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

About EchoSystem

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Overview

The EchoSystem is a complete fixed classroom, mobile, and faculty lecture capture solution for deployment at scale within educational institutions.

Featuring centralized web-based management and end-to-end workflow automation from classroom scheduling to rich media delivery, the EchoSystem is purpose-built for institution-wide lecture capture. The system provides flexible capture options to meet diverse institutional needs, from fixed classroom hardware to dedicated software-based capture and mobile faculty or student usage. By leveraging these versatile capture choices, the EchoSystem facilitates rich media capture and delivery for distance education, hybrid courses, and extended learning programs beyond the traditional face-to-face classroom context. Additionally, web-based and application-based editing tools give faculty control over their presentations prior to publication.

The EchoSystem includes a number of features designed to help IT teams and administrators manage large classroom implementations across campus, including flexible platform options for server and media processing deployment, web-based visual confidence monitoring, and automated ad hoc workflows. The modular architecture allows growth from pilot to high-availability, campus-wide deployments as demand increases over time.

Delivery of rich media Flash-based content to students is seamless via automated publication to a range of learning management systems including Blackboard, and repositories such as iTunes U. Open APIs also increase the extensibility of the system with existing infrastructure, further leveraging return on investment. These include a server-side API for integrating with existing scheduling applications, and a Capture Appliance API for use with room control systems.

Accessibility and usability are also key features of the EchoSystem, with new, powerful built-in search capabilities for students looking for specific topics or sections of a lecture or course module, and support for closed captioning and screen reader playback.

Deployment Options

EchoSelect, our full featured set of capabilities to support blended learning, can be deployed in two different configurations:

EchoSelect On-Premise. In this deployment configuration the EchoSystem Server (ESS) is installed within your

institution's data center. Echo360 has always offered this deployment model, which caters to customers who want to maintain their systems and data locally. Each active customer has access to Echo360 Technical Support.

EchoSelect Hosted. This newer deployment option offers all the functionality of EchoSelect On-Premise, but in the cloud. This allows a much smaller investment in deployment and maintenance and a more flexible environment. You can add or modify services, devices and capacity based on your institution's requirements.

- You, the institution, continue to deploy capture hardware and/or software and schedule captures.

- Echo360 manages the host-based OS and Echo360 software.
- Echo360 maintains the host infrastructure (the run-time environment, software updates, content storage, and content backup).
- Content is streamed to students from the cloud service.
- EchoSelect Hosted is compatible with other systems such as BlackBoard and Moodle.
- EchoSelect Hosted was introduced in 2012 in the United States. (ANZ and UK customers please contact your local sales representative.)
- Hosted Usage reports are available via the Customer Portal, providing a dashboard showing the amount of disk space and streaming data used for a given period. These reports allow you to easily visualize and stay up-to-date on the data usage of your hosted system.

Regardless of your deployment option, you, the institution, must still deploy and maintain capture appliances and/or software. You must also still configure your system by adding terms, courses, sections, users, and rooms to support EchoSelect lecture capture.

Background

Lecture Capture and Instructional Recording

The EchoSystem is the next generation of the world's first fully automated lecture capture and publishing solution designed for higher education. The EchoSystem employs the latest advances in digital media and software-based workflow automation. The result is a system that automatically captures lectures in any venue or room on campus, requires minimal administration and maintenance, and provides students flexible options to playback the lecture experience. The EchoSystem product line meets diverse teaching and learning needs, providing for more than just classroom-based capture. The EchoSystem can capture and manage something as simple as the audio from the Instructor, or as complex as the audio/video, slides, or other media from a lecture presentation in a modern classroom wired for sound, video, and peripheral visuals.

Software-based capture allows Instructors to record themselves offline using a simple intuitive interface. Users may choose to record audio, video, screen, or a combination of the three that best supports the desired content. Once recorded the user may choose to edit the content and, when satisfied, easily upload the recording for encoding and distribution.

The EchoSystem as a Platform

The EchoSystem is a modular platform that manages hardware, software, schedules, publishing, security and instructional recording distribution. This modular design allows for simple growth as the volume of recordings, student demand and technologies change over time.

Each module of the platform may be spun out into its own physical entity: singular, clustered or simple failover. As recording volume increases the administrator may add additional media processors. High-demand playback scenarios may require clustered web and streaming scenarios. This provides for a flexible environment which simplifies systems planning.

EchoSystem Server

The EchoSystem Server (ESS) has several basic features:

- ESS allows the user to manage, playback, edit, and delete presentations; to archive or make available stored presentations; to search and sort the presentations list. For details, see Manage Echoes.
- ESS allows the user to schedule lecture captures by campus, building and venue location; by hour and date, course and term; as well as to specify exception dates when recurring lectures will not be held. For details, see Manage Schedules.
- ESS allows the user to configure the EchoSystem so that all components communicate with each other correctly, and with the playback devices to which the lecture presentations are published. See System Configuration.
- ESS maintains a list of users and user roles.

Publishers

Although not part of the EchoSystem, course management systems (CMS/LMS/VLE) are systems to which the EchoSystem can post links leading to the content automatically. See Publishing for details about course management systems that integrate with the EchoSystem.

Architecture

EchoSystem is made up of several modules that are centrally managed and controlled:

- **Java Application Server:** The EchoSystem Server (ESS) uses Jetty as its application server.
- **Database Server:** The ESS supports several third-party database servers. See Supported Third-Party Components on the Supported Technologies page.
- **Web Services:** The ESS contains its own embedded web server. External services may be also be used.
- **Flash Streaming Services:** The ESS supports the use of Wowza Media Server or Adobe Media Server for the streaming of Flash content.
- **File Transfer:** The ESS contains an embedded SFTP server. You may also use an external FTP or SFTP server.
- **Media Processing:** Processing contains several tools that are installed using a preconfigured, unified installer.
- **The EchoSystem Server:** The strong, centralized backend that automates virtually every step and makes campus-wide lecture capture an affordable reality.

Designed to integrate with a university's core administrative systems, the EchoSystem radically simplifies the process of scheduling, creating, and publishing lectures. Institutions can leverage their existing technologies to create new opportunities for learning, from audio podcasts to EchoPlayer replays of rich-media classroom visuals.

The diagram below shows how the ESS receives inputs from the variety of available input tools, and sends them to the Media Processor. The Media Processor then returns the processed captures to the ESS for publishing to a variety of configured output formats, and if available, to Flash streaming servers, allowing students to retrieve and review the captures in the format appropriate for them.
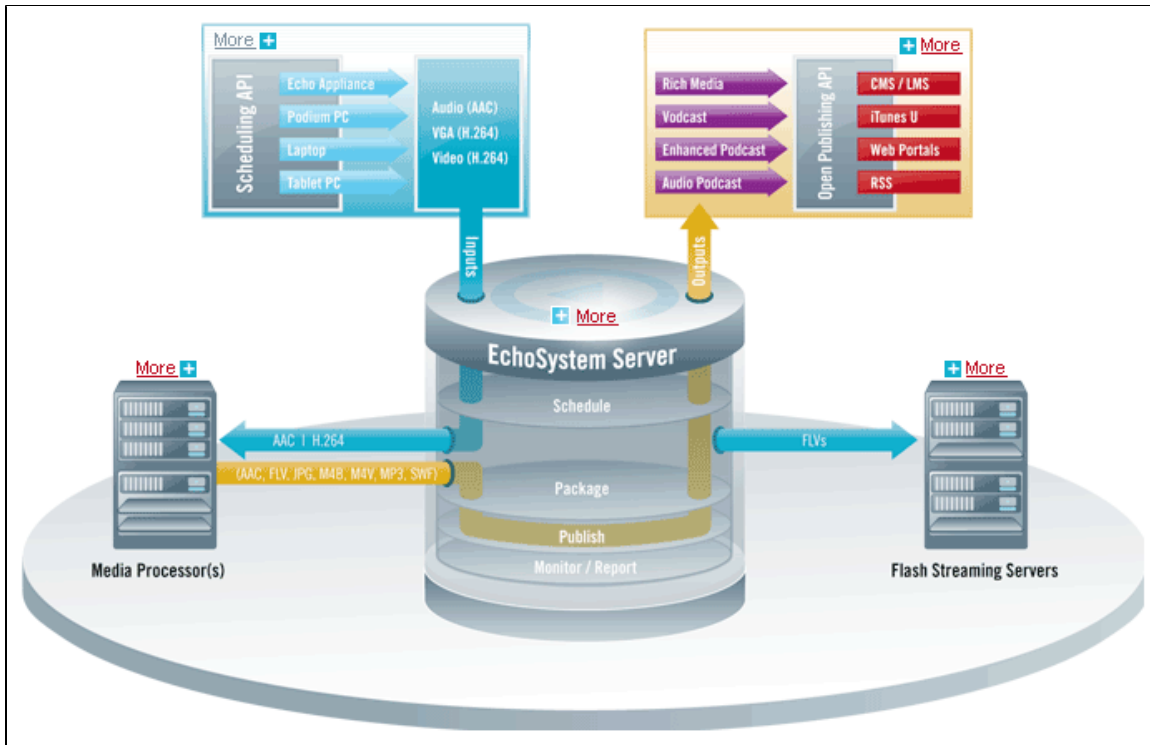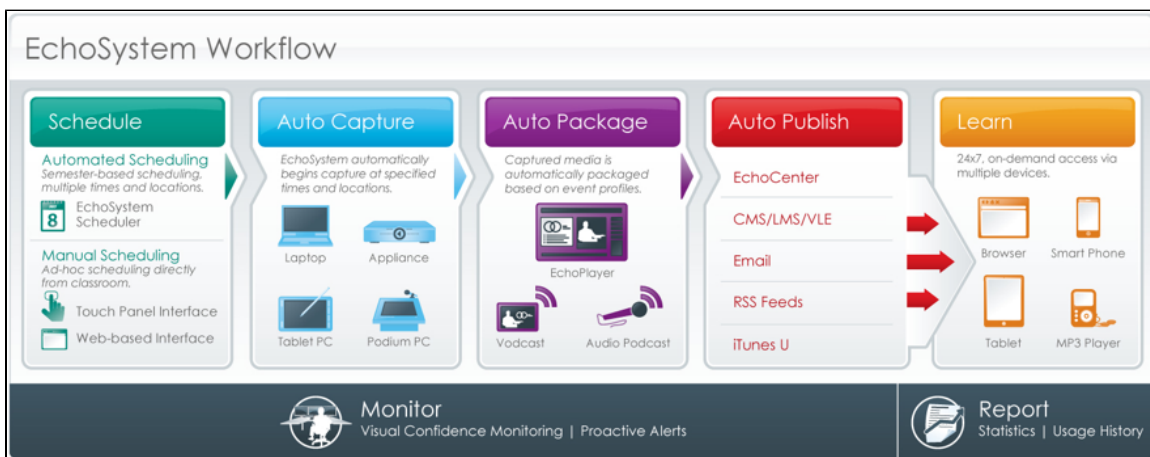
Workflow

At the heart of the EchoSystem is the idea that recording content should be as simple as possible.

With ready-made integration into room control systems, automation at nearly every step, and no need for additional staff, EchoSystem enables any institution to add on-demand lecture playback to the student experience.

The following image illustrates the EchoSystem workflow, which is described in more detail below.

At a high level, the workflow consists of these steps:

1. **Schedule:** EchoSystem offers both schedule-driven and faculty-driven (on-demand) automated workflows. The user-defined schedule lists the time and duration of each lecture and the location or venue assignment of each capture.
2. **Capture:** The lecture is recorded by the capture appliance or Classroom Capture software according to the schedule. The lecture is then automatically transferred back to the ESS for packaging. See Capture below for details.

3. **Package:** The ESS uses EchoSystem Media Processors to package and prepare the content into specified formats for distribution and delivery. See Package below for details.
4. **Publish:** ESS makes the content available for student playback by publishing a link to the content in the CMS/LMS/VLE used on campus. Additionally, the integration with iTunes U allows automated upload of podcast content directly into the iTunes U system. See Publish below for details.
5. **Learn:** The student may view the content on demand, using a supported playback device, standard browser, or iTunes U. See Learn below for details.

Schedule

The EchoSystem provides enterprise web-based scheduling for automating lecture capture. The user-defined schedule lists the time and duration of each lecture and the location or venue assignment of each capture.

Capture

Once recording is initiated, lecture and instructional capture is a function of EchoSystem capture devices. EchoSystem capture solutions are uniquely suited to meet the diverse capture needs found in higher education, with three distinct capture device offerings:

- **EchoSystem Capture Appliances.** The EchoSystem Capture Appliance and the SafeCapture HD capture audio, video, and external VGA, providing both schedule-driven and faculty-driven workflows. These appliances are typically installed in an AV rack or podium inside the classroom. When you deploy a capture appliance, plan for cable runs. Consider the appliance's impact on the data network.
- **Classroom Capture Software**. This classroom-based lecture capture solution provides audio, video, and local screen capture. Entirely software-based, it is typically deployed on podium or lectern Windows PCs. It also supports both schedule-driven and faculty-driven workflows. Deployment considerations are similar to those for Windows PCs.
- **EchoSystem Personal Capture.** This software application is best suited for instructional content capture outside the classroom. It is typically installed on faculty laptops and provides a faculty-driven workflow. It captures audio, local screen, and webcam video. It is supported on both Windows and MacOS X computers. This application has deployment considerations typical of desktop applications.

Package

The ESS uses EchoSystem Media Processors to package and prepare the content into specified formats for distribution and delivery.

Packaging the viewable instructional material delivered to students occurs immediately after capture. This is a function known as **media processing**, or simply encoding, and is undertaken by the EchoSystem Media Processor components. This application is server-based and is deployed within the server infrastructure. Within the ESS, it is also considered a device and is therefore centrally managed. EchoSystem Media Processor sizing and deployment expansion is directly correlated to daily capture hours.

Publish

The ESS automates the delivery of instructional material into student portals, such as CMS/LMS/VLE systems like Blackboard or content portals like iTunes U. This function is known as **Publishing**. Publishing is an important deployment consideration. Proper deployment requires system level information for the portal systems.

Learn

At this point the instructional material is ready for student review. Students access materials on-demand in the viewing format of their choice from within the portal systems mentioned above. The richest, and most common,

viewing format is provided by EchoPlayer and known as an *Echo*. EchoPlayer uses the ubiquitous Flash format, is accessed in any standard web browser, rarely requiring software download. Other viewing formats include audio podcast and vodcast. Initial deployment will not require any specific infrastructure elements beyond what is provided with EchoSystem. However, expected playback volume is an important consideration.

EchoSystem maximizes automation while still allowing for Instructor autonomy. Instructors are given the freedom to simply walk in, teach and leave without the need to fill out complicated forms or understand the technology behind the scenes. For more advanced users there is a web interface for more granular controls and an API to integrate buttons into classroom control systems.

Features

In this section:

- EchoSystem Features

EchoSystem Features

 Audio capture - means the product can record signals fed through a stand-alone microphone or through an audio mixer from another source.

 Video capture - means the product can record video signals from a video camera in the classroom.
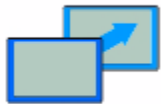
 Local Screen capture - means the product can record screen visuals directly from screen of the capture station (with EchoSystem installed), whether on the Presenter's laptop or tablet, on the desktop or podium PC, or as a dedicated capture device.
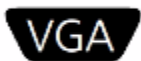
 External VGA Capture - means the product can record VGA content from external sources including the laptop, document camera, or other VGA-based sources.

Standard podcast - means a digital audio file (MP3) that can be delivered over the web using syndication feeds (podcasting).

Vodcast - means a video file that can be delivered over the web using syndication feeds (vodcasting). In the case of EchoSystem, the video file contains the screen visuals captured and the audio from the lecture.

Scheduling - means the EchoSystem Server (ESS) allows you to set an automatic list of times and dates and locations per semester for lecture capture. You may specify particular days when no lecture will be captured (such as test days or holidays).

Podium PC - means the personal computer often built into the lectern, used for presenting lectures, that stores and displays the visual lecture materials.

Full EchoSystem Playback - means a fully-synchronized multimedia presentation of the captured lecture, combining audio, video, presentation visuals, and automatic capturing and indexing marks.

Recommended Cameras and Input Devices

Overview

We test several cameras and input devices that are most common among our customers, however we cannot test every device on the market.

The devices listed below are recommended for use with our products, and fall into one of the following two *Recommendation Status* **categories:**

1. **The camera or input device has been tested and is officially qualified to work with Echo360 Capture products.**
2. **The camera or input device has NOT been officially qualified by Echo360, however many Echo360 customers have had success with this device. Unfortunately, we cannot guarantee full compatibility of these devices but we have listed them here for informational purposes.**

Recommended Devices for SafeCapture HD

The SafeCapture HD (SCHD) is a dedicated capture appliance and was designed to be used for ad hoc or Scheduled recordings in large venues with complex Audio/Video setups. The SCHD can capture full-motion output from any VGA, DVI or HDMI-enabled device, including document cameras, electronic whiteboards and computers (PC and Mac). Input resolutions from 640x480 to 1920x1200 are supported.

The SCHD supports Digital or Analog input via a DVI-I connector, passively adaptable to VGA or HDMI input. Digital (HDMI) or Analog (Composite) video input NTSC and PAL are also supported.

Audio can be captured either via Professional line-level audio input with bare wire termination for direct wiring of stereo balanced (non-powered) or unbalanced audio; or via Consumer line-level input with Stereo RCA connector. Audio is captured in AAC, sampled at 22.05kHz or 44.1kHz, encoded at bitrates from 32kbps to 128kbps CBR.

Supported Video Devices

Manufacturer	Model	Recommendation Status	Features / Description	Use Cases

iSmart	IS-LT-03 (HD)	Not Qualified by Echo360 - Customers have had success with this.	• Stand or ceiling mount 1080p/30fps HD PTZ camera • 20x optical/12x digital zoom lens • Lock tracking technology auto-tracks lecturer up to 15 meters while ignoring other moving objects • Adjustable tracking area and tracking parameters • 78 degree viewing angle	• Automatic presenter tracking eliminates need for manual camera operation • Suitable for all classroom, distance learning and video conferencing applications • Best for use in a large classrooms or lecture halls
Sony	SRG-300H	Qualified by Echo360	• Desktop or ceiling mount 1080p/60fps HD PTZ camera • 30x optical/12x digital zoom lens • View-DR processing to master poor lighting conditions • Supports industry-recognized VISCA protocol and built-in IP control • 65 degree viewing angle	• Suitable for all classroom, distance learning and video conferencing applications • Best for use in a large classrooms or lecture halls • Ideal for classrooms with poor lighting conditions

Sony	SRG-120DH	Qualified by Echo360	- Desktop mount 1080p/60fps HD PTZ camera 12x optical/12x digital zoom lens 1/2.8-type Exmor CMOS sensor with the latest imaging technology and field-proven operability - Includes View-DR processing to master poor lighting conditions - Supports industry-recognized VISCA protocol and built-in IP control 71 degree viewing angle	- Suitable for most classroom, distance learning and video conferencing applications - Best for use in a medium-sized classrooms - Ideal for classrooms with poor lighting conditions
Panasonic	AW-HE2	Qualified by Echo360.	**Note: Requires additional HDMI splitter** (Recommended HDMI Splitter) - Desktop or ceiling mount 1080p/60fps HD Electronic PTZ camera - Compact, Full-HD MOS camera 96 degree viewing angle	- Suitable for most classroom and distance learning applications - Best for use in a smaller classrooms

Panasonic	AW-HE50S	Not Qualified by Echo360 - Customers have had success with this.	• Desktop or ceiling mount 1080i/60fps HD PTZ camera • 18x optical/10x digital zoom lens • 1/3" Full HD MOS Integrated Pan-Tilt/Camera with HD/SD-SDI • DSP produces realistic video in varied lighting conditions down to 3 lux	• Suitable for most classroom, distance learning and video conferencing applications • Best for use in a medium-sized classrooms • Ideal for classrooms with poor lighting conditions

Supported Audio Devices

Manufacturer	Model	Recommendation Status	Features / Description	Use Cases
RevoLabs	HD Single/Dual Channel Wireless Microphone System	Not Qualified by Echo360 - Customers have had success with this.	• Supports both single and dual channel microphones • For use with multiple RevoLabs wireless microphone types • 128-bit encryption with DFS20 proprietary audio processing algorithms • 50 Hz-14 KHz frequency range	• Suitable for use when existing RevoLabs microphones are in use • Ideal for high-def, accurate reproduction of presenter's speech
Shure	ULX-D Wireless Digital Wireless System	Not Qualified by Echo360 - Customers have had success with this.	• For use with a wide variety of Shure microphones • AES 256-bit encryption • 24-bit/48 kHz digital audio • 20 Hz-20 kHz frequency range with flat response	• Suitable for use when existing Shure microphones are in use • Ideal for situations where high level of encryption for wireless transmission is required

Recommended Devices for Personal Capture (Windows) & Classroom Capture

Both Personal Capture (for Windows) and Classroom Capture, as of EchoSystem 5.4,uses Windows Media Foundation (WMF) for capturing media. It is supported on Windows 7 and Windows 8. Windows Media Foundation is the latest toolkit from Microsoft and provides a solid foundation for supporting the latest input devices. For best results, the cameras should be YUY2, RGB24 and M-JPEG compliant (the camera packaging should indicate this).

Personal Capture and Classroom Capture automatically detect attached USB devices. If the camera has a built-in microphone, you can use one camera for both audio and video capture.

Supported Video Devices (Webcams)

Manufacturer	Model	Recommendation Status	Features / Description	Use Cases
Creative	Live! Cam Socialize VF0640	Qualified by Echo360	• Monitor mount 800x600/30fps camera (non-HD) • Noise canceling microphone	• Suitable for use with Personal Capture on presenter's computer • Best for use when presenter stays in a static location • Ideal as an inexpensive solution where video quality is not important • Low capturing resolution ensure better compatibility with under-powered systems.
HP	HD-3110	Qualified by Echo360	• Monitor mount 720p/30fps camera with 5x digital zoom • Pan and tilt functionality • Directional microphone • Face tracking and auto-focus • Adaptive lighting and white balance adjustments	• Suitable for both Classroom Capture and Personal Capture recording applications • Best for capturing presenter as he/she moves around the room • Ideal for rooms with poor lighting conditions

HP	HD-4110	Qualified by Echo360	• Monitor mount 1080p/30fps camera with 5x digital zoom • Pan and tilt functionality • Directional microphone • Face tracking and auto-focus • Adaptive lighting and white balance adjustments	• Suitable for both Classroom Capture and Personal Capture recording applications • Best for capturing presenter as he/she moves around the room • Ideal for rooms with poor lighting conditions
Logitech	C270	Qualified by Echo360	• Monitor mount, fixed focus 720p/30fps camera • Noise reducing microphone • Automatic light correction	• Suitable for use with Personal Capture on presenter's computer • Best for use when presenter stays in a static location • Ideal for rooms with poor lighting conditions
Logitech	C310	Qualified by Echo360	• Monitor mount, fixed focus 720p/30fps camera • Pan, tilt, and zoom controls • Face tracking • Motion detection • Built-in mic with Logitech RightSound™ technology	• Suitable for use with Personal Capture on presenter's computer • Best for use when presenter stays in a static location • Ideal for locations with increased background noise

Logitech	C525	Qualified by Echo360	• Monitor mount 720p/30fps camera with autofocus • Pan, tilt, and zoom controls • Face tracking • Motion detection • Built-in mic with Logitech RightSound™ technology	• Suitable for both Classroom Capture and Personal Capture recording applications • Best for capturing presenter as he/she moves around the room • Ideal for locations with increased background noise
Logitech	C615	Qualified by Echo360	• Monitor mount 1080p/30fps camera with autofocus • Pan, tilt, and zoom controls • Face tracking • Motion detection • Noise reducing microphone • Automatic low-light correction	• Suitable for both Classroom Capture and Personal Capture recording applications • Best for capturing presenter as he/she moves around the room • Ideal for locations with increased background noise • Ideal for rooms with poor lighting conditions • High capturing resolution ensures best video quality

Logitech	C905	Qualified by Echo360	• Portable/notebook 720p/30fps camera with autofocus • Built-in mic with Logitech RightSound™ technology • Can be mounted via desktop stand • Automatic low-light correction	• Suitable for use with Personal Capture on presenter's computer • Best for capturing presenter as he/she moves around the room • Ideal for rooms with poor lighting conditions • Ideal for locations with increased background noise • Versatile mounting system provides additional placement options
Logitech	C910	Qualified by Echo360	• Monitor mount 1080p/30fps camera with autofocus • Built-in stereo mics with Logitech RightSound™ technology • Automatic low-light correction • Logitech RightLight 2 technology	• Suitable for both Classroom and Personal Capture recording applications • Best for capturing presenter as he/she moves around the room • Ideal for high-quality audio recording • Ideal for rooms with poor lighting conditions • High capturing resolution ensures best video quality

Logitech	C920	Qualified by Echo360	• Tripod-mountable 1080p/30fps camera with autofocus • H.264 video compression • Carl Zeiss® lens with 20-step autofocus • Built-in dual stereo mics with automatic noise reduction • Automatic low-light correction	• Suitable for both Classroom Capture and Personal Capture recording applications • Best for capturing presenter as he/she moves around the room • Ideal for high-quality audio recording in noisy conditions • Ideal for rooms with poor lighting conditions • High capturing resolution ensures best video quality • Versatile mounting system provides additional placement options
Microsoft	Lifecam Cinema	Qualified by Echo360	• Multi-mount 720p/30fps camera with autofocus • TrueColor Technology with face tracking • Wide angle lens • 360-degree rotation • Wideband microphone	• Suitable for both Classroom and Personal Capture recording applications • Best for capturing presenter as he/she moves around the room • Versatile mounting system provides additional placement options • Ideal for picking up audio during recording in large room

| Microsoft | Lifecam HD-3000 | Qualified by Echo360 | • Multi-mount, fixed focus 720p/30fps camera
• TrueColor Technology

• Noise reducing microphone | • Suitable for use with Personal Capture on presenter's computer
• Best for use when presenter stays in a static location
• Ideal for locations with increased background noise |

Supported Video Devices (Other)

Manufacturer	Model	Recommendation Status	Features / Description	Use Cases
Epiphan	DVI2USB 3.0	Not Qualified by Echo360 - Customers have had success with this.	• 1080p/60fps high performance video frame grabber • Captures DVI/VGA and HDMI video display or camera sources • Captures video and audio from HDMI sources • Supports USB 3.0 or USB 2.0 data uplink • Supports true 24-bit color • Provides consistent frame rate performance regardless of content	• **Note: You must use the v3.30.1.0004 64-bit driver to ensure proper functionality, obtained from Epiphan** • Suitable for both Classroom and Personal Capture (Windows only) recording applications • Provides flexibility to record any VGA, HDMI, or DVI source • High capturing resolution ensures best video quality

Supported Document Cameras

Manufacturer	Model	Recommendation Status	Features / Description	Use Cases

Samsung	SDP-760	Qualified by Echo360	• Compact 1080p/30fps document camera • 3 Megapixel CMOS sensor • Digital 16x zoom & Digital Image Rotation • User scalable display outputs from XGA to 1080p	• Best for scenarios that require easy transport and storage • High capturing resolution ensures best video quality
Samsung	SDP-860	Qualified by Echo360	• SXGA (1280x1024)/30fps document camera • 2D/3D Noise Reduction Technology • 48X Combined Zoom (6X Optical + 8X Digital)	• Best for capturing greater detail when pages are magnified • Ideal for classrooms with poor lighting conditions
Samsung	SDP-960	Qualified by Echo360	• SXGA (1280x1024)/30fps document camera • 48X Combined Zoom (6X Optical + 8X Digital) • Built-in reference monitor • Proprietary Chipset with Noise Reduction • Accepts SD Cards and USB Thumb drives for image/video storage	• Best for capturing greater detail when pages are magnified • Ideal for classrooms with poor lighting conditions
Wolfvizion	VZ-3	Not Qualified by Echo360 - Customers have had success with this.	• 1280x960 (4:3)/30fps document camera • 12x Optical Zoom + 2x Digital Zoom • High-speed autofocus with manual focus	• Best for capturing high motion activities such as writing • Ideal for use with transparencies

Supported Audio Devices (External USB Microphones)

Manufacturer	Model	Recommendation Status	Features / Description	Use Cases
Acoustic Magic	Voice Tracker (USB Array Microphone) *Sample Recording with Echo360:* http://acousticmagic.com/videos.html#echo360	Not Qualified by Echo360 - Customers have had success with this.	• Picks up ranges at up to 30 feet Automatic and electronic scanning "listening beam" with a field of view of 360° • Spatial filtering for noise reduction • Constructive addition of multiple microphone elements for long-range • Rapidly converging AEC algorithm (Voice Tracker II only) • Embedded algorithms for ease of use	• Suitable for capturing the presenter's audio as he/she moves around the room, as well as picking up questions from the class • Best for use in a medium-to-large sized classrooms • Ideal for locations with increased background noise
Samson	UB1	Not Qualified by Echo360 - Customers have had success with this.	• 16-Bit, 44.1-48kHz sample rates • Miniature, low-profile design • Omni-directional pickup pattern	• Suitable for capturing the presenter's audio as he/she moves remains near the podium, or for meetings and conferences • Best for use in a medium-sized rooms

Jabra	Jabra Speak 410	Qualified by Echo360	- Omni-directional / Noise filter microphone - Standard (E-STD) microphone sensitivity - Mute function	- Suitable for capturing the presenter's audio as he/she moves remains near the podium, or for meetings and conferences - Best for use in a medium-sized rooms
Blue	Yeti Pro USB & XLR Microphone	Qualified by Echo360	- Multipattern condenser USB microphone - Three custom condenser capsules and four different polar pattern settings: Cardioid, Stereo, Bidirectional and Omnidirectional - A/D converter chip and separate analog circuit path for use with professional studio mixers and preamps - Built-in headphone amplifier for zero-latency monitoring, and direct controls for headphone volume, pattern selection, mute, and microphone gain 15 Hz-22 kHz frequency response and 92 kHz/24 bit Sample/Word	- Suitable for capturing the presenter's audio as he/she moves remains at the podium - Best for use when presenter stays in a static location - Ideal situations where high audio sampling rate is required

Blue	Snowball USB Condensor Microphone	Qualified by Echo360	• Dual capsule design incorporates omnidirectional and cardioid elements to give you a choice • -10dB pad switch eliminates noise and distortion when capturing signals at extreme volume levels • 18 Hz-40 Hz frequency response and 44.1 kHz/16 bit Sample/Word	• Suitable for capturing the presenter's audio as he/she moves remains near the podium
RevoLabs	RevoLabs xTag USB Microphone	Not Qualified by Echo360 - Customers have had success with this.	• Flexible earpiece allows for use as both a microphone and a headset.	• Suitable for capturing the presenter's audio as he/she moves remains near the podium
Logitech	USB Desktop Microphone	Not Qualified by Echo360 - Customers have had success with this.	• Noise-canceling microphone • Power switch • 16 Hz-100 Hz frequency response	• Ideal for capturing presenter's audio in a small desktop environment using Personal Capture • Not recommended for classroom use
CAD	U7 USB Boundary Condensor Microphone	Not Qualified by Echo360 - Customers have had success with this.	• Frequency response tailored for speech • Omnidirectional pick-up pattern for 360 degree coverage • Condenser microphone element for high sensitivity	• Ideal for meetings or conferences in small-to-medium sized rooms

Recommended Devices for Personal Capture (Mac OS X)

Personal Capture for Mac uses QT Kit for capturing media. It is supported on OS X 10.8 and above. Personal Capture for Mac automatically detects attached USB devices. If the camera has a built-in microphone, you can use one camera for both audio and video capture.

Supported Video Devices (Webcams)

Manufacturer	Model	Recommendation Status	Features / Description	Use Cases
Apple	iSight Camera (Mac books and iMacs)	Qualified by Echo360	- Specifications and features vary - Either external or built-in solution - Requires no additional drivers	Leveraging built-in functionality of existing hardware
Logitech	C910	Qualified by Echo360	- Monitor mount 1080p/30fps camera with autofocus - Built-in stereo mics with Logitech RightSound™ technology - Automatic low-light correction - Logitech RightLight 2 technology	- Best for capturing presenter as he/she moves around the room - Ideal for high-quality audio recording - Ideal for rooms with poor lighting conditions - High capturing resolution ensures best video quality

Logitech	C920	Qualified by Echo360	• Tripod-mountable 1080p/30fps camera with autofocus • H.264 video compression • Carl Zeiss® lens with 20-step autofocus • Built-in dual stereo mics with automatic noise reduction • Automatic low-light correction	• Best for capturing presenter as he/she moves around the room • Ideal for high-quality audio recording in noisy conditions • Ideal for rooms with poor lighting conditions • High capturing resolution ensures best video quality • Versatile mounting system provides additional placement options
Microsoft	Lifecam Cinema	Qualified by Echo360	• Multi-mount 720p/30fps camera with autofocus • TrueColor Technology with face tracking • Wide angle lens • 360-degree rotation • Wideband microphone	• Best for capturing presenter as he/she moves around the room • Versatile mounting system provides additional placement options • Ideal for picking up audio during recording in large room
Microsoft	Lifecam HD-3000	Qualified by Echo360	• Multi-mount, fixed focus 720p/30fps camera • TrueColor Technology • Noise reducing microphone	• Best for use when presenter stays in a static location • Ideal for locations with increased background noise
HP	Integrated Cameras	Qualified by Echo360	• Specifications and features vary	• Leveraging built-in functionality of exiting hardware

Supported Audio Devices (External USB Microphones)

Manufacturer	Model	Recommendation Status	Features / Description	Use Cases
Samson	UB1	Not Qualified by Echo360 - Customers have had success with this.	16-Bit, 44.1-48kHz sample rates - Miniature, low-profile design - Omni-directional pickup pattern	- Suitable for capturing the presenter's audio as he/she moves remains near the podium, or for meetings and conferences - Best for use in a medium-sized rooms
Jabra	Jabra Speak 410	Qualified by Echo360	- Omni-directional / Noise filter microphone - Standard (E-STD) microphone sensitivity - Mute function	- Suitable for capturing the presenter's audio as he/she moves remains near the podium, or for meetings and conferences - Best for use in a medium-sized rooms
Blue	Snowball USB Condensor Microphone	Qualified by Echo360	- Dual capsule design incorporates omnidirectional and cardioid elements to give you a choice -10dB pad switch eliminates noise and distortion when capturing signals at extreme volume levels 18 Hz-40 Hz frequency response and 44.1 kHz/16 bit Sample/Word	Suitable for capturing the presenter's audio as he/she moves remains near the podium

Best Practices for Web Cameras

The following are best practices for using webcams to capture media:

- **Current drivers.** Use the most current drivers for your web camera. You can find these drivers on the the website of your PC or laptop manufacturer. You can also have the operating system of your computer search

for current drivers.
- **OS Updates.** Please have the most current updates applied to your operating system.
- **Driver-only installation.** If possible, use the "driver-only" installation of the camera software. Most web camera vendors allow for this. In some cases, the software included with the web camera can interfere with the Personal Capture or Classroom Capture software, and the "driver-only" method is the supported method.