

## VCA 100 and VCP • Setup Guide

### IMPORTANT NOTE:

Go to [www.extron.com](http://www.extron.com) for the complete user guide, installation instructions, and specifications.



The Extron VCA 100 is a Virtual Control Appliance with integrated Virtual Control Processors (VCPs) designed for centralized AV control across the organization. An entry level VCA 100 includes five VCPs and organizations can use LinkLicenses, to enable up to a total of 30 IPCP Pro xi virtual control processors, providing scalable control for the enterprise without recurring licensing fees.

The VCA 100 has one LAN port and can be mounted in a device rack or on or under a table.



VCA 100 features include:

- Centralized AV control using a virtual control system solution — Saves on equipment space and provides the scalability necessary for enterprise applications. Manage, monitor, and control AV devices using a standard Ethernet network.
- 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 — 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.
- Fully customizable using Extron control system software — GUI Designer combined with Global Configurator Plus, Global Configurator Professional, Global Scripter, or ControlScript® Deployment Utility.
- Active virtual control processors are managed and monitored using the Toolbelt utility software, the VCA 100 Admin Console, and GlobalViewer® Enterprise (GVE) resource management software.
- Are compatible and can communicate natively with other control products, such as control system expansion interfaces, IP Link® Pro xi Control Processors, touchpanels and network button panels.
- Supports Ethernet-controllable devices — Allows for control of multiple Ethernet-enabled AV devices such as displays, switchers, and sources.

For a complete list of VCA 100 and VCP features, see the *VCA 100 User Guide* or the VCA 100 product page at [www.extron.com](http://www.extron.com).

This guide provides instructions for an experienced installer to install a VCA and to create basic VCP configurations.

## Setup Checklist: How to Proceed with VCA and VCP Installation

### ATTENTION:

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

### Get Ready

- Familiarize yourself with the features of the VCA and any Extron devices (such as IPL EXP Expansion Interfaces) added to the system.
- Download and install the latest versions of the following software (available from [www.extron.com](http://www.extron.com)):
  - **Toolbelt software** — For discovering and managing the VCA and VCPs and other control products on the network, and for upgrading firmware as needed.

**NOTE:** The VCA 100 Admin Console can also be used to manage the device.

- **GlobalViewer Enterprise (GVE)** — For managing, monitoring, and controlling any device over a standard AV network.
- **Global Configurator (GCP)** software — Running in Global Configurator Professional or Global Configurator Plus mode for configuring the VCP and attached devices.
- **Global Scripter (GS)** software — For programming the VCP (as an alternative to GCP).
- **ControlScript Deployment Utility (CSDU)** software — For programming the VCP (using Extron ControlScript xi).
- **GUI Designer** software — For designing layouts for Extron TouchLink Pro touchpanels and third-party touch interfaces.
- Obtain network information for the unit from the network administrator. You also need the following details for each Ethernet-enabled device within the system:
  - DHCP setting (on or off)
  - Subnet mask
  - Username
  - Device LAN IP address or hostnames
  - Gateway IP address
  - Passwords

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

- Record the VCA 100 and licensed VCP MAC addresses.
- Obtain model names and setup information for devices the VCP will control.
- SSL security certificates and IEEE 802.1X authentication — The VCA 100 as well as its licensed VCPs come with a factory-installed Secure Sockets Layer (SSL) security certificate. IEEE 802.1X authentication is also supported once enabled. See the “Secure Sockets Layer (SSL) Certificates” section of the *VCA 100 User Guide*, at [www.extron.com](http://www.extron.com), for more information.

## Mount and Cable All Devices

- Mount the VCA unit to a rack or furniture (see [Mounting](#) on page 4).
- Connect LAN cable and power cords. Power on all the devices (see [Rear Panel Features and Connections](#) on page 5).

## Set Up the VCA 100 for Network Communication

- Connect the VCA 100 to the PC that you are using for setup, using the LAN port.
- Start Toolbelt and use it to set the DHCP status of the VCA 100. If DHCP is off, use Toolbelt to set the IP address, subnet, gateway address, and related settings for the VCA 100. By default, DHCP is disabled for the VCA 100. See the [Network Communication Setup](#) flowchart on page 4.

**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 (Username.HostName). For example: *somename.extron.com*.

## Apply LinkLicenses for Additional VCPs

- The VCA 100 includes five VCPs, with the ability to enable additional VCPs by applying LinkLicenses. To redeem a LinkLicense, see the “LinkLicenses” section of the *VCA 100 User Guide*.

## Set Up the VCP for Network Communication

- While still connected to a PC, connect the VCA 100 to a network with a DHCP Server. The VCPs are DHCP-enabled by default, so in order to communicate, they need to get assigned an IP address.
- Start Toolbelt or access the VCA 100 default web pages (DWP) to configure the network settings.

## Configure or Program the VCP, Touchpanels, and Any Other Devices in Your System

- The most basic steps are outlined below in the recommended order.

**NOTE:** For step-by-step instructions and detailed information, see the *Toolbelt Help File*, *Global Configurator Help File*, *Global Scripter Help File*, *ControlScript Deployment Utility Help File*, or *GUI Designer Help File* as needed. The *Global Configurator Help File* includes an introduction to the software and instructions for starting and configuring a project.

- If TouchLink Pro or third party touchpanels are part of the system, use GUI Designer to design, save, and build the graphical user interface (GUI) layout for the touchpanels.

- Use GCP or GS to create a new project and configure the VCP and other IPCP Pro xi devices.

**NOTE:** VCPs do not have physical control ports. Secondary IPCP Pro xi Control Processors and System Expansion Interfaces are used to add physical ports when necessary.

The GCP project tells the VCP:

- How Control System Expansion Interface 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
- Add and set up any other peripheral devices (such as Network Button Panels (NBPs), and IPL EXP expansion interfaces). Refer to the relevant software Help files or device manuals.
  - Ensure that the hardware address set on each device is unique and matches the address used in the configuration.
  - Assign button functions as desired.
- Configure ports:
  - Select device drivers and link them to each serial, IR/serial, or Ethernet port.
  - Select serial protocol, relay behavior, digital I/O or flex I/O settings as needed.
- Set up monitors, schedules, macros and local variables.
- Add and set up touchpanels.
  - Add the GUI configuration for each touchpanel to the GCP project.
  - Assign any appropriate functions, monitors, or schedules to the touchpanels and their buttons.
- **If not using GCP, use Global Scripter or ControlScript Deployment Utility** to program the control system as desired.
  - Add any other peripheral devices, (such as Network Button Panels [NBPs] or IPL EXP expansion interfaces) and set them up (refer to the relevant software Help files or device manuals):
    - Ensure that the hardware address set on each device is unique and matches the address used in the configuration.
    - Assign button functions as desired.
  - Program ports:
    - Program each serial, IR/serial, or Ethernet port.
    - Program relay behavior, digital I/O, and flex I/O settings as needed.
  - Add touchpanels and set them up:
    - Upload the GUI configuration for the touchpanels to the project.
    - Program functions, monitors, or schedules to the touchpanels and their buttons.

## Save and Upload the Project

- Save the GCP or GS project.
- Build and upload the system configuration to the control processor and other system devices.

## Test and Troubleshoot

- Test the system (see the *VCA 100 User Guide* for an outline of the system testing procedure).
- Make adjustments to wiring or configuration as needed.

# Network Communication Setup

Network setup is essential prior to configuration. See the flowcharts below for a setup example.

**NOTE:** If using 802.1X security, see the *Extron 802.1X Technology Reference Guide* and the *Toolbelt Help file* (available at [www.extron.com](http://www.extron.com)) for additional details on system setup.

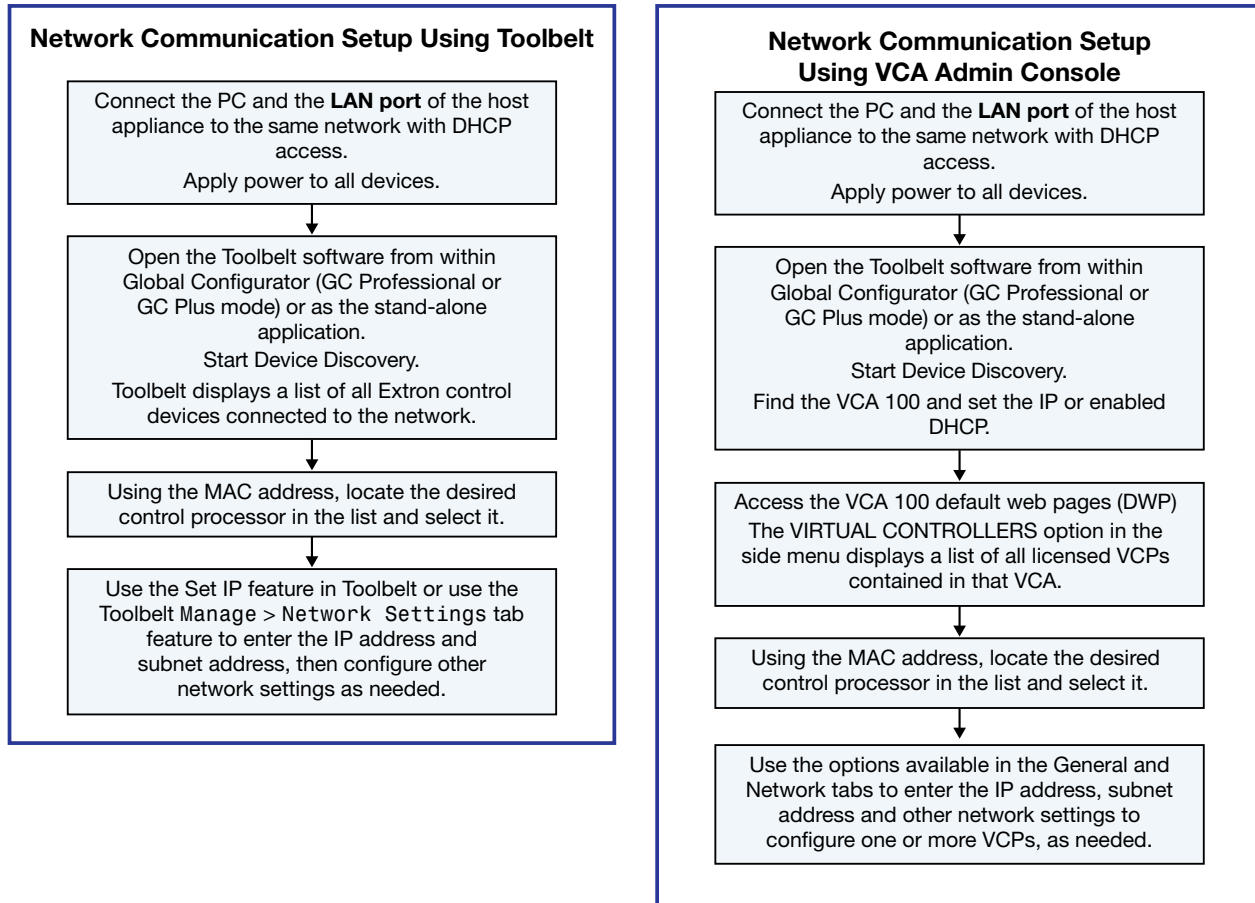


Figure 1. Network Communication Setup Flowcharts

## Mounting

Securely mount the VCA 100 and other devices and attach cables (see [Rear Panel Features and Connections](#) on page 5). Optional 1U rack shelves and furniture mounting bracket kits are available for use with the VCA 100 and any control processors. Read the instructions and UL guidelines that come with the rack shelf or mounting kit for installation procedures.

See the VCA 100 web page at [www.extron.com](http://www.extron.com) for a list of compatible mounting accessories.

# VCA 100 Front and Rear Panel Features

## Front Panel Features



Figure 2. VCA 100 Front Panel

- A Status lights** — Three LEDs indicate status of Power (PWR), Ethernet connection (LAN), and Solid State Drive (SSD).

## Rear Panel Features and Connections

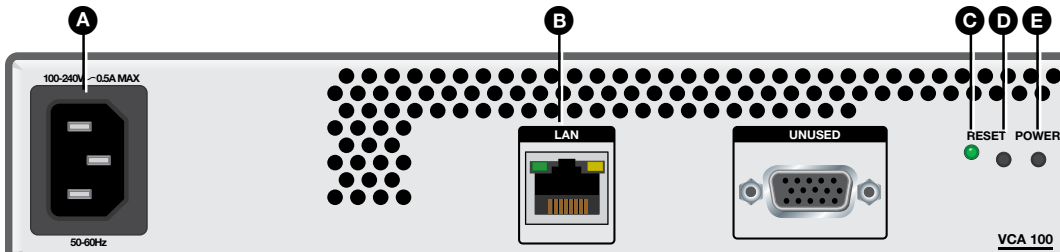


Figure 3. VCA 100 Rear Panel

- A Power Connector** — Connect the provided IEC Power cord to a 100 VAC to 240 VAC, 50-60 Hz power source. The front panel PWR LED indicates power is present.
- B LAN Connector** — Connect the control PC to this RJ-45 socket with integrated link and activity indicators. Use an Ethernet cable, terminated with an RJ-45 connector.
- 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 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.
- C RESET LED** — Provides feedback about the reset status when the user presses the **RESET** button (see [Reset Modes: A Brief Summary](#) on page 8).
- D RESET button** — Using a narrow screwdriver, press this recessed button. Pressing the **RESET** button allows the unit to be reset in any of five different modes, to toggle between enabling and disabling the DHCP client, or to recover passwords (see [Reset Modes: A Brief Summary](#)).
- NOTE:** For full reset mode information, see the *VCA 100 User Guide* at [www.extron.com](http://www.extron.com).
- E POWER button** — Using a narrow screwdriver, press this recessed button.
- To turn the device off, press and hold the **POWER** button for a few seconds until the fans stop running and all LEDs except for the PWR LED in the front are turned off.
  - To power the device on, press the **POWER** button momentarily. The VCA 100 starts booting up.

## VCA Default Web Pages

The embedded default web pages (DWP) for the VCA 100 allow the user to view and access Device Information, Device Status, Network Settings, LinkLicense, Firmware, and Roles and Permissions for the VCA 100 and for all licensed VCPs.

All users (admin and non-admin) can:

- View information about the VCA and licensed VCPs (Device Info, Network settings, firmware version, and Date and time).
- See the list of licensed VCPs and their status.

Admin users can also:

- Apply VCP reset modes such as: Full Factory Reset, and Run Factory Firmware.
- Set the date and time for the VCA.

**NOTE:** Changing the date and time for the VCA affects the date and time of all VCPs contained.

- Change network settings to one or multiple VCPs.
- Add tags to specific VCPs for easy system identification.
- Perform troubleshooting steps including remote reboot as well as stop and restart programs running on the VCPs.

## Opening the Default Web Pages

To open the default web pages:

1. Connect a PC to the VCA 100.
2. Open a browser and enter the IP address for the VCA 100 in the address bar. The Login page opens.
3. Enter a Username (default is Admin or User), then enter the password.

**NOTES:**

- The factory configured passwords for all accounts on the VCA 100 have been set to the device serial number.
- Passwords are case sensitive and can be changed during configuration.
- If the device is reset to default settings, the password is the default password configuration. The default password is extron (for both the admin and user accounts).

## Host Device Settings

The Host device settings shows the device settings for the host VCA 100:

**NOTE:** Unless otherwise stated, all settings are read-only for user accounts. Admin accounts can edit some settings by clicking the appropriate **Edit** link.

- **Details** — shows Description, Part Number, and Serial Number.
- **Status** — shows time and date settings. Admin users can sync these settings to the connected PC, or edit them (see the “VCA 100 Edit Device Status Page” in the *VCA 100 User Guide*, available at [www.extron.com](http://www.extron.com)).
- **Network** — shows Hostname, DHCP status, IP address, Subnet, Gateway, and DNS Server addresses, and MAC address.
- **Firmware** — shows (read-only) the current firmware version running on the VCA 100, and the date and time when firmware was last updated. Use Toolbelt to update the firmware (see the *Toolbelt Help File*, available at [www.extron.com](http://www.extron.com)).
- **LinkLicense** — shows information about applied LinkLicenses.
- **Passwords** — allows Admin users to update the Admin and User passwords.

**NOTE:** To change the passwords, open the VCA 100 Edit Passwords Page.

For full details about editing any of the above settings, see the *VCA 100 User Guide*.


## Virtual Controller Device Settings

The Virtual Controller menu shows the Device Settings for the licensed VCPs.

All licensed VCPs are listed. The list initially shows the HOSTNAME (default includes the last 3 octets of MAC address), NAME (user-friendly, programmed or configured name), IP ADDRESS, user applied TAGS, and PROJECT STATUS.

The list can be ordered by sorting the columns alpha-numerically, done by clicking on the top of the desired column.

A search field allows the user to find a device based on the input search criteria.

Admin users can select the checkboxes next to one or more VCPs that are to be configured. Once the checkboxes are selected, the **Configure** button ( Configure) becomes active. Press this button to open the Configure Virtual Controllers page, which allows admin users to view and make edits to the selected VCP configuration.

**NOTE:** After making changes, click **Save <tab name>** or **Save All** to save the changes to the VCP. Click **Cancel** at any time prior to saving to exit the operation without saving changes.

This page contains the following tabs that can be viewed and edited:

- General tab
  - **View IP address, Hostname, Name, and Tags.**
  - **Edit Hostname** — enter desired text into Hostname field.
  - **Add/edit Tags** — click **Edit** and in the slide out panel, add (or edit) a text tag to help identify the VCP.
- Click **Apply** to apply the changes to the VCP.
- Network tab
  - **View Hostname, Name, DHCP status, IP address, and Subnet, Gateway and DNS Server addresses.**
  - **Turn DHCP on or off.**

**NOTE:** Turning DHCP off resets subnet, gateway and DNS values. Users should make sure the IP address is routable to the gateway and PC IPs before saving the network settings.

- **Edit individual (only with DHCP off) IP address, and Subnet, Gateway and DNS Server addresses.**  
Select the device to be edited and change the values as required.  
OR
- **Edit multiple (only with DHCP off) IP address, and Subnet, Gateway and DNS Server addresses.**  
Select the devices to be edited and click **ALL** next to IP ADDRESS at the top of the column.  
Set the IP address of the first device. All subsequent IP addresses increase in increments of one.
- Advanced tab
  - **View IP address, Hostname, Name, and program status.**
  - **Stop or Start program**
  - **Reboot VCP, enable project recovery, reset to factory settings, restore to factory (installed) firmware** — click on the ellipses at right to open menu and select an option as desired.

**NOTE:** For detailed information on each VCP reset mode and its use, see the *VCA 100 User Guide*, which is available at [www.extron.com](http://www.extron.com).

## Toolbelt

For information about using Toolbelt to configure VCPs, see the *Toolbelt Help File*, which is available at [www.extron.com](http://www.extron.com).

## Configuring or Programming a VCP

For complete instructions, see the *Global Configurator Plus and Professional Help File*.

As an alternative to GCP, you can use Global Scripter or ControlScript Deployment Utility to program the VCP (see the Help Files at [www.extron.com](http://www.extron.com)).

## Reset Modes: A Brief Summary

The VCPs support the same reset modes as the IPCP Pro xi control processors with the exception of Factory Boot Code; VCPs support Use Factory Firmware instead. All the reset modes are available in the ADVANCED tab in the VCA 100 Admin console.

<ul style="list-style-type: none"> <li>• <b>Use Factory Firmware:</b></li> </ul>	<p>Press and hold the rear panel <b>RESET</b> button while applying power to the unit. Keep holding the button until the rear panel RESET LED blinks twice, or for 6 seconds, then release the button. The VCA 100 host appliance runs the factory firmware. VCP firmware versions are not affected by activating this reset mode.</p> <p>If reset mode was activated successfully, the RESET LED in the back blinks slowly to indicate the appliance is running factory firmware.</p> <p>In this mode, the programs running on the VCPs contained in the VCA are stopped, and any attempts to restart them via the VCA DWP or Toolbelt are unsuccessful.</p> <p>Exit this mode by one of the three following methods:</p> <ul style="list-style-type: none"> <li>• Cycle the power to the unit.</li> <li>• Reboot the unit.</li> <li>• Upload new firmware to the unit (see “Updating the Firmware” in the <i>VCA 100 User Guide</i> for details).</li> </ul> <p>Use this mode to temporarily boot up the unit with factory installed firmware for a single power cycle in the event that a firmware update has failed or if incompatibility issues arise with user-loaded firmware.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>NOTE:</b> Do not continue to operate the VCA 100 after executing this reset mode. Firmware must be installed to continue normal operation. See the <i>Global Configurator Help File</i> or <i>Toolbelt Help File</i> for firmware upload instructions.</p> </div>
<ul style="list-style-type: none"> <li>• <b>Toggle DHCP Client:</b></li> </ul>	<p>Press the rear panel <b>RESET</b> button five times (consecutively). Release the button. Do not press the button within 3 seconds following the fifth press. Use this mode to enable or disable the DHCP client for the VCA 100 LAN port.</p> <ul style="list-style-type: none"> <li>• The rear panel RESET LED blinks 6 times if the DHCP client is enabled.</li> <li>• The rear panel RESET LED blinks 3 times if the DHCP client is disabled.</li> </ul> <div style="border: 1px solid black; padding: 5px;"> <p><b>NOTES:</b></p> <ul style="list-style-type: none"> <li>• By default DHCP is off for the LAN port and the unit uses a static IP address.</li> <li>• If DHCP has been enabled, when you disable DHCP, the unit reverts to using the previously-set static IP address.</li> <li>• VCP network settings are not affected by activating this reset mode.</li> <li>• Programs running on any of the licensed VCPs might be momentarily interrupted.</li> </ul> </div>
<ul style="list-style-type: none"> <li>• <b>Reset Network Settings:</b></li> </ul>	<p>Press and hold the rear panel <b>RESET</b> button until the rear panel RESET LED blinks once at 3 seconds and twice at 6 seconds. Release and momentarily press the <b>RESET</b> button within 1 second. The RESET LED blinks 3 times in quick succession upon successful reset.</p> <p>Use this mode to reset the host appliance network settings to factory default values (including disabling 802.1x authentication) without affecting user-loaded files. This reset mode does not reset the licensed VCP network settings.</p> <div style="border: 1px solid black; padding: 5px;"> <p><b>NOTE:</b> Programs running on any of the licensed VCPs might be momentarily interrupted.</p> </div>
<ul style="list-style-type: none"> <li>• <b>Full Factory Reset:</b></li> </ul>	<p>Press and hold the rear panel <b>RESET</b> button for 9 seconds until the rear panel RESET LED blinks once at 3 seconds, twice at 6 seconds, and thrice at 9 seconds. Release and momentarily press the <b>RESET</b> button within 1 second. The rear panel RESET LED blinks 4 times in quick succession upon successful reset.</p> <p>Use this mode to return the host appliance and VCPs to factory default settings. This mode also deletes all user-loaded files and VCP configurations (except LinkLicense files), and it clears messages in the event logs table. User-loaded digital certificates are deleted. The unit continues to run the user-loaded firmware.</p>
<ul style="list-style-type: none"> <li>• <b>Password Recovery:</b> (admin password only)</li> </ul>	<p>Press the rear panel <b>RESET</b> button 3 times (consecutively). The rear panel RESET LED blinks three times. Release and momentarily press the <b>RESET</b> button twice within five seconds. The rear panel RESET LED blinks twice. Within 5 seconds, press and hold the rear panel <b>RESET</b> button (5 seconds) until the rear panel RESET LED blinks 5 times to confirm Admin Password Recovery activation was successful.</p> <p>Use this reset mode to force the VCA 100 admin password back to the default value if the password is lost. This reset mode does not affect the VCA user password or passwords of the licensed VCPs.</p>

For detailed information on each mode and its use, see the *VCA 100 User Guide* at [www.extron.com](http://www.extron.com).



# Resources

## Obtaining Control Drivers

Extron provides an extensive selection of device drivers available on the Extron website. If the system requires a control 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 device driver using IR Learner Pro software. Follow the directions in the *IR Learner Pro Help File* to create a driver by using the remote control for that device and the IR receiver port on the front panel of the IPCP.

## Obtaining Instructions, Information, and Assistance

A checklist of basic setup steps is provided at the beginning of this guide. For additional information see the help files and the *VCA 100 User Guide*, available at [www.extron.com](http://www.extron.com).

If you have questions during installation and setup, call the Extron S3 Sales & Technical Support Hotline or the Extron S3 Control Systems Support Hotline (1.800.633.9876).

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

There are three main ways to find software, firmware, and device drivers within [www.extron.com](http://www.extron.com):

- Via links from the web page for the specific product
- Via the Download page (Click on the **Download** tab at the top of any page within [www.extron.com](http://www.extron.com).)
- Via links from search results

### NOTES:

- For some software, you have the option to click the **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.
- To obtain Extron control product software, you must have an Extron Insider account. Extron provides training to our customers on how to use the software. Access to the full features of Global Configurator Professional is available to those who successfully complete Extron Control Professional Certification.
- IPCP Pro xi Series RS-232 and Ethernet drivers are required. You must use serial and Ethernet drivers developed specifically for the IP Link Pro platform. With the exception of IR device drivers, drivers used for the previous generation of control processors are not compatible.

# Overall Configuration Procedure for the Virtual Control Processor (VCP)

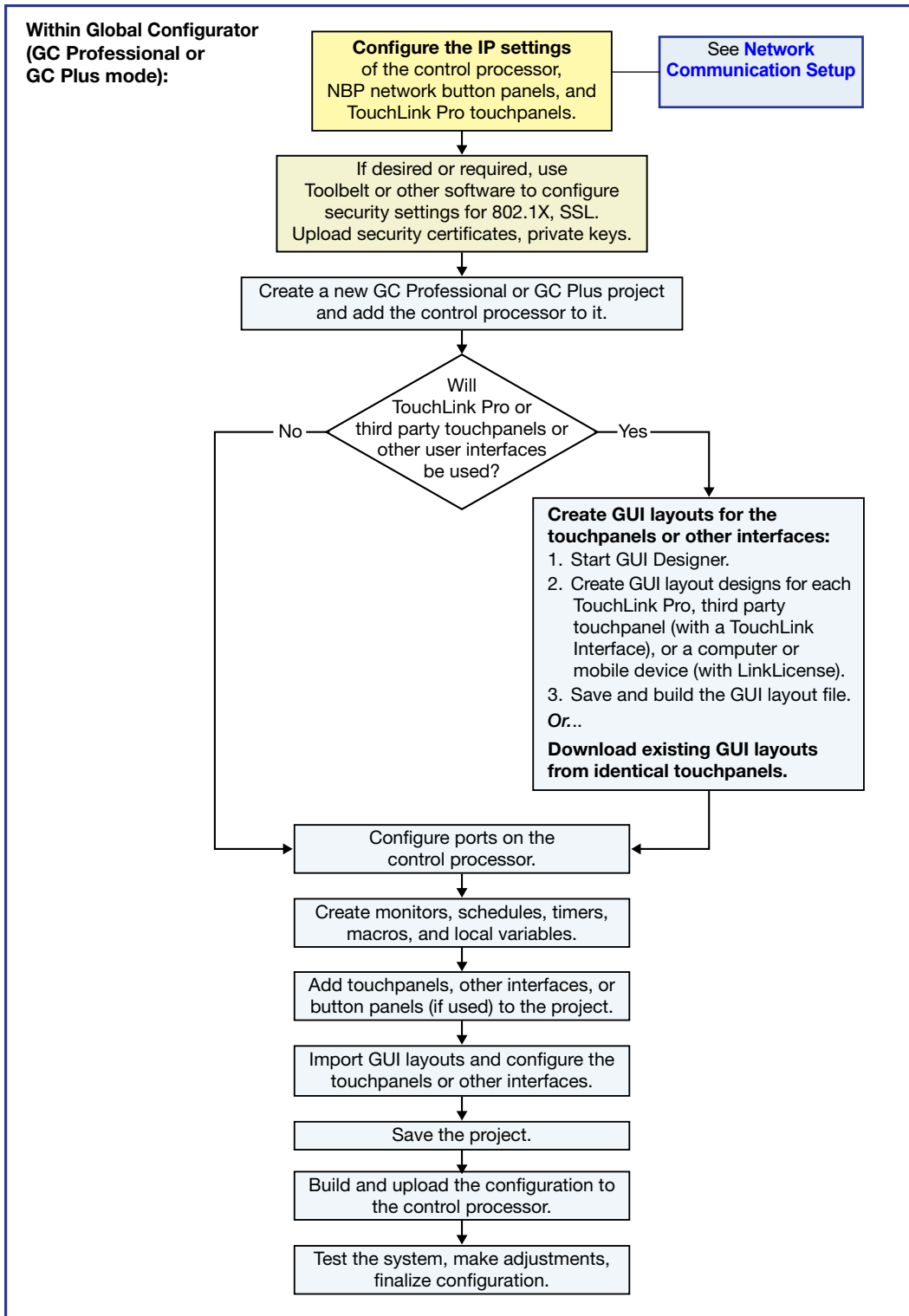


Figure 4. Overall Configuration Steps

For 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.