



EchoSystem 5.5 Documentation
Device Monitor User Guide

August, 2015

Echo360 is continually updating the documentation. This manual is a snapshot as of the date above. Check the Echo360 documentation wiki for the most current version: <http://confluence.echo360.com/display/55/EchoSystem+Welcome+and+FAQs>

Classroom Capture Software

In this section:

- [Overview](#)
- [High-Level Procedure](#)

Overview

Classroom Capture is a Windows-only application suited for audio, video, and local screen capture from a dedicated podium or lectern PC inside the classroom.

Follow the [high-level procedure](#) below to install and configure Classroom Capture.

Once Classroom Capture is installed and configured, you can use it as a device to schedule and record classroom lectures. Academic Staff can use it to manipulate scheduled recordings and capture ad hoc lectures as needed. [Classroom Capture for Academic Staff](#) gives more details about how to use the interface to manipulate both scheduled and ad hoc captures. You may wish to review this page yourself or publicize it. Those same instructions are included in PDF form with the installation, and are shown when clicking the Help icon in the top right corner.

If you are using CAS or Shibboleth for user authentication, please see [CAS and Shibboleth Authentication](#) for information regarding single-sign-on limitations and workarounds for Classroom Capture.

High-Level Procedure

Setting up Classroom Capture requires the following steps:

1. Review the [Classroom Capture Specifications](#).
2. [Download the Software Capture installer](#).
3. [Install Classroom Capture Software](#).
4. [Register the Classroom Capture device](#) on the ESS (may not be required if upgrading).
5. [Attach and configure the input devices](#) (cameras and microphones).
6. [Assign the device to a room](#) and configure auto-detected input sources.
7. [License the room with a Classroom Capture license](#).

When finished, the Classroom Capture PC can be scheduled on the ESS and can accept scheduled classroom and ad hoc recordings.

Podium PC Must Be On and User Must Be Logged In

In order for Classroom Capture to record a scheduled lecture:

- The podium PC **must** be on
- A user **must be logged in**

This allows scheduled captures to begin at the predetermined time. Furthermore, if the user logs out during the capture, **the capture will stop at that point.**

The **best practice** is to have the podium PC continuously logged in to a shared account. An **alternate practice** is to have Presenters (the Instructors or Teaching Assistants) log in to the PC as soon as they enter the classroom and **before** the capture is scheduled to begin. This allows the PC to complete the login process and begin recording the lecture. In this case, be sure each Presenter logs out **before** the scheduled start of the next capture, particularly where back-to-back captures are scheduled.

Classroom Capture Specifications

In this section:

- [Capture Options](#)
- [Capture Products](#)
- [Hardware and Software Requirements](#)
- [Deployment Considerations](#)

Alternate name for Classroom Capture Software

As of EchoSystem 5.4, Classroom Capture has been incorporated as part of the Software Capture product for Windows, which also includes Personal Software Capture. In the documentation, it may be referred to as either *Software Capture for the Classroom* or *Classroom Capture*. In previous versions of EchoSystem, it is sometimes called EchoCapture Software, Software Capture, or Podium Capture.

Capture Options

Software Capture for the Classroom supports:

- Audio (**A**)
- Audio/Video (**A/V**)
- Audio/Display (**A/D**)
- Audio/Display/Video (**A/D/V**)
- Audio/Video/Video (**A/V/V**)

Capture Products

Classroom Capture Software can generate these products:

- Podcast - MP3 audio
- Vodcast - M4V audio and display
- Audio Rich Media - audio and display
- EchoPlayer - audio, display, and video

Hardware and Software Requirements

- Windows 7 or Windows 8
- Intel i5-2400 Quad Core Processor
- 2 GB RAM
- 10/100 network interface
- 20 GB free hard drive space
- Internal audio device or USB port for audio capture

Capturing Memory-Intensive Applications

Capturing CPU or memory-intensive applications such as CAD or 3D modeling software may require a more capable computer


Audio is captured using the built-in sound card input on the computer running the capture software. A 1/8" line-in/mic-in connection, USB based audio or capture card can be used for capturing audio. Audio levels should be configured on the input to be as high as possible without reaching maximum levels during peaks or causing audible distortion during the recording.

The display is captured from the local VGA screen buffer, and requires no external connection or configuration.

Deployment Considerations

Networking

Classroom Capture runs on Windows PCs and depends on Windows networking components. It must be able to resolve the host name of the EchoSystem Server (ESS). Additionally, the Ad Hoc Web Interface interface is provided by a highly secure local HTTP server. To access the Ad Hoc Web Interface interface, the Windows firewall must allow incoming connections to the Ad Hoc Web Interface interface port, which is configured in the ESS.

 The Ad Hoc Web Interface interface can be disabled in the ESS if necessary.

Cabling

Cabling must be provided from the audio or video source to the podium PC for audio or video capture.

Using Configuration Management Suites

EchoSystem is designed to allow the ESS to remotely manage and upgrade capture software installations, and creates a number of files during the capture and upload process. If you intend to use configuration management tools, such as Faronics Deep Freeze, you must configure the configuration management tool so that the capture software is allowed access to key directories and files, and must have capture storage directories that are not automatically purged/cleared by other applications. Classroom Capture software directories and executables are discussed in the [Server Installation Guide](#).

Install Classroom Capture Software

In this section:

- [Upgrading from Previous Versions](#)
- [Download the Installer](#)
- [Run the Installer](#)
- [Register the Classroom Capture Installation](#)



Best Practice

Refer to the [Prerequisite Installation Checklist](#) and [Post-Installation Checklist](#) documents during installation.

Upgrading from Previous Versions

Notification of this and future upgrades will appear as a notice in the bottom bar of the Classroom Capture window. Clicking on this notice launches the upgrade.

Download the Installer

Download the Classroom Capture (Windows) installer from the EchoSystem Server (ESS). A wizard guides you through installation.

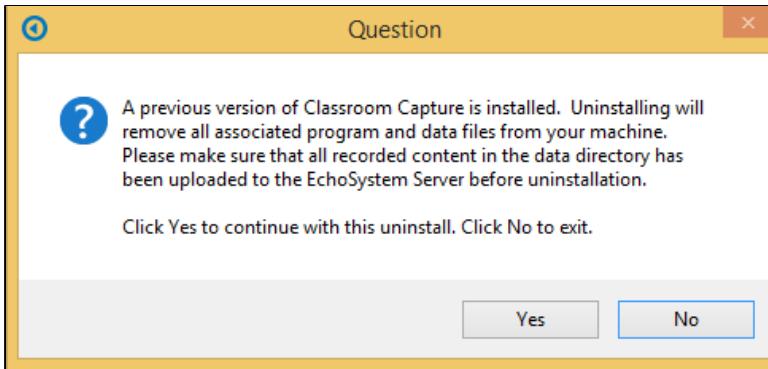
1. Log in to the ESS.
2. Navigate to the **Downloads** tab, shown in the below figure.

Software Installer Downloads		1 - 7 of 7
Description	File	
Installer for EchoSystem Personal Capture (Windows)	EchoSystemPersonalCaptureForWindows_5.4.41370.exe	
Installer for EchoSystem Classroom Capture (Windows)	EchoSystemClassroomCaptureForWindows_5.4.41370.exe	
Installer for EchoSystem Personal Capture (Mac OS X)	EchoSystemPersonalCaptureForMac_5.4.41370.zip	
Installer for EchoSystem Processor (Windows)	EchoSystemProcessorForWindows_5.4.41370.exe	
Installer for EchoSystem Processor (Linux 64) [launch from console with sudo]	EchoSystemProcessorForLinux64_5.4.41370.bin	
Installer for EchoSystem Processor (Linux 32) [launch from console with sudo]	EchoSystemProcessorForLinux32_5.4.41370.bin	
Installer for EchoSystem Streaming Configuration Bundle	StreamingBundle_5.4.41161.zip	

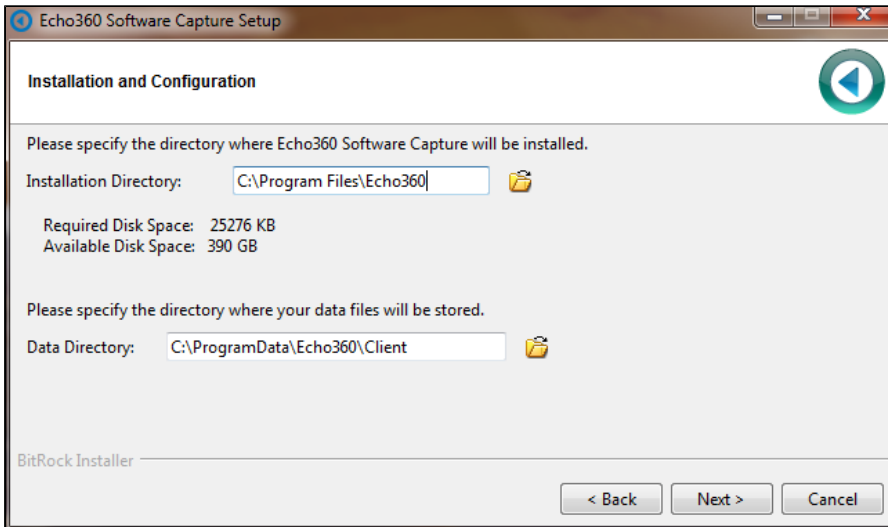
3. Download the installer by selecting the appropriate link, identified in the above figure. The installer must be run locally, so save the file to your computer.

Run the Installer

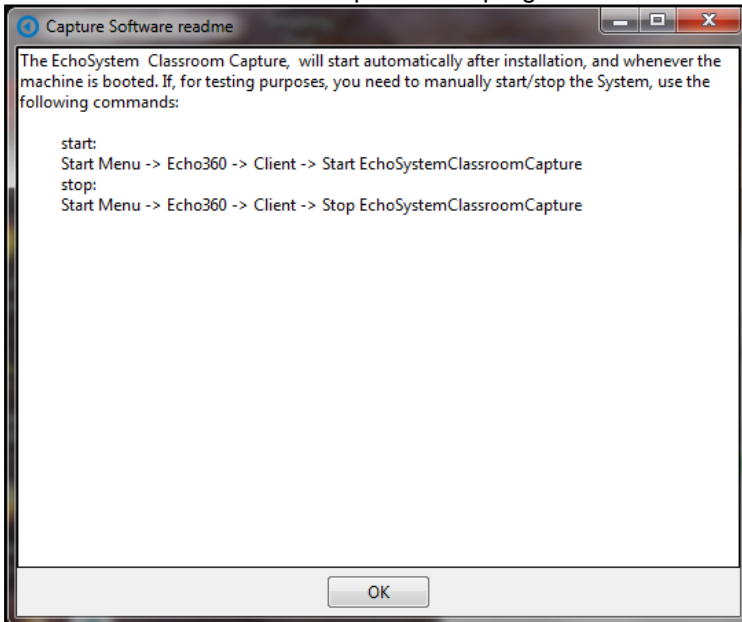
1. Log into the PC as an Administrator.
2. Locate the installer executable and double-click it. This starts the installation process.
3. If you are upgrading from a previous version of Classroom Capture, you will receive a confirmation dialog box, shown below, requesting to uninstall the old version. Click yes to allow the wizard to uninstall the old version and continue with the current installation.



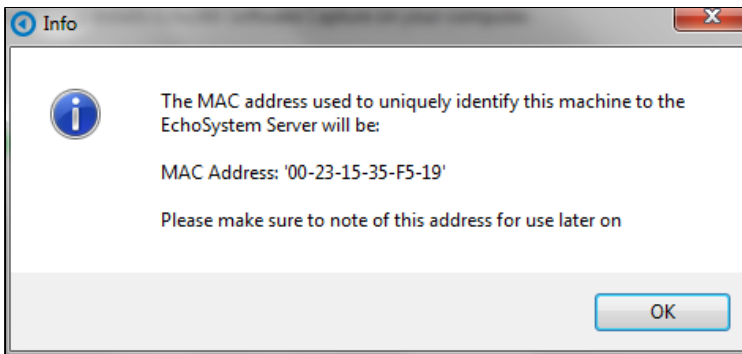
4. Follow the installation wizard.
5. Confirm or change the locations for installation and for capture files, as shown in the below figure, then click **Next**.



6. Continue through the installation wizard. You will receive a dialog box, shown below, providing start/stop instructions for Classroom Capture. The program is automatically configured to start when Windows starts.



7. Click **OK**. You then receive a dialog box, shown below, providing the MAC address of the computer. **You will need to know the MAC address in order to register the device on the ESS.**



8. Continue through the installation wizard. When complete, click **Finish** to close the installer.

i Troubleshooting Access Rights Issues During Installation

If you have access rights issues during installation, your System Administrator may need to change the permissions on the local Users group on the podium PC for the **C:\Windows\temp** directory. Typically the local Users group only has Read & Execute rights. The local Users group must have the following permissions for this directory:

- Modify
- Read & Execute
- List Folder Contents
- Read
- Write

Register the Classroom Capture Installation

Classroom Capture functions as a recording device, just like the capture appliances do. In order to use Classroom Capture as a recording device, you need to register the installation on the ESS. You will need to know the MAC address of each PC on which Classroom Capture is installed in order to register them with the ESS.

To register the Classroom Capture Device/Installation:

1. In the ESS application, navigate to **Configuration > Devices**.
2. Select the **Unregistered** tab. The Unregistered Devices screen opens, showing all of the unregistered devices.

Active: 5		Unregistered: 4		Retired: 0	
Summary	Organization	Type	Capture Status	Log Upload Status	Up Time
<input type="checkbox"/> 64-27-37-75-5e-1d 10.90.14.148 (reinitialize)	echo360	Classroom Capture	New	New	n/a

3. Highlight the Classroom Capture installation that matches the MAC address provided during installation.
4. Click **register**. A pop-up dialog box appears.
5. Select the **Organization** for the device from the drop-down list.
6. Click **Register**.
7. Select the **Active** tab to check that the device is now Active.
8. Notice that the MAC address of the Classroom Capture installation is listed in the Summary column.
9. Wait for the capture status and log upload status to change to **Idle**. This shows that the Classroom Capture device has been successfully registered.

Once registered, the Classroom Capture installation can be assigned to a room and used for either a scheduled or ad hoc capture.

Install USB Cameras for Classroom Capture

In this section:

- [Overview](#)
- [Installation Procedure](#)

Overview

When you install a USB camera, you typically install a camera application and camera driver software on the podium PC that is also running Classroom Capture. The camera application (not the driver) can sometimes interfere with Classroom Capture. This occurs because both the camera application and Classroom Capture need to communicate with the camera driver and will sometimes "talk" to the driver at the same time. If the camera application is talking to the driver, Classroom Capture cannot and captures fail.

To prevent this possibility, follow the [Installation Procedure](#) below, which shows you how to:

1. **Exit** the camera application. Do this after it is configured. You will not need to use the camera application because Classroom Capture controls the camera for you.
2. **Prevent** the camera application from starting automatically upon login. Many camera applications do this by running as a Windows system tray application.
3. **Remove** the camera application icon from the Windows system tray. You may be tempted to exit the camera application but allow the icon to remain in the system tray. We recommend removing the icon entirely. If the application is launched accidentally (or automatically upon subsequent login), it could interfere with Classroom Capture.

Be sure also to refer to our list of [Recommended Cameras and Input Devices](#), specifically [recommended devices for CCAP and PCAP Windows](#) or [recommended devices for PCAP Mac](#) as applies to the feature and platform you are using.

Installation Procedure

1. Be sure you are installing a supported camera. See [supported USB devices](#).
2. Place the camera in position.
3. Following the camera manufacturer's directions, install the camera application on the podium PC.
4. Make sure the camera is connected to the podium PC's USB port.
5. If you want the camera to capture using particular settings (such as frame rate or resolution quality), configure it using the camera application. Classroom Capture will respect these settings.
6. Exit the camera application.
7. Prevent the camera application from starting automatically upon login. Follow the instructions provided by Microsoft, located at: <http://windows.microsoft.com/en-US/windows-vista/Stop-a-program-from-running-automatically-when-Windows-starts>.
8. If an icon for the camera application still appears in the Windows system tray, remove it. Follow the instructions provided by Microsoft, located at: <http://windows.microsoft.com/en-US/windows-vista/Remove-icons-from-the-notification-area-system-tray>.

Manage Classroom Capture Sources

In this section:

- [Overview](#)
- [Configure Device Input for Captures - Current Room Assignment](#)
- [After Replacing, Removing, or Installing a New Input Device](#)

Overview

Classroom Capture allows you to capture video input along with display and audio input. This capability is made possible by support for USB-connected input devices, including USB cameras and USB microphones. Integrated web cameras (if available on the podium PC) are also supported. Integrated webcams can be used because they are typically connected via USB, although internally. References in this documentation to "USB cameras" or "USB video sources" includes integrated webcams unless stated otherwise.

Classroom Capture automatically detects any connected sources and lists them in the Current Room Assignment section of the Edit Device page, shown in the figure below.

Current Room Assignment

Room :

This room must first be licensed to capture. Please select a license :

License : Available : 16

Device Configuration :

Capture Quality :

Audio Source :

Display Source :

Secondary USB Input

USB Input Source :

The Current Room Assignment section allows you to do the following:

- Assign the device to a room
- License the room for Classroom Capture
- Select the Capture Quality for the captures.
- Select or Deselect the input types you want to capture, then select the Source device for that input.

When you attach a USB camera to the podium PC, the system automatically detects the camera and selects it as the source for USB Input for video capture. The same is not true for USB microphones however. You must manually select the external microphone as the Audio source, unless it is configured as the Windows default audio device. You can also select the USB camera for Audio input, if one is attached and it has a built-in microphone.

While the auto-detect feature will recognize and select an attached USB camera for video input, you are **strongly** encouraged to [review the Current Room Assignment settings](#), shown in the next section, to ensure they are correct.

Classroom Capture supports the use of multiple USB devices, capturing:

- Audio (A)
- Audio/Video (A/V)
- Audio/Display (A/D)
- Audio/Display/Video (A/D/V)
- Audio/Video/Video (A/V/V)

Be sure also to refer to our list of [Recommended Cameras and Input Devices](#), specifically [recommended devices for CCAP](#).

Configure Device Input for Captures - Current Room Assignment

Use the steps below to attach input devices, then review and edit the Current Room Assignment settings for each registered Classroom Capture device (installation).

1. Where applicable, connect the USB source(s) to the Classroom Capture podium PC. To be sure you are using supported source devices, see [supported USB-input devices](#).
2. Review the camera settings in the camera's vendor-supplied software and adjust if necessary.
3. The camera application and Classroom Capture both need to communicate with the camera driver and will sometimes "talk" to the driver at the same time. If the camera application is talking to the driver, Classroom Capture cannot and captures fail. See [Install USB Cameras for Classroom Capture](#) for details on how to avoid this contention issue.
4. In the ESS, navigate to **Configuration > Devices**.
5. You should see your Classroom Capture devices in the Active devices list, as shown in the figure below. If you do not, be sure you have [registered the Classroom Capture software](#).

Active: 11		Unregistered: 0	
Summary ▲	Organization	Type	
<input type="checkbox"/> 00-13-02-48-77-31 SoftwareCaptureTest Campus SoftwareCaptureTest Building, SystrayRoom	Institution	Classroom Capture	
<input type="checkbox"/> 00-13-95-05-9f-20 SoftwareCaptureTest Campus SoftwareCaptureTest Building, TitusApplianceRoom	Institution	SafeCapture HD	
<input type="checkbox"/> 00-13-95-06-ee-01 SoftwareCaptureTest Campus SoftwareCaptureTest Building, SteveTitusCubeRoom	Institution	SafeCapture HD	
<input type="checkbox"/> 00-13-95-08-55-f6 GregM East Martin Hall, Swf Chunker Room	Institution	SafeCapture HD	
<input type="checkbox"/> 00-13-95-08-56-1e SoftwareCaptureTest Campus SoftwareCaptureTest Building, SerialTrainingRoom	Institution	SafeCapture HD	
<input type="checkbox"/> 12-31-38-04-d6-51 Linux x32 Processor	Institution	Processor	
<input type="checkbox"/> b8-ac-6f-19-d3-50 SoftwareCaptureTest Campus SoftwareCaptureTest Building, SoftwareCaptureTest Room	Institution	Classroom Capture	
<input type="checkbox"/> b8-ac-6f-1e-e6-18 SoftwareCaptureTest Campus SoftwareCaptureTest Building, Silpa's Capture Software Room	Institution	Classroom Capture	
<input type="checkbox"/> bc-30-5b-e6-73-df Dulles Lerner HQ, Landing Pad #1	Institution / American College	Classroom Capture	
<input type="checkbox"/> c4-17-fe-ae-70-04 SoftwareCaptureTest Campus SoftwareCaptureTest Building, Steve Homerom	Institution	Classroom Capture	

6. In the Active devices list, hover over the device name and click **edit**. The Edit Devices page appears, including the Current Room Assignment section shown in the figure at the top of the page.

Current Room Assignment

Room : echo.Campus echo.Building Belknap - 201

This room must first be licensed to capture. Please select a license :

License : All
Available : 16

Device Configuration : (custom)

Capture Quality : Medium

Audio Source : Microphone (Realtek High Definition Audio)

Display Source : Primary Display

Secondary USB Input

USB Input Source : USB 2.0 Camera

7. In the **Current Room Assignment** settings, review and edit the selections as follows:
- Identify the **Room** (Campus, Building and Room) where this Classroom Capture installation is located
 - Use the **License** drop-down list to assign a Classroom Capture license to the room, if necessary.
 - If necessary, select a Device Configuration from the drop-down list. You can probably leave this as the default (custom) setting.
 - Select **Capture Quality** for the captures:
 - Low** - This creates a capture with low resolution video and display. The lower resolution keeps the final file size to a minimum. This is a good choice if there are bandwidth issues that may cause larger file uploads or capture playback to fail.
 - Medium** - This is the default setting. It generates a capture with medium resolution video and display. This setting creates medium sized files for the recording. This setting is probably sufficient for playback on most devices.
 - High** - This setting creates high-definition resolution for video and display. Consequently this setting also creates very large files for these captures. Use this setting if you have visual details in the display or video of the capture that requires students to see the recording in very high resolution. Otherwise this setting should be used sparingly, due to the time required to upload and process the completed capture. In addition, this setting uses significant computer resources; if the podium PC cannot process a high quality capture properly, your capture may be blank. If you DO need to use the High Quality setting, [run a test capture first](#), to be sure it will work.

You may also want to refer to [Configuring Quality Selection Settings - Advanced Users Only](#) below.

8. Select up to **three** inputs for the device to capture. As noted above, you can capture A/D, A/V, A/D/V or A/V/V inputs at any given time.
- Audio** is selected by default. All captures will include audio. Select the appropriate **Source** for the audio input.
 - Display** is selected by default but can be unchecked if appropriate. If Display is to be captured, select the appropriate **Source** for the display input.
 - Secondary USB Input** allows you to select an additional device for input, such as a second video camera for A/V/V recordings. If Secondary USB Input is selected, also select the appropriate **Source** for input.
 - USB Input** is selected by default if there is a camera attached to the device (either external or internal webcam). If using the USB Input for capture, select the **Source** for this input.

- When finished with the Edit Device page, click **Save**.

Configuring Quality Selection Settings - Advanced Users Only

The resolution defaults for Classroom Capture outputs are maintained in a set of XML files installed with the program. If the resolution and other output details for the pre-configured selections are not appropriate for your situation and needs, you can manually configure these files. Changes in the XML files will change the output generated for captures made with the corresponding selection.

If you are not familiar with working in XML files, you are **strongly encouraged** to work with a local expert or contact [Echo360 Customer Support](#) for assistance. **You must have Windows Administrator rights on the computer to alter these files.**

The output quality XML files are located in the `/config/` sub-folder of the Data directory identified during installation. By default this is: `C:/ProgramData/Echo360/PersonalCapture/config`

The directory contains the following files:

- **HighRes.xml** - This file controls the output resolution of the High Quality/Larger Files selection.
- **MedRes.xml** - This file controls the output resolution of the Medium Quality/Medium Files selection.
- **LowRes.xml** - This file controls the output resolution of the Low Quality/Smaller Files selection.

Each XML file contains property values that determine the capture output quality for Audio, Display, and Video inputs. If needed, you may change these files to generate different output settings for each of the selection options.

You must restart the Classroom Capture application for your changes to these files to take effect.

Create Copies of the Original XML Files Before Editing

We **strongly recommend** that you save a copy of the original XML files, as installed, PRIOR to making changes. In the event something happens where the altered files do not work or are not generating the desired output, you will want to have the original files for the program to use. You can simply create a copy in the same directory with "_ORIG" appended to the file name. For example, `MedRes_ORIG.xml`.

After Replacing, Removing, or Installing a New Input Device

Best Practice: Static Configurations

The USB device support is designed specifically for static (scheduled) venue configurations. Although an Academic Staff member can plug a source device into the USB port and it will be detected, you, the Administrator, should review any new source configurations before the start of the capture session.

Follow these steps if you:

- Replaced an existing source device
- Installed a new or additional USB source device to the podium PC
- Removed an existing USB source in favor of using another already-connected USB source or an existing integrated input source, such as the integrated webcam for video or internal microphone for audio

After installing, replacing, or removing an input device:

1. Connect the new input source device to the USB port of the podium PC. If you are removing a source device,

skip to step 3.

2. Review the camera settings in the camera vendor-supplied software, and adjust as appropriate. Also refer to [Install USB Cameras for Classroom Capture](#) for configuration instructions to avoid contention for the camera driver between Classroom Capture and the camera application.
3. In the ESS, navigate to **Configuration > Devices**.
4. In the Active devices list, hover over the Classroom Capture installation that has the new or removed USB source and click **edit**.
5. In the Current Room Assignment section of the page, review and change the input options and **Source** selections as needed.
6. Click **Save**.



Accidental Device Removal

If an external USB source device becomes disconnected from the podium PC, the Current Room Assignment settings will automatically change to use the remaining available devices. The ESS cannot distinguish between an accidental device removal and an intentional one, and will auto-detect any change and reconfigure the Source selections accordingly.

For example, if you have configured a USB video camera to capture video, and the source device becomes disconnected, the ESS automatically detects the change and reconfigures the Source selection to use the integrated webcam for video input (if available), or unchecks the USB Input option and does not capture video.

If, however, a scheduled capture is configured to record video, and the USB video camera becomes disconnected and there is no other video source available, the ESS will send a "capture input missing" alert.