Crestron Fusion® Software

Specifier's Workbook

Design Guide

Crestron Electronics, Inc.

Original Instructions
The U.S. English version of this document is the original instructions.
All other languages are a translation of the original instructions.

Crestron product development software is licensed to Crestron dealers and Crestron Service Providers (CSPs) under a limited nonexclusive, nontransferable Software Development Tools License Agreement. Crestron product operating system software is licensed to Crestron dealers, CSPs, and end-users under a separate End-User License Agreement. Both of these Agreements can be found on the Crestron website at www.crestron.com/legal/software_license_agreement.

The product warranty can be found at www.crestron.com/warranty.

The specific patents that cover Crestron products are listed at www.crestron.com/legal/patents.

Certain Crestron products contain open source software. For specific information, visit www.crestron.com/opensource.

Contents

Overview

The purpose of this workbook is to provide design guidelines and feature tracking during the specification phase of the Crestron Fusion® project, to ensure a successful and feature rich deployment that meets the customer's requirements. The intended audience for this workbook is integrators and consultants, along with client stakeholders. This workbook will help the integrator or consultant and the client, typically a facilities or technology manager, set objectives and expectations for the project, as well as ensure that all stakeholders in the project have a clear, mutual understanding of the process, key milestones, and what represents completion of the project.

Introduction to Crestron Fusion

Crestron Fusion software provides complete visibility of every device in every room in every building around the campus or around the world. It enables facilities managers to centrally monitor, manage, and maintain AV resources in every room. They can track equipment usage to schedule preemptive maintenance, thereby reducing tech support cases. When issues arise, they can provide real-time remote technical support and receive instant alert notifications on any web-enabled computer, mobile device, or touch screen to minimize downtime. Crestron Fusion also streamlines help desk operations with real-time chat and instant email alerts. You can reserve rooms via Microsoft® Office 365® software, Microsoft Exchange Server®, HCL® Notes® software, Google Calendar™ software, CollegeNET 25Live® software, and others.

Fusion EM® software is the energy management component of Crestron Fusion. It enables facilities managers to monitor, measure, manage, and control lighting, HVAC systems, and energy usage in every room and area. With it, you can reduce energy loads for demand response programs, define environmental settings based on time of day, room occupancy or inactive spaces, and maintain full control and automation of lighting levels, shades, and climate – anytime, anywhere.

With Crestron Fusion facilities can take control of individual rooms and collect detailed data on how the rooms – and all the devices in them – are being used. It provides insight into exactly how the systems are performing, who's using them, when, where, and how often. It delivers building technology automation capabilities that save energy and improve productivity by intelligently integrating with building occupants.

Scheduling and Facilities Management

Thanks to scheduling features of Crestron Fusion, using the Outlook® software add-in can enhance the user experience by enabling building occupants to conveniently book rooms based on location, capacity, and assets. Scheduling capabilities can be integrated with most popular scheduling providers, while the Crestron Fusion API can be used to integrate with many other scheduling solutions. Crestron Fusion stores scheduling and other information in a Microsoft SQL Server® database. Users can schedule rooms from readily-accessible touch screens conveniently wall-mounted outside each room, the

RoomView® monitoring software add-in for Outlook, or using their corporate calendar software directly.

Network room scheduling provides intelligent management of resources for increased productivity and efficiency. With an occupancy sensor installed, rooms can automatically be released and made available when no one shows up for a scheduled meeting, and energy can be saved by shutting down resources or scaling back heating/air conditioning setpoints. If the room you want isn't available, Crestron Fusion will provide a list of nearby available rooms for you.

Crestron Fusion also provides the platform to increase your emergency preparedness. You can create and store instructions, safety protocols, and notification messages that can be reviewed, evaluated and perfected before critical situations arise. Custom directions can be distributed and displayed on a room-by-room basis. In the event of an emergency, broadcast messages will automatically override presentation content on Crestron Connected® displays and on Crestron scheduling touch screens.

Device Control and Monitoring

Other management software provides visibility into just one system, letting you know if specific devices are online or offline. They may even turn the building on in the morning and off at night. Crestron Fusion does that and much more.

From a centralized dashboard, Crestron Fusion unifies and simplifies the way you control and monitor building technology, orchestrate building and AV automation, and control energy usage. In fact, Crestron Fusion can connect all the buildings around the campus or around the world to provide complete visibility to the entire enterprise.

Receive instant alert notifications on any browser-enabled computer, mobile device, or touch screen when issues arise. Resolve them before anyone even notices. For example, email alerts can be sent to support staff when projector lamps are nearing end-of-life. This increases the efficiency of routine maintenance tasks and prevents equipment failure during usage.

Reporting

Crestron Fusion can be configured to enable facilities managers to track and report room and device usage by time and date. By seeing which rooms get used most and how many times equipment needs to be repaired or replaced each year, they can maximize room usage and more effectively plan budgets and forecast staffing needs. Assets can be auto-discovered upon deployment for improved tracking, and built-in templates make it easy to run quick reports.

The Crestron Fusion reporting interface was designed to enable facilities managers to add new reports at any time. Additionally, the Crestron Fusion Dashboard can be used to custom-build reports that support whatever business decisions the customer needs to make, using any data that Crestron Fusion collects. The Crestron Fusion Dashboard includes a pre-built Microsoft PowerBI® analytics template, that can pull data directly from the SQL Server database.

Because Crestron Fusion is such a powerful and highly customizable software tool, flawless implementation requires strict attention to many details. This workbook documents proven processes for successful implementation of the most commonly used features of Crestron Fusion. Follow the steps indicated within each application, so you and your client are completely satisfied when the project is completed – on time. To explore additional Crestron Fusion functionality, please contact your Crestron sales representative.

Starting Your Crestron Fusion Project

To ensure a successful deployment it is essential to make sure that your consultant, programmer, and IT manager are on the same page from the start, so you get off on the right foot.

There is a great deal Crestron Fusion can do, and the key to a successful deployment is to thoughtfully lay the groundwork first. It requires careful planning, design, and conversation to make sure Crestron Fusion works the way you expect it to. Starting at the IT infrastructure is a necessity in larger companies, as advanced network technologies (such as WAN acceleration, content filtering, proxy servers, QoS, security scanners, and load balancers) can sometimes interfere with the flow of traffic between devices and Crestron Fusion, or between Crestron Fusion and services, such as the scheduling provider on the network.

Before you can fully decide what you NEED Crestron Fusion to do, you should know what it CAN do. That's where this workbook comes in.

Crestron Fusion Product Life Cycle

Step 1: Determine Requirements

The purpose of this workbook is to help you with the first stage of your Crestron Fusion project: determining project requirements. Using the Project Worksheet on the following page, and by selecting from the applications that follow, the sales or design engineer and the customer together define the scope of work, required functionality, and the system setup/programming required to execute. The data design, including the required functionality, is as significant at this stage as the system design. Determine the information Crestron Fusion must collect for the operational insights necessary in the ongoing operations of the facility. Further, the system IT specification is determined at this point, including the design for fault tolerance and optimizing communications for a global organization-wide deployment.

Step 2: Document

Once the features and functionality of the system are determined in Step 1, the design engineer or programmer documents the network information (including IP addresses), system hierarchy (e.g. locations, buildings, wings/ floors, rooms), naming conventions (e.g. rooms, devices), attributes (functions to monitor or track), and reports (data, design, format) in a spreadsheet. The design engineer should follow the SSI Model for naming, attributes and data collection for reports. It is critically important to share this information with all other stakeholders, such as the project manager, IT manager, technology manager, and programmer.

Rooms may also be added to the calendar directory in Microsoft Exchange or other scheduling engine. The integrator now installs all the hardware, such as the occupancy sensors, scheduling touch screens, control systems, and all AV equipment. Remember to name and assign attributes for all scheduling touch screens and also for equipment not made by Crestron, such as projectors.

Step 3: Install

At this point the client IT department provides a server or virtual host(s) per the documented systems requirements. Whenever possible, it is recommended to use Crestron Connected sources and display devices for easier integration and enhanced management and control. All hardware is then connected to the network and set up using the assigned names and IP address as documented in Step 2. Refer to the Crestron Fusion Installation Guide for more details.

User accounts may be integrated with Active Directory® software for single sign-on. Otherwise, they will have to be administered separately in Crestron Fusion. A new database can be created with an existing Microsoft SQL Server, or a dedicated database server can be commissioned.

Step 4: Set Up and Configure

Using this workbook the programmer creates hooks for all attributes needed as documented in the system requirements in Step 2, following the SSI Model. The network specialists (either with the client or the integrator) setup the Crestron Fusion Server and link to Microsoft Exchange (or similar scheduling provider). All rooms and attributes should be defined, and all reports should be created, as specified in the documentation.

Step 5: Test and Commission

The technology manager and the integrator systematically go through this workbook together: test email alerts, test help desk functionality, create and run test reports. After all testing is complete and the client is trained on how to use the delivered software, delivered UI interfaces (for example XPanel or e-Control® software), and create and leverage needed operational reports, you sign off on a successful Crestron Fusion implementation.

Project Worksheet

Project name _____

Date _____

Use the checkboxes to mark which capabilities you'd like to use for the project.

Monitor and Help Desk

At the core of Crestron Fusion are its capabilities to help you monitor, manage, and provide support for the AV equipment throughout your organization. The first decisions you need to make are about what you'll monitor, whether you want to provide help desk functionality through the control systems, what alerts you want to receive, and what documentation and information about your assets you will store in Crestron Fusion to make supporting the systems faster and easier.

Discussion Questions:

- Do you have a help desk in place? If so, how is it deployed?
- Do you have an existing AV/IT maintenance/monitoring system that needs to track alerts/issues?

Monitor and Help Desk

Application Number

☐ **Essential AV Monitoring and Alerts** 1

Notes _____

_____

☐ **Help Desk** 2

Notes _____

_____

☐ **Control Systems from XPanel** 3

Notes _____

_____

☐ **Custom Alerts** 4

Notes _____

_____

☐ **Documentation** 5

Notes _____

_____

☐ **Asset Management** 6

Notes _____

_____

Scheduling and Facilities Management

Crestron Fusion can provide intelligent scheduling and management of resources for increased productivity and efficiency. Basic room scheduling capabilities can be expanded to include automatically setting up AV, lighting, and climate for meetings ahead of time. Digital signage can be fed scheduling information and emergency notifications.

Discussion Questions:

- What room scheduling/calendaring provider system is currently in use, or being considered?
- Are you interested in having lighting, shades, and AV systems centrally controlled as part of a complete building automation solution?
- Does your facility employ a BACNet/IP compatible Building Management System (BMS) to control HVAC? Lighting?
- Are saving energy and sustainability important goals for your company or facility?
- Does your building participate in cost-saving demand response programs with your local utility? If not, is this being considered?

Scheduling and Facilities Management

Application Number

☐ **Basic Room Scheduling** 7

Notes _____

_____

☐ **Advanced Scheduling and Custom Automation** 8

Notes _____

_____

☐ **Large Digital Signage of Event Schedule** 9

Notes _____

_____

☐ **Emergency Notifications** 10

Notes _____

_____

☐ **One-Touch Meeting** 11

Notes _____

_____

☐ **Meeting and Occupancy Rules** 12

Notes _____

_____

☐ **Balancing Room Utilization in the Organization** 13

Notes _____

_____

☐ **Lighting and Shade Integration** 14

Notes _____

_____

Application Number

☐ **Integrated Building Scheduling and Automation** 15

Notes _____

_____

Reporting

Crestron Fusion can enable data-driven decisions by providing insightful reports on rooms, users, and equipment. Specify ahead of time which reports you want so the systems can be configured to report the necessary data.

Discussion Questions:

- What would you like to know about your facility, users, and equiment that would aid decision support by your company's:
  - AV Manager?
  - IT Manager?
  - Facilities Manager?
- What analytics would measure the accuracy of assumptions you are operating under today?
- Are there new and/or upgraded facilities planned?
- Are there additional reports beyond those provided in Crestron Fusion that would be considered must-haves?

Reporting

Application Number

- ☐ **ROI: Utilization of In-room AV Equipment** 16

  Notes _____

- ☐ **Track Energy Usage by Category** 17

  Notes _____

- ☐ **Track Display Usage over Time** 18

  Notes _____

- ☐ **Help Desk Tracking** 19

  Notes _____

- ☐ **Meeting Composition** 20

  Notes _____

- ☐ **Call Statistics Tracking** 21

  Notes _____

- ☐ **Track Error Alerts over Time** 22

  Notes _____

You can create other custom applications. Be sure to document them in a similar level of detail during the requirements stage of your project. Share that documentation with all parties, so they know what needs to be implemented during the project.

- Functionality
- Required Programming
- Required Technology
- Crestron Fusion Configuration

Project Notes

Applications

1. Essential AV Monitoring and Alerts

What It Is

Centrally track equipment usage including projector lamp hours, volume levels, and whether systems are on/off. When issues arise, provide real-time remote technical support and receive instant alert notifications via email. Crestron Fusion can monitor everything listed under Feedback in a Crestron device Help file and the module documentation for non-Crestron products.

At this stage in the process (while you're using the workbook) the sales or design engineer should specify clearly the devices for which they want alerts and the types of alerts for each. For example, if a control system loses communication with a display, or if an amplifier is overheating. The technology manager should carefully review this to ensure that everything required is included, and then the programmer should work from this list.

See the Sample Rooms (on page 57) in this workbook for inspiration and guidance for deployment of this application in your organization.

Here's how you get this information for a Crestron product.

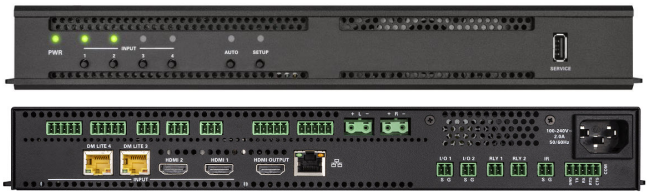
1. Open the Help in SIMPL Windows.
2. Search for the model number (for example, HD-RX-4K-410-C-E).
3. Click the signals for each slot on the device and any available device extenders. Anything identified as feedback by the "fb" at the end of the signal name is something that can be monitored. For example, with this HD-RX-4K-410-C-E, you can get answers to the following questions:
    a. Are the signals detected at the HDMI® inputs?
    b. What is the horizontal and vertical resolution of the HDMI signals?
    c. What is the FPS (frame rate) of the HDMI input signals?
    d. Are there remote transmitters in use?
    e. What is the model of the remote transmitter?
    f. What is the serial number of the remote transmitter?
    g. What is the signal resolution from the remote transmitter?
    h. What is the firmware version running on the remote transmitter?
    i. Is phantom power enabled for the microphones?
    j. Is the microphone muted?
    k. What are the current microphone gain values?
    l. Is hot plug detected on the output?
    m. What is the output resolution?

n. What is the HDCP mode for the output?
o. What is the video timeout setting if no stream is detected?
p. What is the FPS of the video output signal?
q. What is the manufacturer of the device connected to the output?
r. What is the model of the device connect to the output?
s. What is the serial number of the device connected to the output?
t. What is the state of each relay? Open or closed?

HD-RX-4K-410-C-E

The Crestron® **HD-RX-4K-410-C-E** multi-format switch and receiver provides enhanced HDMI® video switching and audio presentation capabilities in areas such as conference rooms and classrooms.

The HD-RX-4K-410-C-E provides two DM Lite™ inputs for connection to up to two compatible DM Lite™ transmitters.



HD-RX-4K-410-C-E - Front & Rear Views

Features & Functions Summary

- 4K/60 4:2:0 capability
- Two DM Lite™ ports
- DM Lite transmitters
- Two HDMI® inputs
- One HDMI output with 4K Scaler
- Two stereo line level, two mono microphone, and one mono auxiliary audio input
- Built-in amplifier with 25 W per channel for 4- or 8-ohm stereo speakers
- Two stereo auxiliary outputs

Outputs (Slot-02)

This information applies to the following devices:

- HD-RX-4K-410-C-E
- HD-RX-4K-410-C-E-SW4
- HD-RX-4K-510-C-E
- HD-RX-4K-510-C-E-SW4

Signal name and type	Description
Digital output: <**Hot_Plug_Detected_Fb**>	Indicates that a "hot plug" has been detected. High/1 =Hot plug detected; Low/0 = Hot plug NOT detected
Digital output: <**Disabled_By_HDCP_Fb**>	Indicates that the output has been disabled as the result of a failure during HDCP authentication. This occurs when HDCP (High-bandwidth Digital Content Protection) is detected at the input, but the display or other loopback device is not HDCP compliant. This also occurs when the maximum number of display devices that can be used with the video source (based on the application of keys and KSVs) has been exceeded. For more information about keys and KSVs, see HDCP. High/1 = Output disabled by HDCP; Low/0 = Output not disabled by HCDP
Digital input: <**Output_Timeout_Enabled**>	Enables the timer for turning off the Output when no input signal is detected. The value for timeout is defined by the Analog Join Video_Timeout High/1 = Enable timer for Output Timeout; Low/0 = No effect
Digital output: <**Output_Timeout_Enabled_Fb**>	Report if the timer for turning off the Output when no input signal is detected has been enabled. High/1 = Timer Output Timeout enabled; Low/0 = Timer Output Timeout not enabled

Perhaps the technology manager would like to monitor the output signal presence, resolution, frequency, and the details of the connected device. In this case, they would need to monitor items l, m, p, q, r, and s from the list above.

The technology manager might want to monitor power and battery by monitoring UPS devices. Equipment rack temperature can be monitored by installing a temperature sensor.

The integrator should make a clear proposal to the client about how much it will cost to monitor more items. The Crestron Fusion Support Group can provide a spreadsheet to use as a guideline for specifying attributes to monitor.

Here's how you get this information for a non-Crestron product.

1. Go to applicationmarket.crestron.com.
2. Find the module for the device, for example, a Panasonic® PT-FW300NT projector (applicationmarket.crestron.com/pjlink-panasonic-pt-fw300nt).
3. Click the link to download the **PDF Help File**. Go the FEEDBACK portion of the PDF. The list of items in the feedback section is what you can choose to monitor.

CONTROL:		
Power On	D	Pulse to Power the unit On.
Power Off	D	Pulse to Power the unit Off.
Request Power Status	D	Pulse to request the Power Status of the unit.
Video Mute On	D	Pulse to Video Mute.
Video Mute Off	D	Pulse to turn Video Mute off.
Audio Mute On	D	Pulse to Audio Mute.
Audio Mute Off	D	Pulse to turn Audio Mute off.
Video And Audio Mute On	D	Pulse to mute Video and Audio.
Video And Audio Mute Off	D	Pulse to un-mute Video and Audio.
Request Mute Status	D	Pulse to request Video and Audio Mute Status.
Request Lamps Status	D	Pulse to request the statuses of the lamps.
Request Error Status	D	Pulse to request the Error statuses.
Request Input Status	D	Pulse to request the selected Input.
Select Input RGB x	D	Pulse to select Input RGB x.
Select Input Video x	D	Pulse to select Input Video x.
Select Input Digital x	D	Pulse to select Input Digital x.
Select Input Storage x	D	Pulse to select Input Storage x.
Select Input Network x	D	Pulse to select Input Network x.

FEEDBACK:		
Projector is On	D	High to indicate that the projector is on.
Projector is Off	D	High to indicate that the projector is off.
Projector is Cooling	D	High to indicate that the projector is Cooling.

In the example of the Panasonic projector, here's what you can monitor:

1. Is the projector on, off, cooling down, or warming up?
2. Is video and/or audio mute on?
3. Which lamps are on?
4. How many hours are on each lamp?
5. Which input is selected?
6. Is there a fan warning or error?
7. Is there a lamp warning or error?
8. Is there a temperature warning or error?

9. Is there a cover open warning or error?
10. Is there a filter warning or error?
11. Is there another warning or error?

For example, perhaps the technology manager would like to monitor lamp hours, warnings, and errors. In this case, you would need to monitor #1, 4, and 6-11 from the list above. Each item you add requires more setup time, but captures more data for reports and more flexibility to alert on error conditions. You'll need to strike a balance between logging too much and too little data, as this impacts server performance and database size. Review what information is important to be captured for reporting, and which information can be relegated to monitoring only.

Why You Want It

Maintain the operational status of your AV technology investment, increase the efficiency of routine maintenance tasks, resolve issues before anyone even notices, and prevent equipment failure during usage. The technology manager should think about and specify how the attributes will be grouped for display in Crestron Fusion. Additionally, the technology manager should decide on the severity level for each alert.

Who's Using It

Help desk operators, AV managers, IT managers

DEPLOYMENT INSTRUCTIONS:

Required Technology

- Crestron Fusion
- In-room control system connected to AV equipment that can report status feedback to the control system – or – Crestron Connected devices that don't require a control system
- AV equipment that can report its status to the control system (2-way communication)
- Interface control system with room equipment through Ethernet, RS-232, Cresnet® network, RS-422

Required Programming

NOTE: Programming is not required if using .AV Framework™ setup and management tool, which follows the SSI Model when connecting to Crestron Fusion.

- Crestron Fusion
- Crestron Fusion Room symbol
- Use the Fusion Static Assets as described in the SSI Model to represent the devices in the room

Crestron Fusion Configuration

- Choose your node-tree structure.
- Add the appropriate room(s) and processors (via Symbol Discover or manually).
- Configure your monitoring Attribute Views.
- Configure email templates and assign them to monitored Attributes.
- Configure attributes defined in Crestron Fusion to send notification when they reach the desired threshold value.
- Add people and roles to the room(s) that are to receive alerts.
- Enable logging for the error alert and error message attribute.

2. Help Desk

What It Is

Crestron Fusion provides built-in help desk functionality (programming required). A **Request Help** button can be added to a Crestron touch screen, so anyone in the room can easily ask for assistance. From the **My RoomView** tab in Crestron Fusion, IT and facilities managers can instantly see a help request from any room. From the **Help Response** window, managers can send an answer message or predefined reply back to the requester's touch screen with instructions. Additionally, a webcam in each room (either to show the whole room, or just pointed at the display) can assist managers with support and troubleshooting. If a camera is installed, managers can then visually confirm that the room is functioning properly from the **Web Cam** tab in the software.

Why You Want It

Provide more effective technical support. From any room, presenters can call for help from a touch screen, keypad, or other user interface. Help messages popup in Crestron Fusion and optionally sound an audible alert to signal technicians that aid is needed. Quickly provide assistance or notify presenters that help is on the way with a simple chat window that is displayed on the touch screen.

See the Sample Rooms (on page 57) in this workbook for inspiration and guidance for deployment of this application in your organization.

DEPLOYMENT INSTRUCTIONS:

Required Technology

- Crestron Fusion
- In-room control system
- In-room touch screen or other user interface
- Webcam (optional)

Required Programming

- Use the SSI help modules or follow the SSI Model for implementing the help desk.
- On a touch screen interface in the room, present a help support screen.
- Include one or more appropriate canned text buttons/help categories, so the user doesn't have to manually enter common requests (and you can easily spot recurring issues at a later time).
- Optionally, present a custom button through which the user can enter a description of an issue using an onscreen keyboard.
- Use the Crestron Fusion Room Symbol in your program to transmit the help request text.
- Optionally, present the user with a one-way mechanism to see a response from the help desk, or a two-way chat interface.

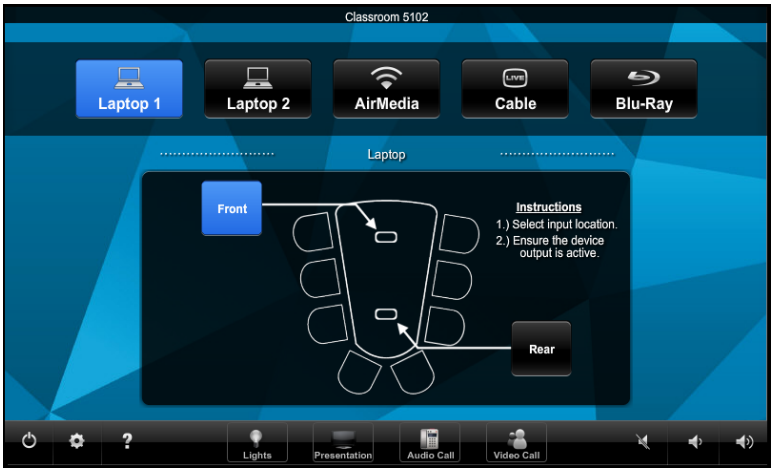
Crestron Fusion Configuration

- Discover the control system and Crestron Fusion Symbols into the appropriate room(s).
- Configure email notifications for the help request, including who should receive the notification.
- Configure per user the incoming help requests to sound an alert.

3. Control Systems from XPanel

What It Is

Crestron XPanel transforms any computer into a virtual Crestron touch screen. Since every Crestron control system supports XPanel natively, it's easy to add remote control to any system.



Why You Want It

Right from the Crestron Fusion page help desk operators are already viewing, they can remotely access whichever system they're currently supporting, see exactly what the user sees on the in-room touch screen, and drive it together as if they're in the same room. Technology managers can decide if they want the XPanel to track exactly what the touch screen is doing in the room, or be independently controlled.

See the Sample Rooms (on page 57) in this workbook for inspiration and guidance for deployment of this application in your organization.

Who's Using It

Help desk operators, AV managers, IT managers

DEPLOYMENT INSTRUCTIONS:

Required Technology

- Crestron Fusion
- In-room control system with web server, or other web server (like Crestron Fusion's IIS)

Required Programming

- Required programming includes an XPanel program symbol. In addition, a VTPro-e® software user interface project that is compiled as an XPanel project. The IPID of the user interface project must match the IPID of the XPanel symbol in the program. Button presses from the XPanel project for help requests, power on/off, etc. will be connected to the Crestron Fusion program symbol to provide the monitoring feedback.

Crestron Fusion Configuration

- Provide e-Control URL in the Room Details setting for the room.
- Load the compiled XPanel/e-Control files onto the built-in processor web server or the server hosting Crestron Fusion.

4. Notifications

What It Is

Track critical alerts in Crestron Fusion from devices managed by a control system. Configure and send email notifications based on the incoming alerts. At this stage in the process (while you're using the workbook) the sales or design engineer should specify clearly the special alerts they want for devices managed by a control system. The SSI Model and related modules, including the SSI Equipment Module, make it easy to add notifications such as those listed in the following section. The technology manager should carefully review this to ensure that everything required is included, and then the programmer should work from this list.

Why You Want It

Track the status of a device. The notification indicates the presence of an alert condition so you can take an administrative action. Track the history of all notifications using built-in Crestron Fusion reports. Some examples of what the notifications will indicate:

- When a device is offline or non-responsive
- When the UPS is in a low state or error condition
- When the battery in a UPS is in use
- When a projector is overheating
- When a touch screen is disconnected
- When a schedule request fails from a Crestron Scheduling touch screen or program

Who's Using It

Help desk operators, AV managers, IT managers

DEPLOYMENT INSTRUCTIONS:

Report

Notifications are viewed in the Error Alerts report, which summarizes notifications by their Severity (e.g. Error, Fatal Error, Notice, Warning), and the corresponding notification message.

Required Technology

- Crestron Fusion
- In-room control system or AVF device
- Device capable of reporting to or communicating with the control system (2-way communication usually over Cresnet, Ethernet, Serial, etc.)

Required Programming

- Identify the error condition trigger in code (for example, device offline).
- Implement the SSI Model including the SSI Equipment Usage module, or deploy an AVF device.
- Determine the severity of each alert.

Crestron Fusion Configuration

- Discover the control system and Crestron Fusion Symbols into the appropriate room(s).
- Enable logging for the error alert and error message attribute.
- Configure email alerts including the custom message, and assign appropriate recipients.

5. Documentation

What It Is

Crestron Fusion can store documentation that pertains to devices and rooms under three tabs: **Image**, **Floorplan**, or **Documents**. (The technology manager should specify which types documents are stored under each tab.) This documentation can include equipment service manuals, connection diagrams and equipment lists, and photographs of equipment racks and other assets in the room.

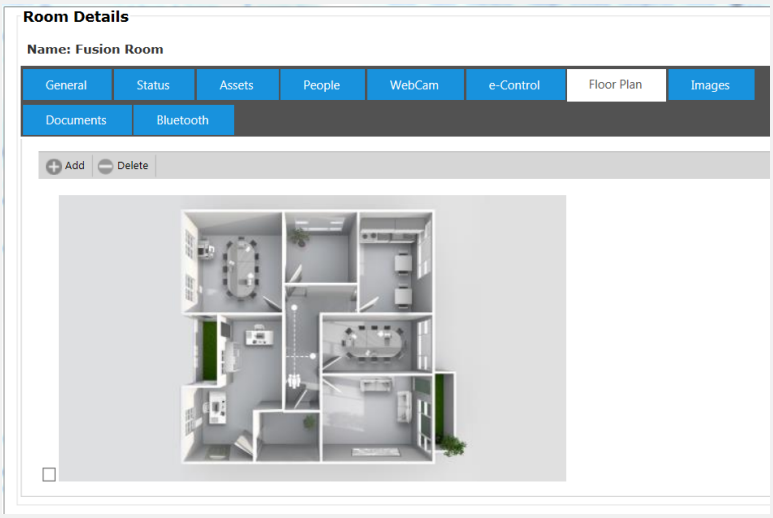
Why You Want It

Provide more effective technical support. When a request for support comes in, the help desk operator has quick access to all available information about the system. Photographs can be invaluable in helping the person in the room resolve an issue. If service is required for a device years later, the manual will be at hand even if it's no longer easily accessible on the manufacturer's website.

DEPLOYMENT INSTRUCTIONS:

Crestron Fusion Configuration

- Double click an Asset from the Monitoring web client and upload documents and images to be referenced by that Asset.



6. Asset Management

What It Is

Quickly view all the technology assets for a room or group of rooms. Check the service history for any device and record service information. Track asset information such as name, serial number, type, make, model, IP address, economic lifespan, and date last serviced. Define the economic lifespan for an asset. Record when a device was purchased, when its warranty expires, its asset tag number, and its MAC address. Associate service contracts and providers with each hardware asset. Log help requests/responses. Configure devices directly through Crestron Fusion, such as when a projector is replaced or a videoconference unit is added. (Following the SSI Model, the control system program can be developed to automatically to add new assets, with minimal Crestron Fusion configuration required at the time hardware is added or changed.)

See the Sample Rooms (on page 57) in this workbook for inspiration and guidance for deployment of this application in your organization.

Why You Want It

Asset Management enables you to keep track all your technology, minimize equipment downtime, and maximize ROI and staff resources.

Who's Using It

Facilities managers, AV managers, IT managers

DEPLOYMENT INSTRUCTIONS:

Required Technology

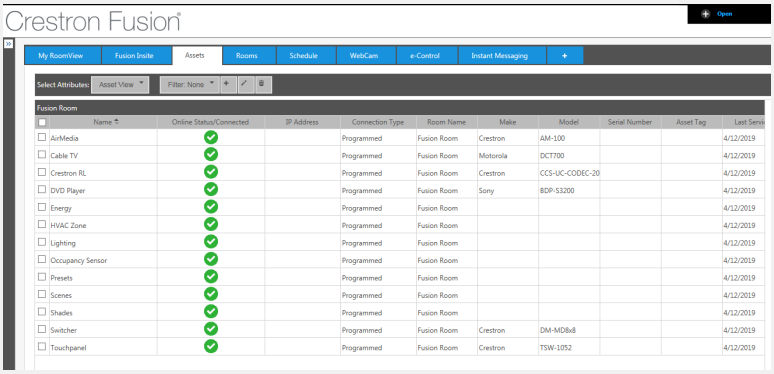
- Crestron Fusion

Required Programming

- Implement the SSI Model by adding programmed static assets to the program. Each device in the room is represented by a programmed asset.

Crestron Fusion Configuration

- In the **Edit Room** interface, under **Assets**, add additional details to any programmed Assets connected to Crestron Fusion and/or the control system.
- Add any additional non-programmed Assets to the room, and record the details for those items.
- Configure any required asset notifications such as Warranty expiration, service due, service contract expiration, or economic lifespan expiration.



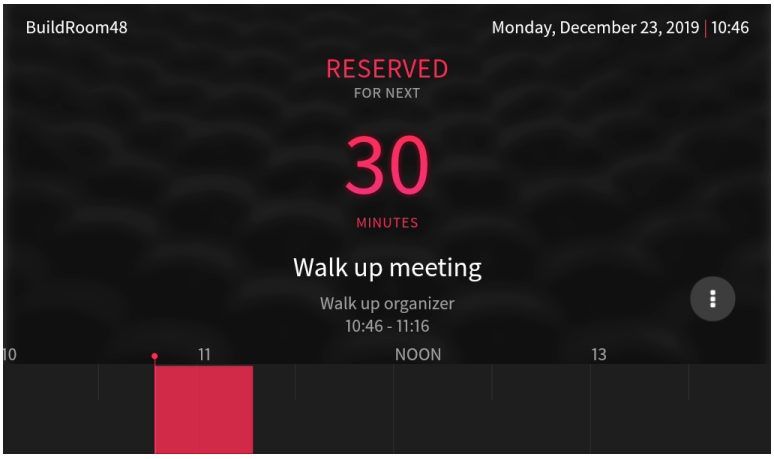
7. Basic Room Scheduling

What It Is

Use resource calendar information to display room booking and availability on the scheduling touch screen outside the room or provide schedule details to the in-room/front-of-room experience. Allow users to book ad hoc meetings directly from the scheduling panel. Decline no-show meetings automatically. End or extend current meetings with the press of a button.

Why You Want It

Also referred to as "Crestron Scheduling," basic room scheduling integrates interactive room scheduling information outside the room with the corporate calendar, so people can easily find their meetings and reserve spaces ad hoc, improving productivity. Crestron Fusion can then deliver reports used to maximize resource usage and manage availability for greater productivity and efficiency. Data in these reports can also be used to make decisions concerning new facilities or redesign of existing meeting spaces to meet the needs and usage patterns of knowledge workers.



Technology managers can require a PIN to create ad hoc meetings from the scheduling touch screen. They can limit the length of ad hoc meetings created from the touch screen to encourage advance scheduling. They can set vacancy rules, such as how long the room can be vacant (according to the occupancy sensor) before the meeting is cancelled and listed as a no-show. Scheduling Panel application settings can be managed remotely from the Crestron Fusion interface or from the Crestron XiO Cloud™ service.

See the Sample Rooms (on page 57) in this workbook for inspiration and guidance for deployment of this application in your organization.

Who's Using It

Meeting participants, administrative staff, facilities managers, AV managers, IT managers

DEPLOYMENT INSTRUCTIONS:

Required Technology

- Crestron Fusion
- Crestron scheduling touch screen
- Occupancy sensor connected to a scheduling panel, or an in-room control system that reports to Crestron Fusion for automatic Decline for No-Show cancellation of unattended meetings. Crestron Fusion can share the occupied state across all devices in the room that may require it.
- Optional: third-party scheduling engine such as Microsoft Exchange to allow for integration with corporate calendar. Adjust parameters in required programming and configuration.

Required Programming

- Optional: occupancy sensor connected to an in-room control system requires:
    - Crestron Fusion Room Symbol
    - Subslotted Crestron Fusion Occupancy symbol (follow the SSI Model guidelines)
    - Logic to handle occupied or unoccupied behavior, such as shutting down systems when the room is vacant

Crestron Fusion Configuration

- Add the appropriate Asset and Driver to room(s).
- Integrate each room with its corresponding scheduling provider (refer to the Crestron Fusion Help files built into the application).
- Apply the desired Custom Properties for central remote management of Scheduling feature settings at the room level, such as enabling Decline for No Show functionality.

8. Advanced Room Scheduling and Custom Automation

What It Is

Use calendar information to display room schedules on a Crestron touch screen inside the room. Adjust room lighting, climate, and AV configuration based on the meeting start and end times.

Why You Want It

By integrating the corporate calendar with the in-room AV application and controlling touch screen, users in a meeting room have immediate access to information about their meeting, reserved time, and will be more productive and cooperative with others in the use of shared facilities. Crestron Fusion can deliver reports to maximize efficient room usage and availability for greater productivity and efficiency.

Custom automation, such as the following, is also possible.

- Presets – these are for specific meeting types. For example, you might create a Preset for the weekly executive meeting that automatically sets the lighting, shades, volume level, temperature, dials the video conference codec to a certain location, dials the audio conference system to a bridge, and enters the PIN. Meeting organizers or administrators can choose these presets to set the room exactly as desired with one click.
- Actions – a list of individual actions, such as "set lights to meeting preset," "dial audio conference codec to XX number and enter YY PIN," or "turn displays on and select front laptop input." The programmer defines these, so that administrators can later choose these as Actions for specific meetings or automation rules in Crestron Fusion.
- Events – these are events that take place at a certain time (not associated with a meeting). These draw on the same list of defined capabilities as Actions. The most common use case is a "sweep off" event, such as turning off all the AV equipment at 10pm.

See the Sample Rooms (on page 57) in this workbook for inspiration and guidance for deployment of this application in your organization.

Who's Using It

Meeting participants and organizers

DEPLOYMENT INSTRUCTIONS:

Required Technology

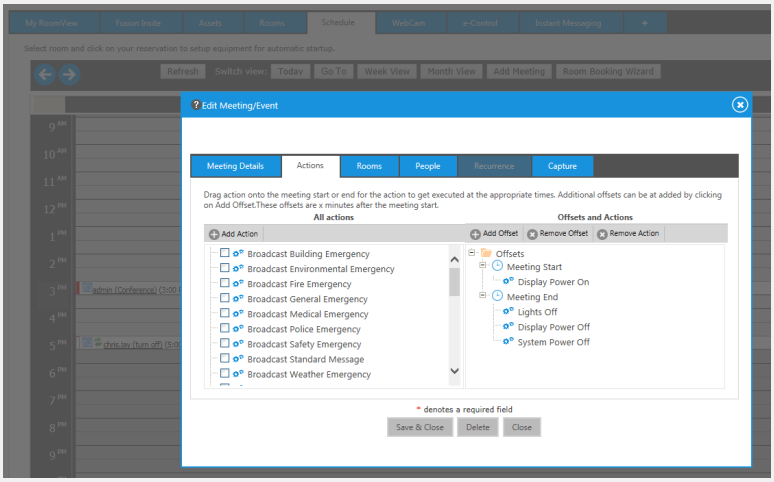
- Crestron Fusion
- In-room control system
- Touch screen with Crestron Scheduling

Required Programming

- If using a control system, add the Crestron Fusion SSI Modules including the Scheduling Awareness Module. Follow the SSI Model guidelines.
- Take it further: add one touch meeting support to the in-room experience.

Crestron Fusion Configuration

- Integrate each room with its corresponding scheduling provider.



- Optional: add Actions to meetings to configure the room equipment for a meeting.
- Fusion EM: Edit the room Automation settings to configure the room and environmental settings before, during, and after meetings.

9. Emergency Notifications

What It Is

Crestron Fusion can be configured to deliver emergency notifications.

Why You Want It

In the event of a fire, extreme weather, etc. Crestron Fusion can push pre-defined alert messages to in-room touch screens, scheduling touch screens, and Crestron Connected displays throughout the enterprise. Additionally, the technology manager can specify that audio and/or video be muted by programming during such events.

DEPLOYMENT INSTRUCTIONS:

Required Technology

- Crestron Fusion
- Display endpoint, such as: scheduling touch screen running Crestron scheduling, or Crestron Connected device, or control system with attached touch panel and display/projector

Required Programming

- Crestron Scheduling touch screens and Crestron Connected devices must be enabled to display broadcast messages along with their audible alerts.
- To distribute a broadcast message using Crestron Fusion and a control system:
    - Crestron Fusion Room symbol
    - Follow the SSI Model including the SSI Broadcast Message module

Crestron Fusion Configuration

- Discover the control system in the room.
- Add any non-control system connected assets (such as scheduling touch screens or Crestron Connected devices) as Assets in the Crestron Fusion room.

10. One-touch Meeting

What It Is

Provide an easy way for users to start meetings and automatically perform all in-room functions necessary to service the meeting, kicked off by a single **Start Meeting** button press on the in-room touch screen.

Why You Want It

By integrating the corporate calendar with the in-room AV application and controlling touch screen, users in a meeting room will have advanced automation capabilities to become more productive with no startup or setup time. All automation necessary to set up the room is simplified down to a single button press, reducing not only the initial time to get started, but also the amount of necessary employee training and the opportunity for user error.

Automation functions for the room are pulled directly from information contained in the body of the calendar event. Security can be increased by requiring the user to log-in to identify him/herself as the organizer of the meeting or badge-in using their employee ID.

Automation based on reading the description of the meeting:

- Audio/Video Conference Bridge: While the format is specific to various conferencing technology vendors, most software today adds a formatted block to any meeting to provide information for users to join via audio or video conference. This formatted block, if left intact, can be read or parsed to pull needed connection information and automatically establish the call.
- Crestron Fusion Actions or Presets: Crestron Fusion itself can add automation (outlined in the previous 8. Advanced Room Scheduling and Custom Automation (on page 32) application worksheet).

Crestron Fusion can also deliver reports to maximize efficient room usage and availability for greater productivity and efficiency.

See the Sample Rooms (on page 57) in this workbook for inspiration and guidance for deployment of this application in your organization.

Who's Using It

Meeting participants and organizers

DEPLOYMENT INSTRUCTIONS:

Required Technology

- Crestron Fusion
- In-room control system
- Programmable touch screen
- Optional: a serial RS-232 security reader (RFID/NFC)/security token

Required Programming

- Crestron Fusion SSI Modules, including the Scheduling Awareness and Join Now modules
- Room automation, optionally supporting Actions
- Optional Crestron Fusion Preset Module for room automation
- Programming that can map the user's security ID/token to a corporate email address
- Audio/video conference bridge automation
- Optionally, retrieve the user's calendar events
- Event description parser

Crestron Fusion Configuration

- Integrate each room with its corresponding scheduling provider.

11. Meeting and Occupancy Rules

What It Is

The ability to set automation rules for HVAC, room lighting, and shades based on the integrated resource scheduling and occupancy.

Why You Want It

Everyone wants to save money and resources through intelligent automation, but no one wants to sacrifice comfort. The **Meeting and Occupancy** tab in the Crestron Fusion EM client allows you to create automation rules ensuring that a room is comfortable and ready to use at meeting time.

Many facilities set HVAC back for weekends. This is correct and efficient (and can be accomplished through the Fusion EM Time Clock to a schedule). However, an automation system that waits until the start of a meeting or until occupancy is sensed to return HVAC settings to Occupied mode can create significant delay before the room returns to livable temperatures. No one wants to spend the first 15 minutes of a Monday morning meeting shivering or sweltering while they wait for the HVAC system to react to their presence. Fusion EM allows you to create rules that allow for warm up or cool down in anticipation of scheduled meetings.

Actions can also be programmed for lighting and window treatments. With this automation, meeting participants will always feel welcome when entering a meeting room.

Vacant/Not Scheduled Rules can be set to return room settings to an Unoccupied state if no motion is sensed for a given period after the scheduled start of a meeting.

A real advantage here is that these settings can be easily adjusted by just about anyone. No special training is needed. An approved user can simply open the **Automation** tab in Fusion EM and change parameters if it becomes necessary to do so.

DEPLOYMENT INSTRUCTIONS:

Required Technology

- Crestron Fusion
- Control system running building automation programs
- Control system-based BACNet interface to the Building Management System (BMS)

Required Programming

- Crestron Fusion Energy Monitoring Modules

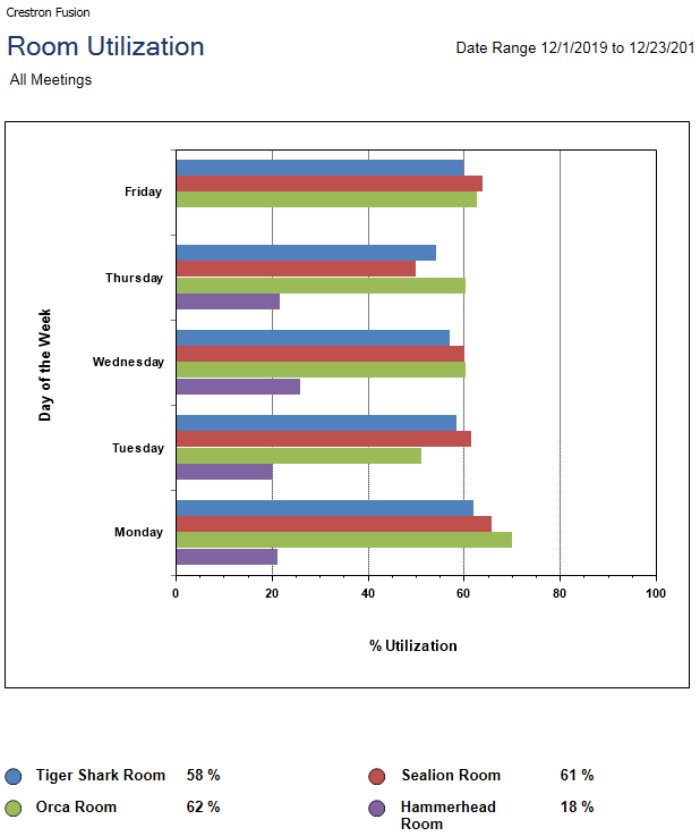
Crestron Fusion Configuration

- Configure Crestron Fusion.
- Add rules for vacancy, pre-meeting, and meeting in-progress.

12. Balancing Room Utilization in the Organization

What It Is

These reports (Meetings by Room, Room Utilization, and Top Meeting Organizers) help facilities managers balance room usage throughout the day, and determine if there are specific organizers gravitating to a particular room.



Why You Want It

The Room Utilization report reveals meeting room usage by time of day, and day of the week to determine the best possible balance of room utilization. This report can reveal the need to:

- Contact organizers of some regularly scheduled meetings to shuffle them to a different time of day
- Spread regularly recurring meetings to different days of the week (for example, company processes are causing departments to hold Monday morning status meetings, creating a demand that never recurs during the week)
- Add more or different types of conference rooms, based on usage data (see the 19. Meeting Composition (on page 52) application worksheet)

See the Sample Rooms (on page 57) in this workbook for inspiration and guidance for deployment of this application in your organization.

Who's Using It

Facilities managers, AV managers, IT managers

DEPLOYMENT INSTRUCTIONS:

Required Technology

- Crestron Fusion
- A scheduling resource that provides the room calendar
- Occupancy sensing

Required Programming

- Occupancy sensing (using a network occupancy sensor or via a control system program) will improve the accuracy of room utilization by enabling the Decline and No Show functionality. The meeting check-in feature, along with other in-room status changes (button presses), can also infer occupancy.

Crestron Fusion Configuration

- Integrate each room with its corresponding scheduling software provider calendar.
- For new installations, configure the Crestron Fusion Backfill process to retrieve meeting data from meetings that occurred before the installation of Crestron Fusion.
- Enable logging rules for the occupancy attributes.

13. Light and Shading Integration

What It Is

Heat gain from uncontrolled sunlight is a major burden on air conditioning. Crestron motorized shades can block sun and reduce heat buildup automatically. Integrating Crestron occupancy and photocell sensors help to strike a perfect balance between daylight harvesting and comfort, reducing energy costs. Automatically switch lights and adjust shades using the built-in astronomical time clock feature, or based on other data sources such as specific events, room occupancy, and ambient light levels. Crestron sensors can be placed strategically in each space to maximize the benefits of energy management.

NOTE: There are many different approaches to building shade and lighting automation, commonly referred to as Daylighting. Building orientation and time-of-year may need to be taken into account. Often, photocells, both inside individual rooms and on exterior surfaces of the building, may be required. Please consult with your Crestron representative.

Why You Want It

With an automated lighting and shading control system, you can easily decrease the amount of energy wasted, and increase comfort, convenience, security, and the lifespan of light bulbs.

Who's Using It

Facilities managers, AV managers, IT managers

DEPLOYMENT INSTRUCTIONS:

Required Technology

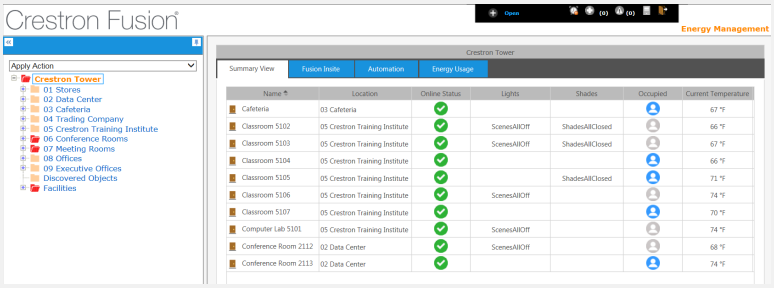
- Crestron Fusion
- In-room control system
- Occupancy sensors, photocell sensors, as needed to accurately measure occupancy and light levels

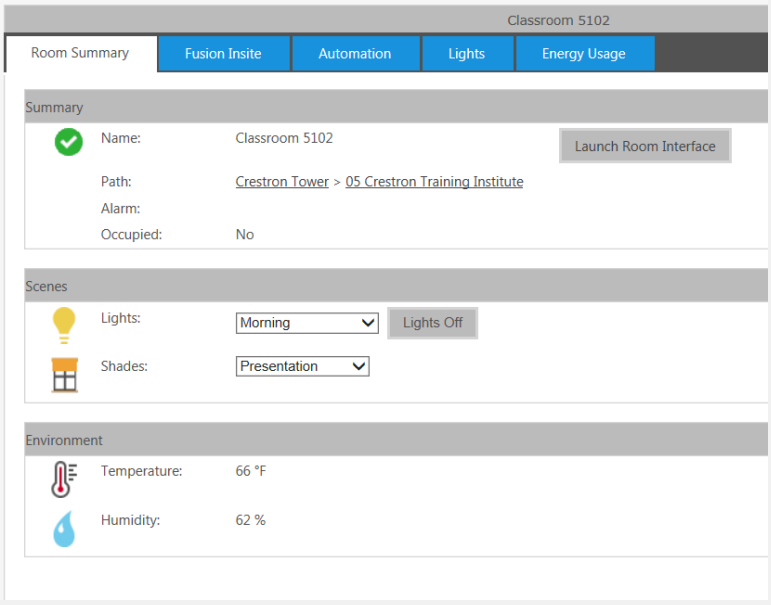
Required Programming

- Crestron Fusion Energy Monitoring Modules
- Define Actions in your program that adjust lighting and shading scenes

Crestron Fusion Configuration

- Discover Rooms and EM programming in Crestron Fusion.
- Define time clock rules that adjust the lighting and/or shading scenes.
- Include Actions defined in the room programming.





14. Integrated Building Scheduling and Automation

What It Is

Automate the environmental settings of your building with Crestron Fusion and the Time Clock automation rules.

Why You Want It

The Time Clock in Crestron Fusion EM offers a simple interface for the facilities manager to manipulate the building schedule by simply adding dates to a calendar. The complicated automation rules of your Building Management System are abstracted into a simple interface that can be accessed from any Web browser. A real advantage to separating the business rules from the date selections is that these settings can be easily adjusted by just about anyone by picking dates in a simple calendar user interface.

See the Sample Rooms (on page 57) in this workbook for inspiration and guidance for deployment of this application in your organization.

Who's Using It

Facilities managers

DEPLOYMENT INSTRUCTIONS:

Required Technology

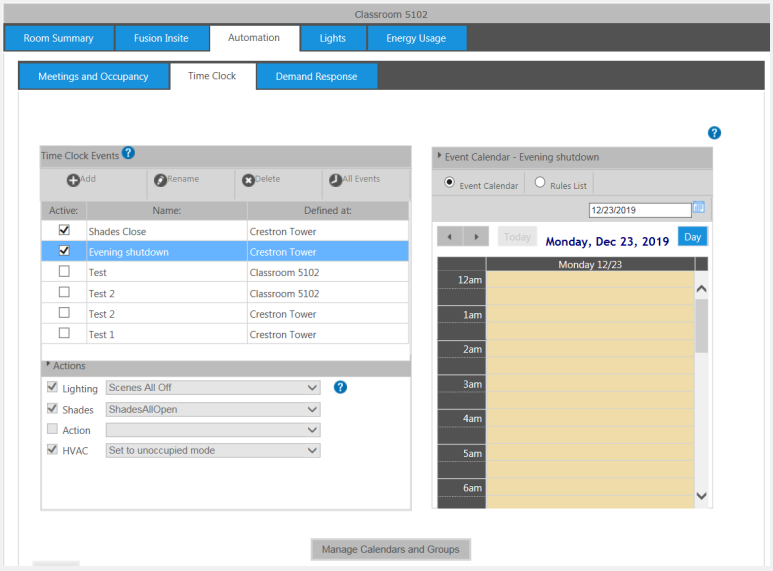
- Crestron Fusion
- Control systems running building automation programs
- BACNet interface to the Building Management System (BMS)

Required Programming

- Crestron Fusion Energy Monitoring Modules

Crestron Fusion Configuration

- Discover Rooms and EM programming in Crestron Fusion.
- Define Calendars of corporate holidays and other events that adjust the building operation from normal schedule.
- Add Time Clock rules (for example, turn on lights on weekdays) with exceptions as needed based on defined Calendars automate each area of a building (for example, skip turning on lights on Holidays).



15. ROI: Utilization of In-room AV Equipment

What It Is

The Call Statistics, Device, and Display Usage reports provide users a great way to monitor the utilization of any asset by its selected Device Type.

Why You Want It

These reports track equipment usage, and helps measure ROI. Determine the actual utilization of equipment to justify future expenditure, prove ROI on past expenditures, or track abuse/under-use and retire old equipment no longer in use. This report helps answer the following:

- Is my investment in video conference equipment paying off?
- Why are people in this building complaining that others are booking VTC rooms and not using the equipment?
- Does anybody use the DVD player anymore, or should we remove it from our room standard?
- Should we invest in dual-screen VTCs in meeting rooms?
- Are people presenting content while in a VTC call?
- Do people favor presenting wirelessly over wired?
- Do people typically present in HD resolution?

See the Sample Rooms (on page 57) in this workbook for inspiration and guidance for deployment of this application in your organization.

Who's Using It

Stake holders for future investment in AV technology for existing or new rooms, including design consultants and AV managers

DEPLOYMENT INSTRUCTIONS:

Required Technology

- Crestron Fusion
- In-room control system
- Displays and switches that can detect sync (to know when a video input is active)

Required Programming

- Control system programming that follows the SSI model and standards
- Detect sync on selected source (to indicate source is active on display)
- Detect current source
- Logic to determine when a device is actually being used, which may include transport state, sync state, selected source, etc. or combinations of conditions
- SSI Scheduling Awareness module (optional, if needed to distinguish source active during meeting)

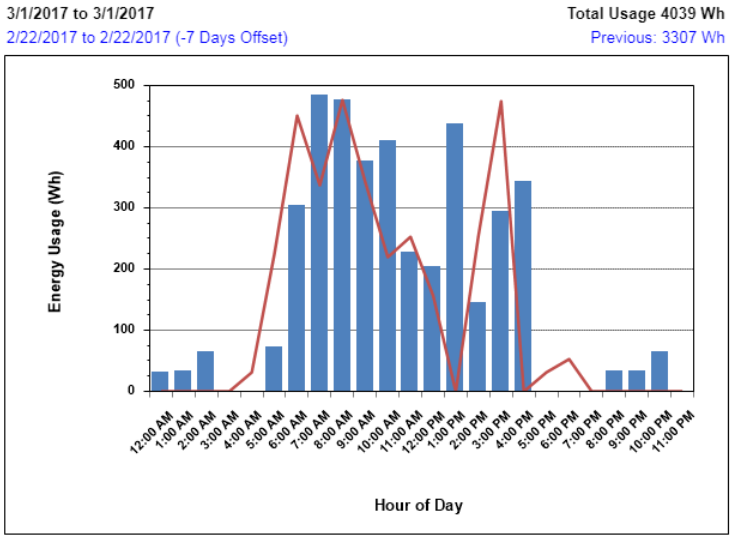
Crestron Fusion Configuration

- Discover the processor and Crestron Fusion Symbols into the appropriate rooms.

16. Track Energy Usage

What It Is

This report tracks energy usage within a facility by defined categories (for example, department, floor, load type, etc.).



Why You Want It

Many installations monitor only the energy usage at the building mains. Crestron Fusion reports take it one step further, providing flexibility to segment usage reporting by program-selectable energy types and categories to drill down and perform analysis that will help meet energy savings goals. This report organizes and categorizes energy consumption to:

- Go beyond monitoring just the biggest consumers, and get more granular to target energy saving programs and correlate results
- Learn how corporate consumer plug loads (for example, computers, monitors) compare to user plug loads (for example, personal space heaters, desk lamps), and the impact of energy savings programs on each
- Learn how the various subcategories of lighting (for example, incandescent, fluorescent, LED) are performing and where to focus retrofit/upgrade efforts based on potential gain
- Search for energy anomalies (for examples, spikes during off hours) as well as energy trends (are energy usage trends increasing or decreasing?)

NOTE: See the Crestron Fusion EM Design Guide pages for detailed information on energy monitoring strategies and methods.

Who's Using It

Facilities managers

DEPLOYMENT INSTRUCTIONS:

Report

This is based on the Energy by Room and Asset Type and Energy Peaks by Room and Asset Type reports.

Required Technology

- Crestron Fusion
- In-room control system
- GLS-EM-MCU and current transforming interface monitors for measuring branch circuits
- Control system connecting to GLS-EM-MCU and transferring data to Crestron Fusion

Required Programming

- Crestron Fusion Room symbol
- Control system connecting to GLS-EM-MCU and transferring data to Crestron Fusion
- Fusion EM modules
- Organize the GLS-EM-MCU monitors to specific energy consumers (for example, HVAC, general plug loads, workspace plug loads, general lighting, workspace lighting)
- When estimating loads (for example, based on specifications for a device and whether it is presently ON/OFF), configure the load category based upon the customer requirements and how granular they need to be (for example, AV equipment as an overall count vs. subcategories for display devices, amplifiers, or other ancillary equipment)
- Subcategory and Category are free-form fields, so make sure to develop a standard set of definitions across the facility and reference them in the program

Crestron Fusion Configuration

- Discover the control system and Crestron Fusion Symbols into the appropriate room(s).

17. Track Display Usage over Time

What It Is

This report indicates the total amount of time a display has been used.

Why You Want It

This report is used to move beyond lamp life and track overall usage of the display in the room. Display Usage offers the ability to determine:

- Total lifetime usage of a device (this is akin to an automobile odometer)
- Number of hours of usage within a particular time span
- When to schedule preventive maintenance or replace a device proactively

Who's Using It

Facilities managers, AV managers, IT managers

DEPLOYMENT INSTRUCTIONS:

Report

This is based on the Display Usage report.

Required Technology

- Crestron Fusion
- In-room control system (optional if using Crestron Connected device)
- Display that can report power on/off feedback back to the control system, such as a Crestron Connected display

Required Programming

- Crestron Fusion Room symbol
- Follow the SSI Model and incorporate the SSI Display Usage module
- Use multiple SSI Display usage modules if there are more than eight displays in a room

Crestron Fusion Configuration

- Discover the control system and Crestron Fusion Symbols into the appropriate room(s).
- Enable logging for the Device Usage attribute.

18. Help Request Tracking

What It Is

Each help request that comes into Crestron Fusion is logged, together with any responses, actions, and resolutions. The report indicates the final resolution and date the case was closed, and indicates how long requests have been open.

Why You Want It

This report tracks and monitors requests and resolutions, by room, to determine:

- Which rooms are generating the most help requests?
- What are the most common requests? Is there a commonly troublesome element?
- Which requests have not been closed?
- Who responds to which requests?
- How long does it take to close requests?

See the Sample Rooms (on page 57) in this workbook for inspiration and guidance for deployment of this application in your organization.

Who's Using It

Help desk managers and operators, AV managers, IT managers

DEPLOYMENT INSTRUCTIONS:

Report

This is based on the Help Request Resolutions report.

Required Technology

- Crestron Fusion
- In-room control system
- Touch screen or other mechanism to generate a help request and receive help request responses

Required Programming

- On a touch screen interface in the room, present a help support screen (to be most effective in analyzing trends, pre-programmed or canned messages are preferred over free-form user entry).
- Follow the SSI Model for programming Crestron Fusion.
- Include the SSI Help Request and Response module.

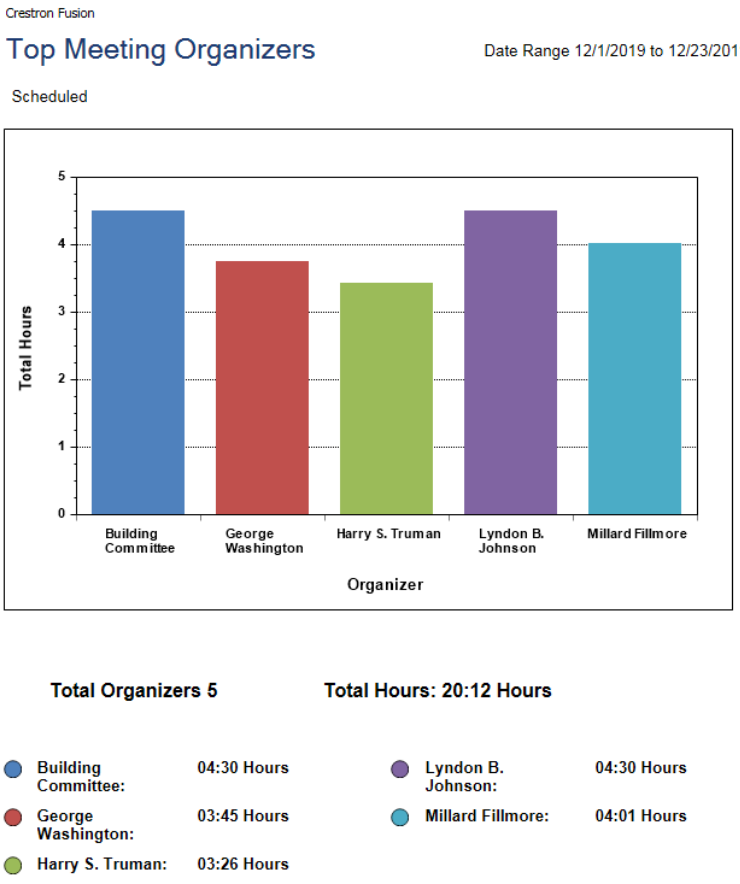
Crestron Fusion Configuration

- Discover the control system and Crestron Fusion Symbols into the appropriate room(s).
- Enable logging for the Help Message attribute.

19. Meeting Composition

What It Is

This report provides insight into the duration and composition of the meetings that take place in your rooms.

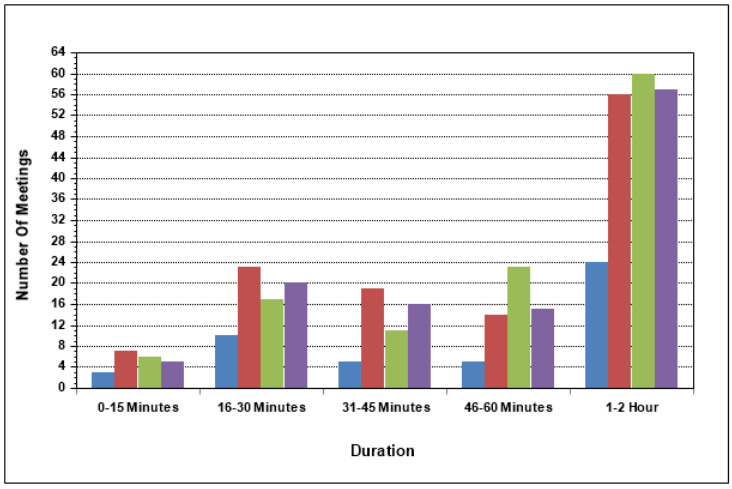


Crestron Fusion

Meeting Duration

Date Range 12/1/2019 to 12/23/2019

All Meetings



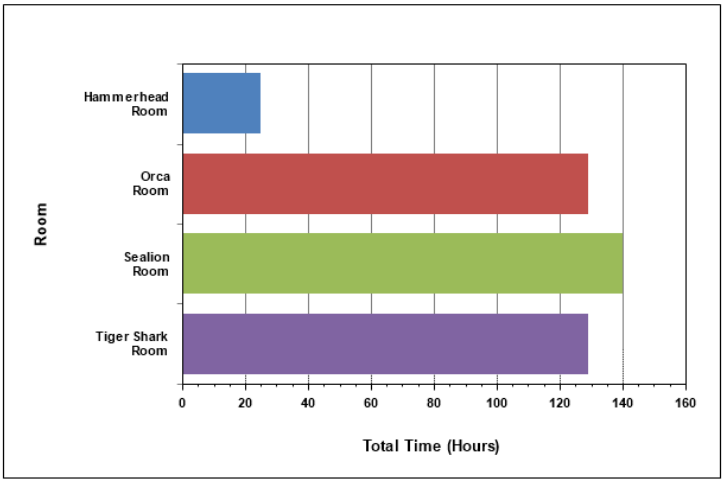
Hammerhead Room	25:00 Hours	Orca Room	129:14 Hours
Sealion Room	140:07 Hours	Tiger Shark Room	128:59 Hours

Crestron Fusion

Meetings by Room

Date Range 12/1/2019 to 12/23/2019

All Meetings



Total Rooms 4 **Total Hours: 423:20**

Hammerhead Room:	25:00	Sealion Room:	140:07
Orca Room:	129:14	Tiger Shark Room:	128:59

Why You Want It

When designing facilities for today's knowledge worker, striking the right balance of meeting spaces can be nothing more than an educated guess, unless you truly know how people actually work. The Meeting Duration report shows the time length distribution of meetings booked. The Meetings by Room report shows the average duration of meetings held in each room. These reports determine the need level for:

- Formal meeting spaces for long-duration meetings
- Short-term meeting spaces, set up for quick meetings
- Ad hoc meeting spaces

See the Sample Rooms (on page 57) in this workbook for inspiration and guidance for deployment of this application in your organization.

Who's Using It

Facilities managers, AV managers, IT managers

DEPLOYMENT INSTRUCTIONS:

Report

This is based on the Top Organizers, Meeting Duration, and Meetings by Room reports, which pulls information from your corporate calendar (such as Microsoft Exchange Server or Office 365).

Required Technology

- Crestron Fusion
- Room scheduling

Required Programming

- none

Crestron Fusion Configuration

- Integrate each room with its corresponding scheduling provider calendar.
- For new installations, configure the Backfill process to retrieve meeting data from meetings that occurred before Crestron Fusion was installed.

20. Call Statistics Tracking

What It Is

This report indicates the status, start, end time, and phone number of the call recipient.

Why You Want It

This report can be leveraged to determine:

- Which sites/numbers are being called on a regular basis, to gain insight to adoption/use rates
- Overall utilization of the video and audio conferencing equipment in a room
- Break out ATC and VTC from other types of device utilization and include some special data elements just for calls, such as call success and failure

Who's Using It

Facilities managers, AV managers, IT managers

DEPLOYMENT INSTRUCTIONS:

Report

This is based on the Call Statistics report.

Required Technology

- Crestron Fusion
- In-room control system
- Audio or video teleconferencing equipment

Required Programming

- Crestron Fusion Room symbol
- Track and process the call usage strings following the SSI programming model.
    - Assign each ATC/VTC (up to five) in a room that you want to track to the Call Statistics module.
    - Connect the module to the reserved Device Usage attribute.

Crestron Fusion Configuration

- Discover the control system and Crestron Fusion Symbols into the appropriate room(s).
- Enable logging for the Device Usage attribute.

21. Track Error Alerts over Time

What It Is

This report summarizes the category of alerts logged by each room as Notices, Warnings, and Errors.

Why You Want It

Error Alerts help determine:

- The total number of issues generated in the facility
- The specific reported issue text
- What are the most common issues? Is there a commonly troublesome element?

Who's Using It

Facilities managers, AV managers, IT managers

DEPLOYMENT INSTRUCTIONS:

Report

This is based on the Error Alerts report.

Required Technology

- Crestron Fusion
- In-room control system

Required Programming

- Crestron Fusion Room symbol
- Follow the SSI Model for Crestron Fusion programming
- Include the SSI Equipment Status module

Crestron Fusion Configuration

- Discover the control system and Crestron Fusion Symbols into the appropriate room(s).
- Enable logging for the Error Message attribute

Sample Rooms

To provide guidance and inspiration for how to get the most out of your Crestron Fusion project, we've provided an overview of the project design goals and guidelines for the sample rooms below.

Huddle Space

Overview

A huddle space is a less formal meeting space in which people can collaborate, rather than a meeting room or conference room. The design goals for huddle spaces are to provide:

- More plentiful, lower cost informal meeting spaces for a smaller number of participants, typically three to six
- More readily available informal meeting spaces to promote small group collaboration
- To offer quick access to a smaller menu of in-room technology, such as a simple flat screen display, wireless presentation, BYOD simple video conferencing, as well as simplified, quick meeting starts
- A more compact physical footprint, so a facility can contain more of them

Huddle spaces are intended for more spontaneous meetings, and are typically not implemented with room scheduling if the huddle spaces are grouped in one central area. However, at a minimum, ad-hoc reservation capability in support of room find is a common need if the spaces are dispersed across a floor or building, or if full reporting on usage is desired (for example, average meeting length, number of meetings held, time of day of usage, etc.). Otherwise, simple occupancy detection could be employed for basic reporting of usage.

Recommended Applications

Monitor and Help Desk

- ✓ Essential AV Monitoring and Alerts
- ✓ Custom alerts
- ✓ Documentation
- ✓ Asset Management

Scheduling and Facilities Management

- ✓ Emergency Notifications
- ✓ Integrated One-Touch Meeting Joins
- ✓ Balancing Room Utilization in the Organization
- ✓ Occupancy Tracking

Reporting

- ✓ ROI: Utilization of In-room AV Equipment
- ✓ Track Display Usage Over Time
- ✓ Meeting Composition
- ✓ Track Notifications Over Time

Attributes to Monitor

- Crestron Connected device status
- Occupancy

Minimum Suggested Components

- Crestron Connected display sized for the space
- Crestron AirMedia® wireless presentation interface

Minimum Suggested Notifications

- Alerts for offline/online based on Crestron Connected devices

Recommended Reports

- Display Usage
- Device Usage
- Error Alerts
- Room Occupancy
- Meeting Reports (if Scheduled): Room Utilization, Meetings by Room

Recommended One-touch Meeting Actions and Presets

- Support for one-touch joining meetings with Microsoft Teams® or Skype® software

Meeting Room

Overview

At its core, a meeting or conference room offers advanced AV and audio conference capabilities for traditional/formal meetings. The design goals for meeting rooms are to provide:

- An engaging meeting environment
- Leading AV technologies, including AV inputs that support multiple presentation platforms, from HDMI, and DisplayPort™ connectivity, to wireless technologies for laptops and mobile platforms
- A simple conference call system with high-quality audio for all participants
- Bright, large display(s), with clear visibility and readability for all participants
- An in-room touch screen from which participants can easily control all equipment
- A room scheduling touch screen just outside the room, enabling facilities managers to gather data on room usage (for example, the number of meetings held, top meeting organizers, etc.) and equipment usage (for example, display usage, input statistics, button tracking)

Recommended Applications

Monitor and Help Desk

- ✓ Essential AV Monitoring and Alerts
- ✓ Help Desk
- ✓ Control Systems from XPanel
- ✓ Custom Alerts and Notifications
- ✓ Documentation
- ✓ Asset Management

Scheduling and Facilities Management

- ✓ Basic Room Scheduling
- ✓ Advanced Scheduling and Custom Automation
- ✓ Large Digital Signage of Event Schedule
- ✓ Emergency Notifications
- ✓ One-touch Meeting
- ✓ Meeting and Occupancy Rules
- ✓ Balancing Room Utilization in the Organization
- ✓ Lighting and Shading Integration
- ✓ Integrated Building Scheduling and Automation

Reporting

- ✓ ROI: Utilzation of In-room AV Equipment
- ✓ Track Display Usage Over Time
- ✓ Help Desk Tracking
- ✓ Meeting Composition
- ✓ Call Statistics Tracking
- ✓ Track Error Alerts Over Time

Attributes to Monitor

- Call status
- Occupancy
- Device usage
- Display power
- Display usage
- DM® device input usage

Minimum Suggested Components

- One or two Crestron Connected displays/projectors sized for the space
- Multiple Crestron FlipTops™ or Crestron Connect It™ tabletop-accessible cabling interfaces
- FlipTop™ Touch Screen Control System with DMPS
- Occupancy sensor
- Crestron Shading Solutions (optional)
- Light sensor (optional)
- Crestron AirMedia wireless presentation interface
- Crestron Room Scheduling Touch Screen outside the room

Minimum Suggested Notifications

- Alerts for offline/online based on Crestron Connected devices

Recommended Reports

- Display Usage
- Device Usage
- Room Occupancy
- Meeting Reports: Room Utilization, Meetings by Room, Meeting Duration

Recommended One-touch Meeting Actions and Presets

- Start Meeting
- Crestron Fusion meeting Actions

Unified Communications (UC) Room

Overview

The unified communications room offers more advanced video conferencing capabilities than traditional meeting rooms, and in a more formal environment. The design goals for unified communications rooms are to provide:

- An engaging environment for holding meetings with participants in multiple locations, from other UC rooms to individual participants
- An immersive environment in which participants experience no difference in their ability to communicate, regardless of their location, thereby blurring the lines between presence and virtual presence
- In the room, use any soft phone, web conferencing, or UC application to collaborate right from your laptop.
- Secure, wireless presentation support on the room display, from a laptop, smart phone, tablet, or connect directly via HDMI
- One or more video cameras, plus dedicated microphones and audio processing equipment
- Bright, large displays, with clear visibility and readability for all participants and dedicated visuals for all virtual participants including onscreen room availability and meeting details
- Occupancy sensor for usage data and automation
- An in-room touch screen from which participants can easily control all equipment, plus a room scheduling touch screen just outside the room, enabling facilities managers to gather data on room usage (for example, the number of meetings held, top meeting organizers, etc.) and equipment usage (for example, display usage, input statistics, button tracking)

Recommended Applications

Monitor and Help Desk

- ✓ Essential AV Monitoring and Alerts
- ✓ Custom Alerts and Notifications
- ✓ Documentation
- ✓ Asset Management

Scheduling and Facilities Management

- ✓ Basic Room Scheduling
- ✓ Advanced Scheduling and Custom Automation
- ✓ Large Digital Signage of Event Schedule
- ✓ One-touch Meeting
- ✓ Balancing Room Utilization in the Organization

Reporting

- ✓ ROI: Utilzation of In-room AV Equipment
- ✓ Track Display Usage Over Time
- ✓ Meeting Composition
- ✓ Call Statistics Tracking
- ✓ Track Error Alerts Over Time

Attributes to Monitor

- Call status
- Occupancy
- Device usage
- Current source
- Display power
- Display usage

Minimum Suggested Components

- Multiple Crestron Connected displays/projectors sized for the space
- Occupancy sensor
- Crestron AirMedia wireless presentation interface
- Crestron Room Scheduling Touch Screen outside the room

Minimum Suggested Notifications

- Alerts for offline/online based on Crestron Connected devices, control processors, and scheduling touch screen
- Critical alerts generated by control processors for devices in the room
- Help request alerts generated by user request from an in-room touch screen

Recommended Reports

- Display Usage
- Device Usage
- Room Occupancy
- Meeting Reports (all): Room Utilization, Meetings by Room, Meeting Duration, Top Meeting Organizers

Recommended One-touch Meeting Actions and Presets

- Start Meeting
- Crestron Fusion meeting Actions

Classroom

Overview

The classroom offers a modern lecture or learning space with a dedicated presentation podium and seating for multiple attendees who may participate in the presentation. The design goals for classrooms are to provide:

- An engaging environment suitable for learning, employing all manner of AV teaching aids
- Distance learning capability and/or lecture capture
- Leading AV technologies, including AV inputs supporting multiple presentation platforms, from VGA, HDMI, and DisplayPort, to wireless technologies for laptops and mobile platforms that the instructor can use to present to the participants on their device's display
- A wireless lavalier microphone system for high-quality audio reproduction for the instructor
- Bright, large displays(s), with clear visibility and readability for all participants
- A podium-mounted touch screen from which the instructor can control all equipment, start and stop AV recording, and select participants to present
- Scheduling touch screen just outside the room that enables students to locate the correct room, and enables facilities managers to gather data on equipment usage (for example, display usage for lamp replacement on large screen projectors, input statistics, button tracking), and room usage (for example, the number of meetings held, top meeting organizers, etc.)

Recommended Applications

Monitor and Help Desk

- ✓ Essential AV Monitoring and Alerts
- ✓ Help Desk
- ✓ Control Systems from XPanel
- ✓ Custom Alerts and Notifications
- ✓ Documentation
- ✓ Asset Management

Scheduling and Facilities Management

- ✓ Basic Room Scheduling
- ✓ Advanced Scheduling and Custom Automation
- ✓ Emergency Notifications
- ✓ One-touch Meeting
- ✓ Balancing Room Utilization in the Organization

- ✓ Lighting and Shading Integration
- ✓ Integrated Building Scheduling and Automation

Reporting

- ✓ ROI: Utilzation of In-room AV Equipment
- ✓ Track Display Usage Over Time
- ✓ Help Desk Tracking
- ✓ Track Error Alerts Over Time

Attributes to Monitor

- Occupancy
- Device usage
- Display power
- DM Device input usage (for example, HDMI vs. wireless)
- Display usage

Minimum Suggested Components

- Crestron Connected display sized for the space
- DMPS switcher/processor
- Occupancy sensor
- Crestron AirMedia wireless presentation interface
- Crestron Room Scheduling Touch Screen outside the room

Minimum Suggested Notifications

- Alerts for offline/online based on Crestron Connected devices, control processors, and scheduling touch screen
- Notifications generated by control processors for devices in the room
- Help request alerts generated by user request from an in-room touch screen

Recommended Reports

- Display Usage
- Device Usage
- Room Occupancy
- Room Utilization

Recommended One-touch Meeting Actions and Presets

- Crestron Fusion meeting Actions for scheduled room shutdown

Appendix: Specifier Worksheet

Crestron Fusion Install File Version: ☐ 9.3.19.29 ☐ 10.0.10.578 ☐ Other _____

Server OS: ☐ Windows® Server 2012 ☐ Windows Server 2008 R2 ☐ Other _____
All updates performed: ☐ Yes ☐ No

Language and Keyboard Settings (User Language Settings): _____
_____

System Language Setting*: _____

Host: ☐ Physical ☐ Virtual Hostname/IPAddress: _____

Processor: _____ Cores: _____

RAM: _____ Disk Size: _____

NIC: ☐ 10 Mb/s ☐ 100 Mb/s ☐ 1 Gb/s AD Integration: ☐ Yes ☐ No

Other Applications on Server: _____

Services Run: ☐ Domain Service account ☐ Local System

Service Name: _____ Service Pass: _____

Web authentication used: _____

Super Admin Group (Windows Auth only): _____

SQL

SQL Version: _____

SQL running on Crestron Fusion Server: ☐ Yes ☐ No SQL Host: ☐ Physical ☐ Virtual

SQL Hostname/IPAddress/Instance: _____

Port (if not standard: _____

OS: _____ Processor: _____

Cores: _____ RAM: _____

Language and Keyboard Settings (User Language Settings): _____

System Language Setting*: _____

AD Integration: ☐ Yes ☐ No Communication Protocols: ☐ TCP/IP

Database Catalog Name: _____

Other Databases Present on SQL: ☐ Yes ☐ No

Crestron Fusion access using: ☐ SQL Authentication ☐ Windows Authentication

Crestron Fusion domain Service Account has SysAdmin: ☐ Yes ☐ No

Scheduling

Exchange (if applicable)

Exchange on dedicated server: ☐ Yes ☐ No
Exchange version: ☐ 2003 ☐ 2007 ☐ 2010 ☐ 2013 ☐ 0365

Selected Crestron Fusion—EXCH communication: ☐ EWS
Load balancer used for access: ☐ Yes ☐ No

Proxy used: ☐ Yes ☐ No
Direct access to back end Exchange server (CAS server): ☐ Yes ☐ No

Account(s) used to book rooms (should be same Domain Service Account specified above): _____

Booker account has FULL mailbox right: ☐ Yes ☐ No

HCL Domino® Software (if applicable)

HCL Notes client installed on RV Server: ☐ Yes ☐ No
Exact HCL client version: ☐ 7.0 ☐ 8.0 ☐ 8.5.0 ☐ Other _____

Client installation performed by local IT: ☐ Yes ☐ No
Client configuration performed by local IT: ☐ Yes ☐ No

Client installed using RV service account: ☐ Yes ☐ No
Client installed with option "for everyone": ☐ Yes ☐ No

ID file access rights: ☐ Read access to the Domino Directory
☐ Read/write access to the resource reservations database

Does client work stand-alone, with RV services off: ☐ Yes ☐ No
Can bookings be made with client when RV services are off: ☐ Yes ☐ No

TPMC-3SM, TPMC-4SM, TSW-730, TSS-732, TSS-752 (if applicable)

Number of Scheduling Panels/Rooms: _____
PUF used to update panels: _____
OS version: _____

Firmware version: _____ OOTB version: _____
Schedule Engine version: _____ UI version: _____

Powered using Crestron PoE injector of switch: ☐ Yes ☐ No

* Go to winver.exe > right-click > Properties > Details > Language

Crestron Electronics, Inc.
15 Volvo Drive, Rockleigh, NJ 07647
Tel: 888.CRESTRON
Fax: 201.767.7656
www.crestron.com

Design Guide — Doc. **8619A**
(2055127)
03/04/20
Specifications subject to
change without notice.