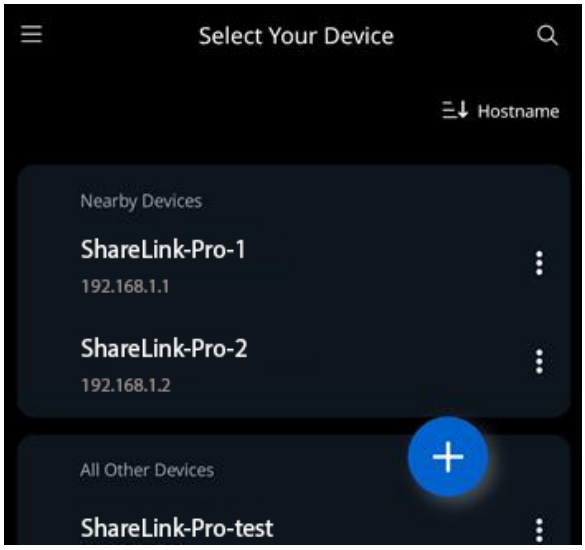
Discovering a ShareLink Pro Device on a Different Subnet for Apple Screen Mirroring

The ShareLink Pro for iOS mobile app automatically discovers ShareLink Pro devices that are on the same subnet as the iOS device.

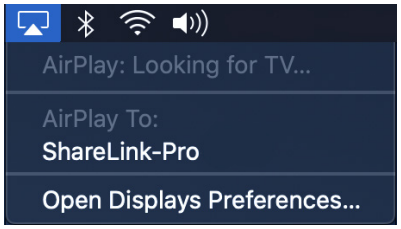
If your ShareLink Pro device is not on the same subnet, follow these steps to discover the device using the app.

NOTE: The same steps apply to macOS devices using the ShareLink Pro macOS software.

1. Open ShareLink Pro for iOS mobile app.
2. Select the **`New Connection`** button at the bottom.



3. Enter the IP address or hostname of the ShareLink Pro device that is outside the local subnet.
4. Enter a password if prompted.
5. Enter confirmation if prompted.
6. Once the connection has been successfully established and the main sharing page is shown:
   - **For iOS devices**: Go to the Control Center and navigate to the `Screen Mirroring` device discovery list (see **step 3** on the previous page).
   - **For macOS devices**: Click the **`AirPlay`** button in the menu bar as shown below.



7. Select the ShareLink Pro device from the device discovery list (see **step 4** on the previous page).

Enterprise Discovery Service

This section covers the following topics on the ShareLink Pro Enterprise Discovery Service:

- **Enterprise Discovery Service - Overview**
- **Selecting and Configuring the EDS Host**
- **Configuring EDS Clients in PCS**
- **Airplay Device Discovery**
- **Alternative (non-EDS) Configuration for a Wireless Subnet**

Enterprise Discovery Service - Overview

Enterprise Discovery Service (EDS) is useful in applications involving multiple ShareLink Pro units within a network.

EDS offers a solution for discovery of ShareLink Pro devices across subnets for the ShareLink Pro software (Windows, macOS, iOS, and Android) as well as for Apple devices (macOS and iOS) that support native screen mirroring (AirPlay). Furthermore, EDS reduces the number of steps required for connecting to a ShareLink Pro device via the ShareLink Pro software (Windows, macOS, iOS, and Android).

EDS requires a host device (called the "EDS Host") and multiple client devices (called "EDS Clients"):

- The **EDS Host** is a ShareLink Pro device designated to operate as the host. This can be any ShareLink Pro device on any subnet deployed on the network. EDS Host functionality is enabled via PCS.

  NOTES:

  - Enabling EDS Host functionality does not render the ShareLink Pro device non-operational. The ShareLink Pro operates as normal, but with an additional background service running in firmware.
  - When selecting an EDS Host device, Extron recommends selecting a ShareLink Pro device where video performance is not critical. Video performance is inversely proportional to the number of EDS Client devices being managed by the EDS Host device.

- **EDS Clients** are ShareLink Pro devices managed by the ShareLink Pro device operating as the EDS Host. EDS Clients may also be end user mobile devices running ShareLink Pro software (Windows, macOS, iOS, and Android).

Once enabled, the EDS Host operates as a central communication hub between multiple ShareLink Pro devices deployed across multiple subnets across the entire network, as well as between end user mobile devices (phones, tablets, laptops, desktops, etc.) and ShareLink Pro devices on the network.

How EDS Works

Configuring the EDS Host "Pointer"

Once the EDS Host device has been selected and EDS Host functionality enabled, all other ShareLink Pro devices must be configured as EDS Clients via PCS.

Once a ShareLink Pro device has been configured as an EDS Client, it begins to “look for" the EDS Host by using the “pointer” configured via PCS. **The “pointer” is either the hostname or IP address of the EDS Host device.**

The default hostname for the EDS Host device is `ExtronEDS`. When the EDS Host function is enabled for the first time on a ShareLink Pro device, PCS asks for permission to change the ShareLink Pro device hostname to `ExtronEDS`. The purpose is to ease and streamline configuration of EDS.

- When a ShareLink Pro device is configured as an EDS Client device, the default “pointer” is ExtronEDS. In other words, all ShareLink Pro devices "look for" the EDS Host via DNS lookup using the default hostname of the EDS Host device which is ExtronEDS by default.
- The latest ShareLink Pro software (Windows, macOS, iOS, and Android), which supports EDS, always operates as an EDS Client and always looks for the EDS Host device via DNS lookup using the default hostname of the EDS Host device (`ExtronEDS`).

NOTES:

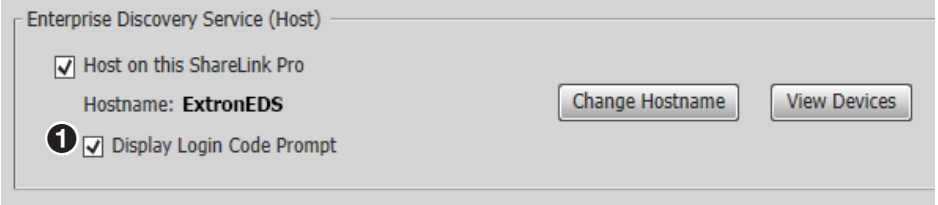
- It is not mandatory to use `ExtronEDS` as the hostname of the EDS Host device. However, it is highly encouraged since the ShareLink Pro devices and mobile devices running ShareLink Pro software look for the EDS Host device by trying to resolve the hostname `ExtronEDS` via DNS lookup by default.
- The PCS admin may choose to operate the EDS Host device with any hostname they desire. However, they must configure (via PCS) all other ShareLink Pro devices operating as EDS Clients to point to the EDS Host using the desired hostname of the EDS Host. The mass configuration update feature in PCS may be useful in this case.
- For mobile devices running ShareLink Pro software (Windows, macOS, iOS, and Android), the end user must manually connect to a ShareLink Pro device that has already been configured with the correct pointer (different from `ExtronEDS`) to the EDS Host. Once a successful connection has been made manually the first time, the ShareLink Pro software automatically updates its pointer to match the pointer in the ShareLink Pro device to which they just connected manually. Therefore, the next time the ShareLink Pro software is opened, it will point to the correct EDS Host and present the end user with the new EDS workflow.

EDS Workflow

Once the correct pointer has been configured:

- ShareLink Pro devices operating as EDS Clients establish a secure communication channel with the EDS Host device and report their connection information to the EDS Host. The EDS Client device also periodically sends a request to the EDS Host to assign it a new Login Code based on a timer configured via PCS or at the end of every session (also configured via PCS).
- The EDS Host device stores the connection information and associated Login Code for each EDS Client device in an internal database.
  - Mobile devices operating as EDS Clients (by running ShareLink Pro software) establish a secure communication channel with the EDS Host device.
  - The client devices then present one of two different connection workflows (as instructed by the EDS Host) to the end user.

NOTE: The connection workflow is configured as a setting on the EDS Host device via PCS as shown below (1) (also see **step 4** on the next page).



When this box is checked, **connection workflow 1** is configured.
When it is un-checked, **connection workflow 2** is configured.

The connection workflows are as follows:

- **Connection Workflow 1** – Prompts the end user for the Login Code displayed on the output of the ShareLink Pro to which they want to connect. The EDS Client (mobile device running ShareLink Pro software) then passes the Login Code entered by the end user to the EDS Host device. The EDS Host then responds with the connection information of the ShareLink Pro device associated with the received Login Code in its internal database.

  This workflow effectively reduces the connection workflow to one simple step (enter Login Code) for the end user.

- **Connection Workflow 2** – Proceed directly to the main device discovery page as usual but populate the page with the list of devices stored in the EDS Host's internal database in addition to any devices discovered in the local subnet and any previously manually added devices.

  In this case, the EDS Host provides a copy of its internal database to the mobile device running ShareLink Pro software.

  This workflow offers a cross-subnet device discovery solution in applications where it is preferred to operate without a Login Code or for users that prefer the traditional device discovery workflow. In other words, the end user is no longer restricted to being able to discover ShareLink Pro devices only on the local subnet.

NOTE: This is a global setting, meaning that the EDS Host instructs all mobile devices operating as EDS Clients to either prompt end user for Login Code (workflow 1) or to proceed directly to the device discovery page (workflow 2).

Selecting and Configuring the EDS Host

EDS can be enabled using the Product Configuration Software (PCS).

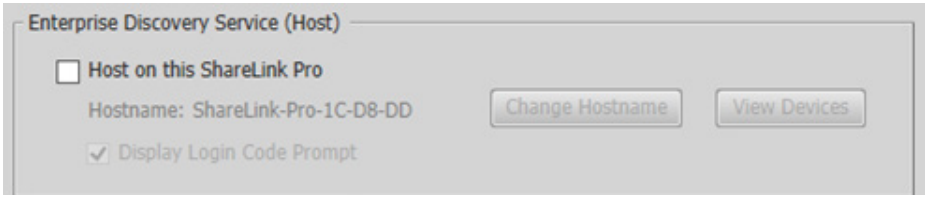
A ShareLink Pro unit must be selected to act as the EDS Host within the network. The ShareLink Pro unit hosting the Enterprise Discovery Service acts as a central communication hub between client devices (such as phones, tablets, and laptops) and the ShareLink Pro devices on the network.

NOTE: Depending on how many client devices are connected, EDS may affect the audio and video performance of the ShareLink Pro device acting as the EDS Host. This should be taken into consideration when selecting the EDS Host device.

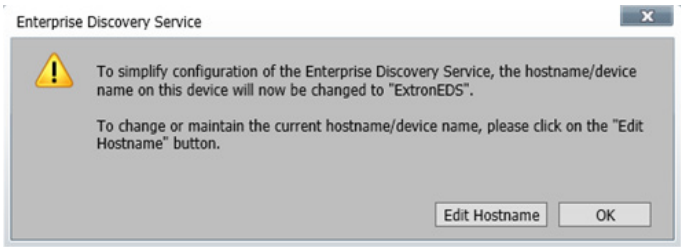
Configuring the EDS Host in PCS

Follow these steps to enable EDS on the host device using PCS.

1. Open PCS v4.10.5 or greater.
2. Connect to the ShareLink Pro unit to be assigned as the EDS Host.
3. Navigate to **`General Settings`** > **`Display Setup`** tab.
4. Click the **`Host on this ShareLink Pro`** checkbox in the Enterprise Discovery Service panel.



5. Click **`OK`**.



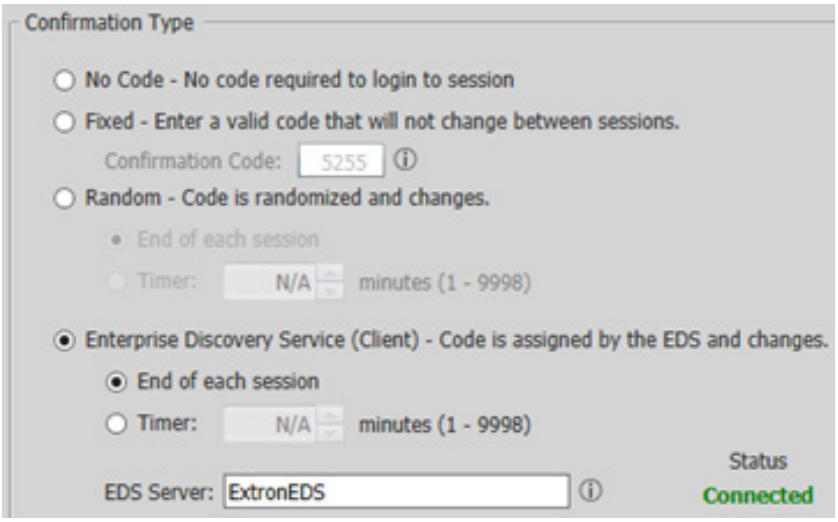
Configuring EDS Clients in PCS

Enabling EDS in Client Devices

Follow these steps to enable EDS for client devices. Repeat these steps for each ShareLink Pro unit to be assigned as an EDS Client within the network, including the EDS Host.

NOTE: The ShareLink Pro device operating as the EDS Host can also operate as an EDS Client. In this case, it is operating as a client of itself. This is possible since the EDS Host function operates independently in firmware.

1. Open PCS v4.10.5 or greater.
2. Connect to the ShareLink Pro to be assigned as an EDS Client.
3. Navigate to **General Settings** > **Display Setup** tab.
4. Click the **Enterprise Discovery Service** radio button in the Confirmation Type panel.



NOTE: If an EDS Client is failing to connect to the EDS Host, change the client's confirmation type to No Code for a minute before switching it back to Enterprise Discovery Service. If the connection issue persists, then power cycle the EDS Client.

The hostname (displayed in the EDS Server field) is set to ExtronEDS by default.

NOTES:

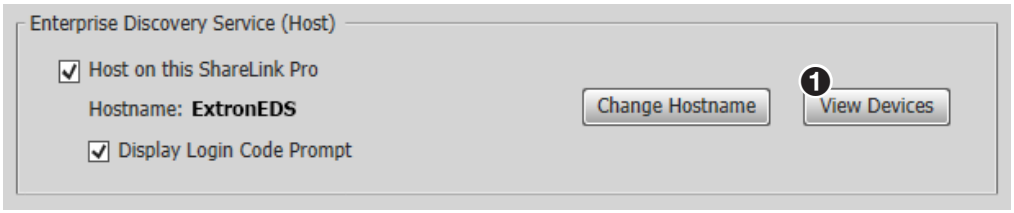
- It is highly recommended that the default hostname (ExtronEDS) not be changed. By default, ShareLink Pro units are configured to look for the ExtronEDS hostname.
- If the hostname is changed, all other ShareLink Pro units within the network will need to be configured to look for the newly assigned hostname (see step 5).

5. **Only perform this step if you chose to change the default EDS hostname:** Enter the new hostname or the IP address of the EDS Host in the EDS Server field.
6. Repeat steps 1 - 5 on all other ShareLink Pro units in the network to configure them as EDS Clients. If you changed the default EDS hostname, enter the new hostname.

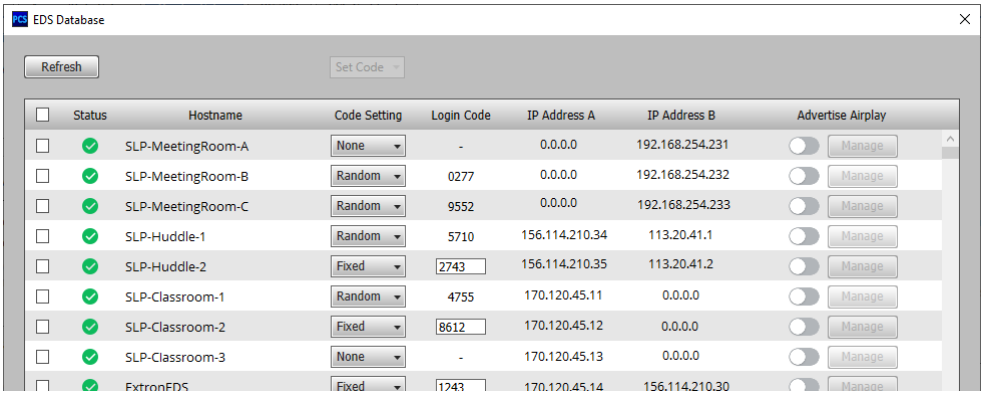
Managing Login Code Settings for EDS Clients

Follow these steps to configure the login code settings for client devices (this configuration is done on the EDS Host via PCS).

1. Open PCS v4.10.5 or greater.
2. Connect to the ShareLink Pro assigned as the EDS Host.
3. Navigate to **`General Settings`** > **`Display Setup`** tab.
4. Click **`View Devices`** (❶) in the `Enterprise Discovery Service` panel.

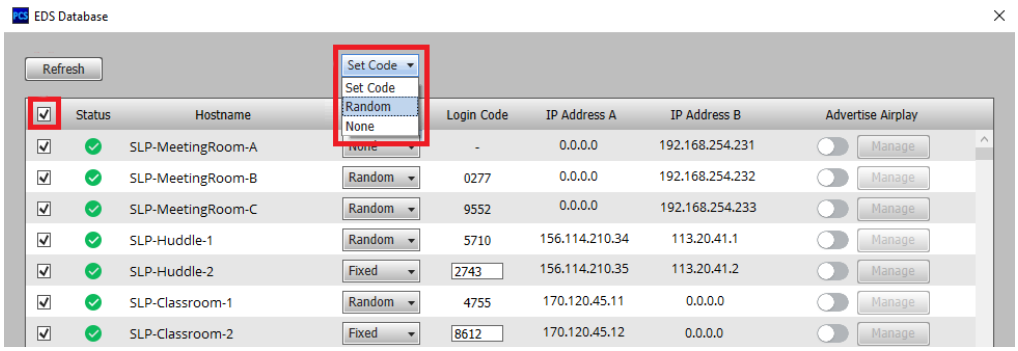


This opens a list of all ShareLink Pro devices operating as EDS Clients (reporting to the EDS Host):



5. Use the `Code Setting` drop-down list in each row to configure the code setting (**`None`**, **`Fixed`**, or **`Random`**) for each EDS Client as desired.

To configure all EDS Clients to operate with the same Code Setting: Check the top left checkbox to select all devices, then use the **`Set Code`** drop-down list at the top to configure the `Code Setting` for all EDS Clients at once.



Airplay Device Discovery via EDS

Airplay Device Discovery – Overview

EDS offers a cross-subnet discovery solution for AirPlay (iOS and macOS) devices.

When operating as an EDS Client, the ShareLink Pro can advertise the AirPlay Service of ShareLink Pro devices on different subnets to iOS and macOS devices within its own subnet. The ability to advertise the AirPlay Service can be configured for each client and for specific LAN ports (LAN A or LAN B). This is configured through the EDS Host in PCS.

Within its internal database, the EDS Host stores all details needed to advertise each EDS Client's AirPlay Service (for each EDS Client device reporting to it).

The EDS Host can task any EDS Client to advertise AirPlay Service for any number of other EDS Clients. Therefore, an administrator can choose one ShareLink Pro in each subnet to advertise (within its own subnet) the AirPlay Service of any number of other ShareLink Pro devices deployed in however many other subnets.

Network Configuration for Airplay Device Discovery

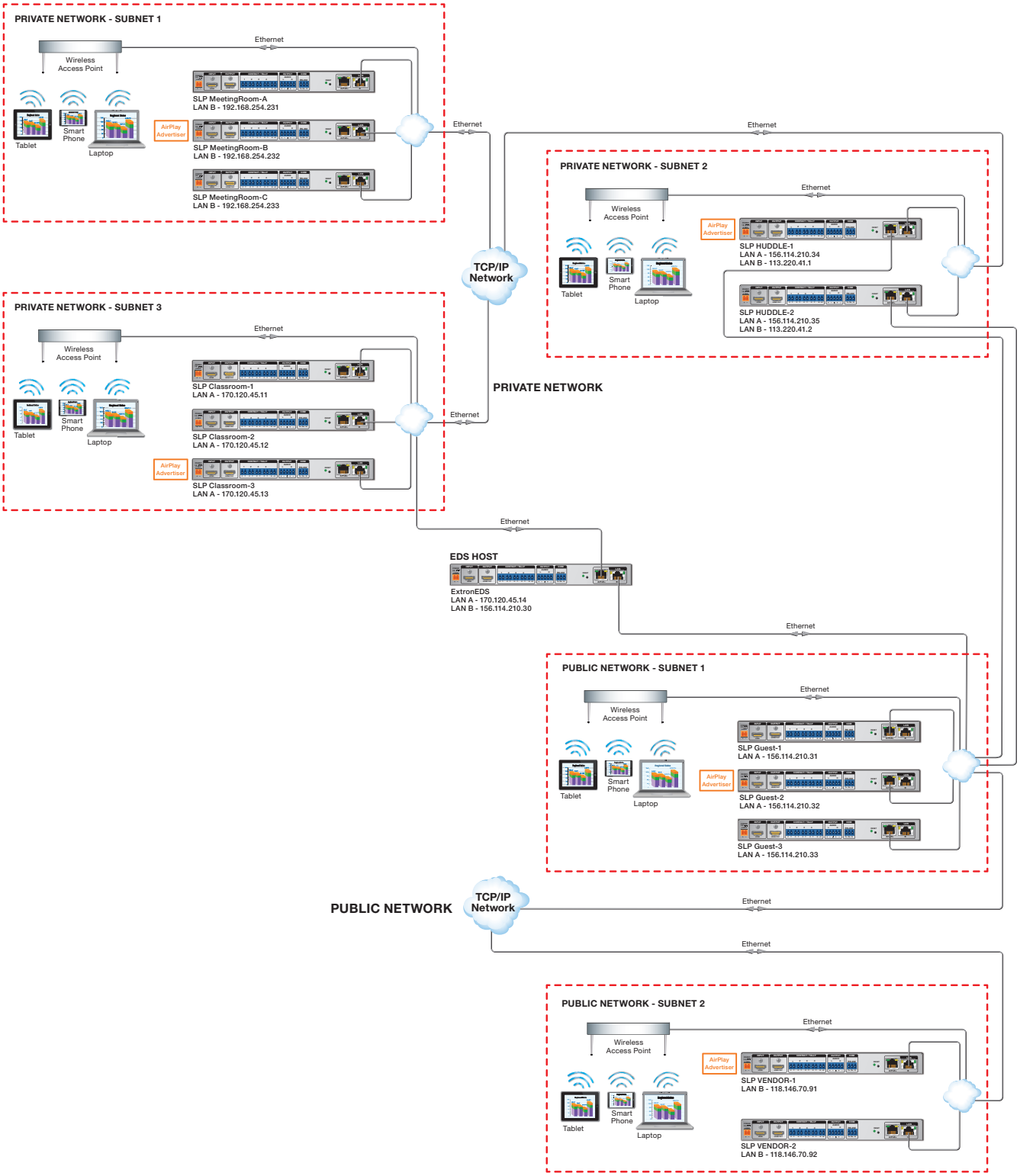
The following page shows an example of a network configured for Airplay device discovery. The sections that follow show how to configure the ShareLink Pro devices in this example. Apply these steps to configure the devices in your network for Airplay device discovery.

Use Case (Example)

Five subnets have been configured by the administrator (as shown in the diagram below):

- Three subnets on the PRIVATE NETWORK
- Two subnets on the PUBLIC NETWORK

The following page provides the configuration details for this example.



Within each subnet, ShareLink Pro devices have been deployed as shown in the table below. One ShareLink Pro device in each subnet has been selected to operate as the AirPlay advertiser for that particular subnet.

Subnet	Hostname	LAN A - IP Address	LAN B - IP Address	Airplay Advertiser
PRIVATE Subnet #1	SLP-MeetingRoom-A		192.168.254.231	
	SLP-MeetingRoom-B		**192.168.254.232**	**YES**
	SLP-MeetingRoom-C		192.168.254.233	
PRIVATE Subnet #2/ PUBLIC Subnet #1	**SLP-Huddle-1**	**156.114.210.34**	**113.20.41.1**	**YES**
	SLP-Huddle-2	156.114.210.35	113.20.41.2	
PRIVATE Subnet #3	SLP-Classroom-1	170.120.45.11		
	SLP-Classroom-2	170.120.45.12		
	SLP-Classroom-3	**170.120.45.13**		**YES**
PRIVATE Subnet #3/ PUBLIC Subnet #1	ExtronEDS	170.120.45.14	156.114.210.30	
PUBLIC Subnet #1	SLP-GUEST-1	156.114.210.31		
	SLP-GUEST-2	**156.114.210.32**		**YES**
	SLP-GUEST-3	156.114.210.33		
PUBLIC Subnet #2	**SLP-VENDOR-1**		**118.146.70.91**	**YES**
	SLP-VENDOR-2		118.146.70.92	

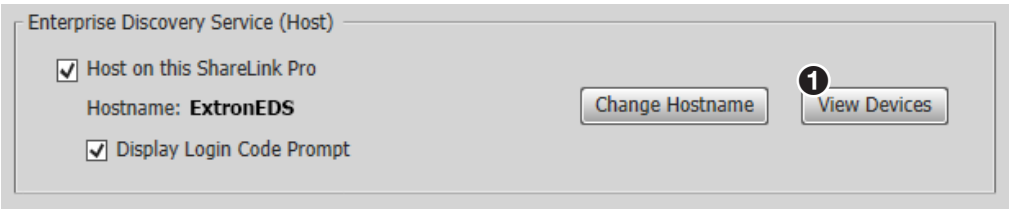
To accommodate both PRIVATE and PUBLIC subnets, a ShareLink Pro 2000 or 2500 device that is connected to both PRIVATE and PUBLIC subnets has been selected as the EDS Host. In this case, the ShareLink Pro device connected to both PRIVATE Subnet #3 and PUBLIC Subnet #1 has been selected, and the hostname has been updated to `ExtronEDS` via PCS.

All other ShareLink Pro devices in all other subnets have been configured to operate as EDS Clients.

Configuring AirPlay Device Discovery in PCS

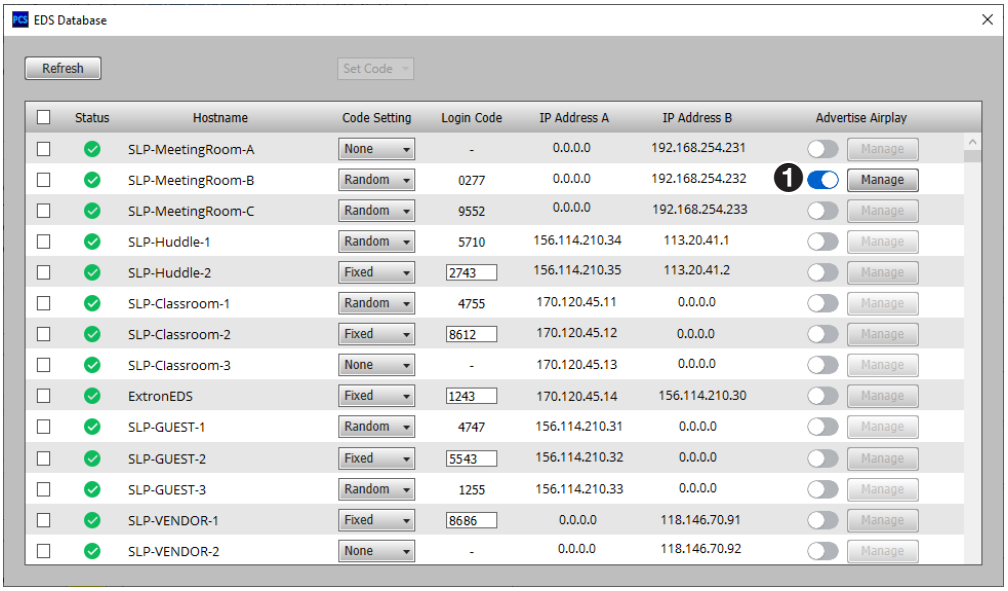
Follow these steps to configure the above example ShareLink Pro deployment (this configuration is done through the EDS Host via PCS).

1. Open PCS v4.8.3 or greater.
2. Connect to the ShareLink Pro assigned as the EDS Host.
3. Navigate to **`General Settings`** > **`Display Setup`** tab.
4. Click **`View Devices`** (❶) in the `Enterprise Discovery Service` panel.



This opens a list of all ShareLink Pro devices operating as EDS Clients (reporting to the EDS Host):

5. Click the **`Advertise AirPlay`** enable/disable slider (❶) for `SLP-MeetingRoom-B`.

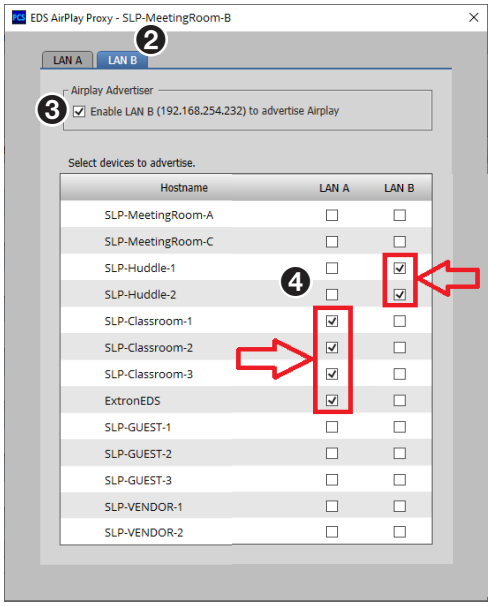


6. Click on the **`LAN B`** tab (see ❷ at right).

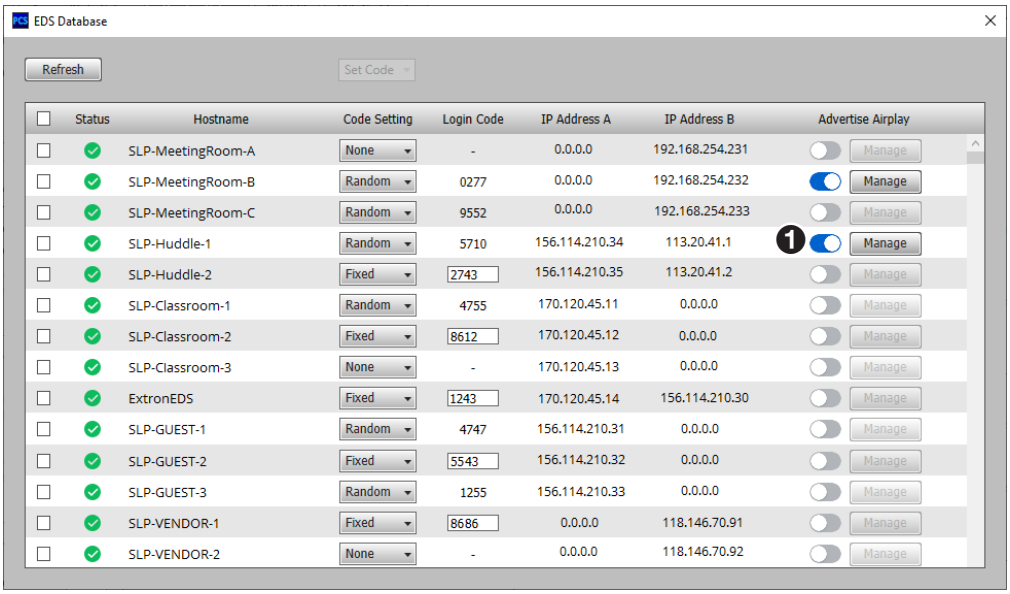
NOTE: LAN B is chosen because it is the LAN port connected to PRIVATE Subnet #1.

7. Click the **`Enable`** checkbox (❸) to enable AirPlay advertisement functionality on LAN B.

8. Select the appropriate LAN port (❹) for each ShareLink Pro device in every other subnet (excluding Subnet #1) on the PRIVATE NETWORK. The appropriate LAN port is the port on the ShareLink Pro device that connects it to the PRIVATE NETWORK via its own subnet.



9. Click the Advertise AirPlay enable/disable slider switch for `SLP-Huddle-1` (❶).

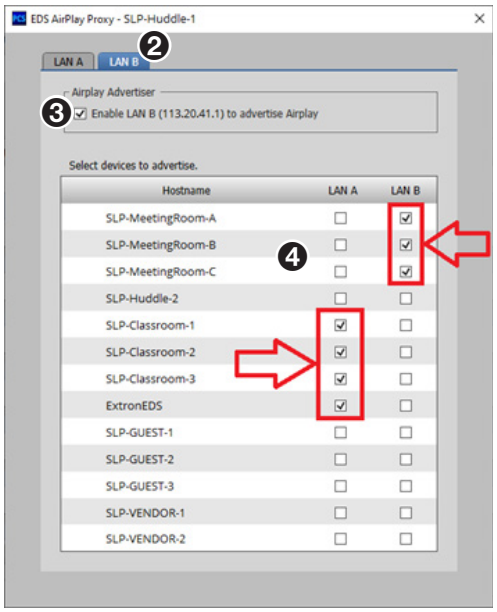


10. Click on the **`LAN B`** tab (❷).

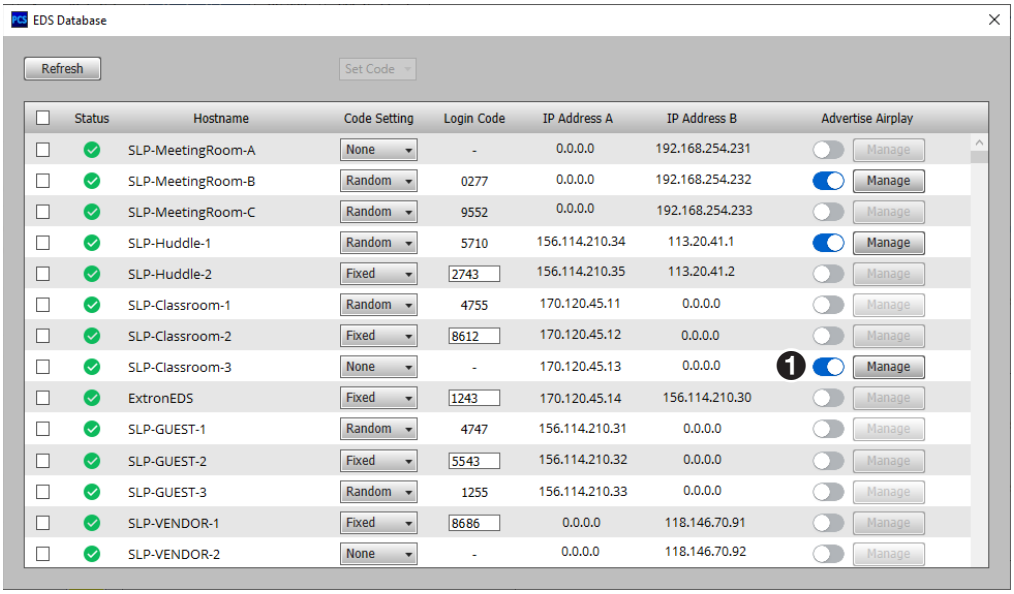
NOTE: LAN B is chosen because it is the LAN port connected to PRIVATE Subnet #2.

11. Click the **`Enable`** checkbox (❸) to enable AirPlay advertisement functionality on LAN B.

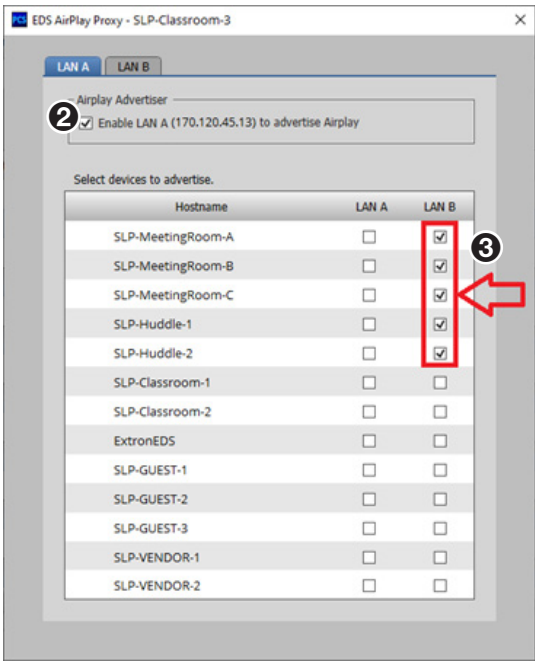
12. Select the appropriate LAN port (❹) for each ShareLink Pro device in every other subnet (excluding Subnet #2) on the PRIVATE NETWORK. The appropriate LAN port is the port on the ShareLink Pro device that connects it to the PRIVATE NETWORK via its own subnet.



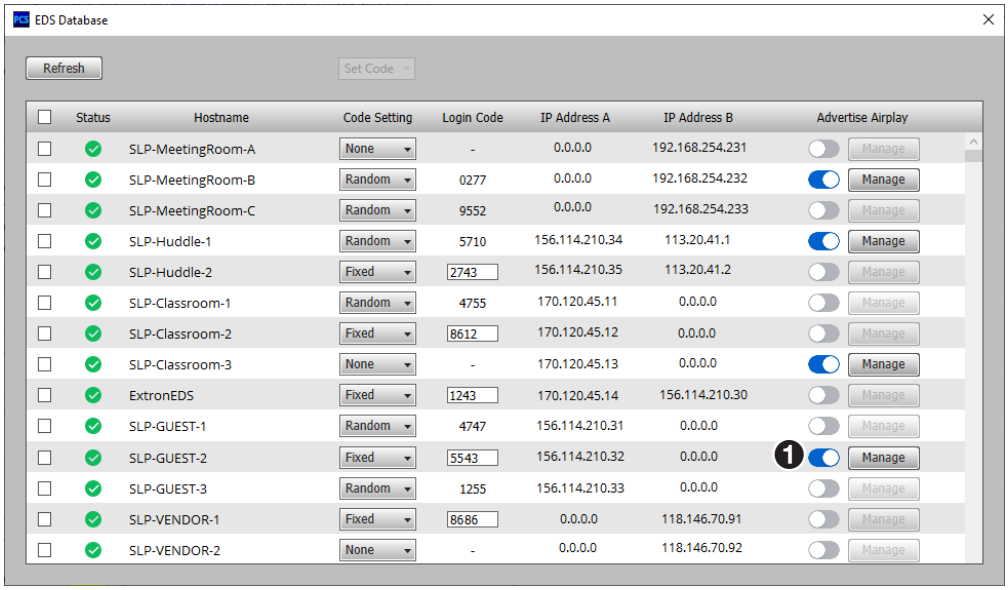
13. Click the Advertise AirPlay enable/disable slider switch for `SLP-Classroom-3` (❶).



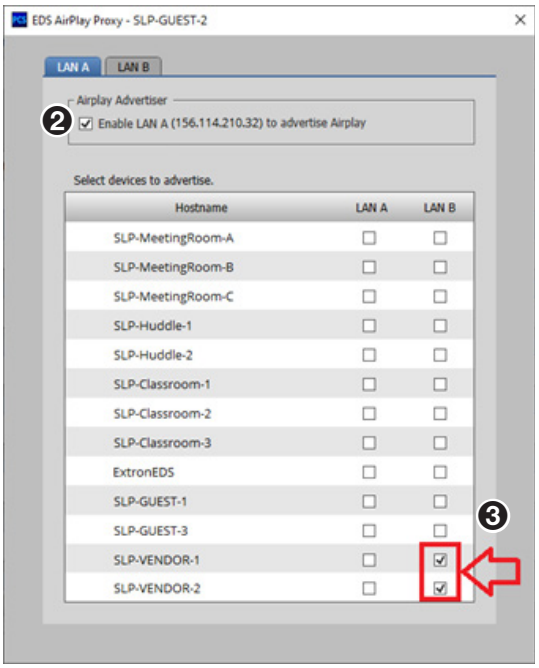
14. Click the **`Enable`** checkbox (❷) to enable AirPlay advertisement functionality on LAN A.
15. Select the appropriate LAN port (❸) for each ShareLink Pro device in every other subnet (excluding Subnet #3) on the PRIVATE NETWORK. The appropriate LAN port is the port on the ShareLink Pro device that connects it to the PRIVATE NETWORK via its own subnet.



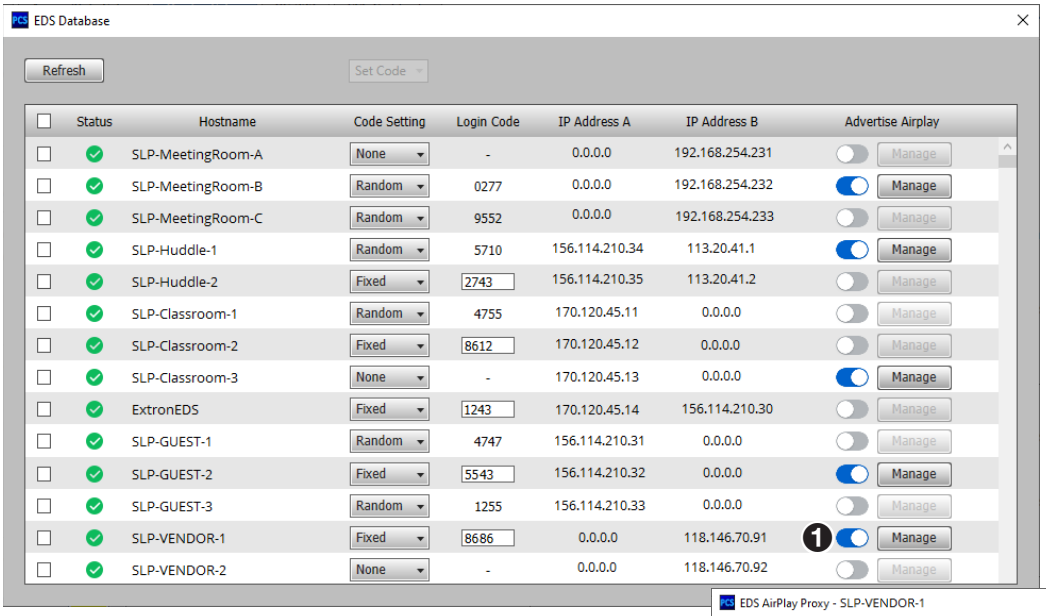
16. Click the Advertise AirPlay enable/disable slider switch for `SLP-GUEST-2` (❶).



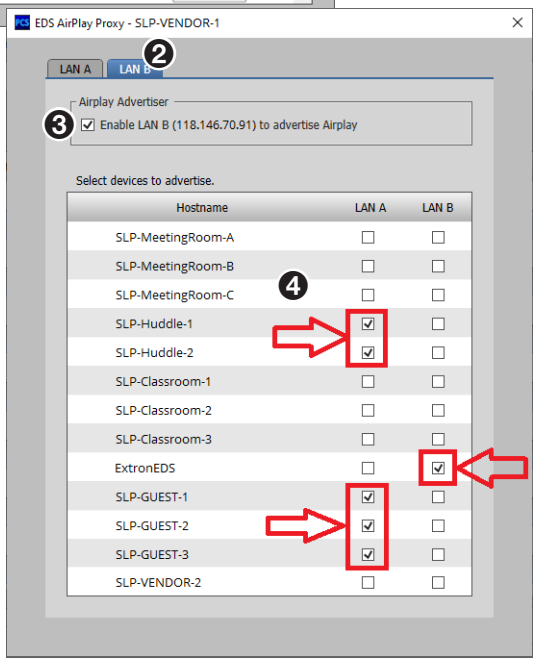
17. Click the **`Enable`** checkbox (❷) to enable AirPlay advertisement functionality on LAN A.
18. Select the appropriate LAN port (❸) for each ShareLink Pro device in every other subnet (excluding Subnet #1) on the PUBLIC NETWORK. The appropriate LAN port is the port on the ShareLink Pro device that connects it to the PUBLIC NETWORK via its own subnet.



19. Click the `Advertise AirPlay` enable/disable slider switch for `SLP-VENDOR-1` (❶).



20. Click on the **`LAN B`** tab (❷).



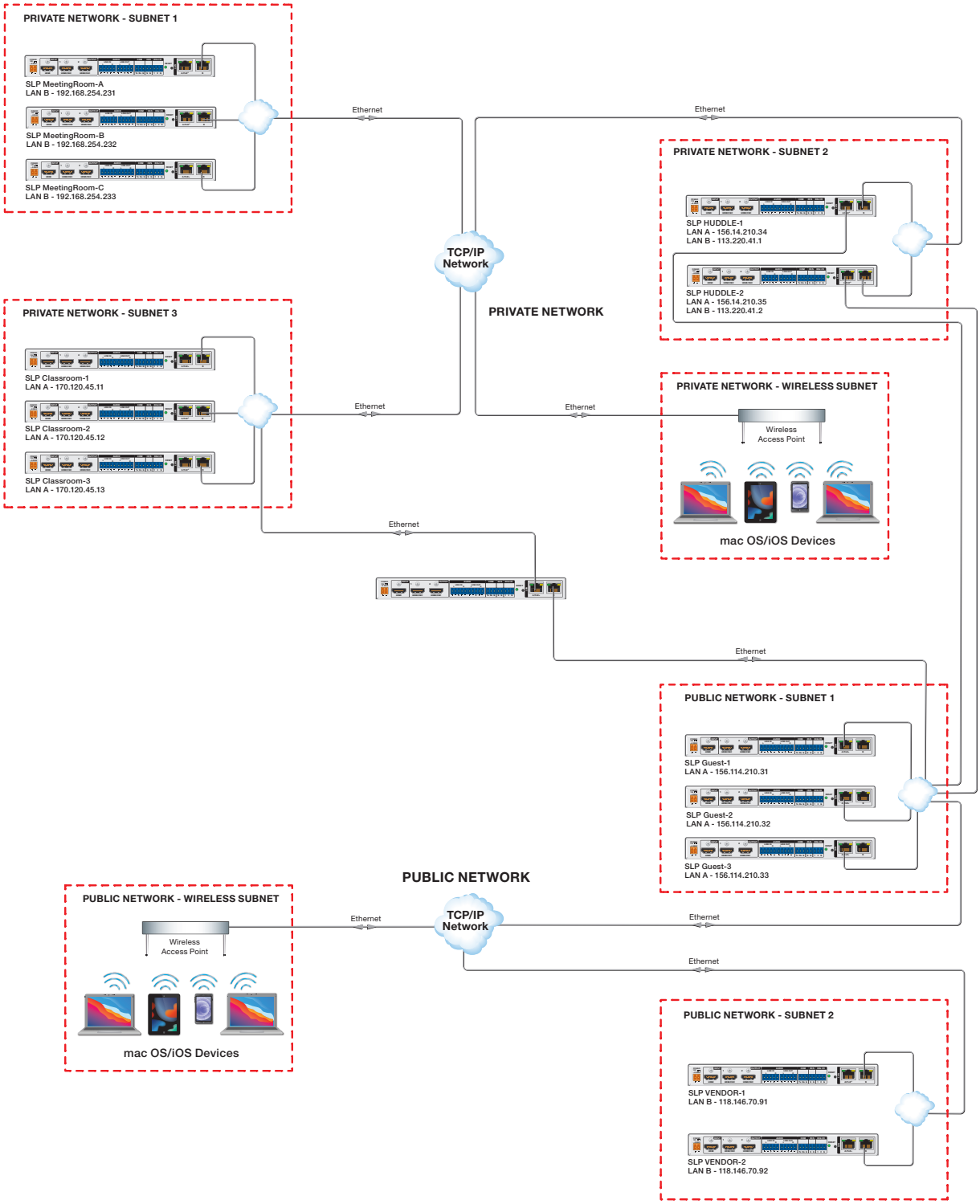
> **NOTE:** LAN B is chosen because it is the LAN port connected to PUBLIC Subnet #2.

21. Enable AirPlay advertisement functionality on LAN B by clicking on the **`Enable`** checkbox (❸).

22. Select the appropriate LAN port (❹) for each ShareLink Pro device in every other subnet (excluding Subnet #2) on the PUBLIC NETWORK. The appropriate LAN port is the port on the ShareLink Pro device that connects it to the PUBLIC NETWORK via its own subnet.

Alternative (non-EDS) Configuration for a Wireless Subnet

If the network has been intentionally configured to deploy all mobile devices in a separate wireless subnet as illustrated below, please see **Discovering a ShareLink Pro Device on a Different Subnet for Apple Screen Mirroring** on page 31 for instructions. AirPlay cross-subnet device discovery via EDS does not work under this network configuration since no ShareLink Pro devices have been deployed on the same subnet as the mobile devices. Only one ShareLink Pro device is required on the same subnet as the mobile devices in order to benefit from AirPlay cross-subnet device discovery via EDS.



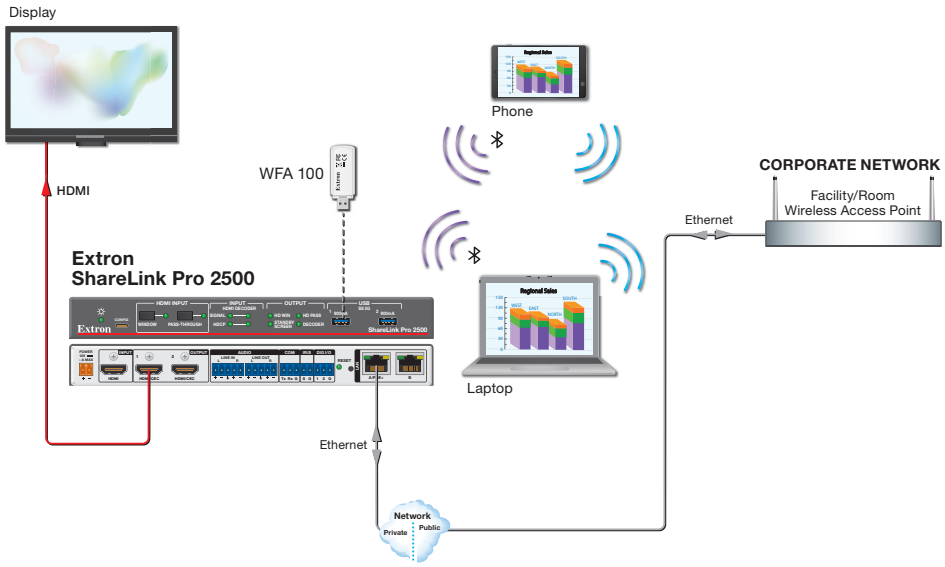
Other Configuration Options

This section covers the following configuration options for the ShareLink Pro:

- **Device Discovery using ShareNext™**
- **Digital Signage Feature**
- **Miracast Connection Using the WFA 100**
- **Dual Output Display Configuration**

Device Discovery using ShareNext

ShareNext uses Bluetooth technology to discover nearby ShareLink Pro devices equipped with a WFA 100. This is useful in applications where client devices and ShareLink Pro devices are in separate subnets within a network. Client devices discover the ShareLink Pro via Bluetooth, but they will still connect to the ShareLink Pro over the network. It is imperative that client devices have Bluetooth enabled and have a routable network path to the ShareLink Pro.



ShareNext works with client devices using ShareLink Pro software (Windows, macOS, iOS, and Android) as well as Apple devices (macOS and iOS) that support native screen mirroring (AirPlay).

NOTE:

- ShareLink Pro devices must be equipped with the WFA 100 adapter in order for ShareNext to be enabled.
- The client devices must be able to access the ShareLink Pro over the network to discover it.

Using ShareNext with the ShareLink Pro Software and Mobile App

The ShareLink Pro software or mobile app scans for all nearby ShareLink Pro units equipped with a WFA 100. If one is discovered, the user is given an option to connect to the nearby ShareLink Pro.

If multiple devices are discovered, the device discovery page displays all the detected ShareLink Pro devices.

Using ShareNext with Apple Screen Mirroring

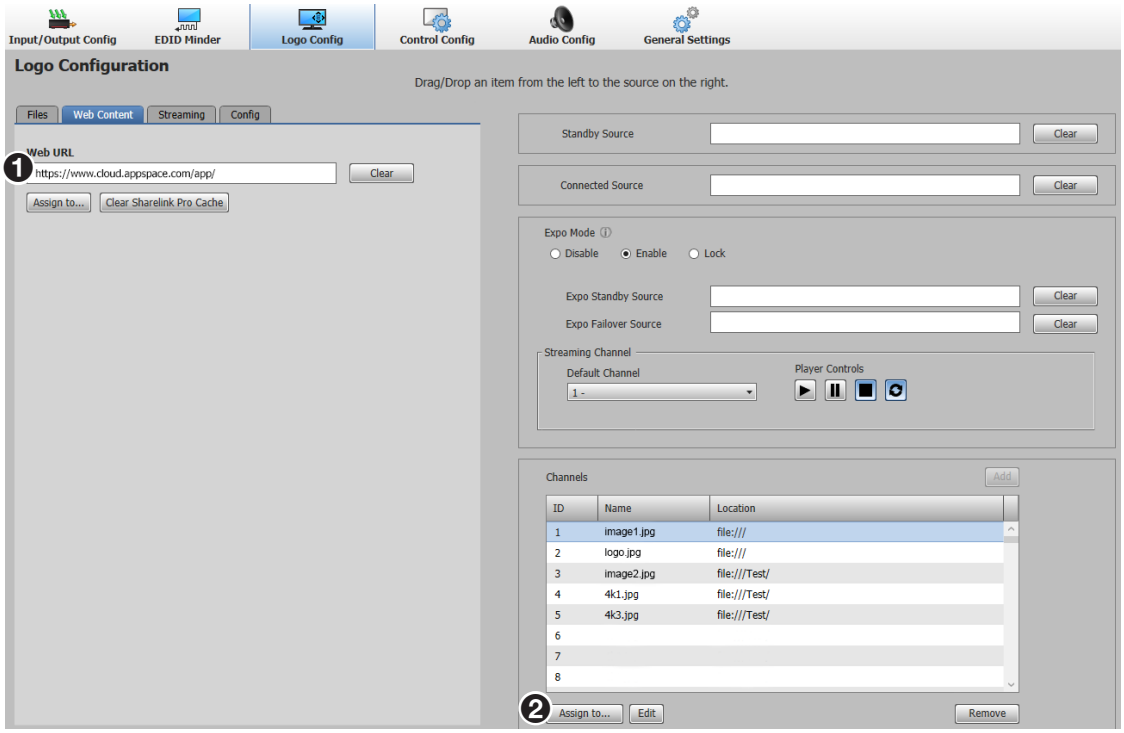
Apple devices (iOS and macOS) can natively discover nearby ShareLink Pro devices. All nearby ShareLink Pro units equipped with a WFA 100 are discovered and visible in the iOS and macOS screen mirroring device discovery list.

Digital Signage Feature

The ShareLink Pro can be used as a web-based digital signage player when it is not being used for collaboration. This feature allows the ShareLink Pro to access cloud-hosted digital signage content. Follow the steps below to enable the digital signage feature using PCS.

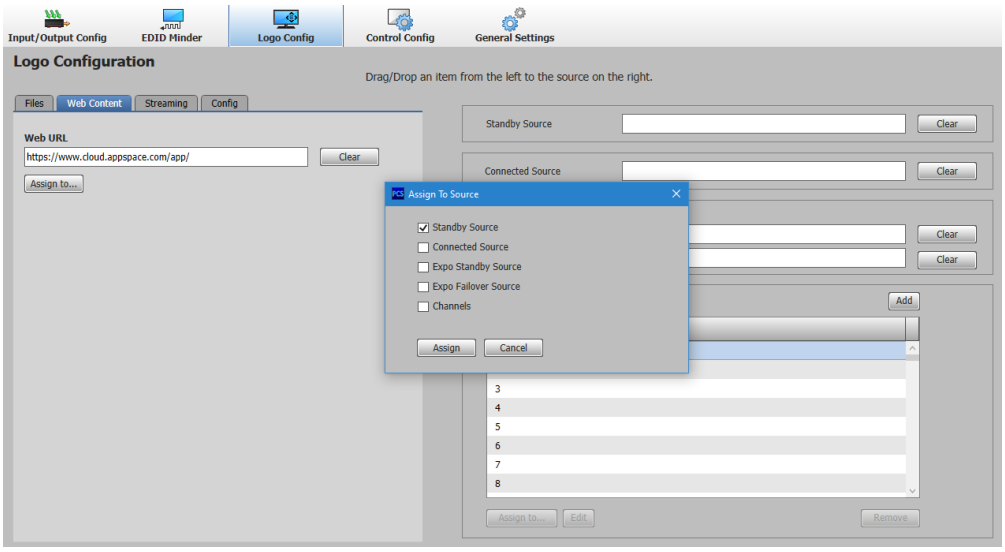
NOTE: This feature is available only with a LinkLicense.

1. Open PCS v4.10.5 or greater.
2. Connect to the ShareLink Pro device.
3. Navigate to **`Logo Config`** > **`Web Content`** tab.
4. Within the `Web URL` field (❶), enter the URL generated by your digital signage Software as a Service (SaaS) provider.



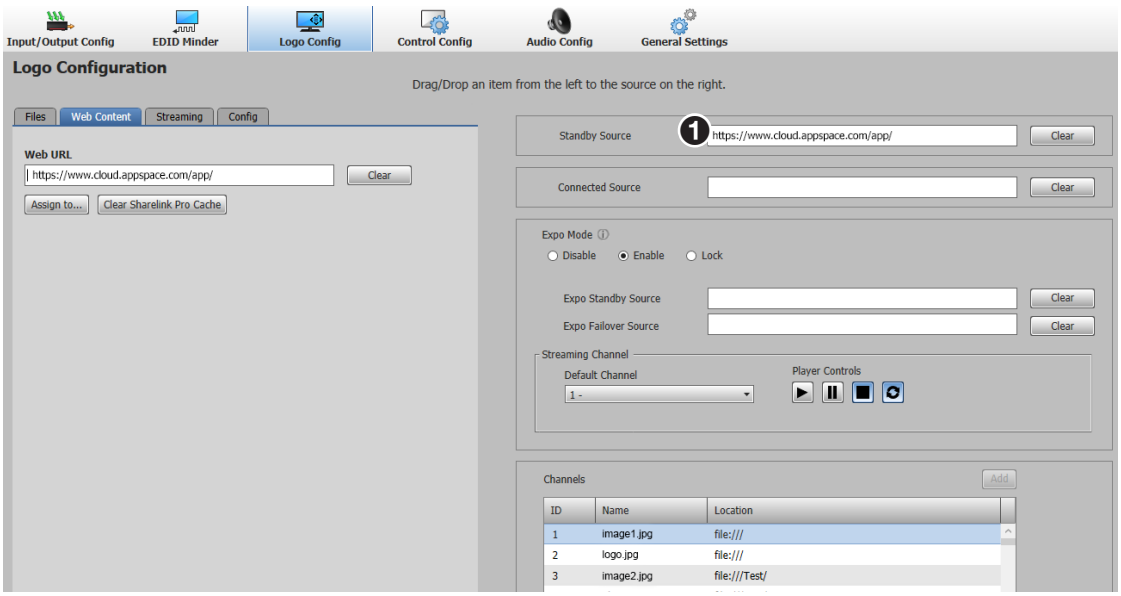
5. Click the **`Assign To...`** button (❷).

6. Select one of the following options:



- **Assign to Standby** – This option assigns the web URL content as a playback source in the Standby state.
- **Assign to Connected** – This option assigns the web URL content as a playback source in the Connected state.
- **Assign to Expo Standby** – This option assigns the web URL content as a playback source in the Expo Standby state.
- **Assign to Expo Failover** – This option assigns the web URL content as a playback source in the Expo Failover state.
- **Assign to Expo Channel** – This option assigns the web URL content as a playback source for a specific channel in Expo Mode.
  The web URL entered in the text field is copied as a source for the next available Expo channel. For example, if channels 1, 2, 3, and 4 have already been configured, then the web URL is configured as the source for channel 5.

7. Click **`Assign`**. The assigned web URL is shown on the `Standby Source` panel (❶):



Miracast Connection Using the WFA 100

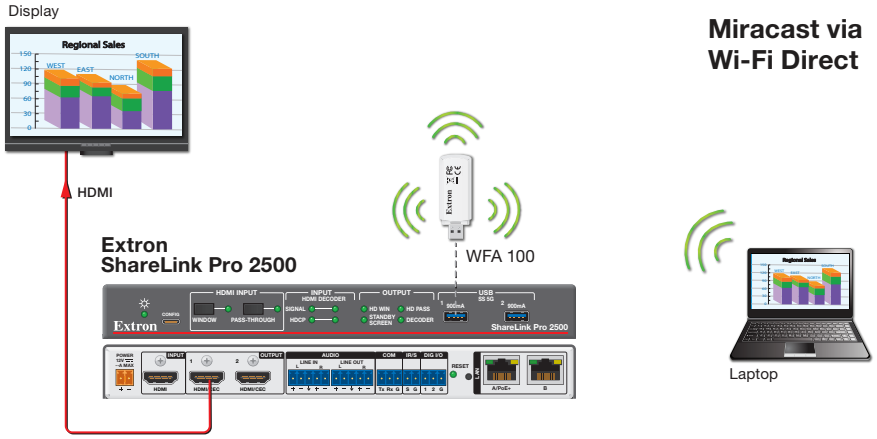
Miracast Overview

Miracast is a standard for wireless connections introduced by the Wi-Fi Alliance. It enables the sharing of content wirelessly from mobile devices to displays.

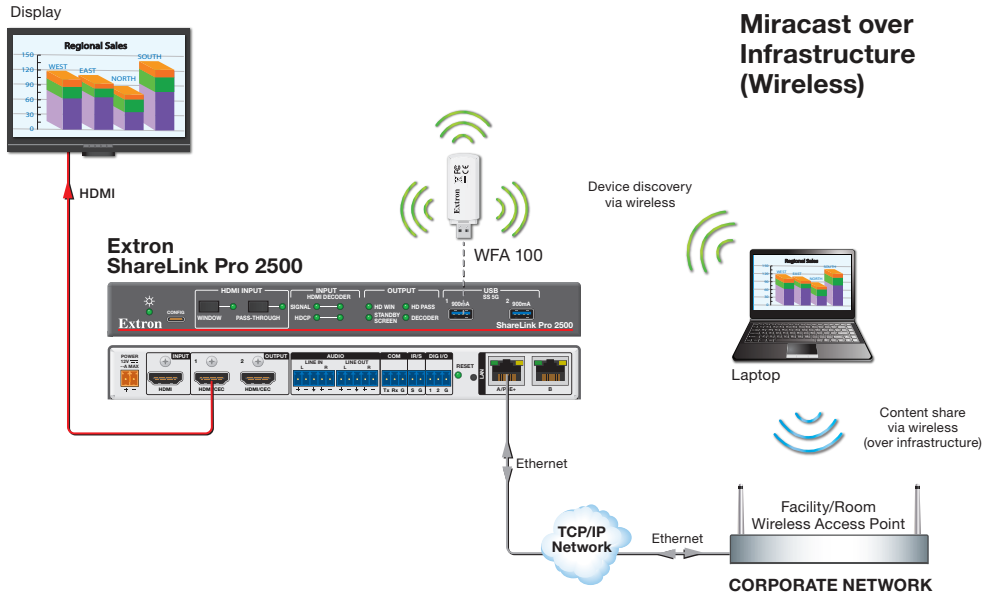
The ShareLink Pro 2500 supports Miracast technology when used with the ShareLink Pro WFA 100 adapter (see **About the WFA 100** on page 23).

There are two ways to connect and share content via Miracast.

- **Miracast Wi-Fi Direct** - This method involves a peer-to-peer connection that relies on Wi-Fi Direct technology. In this method, both device discovery and the sharing of content is facilitated over the Wi-Fi Direct connection.



- **Miracast over Infrastructure** (default) - In this method, device discovery is performed initially over Wi-Fi Direct, but the content is shared over an existing wireless network connection between the Windows 10 laptop and the ShareLink Pro.



Miracast over Infrastructure is the default connection method while Wi-Fi Direct is the failover connection method. This means that, by default, Windows 10 prefers Miracast Over Infrastructure connections, and will always attempt to connect to the ShareLink Pro over the existing network connection. If Windows determines that a network connection does not exist, then it proceeds to connect over Wi-Fi Direct.

NOTES:

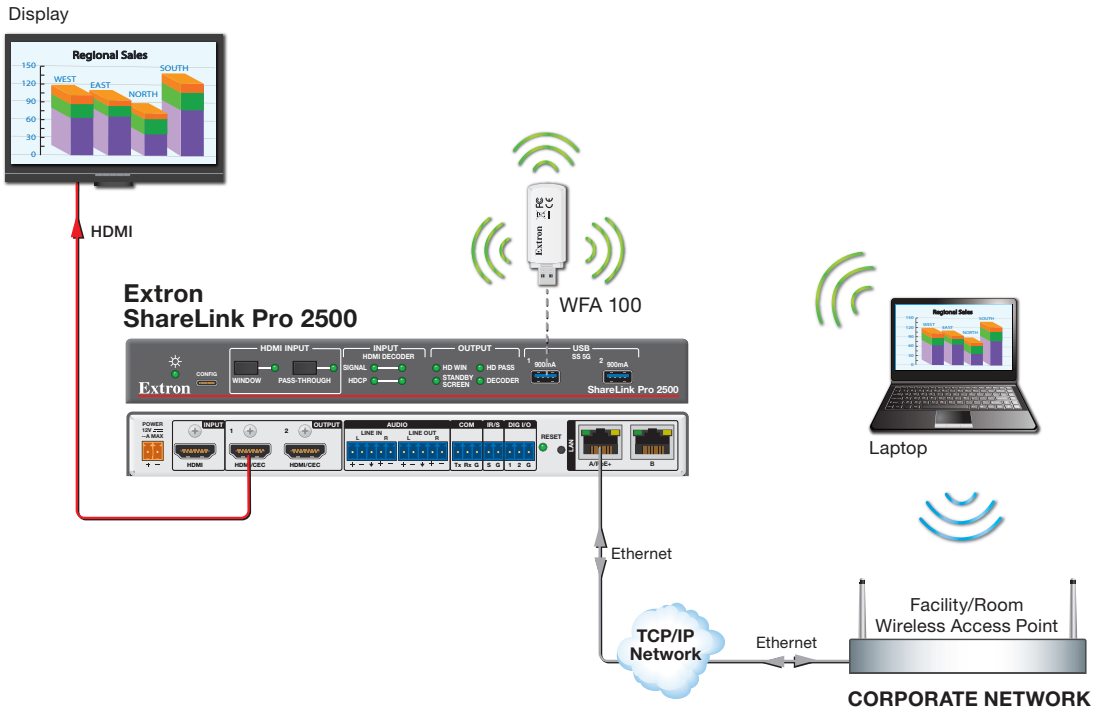
- **For Wi-Fi Direct connections**, connection quality depends on the proximity of the client device to the WFA 100 (attached to the ShareLink Pro). For optimal performance, it is highly recommended that you keep your Windows 10 device within 50 ft (~15m) of the WFA 100/ ShareLink Pro.
- **For Miracast Over Infrastructure connections**, connection quality depends on the proximity of the client device to the enterprise wireless access point serving the existing Wi-Fi network (to which the ShareLink Pro device is connected). For optimal performance, it is highly recommended that you keep your Windows 10 device within 50 ft (~15m) of both the WFA 100/ ShareLink Pro and enterprise wireless access point.

Miracast Connection Methods

Although Miracast always works from a connection standpoint, the performance varies depending on the connection method. Three different configuration options are possible and are listed below in order of decreasing performance from top to bottom.

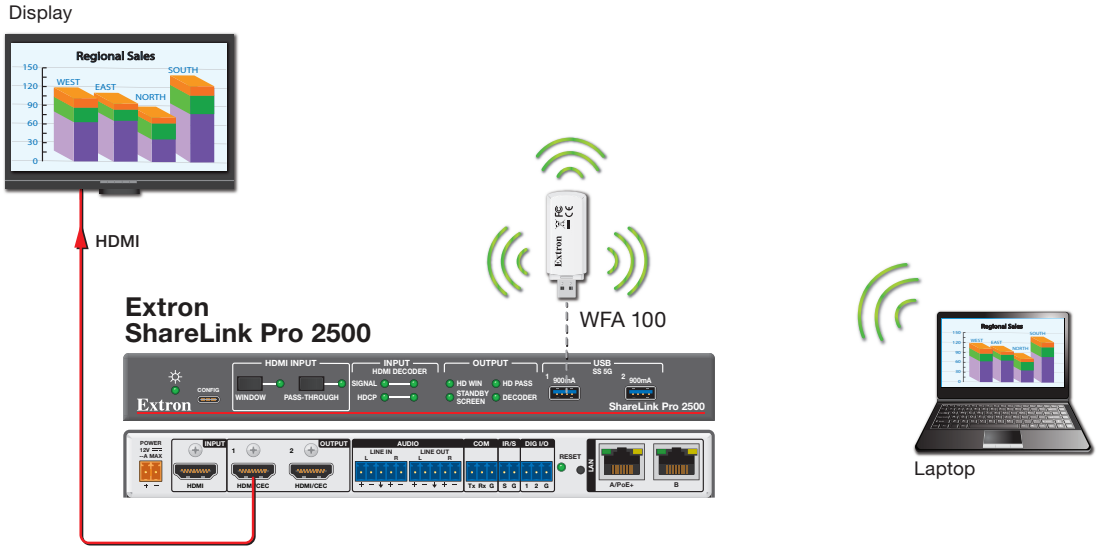
Option 1

Windows 10 device connected to the same Wi-Fi network as the ShareLink Pro devices:



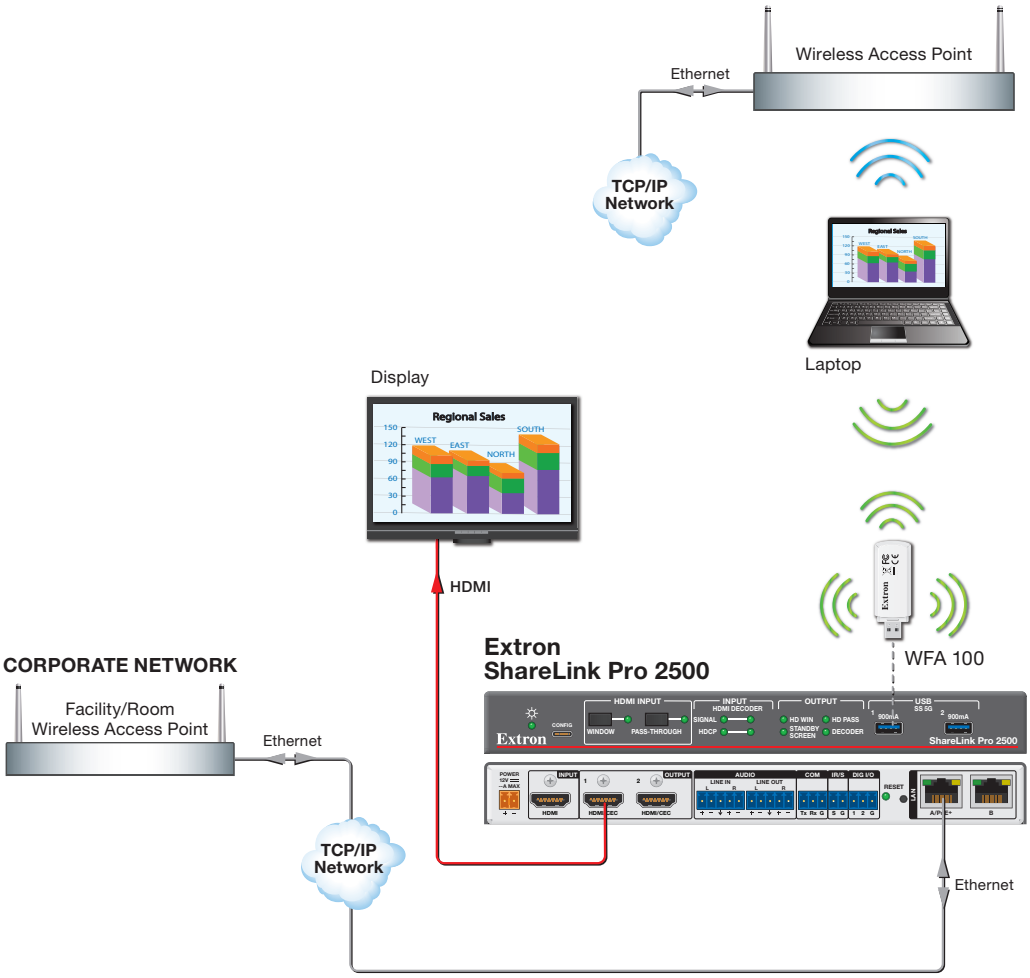
Option 2

Windows 10 device not connected to any Wi-Fi network (but Wi-Fi is still enabled):



Option 3

Windows 10 device is **not** connected to the same Wi-Fi network as the ShareLink Pro devices:



NOTES:

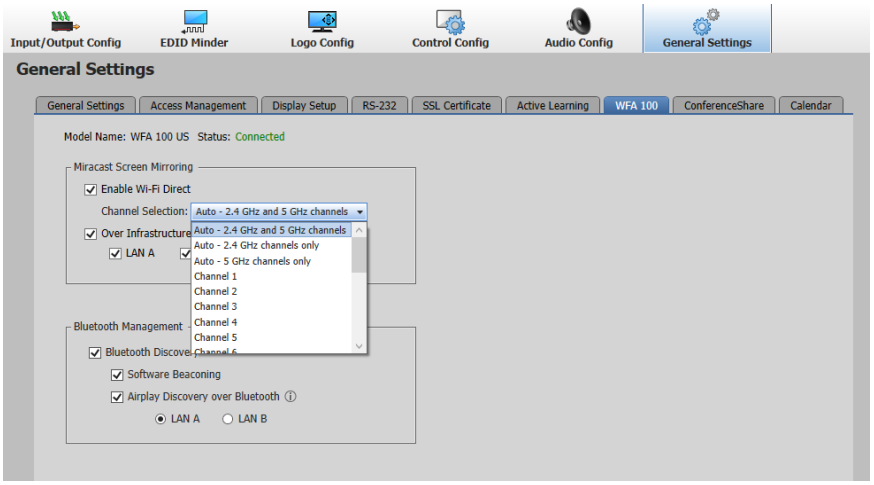
- Performance also depends on the quality of the Windows 10 hardware, the wireless environment, and the overall performance of the Wi-Fi network. The strength of the wireless signal could have an adverse impact on connection quality and potentially cause considerable packet loss. Low signal strengths may prevent connections between Windows 10 client devices and the ShareLink Pro. Even if a connection is established, low signal strengths may cause low frame rate, high latency, poor audio and/or video quality, and dropped connections.
- To improve end user experience, the following is recommended:
  - Ensure that the enterprise wireless access points serving the Wi-Fi network maintain high signal strengths and are configured to operate on Wi-Fi channels with the least interference (ideally unoccupied and non-overlapping channels).
  - Ensure that the WFA 100 attached to ShareLink Pro devices are also configured (via PCS) to operate on Wi-Fi channels with the least interference (ideally unoccupied and non-overlapping channels). For WFA 100 channel configuration instructions, see the next page.
  - Perform a scan of the environment using wireless survey equipment that is regularly calibrated, and make note of areas with low or no wireless coverage on a map. Introduce wireless coverage where needed as necessary by adjusting physical access point locations, channel selections, and channel bandwidths. Access point power levels may also require tweaking for optimal performance.
  - Configure quality-of-service on networking equipment (switches, routers, wireless LAN controllers, etc.) to prioritize Miracast traffic. Miracast packets are marked as CS5 with DSCP Value = 101 000 and Decimal Value = 40.
  - Minimize the number of network hops between the wireless access point and the ShareLink Pro device.
  - Refer to the *Miracast Setup Guide* available on the Extron website for more network design considerations.

Configuring the WFA 100 Channel

The ShareLink Pro supports Miracast Wi-Fi Direct on both the 2.4 GHz band and 5 GHz band. You may configure the channel and other Miracast settings in PCS as shown below.

> **NOTE:** It is highly recommended that you configure the Miracast Wi-Fi Direct channel such that it does not conflict with the enterprise wireless access point channels (for Miracast Over Infrastructure Wi-Fi network). Operating wireless devices on the same or overlapping channels may result in a poor end user experience.

1. Open PCS v4.10.5 or greater.
2. Connect to the ShareLink Pro device.
3. Navigate to **`General Settings`** > **`WFA 100`** tab:



4. Configure the following settings within the `Miracast Screen Mirroring` panel:
   - **Enable Wi-Fi Direct** – Check to box to always share Miracast content via Wi-Fi Direct (see **Miracast Connection Using the WFA 100** on page 51 for details).
   - **Channel Selection** – Select the desired channel from this drop-down menu. Miracast will operate in the specified channel. Alternatively, the following auto selection options are available:
     - **`Auto - 2.4 GHz and 5 GHz channels`** – On this option, the ShareLink Pro auto selects the channel. It searches for unused channels in the 2.4 and 5 GHz bands (prioritizing 5 GHz channels, then 2.4 GHz)
     - **`Auto - 2.4 GHz channels only`** – The ShareLink Pro searches for unused channels in the 2.4 GHz band only.
     - **`Auto - 5 GHz channels only`** – The ShareLink Pro searches for unused channels in the 5 GHz band only.

     > **NOTE:** Auto channel selection is initiated at power up, and once every 24 hours when the ShareLink Pro and Miracast is not in use.

   - **Over Infrastructure** – Check this box to share Miracast content via the Over Infrastructure method (as priority), with Wi-Fi Direct as the failover method (see **Miracast Connection Using the WFA 100** for details).

Miracast Troubleshooting

Use the following information to troubleshoot Miracast connection issues.

Supported platforms

The ShareLink Pro only supports Windows 10 version 1903 and later. For best experience, Extron recommends version 2004 or later.

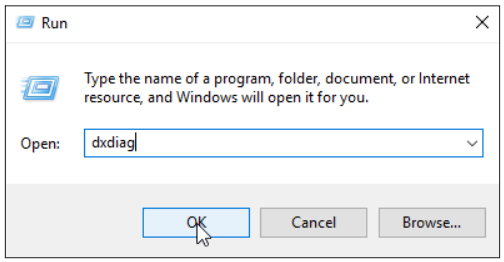
Network ports

Miracast requires the following ports to be open on the client device as well as on the overall network: **5353**, **7236**, **7250** (see the **Firewall Traversal** table on page 94 for details on these ports).

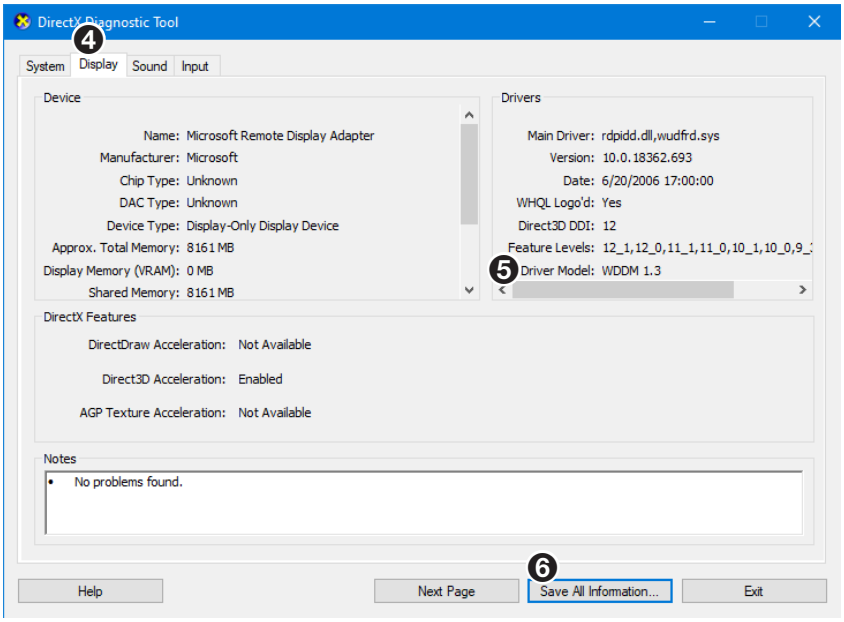
Miracast Graphics Support

Follow these steps to verify Miracast graphics support on your Windows 10 device.

1. Open **`Start`** menu.
2. Enter `Run` to execute the Run app.
3. Type in `dxdiag` and hit the **`<Enter>`** key.

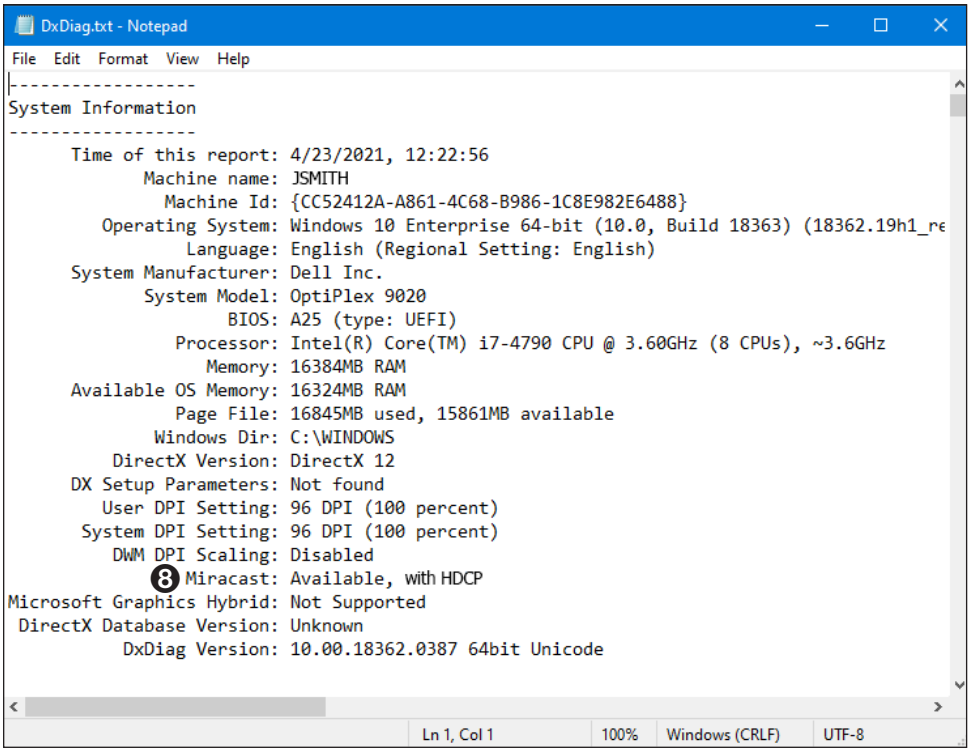


4. Click the **`Display`** tab (❹).



5. Verify that WDDM (Windows Display Driver Model) is version 1.3 or later (❺).
   If the WDDM version is lower than 1.3, update the graphics driver.
6. Click the **`Save all information`** button (❻) and save the text (.txt) file.

7. Open the saved text file.

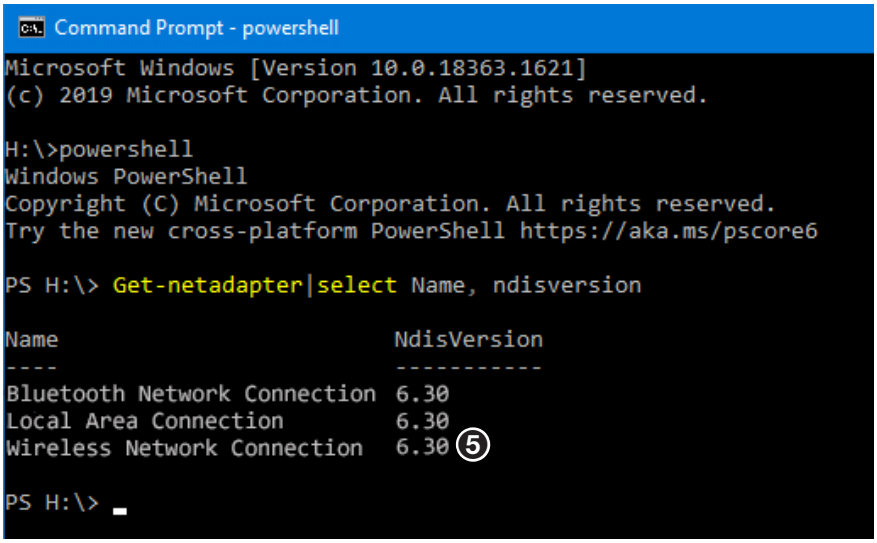


8. Check the `Miracast` (❽) line to verify that Miracast is available.

Miracast Wi-Fi Direct Support

Follow these steps to verify Miracast Wi-Fi direct support on your Windows 10 device.

1. Open the **`Start`** menu.
2. Enter "`cmd`" to execute the Command Prompt app.
3. Type in "`powershell`" then hit the **<`Enter`>** key.
4. Type in "`Get-netadapter|select Name, ndisversion`" then hit the **<`Enter`>** key.
5. Verify that the NDIS (Network Driver Interface Specification) version for the Wi-Fi interface is version 6.30 or greater (❺).



6. If the NDIS version is lower than 6.30, update the Wi-Fi adapter driver.

Dual Output Display Configuration

The ShareLink Pro 2500 features dual 4K HDMI outputs, allowing content to be shared on up to two displays. There are two modes (Mirror Mode and Extend Mode) for displaying shared content on two displays. These modes can be selected and configured using PCS (see **Selecting the Display Mode and Layout Group in PCS** on page 60).

In **Mirror Mode**, the shared content is mirrored on both outputs to show the same content on each display.

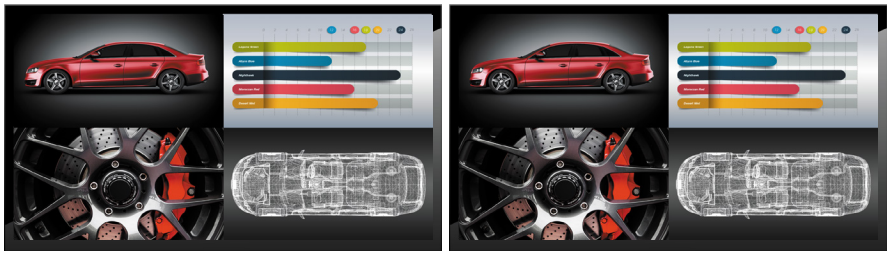


Figure 20. Dual Displays using Mirror Mode

In **Extend Mode**, the shared content is distributed between the two displays.

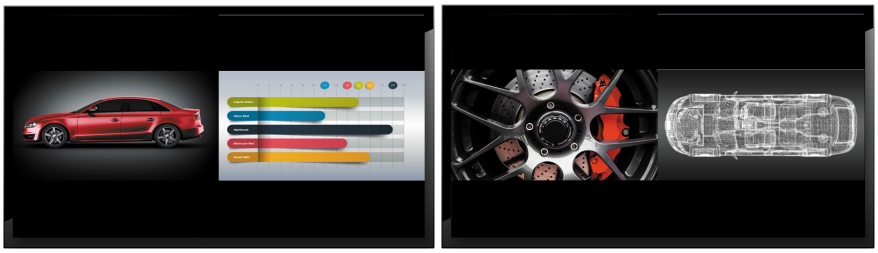


Figure 21. Dual Displays using Extend Mode

Since the ShareLink Pro can display up to four pieces of content simultaneously, PCS allows you to select how the content is arranged and distributed on the screens. There are eleven layout group options that determine how the content is grouped on the displays (see **Layout Groups** on the next page).

Layout Groups

The following chart shows how each layout group arranges the content on the outputs. The layout group can be selected using PCS (see **Selecting the Display Mode and Layout Group in PCS** on the next page).

NOTES:

- Each group chart shows how content is arranged depending on how many pieces of content are being shared (one, two, three or four).
- Layout groups 1-5 are ideal for most applications when using Mirror Mode.
- Layout groups 6-11 are ideal for most applications when using Extend Mode.



Selecting the Display Mode and Layout Group in PCS

Follow these steps to select the dual output display mode and layout group in PCS (see the *ShareLink Pro Help File* in PCS for more information):

1. Click the **`Input/Ouptut Config`** page (see figure 22, ❶).

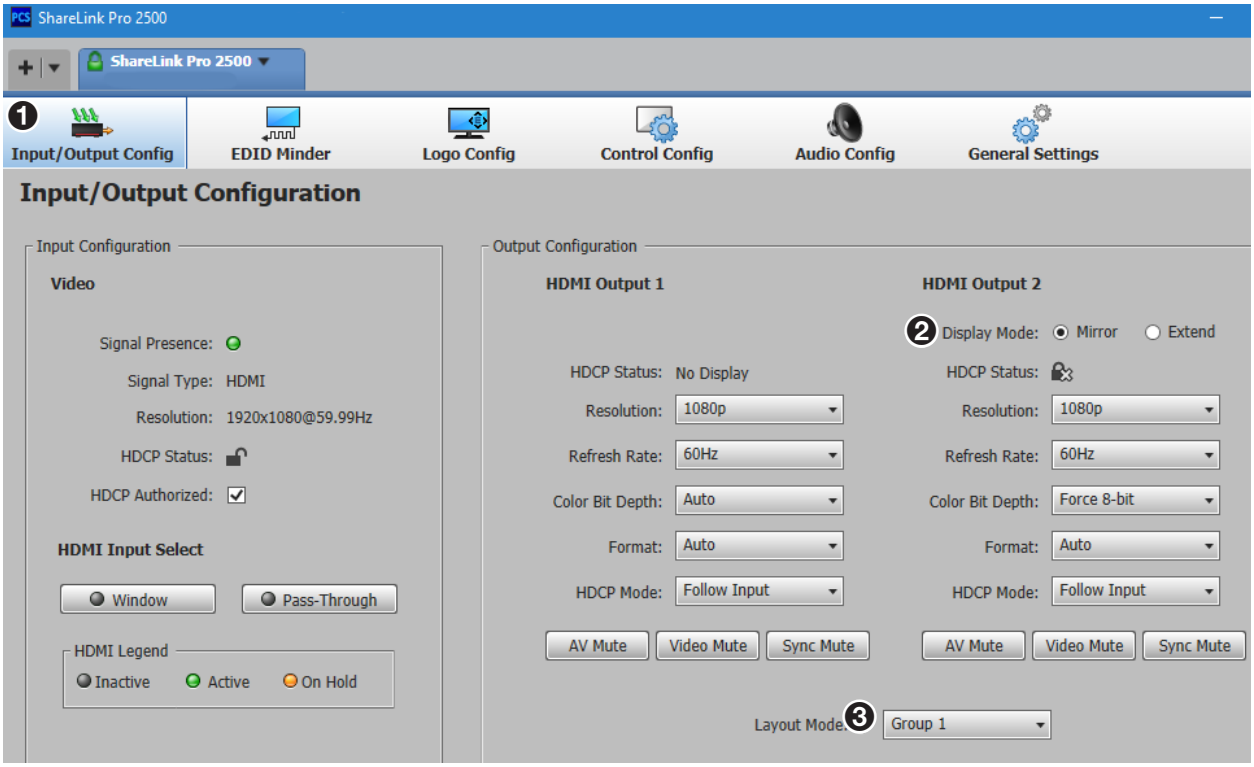


Figure 22. PCS - Input/Output Config Page

2. On the **`Output Configuration`** panel, under `HDMI Output 2`, select the desired Display Mode (**`Mirror`** or **`Extend`**) (❷).
3. Select the desired layout group from the **`Layout Mode`** drop-down menu (❸).

Enabling Secure Connection Using SSL Certificates

SSL (Secure Sockets Layer) Certificates Overview

An SSL certificate establishes an encrypted link between a server and a client. This authenticates a website's identity and enables an encrypted connection, ensuring private and secure transmission of data (such as passwords, credit card numbers, and personal data). Websites that do not have a valid SSL certificate are flagged as "not secure" by most internet browsers.

If an SSL certificate is not availble on the ShareLink Pro, or if the SSL certificate is invalid, the browser may trigger a warning (such as the one shown in figure 23) when the user attempts to access the ShareLink Pro internal web pages.

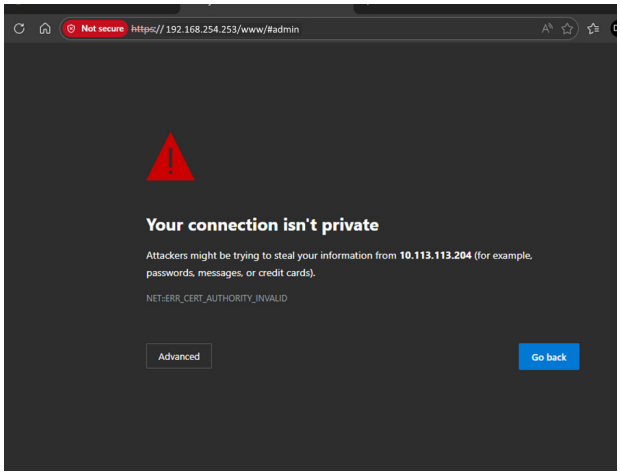


Figure 23. Browser Warning for Webpage without SSL Certificate

To avoid this notification, the following section describes how admin users can update the SSL certificate on a ShareLink Pro 2500 unit.

For more details on SSL certificates, see **https://www.ssl.com/article/what-is-ssl-tls-an-in-depth-guide/**.

Uploading an SSL Certificate to the ShareLink Pro

The ShareLink Pro 2500 ships with factory-installed SSL certificates created by Extron. If you want or are required to use a different SSL certificate at your installation site, you can use PCS to change the SSL certificate at any time (see **Uploading an SSL Certificate Using PCS** on the next page).

NOTE: Some certificates require a passphrase that is created when the certificate is created. If a passphrase is required, you must enter that passphrase before uploading and applying the certificate.

The ShareLink Pro 2500 supports standard OpenSSL certificate encodings such as .pem (Privacy-enhanced Electronic Mail) and .der file types. PEM file types are ASCII encoded and are the required format for uploading to the ShareLink Pro 2500 receiver. DER (Distinguished Encoding Rules) file types are binary encoded and can typically have several file extension variations, such as .crt and .cer. There are many standard tools that can convert from DER to PEM file encodings if needed.

NOTE: A DER format file must be converted to PEM encoding before uploading it to the unit.

To properly create the certificate for uploading to Extron devices, ensure that the certificate file meets the following requirements:

- Contains X.509 certificate information
- Contains public and private keys
- Uses PEM encoding

NOTE: ITU-T standard X.509 covers aspects of public key encryption, digital cryptography, certificates, and validation.

Contact your IT administrator for more information on what tools and policies are required to obtain or create the SSL certificate and, if necessary, the corresponding passphrase.

Uploading an SSL Certificate Using PCS

Follow these instructions to upload an SSL certificate using PCS.

1. Click the **`General Settings`** page (see figure 24, ❶).

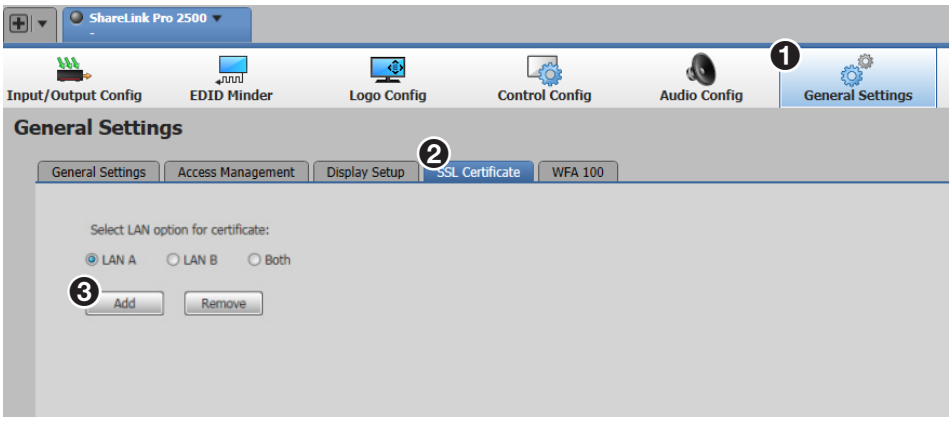


Figure 24. PCS - General Settings Page

2. Go to the **`SSL Certificate`** tab (❷), and select a LAN option (LAN A or LAN B). You may apply an SSL certificate to one or both of the LAN ports.

NOTE: To remove the current SSL certificate from the selected LAN port, click Remove.

3. Click **`Add`** (❸). The `Add SSL Certificate` dialog box opens (see figure 25).

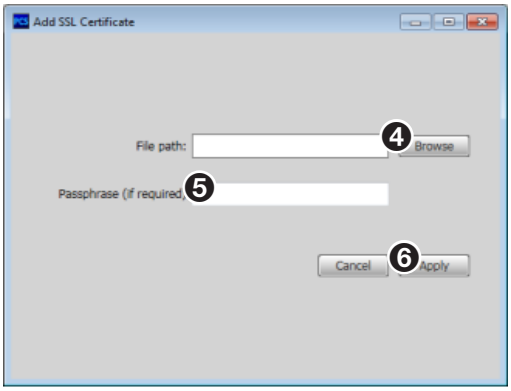


Figure 25. Add SSL Certificate Dialog Box

4. Click **`Browse`** (❹) to navigate to the SSL certificate file location, and select the desired file.
5. If a passphrase is required for the SSL certificate, enter it in the `Passphrase` field (❺).
6. Click **`Apply`** (❻).

SIS Configuration and Control

This section contains SIS communication details and SIS commands and responses for the ShareLink Pro 2500. Topics in this section include:

- **Host Device Connection**
- **SIS Overview**
- **Command and Response Tables for SIS Commands**

Host Device Connection

Use a connected computer running an SSH client such as PuTTY to send and receive SIS commands and responses.

Use port 22023 for connection to the ShareLink Pro when using a control system. Enter the admin username and password when prompted.

NOTE: The factory configured password for all accounts have been set to the device serial number (passwords are case sensitive). Performing a **Reset to Factory Defaults** (see page 7) sets the password to extron.

SIS Overview

Host and Device Communication

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. When the ShareLink Pro determines that a command is valid, it executes the command and sends a response to the host device. All responses from the device to the host end with a carriage return and a line feed
(CR/LF = ↵), which signals the end of the response character string. A string is one or more characters.

Error Responses

When the ShareLink Pro receives an SIS command and determines that it is valid, it performs the command and sends the corresponding response to the host device. If the command is determined invalid or contains invalid parameters, the device returns an error response to the host. The error response codes are:

E1Ø = Invalid command
E11 = Invalid preset number
E13 = Invalid parameter
E14 = Not valid for this configuration
E17 = Invalid command for signal type
E22 = Busy
E24 = Privilege violation
E35 = Account does not exist

Command and Response Tables Overview

The command and response tables for SIS commands list the commands the device recognizes as valid, the responses returned to the host, a description of the command function or results of executing the command, and some examples of commands in ASCII.

NOTE: Upper and lowercase text can be used interchangeably unless otherwise stated.

Symbol Definitions

The table below shows the hexadecimal equivalent of ASCII characters used in the command and response tables. Hexadecimal values include two digits. The following symbols are commonly used throughout the command and response tables.

ASCII and Hexadecimal Conversion Table

First Hexadecimal Digit	Second Hexadecimal Digit															
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**A**	**B**	**C**	**D**	**E**	**F**
0											LF			←		
1												Esc				
2	•	!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
3	Ø	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7	p	q	r	s	t	u	v	w	z	y	z	{	|	}	~	

↵ = Carriage return and line feed (LF)

← = Carriage return with no line feed

| = Pipe (can be used interchangeably with the ← character).

• = Space

Esc = Escape key

W = Can be used interchangeably with the Esc character.

X1 = Input window status — 0 = HDMI window not displayed 1 = HDMI window displayed

X2 = Input signal — 0 = No input signal detected 1 = Input signal detected

X3 = HDMI Input Signal Detected Rate (Example: 1920x1080@60.00Hz); no signal = 0000x0000@00.00Hz

X4 = Video format — 0 = No signal, 1 = DVI, 2 = HDMI

X5 = EDID table slot

X6 = Native resolution & refresh rate — Example: 1920x1080@60.00Hz

X7 = EDID data in Hex

X8 = Output rate (see table on page 64)

X9 = Output sync mode — 0 = Sync always active (default)
1 = No signal present timer, disable output
2 = Inactivity timer, disable output

X10 = Time out duration — 0-999999 (1 second increments)
1000000 = Never times out
Default = 30 seconds

X11 = Output sync mode status
0 = Active input detected; timer not running
1 = No active input; timer is running; output sync still active
2 = No active input; timer has expired; output sync disabled

X12 = Color bit depth
0 = Auto mode (default) 1 = Force 8-bit

X13 = Output video format
0 = Auto (default) 1 = DVI RGB 4:4:4 Full
2 = HDMI RGB 4:4:4 Full 3 = HDMI RGB 4:4:4 Limited
4 = HDMI YUV 4:4:4 Limited 5 = HDMI YUV 4:2:2 Limited
6 = HDMI YUV 4:2:0 Limited

X14 = HDCP status
0 = Not connected 1 = Not HDCP Encrypted
2 = HDCP Encrypted

X15 = HDCP authorized status
0 = HDCP authorize off 1 = HDCP authorize on (default)

X16 = HDCP mode
0 = Follow input (default)
1 = Always encrypt
2 = Follow input with continuous DVI trials
3 = Always encrypt with continuous DVI trials
4 = Disable authentication

X17 = HDCP notification
0 = Black screen 1 = Green screen (default)

X18 = Video mute status
0 = Unmute (default)
1 = Mute video
2 = Mute sync

X19 = Audio mute status
0 = Unmute (default) 1 = mute

X21 = Input type
1 = HDMI 2 = Decoder (for all decoder streams)
3 = Airplay streams 4 = Uploaded image/video content

X22 = Input aspect ratio setting
1 = Fill 2 = Follow (default)

X23 = Volume adjustment range
-100 to 0 = (default is -30 dB)

X28 = Executive mode
0 = Off (default) 1 = On

X30 = Unit name
Alpha-numeric up to 63 characters. No blanks, spaces, or special characters except hyphen (-).

X31 = Default unit name
Alpha-numeric name. ShareLink-Pro-xx-xx-xx
(where xx-xx-xx is the last six digits of the unique MAC address).

X32 = Firmware version (Example: 1.00)

X33 = Firmware version and build version (Example: 1.00.0010)

X34 = Internal temperature (2 digits, °C)

X35 = Verbose response mode
0 = Clear (none) (default) 1 = Verbose mode,
2 = Tagged responses 3 = Verbose + tagged responses

X36 = Layout mode
(Default in Mirror Mode = 1)
(Default in Extend Mode = 6)
1 = Layout group #1 2 = Layout group #2
3 = Layout group #3 4 = Layout group #4
5 = Layout group #5 6 = Layout group #6
7 = Layout group #7 8 = Layout group #8
9 = Layout group #9 10 = Layout group #10
11 = Layout group #11

X37 = Current layout number (1-25)

X38 = HDMI input mode
0 = Disabled 1 = Enabled (default)

X39 = Apple screen mirroring mode
0 = Disabled 1 = Enabled (default)

X391 = Device discovery proxy service
0 = Disabled (default) 1 = Enabled

X40 = HDMI controls setting
0 = Disabled 1 = Enabled (default)

X41 = Client app controls label
UTF-8 characters permitted, maximum of 16 characters

X401 = HDMI client app controls
0 = Hide 1 = Show (default)

X42 = Access mode
1 = Full control 2 = Moderated 3 = Run-time (default)

X402 = WebShare mode
0 = Disabled 1 = Enabled (default)

X43 = Run time access mode — 1 = Full control 2 = Moderated

X403 = IP address visibility setting — 0 = Visible (default) 1 = Masked

X44 = Confirmation code mode — 0 = None 1 = Fixed 2 = Random (default)

X45 = Login key code — Four digit value (default = 0000)

X46 = Random code interval — Four digit value (1 to 9998) in minutes

Default = 9999 = random code generated after every collaboration session (after the last user disconnects)

X47 = WebView password option
0 = No access (disabled)
1 = No prompt for password (default)
2 = Custom password
3 = Follow confirmation code

X48 = Status bar mode — 0 = Never shown 1 = Always shown (default)
2 = Not shown only when one content is shared
3 = Not shown when one or more content is shared

X49 = Label — 1 = Hostname 2 = IP address A 3 = IP address B
4 = Login code 5 = Custom message
6 = Dynamic notifications/messages 7 = Clock

X50 = Label value (max 128 characters)

X51 = Label visibility setting — 0 = Hide 1 = Show (default)

X52 = Language — 1 = English (default) 2 = French 3 = German
4 = Spanish 5 = Chinese 6 = Japanese

X53 = Still image transition effect — 0 = Cut (default) 1 = Fade

X54 = Still image transition time — 500 to 3000 ms increments (default = 1000 ms)

X55 = Time between still image sequences — 1000 to 60000 ms in 1 ms increments (default = 10000 ms)

X56 = Gallery setting — 1 = Standby image gallery 2 = Connected image gallery

X64 = Connection ID (10 digits)

X65 = User name (apha-numeric text)

X66 = Stream ID (10 digits) (if connection is not streaming, this will be empty)

X67 = Content type (example: HDMI, App Window, AirPlay, etc)

X68 = Connection approved (0 = pending, 1 = approved)

X69 = X: x position of the window as a percentage of the screen width times 100

X70 = Y: y position of the window as a percentage of the screen height times 100

X71 = W: width of the window as a percentage of the screen width times 100

X72 = H: height of the window as a percentage of the screen height times 100

X73 = Connection age (in seconds)

X74 = Total number of users connected (integer – maximum 64)

X75 = Video port ID (7 digits)

X76 = Echo status — 0 = Disabled 1 = Enabled (default)

X77 = Color described as RGB Hex triplets (RRGGBB)

X78 = mDNS hostname (alpha-numeric up to 63 characters; no blanks, spaces, or special characters except hyphen (-).

NOTE: The first character must be an alphabetical character, and the last character must not be a hyphen.

X79 = Status bar pop-up — 0 = Disabled 1 = Enabled (default)

X791 = Status bar pop-up timer — 1 s - 300 s in 1 s increments (default = 20 s)

X106 = Service (network path of server)	**CIFS**: "\\\\myServer\\myShare\\myDir" **NFS**: "myServer:/myDir"
X107 = Mount point	
X108 = Username	
X109 = Password	
X110 = Options	
X111 = Boolean for `reconnect`	
X112 = Boolean for `extron_share`	
X113 = Recursion (optional)	0 = Disabled 1 = Enabled (default)
X114 = Directory path (optional)	
X118 = IP address	Format *nnn.nnn.nnn.nnn* Default for LAN A = **192.168.253.254** Default for LAN B = **192.168.254.254** Leading zeros in each of the four octets are optional in setting values, and are suppressed in returned values.
X119 = Subnet mask in CISG commands	Prefix representing subnet mask bits (subnet mask value in CISG commands). Default = **/24**, which represents the default subnet mask, 255.255.255.0.
X120 = Gateway IP address	Format *nnn.nnn.nnn.nnn* Default = **0.0.0.0**
X121 = Active Learning Mode	0 = Disable (default) 1 = Encode only 2 = Decode only 3 = Encode and decode
X122 = Receiver display options	0 = Add as a quadrant (Default) 1 = Overlay
X123 = Hostname or IP address of sender	
X124 = Hostname or IP address of receiver	
X125 = Multicast IP address	
X126 =Encoder multicast interface setting	1 = LAN A (Default)
X127 = Secure streaming setting	0 = Disable 1 = Enable (Default)
X128 = Port number (must be between 1024 - 65435), Default = 50000	
X129 = Stream type	0 = Unicast 1 = Multicast
X130 = Player state (`stopped`, `paused`, `playing`, `unknown`)	
X131 = Status Text (for example: `OK`, `cannot access media`, `unavailable`, `error`)	
X132 = Device name (alpha-numeric client friendly name for an active learning connection)	
X133 = Bluetooth discovery setting	0 = ShareLink Pro App 1 = Apple Screen Mirroring (AirPlay for iOS/macOS)
X134 = Bluetooth mode	0 = Disabled 1 = Enabled (Default)
X135 = NIC (Network Interface Card) Number	1 = `eth0/LAN A` (Default)

Command and Response Tables for SIS Commands

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Video input selection			
Select HDMI window input	Esc 1PIPS←	Pips1↵	
De-select HDMI window input	Esc ØPIPS←	PipsØ↵	
View HDMI window input	Esc PIPS←	X1↵	
Select HDMI pass-through input	1!	In1↵	
De-select HDMI pass-through input	Ø!	InØ↵	
View HDMI pass-through input	!	X1↵ InX1↵	(Verbose mode 2/3)
Query HDMI input signal presence	Esc ØLS←	X2↵ InØØ●X2↵	(Verbose mode 2/3)
Query HDMI input signal detected rate	Esc 1LS←	X3↵ InØ1●X3↵	(Verbose mode 2/3)
View detected format	1*\	X4↵ Vtyp1*X4↵	View video format on HDMI input (Verbose mode 2/3)
Input EDID (HDMI)			
Import EDID (.bin) to input (store) slot	Esc IX5,<filename> EDID←	EdidIX5↵	Import EDID from <filename> to input slot X5
Export EDID (.bin) to PC	Esc EX5,<filename> EDID←	EdidEX5↵	Export EDID from EDID table slot X5 to <filename>
View EDID native resolution	Esc NX5EDID←	X6↵ EdidNX5*X6↵	View native resolution and refresh rate of EDID from EDID table slot X5. (Example: 1920x1080@60.00Hz) (Verbose mode 2/3)
View/read EDID of input in Hex format	Esc R1EDID←	X7↵ EdidR1*X7↵	(Verbose mode 2/3)

KEY:

X1 = Input window status — Ø = HDMI window not displayed, 1 = HDMI window displayed

X2 = Input signal — Ø = No input signal detected, 1 = Input signal detected

X3 = HDMI input signal detected rate (Example: 1920x1080@60.00Hz); no signal = 0x0@0Hz

X4 = Video format — Ø = No signal, 1 = DVI, 2 = HDMI

X5 = EDID table slot

X6 = Native resolution & refresh rate — Example: 1920x1080@60.00Hz

X7 = EDID data in Hex

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Output Rate			
Set output rate	Esc X101 * X8 RATE ←	Rate X101 * X8 ↵	Set output rate
View output rate	Esc X101 RATE ←	X8 ↵ Rate X101 * X8 ↵	View output rate (Verbose mode 2/3)

KEY:

X101 = HDMI Output Ø = HDMI Output 1 (Primary)
1 = HDMI Output 2 (Secondary)

X8 = Output rate (see the table below; default = 45).

Resolution	23.98 Hz	24 Hz	25 Hz	29.97 Hz	30 Hz	50 Hz	59.94 Hz	60 Hz
640x480								10
800x600								11
1024x768								12
1280x768								13
1280x800								14
1280x1024								15
1360x768								16
1366x768								17
1440x900								18
1400x1050								19
1600x900								20
1680x1050								21
1600x1200								22
1920x1200								23
480p							24	25
576p						26		
720p			29	30	31	32	33	34
1080i						35	36	37
1080p	38	39	40	41	42	43	44	45*
2048x1080 (2K)	46	47	48	49	50	51	52	53
2048x1200								54
2048x1536								55
2560x1080								56
2560x1440								57
2560x1600								58
3840x2160	59	60	61	62	63	64	65	66
4096x2160	69	70	71	72	73	74	75	76

* = Default

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Screen saver			
Set output sync mode	Esc M X101 * X9 SSAV ←	SsavM X101 * X9 ↵	
View output sync mode	Esc M X101 SSAV ←	X9 ↵ SsavM X101 * X9 ↵	(Verbose mode 2/3)
Set time out duration	Esc T X101 * X10 SSAV ←	SsavT X101 * X10 ↵	Set the time out duration to X10 seconds
View time out duration	Esc T X101 SSAV ←	X10 ↵ SsavT X101 * X10 ↵	View current time out duration X10 (Verbose mode 2/3)
View screen saver status	Esc S X101 SSAV ←	X11 ↵ SsavS X101 * X11 ↵	View the current screen saver status value X11 (Verbose mode 2/3)
Set connection attempt timer duration	Esc K X101 * X2 SSAV ←	SsavK X101 * X2 ↵	
View connection attempt timer duration	Esc K X101 SSAV ←	X2 ↵ SsavK X101 * X2 ↵	(Verbose mode 2/3)
Color bit depth			
Set video bit depth	Esc V X101 * X12 BITD ←	BitdV X101 * X12 ↵	
Query video bit depth	Esc V X101 BITD ←	X12 ↵ BitdV X101 * X12 ↵	View color bit depth (Verbose mode 2/3)
Video output format			
Set format	Esc X101 * X13 VTPO ←	Vtpo X101 * X13 ↵	Set output video format
View setting	Esc X101 VTPO ←	X13 ↵ Vtpo X101 * X13 ↵	View output video format (Verbose mode 2/3)

KEY:

X101 = HDMI Output
- Ø = HDMI Output 1 (Primary)
- 1 = HDMI Output 2 (Secondary)

X9 = Output sync mode
- Ø = Sync always active (default)
- 1 = No signal present timer, disable output
- 2 = Inactivity timer, disable output

X10 = Time out duration
- Ø-999999 (1 second increments)
- 1ØØØØØØ = Never times out
- Default = 30 seconds

X11 = Screen saver status
- Ø = Active input detected; timer not running
- 1 = No active input; timer is running; output sync still active
- 2 = No active input; timer has expired; output sync disabled

X12 = Color bit depth
- Ø = Auto mode (default)
- 1 = Force 8-bit

X13 = Output video format
- Ø = Auto (default)
- 1 = DVI RGB 4:4:4 Full
- 2 = HDMI RGB 4:4:4 Full
- 3 = HDMI RGB 4:4:4 Limited
- 4 = HDMI YUV 4:4:4 Limited
- 5 = HDMI YUV 4:2:2 Limited
- 6 = HDMI YUV 4:2:0 Limited

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Output Freeze			
Set Output Freeze	1*X100F/f	Frz1*X100↵	
Query Output Freeze	1F/f	X100↵ Frz1*X100↵	(Verbose mode 2/3)
HDCP			
Set HDCP mode	Esc SX101*X16HDCP←	HdcpSX101*X16↵	
Query HDCP mode	Esc SX101HDCP←	X16↵ HdcpSX101*X16↵	(Verbose mode 2/3)
HDCP Authorized Device On	Esc E1*1HDCP←	HdcpE1*1↵	HDMI input reports as an HDCP Authorized Device
HDCP Authorized Device Off	Esc E1*ØHDCP←	HdcpE1*Ø↵	HDMI input reports as a non-HDCP Authorized Device
Query HDCP Authorized Device Status	Esc E1HDCP←	X15↵ HdcpE1*X15↵	View HDCP authorized setting (Verbose mode 2/3)
View input HDCP status	Esc I1HDCP←	X14↵ HdcpI1*X14↵	View HDCP status on HDMI input (Verbose mode 2/3)
View output HDCP status	Esc OX101HDCP←	X14↵ HdcpOX101*X14↵	View HDCP status on HDMI output (Verbose mode 2/3)
HDCP notification			
Enable HDCP notification	Esc NX101*1HDCP←	HdcpNX101*1↵	
Disable HDCP notification	Esc NX101*ØHDCP←	HdcpNX101*Ø↵	
Query HDCP notification setting	Esc NX101HDCP←	X17↵ HdcpNX101*X17↵	View current HDCP notification setting (Verbose mode 2/3)
Video Mute			
Mute video to black	X101*1B/b	VmtX101*1↵	Mute video on HDMI output
Mute sync and video	X101*2B/b	VmtX101*2↵	Mute sync and video on HDMI output
Video unmute	X101*ØB/b	VmtX101*Ø↵	Unmute video on HDMI output
View video mute	X101B/b	X18↵ VmtX101*X18↵	View current video mute status (Verbose mode 2/3)

KEY:

X100 = Output Freeze status	Ø = Unfreeze	1 = Freeze
X101 = HDMI Output	Ø = HDMI Output 1 (Primary)	1 = HDMI Output 2 (Secondary)
X14 = HDCP status	Ø = Not connected 1 = Not HDCP encrypted 2 = HDCP encrypted	
X15 = HDCP authorized status	Ø = HDCP authorize off 1 = HDCP authorize on (default)	
X16 = HDCP mode	Ø = Follow input (default) 1 = Always encrypt 2 = Follow input with continuous DVI trials 3 = Always encrypt with continuous DVI trials 4 = Disable authentication	
X17 = HDCP notification	Ø = Black screen	1 = Green screen (default)
X18 = Video mute status	Ø = Unmute (default)	1 = Mute video 2 = Mute sync

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Output Audio Mute			
Mute audio output	X101*1Z/z	Amt1*1↵	Mute audio outputs (mutes both HDMI and Analog audio)
Unmute audio output	X101*ØZ/z	Amt1*Ø↵	Unmute audio outputs (unmutes both HDMI and analog audio)
View audio output mute	X101Z/z	X19↵ Amt1*X19↵	View current audio mute status (Verbose mode 2/3)
Input aspect ratio (per input)			
Set to Fill	Esc1*1ASPR←	AsprX21*1↵	Set input aspect ratio to Fill
Set to Follow	Esc1*2ASPR←	AsprX21*2↵	Set input aspect ratio to Follow
View aspect ratio setting	Esc1ASPR←	X22↵ AsprX21*X22↵	View input aspect ratio setting (Verbose mode 2/3)
Analog Audio Output Volume			
Specify volume	X23V/v	VolX23↵	Set volume level. Response is 3 digits. Ex: Vol-Ø5Ø
Increment volume	+V	VolX23↵	Volume level is X23
Decrement volume	-V	VolX23↵	Volume level is X23
View volume	V	X23↵	View volume level

KEY:

X19 = Mute status — Ø = Unmute (default) 1 = mute
X21 = Input type — 1 = HDMI
X22 = Input aspect ratio setting — 1 = Fill 2 = Follow (default)
X23 = Volume adjustment range — -1ØØ to Ø = (default is -3Ø dB)

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Front Panel Lockout			
Front panel executive mode	X28X	ExeX28↵	Lock/unlock front panel
View lockout status	X/x	X28↵ ExeX28↵	(Verbose mode 2/3)

KEY:

X28 = Executive mode — Ø = Off (default) 1 = On

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Unit name			
Set unit name or hostname	Esc X30 CN ←	Ipn● X30 ↵	
Set unit name or hostname to default	Esc ● CN ←	Ipn● X31 ↵	Default = ShareLink-Pro-xx-xx-xx (where xx-xx-xx is the last six digits of the unique MAC address).
View unit name or hostname	Esc CN ←	X30 ↵	View unit name or hostname
		Ipn● X30 ↵	(Verbose mode 2/3)
Information			
Information request (View unit information)	I/i	Frq X2 ● HdcpI X14 ● HdcpO X14 ● Vmt X18 ● Amt X19 ● Vol X23 ↵ Verbose mode 2/3: Inf00*Frq X2 ● HdcpI X14 ● HdcpO X14 ● Vmt X18 ● Amt X19 ● Vol X23 ↵	
Query firmware version	Q/q	X32 ↵	View firmware version
Query firmware and build version	*Q/q	X33 ↵	View firmware version and build version
Query internal temperature	Esc 20STAT ←	X34 ↵	Query internal temperature
		20Stat X34 ↵	(Verbose mode 2/3)
Query model name	1I/i	*<model name>* ↵ Inf01*<*model name*>↵	View model name (Verbose mode 2/3)
Query model description	2I/i	*<model description>* ↵ Inf02*<*model desc.*>↵	View model description (Verbose mode 2/3)
Query part number	N/n	*<part number>* ↵ Pno*<part number>*↵	View part number (Verbose mode 2/3)

KEY:

X2 = Input signal — 0 = No input signal detected, 1 = Input signal detected

X14 = HDCP status — 0 = Not connected, 1 = Not HDCP Encrypted, 2 = HDCP Encrypted

X18 = Video mute status — 0 = Unmute (default), 1 = Mute video, 2 = Mute sync

X19 = Audio mute status — 0 = Unmute (default), 1 = Mute

X23 = Volume adjustment range — -100 to 0 (default is -30dB)

X30 = Unit name — Alpha-numeric up to 63 characters. No blanks, spaces, or special characters except hyphen (-).

X31 = Default unit name — Alpha-numeric name. ShareLink-Pro-xx-xx-xx (where xx-xx-xx is the last six digits of the unique MAC address).

X32 = Firmware version (Example: 1.00)

X33 = Firmware version and build version (Example: 1.00.0010)

X34 = Internal temperature (2 digits, °C)

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Verbose mode			
Set verbose mode	Esc X35CV←	VrbX35↵	
View verbose mode	Esc CV←	X35↵	
Dual output display mode			
Set dual display mode	Esc DX350OMOD←	OmodDX350↵	
View dual display mode	Esc DOMOD←	X350↵	
		OmodDX350↵	(Verbose mode 2/3)
Output display layout			
Set display layout mode	Esc X36OMOD←	OmodX36*X37↵	
View display layout mode	Esc OMOD←	X36*X37↵	
		OmodX36*X37↵	(Verbose mode 2/3)
Extended Display Layout Mode (ShareLink Pro 2500 Extend Mode only)			
Set display layout mode	Esc EX36OMOD←	OmodEX36*X37↵	
View display layout mode	Esc EOMOD←	X36*X37↵	
		OmodEX36*X37↵	(Verbose mode 2/3)
Auto-default to HDMI input			
Set auto-default to HDMI input mode	Esc X38AUSW←	AuswX38↵	
View auto-default to HDMI input mode	Esc AUSW←	X38↵	
		AuswX38↵	(Verbose mode 2/3)
Apple Screen Mirroring			
Set Apple Screen Mirroring	Esc A1*X39SHAR←	SharA1*X39↵	
View Apple Screen Mirroring	Esc A1SHAR←	X39↵	
		SharA1*X39↵	(Verbose mode 2/3)
Set Apple Screen Mirroring Device Discovery Proxy Service	Esc A1*X391DVRY←	DvryA1*X391↵	
View Apple Screen Mirroring Device Discovery Proxy Service	Esc A1DVRY←	X391↵	
		DvryA1*X391↵	(Verbose mode 2/3)
mDNS Hostname			
Set mDNS hostname	Esc HX78ZCON←	ZconH●X78↵	
Clear mDNS hostname	Esc H●ZCON←	ZconH●↵	
View mDNS hostname	Esc HZCON←	X78↵	
		ZconH●X78↵	(Verbose mode 2/3)

KEY:

X35 = Verbose response mode
0 = Clear (none) (default) 1 = Verbose mode
2 = Tagged responses 3 = Verbose + tagged responses

X36 = Layout mode (1-11)
1 - 11 = Layout group #1 to Layout group #11
(Default in Mirror Mode = 1; Default in Extend Mode = 6)

X350 = Dual output display mode
1 = Mirror (default) 2 = Extend

X37 = Current layout number (1-25)

X38 = HDMI input mode
0 = Disabled 1 = Enabled (default)

X39 = Apple screen mirroring mode
0 = Disabled 1 = Enabled (default)

X391 = Device discovery proxy service
0 = Disabled (default) 1 = Enabled

X78 = mDNS hostname (alpha-numeric up to 63 characters; no blanks, spaces, or special characters except hyphen (-)

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Enable/disable HDMI input			
Enable HDMI input	Esc H1MODE ←	ModeH X40 ↵	
Disable HDMI input	Esc H0MODE ←	ModeH X40 ↵	
View HDMI input setting	Esc HMODE ←	X40 ↵ ModeH X40 ↵	(Verbose mode 2/3)
Show/hide HDMI client app controls			
Show HDMI client app controls	Esc V1APPC ←	AppcV X401 ↵	
Hide HDMI client app controls	Esc V0APPC ←	AppcV X401 ↵	
View HDMI client app controls setting	Esc VAPPC ←	X401 ↵ AppcV X401 ↵	(Verbose mode 2/3)
HDMI client app controls label			
Set client app HDMI controls label	Esc 1, X41 NI ←	Nmi1, X41 ↵	
Set label back to default (HDMI)	Esc 1, ● NI ←	Nmi1,HDMI ↵	
View client app HDMI controls label	Esc 1NI ←	X41 ↵ Nmi1, X41 ↵	(Verbose mode 2/3)
WebShare			
Set WebShare	Esc X X402 SHAR ←	SharX X402 ↵	
View WebShare setting	Esc XSHAR ←	X402 ↵ SharX X402 ↵	(Verbose mode 2/3)
Hide/show IP address in client apps			
Hide IP address	Esc I1APPC ←	AppcI1 ↵	Mask IP address
Show IP address	Esc I0APPC ←	AppcI0 ↵	No IP address mask
Query IP address visibility setting	Esc IAPPC ←	X403 ↵ AppcI X403 ↵	(Verbose mode 2/3)

KEY:

X40 = HDMI controls setting	0 = Disabled 1 = Enabled (default)
X41 = Client app controls label	UTF-8 characters permitted, maximum of 16 characters
X401 = HDMI client app controls	0 = Hide 1 = Show (default)
X402 = WebShare mode	0 = Disabled 1 = Enabled (default)
X403 = IP address visibility setting	0 = Visible (default) 1 = Masked

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Access modes			
Set access mode	Esc M X42 SHAR ←	SharM X42 * X43 ↵	
View access mode	Esc MSHAR ←	X42 * X43 ↵	
		SharM X42 * X43 ↵	(Verbose mode 2/3)
Set confirmation-code mode	Esc M X44 PINC ←	PincM X44 ↵	
View confirmation-code mode	Esc MPINC ←	X44 ↵	
		PincM X44 ↵	(Verbose mode 2/3)
Set fixed login key code	Esc V X45 PINC ←	PincV● X45 ↵	
View current login key code	Esc VPINC ←	X45 ↵	
		PincV● X45 ↵	(Verbose mode 2/3)
Set random code interval	Esc I X46 PINC ←	PincI X46 ↵	
View random code interval	Esc IPINC ←	X46 ↵	
		PincI X46 ↵	(Verbose mode 2/3)
Set WebView password option	Esc M X47 WBSH ←	WbshM X47 ↵	
View WebView password option	Esc MWBSH ←	X47 ↵	
		WbshM X47 ↵	(Verbose mode 2/3)
Set WebView password	Esc P<*password*>WBSH ←	WbshP ↵	
Set WebView password back to default	Esc P●WBSH ←	WbshP**** ↵	Default = WebView
View WebView password	Esc PWBSH ←	**** ↵	If password is not set to default
		↵	If password is set to default
		WbshP**** ↵	(Verbose mode 2/3)
Set password	Esc +PSWD*<*username*> ← <*current password*> ← <*new password*> ← <*new password*> ←	Pswd*<*username*> ↵	

NOTES:

- The PSWD command must use the carriage return character (hex 0D) and not the pipe character (|) as delimiters. This allows the pipe character to be part of a password, if desired.
- Password can be up to 128 characters. All human-readable characters are permitted. The password cannot be a single space. Passwords are case-sensitive.
- The PSWD command will return E35 if the account <*username*> does not exist.

KEY:

X42 = Access mode	1 = Full control 2 = Moderated 3 = Run-time (default)
X43 = Run time access mode	1 = Full control 2 = Moderated
X44 = Confirmation code mode	0 = None 1 = Fixed 2 = Random (default)
X45 = Login key code	Four digit value (default = 0000)
X46 = Random code interval	Four digit value (1 to 9998) in minutes Default = 9999 = random code generated after every collaboration session (after the last user disconnects)
X47 = WebView password option	0 = No access (disabled) 1 = No prompt for password (default) 2 = Custom password 3 = Follow confirmation code

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Status bar configuration			
Set status bar mode	Esc M X48 OSDL ←	OsdlM X48 ↵	
View status bar mode	Esc MOSDL ←	X48 ↵	
		OsdlM X48 ↵	(Verbose mode 2/3)
Set enable/disable status bar pop-up	Esc P X79 OSDL ←	OsdlP X79 ↵	
View status bar pop-up	Esc POSDL ←	X79 ↵	
		OsdlP X79 ↵	(Verbose mode 2/3)
Set status bar pop-up timer	Esc T X791 OSDL ←	OsdlT X791 ↵	
View status bar pop-up timer	Esc TOSDL ←	X791 ↵	
		OsdlT X791 ↵	(Verbose mode 2/3)
Set label	Esc L X49 * X50 OSDL ←	OsdlL X49 * X50 ↵	
View label	Esc L X49 OSDL ←	X50 ↵	
		OsdlL X49 * X50 ↵	(Verbose mode 2/3)
Show label and value	Esc V X49 *1OSDL ←	OsdlV X49 * X51 ↵	
Hide label and value	Esc V X49 *0OSDL ←	OsdlV X49 * X51 ↵	
Query label visibility	Esc V X49 OSDL ←	X51 ↵	
		OsdlV X49 * X51 ↵	(Verbose mode 2/3)
Set background color	Esc K X77 OSDL ←	OsdlK X77 ↵	
View background color	Esc KOSDL ←	X77 ↵	
		OsdlK X77 ↵	(Verbose mode 2/3)
Set font color	Esc C X77 OSDL ←	OsdlC X77 ↵	
View font color	Esc COSDL ←	X77 ↵	
		OsdlC X77 ↵	(Verbose mode 2/3)

KEY:

X48 = Status bar mode
0 = Hide whenever content is shared
1 = Always shown (default)
2 = Hide when one content is shared
3 = Always hidden

X49 = Label
1 = Hostname 2 = IP address A 3 = IP address B,
4 = Login code 5 = Custom message
6 = Dynamic notifications/messages 7 = Clock

X50 = Label value (max 128 characters)

X51 = Label visibility setting
0 = Hide 1 = Show (default)

X77 = Color described as RGB Hex triplets (RRGGBB)

X79 = Status bar pop-up
0 = Disabled 1 = Enabled (default)

X791 = Status bar pop-up timer
1s - 300s in 1s increments (default = 20s)

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Standby/Digital Signage			
Set still image transition effect	Esc E X53 SSHW ←	SshwE X53 ↵	
View still image transition effect	Esc ESSHW ←	X53 ↵ SshwE X53 ↵	(Verbose mode 2/3)
Set still image transition time	Esc T X54 SSHW ←	SshwT X54 ↵	
View still image transition time	Esc TSSHW ←	X54 ↵ SshwT X54 ↵	(Verbose mode 2/3)
Set duration between still image sequences	Esc D X55 SSHW ←	SshwD X55 ↵	
View duration between still image sequences	Esc DSSHW ←	X55 ↵ SshwD X55 ↵	(Verbose mode 2/3)
Set path/pointer	Esc P X58 , X59 SSHW ←	SshwP X58 , X59 ● ↵	
Set path/pointer back to default	Esc P X58 , ● SSHW ←	SshwP X58 , ● ↵	
View path/pointer	Esc P X58 SSHW ←	X58 ↵ SshwP X58 , X59 ↵	(Verbose mode 2/3)
HDMI Input No Signal/Unsupported Signal Pointer			
Set path/pointer	Esc A X60 , X62 LOGO ←	LogoA X60 , X62 ↵	
Clear path/pointer (default = no path/pointer)	Esc A X60 ● LOGO ←	LogoA X60 , ● ↵	
View path/pointer	Esc A X60 LOGO ←	X60 ↵ LogoA X60 , X62 ↵	(Verbose mode 2/3)

KEY:

X53 = Still image transition effect — 0 = Cut (default) 1 = Fade

X54 = Still image transition time — 500 to 3000 ms increments (default = 1000 ms)

X55 = Time between still image sequences — 1000 to 60000 ms in 1 ms increments (default = 10000 ms)

X58 = Pointer
- 1 = HDMI Output #1 Standby Image/Video Gallery
- 2 = HDMI Output #1 Connected Image/Video Gallery
- 3 = HDMI Output #1 Expo Standby Image/Video Gallery
- 4 = HDMI Output #1 Expo Failover Image/Video Gallery
- 5 = HDMI Output #2 Standby Image/Video Gallery
- 6 = HDMI Output #2 Connected Image/Video Gallery
- 7 = HDMI Output #2 Expo Standby Image/Video Gallery
- 8 = HDMI Output #2 Expo Failover Image/Video Gallery

X59 = Web URL or filepath

X60 = HDMI Input Source
- 1 = HDMI Input No Signal Source
- 2 = HDMI Input Unsupported Signal Source

X62 = Image file path on the user file system

Command	ASCII Command	Response	Additional Description
Connections			
Query list of connected user information (up to 64 entries)	Esc L0SHAR←	X64*X65*X66*X67*X68*X69*X70*X71*X72*X73*X75*X132↵ ... X64*X65*X66*X67*X68*X69*X70*X71*X72*X73*X75*X132↵ X64*X65*X66*X67*X68*X69*X70*X71*X72*X73*X75*X132↵↵ (Verbose mode 2/3): SharLX64*X65*X66*X67*X68*X69*X70*X71*X72*X73*X75*X132↵ ... X64*X65*X66*X67*X68*X69*X70*X71*X72*X73*X75*X132↵ X64*X65*X66*X67*X68*X69*X70*X71*X72*X73*X75*X132↵↵ *Response example:* 1358418984*Nexus*1320581533*android,extron,screen*1*5000*0*5000*10000*7190*1057377*↵ 1406210687*user*1588900067*windows,miracast,screen*1*0*0*5000*10000*7307*1215302*↵ 1592446298*Rick's iPhone**ios,extron,none*1*****4448**↵ 1842397516*192.168.2.100*1982175197*,sharelink,stream*1*0*0*5000*10000*7307*4777368*BlueTeam↵↵	
Query specific connected user information	Esc LX64SHAR←	X64*X65*X66*X67*X68*X69*X70*X71*X72*X73*X75*X132↵ ... X64*X65*X66*X67*X68*X69*X70*X71*X72*X73*X75*X132↵↵ (Verbose mode 2/3): SharLX64*X65*X66*X67*X68*X69*X70*X71*X72*X73*X75*X132↵ ... X64*X65*X66*X67*X68*X69*X70*X71*X72*X73*X75*X132↵↵	
Query total number of users connected	Esc KSHAR←	X74↵	View total number of users connected (max 64)
		SharKX74↵	(Verbose mode 2/3)

KEY:

X64 = Connection ID (10 digits)

X65 = User name (aphanumeric text)

X66 = Stream ID (10 digits) (if connection is not streaming, is be empty)

X67 = platform,client,type (example: `windows,miracast,screen`)

- Platform = `android`, `iOS`, `iPadOS`, `macOS`, `windows`, `chrome`, `linux`
- Client = `airplay`, `extron`, `miracast`, `miracast-infra`, `webshare`, `conferenceshare`
- Type = `none`, `app`, `audio`, `casting`, `image`, `screen`, `video`

X68 = Connection approved (0 = pending, 1 = approved)

X69 = X: x position of the window as a percentage of the screen width times 100

X70 = Y: y position of the window as a percentage of the screen height times 100

X71 = W: width of the window as a percentage of the screen width times 100

X72 = H: height of the window as a percentage of the screen height times 100

X73 = Connection age (in seconds)

X74 = Total number of users connected (integer – maximum 64)

X75 = Video port ID (7 digits)

X132 = Device name (alpha-numeric client friendly name for an active learning connection)

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Force user to stop sharing	Esc S X64 SHAR ←	SharS X64 ↵	Force user X64 to stop sharing content. If X64 = 0, stop sharing all.
Force disconnect user	Esc D X64 SHAR ←	SharD X64 ↵	Force disconnection of user X64. If X64 = 0, disconnect all
Swap positions of two streams	Esc W X64 * X64 SHAR ←	SharW X64 * X64 ↵	
Show a shared content in full screen	Esc F X64 *1SHAR ←	SharF X64 *1 ↵	
Revert full screen content	Esc F0SHAR ←	SharF0 ↵	Revert full screen content back to quadrant view
Query full screen state	Esc FSHAR ←	X76 ↵	View full screen state
		SharF X64 * X76 ↵	(Verbose mode 2/3) If X76 = 0, return response is X76 ↵
Approve user connection request (moderator mode only)	Esc C X64 *1SHAR ←	SharC X64 *1 ↵	Approve user request to connect
Reject user connection request (moderator mode only)	Esc C X64 *0SHAR ←	SharC X64 *0 ↵	Reject user request to connect
Approve user share request (moderator mode only)	Esc R X64 *1SHAR ←	SharR X64 *1 ↵	Approve user request to share content
Reject user share request (moderator mode only)	Esc R X64 *0SHAR ←	SharR X64 *0 ↵	Reject user request to share content
SIS-over-SSH			
NOTES: • The echo setting must match the type of SSH client used. With echo **enabled** (default), characters that are typed into the client window (such as PuTTY) are echoed in the window along with the SIS response, and are also sent to the server. • With echo **disabled**, the characters are not echoed but are simply sent to the server. • The echo setting applies only to current (not global) connection. • **Control systems should turn echo off after connecting.**			
Enable echo (default)	Esc 1ECHO ←	Echo1 ↵	Echo on: All data sent is echoed back to the sender, followed by the response. Extra carriage returns may also be received when echo is on.
Disable echo	Esc 0ECHO ←	Echo0 ↵	Echo off: only the response is sent to the sender.
View echo status	Esc ECHO ←	X75 ↵	View the echo setting
Set current port timeout	Esc 0 * X62 TC ←	Pti0 * X62 ↵	
View current port timeout	Esc 0TC ←	X62 ↵	
		Pti0 * X62 ↵	(Verbose mode 2/3)
Set global port timeout	Esc 1 * X62 TC ←	Pti1 * X62 ↵	
View global port timeout	Esc 1TC ←	X62 ↵	

KEY:

X62 = Port timeout: 1 (= 10 seconds) to 65000 (650,000 seconds) (Default is 30 = 300 seconds = 5 minutes)

X64 = Connection ID (10 digits)

X75 = Echo status: 0 = disabled, 1 = enabled (default)

X76 = Full screen state: 0 = disabled, 1 = enabled

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Reboot			
Reboot device	Esc 1B00T←	Boot1↵	
Restart the network	Esc 2B00T←	Boot2↵	
Reset			
Reset to factory defaults	Esc ZXXX←	Zpx↵	Reset all device settings to default values, but retain user-loaded files and IP settings.
NOTE: This reset mode does not affect passwords and IP related settings such as IP address, subnet mask, gateway address, DHCP setting, and port mapping.			
Erase all files from flash memory	Esc ZFFF←	Zpf↵	Erase all files from flash (user) memory.
NOTE: This reset only removes files created in the user space, which includes those created by the backup and restore functions, software configuration tools, image captures, user logo files, and other user-supplied HTML files. Files used by firmware for internal operations such as saving non-volatile settings are not removed.			
Absolute reset, retaining IP settings	Esc ZY←	Zpy↵	Reset all device settings to default values and delete user-loaded files, but retain IP settings.
NOTE: • This reset removes all device settings, including the file system and passwords, but retains IP settings such as IP address, subnet mask, gateway address, DHCP setting, and port mapping (Telnet, Web, and direct access) in order to preserve communication with the device. This reset is recommended after a firmware update. • Admin password resets to extron.			
Reset network settings	Esc 1ZQQQ←	Zpq1↵	Reset IP settings only.
Full factory reset	Esc ZQQQ←	Zpq↵	Reset all device and IP settings to default values and delete user-loaded files.
NOTE: Admin password resets to extron.			

Unsolicited Responses

Response (Device to Host)		Description
Input selection and status	Pips1↵	HDMI window input is selected
	Pips0↵	HDMI window input is de-selected
	In1↵	HDMI pass-through input is selected
	In0↵	HDMI pass-through input is de-selected
	In00●X2↵	HDMI input signal presence changed
	Reconfig↵	Change of the input frequency
Detected format changed	Vtyp1*X4↵	Detected video format changed.
HDCP status	HdcpX101*X14↵	Change in the HDCP status of the HDMI input.
	HdcpX101*X14↵	Change in the HDCP status of the HDMI output.
Hot plug	HplgX1010↵	Hot plug occurs on the local HDMI output.
Total number of users connected	SharKX74↵	Unsolicited response sent upon detection of the following: A new user has connected to the ShareLink Pro. A connected user has disconnected from the ShareLink Pro.
User changes	UserChg↵	Unsolicited response sent upon detection of the following: A connected user has started sharing content. A connected user has stopped sharing content. A user is requesting to connect to the ShareLink Pro (in moderator mode only). A connected user is requesting to share content (in moderator mode only).

KEY:

X2 = Input signal
- 0 = No input signal detected
- 1 = Input signal detected

X4 = Video format
- 0 = No signal
- 1 = DVI
- 2 = HDMI

X14 = HDCP status
- 0 = Not connected
- 1 = Not HDCP Encrypted
- 2 = HDCP Encrypted

X74 = Total number of users connected (integer – maximum 64)

X101 = HDMI Output
- Ø = HDMI Output 1 (Primary)
- 1 = HDMI Output 2 (Secondary)

Expo and Streaming

NOTE: The following SIS commands for the Expo streaming feature require a LinkLicense.

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Expo Feature			
Enable or Disable Expo feature	Esc P X104 SHAR ←	SharP X104 ↵	
View Expo feature	Esc PSHAR ←	X104 ↵	
		SharP X104 ↵	(Verbose mode 2/3)
View player state	Esc QSHAR ←	X105 ↵	
		SharQ X105 ↵	(Verbose mode 2/3)
Streaming Input			
View current stream statistics	Esc JBITR ←	<report in JSON format> ↵	
		Example:	
		{“audio_bitrate_kbps”:0,” video_bitrate_kbps”:0, “peak_video_bitrate_kbps”:0, “stream_bitrate_kbps”:0, “received_packets”:0, “misordered_packets”:0, “duplicated_packets:0, “lost_packets”:0, “dropped_packets”:0, “jitter_ms”:0, “jitter_audio_ms”:0, “jitter_video_ms”:0} ↵	
View current stream mode	Esc SMOD ←	X80 ↵	
		Smod X80 ↵	(Verbose mode 2/3)
View current source audio sample rate	Esc AUSR ←	X81 ↵	
		Ausr X81 ↵	(Verbose mode 2/3)

KEY:

X104 = Expo feature
- 0 = Disabled (default)
- 1 = Continuous
- 2 = Temporary

X105 = Player state
- 1 = Standby 2 = Connected 3 = Expo
- 4 = Expo Standby 5 = Sharing

X80 = Stream mode
- 0 = Disabled
- 1 = Audio
- 2 = Video
- 3 = Audio and video (default)

X81 = Source audio sample rate
- 0 = Reserved
- 1 = Reserved
- 2 = 44.1 kHz
- 3 = 48 kHz

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Streaming Input Playback			
Start playback	Esc S X82 * X83 PLYR ←	PlyrS X82 * X83 ↵	Play channel 1 at speed X83.
Pause playback	Esc E X82 PLYR ←	PlyrE X82 * X83 ↵	
Stop playback	Esc O X82 PLYR ←	PlyrO X82 ↵	
View playback state	Esc Y X82 PLYR ←	X84 ↵	
		PlyrY X82 * X84 ↵	(Verbose mode 2/3)
Set loop play on	Esc R X82 *1PLYR ←	PlyrR1*1 ↵	
Set loop play off	Esc R X82 *0PLYR ←	PlyrR1*0 ↵	
View loop play status	Esc R X82 PLYR ←	X85 ↵	
		PlyrR1* X85 ↵	(Verbose mode 2/3)
Enable subtitles	Esc E X82 *1SUBT ←	SubtE1*1 ↵	
Disable subtitles	Esc E X82 *0SUBT ←	SubtE1*0 ↵	
View subtitle status	Esc E X82 SUBT ←	X85 ↵	
		SubtE1* X85 ↵	(Verbose mode 2/3)
Select next channel	Esc N X82 PLYR ←	PlyrN1* X86 ↵ PlyrT1* X86 ↵ PlyrS1* X83 ↵	Response returns the current channel number (T) and the current playback speed (S).
Select previous channel	Esc P X82 PLYR ←	PlyrP1* X86 ↵ PlyrT1* X86 ↵ PlyrS1* X83 ↵	Response returns the current channel number (T) and the current playback speed (S).
View current timecode	Esc K X82 PLYR ←	X87 ↵	
		PlyrK X82 * X87 ↵	(Verbose mode 2/3)
View current clip length	Esc Z X82 PLYR ←	X87 ↵	X87 = Timecode in HH:MM:SS:DD format
		PlyrZ X87 ↵	(Verbose mode 2/3)
Seek by offset	Esc J X82 * X88 PLYR ←	PlyrJ X82 * X88 ↵	
Seek to timecode	Esc K X82 * X87 PLYR ←	PlyrK X82 * X87 ↵	Set playback position
View current timecode	Esc K X82 PLYR ←	X87 ↵	
		PlyrK X82 * X87 ↵	(Verbose mode 2/3)
Load media item path	Esc U X82 * X89 PLYR ←	PlyrU X82 * X89 ↵	
View current media path	Esc U X82 PLYR ←	X89 ↵	
		PlyrU X82 * X89 ↵	(Verbose mode 2/3)

KEY:

X82 = HDMI output — 1 = HDMI Output 1, 2 = HDMI Output 2
X83 = Playback speed — 1 = normal speed
X84 = Player state — 0 = Stop, 1 = Play, 2 = Pause
X85 = Loop play status — 0 = Off (disable) 1 = On (enable)
X86 = Track number (1 to maximum tracks currently defined)
X87 = Timecode (HH:MM:SS:DD, where DD is decimal seconds up to nine digits)
X88 = Time (in seconds)
X89 = File path

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Streaming Input Channel (Preset)			
Short Form			
View current preset	T	X93↵	Get current channel number. Response is 00 if no valid channel preset is loaded.
Recall preset by reference	X93T	TvprTX82*X93↵	Load channel X93
Next preset	+T	TvprTX82*X93↵	Channel up
Previous preset	-T	TvprTX82*X93↵	Channel down
Long Form			
View current preset	Esc TX82TVPR←	X93↵	Get current channel number. Response is 00 if no valid channel preset is loaded.
Recall preset by reference	Esc TX82*X93TVPR←	TvprTX82*X93↵	Load channel X93
Next preset	Esc TX82+TVPR←	TvprTX82*X93↵	Channel up
Previous preset	Esc TX82-TVPR←	TvprTX82*X93↵	Channel down
View all presets	Esc GTVPR←	[{…},{…},…]↵ *Example*: [{"preset":1, "uri":file:///clips/clip1.mp4,"name":"Chan1"},{…},…]	Get channel list
Save URI to preset	Esc UX93*X90TVPR←	TvprUX93*X91↵	Save URI to channel X93
Save current URI to preset	Esc SX82*X93TVPR←	TvprSX82*X93↵	Save current URI to channel X93
Import channel preset	Esc I*X89TVPR←	TvprI*X89↵	
Export channel preset	Esc E*X89TVPR←	TvprE*X89↵	
Delete preset	Esc XX93TVPR←	TvprXX93↵	
Delete all presets	Esc X*0TVPR←	TvprX↵	

KEY:

X82 = HDMI output — 1 = HDMI Output 1 2 = HDMI Output 2

X89 = File path (file:///folder/filename, network path, network port path or RTSP stream URI)

X90 = Media URI (Uniform Resource Identifier). The prefix "file:///" is optional.

X91 = Preset number, and Media URI — Example: [{"preset":1, "uri":file:///clips/clip1.mp4, "name":"Chan1"}, …]

X93 = Channel number — 1 – 999

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Network shares			
Add a network share	Esc A{"service":"X106", "mountpoint":"X107", "username":"X108", "password":"X109", "options":"X110", "reconnect":"X111", "extron_share":"X112"} XNAS←	XnasA<parameters & status in JSON format>↵	Add or mount a network share *Example*: XnasA{"username":"user1", "password":"****", "options":"ro", …}↵
Unmount (remove) a share	Esc X*X107XNAS←	XnasX*X107↵	
Unmount (remove) all shares	Esc X*0XNAS←	XnasX*0↵	
View all mounted shares	Esc GXNAS←	[list of shares in JSON format]↵ *Example*: [{"options": "", "username": "", "password": "", "type": "nfs", "service": "10.0.0.0://home/bob/Videos", "mountpoint": "10.0.0.0", "extron_share": false, "status": "unavailable", "reconnect": true}, {…}] ↵ (Verbose mode 2/3): XnasG[list of shares in JSON format]↵	
IP control port commands (IP setup)			
NOTE: Setting any values with the CISG command will change DHCP from on to off.			
Set IP address, subnet mask, and gateway address	Esc X57*X118/X119*X120 CISG←	Cisg●X57*X118/X119*X120↵	
View all IP Settings	Esc 1CISG←	X118/X119*X120↵	

KEY:

X106 = Service (network path of server)
CIFS: "\\\\myServer\\myShare\\myDir"
NFS: "myServer:/myDir"

X107 = Mountpoint

X108 = Username

X109 = Password

X110 = Options

X111 = Boolean for reconnect

X112 = Boolean for extron_share

NOTE: The boolean value should be "true" or "false." It does not require quotes and must be all lowercase.

X118 = IP address
Format *nnn.nnn.nnn.nnn*
Default for LAN A = 192.168.253.254
Default for LAN B = 192.168.254.254
Leading zeros in each of the four octets are optional in setting values, and are suppressed in returned values.

X119 = Subnet mask in CISG commands
Prefix representing subnet mask bits (subnet mask value in CISG commands).
Default = /24, which represents the default subnet mask, 255.255.255.0.

X120 = Gateway IP address
Format *nnn.nnn.nnn.nnn*
Default = Ø.Ø.Ø.Ø

X57 = LAN Port
1 = LAN A, 2 = LAN B

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
View file-system directory structure			
View file-system directory structure	Esc X113*X114TREE←		
	Esc TREE←	/a↵ /a/b↵ /a/b/c↵ /Connected↵ /Connected/Thumbnails↵ /media↵ /nortxe-backup↵ /shares↵ /Standby↵ /Standby/Thumbnails↵ /tmp↵↵	
	Esc 0TREE←	/a↵ /Connected↵ /media↵ /nortxe-backup↵ /shares↵ /Standby↵ /tmp↵	
	Esc 1*/aTREE←	/b↵ /b/c↵↵ Tree1*/a*/b↵ /b/c/↵↵	(Verbose mode 2/3)

KEY:

X113 = Recursion (optional)

0 = Disabled

1 = Enabled (default)

X114 = Directory path (optional)

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
SAP (Session Announcement Protocol)			
View list of discovered streams	Esc XSAP←	[list of discovered streams in JSON format]↵	*Example*: [{“sdp”:“”, “source”:“”, …}, {“sdp”:“”, “source”:“”, …}]↵
		Xsap[{}, {}, …]↵	(Verbose mode 2/3)
Network Status and Statistics			
View network status	Esc X115 NWKS←	<report in JSON format>↵	*Example*: {“collisions”: 0, “rx_bytes”: 104222342, “rx_dropped”: 2197, “rx_errors”: 0, “rx_packets”: 98850, “tx_bytes”: 20497039, “tx_dropped”: 0, “tx_errors”: 0, “tx_packets”: 42050}↵
		Nwks X115 *<report in JSON format>↵	(Verbose mode 2/3)
Buffering			
Set player buffering	Esc E1* X85 PBUF←	PbufE1* X85 ↵	
View player buffering status	Esc E1PBUF←	X85 ↵	
		PbufE1* X85 ↵	(Verbose mode 2/3)
Set initial play threshold	Esc I1* X116 PBUF←	PbufI1* X116 ↵	
View initial play threshold	Esc I1PBUF←	X116 ↵	
		PbufI1* X116 ↵	(Verbose mode 2/3)
Set rebuffering play threshold	Esc R1* X117 PBUF←	PbufR1* X117 ↵	
View rebuffering play threshold	Esc R1PBUF←	X117 ↵	
		PbufR1* X117 ↵	(Verbose mode 2/3)
Prefer RTSP Multicast			
Prefer RTSP Multicast	Esc Q1* X85 PLYR←	PlyrQ1* X85 ↵	Request multicast stream first and revert to requesting a unicast stream if necessary.
View RTSP Multicast preference	Esc Q1PLYR←	X85 ↵	
		PlyrQ1* X85 ↵	(Verbose mode 2/3)

KEY:

X85 = Buffering and RTSP Multicast setting 0 = Off/Disabled 1 = On/Enabled

X115 = Network interface 1 = LAN A

X116 = Initial play threshold (sec)

X117 = Rebuffering play threshold (sec)

Bluetooth

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Enable/Disable Bluetooth	Esc E X134 BLUE ←	BlueE X134 ↵	
Query Bluetooth	Esc EBLUE ←	X134 ↵	
		BlueE X134 ↵	(Verbose mode 2/3)
Set Bluetooth mode	Esc M X133 * X134 BLUE ←	BlueM X133 * X134 ↵	
Query Bluetooth mode	Esc M X133 BLUE ←	X134 ↵	
		BlueM X133 * X134 ↵	(Verbose mode 2/3)
Set Airplay Bluetooth	Esc W X135 BLUE ←	BlueW X135 ↵	
Query Airplay Bluetooth	Esc WBLUE ←	X135 ↵	
		BlueW X135 ↵	(Verbose mode 2/3)

KEY:

X133 = Bluetooth discovery setting
0 = ShareLink Pro App
1 = Apple Screen Mirroring (AirPlay for iOS/macOS)

X134 = Bluetooth mode
0 = Disabled 1 = Enabled (Default)

X135 = NIC (Network Interface Card) Number
1 = eth0/LAN A (Default)

CEC Commands

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
CEC Enable/Disable			
Enable/disable input CEC	Esc I1* X16 CCEC ←	CcecI1* X16 ↵	
View input CEC status	Esc I1CCEC ←	X17 * X18 * X19 ↵	
	Verbose mode 2/3	CcecI1* X17 * X18 * X19 ↵	
Enable/disable one output CEC	Esc O X1 * X16 CCEC ←	CcecO X1 * X16 ↵	
Enable/disable all outputs CEC	Esc O X16 *CCEC ←	CcecO X16 ↵	
View output CEC status	Esc O X1 CCEC ←	X17 * X18 * X19 ↵	
	Verbose mode 2/3	CcecO X1 * X17 * X18 * X19 ↵	

KEY:

X1 = Output
1

X16 = CEC mode
0 = Disable CEC operations for this IO port (**default**);
1 = Reserved – currently returns E13
2 = Enable insertion (unidirectional)
4 = Enable insertion and publish received CEC messages (bidirectional)
8 = Enable insertion and publish all received CEC messages (bidirectional)
20 = Manual mode, similar to mode 8, but less automatic (for 3rd- party software)

X17 = CEC status
0 = CEC mode 0 disabled
1 = CEC mode 1 (reserved for possible future use)
2 = CEC mode 2 enabled but no device detected (unidirectional)
3 = CEC mode 2 enabled and device detected (unidirectional)
4 = CEC mode 4 enabled but no device detected (bidirectional)
5 = CEC mode 4 enabled and device detected (bidirectional)
8 = CEC mode 8 enabled but no CEC device present/detected (bidirectional)
9 = CEC mode 8 enabled and CEC device present/detected (bidirectional)
20 = CEC mode 20 enabled but no CEC device present/detected (bidirectional)
21 = CEC mode 20 enabled and CEC device present/detected

X18 = Source logical address (our pseudo) 0 through 15 (-1 = not found or port not enabled)
X19 = Destination logical address (theirs) 0 through 15 (-1 = not found or port not enabled)

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
Send CEC Commands			
Default discovered target logical address			
Send CEC data to Input (upstream source)	Esc I1*X20DCEC ← or Esc I1*X24DCEC ←	DcecI1*X25X24*X21 ↵	For Send CEC Commands, X20 and X24 can be used interchangeably. However, the response is always a hex representation (X24). For example: %2A%07%FF.
Send CEC data to Output (downstream sink)	Esc O X1*X20DCEC ← or Esc O X1*X24DCEC ←	DcecO X1* X25X24*X21 ↵	
Send Specified Logical Address to Specified Target Logical Address			
Send CEC data to Input (upstream source)	Esc I1*X18*X19*X20DCEC ←	DcecI1*X20*X21 ↵	
Send CEC data to Output (downstream sink)	Esc O X1*X18*X19*X20 DCEC ←	DcecO X1* X20*X21 ↵	
Broadcast to all devices			
Send CEC data to Input (upstream source)	Esc I1*15*X20DCEC ← or Esc I1*15*X24DCEC ←	DcecI1*X25X24*X21 ↵	
Send CEC data to Output (downstream sink)	Esc O X1*15*X20DCEC ← or Esc O X1*15*X24DCEC ←	DcecO X1* X25X24*X21 ↵	

NOTE: Attempting to send a CEC command to an input or output that is disabled returns an E14 error.

KEY:

X1 = Output — **1**

X16 = CEC mode
- **0** = Disable CEC operations for this IO port (**default**);
- **1** = Reserved – currently returns E13
- **2** = Enable insertion (unidirectional)
- **4** = Enable insertion and publish received CEC messages (bidirectional)
- **8** = Enable insertion and publish all received CEC messages (bidirectional)
- **20** = Manual mode, similar to mode 8, but less automatic (for 3rd- party software)

X17 = CEC status
- **0** = CEC mode 0 disabled
- **1** = CEC mode 1 (reserved for possible future use)
- **2** = CEC mode 2 enabled but no device detected (unidirectional)
- **3** = CEC mode 2 enabled and device detected (unidirectional)
- **4** = CEC mode 4 enabled but no device detected (bidirectional)
- **5** = CEC mode 4 enabled and device detected (bidirectional)
- **8** = CEC mode 8 enabled but no CEC device present/detected (bidirectional)
- **9** = CEC mode 8 enabled and CEC device present/detected (bidirectional)
- **20** = CEC mode 20 enabled but no CEC device present/detected (bidirectional)
- **21** = CEC mode 20 enabled and CEC device present/detected

X18 = Source logical address (our pseudo) — 0 through 15 (-1 = not found or port not enabled)

X19 = Destination logical address (theirs) — 0 through 15 (-1 = not found or port not enabled)

X20 = CEC command — Predefined actions as strings within double quotes: "PwrOn", "PwrOff", or "ShowMe"

X21 = Send result
- **0** = Failed (NAK) device not detected
- **1** = Success (ACK) device detected
- **2** = Unable to send

X24 = CEC data — User selected elements (0 to 15) in the form of percent sign followed by 2 hex digits (Example: *%2A%07%FF*)

X25 = CEC address byte — In the form of percent sign followed by 2 hex digits (Example: %E0 = Extron output [14] to TV [0])

Command	ASCII Command (Host to Device)	Response (Device to Host)	Additional Description
NOTE: CEC Usage Examples			
Unidirectional Mode — No CEC received data messages (including answers to queries) desired			
Set mode	Esc O2*2CCEC←	CcecO2*2↵	Power on TV on output 2.
Send data	Esc O2*"PwrOn"DCEC← or Esc O2*%04DCEC←	DcecO2*%E0%04*1↵	
Bidirectional Mode — CEC received data messages desired			
Set mode	Esc O3*4CCEC←	CcecO3*4↵	Switch TV on output 3 to our signal (HDMI 2 on TV).
Send data	Esc O3*"ShowMe"DCEC← or Esc O3*15*%82%20%00DCEC←	DcecO3*%EF%82%20%00*1↵	
Examples of possible unsolicited messages		CecO3*%0F%32%65%6E%67*1↵	TV broadcast command to set the menu language to English ("eng").
		CecO3*%0E*1↵	TV pings us to confirm we are still there.

NOTE: Asynchronous received data messages from CEC in bidirectional mode (4) format: CeciI* X25 X24*X21↵

CecO X1* X25 X24*X21↵

Set Logical Address			
Set input logical address	Esc I1* X18 LCEC←	LcecI1* X18↵	
View input logical address	Esc I1LCEC← Verbose mode 2/3	X18↵ LcecI1* X18↵	
Set output logical address	Esc O X1* X18 LCEC←	LcecO X1* X18↵	
View output logical address	Esc O X1 LCEC← Verbose mode 2/3	X18↵ LcecO X1* X18↵	

KEY: X1 = Output **1**
X18 = Source logical address (our pseudo) 0 through 15 (-1 = not found or port not enabled)

Other CEC Commands			
List CEC device presence	Esc LQCEC← Verbose mode 2/3	X23*X23...X23↵ QcecL*X23*X23...X23↵	Input*output 1 ... output x
Rediscover device on input	Esc I1QCEC←	QcecI1*1↵ QcecI1*1*X21↵ ... QcecI1*14*X21↵	
Rediscover device on output	Esc O X1 QCEC←	QcecO X1*1↵ QcecO X1*0*X21↵ ... QcecO X1*13*X21↵	
Report physical address of output port	Esc O X1 PCEC← Verbose mode 2/3 Example	X22↵ PcecO X1 *X22↵ *%10%00*	For 1000 (usually first HDMI input on TV).
View Extron CEC engine version	39Q Verbose mode 2/3	<*version number*>↵ Ver39*<*version number*>↵	

KEY: X1 = Output **1**
X21 = Send result **0** = Failed (NAK) device not detected, **1** = Success (ACK) device detected, **2** = Unable to send
X22 = CEC physical address 4 hexadecimal digits (Example: *%10%00* for 1000)
X23 = CEC device presence **0-F** = Device address, **X** = Missing, **—** = CEC port is off

Reference Information

This section covers the following:

- **Mounting**
- **Firmware Download**
- **Firewall Traversal**
- **Troubleshooting**
- **Best Practices for Cleaning Your Extron Products**

Mounting

The ShareLink Pro 2500 can be placed on a tabletop, or mounted in a rack or underneath a desk.

NOTE: Do not block or restrict air ventilation holes on the top and sides of the ShareLink Pro 2500.

Tabletop Mounting

Attach the provided rubber feet to the bottom four corners of the enclosure.

Furniture Mounting

Go to **www.extron.com** for a list of available furniture mounting kits. To install this device to furniture, follow the mounting kit instructions.

Rack Mounting

UL Rack Mounting Guidelines

The following Underwriters Laboratories (UL) guidelines pertain to the safe installation of the ShareLink Pro enclosure in a rack:

CAUTION:

- **Elevated operating ambient temperature** — If the equipment is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, install the equipment in an environment compatible with the maximum ambient temperature (TMA = +122°F, +50°C) specified by Extron.
- **Reduced air flow** — Install the equipment in a rack so that the amount of air flow required for safe operation of the equipment is not compromised.
- **Mechanical loading** — When mounting the equipment in the rack, ensure that uneven mechanical loading does not cause a hazardous condition.
- **Circuit overloading** — When connecting the equipment to the supply circuit, consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Consider equipment nameplate ratings when addressing this concern.
- **Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).

Consignes UL pour le montage en rack

Les consignes UL (« Underwriters Laboratories ») suivantes concernent l'installation en rack d'un boîtier ShareLink Pro :

ATTENTION :

- **Température ambiante élevée** — En cas d'installation de l'équipement dans un rack fermé ou composé de plusieurs unités, la température du rack peut être supérieure à la température ambiante. Par conséquent, il est préférable d'installer l'équipement dans un environnement qui respecte la température ambiante maximale (Tma) spécifiée par Extron.
- **Réduction du flux d'air** — Si l'équipement est installé dans un rack, veillez à ce que le flux d'air nécessaire pour un fonctionnement sécurisé de l'équipement soit respecté.
- **Charge mécanique** — Installez l'équipement en rack de manière à éviter toute situation dangereuse causée par le déséquilibre de la charge mécanique.
- **Surcharge électrique** — Lorsque vous connectez l'équipement au circuit d'alimentation, observez la connexion de l'équipement et étudiez les effets possibles d'une surcharge du circuit sur les protections contre les surintensités et les conducteurs d'alimentation. Consultez à cet égard les indications de la plaque d'identification de l'équipement.
- **Mise à la terre** — Assurez-vous que l'équipement est correctement mis à la terre. Accordez une attention particulière aux connexions électriques autres que les connexions directes au circuit de dérivation (ex. : les multiprises).

Rack Mounting Procedure

The ShareLink Pro 2500 can be mounted in a rack, using an optional Extron rack mounting kit (see **www.extron.com** for part numbers). Follow the instructions provided with the kit.

Firmware Download

To download the latest firmware for the ShareLink Pro 2500:

1. On the Extron website, **www.extron.com**, go to the **`Download`** tab and click **`Firmware`** (see figure 26, ❶).

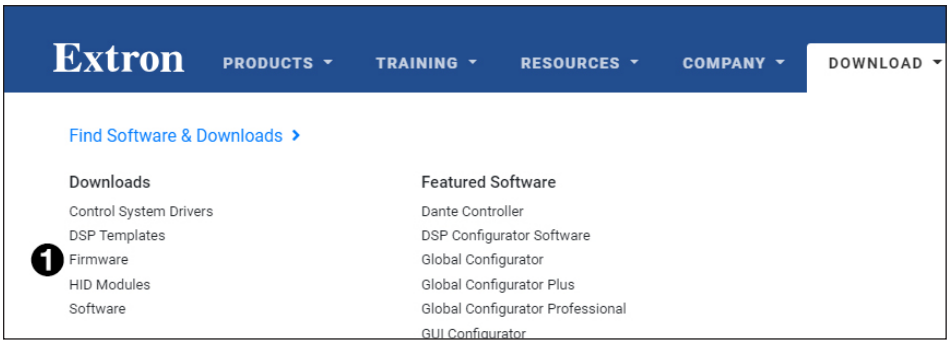


Figure 26. Firmware Link on the Download Tab

2. Search "ShareLink Pro" in the Download Center search bar (see figure 27, ❷) and click **`ShareLink Pro 2000 Series`** in the search results.

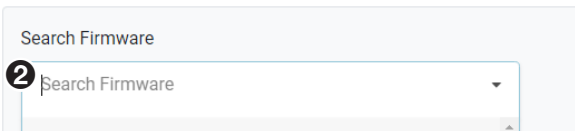


Figure 27. Firmware Download Center

3. Ensure the available firmware version is a later version than the current one on the device, and click **Download**.

   NOTE: The firmware release notes provide details about the changes between different firmware versions. The file can be downloaded from the same page as the firmware.

4. Submit any required information to start the download. Note where the file is saved.

   NOTE: For instructions on loading new firmware to the device, see **Figure 15**, ❺ on page 21.

Firewall Traversal

In order for the ShareLink Pro 2500 to function correctly with the ShareLink Pro applications, it is recommended that the following firewall rules be used to allow traffic to pass. The table below details the ports and their functions.

Port	Type	Direction	Function	Open	Notes
53	UDP/ TCP	Both	DNS	Required	This port is used for communication with a DNS server.
67	UDP	Both	DHCP	Required	This port is used for communication with a DHCP server.
68	UDP	Both	DHCP	Required	This port is used for communication with a DHCP server.
80	TCP	Both	HTTP	Required	This port is used to access the default web page.
123	UDP	Both	NTP	Required	This port is used for communication with an NTP server.
161	UDP	Both	SNMP	Optional	This port is used for SNMP management.
443	TCP	Both	HTTPS	Required	This port is used for accessing the admin configuration web page.
1041	UDP	Both	GVE discovery	Optional	This port is used for discovery of ShareLink Pro devices by GVE software.
1230	UDP	Outbound	Discovery	Required	This port is used for discovery of ShareLink Pro devices by software client applications.
1231	UDP	Inbound	Discovery	Required	This port is used for discovery of ShareLink Pro devices by software client applications.
3478	UDP	Both	WebShare	Required	This port is used for WebShare.
4502	TCP	Both	GVE	Optional	This port is used for GVE management.
4503	TCP	Both	GVE	Optional	This port is used for GVE management.
4522	TCP	Both	PCS file transfer	Required	This port is used for configuration.
4523	TCP	Both	PCS config.	Required	This port is used for configuration.
4534	TCP	Both	ID messaging service	Optional	This port is used for Extron Control System messaging.
5353	UDP	Both	Apple/Miracast Screen Mirroring discovery	Required	This port is used by Bonjour/Avahi network discovery for Apple Screen Mirroring discovery, as well as mDNS for Miracast device discovery.
2001	TCP	Both	RS-232 over Ethernet Insertion	Required	This port is used for RS-232 over Ethernet Insertion. By default, the COM port can be accessed on Port 2001 and the IR/S port (operating in serial mode) can be accessed on Port 2002.

Port	Type	Direction	Function	Open	Notes
7000	TCP	Both	Apple Screen Mirroring	Required	This port is used for Apple Screen Mirroring. If this is not available, then it uses the next available port (e.g., 7001, 7002, and so on).
7100	TCP	Both	Apple Screen Mirroring	Required	This port is used for Apple Screen Mirroring. If this is not available, then it uses the next available port (e.g., 7101, 7102, and so on).
NOTE: mDNS/Multicast must be enabled on the network in order for Apple Screen Mirroring and Miracast to function properly.					
7236	TCP	Both	Miracast	Required	This port is used for Miracast, for both Wi-Fi Direct and Miracast-over-Infrastructure, in order to establish and manage Miracast sessions between the client device and the Sharelink Pro.
7250	TCP	Both	Miracast	Required	This is the port on which the ShareLink Pro listens for Miracast packets when Miracast over Infrastructure is enabled.
554	RTSP	Both	Active Learning	Required	This port is used for Active Learning.
8554	RTSP	Both	ConferenceShare	Required	This port is used for ConferenceShare
8554	RTSP	Both	ConferenceShare	Required	This port is used for ConferenceShare.
60000	RTP	Both	ConferenceShare	Required	This port is used for ConferenceShare
1000-65384	UDP	Outbound	Video streaming	Required	These ports are used for streaming video data to the ShareLink Pro. Port is negotiated at run-time in the range 1000 to 65384 (randomly).
1000-65384	UDP	Outbound	Audio streaming	Required	These ports are used for streaming audio data to the ShareLink Pro. Port is negotiated at run-time in the range 1000 to 65384 (randomly).
19302	UDP	Both	WebShare	Required	This port is used for WebShare
22022	TCP	Both	Internal storage access	Required	This port is used by PCS to access the internal file storage of the ShareLink Pro.
22023	TCP	Inbound	Control	Required	This port is used for controlling the ShareLink Pro via SIS-over-SSH.
29053	TCP	Both	Apple Screen Mirroring	Required	This port is used for Apple Screen Mirroring.
50000	RTP	Both	Active Learning	Required	This port + the next 99 consecutive ports are used for Active Learning.
60000	RTP	Both	ConferenceShare	Required	This port + the next 99 consecutive ports are used for ConferenceShare.

Toolbelt

The Extron Toolbelt utility is available on the Extron website. Toolbelt is a stand-alone Windows application for the management of control systems. Toolbelt can automatically discover ShareLink Pro devices on a network (see the *Toolbelt Help file*). You also can manually add devices, using the known IP addresses. Once you log in to a ShareLink Pro device, you can perform tasks such as:

- View the device and system information.
- View and edit network information.
- View and set SSL certifications.
- Use utilities such as **`Ping`**, **`Reset`**, and **`Reboot`**.
- Configure 802.1X security settings.
- View 802.1X status logs.
- Update the firmware to a selected device or group of devices.

Troubleshooting

The following table gives recommended actions to solve problems that may occur during setup or operation. If the problem persists after performing the recommended action, contact Extron Technical Support.

Problem	Actions
(Windows only) Audio level lowers while using the Mirror Screen or Mirror Application features	Open the **Sound** settings on your PC, and check the following: • Check that Dolby Digital Audio is disabled in your PC sound settings as follows: **1.** Select the **Playback** tab on the **Sounds** settings window. **2.** Right-click **Speakers**/**Headphones** and click **Properties**. **3.** Select the **Enhancements** tab. **4.** Make sure Dolby Digital Audio is disabled. • In the **Communications** tab, make sure the setting for "When Windows detects communication activity" is set to **Do nothing**.
(Windows only) No audio for the Mirror Screen or Mirror Application features	• Make sure that the ShareLink Pro application is not muted in the PC volume mixer. • In the **Recording** tab (within the PC **Sounds** settings), make sure that **Stereo Mix** is enabled and set as the default device. • In the **Playback** tab, check that **Speaker** is enabled and set as default device. • In the **Recording** and **Playback** tabs, check that the ShareLink Pro Audio Driver is enabled. • Download and install the ShareLink Pro software from the Extron website (see **page 13** for instructions).
(Windows only) Extron Audio Driver has no audio support after being installed	• In the **Recording** and **Playback** tabs, check that the ShareLink Pro Audio Driver is enabled and set as default device when the ShareLink Pro application is running. • Download and install the ShareLink Pro software from the Extron website.
(iOS only) The ShareLink Pro device is not listed in the Screen Mirroring list of devices	• Make sure the iOS device is on the same network as the ShareLink Pro device. • In PCS, go to **General Settings**, then select the **Access**/**Role Setup** tab and make sure IOS Airplay is enabled. • Make sure the specific network ports required for Apple Screen Mirroring are open (see **Firewall Traversal** on page 94 for port requirements).
4K/60 is not outputting on a 4K/60 capable display	• Test the connection using a shorter HDMI cable. • In PCS, go to **EDID Minder**. In the EDID Assignment panel, make sure HDMI Pass-Through is set to 4K @ 60 Hz. • In PCS, go to **Input**/**Output Config**. In the Output Configuration panel, set the Format to the appropriate color space for the display.
(Windows only) Mirror Screen and Mirror Application features are slow or not working	• Make sure that the graphics drivers are up to date. • Download and reinstall graphics drivers directly from the driver website (such as Intel®, NVIDIA® GeForce®, or AMD® Radeon™).
(iOS only) The Share Website feature on the iOS app shows a blank page	Make sure the device is connected to the internet.
Unable to install NET 4.6.2 on a Windows 8.1 system	Install Windows update KB2919355.

Best Practices for Cleaning Your Extron Products



There may be times when it becomes necessary to clean your Extron product. Plastic surfaces and cosmetic finishes can be damaged by long term exposure to chemicals. Therefore, Extron recommends the following guidelines when cleaning our products.

All Extron products can be safely cleaned with:

1. 70% concentration or higher Isopropyl Alcohol
2. Disinfectant cleaners that:
   - Are non-ammonium based (for example, contains no ammonium chloride)
   - Contain 2% or less sodium hypochlorite (for example, 2% bleach, 98% water)

It is important to follow these general guidelines when cleaning:

1. If possible, unplug the device.
2. Spray the cleaner on a lint-free cloth until the cloth is damp.
3. Do not spray the cleaner directly onto the product.
4. Gently clean the product surface using the cloth.

Your health and safety are our top priority. Keeping devices clean, especially those in high-traffic environments and high-use applications, is a crucial step in minimizing the spread of infections. Please contact us if you have any questions about the guidelines or if you have a question about cleaning the product.

Extron Warranty

Powered Product Warranty

Extron warrants its powered products against any defects in materials and workmanship for a period of three years from the date of invoice. In the event of a malfunction during the warranty period, Extron will repair or replace a product to its original operating condition.

To assure the highest level of service, a return authorization number must be obtained from Extron before products are returned for service. Products must be shipped to Extron, prepaid along with proof of purchase ONLY after obtaining a Return Authorization (RA) number from the Extron Customer Support department.

This statement of policy is in lieu of any other policy expressed or implied and no representative or person is authorized to assume any other liability or adopt any other policy for Extron Electronics without our written consent.

Powered Product Warranty Exceptions

Everlast™ Power Supplies — Extron warrants Everlast power supplies against any defects in materials and workmanship for a period of seven years from the date of invoice. In the event of a malfunction during the warranty period, Extron will repair or replace the power supply to its original operating condition. Extron engineers will examine the returned product and determine whether the Everlast Power Supply Warranty or Powered Product Warranty applies.

Speakers — Extron warrants Flat Field®, SoundField®, SpeedMount®, Column Array, and System *INTEGRATOR*® speakers against any defects in materials and workmanship for a period of five years from the date of invoice.

Touchscreens — Extron warrants touchscreen display and overlay components against any defects in materials and workmanship for a period of one year from the date of invoice.

Annotator 300 — Extron warrants the Annotator 300 against any defects in materials and workmanship for a period of five years from the date of invoice.

Non-Powered and Cable Products - Lifetime Limited Performance Warranty

Extron warrants that its non-powered products and cable products will be free from defects in material and workmanship for as long as you or your customer owns the product. All Extron non-powered products and cables are designed and engineered to meet and exceed performance specifications. If, at anytime, the product fails due to manufacturer defect, Extron will repair or replace the product to ensure that it meets original performance specifications. Reduced performance due to normal wear and tear, or damages caused by misuse or negligence will not be covered. Extron will test and evaluate all non-powered and cable products claimed defective.

To assure the highest level of service, a return authorization number must be obtained from Extron before products are returned for service. Products must be shipped to Extron, prepaid along with proof of purchase ONLY after obtaining a Return Authorization (RA) number from the Extron Customer Support department.

This statement of policy is in lieu of any other policy expressed or implied and no representative or person is authorized to assume any other liability or adopt any other policy for Extron Electronics without our written consent.

Non-Powered and Cable Product Warranty Exceptions

Cable Cubby, Hideaway Surface Access Enclosures and Retractors — Extron warrants Cable Cubby cable access enclosures, HSA Hideaway Surface Access enclosures, and Retractor cable retraction modules for a period of three years from the date of invoice.

Active Cables and Active Adapters — Extron warrants active cables and active adapter cables for a period of three years from the date of invoice.

Cable Termination Tools and Dies — Extron warrants cable termination tools for a period of three years from the date of invoice, excluding the die.

General

This **Limited Warranty** does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product. Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage. Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

Return Information

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

NOTE: To assure the highest level of service, a return authorization number must be obtained from Extron before products are returned for service. Products must be shipped to Extron, prepaid along with proof of purchase **only** after obtaining a Return Authorization (RA) number from the Extron Customer Support department.

Please contact Extron to receive an RA (Return Authorization) number:

USA:	714.491.1500 or 800.633.9876	**Asia**:	65.6383.4400
Europe:	31.33.453.4040 or 800.3987.6673	**Japan**:	81.3.3511.7655
Africa and Middle East:	971.4.299.1800	**China**:	4000.398766

Worldwide Headquarters: Extron USA West, 1025 E. Ball Road, Anaheim, CA 92805, 800.633.9876