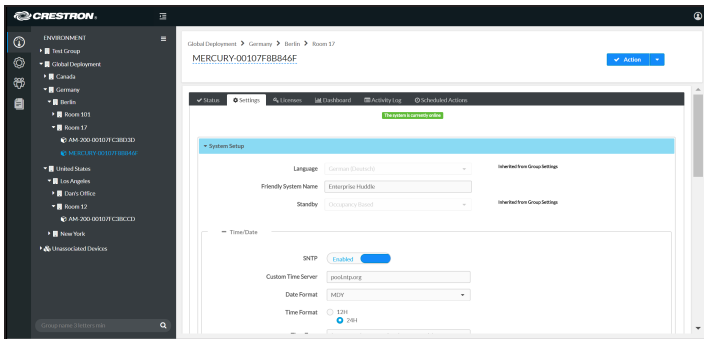


## XiO Cloud® Provisioning and Management Service, Endpoint Management License



- Supports a direct device-to-cloud connection via the Microsoft® Azure® software IoT Hub without requiring any additional hardware
- Remotely provision and configure Crestron® devices within a physically-defined room
- Apply changes to multiple devices at once by organizing them into groups and subgroups
- Update firmware and configure settings for multiple devices simultaneously
- Schedule actions such as program load, firmware updates, and reboots for a future time, including recurrence patterns
- Claim hundreds of devices to the cloud before installation
- Track account usage and changes with cloud audit logs
- Configure supported third-party devices within Crestron-integrated rooms
- Configure supported third-party devices outside of a Crestron system via the Crestron XiO Cloud™ Gateway software
- Send power on and power off commands for supported third-party devices

The XiO Cloud® service is an IoT (Internet of Things) based platform for remotely provisioning, monitoring, and managing Crestron® devices and supported third-party devices across an enterprise or an entire client base. Built on the Microsoft® Azure® software platform and utilizing Microsoft's industry-leading Azure IoT Hub technology, XiO Cloud enables installers and IT managers to deploy and manage thousands of devices in the time it previously took to manage just one. Unlike other virtual machine-based cloud solutions, Azure services provide unlimited scalability to suit the ever-growing needs of an enterprise.

XiO Cloud supports a direct device-to-cloud connection via the Azure IoT Hub without requiring any additional hardware. The service allows for direct integration with Crestron's global manufacturing and logistics network, allowing devices to be configured before they are shipped to the installation site.

Where other cloud management solutions are focused on a narrow set of devices and functions, XiO Cloud brings the efficiency of cloud management to dozens of device models—ranging from configured UC solutions to custom-programmed control systems—all in a single interface. Support for new devices is made available via firmware updates.

### Licensing

The room-based licensing model is similar to a traditional hardware purchase model: purchase a specified number of room licenses, and the XiO Cloud service will run the number of rooms purchased. All room-based licenses are billed monthly.

- To start with room-based licensing, purchase one [SW-XIOC-EM](#) Endpoint Management license for each room in the account. The Endpoint Management license provides management and configuration functionality for all devices in a single room, including configuring supported third-party devices within the XiO Cloud environment.
- Additional licenses can be purchased to enable extra licensed functionality for the account:
  - The [SW-XIOC-S](#) Support license provides support and monitoring functionality for all devices in a single room, including supported third-party device monitoring within the XiO Cloud environment.
  - The [SW-XIOC-API](#) REST API license provides access to the XiO Cloud REST API for rooms within an account. A REST API license must be purchased for each room in the account to use this functionality.
- All purchased room-based licenses are added to a customer's license pool and can be added to, removed from, or transferred between rooms directly from the configuration user interface.

**NOTE:** As of the July 2020 release of XiO Cloud, all new accounts must use the room-based licensing model. Existing XiO Cloud accounts may continue to use device-based licenses ([SW-XIOC-S](#) and [SW-XIOC-P](#) series) or can be switched over to room-based licenses at any time.

### Third-Party Device Integration

XiO Cloud provides three different methods for configuring and monitoring supported third-party devices within the service:<sup>1</sup>

**NOTE:** An SW-XIOC-EM Endpoint Management license is required to configure third-party devices within XiO Cloud. An SW-XIOC-S Support license is required per room to monitor third-party devices and receive alerts.

## XiO Cloud® Provisioning and Management Service, Endpoint Management License

- Supported third-party devices that use the Crestron Connected® communications protocol can be claimed to the XiO Cloud service directly without requiring a Crestron control processor.
- Supported third-party devices within Crestron-integrated rooms can be monitored using the Crestron Drivers framework, including projectors and displays, cable and satellite boxes, streaming media players, Blu-ray Disc® players, video conferencing devices, and others. A 3-Series®, 4-Series™, or [Crestron Virtual Control \(VC-4\)](#) control system can function as the gateway, requiring only that third-party devices are added to a user program running on the control processor. After claiming the control processor to the XiO Cloud service, the devices will appear automatically and need only to be claimed to a licensed room to start monitoring.
- Supported third-party devices external to a Crestron system can be monitored using the standalone [Crestron XiO Cloud Gateway software](#). Crestron XiO Cloud Gateway software provides the following monitoring capabilities:
  - Monitor Ethernet devices over Ping
  - Monitor Ethernet service availability over TCP port monitoring
  - Monitor switcher devices, digital signal processors, and power controllers over SNMP
  - Monitor all devices over an Ethernet API using the Crestron Drivers framework

Crestron XiO Cloud™ Gateway software is downloadable software that adds features to the XiO Cloud® service<sup>2</sup>. Crestron XiO Cloud Gateway software functionality requires an XiO Cloud subscription, subject to the terms of the Crestron Cloudware License<sup>3</sup>.

- Power on and power off commands can be executed for all third-party devices that support this functionality.

## Specifications

### Cloud-Based Service

#### No Special Ports or Permissions Required

XiO Cloud requires no special ports or permissions to deploy on an enterprise network.

#### Real-Time Communication

XiO Cloud is able to communicate with devices in real time in both directions.

#### Global Service with Local Redundancy

XiO Cloud is a worldwide service that is available globally but with local performance and redundancy.

#### Multitenant Hyperscale Cloud

XiO Cloud is a multitenant hyperscale cloud, which allows an

enterprise to deploy thousands of devices within minutes from any location at any time.

## Firmware

### Update Firmware

Firmware on one or more devices can be updated from XiO Cloud by selecting the desired firmware version.

### Schedule Firmware Updates

Firmware updates can be scheduled for a future time.

## Device Configuration and Management

### Configure Settings for One Device

Settings for a device can be configured in the cloud even before the device hardware is received.

### Configure Settings for Multiple Devices

Settings for a group of devices can be configured in the cloud, allowing common settings to be configured only once instead of repeating the update on each device.

### License Management

Licenses for device features can be added, removed, or transferred between devices.

### Remote Reboot

One device or a group of devices can be rebooted via the cloud interface.

### Scheduled Actions

Actions such as program load, firmware updates, and reboots can be scheduled for a future time (including recurrence patterns).

### Load and Manage Control System Programs

Compiled programs can be added to a program library then loaded to a control system. Version management functions allow all devices to be updated to the newest version or rolled back to a previous version of the program code.

## Monitoring

### Activity Log

Every change made via the cloud is logged for auditing, including when the change was made, who made the change, and the nature of the change.

### Monitor Third-Party Devices in Crestron Systems

Monitor supported third-party devices within a Crestron system using the Crestron Drivers framework, including projectors and displays, cable and satellite boxes, streaming media players, Blu-ray Disc® players, video conferencing devices, and others.

### Monitor External Devices via Crestron XiO Cloud™ Gateway Software

Monitor supported third-party devices that are not connected to a Crestron system via the add-on Crestron XiO Cloud™ Gateway software, which is installed onto a Linux server. The XiO Cloud Gateway software can monitor devices over the Crestron Drivers framework, Ping, TCP, and SNMP.

## XiO Cloud® Provisioning and Management Service, Endpoint Management License

### User Management

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#### Locally-Provisioned Users

Users can be created and removed within the XiO Cloud service.

#### Role-Based Access

Users can be given different levels of access based on the group of devices, including read only, read/write, and administrator access levels.

#### Hide Groups from Certain Users

Device groups may be hidden from certain users so that only the appropriate users have access to specific devices within an enterprise.

#### Single Sign-On

XiO Cloud can be integrated with common SSO services such as Microsoft® Active Directory® and Okta® services for single sign-on using corporate credentials.

### Inventory

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#### Claim Single Device

Devices are added to XiO Cloud for management by entering the MAC address and serial number of the device.

#### Claim Multiple Devices

Hundreds of devices can be claimed in bulk by using a CSV file of MAC address-serial number pairs instead of claiming each device individually.

#### Organize Devices by Group

Devices can be organized within a hierarchy of groups and subgroups so a single change can be applied to multiple devices.

#### Download Inventory CSV File

The entire inventory of devices, including MAC address, serial number, and location within the group tree, may be downloaded.

#### Claim and Name Multiple Devices

Devices can be renamed when claimed in bulk by adding an optional third device name field to the CSV import file.

#### Unclaim Devices

Devices can be removed from the portal, which opens up the slot to a different device.

### Cloud User Interface

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#### Display Key Account Information to User

Users can view key account information, including expiration, device count, and licensed functionality, at any time.

#### New Feature Notification

A pop-up message window tells users about new features that have been added to the service with each release.

### Model

#### SW-XIOC-EM

XiO Cloud® Provisioning and Management Service, Endpoint Management License for one room

#### Notes:

1. The level of third-party device support and compatibility is dependent on the availability of third-party device drivers, which may be subject to the control of the applicable third-party device manufacturer.
2. The Crestron XiO Cloud™ Gateway software is licensed under Crestron's On-Premises Software License and Maintenance Agreement available at [www.crestron.com/Legal/software-products-on-premises-and-cloudware/on-premises-software-license-maintenance-agreement](https://www.crestron.com/Legal/software-products-on-premises-and-cloudware/on-premises-software-license-maintenance-agreement).
3. The XiO Cloud® service is licensed under Crestron's Cloudware License Agreement, available at <https://www.crestron.com/Legal/software-products-on-premises-and-cloudware/cloudware-license-agreement>.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at [www.crestron.com/How-To-Buy/Find-a-Representative](https://www.crestron.com/How-To-Buy/Find-a-Representative) or by calling 855-263-8754.

The specific patents that cover Crestron products are listed online at [www.crestron.com/legal/patents](https://www.crestron.com/legal/patents).

Certain Crestron products contain open source software. For specific information, visit [www.crestron.com/opensource](https://www.crestron.com/opensource).

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