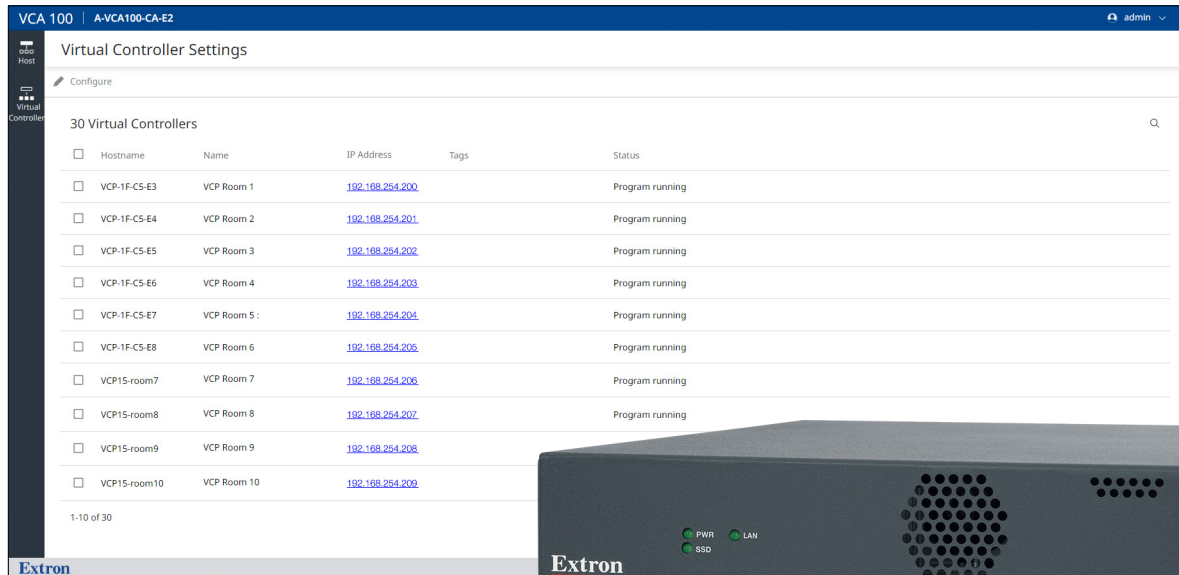


VCA 100


Virtual Control Appliance




User Guide Virtual Control Appliance

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.

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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 están 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.

ATTENZIONE: 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 ostrzeżenia 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。

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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。

注意: ⚠️ 若產品上使用此符號, 是為了提醒使用者, 設備隨附的用戶手冊中有重要的操作和維護(維修)說明。

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

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안전 지침 • 한국어

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주의: 이 기호 ⚠️ 가 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.

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 if battery is replaced by 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 utilisées selon le mode d'emploi.

Conventions Used in this Guide

Notifications

In this user guide, the following are used:

CAUTION: Risk of minor personal injury.

ATTENTION : Risque de blessure mineure.

ATTENTION:

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

NOTE: A note draws attention to important information.

Software Commands

NOTE: For commands and examples of computer or device responses mentioned in this guide, the character “0” is used for the number zero and “O” represents the capital letter “o”.

Directory paths that do not have variables are written in the font shown here:

```
Reply from 208.132.180.48: bytes=32 times=2ms TTL=32
```

```
C:\Program Files\Extron
```

Variables are written in *slanted* form as shown here:

```
ping xxx.xxx.xxx.xxx -t
```

```
SOH R Data STX Command ETB ETX
```

Selectable items, such as menu names, menu options, buttons, tabs, and field names are written in the font shown here:

From the **File** menu, select **New**.

Click the **OK** button.

Specifications Availability

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

Extron Glossary of Terms

A glossary of terms is available at www.extron.com/technology/glossary.aspx.

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Introduction

This section provides the following information:

- [Before You Begin](#)
- [About the VCA 100](#)
- [About VCPs](#)
- [VCA 100 Features](#)
- [Application Diagram](#)
- [About Global Configurator \(with GC Professional and GC Plus Modes\)](#)
- [About Global Scripter and ControlScript Deployment Utility](#)
- [PC System Requirements](#)

Before You Begin

What This Guide Covers

This user guide provides instructions for an experienced installer to install an Extron VCA 100 Virtual Control Appliance (VCA) and configure the Virtual Control Processors (VCPs). This guide provides detailed information and recommends best practices for cabling the VCA. It provides a brief overview of the configuration process, and reference information.

Configure the system using Extron GUI Designer combined with Global Configurator software running in Global Configurator Professional (GC Professional) or Global Configurator Plus (GC Plus) mode. Alternatively, program the system using Global Scripter (GS) or a combination of ControlScript Extension and the ControlScript Deployment Utility (CSDU).

This guide does not contain instructions on detailed software-related setup steps or details of configuration within the software: those are covered in the help files for the respective programs. The software help files describe how to use each program to download drivers, add AV devices to a configuration, configure basic functions, and set up schedules, macros, e-mail alerts, touchpanel button configurations, and the like.

Conventions Used in This Guide

Throughout this guide the VCA 100 is also referred to as the “VCA” or “host appliance”. The Virtual Control Processors are also referred to as “VCPs”.

The VCA 100 shares a number of properties with the IPCP Pro xi. The IPCP Pro xi is referred to in this guide and may also be referred to as the “IPCP,” “IPCP Pro xi,” or “control processor.”

Global Configurator software is referred to as “GC,” which can be run in Global Configurator Professional mode (“GC Professional”) or Global Configurator Plus mode (“GC Plus”).

The term “ControlScript xi” encompasses ControlScript Development Utility (CSDU), ControlScript extension, and Global Scripter (GS).

The GlobalViewer Enterprise application is sometimes referred to as “GVE.”

The VCA 100 Default Web Pages may also be referred to as “Admin Console”.

Unless otherwise noted, in images of software or web pages, circled numbers correspond to the like-numbered procedural steps.

Important Information You Need Before Installation

The order and types of setup tasks for the VCA and VCPs are important. Pay close attention to them. Follow the setup checklist in the [Hardware Features and Installation](#) (see page 5).

About the VCA 100

The Extron VCA 100 is a virtual control appliance that acts as a host on which Virtual Control Processors (VCPs) can run. The VCA 100 supports multiple VCPs. By default, five are initially available and additional VCPs can be added by applying [LinkLicenses](#) (see page 38).

About VCPs

VCPs possess similar characteristics to traditional IP Link Pro xi Control Processors:

- VCPs maintain feature parity with IP Link Pro xi Control Processors, as the product line evolves.
- VCPs have a unique IP address and integrate Ethernet connection into AV systems to allow users to remotely control, monitor, and troubleshoot AV equipment, including display devices, switchers, source devices, and various other items such as lights, a projector lift, or a screen motor.
- VCPs are compatible and can communicate natively with other Extron control products such as secondary control processors, Touchpanels and Network Button Panels.

NOTE: GUI Designer software is used to design the user interface layout of any Extron TouchLink Pro touchpanel or third-party touch interface that is used with the VCPs.

VCPs support multiple TouchLink Pro touchpanels over a standard Ethernet network. The touchpanels provide a convenient interface for controlling the VCPs, which, in turn, control the other system components. Alternatively, use a third-party device such as a touchpanel or tablet in conjunction with Extron LinkLicense.

- VCPs can receive a project file from Global Configurator, Global Scriptor, or ControlScript Deployment Utility software. Configure the control processor using GC Professional or GC Plus, or program it using ControlScript xi.

Once you have set up how you want it to work (set up IP addresses and functions, assigned drivers to ports, configured relays and digital input or output), that information is saved to a project configuration file that is built and uploaded into the VCP and to any optional TouchLink Pro touchpanels.

- VCPs are managed by the Extron Toolbelt utility software and the VCA 100 Default Web Page. Use Toolbelt to discover and manage the VCPs and other Extron control products. Use the VCA 100 Default Web Page to access VCPs remotely and get an overview of their settings and applied configurations.
- VCPs integrate seamlessly with Extron GlobalViewer Enterprise software and Extron Control for Web, iOS, and Android for remote control applications.
- VCPs run an updateable system image.

VCA 100 Features

- **Centralized AV control using a virtual control system solution** — Saves on equipment space and provides the scalability necessary for enterprise applications.
- **Powerful, compact appliance optimized for up to 30 IPCP Pro xi Series virtual control processors from one device** — Provides organizations with a secure solution for system installation and maintenance.
- **Includes five Virtual Control Processors (VCPs)** — You can easily add more VCPs by applying LinkLicense for Additional VCPs.
- **Fast deployment to meet the scalability needs for growing AV spaces** — Enables organizations to scale AV control efficiently.
- **Manage and monitor active virtual control processors using the web-based console.**
- **Compatible with all control system expansion interfaces, TouchLink Pro touchpanels, and Network Button Panels** — Provides system familiarity and consistency within Extron control systems.
- **Integrate with NAV for a fully IP-based AV and control system** — Integrate virtual control processors with NAV systems to deploy an enterprise-wide AV distribution and control solution that is flexible, scalable, and secure.

- **Upgrade your virtual control system using LinkLicenses with no recurring fees** — Choose from several control system LinkLicenses, such as those that activate more virtual control processors or enable the use of BYOD devices for primary AV control even in rooms without a physical control interface.
- **Ethernet monitoring and control** — Manage, monitor, and control AV devices using a standard Ethernet network.
- **Supports Ethernet-controllable devices** — Allows for control of multiple Ethernet-enabled AV devices such as displays, switchers, and sources.
- **Central deployment** — Quickly deploy control systems by uploading all project files to each primary virtual control processor. The primary virtual control processors will automatically transfer files to the other touchpanels, control system expansion interfaces, and button panels in those systems once they come online.
- **Fully customizable using Extron control system software** — GUI Designer combined with Global Configurator Plus, Global Configurator Professional, Global Scriptor, or ControlScript Deployment Utility.
- **Manage, monitor, and control the deployed virtual control processors remotely using GlobalViewer Enterprise (GVE) resource management software.**
- **Vast library of Pro Series Ethernet device drivers and modules for use with Global Configurator and Global Scriptor respectively** — Start and execute projects quickly using Extron Global Configurator device drivers and Global Scriptor modules to control various Ethernet-enabled display and source devices.
- **Compact, 1U, half rack width metal enclosure.**
- **Internal Extron Everlast power supply** — Provides worldwide power compatibility, with high-demonstrated reliability and low power consumption for reduced operating cost. Extron Everlast Power Supply is covered by a 7-year parts and labor warranty.

Application Diagram

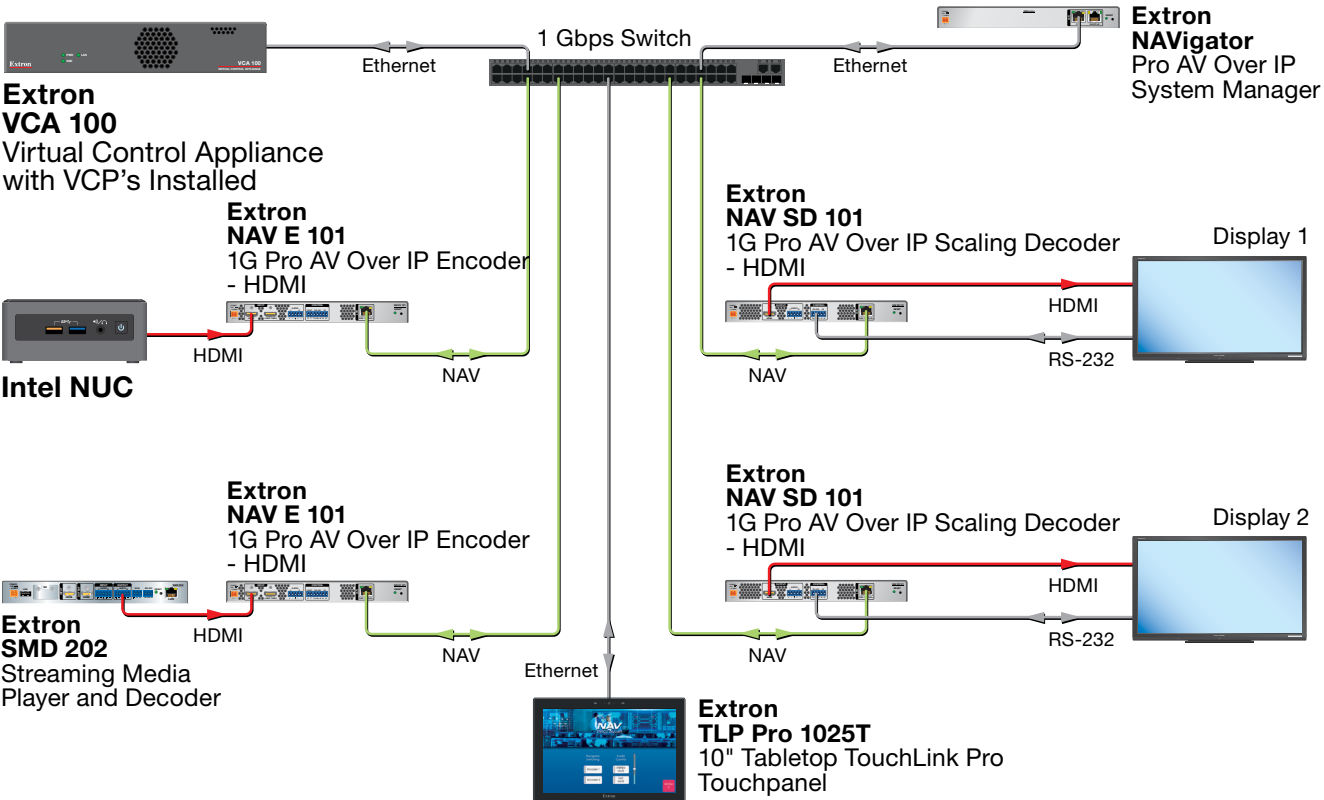


Figure 1. Application Diagram

About Global Configurator (with GC Professional and GC Plus Modes)

Global Configurator:

- Loads device drivers for monitoring the status of and controlling devices within the AV system.
- Uploads GUI Designer interface layouts to touchpanels and third-party touch interfaces.
- Creates the configuration containing all the settings for the control processor and the products with which it interacts in the AV system.
- Uploads the configuration to the control processor.

To obtain Extron control product software, you must have an Extron Insider account and contact an Extron support representative. Extron provides training to our customers on how to use the software. Access to the features of Global Configurator Professional is available to users who successfully complete Extron Control Professional Certification.

About Global Scripter and ControlScript Deployment Utility

For those who prefer to program control systems rather than configure them, Extron offers Global Scripter or a combination of ControlScript Extension and ControlScript Deployment Utility as alternatives to Global Configurator. GS and CSDU are integrated programming development environments for Extron IP Link Pro, TouchLink Pro, and Network Button Panel products. They use the object-oriented Python programming language and a custom Python library called ControlScript xi. They include the ControlScript xi API as well as all of the tools for developing control system programs, such as file management, code editing, debugging and diagnostic tools. More information is available at <https://www.extron.com/technology/landing/programming/>.

PC System Requirements

To find the minimum hardware and software requirements for the PC you use to configure the VCA 100 or VCPs:

- For a complete list of the requirements for running Global Configurator, Global Scripter, ControlScript Deployment Utility, ControlScript Extension for VS Code, Global Viewer Enterprise (GVE), GUI Designer, or Toolbelt, visit the Download page (www.extron.com/download/index.aspx) on the Extron website and navigate to the web page for the specific software package. Minimum PC hardware and software system requirements are listed in the description section. In some cases, minimum device firmware version requirements are also listed there.
- If system requirements are not listed on the software package web page, contact an Extron support representative.

Hardware Features and Installation

This section provides information about the following:

- **Setup Checklist: How to Proceed With Installation** — A checklist of tasks to guide you through installation.
- **Network Communication Setup** — A flowchart guide to network settings configuration.
- **Front Panel Features** — Locations and some descriptions of items on the front panel.
- **Rear Panel Features** — Locations and some descriptions of items on the rear panel.
- **Mounting the VCA 100** — Brief guidelines for mounting.
- **Ports, Addressing and Connections** — Locations, descriptions, and cabling notes for rear panel features and corresponding front panel indications.
- **Resetting the Unit** — Information about the available reset modes and how to reset the VCA 100.

Pay careful attention to the order and types of setup tasks. Follow the setup checklist in this guide or in the setup guide and keep it with you for reference throughout the installation and configuration process.

Setup Checklist: How to Proceed With Installation

Get Ready

- Familiarize yourself with the features of the host appliance (see **Front Panel Features** on page 8 and **Ports, Addressing and Connections** on page 11) and of any TouchLink Pro touchpanels or button panels that will be part of the system.
- Download and install the latest version of the following software:
 - Toolbelt — for discovering the control processor and other control products on the network, for managing core settings, and for upgrading firmware when needed.
 - Global Configurator (GC) — for configuring the control system.
 - Global Scriptor — for programming the control processor (as an alternative to configuration with GC).
 - ControlScript Deployment Utility and ControlScript Extension for VS Code — for programming the control processor (as an alternative to Global Scriptor).
 - GUI Designer — for designing layouts for Extron TouchLink Pro touchpanels and third-party touch interfaces.
 - IP Link Pro device drivers — for use with GC, to make control of other devices possible.
 - IR Learner Pro software — for use with models that have IR receiver ports, to create your own IR drivers using the remote control of an AV device, if drivers are not already available from Extron.
 - Global Viewer Enterprise — Provides a powerful, flexible way to manage, monitor, and control nearly any device over a standard AV network.

All are available from www.extron.com (see **Locating Software, Firmware, and Driver Files on the Extron Website** on page 33).

- Obtain network information for the unit from the network administrator. You need the following details for each IP Link Pro xi device:
 - DHCP setting (on or off)
 - Device (IPCP Pro xi, TouchLink Pro, IPL Pro) LAN IP address
 - Subnet mask
 - Gateway IP address
 - Username
 - Passwords

NOTE: If DHCP is on, you do not need the IP addresses and subnet mask.

- Write down the MAC address of each network interface on the VCA 100 to be used. The MAC addresses for the VCPs are available on the VCA 100 default web pages.
- Obtain model names and setup information for devices the VCP will control.
- Each control processor comes with a factory-installed Secure Sockets Layer (SSL) security certificate. If you intend to install a different SSL certificate, contact your IT department to obtain the certificate or for instructions on how to obtain one (see [Secure Sockets Layer \(SSL\) Certificates](#) on page 41 for requirements and guidelines regarding SSL certificates).
- For systems that will use IEEE 802.1X security, obtain a PEM-encoded security certificate and private key (see [IEEE 802.1X](#) on page 42) from your IT department.

Mount and Cable All Devices

- Mount the unit to a rack or furniture. There are several mounting options for the VCA 100 (see [Mounting the VCA 100](#) on page 9).
- Cable devices to the VCA 100 (see [Rear Panel Features](#) on page 9 and [Ports, Addressing and Connections](#) on page 11).
- Connect power cords and power on all the devices.

Set Up the Devices for Network Communication

- Connect the PC that you will use for setup, the LAN port of the control processor, and the touchpanels or network button panels to the same Ethernet network. For control processor LAN connections, see [LAN connector](#) on page 11.
- Start Toolbelt and use it to set the IP address or addresses, subnet, gateway IP address, DHCP status, and related settings (see the flowchart in [Network Communication Setup](#) on page 8).

NOTE: When setting up DHCP during network configuration or if using a host name instead of an IP address, the user must enter a qualified host name (HostName.Domain, where HostName = *somename* and domain = *extron.com*).

Configure or Program the Control Processor, Touchpanels, and Network Button Panels

- If TouchLink Pro touchpanels are part of the system, start and use GUI Designer to design, save, and build the graphical user interface (GUI) layout for the touchpanels (see the *GUI Designer Help File* for instructions).
- If required, activate LinkLicenses to add additional VCPs to the system. A LinkLicense unlocks features that add convenience, expand system options, and enhance the capabilities of your Extron products. For more information, see [LinkLicenses](#) on page 38.

To redeem (activate) a LinkLicense, go to www.extron.com/llredeem and follow the online instructions.

- If using GC, create a new GC Professional or GC Plus project and configure the control processor and other IP Link Pro xi devices. The configuration tells the control processor:
 - How its ports function
 - How to control other products
 - Which touchpanels to interact with
 - What to monitor
 - When to do things
 - Whom to notify, how, and under what circumstances

- Configure ports on the control processor:
 - Select device drivers and link them to each serial, IR/serial, or Ethernet port. output settings) as needed.
 - Add Network Button Panels (NBPs) and set them up. Assign button functions as desired.
- Add and configure any IPL EXP expansion interfaces.
- Set up monitors, schedules, macros, and local variables.
- Add touchpanels and set them up:
 - Upload the GUI configuration to the Global Configurator project.
 - Assign any appropriate functions, monitors, or schedules to the touchpanels and their buttons.
- If not using GC Professional or GC Plus, use Global Scriptor to program the control system as desired.
 - Program ports on the control processor:
 - Program each serial, IR/serial, or Ethernet port.
 - Program relay behavior, digital I/O, flex I/O, and AC output settings as needed.
 - Add Network Button Panels (NBPs) and set them up. Assign button functions as desired.
 - Add and configure any secondary control processors and IPL EXP expansion interfaces.
 - Add touchpanels and set them up:
 - Upload the GUI configuration to the Global Scriptor project.
 - Program functions, monitors, or schedules to the touchpanels and their buttons.
- Save the project.
- Build and upload the system configuration to the control processor and other system devices.

Test and Troubleshoot

- Test the system (see [Troubleshooting](#) on page 37 for an outline of items to check during system troubleshooting).
- Make adjustments to wiring or configuration as needed.

Network Communication Setup

Network setup is essential prior to configuration. Use these flowcharts as a general guide to setting up the control processor for network use.

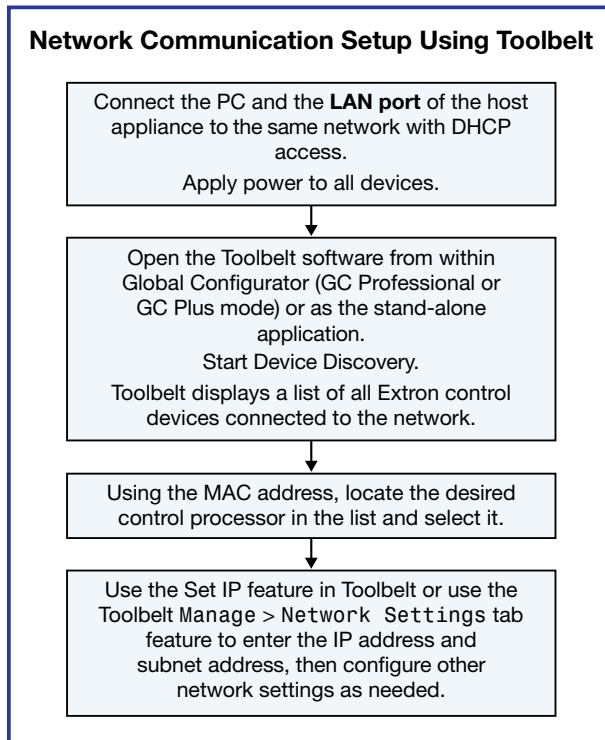


Figure 2. Network Setup

Front Panel Features



Figure 3. VCA 100 Front Panel

A Status lights — Three LEDs provide information about the status of Power (PWR), Ethernet connection (LAN), and Solid State Drive (SSD).

- **PWR** — The Power LED blinks during boot up and remains lit while the unit is receiving power.
- **LAN** — The LAN LED remains lit when there is a network connection.
- **SSD** — The SSD LED indicates activity on the solid state drive.

Rear Panel Features

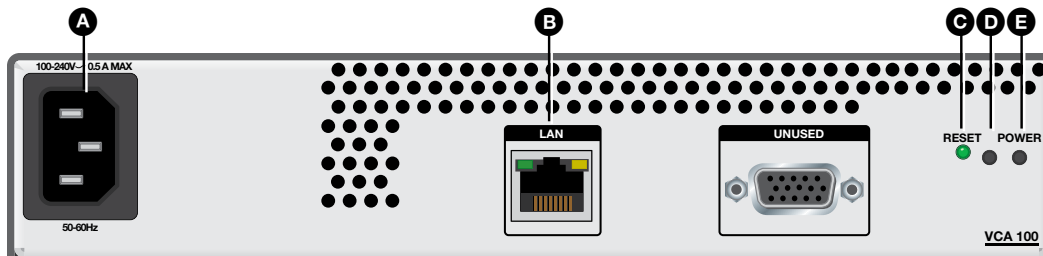


Figure 4. VCA 100 Rear Panel

- A Power Connector** — Connect the provided IEC Power cord to a 100 VAC to 240 VAC, 50-60 Hz power source. The front panel POWER LED indicates power present (see [Power connector](#) on page 11).
- B LAN Connector** — An RJ-45 socket, with integrated link and activity indicators. Use an Ethernet cable, terminated with an RJ-45 connector to connect this port to the control PC (see [LAN connector](#) on page 11), The front panel LAN LED indicates connection.

The right LED on the LAN port is amber and blinks to show when the port is active. The LED is off if communication is at 10-Mbps.

The left LED on the LAN port is dual color. It lights green to show if a link communication of 100-Mbps is established or lights orange to show if a link communication of 1000-Mbps is established. The LED is off if communication is at 10-Mbps.
- C RESET LED** — Provides feedback about the reset status when the user presses the RESET button (see [Resetting the Unit](#) on page 12).
- D RESET button** — Use an Extron tweaker or other narrow screwdriver to press this recessed button. Pressing the RESET button allows the unit to be reset in any of three different modes. In addition it can be used to toggle between DHCP Client enabled or disabled or to reset the device password (see [Resetting the Unit](#)).
- E POWER button** — Use an Extron tweaker or other narrow screwdriver to press this recessed button. If the user presses and releases the power button once, it powers on the VCA 100. If the user presses and holds the power button, it powers off the VCA 100.

Mounting the VCA 100

Mounting Options

This section gives an overview of mounting options for the VCA 100:

- [Desktop](#)
- [Mounting Kits](#)
- [Rack Mounting](#)

Desktop

Four self-adhesive rubber pads are included. Attach one in each corner on the VCA 100 and place the unit on any suitable flat surface.

Mounting Kits

See the VCA 100 product page at www.extron.com for a complete list of compatible mounting kits. Follow the instructions provided with the kit.

Rack Mounting

The VCA 100 can be mounted on any standard rack system (not provided). See www.extron.com for a list of appropriate kits. Follow the instructions included with the kit.

The UL Rack Mounting Guidelines

The following Underwriters Laboratories (UL) guidelines pertain to the installation of the VCA 100 enclosure into 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. Therefore, consider installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by Extron.
- **Reduced air flow** — Install the equipment in the rack so that the amount of air flow required for safe operation of the equipment is not compromised.
- **Mechanical loading** — Mount the equipment in the rack so that uneven mechanical loading does not create a hazardous condition.
- **Circuit overloading** — When connecting the equipment to the supply circuit, consider the connection of the equipment to the supply circuit and 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 (such as the 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 VCA 100 :

CAUTION:

- **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 (T_{ma}) 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)

Ports, Addressing and Connections

ATTENTION:

- Installation and service must be performed by experienced personnel.
- L'installation et l'entretien doivent être effectués par du personnel expérimenté.

Power connector

Connect the provided IEC Power cord to a 100VAC to 240VAC, 50-60 Hz power source (see [figure 4](#) on page 9). The front panel PWR LED indicates that power is present.

Bidirectional Control Communication Connections

LAN connector

The LAN connector is an RJ-45 socket, with integrated link and activity indicators (see [figure 4](#)). Use an Ethernet cable, terminated with an RJ-45 connector to connect this port to the control PC.

- The front panel LAN LED indicates connection.
- The right LED on the LAN port is amber and blinks to show when the port is active. The LED does not light when communication is at 10-Mbps.
- The left LED on the LAN port is dual color. It lights green to show if a link communication of 100-Mbps is established or lights amber to show if a link communication of 1000-Mbps is established. The LED does not light when communication is at 10-Mbps.

Cabling

Connect the PC that you will use for setup and the LAN connector to the same Ethernet network.

- For 10Base-T (10 Mbps) networks, use a CAT 3 or better cable.
- For 100Base-T (max. 155 Mbps) or 1000Base-T networks, use a CAT 5 or better cable.

Features for Network Port Addressing

If you use static IP addresses, configure the settings and IP addresses via Toolbelt. See the *Global Configurator Help File* or *Toolbelt Help File* for basic information on configuration.

The default network settings for the VCA 100 are:

- **IP address:** 192.168.254.250
- **Subnet mask:** 255.255.255.0
- **DNS Address:** 127.0.0.1
- **DHCP:** off

By default, DHCP is on for VCPs.

For details of communication protocols, ports, and services used, see the *Pro Series Control Product Network Ports and Licenses Guide* at www.extron.com.

Passwords

NOTES:

- The factory configured passwords for this device have been set to the device serial number.
- Passwords are case sensitive.
- Performing a [Full Factory Reset](#) (see page 13) sets the passwords to ext ron.

Resetting the Unit

The VCA 100 **RESET** button initiates three reset modes. In addition it can be used to toggle between DHCP Client enabled or disabled or to reset the device password:

- [Use Factory Firmware](#)
- [Reset Network Settings](#)
- [Full Factory Reset](#)
- [Toggle DHCP Client](#)
- [Password Recovery \(Admin Password Only\)](#)

The **RESET** button is found on the rear panel (see [figure 4](#), **E**, on page 9).

NOTE: Use the default web pages to reset VCPs (see [VCP Advanced Settings](#) (see page 30)).

Use Factory Firmware

This mode boots up the unit with factory-installed firmware in the event of a firmware update that failed or incompatibility issues arising with user-loaded firmware.

Activation

On the rear panel of the unit, hold down the recessed **RESET** button while applying power to the unit. When power is restored, keep pressing the **RESET** button until the **RESET** LED blinks twice (about six seconds) before releasing it. The VCA 100 enters factory firmware mode.

Upload new firmware to the unit as desired (see [Firmware Updates](#) (see page 45)).

NOTE: Do not continue to operate the VCA 100 using the factory firmware version. If you want to use the factory default firmware, you must upload that version again.

Result

The unit reverts to factory-installed firmware. Use this recovery action in the event of a firmware update that failed or incompatibility issues arising with user-loaded firmware. The factory firmware allows the VCA to receive a firmware update. When running factory firmware, programs stop running but all user files and settings such as drivers, adjustments, and IP settings are maintained.

NOTE: The unit continues to run factory firmware until new firmware is successfully applied.

Reset Network Settings

This mode resets all VCA 100 IP settings to factory defaults.

Activation

To reset all IP settings:

1. Hold down the **RESET** button. The RESET LED blinks once at three seconds and twice at six seconds.
2. Release and press **RESET** momentarily (for <1 second) within 1 second. Nothing happens if the momentary press does not occur within 1 second.

Result

Reset Network Settings mode:

- Sets port mapping back to factory defaults.
- Sets the IP address back to factory default (192.168.254.250).
- Sets the subnet back to factory default (255.255.255.0).
- Sets the default gateway address to the factory default (0.0.0.0).
- Sets all other IP settings, addresses, and domain and host names back to factory default.
- Turns DHCP off.
- Temporarily affects running programs, but they resume.

The RESET LED blinks three times in quick succession following a successful reset.

NOTES:

- This process resets only the VCA 100 IP settings.
- Any change to the VCA 100 settings will cause a short down-time for all active VCPs.
- Depending on network settings and configuration, VCPs that are DHCP enabled may come back with a different assigned IP address. VCPs with static IP settings are not affected.

Full Factory Reset

This mode resets all IP settings for both the VCA 100 and any hosted VCPs that have been licensed. It does not affect any LinkLicenses applied to the VCA 100 or the VCPs. It removes any files loaded by the user to the VCA 100 or the VCPs and allows the user to restart configuration and uploading.

Activation

To reset the unit to all factory default settings:

1. Hold down the **RESET** button until the RESET LED blinks once at 3 seconds, twice at 6 seconds, and three times at 9 seconds for a total of six blinks.
2. Release and press the **RESET** button momentarily (for <1 second) within 1 second. Nothing happens if the momentary press does not occur within 1 second.

Result

This mode performs a complete reset to factory defaults (except the firmware).

- Performs a complete reset to factory defaults; modes of operation, port and network settings return to default values..
- Deletes all user loaded files and programming or configuration files.
- The product continues to run the most recently installed firmware.

The RESET LED blinks four times in quick succession following a successful reset..

NOTE: If the device is reset to default settings, the password changes to the default configuration. The default password is extron (for both the admin and user accounts).

This reset mode erases all VCP data but not any LinkLicenses applied to the VCA or VCPs.

- If a LinkLicense was applied to a VCP before initiating this reset mode, the license is retained by the virtual controller.
- All the VCPs that were licensed on the VCA before initiating this reset mode are available after the reset. The VCPs are also reset to factory defaults.

Toggle DHCP Client

This mode toggles between DHCP enabled and DHCP disabled for the VCA 100. It has no effect on the VCPs hosted on the product.

Activation

To enable or disable the DHCP client for the LAN 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.

Result

If DHCP was enabled, it is now disabled. The RESET LED blinks three times.

If DHCP was disabled, it is now enabled. The RESET LED blinks six times.

NOTES:


- By default DHCP is off and the unit uses a static IP address.
- When you disable DHCP, the VCA 100 reverts to the last valid network settings.
- IP Settings for VCPs are unaffected.
- Toggling DHCP on or off causes a short down-time for all active VCPs
- Any change to the VCA 100 settings causes a short down-time for all active VCPs.

Password Recovery (Admin Password Only)

This mode allows the user to reset the admin password for the VCA 100. It does not affect the user password and it does not affect passwords for any loaded VCPs.

Activation

To reset the admin password for the VCA 100:

1. Press the **RESET** button (see [figure 4](#), , on page 9) three times in quick succession.
 - If there are no further button presses within three seconds of the third button press, the Power LED blinks three times to confirm that the unit is ready for the next step.
 - If the **RESET** button is pressed a fourth time within three seconds of the third button press, the password reset is cancelled.
2. Within five seconds of the LED blinking, press the **RESET** button twice in quick succession.
 - If there are no further button presses within three seconds of the second button press, the Power LED blinks twice to confirm that the unit is ready for the next step.
 - If the **RESET** button is pressed a third time within three seconds of the second button press, the password reset is cancelled.
3. Within five seconds of the LED blinking in step 2, press and hold the **RESET** button for five seconds.
The power LED blinks five times to indicate that the admin password has been reset to default. The default password is extron.

Default Web Pages

This section describes:

- [Accounts](#)
- [VCA 100 Default Web Pages](#)

The embedded default web pages (DWP) for the VCA 100, also known as the Admin console, allow the user to view:

- The device information and settings for the VCA 100
- The device information and settings for all active VCPs

NOTES:

- Active VCPs are VCPs that have been licensed on the VCA 100 by default or by LinkLicense.
- The VCA 100 can host multiple VCPs. By default, five of those VCPs are active and the rest are inactive. Inactive VCPs can be activated by applying any combination of LinkLicenses.
- To redeem (activate) a LinkLicense, go to www.extron.com/llredeem and follow the online instructions.

Accounts

The following information about the VCA 100 (left column) and all active VCPs (right column) can be accessed through the VCA 100 default web pages:

VCA 100	VCP
Device details	Device details
Device status	Device status
Network settings	Network settings
LinkLicense	LinkLicense
Firmware	Firmware
Date and Time	Project information

The VCA 100 supports two account types, Admin and User. Permissions for User accounts are restricted compared with Admin accounts. The User account has read-only access to the basic settings for the VCA 100 and the VCPs. Both user types (Admin and User) can sort active VCPs by hostname, IP address, or tag in alphanumerical or reverse-alphanumerical order.

The Admin account can view all the information shown in the table above. In addition, it can:

- Configure the VCA 100 network settings.
- Reset IP settings for individual VCPs or change network settings for one or multiple VCPs.
- Troubleshoot VCPs through actions such as rebooting, activating project recovery, and activating reset modes.
- Add tags to specific VCPs for easy system identification.

VCA 100 Default Web Pages

Opening the Default Web Pages

To open the default web pages:

1. Connect a control PC to the VCA 100 using the Ethernet port.
2. Open a browser and enter the IP address for the VCA 100 in the address bar.

The Login page opens:



Figure 5. Default Web Pages — Log In Page

3. Enter a Username. By default, this is Admin or User.
4. Enter the password.
 - The factory configured passwords for all accounts on this device have been set to the device serial number.
 - Passwords can be changed during configuration.
 - Passwords are case sensitive.

NOTE: If the device is reset to default settings (see [Full Factory Reset](#) on page 13), the password is the default password configuration. The default password is extron (for both the admin and user accounts).

Screen captures on the following pages show default web pages when logged in as admin.

Home Page

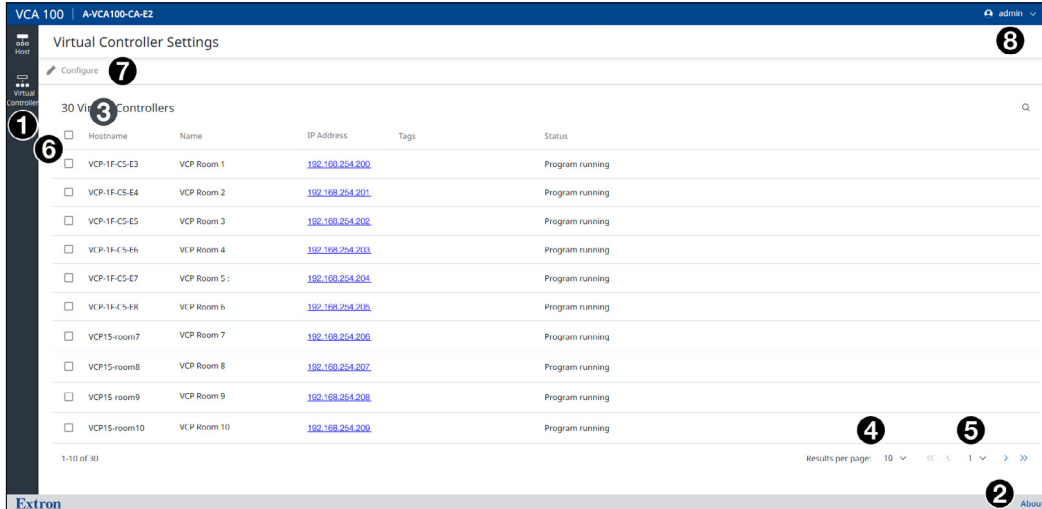


Figure 6. VCA 100 Default Web Pages — Home

All the default web pages show the menu bar (see figure 6, ①), the **About** link (②) and the user type (③). The **About** link opens the **About Page** (see page 23), which provides information about the VCA 100. The user type shows either user or admin. Click on **admin** or **user** to see the log out option.

The Home page provides either an overview of the VCA 100 (see figure 7) or a list of the currently available VCPs (shown in figure 6).

VCA 100 Home Page

If required, click the **Host** icon in the menu bar.

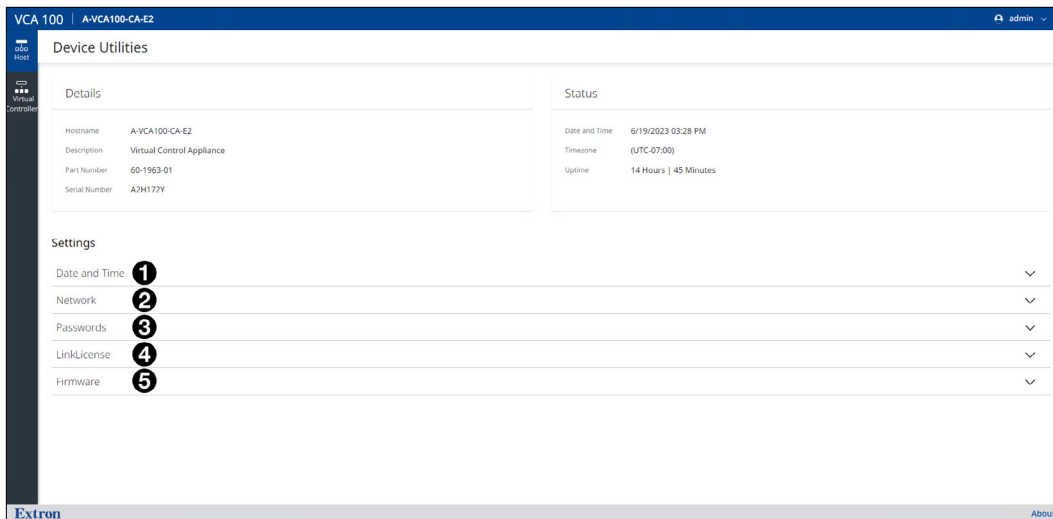


Figure 7. VCA 100 Home Page

The VCA 100 home page opens to display a read-only product **Details** section and a product **Settings** section. The **Settings** section contains five subsections that can be expanded to provide more information and allow the settings to be edited.

- ① **Date and Time** on page 19
- ② **Network** on page 21
- ③ **Passwords** on page 22
- ④ **LinkLicense** on page 22
- ⑤ **Firmware** on page 23

Date and Time

Allows you to set the Date and Time on the VCA 100 unit.

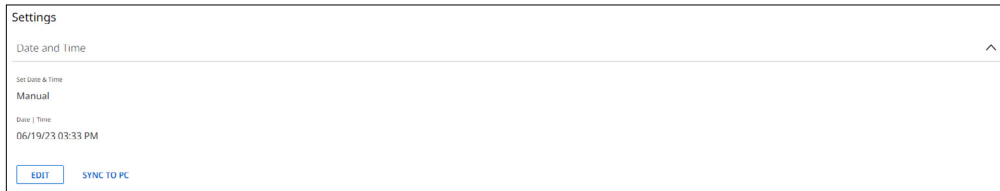


Figure 8. VCA 100 Default Web Pages — Date and Time

Click **SYNC TO PC**. The DWP grabs the current time from the PC and applies it to the processor manually.

Click **EDIT** to set the date and time without syncing to the control PC. The Date and Time box expands:

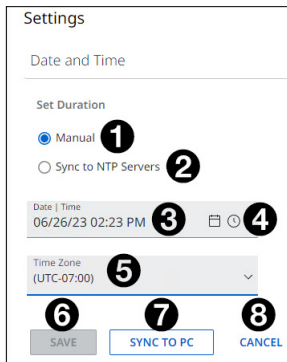


Figure 9. Date and Time box

Automatically set the time and date with NTP server

1. Select **Sync to NTP Servers** (see figure 9, ②).

The web page expands:

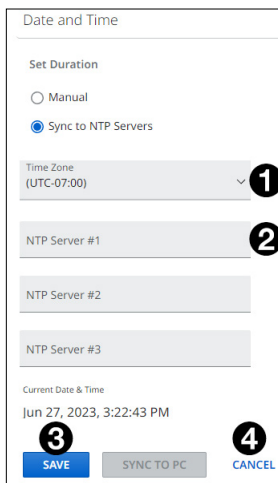


Figure 10. Sync to NTP Servers

2. Select a **Time Zone** from the dropdown list (see figure 10, ①).
3. Click inside the text box and enter the IP address for an NTP server (②). You can enter addresses for up to three servers.
4. Click **SAVE** (③) to save changes or **CANCEL** (④) to exit without saving.

Manually set the time and date:

1. Select the **Manual** radio button (see **figure 9**, **1**, on page 19).
2. If you selected **Manual**, click in the Date | Time text box (**3**) and highlight the current date or time.
3. Enter the desired date and time.
 - The format for Date is MM/DD/YY.
 - The format for Time is HH:MM xM, where xM is either AM or PM.

Change the date and time using the Datepicker and Timepicker:

1. Click the **Datepicker** icon (📅) (**4**).

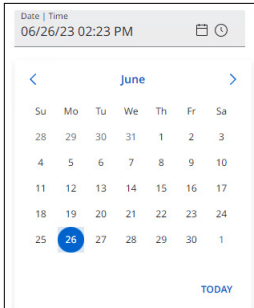


Figure 11. Datepicker

2. Select the month and date or click **TODAY**.
3. Click **SAVE** (see **figure 9**, **6**) to save the changes or click **CANCEL** (**8**) to exit the datepicker without saving the changes.
4. Click the **Timepicker** icon (🕒) (**4**).

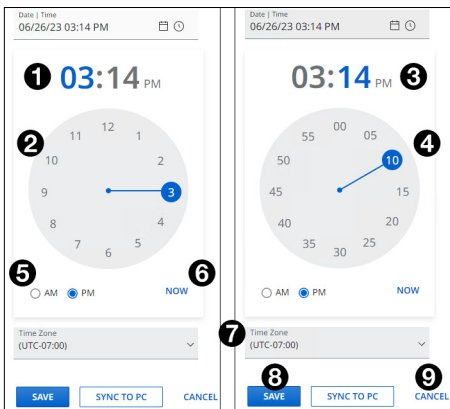


Figure 12. Timepicker hours (left) and minutes (right)

By default, the timepicker opens to select the hour value (see figure 12, left). Either click on the hour in the text display (**1**) and change it to the desired value or select a value from the clock face (**2**).

5. Click inside the minutes value in the text display (**3**). The clockface changes to minutes (see figure 12, right).
6. Either click on the minutes in the text display (**3**) and change it to the desired value or select a value from the clock face (**4**).

NOTE: You can only select minutes to the nearest 5-minute value. To get a more accurate value, click **NOW** (**6**) to sync with the control PC.

7. Click on **AM** or **PM** (**5**) in either the hour or minute view.
8. If required, change the **Timezone** by selecting a value from the drop-down list (**7**).
9. Click **SAVE** (**8**) to save the changes or **CANCEL** (**9**) to exit the timepicker without saving changes.

Network

Provides information about the VCA 100 network settings. Click **EDIT** to change the settings.

Network

Device Name / Hostname
A-VCA100-CA-E2

DHCP
On

IP Address
10.113.130.67

Subnet Mask
255.255.240.0

Default Gateway
10.113.128.100

DNS Server
10.1.0.7

MAC Address
3C-EC-EF-2B-CA-E2

EDIT

Figure 13. VCA 100 Default Web Pages — Network

The Edit Network Settings page allows you to set DHCP **Off** or **On**.

- If DHCP is set to **Off** (see figure 14, right, **1**), you can edit the IP Address (**2**), Subnet (**3**), Gateway (**4**), and DNS Server (**5**) values.
- If DHCP is set to **On**, these values are not available for editing (see figure 14, left, **1**).
- The MAC Address (**6**) is read-only.

Network

Device Name / Hostname
A-VCA100-CA-E2

DHCP **1**

IP Address

Subnet Mask

Default Gateway

DNS Server

MAC Address
3C-EC-EF-2B-CA-E2

SAVE **CANCEL**

Network

Device Name / Hostname
A-VCA100-CA-E2

DHCP **1**

IP Address
192.168.254.254 **2**

Subnet Mask
255.255.255.0 **3**

Default Gateway
10.113.128.100 **4**

DNS Server **5**

MAC Address
3C-EC-EF-2B-CA-E2 **6**

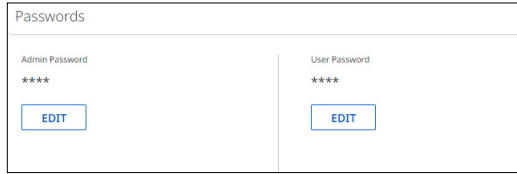
7 **8**

SAVE **CANCEL**

Figure 14. Edit Network Settings

1. Obtain the following network information from your network administrator:
 - Dynamic Host Configuration Protocol (DHCP) status (on or off).If DHCP is off, you will also require:
 - IP address (default 192.168.254.250)
 - Subnet mask (default 255.255.255.0)
 - Gateway (default 0.0.0.0)
 - (optional) DNS Server (default 127.0.0.1)
2. Open the VCA 100 **Network** panel and click **EDIT** (see figure 13).
3. If required, edit the Device Name/Hostname (see figure 14). By default this is the name of the product followed by the last six hexadecimal integers from the MAC address.
4. Set DHCP to **Off** or **On**. If DHCP is **on**, none of the other values can be edited.
5. If DHCP is set to **off**, click inside the IP Address text box (**2**) to highlight the existing value.
6. Delete that value and enter the desired value.
7. Repeat steps 5 and 6 to update the Subnet, Gateway, and DNS Server values.
8. Click **SAVE** (**7**) to save the changes and exit or **CANCEL** (**8**) to exit without saving the changes.

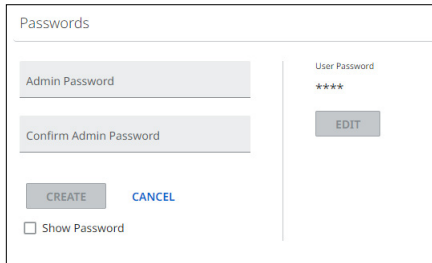
Passwords



The screenshot shows a web page titled "Passwords". It is divided into two columns. The left column is labeled "Admin Password" and contains a text box with four asterisks (****) and a blue "EDIT" button below it. The right column is labeled "User Password" and contains a text box with four asterisks (****) and a blue "EDIT" button below it.

Figure 15. VCA 100 Default Web Pages — Passwords

1. Click **EDIT** to change either the Admin or User password. Both passwords are changed in the same way.



The screenshot shows the "Admin Password" change form. It has a title "Passwords" at the top. On the left, there are two text boxes: "Admin Password" and "Confirm Admin Password". Below these are two buttons: "CREATE" (grey) and "CANCEL" (blue). At the bottom left is a checkbox labeled "Show Password". On the right side, there is a "User Password" field with four asterisks (****) and a grey "EDIT" button.

Figure 16. Change the Admin Password

2. Enter the new password in the Admin Password text box.
3. Enter the new password a second time in the Confirm Admin Password text box.
4. Click **CREATE** to save the changes or **CANCEL** to exit without saving the changes.

For information about Admin and User access on the VCA 100 default web pages, see [Accounts](#) on page 16.

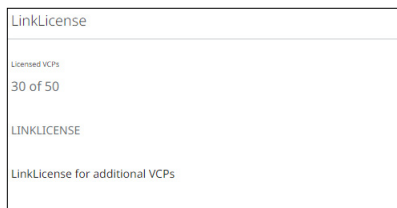
The initial password, set at the factory, is the unit serial number.

If a [Full Factory Reset](#) (see page 13) is performed, the device passwords change to the default configuration. The default password is `extron` (for both the admin and user accounts).

If you forget your password, you can recover it (see [Password Recovery \(Admin Password Only\)](#) on page 15).

LinkLicense

Provides information about the number and type of LinkLicenses associated with the VCA 100.



The screenshot shows a web page titled "LinkLicense". It displays "Licensed VCPs" as "30 of 50". Below this, there is a section labeled "LINKLICENSE" with the text "LinkLicense for additional VCPs".

Figure 17. VCA 100 Default Web Pages — LinkLicense

- For VCAs, the text shows LinkLicenses for additional VCPs.
- For VCPs, the text shows User Interface.

For more information about LinkLicenses, see [LinkLicenses](#) on page 38.

Firmware

Provides read-only information about the firmware version currently installed on the VCA 100 and the date when it was installed.

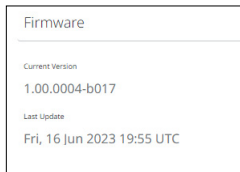


Figure 18. VCA 100 Default Web Pages — Firmware

For information about updating firmware, see [Firmware Updates](#) on page 45.

About Page

The About VCA 100 page provides read-only information about the VCA 100.

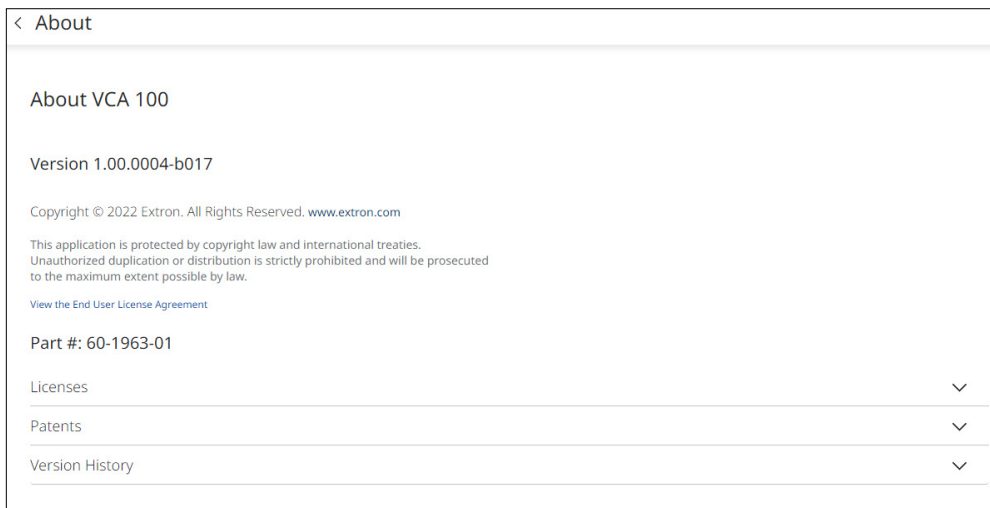


Figure 19. About VCA 100

You can find information about:

- Current firmware version
- Copyright information
- End User License Agreement
- Part number
- Licenses (click to expand the panel)
- Patents (click to expand the panel).
- Firmware Version History (click to expand the panel)

Virtual Control Settings Home Page

If required, click the **Virtual Controllers** icon in the menu bar (see figure 20, ❶).

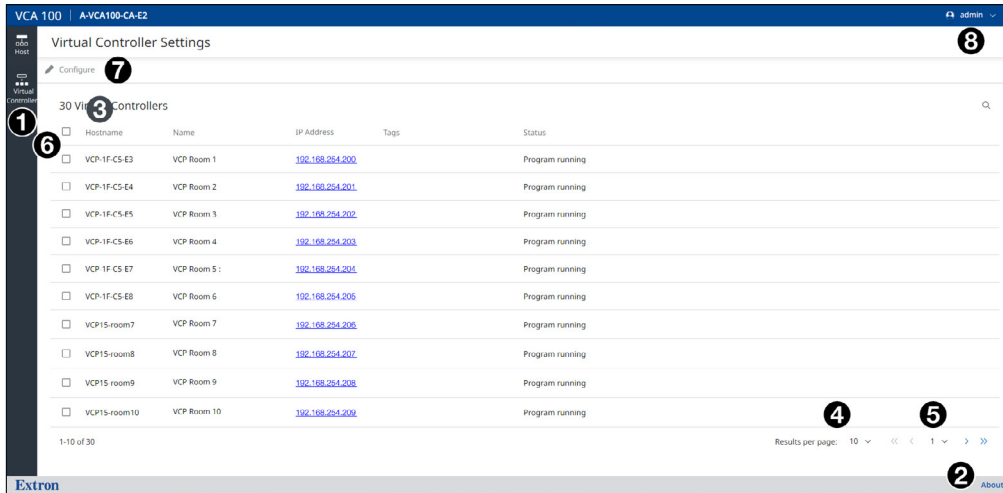


Figure 20. Virtual Controller Settings

The menu bar (❶) and link to the **About** link (❷) are on all of the default web pages.

All the active virtual control processors are listed on the home page (❸).

By default, ten processors are shown on each page. This can be changed by selecting from the **Results per page** dropdown list (❹). Use the navigation tools (❺) to move between pages.

From this page you can open the VCP default web pages or configure one or multiple virtual control processors.

VCP Device Utilities

1. Click on any of the VCP IP hyperlinks (❸) to open the Device Utilities page for that VCP. The Device Utilities is the landing page for the VCP default web pages.
2. You are prompted to enter a username and password.

The VCP Device Utilities web page for that VCP opens:

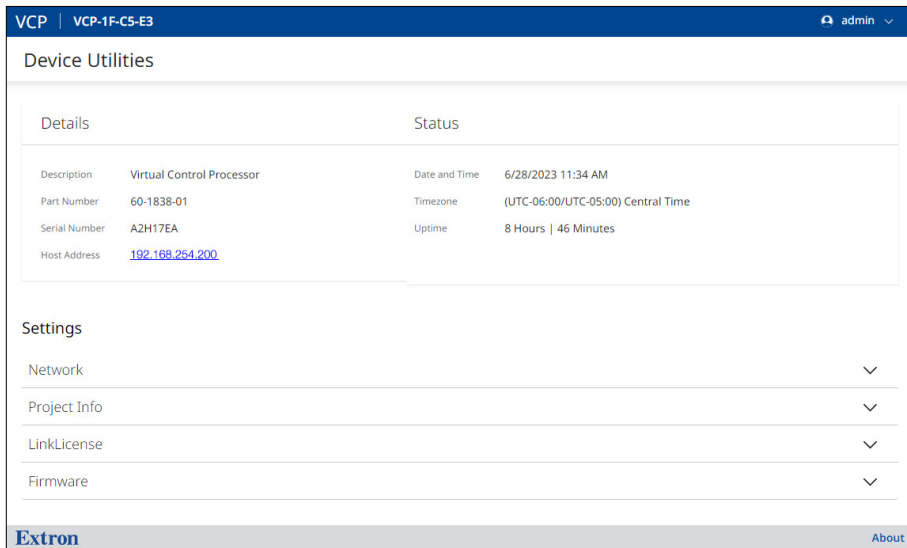


Figure 21. VCP Device Utilities

The VCP Device Utilities page shows **Details** and **Status** about the virtual control processor.

It also has the following expandable sections for settings:

- [Network](#)
- [Project Info](#)
- [LinkLicense](#)
- [Firmware](#)

3. Click on the section heading to expand that section.

Network

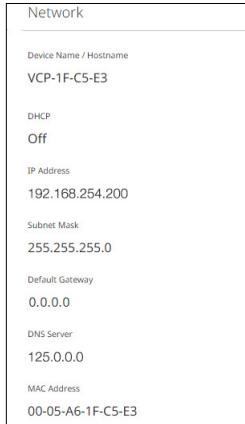


Figure 22. VCP Network Section

The Network section provides read-only information about the Device Name/Hostname, DHCP status (**on** or **off**), IP Address, Subnet Mask, Default Gateway, DNS Server, and MAC Address.

These settings cannot be edited on this page. To edit network settings, see [NETWORK Tab](#) on page 29.

Project Info

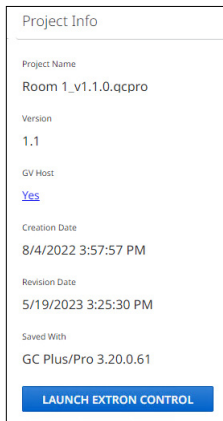


Figure 23. VCP Project Info Section

The Project Info section provides read-only information about the GCP project.

Click the **Yes** link under GV Host to open Global Viewer.

Click **LAUNCH EXTRON CONTROL** to view all the connected Extron Control devices in the project. In [figure 24](#) on page 26, it is a TLP Pro 1725TG.

Name	Device Type	Controller Link
TLP Pro 1725TG : 10.113.132.43	TLP Pro 1725TG	🔗

Figure 24. Extron Control Device

LinkLicense

The LinkLicence section provides read-only information about the LinkLicence associated with the VCP. If the field shows no LinkLicence information then no license has been applied to the product.

For more information about LinkLicenses, see [LinkLicenses](#) on page 38.



Figure 25. VCP LinkLicense Section

Firmware

The Firmware section provides read-only information about the firmware applied to the VCP and the date and time when it was last updated. When the VCP is using factory firmware, this section will be updated to show the version of factory firmware running on the VCP.

Firmware cannot be updated from the default web pages. To update firmware, see [Firmware Updates](#) on page 45.

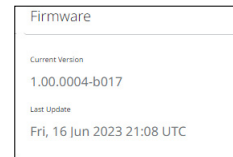


Figure 26. VCP Firmware Section

Configure VCPs

GENERAL Tab

1. Select one or more devices by selecting the desired check boxes (see [figure 20](#), [6](#), on page 24). You can select all devices by selecting the check box at the top of the column.
2. Click **Configure** ([7](#)).

The Configure Virtual Controllers page opens with the **GENERAL** tab (see [figure 27](#), [1](#)) selected.

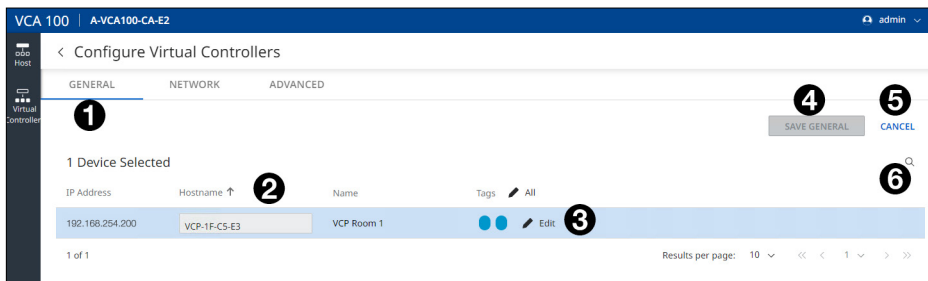


Figure 27. Configure Virtual Controllers — General Tab

3. If required, edit the Hostname ([2](#)).

4. If required, edit the Tags (see [figure 27](#), [3](#), on page 26 and “Edit Tags” below).
5. Click **SAVE GENERAL** ([4](#)) to save the changes or **CANCEL** ([5](#)) to undo any changes to the GENERAL tab.

NOTE: When unsaved changes have been made to the settings on the **GENERAL** tab, an asterisk appears next to the word **GENERAL** and the **SAVE GENERAL** button becomes active. When the changes are saved, the asterisk disappears.

If you selected more than one VCP, you can sort them in ascending or descending alphanumerical order by clicking the **Hostname** heading.

If required, you can search for a specific VCP ([6](#)).

Edit tags

Multiple VCPs

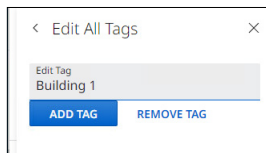


Figure 28. Edit All Tags — ADD TAG

To add tags to all (or multiple) VCPs

1. Select some or all VCPs (see [figure 20](#), [6](#), on page 24).
2. Click **Configure** ([7](#)).
3. Click **All** at the top of the Tags column (see [figure 27](#), [3](#)).
4. Enter the tag name in the Edit Tag text box (see figure 28).
5. Click **ADD TAG**.
6. Click **APPLY** to save all the changes or click **X** (in the top right corner) to close the dialog without saving the changes.

To remove tags from all (or multiple) VCPs

1. Select the VCPs as described in steps 1-3 for adding tags.
2. Enter the tag name in the Edit Tag text box (see figure 28).
3. Click **REMOVE TAG**.
4. Click **APPLY** to save all the changes or click **X** (in the top right corner) to close the dialog without saving the changes.

Add tag to a single VCP

1. Click **Edit** next to an individual VCP (see [figure 27](#), ③, on page 26).

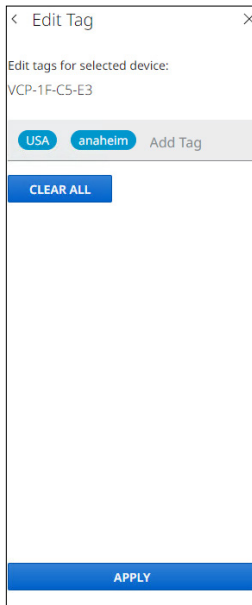


Figure 29. Edit Tag Dialog

2. Click **Add Tag** to add a new tag to the selected device.
3. Click **APPLY** to save all the changes or click **X** (in the top right corner) to close the dialog without saving the changes.

Remove all tags from a single VCP

1. Click **Edit** next to an individual VCP (see [figure 27](#), ③).
2. Click **CLEAR ALL** to remove all pre-existing tags from the selected device.
3. Click **APPLY** to save all the changes or click **X** (in the top right corner) to close the dialog without saving the changes.

Remove a single tag from a single VCP

1. Click **Edit** next to an individual VCP (③).
2. Click inside the **Add Tag** text box and click the **<Backspace>** key.
This removes the tag at the end of the list. For example it would remove `anaheim` from the list of tags in [figure 29](#).
3. Click **APPLY** to save all the changes or click **X** (in the top right corner) to close the dialog without saving the changes.

NETWORK Tab

The VCP **NETWORK** tab allows you to edit the network settings for the VCP.

If you have more than one device, you can sort them by Hostname in ascending or descending alphanumeric order by clicking on the Hostname column heading.

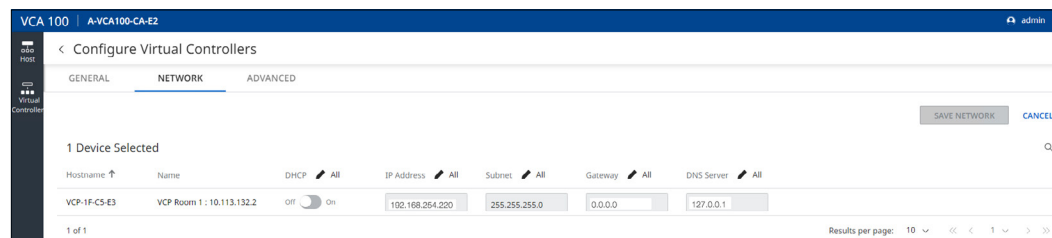


Figure 30. Single device on NETWORK Tab

To edit the settings for a single VCP, click inside the text box for the setting you wish to change and make the edits. Click **SAVE NETWORK** to save the changes or **CANCEL** to undo any changes since edits were last saved.

The screenshot shows the 'Configure Virtual Controllers' interface with 5 devices selected. The table below shows the network configuration for five VCPs.

Hostname	Name	DHCP	IP Address	Subnet	Gateway	DNS Server	
VCP-1F-C5-E3	VCP Room 1	Off	On	192.168.254.201	255.255.255.0	0.0.0.0	127.0.0.1
VCP-1F-C5-E4	VCP Room 2	Off	On	192.168.254.202	255.255.255.0	0.0.0.0	127.0.0.1
VCP-1F-C5-E5	VCP Room 3	Off	On	192.168.254.203	255.255.255.0	0.0.0.0	127.0.0.1
VCP-1F-C5-E6	VCP Room 4	Off	On	192.168.254.204	255.255.255.0	0.0.0.0	127.0.0.1
VCP-1F-C5-E7	VCP Room 5	Off	On	192.168.254.205	255.255.255.0	0.0.0.0	127.0.0.1

Figure 31. Multiple Devices on NETWORK Tab

To edit more than one device at the same time:

1. Select the checkboxes for those devices on the home page (see [figure 20](#), [6](#), on page 24).
2. Click the **NETWORK** tab. The devices are listed as shown in figure 31.
3. Click **All** at the top of the column you wish to edit and make the change.

If you change the DHCP setting or the Subnet, Gateway, or DNS server, that change is applied to all VCPs.

4. To change the IP address, click **All** at the top of the column and enter a new IP address for the first VCP. New consecutive IP addresses are assigned to all VCPs.

For example, if you enter 192.168.254.201, this value is assigned to the first VCP. The remaining VCPs are assigned the next available numbers in sequence:

- 192.168.254.202
- 192.168.254.203, and so forth.

NOTES:

- Each IP address must be unique. If a VCP already has the next IP address in the sequence, the next available IP address after that is assigned to the next VCP. For example, if 192.168.254.204 is already taken, the next VCP will be assigned 192.168.254.205.
- If one or more VCPs have DHCP set to **On**, those VCPs are not assigned a new value. The next available IP address is assigned to the next VCP that has DHCP set to **Off**.

- Click **SAVE NETWORK** to save the changes or **CANCEL** to undo any changes since edits were last saved.

NOTES:

- When unsaved changes have been made to the settings on the **NETWORK** tab, an asterisk appears next to the word **NETWORK**. When the changes are saved, the asterisk disappears.
- If, by setting a static IP, the VCPs become unroutable, check the values entered and use the network tab to reset the values.

VCP Advanced Settings

The **ADVANCED** tab allows you to recover projects, start programs and reset the VCP settings to factory defaults. If you have more than one device, you can sort them by Hostname in ascending or descending alphanumeric order by clicking on the Hostname column heading (see figure 32, ❶).

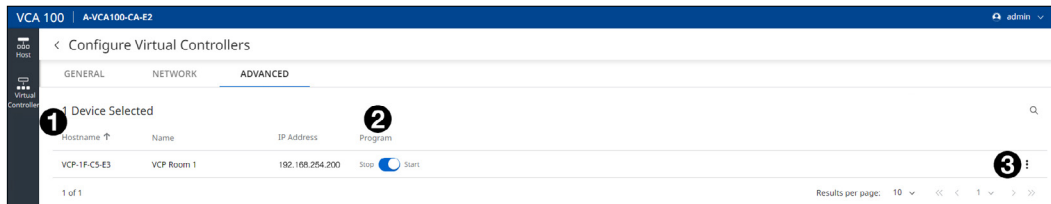


Figure 32. Configure Virtual Controllers Advanced Tab

- For VCPs that have a program loaded, you can toggle between stopping and starting that program (❷).
- Click the three dots (❸) associated with a VCP to open the Advanced Recovery menu for that VCP.

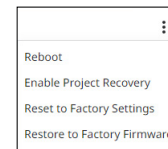


Figure 33. Advanced Recovery Menu

NOTES:

- These functions can be performed only on individual VCPs. You cannot perform these functions on multiple VCPs simultaneously.
- If performing these actions sequentially, wait for the banner showing an action has been completed successfully to disappear before performing the next action.

The options are:

- Reboot** — Click **Reboot** to reboot the VCP.
- Enable Project Recovery** — Click **Enable Project Recovery** to connect to the VCP from Extron software, so that project files can be retrieved and saved.
- Reset to Factory Settings** — Click **Full Factory Reset** to perform a complete reset of the VCP to its factory default settings. All user-loaded files and configurations are removed. The current firmware version is maintained.

When you press this option, the Reset to Factory Settings dialog box opens. Press **CONTINUE** or **CANCEL**.

- Restore to Factory Firmware** — The unit reverts to factory-installed firmware. Use this recovery action in the event of a firmware update failure. The factory firmware allows the VCP to receive a firmware update. All user files and settings such as drivers, adjustments, and IP settings are maintained.

NOTE: While in this reset mode, any programs running in the VCP are stopped. Programs resume after firmware is loaded to the VCP.

Software-based Configuration and Control

This section of the user guide provides information about:

- [Configuration and Control: An Overview](#)
- [Basic Setup Steps: a Guide to this Section and Other Resources](#)
- [Downloading Software and Getting Started](#)
- [Using the Software](#)
- [Troubleshooting](#)

Configuration and Control: An Overview

The VCPs must be configured before use in order to recognize and accept commands and pass them on to the controlled devices. They can be configured and controlled via a host computer connected to the same network as the control processor (see LAN (Ethernet) connectors and LEDs on page 30 for details about LAN port and cabling to connect the control processor to the network).

- Configure the VCPs by using the Global Configurator software (GC Professional or GC Plus) (see the Extron website for full system hardware and software requirements for GCP), or program it using Global Scriptor or a combination of ControlScript Extension for VS Code and ControlScript Deployment Utility.
- The default web pages embedded within the control processor provide a means to view general hardware information, network settings, and, if configured, project information.

You cannot configure the control processor via the embedded web pages.

Basic Setup Steps: a Guide to this Section and Other Resources

NOTE: GCP projects can be created offline and uploaded to the hardware at a later date.

Follow the steps in [Setup Checklist: How to Proceed With Installation](#) (see page 5). The overall process for setting up a control processor using GCP is as follows:

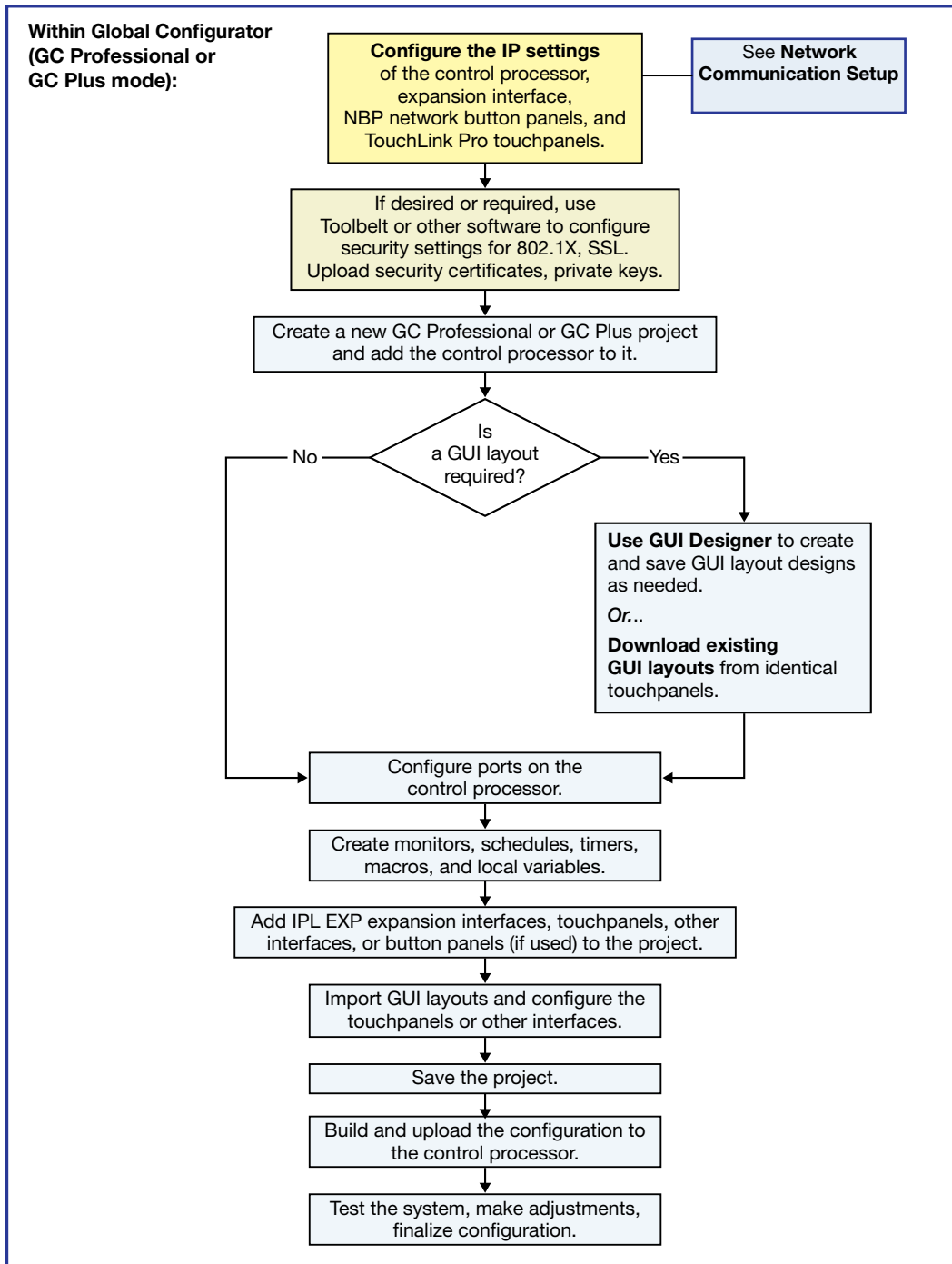


Figure 34. Overall Configuration Steps

Downloading Software and Getting Started

GCP software updates and a large variety of device drivers can be downloaded from the Download page on the Extron website (www.extron.com/download/index.aspx).

When you locate the desired software or driver package, follow the on-screen directions to download and install it.

NOTE: New RS-232 and Ethernet drivers are required. Use serial and Ethernet drivers developed specifically for the IP Link Pro xi platform. With the exception of IR device drivers, drivers used for the previous generation IP Link (non-Pro) control processors are not compatible.

Locating Software, Firmware, and Driver Files on the Extron Website

There are two main ways to find software, firmware, and device drivers within www.extron.com:

- Via the Download Center page (Click on the **DOWNLOAD** tab at the top of any page within the Extron website.)
- Via links from search results

NOTE: For some software you have the option to click the **Download** button to begin downloading the software file. For other software there is a link for contacting an Extron support representative who can provide you access to the latest version.

To obtain Extron control product software, you must have an Extron Insider account and contact an Extron support representative. Extron provides training to our customers on how to use the software. For Global Configurator Professional, you must first attend Extron training, pass a proficiency test, and achieve Extron Control Professional Certification before being able to access all the features of that program.

Via the Download Center page

1. Click on the **DOWNLOAD** tab at the top of any page within the Extron website to access the Download page.
2. Click on the link for the desired software product category (such as **Software**, **Firmware**, or **Control System Drivers**) in the center of the screen. A page opens that allows you to make more specific selections from within that category.
3. For software, click on the link for the specific software that you need. A software product page opens that provides a description of the software package, a list of system requirements, a list of features, and access to the release notes, in addition to a download link.

For drivers:

- a. Click **Control System Drivers**.
 - b. Select the name of the control processor from the drop-down list.
 - c. Click **Download current Pro Series driver** package (located directly below the search fields). This contains all the available drivers supported by the control processor.
Alternatively, search for, locate, and select the device or devices for which you need a driver file.
 - d. To download a single driver rather than the package, click on the appropriate link in the row for the product you want to control to download the driver or to download the “communication sheet.” The communication sheet provides details that may be helpful for working with the product and its control driver.
4. For some software you can click the **Download** or **Download Now** button to begin downloading the software file. For other software there is a link for contacting an Extron support representative who can provide you access to the latest version.

For drivers, navigate through the alphabetically arranged list to select and download a driver for a specific device.

Via links from search results

1. Type the specific name of the software package (such as Global Configurator Plus or Professional [GCP] or GUI Designer) into the Search field in the upper right of the Extron web page and click the magnifying glass icon. A search results page appears.
2. Click on the name of the software package. A software product page opens that provides a description of the software package, a list of system requirements, a list of features, and access to the release notes, in addition to a download link.
3. For some software you can click the **Download** or **Download Now** button to begin downloading the software file. For other software there may be a link for contacting an Extron support representative who can provide you access to the latest version.

Obtaining Control Drivers

Extron provides an extensive selection of device drivers available on the Extron website. Ethernet, serial, and infrared (IR) device drivers (for controlling projectors, displays, DVD players, document cameras, and so forth) are available as individual device driver files. Prior to configuration, download driver files for products to be used in the installation.

NOTE: For serial or Ethernet devices, IPCP Pro xi Series control processors require IP Link Pro drivers. They do not support serial or Ethernet drivers that were created for IP Link (non-Pro) products. However, existing Extron IR driver files are supported.

If the system requires a driver that is not already available, you have additional options:

- Request a new serial (RS-232) or Ethernet driver from Extron.
- Create your own custom IR driver using Extron IR Learner Pro software. Following the directions in the IR Learner Pro Help File, use the remote control of an AV device and the IR receiver port on the front panel of the IPCP Pro xi to capture commands and create a device-specific driver.

Things to Do After Installing GCP and Before Starting a Project

- Read the *Global Configurator Plus or Professional Help File*, included with the software, for details and step-by-step procedures on how to start a GCP project and perform basic setup tasks for a control processor. The help file provides a wealth of information on settings and how to use the software. It includes examples of how to use the features of GCP and step by step instructions for typical configuration tasks.
- Obtain network addresses and related information from your network administrator.
- Set up the IP address for the control processor. See [Network Communication Setup](#) on page 8 for an overview of how to set up the network properties of the unit. For details, see the GCP help file or Toolbelt help file. The help files contain instructions on how to set the IP address, gateway IP address, subnet mask, mail server IP address, domain name, web port, SMTP username, and SMTP password so that the IPCP is able to communicate with the network.

Using GCP: Helpful Tips

Resources and notes

The VCA 100 and VCP Setup Guide is shipped with the unit. It includes a quick reference to the front and rear panel features, and covers basic hardware installation.

See [Front Panel Features](#) on page 8 and [Ports, Addressing and Connections](#) on page 11 in this guide for features and settings for the ports you are configuring.

If you plan to configure the VCPs at the installation site, Extron recommends downloading drivers for all the devices in the installation before you go out to the site.

The GCP project file (*.gcp_{pro} or *.gcp_{plus}) contains configuration settings and it can be saved to a directory or folder for backup or for installation on another VCP. Saving a configuration is recommended before you perform a firmware upgrade.

- IP address, subnet mask, and gateway address are required during network setup of the control processor.
- The unit name is any name (for example, Room730-VCA100 or ConfRmSystem) that you want to use to label a specific VCP. The default is a combination of the product name and part of the hardware (MAC) address. This can be changed to your choice of alphanumeric characters and hyphens (-). The following rules apply:
 - Spaces are not permitted within the name of a unit or at the start or the end of a name.
 - Underscores (_) are not permitted.
 - Valid characters are A-Z, a-z, 0-9, and - (hyphen).
 - The unit does not distinguish between upper and lower case letters.
 - The name cannot start with a number or a hyphen, and it cannot end with a hyphen.
 - Maximum name length is 63 characters.

GCP, GUI Configurator, Global Scripter, ControlScript Deployment Utility, and Toolbelt can all be downloaded from www.extron.com.

NOTE: Ensure you are downloading the correct software. These products are not compatible with Global Configurator 3 or GUI Configurator.

1. Select the **DOWNLOAD** tab (see figure 35, ❶).
2. Click the Software (❷) option at the bottom of the page.

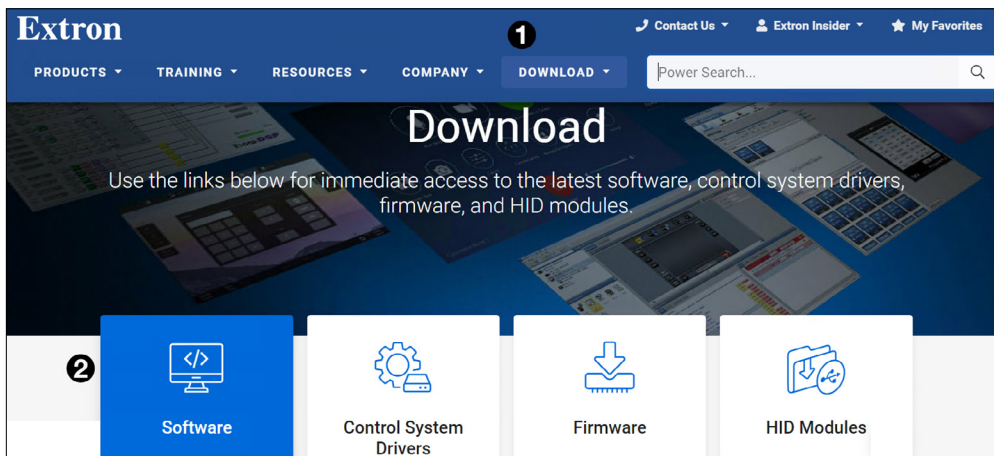


Figure 35. Software Downloads from the Extron Website

- You may see the product immediately, for example Global Configurator Plus and Professional (see figure 36, ①). Use the left and right arrows (②) to scroll through all the highlighted products. If the software is not shown, click the initial letter of the product in the alphabet menu (③).

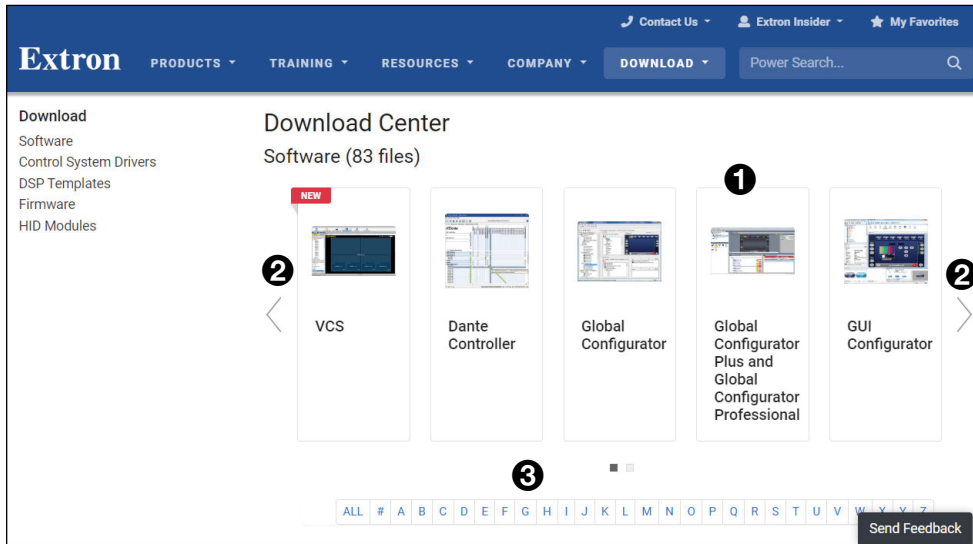


Figure 36. Software Download Center

- Clicking directly on the product name takes you to the product page, which provides more information about the software. Click **Download** and, on the new page, provide the information requested. An executable file (.exe) is placed in your default Downloads folder.

Clicking on a letter from the alphabet menu generates a list of software products with that initial letter. Scroll through the search results until you find the desired product. Click **Download** and, on the new page, provide the information requested. An executable file (.exe) is placed in your default Downloads folder.

NOTES:

- If you select Global Configurator Plus and Professional, there is a check box that allows you to download Toolbelt at the same time.
- You need an Extron Insider account to run Global Configurator Plus and Professional or Toolbelt. To obtain one, contact the Extron Sales Department.
- Ensure you are downloading Global Configurator Plus and Professional.

- Run the executable file to install the software. By default, your computer creates a new folder at C:\Program Files\Extron or C:\Program Files (x86)\Extron.

Using the Software

For VCA 100

Toolbelt — Use the Toolbelt software for device discovery, device information, firmware updates, and configuration of network settings (for more information, see the *Toolbelt Help File*).

For VCPs

GUI Designer and Global Configurator Plus and Professional — Use GUI Designer and Global Configurator Plus and Professional to design and configure a graphical user interface (GUI) for the VCPs.

Global Scripter— Global Scripter is an alternative to Global Configurator Plus and Professional that allows users familiar with programming with Python to program the elements of the GUI.

ControlScript Deployment Utility and ControlScript Extension for VS Code — for programming the control processor (as an alternative to Global Scripter).

For more information, see the help file for the software.

Troubleshooting

Turn on the input devices (DVD players, Blu-ray players, PCs, and other sources), output devices (display screens, projectors), the control processor, and the PC and touchpanel or eBUS button panels. Touch a configured button on the touchpanel or eBUS button panel.

If an input or output AV device cannot be remotely controlled (does not respond as expected), check the following:

- [Power Connections](#)
- [Data Connections](#)

Power Connections

- Ensure that all devices are plugged in.
- Make sure that each device is receiving power. The VCA 100 front panel power LED lights if the VCA 100 is receiving power.

Data Connections

1. Check the cabling connections and make adjustments as needed. The Link LEDs on the VCA 100 and on the touchpanel, network button panel, or PC should be lit green steadily if a network connection is detected. If these LEDs are not lit, either the cable is faulty or not plugged in, or the wrong type of cable is being used.
2. Try to “ping” the unit by entering one of the following at the command prompt on the PC:
 - ping 192.168.254.250
 - or ping the IP or web address provided to you by your system administrator.

If you get no response:

- Make sure your unit is using the appropriate subnet mask (check with your system administrator).
 - Make sure your PC and network do not have a software firewall program that might block the IP address of the IPCP unit.
3. If contact is established with the unit, but the VCA or VCP web pages cannot be accessed by your browser program, verify (via an Internet network options or preferences menu) that your browser is configured for direct network connection and is not set up to use a proxy server.

LinkLicenses

- [What is an Extron LinkLicense?](#)
- [How Customers Obtain a LinkLicense](#)
- [Applying a LinkLicense](#)

What is an Extron LinkLicense?

An Extron LinkLicense is a quick, cost-effective way for people to add even more powerful capabilities to Extron products. It is applied per-system, enabling you to enhance the capabilities and performance where and when you need it.

Each type of LinkLicense unlocks a unique set of features that add convenience and expand the functionality available in your system. Different types of LinkLicense unlock different features on the device to which it is applied. For example a license applied to a VCA 100 expands the number of virtual controllers that device manages. When a license applied to a VCP, it allows the VCP to use third-party devices, such as iPads and tablets, as user interfaces for the system

Activating a LinkLicense on a product is quick and effortless, so you can take immediate advantage of all the benefits.

How Customers Obtain a LinkLicense

By default, the VCA 100 ships with five VCPs enabled. As your system expands, you may wish to add additional VCPs to your system. Each additional VCP requires a LinkLicense.

All LinkLicenses that can be applied to the VCA 100 and VCP are listed on the VCA 100 product page at www.extron.com.

LinkLicense features are unlocked for a product by purchasing a license, redeeming and activating the file online, and applying it to the device. LinkLicenses applied to VCAs for additional VCPs can be purchased separately or in blocks of five or ten licenses. LinkLicenses applied to VCPs for user interfaces can be purchased individually or in kits.

NOTE: There are different part numbers for different types of LinkLicense and for licenses that are purchased individually or in blocks of multiple licenses.

1. Once one or more LinkLicenses are purchased, the end-user receives a redemption code for each LinkLicense. Go to the Extron LinkLicense Redemption webpage (<https://www.extron.com/download/linklicense.aspx>).

2. Enter the redemption code and the device serial number.

NOTE: For multiple LinkLicenses, even if they are purchased in a kit, each license must be redeemed individually.

3. Once the serial number is verified, follow the prompts to download the LinkLicense activation file from the Extron LinkLicense Redemption webpage or obtain it as an attachment from an automated email.

Applying a LinkLicense

You can apply a LinkLicense using Toolbelt, as follows:

1. Open Toolbelt.
2. Open the **LinkLicense** tab.
3. Press the ... menu button.
4. Find the LinkLicense activation file.
5. Click **Apply**.

The LinkLicense is applied to the device.

NOTE: Once the redemption code is used in the [Extron website](#), the LinkLicense is tied (locked) to the specific device serial number entered into the form. This means that the code cannot be transferred to another device after the code has been used.

Reference Information

This section describes:

- [Network Port Requirements and Licensed Third-party Software](#)
- [File Types: a Key to Extron-specific File Names](#)
- [Secure Sockets Layer \(SSL\) Certificates](#)
- [IEEE 802.1X](#)
- [SNMP](#)

Network Port Requirements and Licensed Third-party Software

Network administrators may find it useful to know which ports, protocols, and services are used by the VCA, VCPs, TouchLink Pro Touchpanels, Global Configurator Plus and Professional software, Toolbelt, and Extron Control (for IP Link Pro control systems). A list of protocols used for inbound and outbound communication for each type of device or software is available in the *Pro Series Control Product Network Ports and Licenses Guide*, part number 68-2961-01, available at www.extron.com.

The host devices, as well as the control processors, use various licensed third-party software packages during operation. To view details about third-party packages and associated licensing, click the **License Information** button in the [Default Web Pages](#) on page 16. A License Information window opens. To view a copy of a listed package license, in the License Information window, click the link in the License column for the relevant package. This opens a copy of the package license in a separate window. A list of licenses is also available in the *Pro Series Control Product Network Ports and Licenses Guide* at www.extron.com.

File Types: a Key to Extron-specific File Names

- .eff** — This is an Extron firmware update file (see Firmware Updates on page 42 for details on firmware updates).
- .eir** — These are IR driver files containing infrared commands. There is a separate .eir file for each device the IPCP controls via infrared communication. This is also the type of file created during IR learning. Via Global Configurator, these files can be imported and associated with one of the IR ports on a control processor.
- .ell** — This is a LinkLicense file. It appears in systems that use a LinkLicense for using a third-party device as a control interface instead of an Extron TouchLink Pro touchpanel.
- .gcplus** — This is a Global Configurator Plus configuration file.
- .gcpro** — This is a Global Configurator Professional configuration file.
- .gdl** — This is a GUI Designer layout created for TouchLink Pro a touchpanel or third-party touch interface.
- .glta** — This is a GUI layout template.
- .gs** — This is a Global Scripter project file.

Secure Sockets Layer (SSL) Certificates

All Extron control devices ship with factory-installed SSL certificates created by Extron. If you want or are required to use a different SSL certificate at your installation site, then you can use system utilities in the Toolbelt software to change the SSL certificate at any time. The Toolbelt Help File provides instructions on how to apply an SSL certificate.

NOTES:

- You must run Toolbelt as an administrator.
- 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.

These devices support standard OpenSSL certificate encodings such as .pem (Privacy-enhanced Electronic Mail) and .der (Distinguished Encoding Rules) file types. PEM file types are ASCII encoded and are the required format for uploading to the Extron control product. DER 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 button panel, control processor, touchpanel, or collaboration receiver.

To properly create the certificate for uploading to Extron control 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.

IEEE 802.1X

Environment Topology

Unlike other Extron devices, VCPs introduce the nuance of virtualization into the environment. The VCA is similar to other devices, but there are some important points to be made about the VCPs: In order to apply changes made to the 802.1X settings of any of the VCPs, the uplink that connects to the physical appliance (the VCA) has to be cycled down and back up. This cycle can be accomplished by setting that link-down and up from the switch or by rebooting the VCA. In figure 37, the red X shows where recycling the link refreshes the 802.1X settings and sends a new request to the Authentication Server.

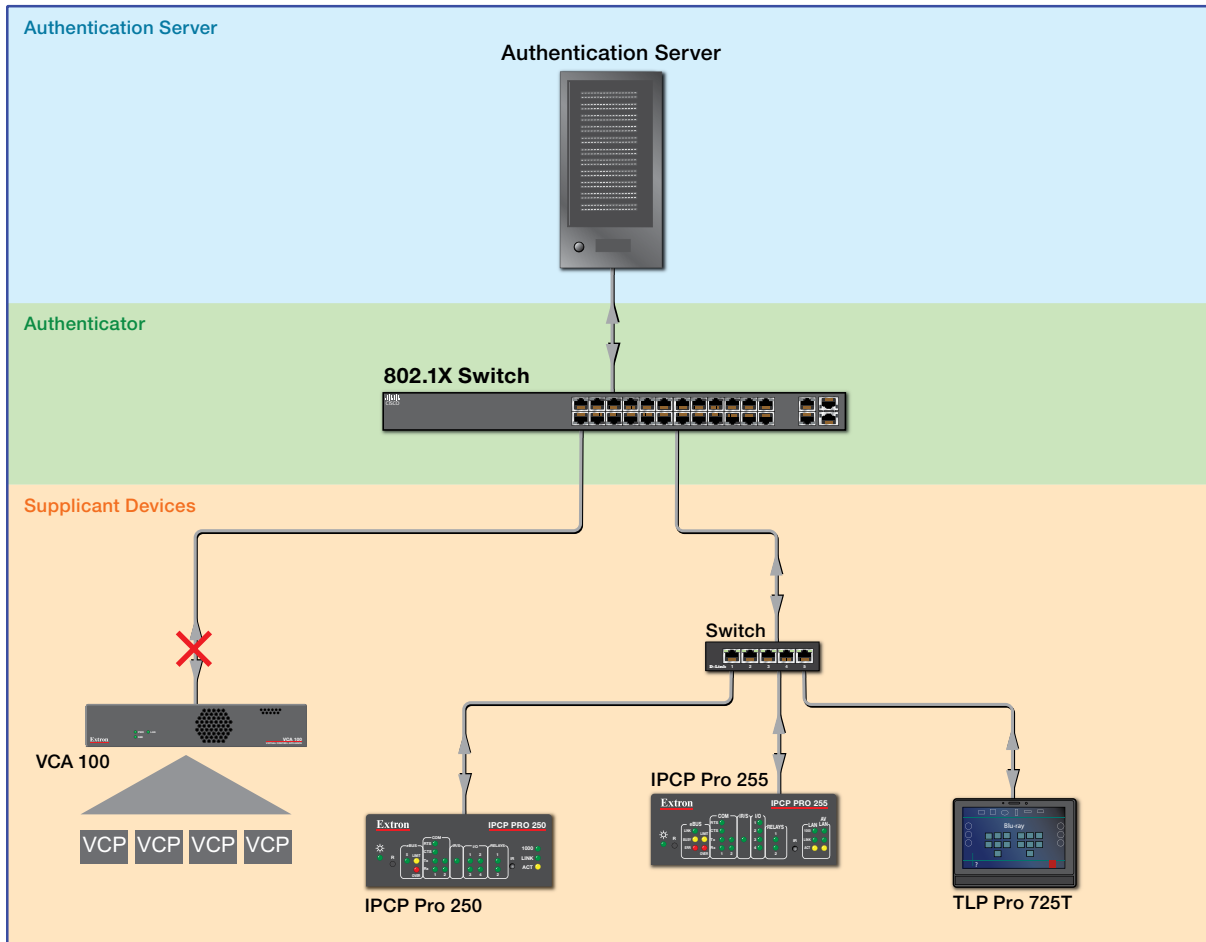


Figure 37. IEEE 802.1X Environment Topology

Configuration

There are settings that get applied at the port level that impact the number of devices that get authenticated. For example, the switchport host modes will determine whether one or multiple devices can be authenticated at the time. The different host modes and their behavior with VCA / VCP are explained below:

- **Single-host:** While in this mode, the switchport will only allow a single host. If the port is configured for single-host only one device will be authenticated even if the 802.1X settings are applied to multiple supplicants.
- **Multi-auth:** While in this mode, multiple devices are allowed to independently authenticate through the same port. Settings will be applied to each supplicant individually and the response will be issued for each device individually.
- **Multi-domain:** While in this mode, one host from the data domain and one host from the voice domain.
- **Multi-host:** While in this mode, the first device to authenticate will open the switchport so that all other devices can use the port. In this mode, the 802.1X configuration can be applied to the VCA, and the communication through the port will be enabled for as long as the VCA is authorized.

Most of these settings are applied at the switch level, so please check the Manufacturer's documentation for more information.

NOTE: For network switch 802.1X configuration, use either **Multi-auth** or **Multi-host** settings:

- **Multi-auth** — the VCA 100 and each VCP need to be authenticated.
- **Multi-host** — the VCA 100 is authenticated. All VCPs gain network access through the VCA 100 authentication.

Certificates

IEEE 802.1X is a standard that enables port-based network access control via an authentication server. The protocol requires that all devices must be authenticated before gaining privileges to access the secure part of the network.

The Extron implementation of 802.1X supports PEAP - MSCHAPV2 and EAP - TLS methods of authentication. This section of the guide details the Certificate File Requirements and the Private Key File Requirements to be used in the system.

Extron provides resources for learning about 802.1X implementation:

- The *Extron 802.1X Technology Reference Guide*, available from www.extron.com, is the primary resource for background information, system planning, topology, and how to set up these systems.
- The *Toolbelt Help File* provides detailed step-by-step information on using the software to set up 802.1X for IP Link Pro control systems and on troubleshooting.
- The *802.1X Primer white paper*, also available from www.extron.com, provides a general overview of the protocol and its use within a control system.

NOTES:

- You must run Toolbelt as an administrator.
- Machine certificates require a private key file, which can be encrypted.

Certificate File Requirements

PEM (Privacy-enhanced Electronic Mail) file types are ASCII encoded, and they are the required format for 802.1X authentication for the TouchLink Pro control systems. DER (Distinguished Encoding Rules) file types are binary encoded and can typically have several file extension variations, such as .crt and .cer.

NOTE: DER encoded files (files with .der, .crt, or .cer extensions that are encoded in DER binary format) must be converted to a PEM encoded file type (.pem) before being used for authentication.

DER encoded certificates must be converted to PEM encoding using a third-party tool. Contact your IT administrator for more information on required tools.

To create the 802.1X security certificate for uploading to Extron TouchLink Pro control systems, ensure that the certificate file meets the following requirements:

- It contains X.509 certificate information.
- It contains a private key (for machine certificates only).
- It is PEM encoded.
- It has a file extension that is .crt or .pem
- Its file name consists of the following types of valid characters:
 - Alphanumerical (A-Z, a-z, 0-9) characters
 - Some special characters (colon [:], underscore [_], and hyphen [-])

NOTE: Spaces are not permitted anywhere in the name.

Private Key File Requirements

Private key files are required only when employing machine certificates. Follow these requirements for creating a private key:

- Its file name consists of the following types of valid characters:
 - Alphanumerical (A-Z, a-z, 0-9) characters
 - Some special characters (colon [:], underscore [_], and hyphen [-])
- It has a file extension that is .key or .pem.
- It can have optional encryption (via password or passphrase).

SNMP

Extron control products support Simple Network Management Protocol (SNMP). SNMP facilitates the exchange of basic network management information between network devices. It helps in monitoring of operations and factors such as packet usage, memory usage, remote password resets, and collection of error information. An information technology administrator can use common IT tools to monitor those factors, as well as look up device location and the name of the contact person for the device.

The SNMP controls within Toolbelt provide a way to enable or disable SNMP. It also allows you to specify related information such as the name of a contact person, the physical location of the unit, and a community name. The text that is specified in these fields is seen by the network community when the unit is queried.

Extron control products support the following security levels:

- Management Information Base 2 (MIB-II)
- SNMPv2c.

Firmware Updates

- [Determining the Firmware Version](#)
- [Updating the Firmware](#)

Firmware for the VCA 100 and VCPs can be updated using Toolbelt. Updating the VCA 100 firmware does not affect the VCP firmware. Firmware for the VCPs must be updated separately.

Determining the Firmware Version

There are several ways to check which firmware version the Extron control device is using:

- View the device information in Toolbelt.
- View the firmware section of the default webpages.

Before using any of those methods, connect the VCA 100 and the PC to the same network. For details see the [Hardware Features and Installation](#) on page 5 and the [Software-based Configuration and Control](#) on page 31.

Using Toolbelt Software

1. Open the Toolbelt software.
2. Either add the desired control device manually or start Device Discovery and select the desired device from the list of discovered devices.
3. Click **Manage** in the row for the desired device and view the device information that appears in that section.

Using the Browser

The VCA comes with embedded [Default Web Pages](#) on page 16.

1. Start a browser program.
2. Enter the IP address of the host appliance (if addressing the VCA) or Extron control device (if addressing the VCA and/or VCPs) into the address field of the browser and log on to the internal web page.
3. Look for the version within one of the information panels.

Updating the Firmware

Locating and Downloading the Firmware

NOTE: The VCA 100 and VCPs use different firmware. Ensure you upload the correct firmware for each product.

1. Open the Extron website and select the **DOWNLOAD** tab (see figure 38, ❶).
2. Click the **Firmware** (❷) option at the bottom of the page.

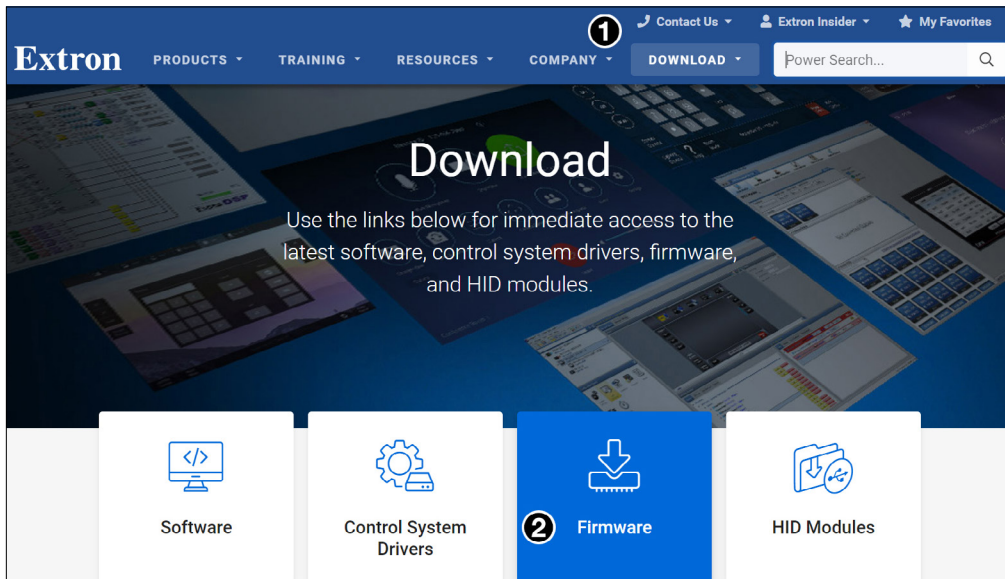


Figure 38. Firmware Download Center

The Download Center Firmware page opens:

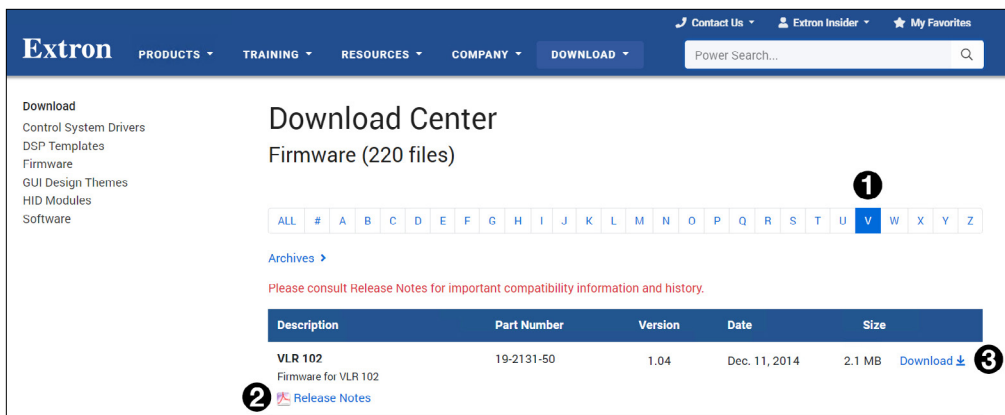


Figure 39. Selecting Firmware to Download.

3. Click the letter **V** from the list of letters (see figure 39, ❶).
4. Scroll down the page until you find the firmware for the VCA 100.

NOTE: Your product will appear in this list only if a new version of the firmware has been released since the product was first introduced.

5. (Optional) Click **Release Notes** (❷) for more information about the firmware.
6. Click **Download** (❸).
7. Follow the on-screen instructions to download the program. An executable file is downloaded to the PC.

Installing Firmware

Go to the Downloads folder and click on the file to install the firmware on the PC. By default, it is stored at C:\Program Files (x86)\Extron\Firmware*<product name>*\<i>firmware version</i>.

Upload this file to the VCA 100 using Toolbelt. For complete information about using Toolbelt to update the firmware, see the *Toolbelt Help File*.

Extron Warranty

Extron warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

**USA, Canada, South America,
and Central America:**

Extron
1230 South Lewis Street
Anaheim, CA 92805
U.S.A.

Asia:

Extron Asia Pte Ltd
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Japan:

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

Europe:

Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:

Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Africa and Middle East:

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

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 if modifications were made to the product that were not authorized by Extron.

NOTE: If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

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

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.

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.