

PRODUCT OVERVIEW

ESI Media Management

All-in-one audio and video monitoring

ESI Media Management is a hardware/software combination which provides audio and video monitoring directly through an ESI Communications Server. These advanced capabilities help customers reduce many of the inherent risks in their organization. Additionally, ESI Media Management serves as an “all-in-one” solution by eliminating the need to install and manage multiple systems from various vendors.

Using an installed Applications Services Card (ASC), ESI Media Management collects and stores not only recordings of selected phone calls (call logging) but also video camera recordings, detailed call activity (SMDR), and building access events from across the customer’s facility. ESI Media Management gives customers the flexibility to decide who is authorized to access the stored information, so there’s no need to worry that information is getting into the wrong hands.

Here are just a few of the benefits ESI Media Management provides:

- Recording of all calls to and from employees for improved customer service and quality control.
- Capture and review of video from around customer facilities using standard video cameras.
- Use of live video to improve facility monitoring and enhance access control.
- Review of system-wide building access events and call detail records for employees.
- Quick location of a collection of related events using simple search criteria.

ESI Media Management components

ESI Media Management consists of the following components:

- **ESI Applications Services Card (ASC)**, ESI # 5000-0548 — One is required to serve as the repository for all data collected by ESI Media Management applications. This card can also be shared with the ESI Mobile Messaging feature.
- **ESI Media Manager** — This *Windows*®-based application is the single user interface for accessing data stored on the ASC. Data can be easily filtered and reviewed directly from the application.
- **ESI Video Viewer** — A *Windows*-based application that lets authorized users see live video provided by their ESI Communications Server via ESI Media Management.
- **Compatible video camera(s)** — Each compatible NTSC video camera communicates with its own ESI Video Adapter. ESI does not offer cameras, but accepts a wide variety of third-party models, both color and black-and-white. (See “Video camera requirements,” page 24.) When using ESI-approved IP video cameras, the ESI Video Adapter is not required.



Benefits

- **Improved customer service and customer quality control** — Record all calls, or selected CO lines, departments or extensions.
- **Video monitoring** — Review stored footage from around the facility or use *ESI Video Viewer* to respond automatically to Call-key and fob-access events in ESI Presence Management.
- **Better management of your organization** — Easily find critical information and use stored data to make informed management decisions.
- **Ease of use** — Just point and click a mouse to use ESI Media Management.
- **Ease of control** — Only authorized users can access data stored by ESI Media Management.

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Color brochure available

ESI part # 0450-1236 (Web version downloadable from www.esi-estech.com/brochures).

Features at a glance

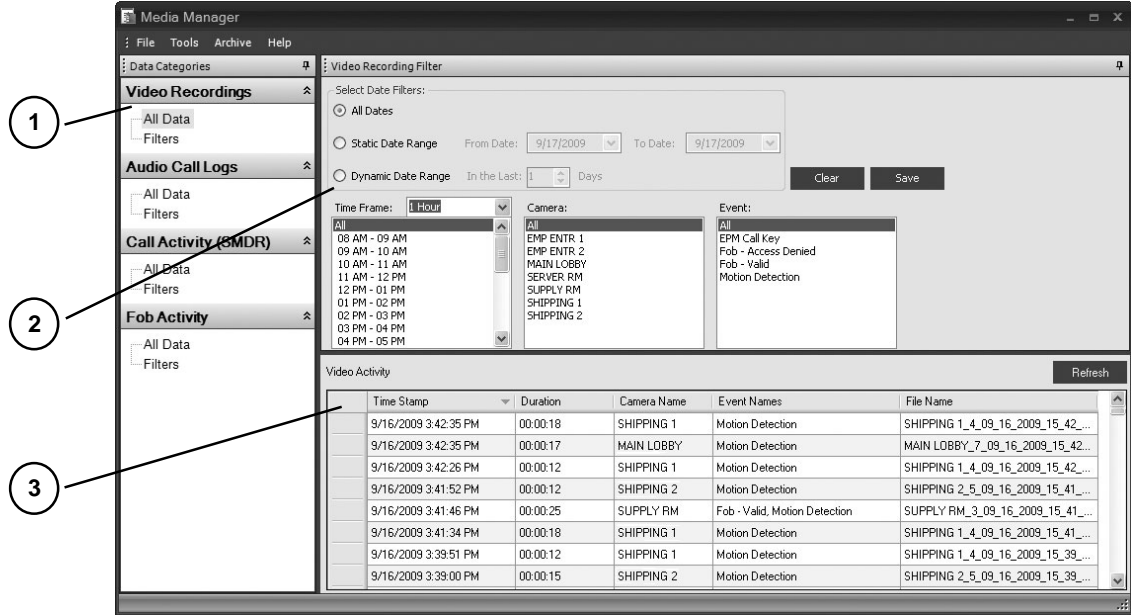
- **Call logging** — ESI Media Management gives customers the flexibility to choose which calls to record — all calls, or selected lines, departments or extensions.
- **SMDR call activity records** — With ESI Media Management, an ESI Communications Server stores SMDR data directly on the Applications Services Card. *ESI Media Manager* enables authorized users to find, sort, and evaluate basic SMDR data, which can be exported to .CSV-format files for use in a spreadsheet or database.
- **Surveillance of controlled areas** — Typically, an organization has one or more secured areas where valuable property is located. Users can further protect their property by adding video monitoring to areas such as computer rooms, warehouses, or medicine closets. The ESI system can be programmed to alert users via pop-up video whenever motion is detected by cameras connected to ESI Video Adapters or compatible IP cameras. Cameras also can be set up to view and record video from a remote location.
- **Video recording** — If the customer's ESI Communications Server is equipped with optional video cameras, video data from the cameras are streamed to and saved on the ESI system. *ESI Media Manager* makes it easy to view the video data, stored on the system as MPEG-4 files that *ESI Media Manager* can save to a PC.
- **ESI Presence Management accuracy** — Lets users put a face with a fob and see who enters their building. If access is denied, users can visually determine who tried to gain access.
- **Entry/exit monitoring** — Serves as a communication tool, letting users know who they're admitting as they communicate with delivery personnel or visitors to their facility.
- **Builds on functionality of ESI Presence Management** — *ESI Video Viewer* can respond automatically to Call-key and fob-access events in ESI Presence Management.
- **Data filtering** — Easily find critical business information using built-in filters, then store favorite filters for later use.
- **Data archiving** — An administrator can set automatic archival of stored data. Individual data can easily be exported to standard PC formats (e.g. .WAV, .M4V).
- **Ease of use** — Anyone who can point and click a mouse can use ESI Media Management.
- **Ease of control** — The *ESI Media Manager* and *ESI Video Viewer* applications are managed through the ESI Communications Server. It is simple to control what stored information and which camera views are available for each authorized user.

ESI Media Manager

When launched, *ESI Media Manager* will automatically retrieve events stored on your ESI system's Applications Services Card, and then display a list of events in four distinct groups: **Video Recordings**, **Audio Call Logs**, **Call Activity (SMDR)**, and **Fob Activity** (ESI Presence Management fob events).

The *ESI Media Manager* window is divided into three main sections (*below*) to make it easy to filter and find critical information:

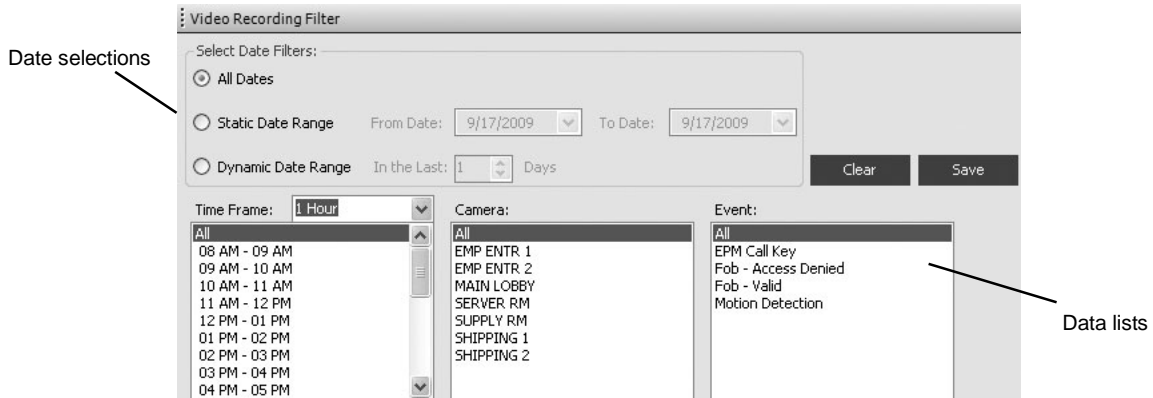
1. Data categories and stored filters.
2. Filter criteria.
3. A list of events associated with the event type you've selected in the left panel.



No matter which data category is being viewed, the data can be filtered and sorted (by column heading). Commonly used filter criteria can be saved and used during subsequent searches.

Using filters

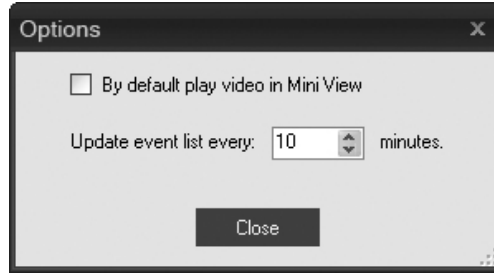
The *ESI Media Manager* interface incorporates filters to let users easily narrow their search and target the desired data or recording. The top area of the filter screen presents three date selections. The bottom area presents boxes of **lists** based on the data points associated with the data category you're viewing. For example, the **Camera** list appears only when you're creating a filter for video recordings.



When a search will be performed repeatedly, the filter can be saved for later use. Once saved, the filter will appear in the left panel, under the appropriate data type, in the *ESI Media Manager* main window.

ESI Media Manager options

Selecting **Options** from the menu bar's **Tools** item produces the **Options** window:



... with the following settings:

- **By default play video in Mini View** — Selecting this will auto-play a video file in a “mini-mode” when you double-click a video event. Regardless of this setting, you can choose to play a video in the large or “mini” view by selecting the video event and right-clicking.
- **Update event list** — This is how often (in minutes) *ESI Media Manager* will update each list of data, based on new recordings of events to the ASC. Regardless of this setting, you can manually refresh a list by clicking the **Refresh** button located under the filter list, to the far right.

Audio call logs (call logging)

The ESI Communications Server can serve as an automatic call recording system (call logger) to improve the ability to monitor activities throughout a customer's organization. ESI Media Management lets the customer decide which calls to record — **either** (a.) all calls **or** (b.) selected lines, departments or extensions. This flexibility makes it simple to make modifications at any time to best fit the needs of the customer.

The screenshot shows the 'Audio Call Recording Filter' section with the following settings:

- Select Date Filters:
 - All Dates
 - Static Date Range From Date: 9/17/2009 To Date: 9/17/2009
 - Dynamic Date Range In the Last: 1 Days
- Time Frame: 1 Hour
- Direction: All
- Extension: 112, 115, 124, 134, 136, 143, 160, 176, 192
- Department: 290, 291
- CO Line: 1, 2, 3, 4, 5

The 'Audio Call Log Activity' table is shown below:

	Time Stamp	Duration	Direction	Name	Number	Extension	Notes	File Name(s)
	9/17/2009 12:53 PM	00:06	Incoming	CHENG	124	Ext 112, Ext 124		124_9_17_...
▶	9/17/2009 12:52 PM	00:59	Outgoing	KIMBERLY S	136	Ext 112, Ext 136		136_9_17_...
	9/17/2009 12:51 PM	00:05	Incoming	JASON L	134	Ext 134, Co 1	Privacy	No recordin...
	9/17/2009 12:50 PM	01:24	Outgoing	BECKI V	115	Ext 115, Ext 204		115_9_17_...
	9/17/2009 11:25 AM	00:07	Outgoing	DAVID RMT	258	Ext 192, Ext 258		258_9_17_...
	9/17/2009 11:25 AM	01:29	Outgoing	DANA R	204	Ext 204, Ext 258		204_9_17_...
	9/17/2009 11:19 AM	04:14	Outgoing	UNAVAILABLE	000-000-0000	Ext 192, Co 23		23_9_17_2...

Each recorded audio event includes a wealth of data about the call including: the call date and time; call duration; call direction (inbound, outbound, intercom or transferred call); the name and number of the caller; the CO line or extension of each person in the call; notes indicating whether the **RECORD** key or the privacy-on-demand key was used and if the recording was a conference; and the file name of the recording. Also included is the IP address of the ASC that stores the event.

Audio recording playback

Audio recordings are stored on the Applications Services Card. When needed, authorized employees can use *ESI Media Manager* to find and playback any recording directly on a PC. Audio files can be reviewed directly within *ESI Media Manager* using the built-in player (*right*). Simply select and double-click the desired event and the file will begin to play. Audio playback can be controlled by clicking on the **Pause**, **Stop**, **Play**, and **Fast Forward** buttons.



User authorization

User authorization is controlled by the ESI system administrator and is done on an extension-by-extension basis. In this manner, a customer can control access to stored recordings based on users' areas of responsibility. When authorized, a manager will be able to access recordings only for the extensions programmed in the service observe list.

Exporting an audio file

Individual recordings can be exported as .wav files and attached to an email for delivery outside and/or archived for permanent storage. To download an individual recording, right-click on the desired event and choose the **Save Call As** command.

Audio call logs can be exported from the ESI Applications Services Card in standard comma separated value (.csv) format for use in a spreadsheet or database. Use the **Save Results as .csv** command from the File menu in *ESI Media Manager* to export all records displayed in the event list.

About audio files

Approximately 70 hours of audio consumes 1 GB of space on the ESI Applications Service Card's Memory Module; thus, the 160 GB Memory Module can store approximately 11,200 hours of audio. Audio recordings are stored on the Memory Module using IMA ADPCM 32Kbps compression, which is the same as for ESI's WAV attachments from ESI's *VIP* applications and ESI Mobile Messaging.

Advantages of audio call logs

Call logging is a beneficial risk management tool for many reasons, including:

- Enhancing staff training and development.
- Effectively managing customer quality control.
- Recording conversations or conference calls to eliminate potential disagreements.
- Safeguarding personnel when threatening or abusive calls are received.
- Verifying customer orders, service requests, and technical support.

Live video monitoring

ESI Media Management offers live video monitoring, which enhances an organization's ability to manage facilities, control access to sensitive areas within facilities, and provide security monitoring for both property and individuals. With ESI Media Management's *ESI Video Viewer* application, any organization with an ESI Communications Server — even the low-cost ESI-50¹ — can have a facility monitoring solution that's easily installed and simple to use.

ESI Video Viewer works with ESI Presence Management² to provide additional security features.

Using *ESI Video Viewer* requires:

- One or more compatible cameras.
- One ESI Video Adapter for each of the cameras (not required for compatible IP cameras).
- The appropriate number of *ESI Video Viewer* application licenses.

ESI Video Viewer

ESI Video Viewer is a *Windows*-based application that lets authorized users view live video provided by ESI Media Management. The video comes over the LAN from the ESI Video Adapter connected to each camera or directly from ESI-approved IP cameras.

The ESI Reseller uses Installer programming to control which users are authorized to install *ESI Video Viewer* and which camera views each user can access.

ESI Video Viewer is available in two versions:

- **Advanced Video Viewer** — Allows simultaneous viewing of multiple cameras, creation of customized layouts, and the ability to receive color-coded visual alerts from different events (motion detection and several events related to ESI Presence Management). Requires a license.
- **Basic Video Viewer** — Requires no additional license and is available at no cost. Each authorized *Basic Video Viewer* user can view a single camera that has been associated with an ESI Presence Management RFID Reader (see "Using ESI Media Management with ESI Presence Management," page 21).

For example, the view (*right*) shows the Advanced *ESI Video Viewer*, with a "1 x 2" layout.



¹ The entry-level ESI-50L must be upgraded to an ESI-50 to support ESI Media Management.

² For full details on ESI Presence Management, see its *Product Overview* (ESI # 0450-0794).

Advanced Video Viewer

To enjoy all of the feature-rich benefits of ESI Media Management, including **simultaneously viewing video from multiple cameras**, users will want to license the **Advanced Video Viewer**.

The Advanced *Video Viewer* lets users create customized layouts with which to view the camera images, and choose the size, arrangement, and location of the panels, as well as where they will appear on the user's display. A drop-down field on the application's toolbar lists the created layouts for easy access.



1. **Menu bar** — The menu provides access to various tools and options.
2. **Toolbar** — *ESI Video Viewer's* toolbar lets you quickly access frequently used options and tools.
3. **Panel title bar** — Lists the panel name and provides an icon for enlarging the panel.
4. **Panel** — Displays video of a selected camera.
5. **Layout** — A collective group of panels.

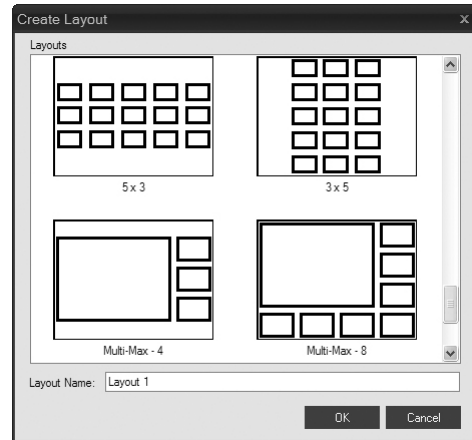
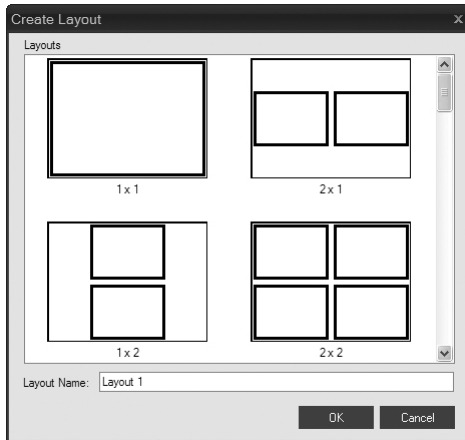
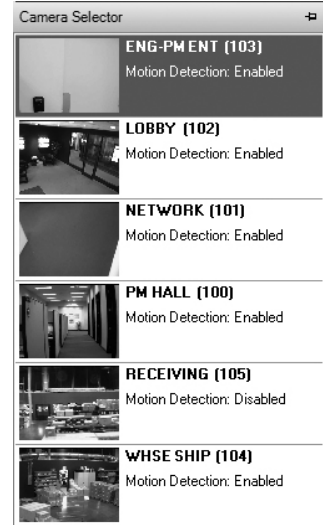
Camera layouts

The selection of available cameras, which an Advanced Video Viewer user accesses while creating layouts, is located in the application's **Camera Selector** (right).

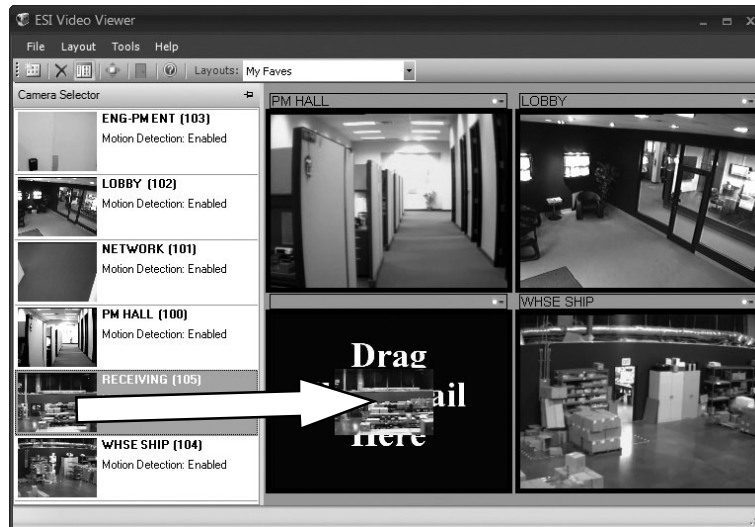
One simply drags-and-drops "thumbnails" (small snapshots of the cameras' views) from the list of available video feeds into the desired location as one creates a customized layout.

The layouts can be modified or deleted at any time and can be named by each user.

Here are some of the 25 available sample layouts (below), as they appear in the Advanced Video Viewer's **Create Layout** tool:

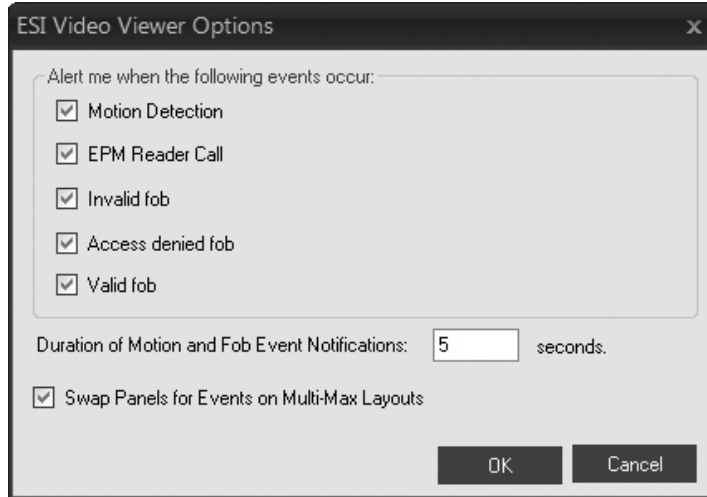


... and here is an example of how one drags-and-drops to make the layout one wishes:



Advanced Video Viewer options

Here is the **Options** window (accessed via **Tools** on the main menu) for the Advanced Video Viewer.



The **Options** window lets the Advanced Video Viewer user:

- Select a duration of the **notification** the user can receive when certain events occur.
- Select whether, if in the “Multi-Max” view¹, *ESI Video Viewer* will automatically swap positions between small and large panels upon the pressing of the **Call** key on an ESI Presence Management RFID Reader (see “Using ESI Media Management with ESI Presence Management,” page 21).
- Decide to be alerted upon the occurrence of these events:
 - Motion, which is detected within a programmed “hot spot” (see the programming instructions in the *ESI Video Adapter Installation and Programming Manual*, ESI # 0450-1241).
 - The pressing of the **Call** key on an ESI Presence Management RFID Reader (see “Using ESI Media Management with ESI Presence Management,” page 21).
 - Any of three **fob**-related events (see “Using ESI Media Management with ESI Presence Management,” page 21).

Basic Video Viewer

The intent of the **Basic Video Viewer** (*right*) is to provide a simple, easily installed application for the user who needs only to monitor door access, such as for a lobby or receiving entrance.

Basic Video Viewer is included at no additional charge with any compatible ESI Communications Server running the appropriate software version (see “Minimum requirements,” page 23). Once the cameras and ESI Video Adapters (see “ESI Video Adapter,” page 20) are set up, you can assign extensions for access to those cameras. A user can install and run the *Basic Video Viewer* application **only** if both of the following are true:

1. The camera to which the user is assigned is also associated with an ESI Presence Management RFID Reader.
2. The user is **not** classified in Installer Function 322² as an *Advanced Video Viewer* user.



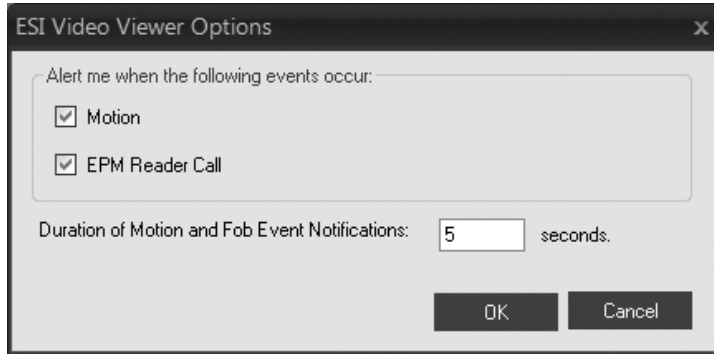
When these two criteria are met, *ESI Video Viewer* will, by default, come up as the *Basic Video Viewer*; and, therefore, no other licensing or activation is required. If the user is assigned to more than one camera in Installer programming, the *Basic Video Viewer* will display only video from the camera on the ESI Video Adapter with the lowest ID number.

¹ For details on this and other viewing capabilities, see the *ESI Media Management Setup and User's Guide* (ESI # 0450-1214).

² See also the *ESI Communications Servers Programming Manual* (ESI # 0450-1050).

Basic Video Viewer options

Here is the **Options** window (accessed via **Tools** on the application's main menu) for the Basic Video Viewer:



This window lets the user:

- Decide to be alerted upon the occurrence of these events:
 - Motion, which is detected within a programmed “hot spot” (see the programming instructions in the *ESI Video Adapter Installation and Programming Manual*, ESI # 0450-1241).
 - A **Call** key is pressed on an associated ESI Presence Management RFID Reader (see “Using ESI Media Management with ESI Presence Management,” page 21).
- Select a duration of the **notification** that the user can receive when the selected events occur.

Advantages of live video monitoring

Pairing live video monitoring capabilities with ESI Presence Management gives customers an edge when it comes to keeping an eye on their business. Here are just a few of the ways customers will benefit:

- Easily monitor secured areas and quickly spot unusual activity.
- Visually identify who is requesting entry to the facility. Use *ESI Video Viewer* to see who is at the door before they ring the bell.
- Keep an eye on sensitive areas like a server room.
- Enhance access control by seeing who is entering and exiting secured areas.

Recorded video

ESI Media Management gives authorized users the ability to review video recordings from standard video cameras throughout the facility. Video events are recorded from all ESI Video Adapters and cameras installed on the phone system and stored on the ESI Applications Services Card. Users can quickly find and play the recorded video directly from the *ESI Media Manager* application. This capability enhances an organization's ability to manage facilities and provides security monitoring for both property and individuals.

Any individual user will have access to view video from only those cameras for which they are approved. These will be the same cameras from which you can see live video in the *ESI Video Viewer* application. The *ESI Media Manager* system administrator has authorization to view video from **all** installed ESI Video Adapters.

The screenshot displays the ESI Media Manager application window. On the left, there is a sidebar with 'Data Categories' including 'Video Recordings', 'Audio Call Logs', 'Call Activity (SMDR)', and 'Fob Activity'. The main area is titled 'Video Recording Filter' and contains several sections:

- '-Select Date Filters:' with radio buttons for 'All Dates', 'Static Date Range' (From Date: 9/17/2009, To Date: 9/17/2009), and 'Dynamic Date Range' (In the Last: 1 Days). 'Clear' and 'Save' buttons are present.
- 'Time Frame:' set to '1 Hour'.
- 'Camera:' list including EMP ENTR 1, EMP ENTR 2, MAIN LOBBY, SERVER RM, SUPPLY RM, SHIPPING 1, and SHIPPING 2.
- 'Event:' list including EPM Call Key, Fob - Access Denied, Fob - Valid, and Motion Detection.

 Below these filters is a 'Video Activity' table with a 'Refresh' button. The table contains the following data:

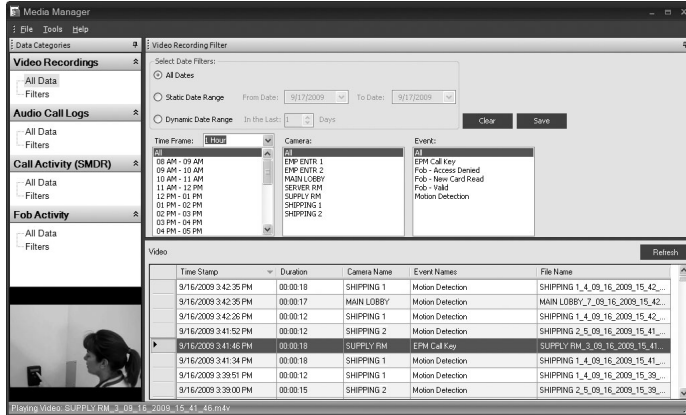
Time Stamp	Duration	Camera Name	Event Names	File Name
9/16/2009 3:42:35 PM	00:00:18	SHIPPING 1	Motion Detection	SHIPPING_1_4_09_16_2009_15_42_...
9/16/2009 3:42:35 PM	00:00:17	MAIN LOBBY	Motion Detection	MAIN LOBBY_7_09_16_2009_15_42_...
9/16/2009 3:42:26 PM	00:00:12	SHIPPING 1	Motion Detection	SHIPPING_1_4_09_16_2009_15_42_...
9/16/2009 3:41:52 PM	00:00:12	SHIPPING 2	Motion Detection	SHIPPING_2_5_09_16_2009_15_41_...
9/16/2009 3:41:46 PM	00:00:25	SUPPLY RM	Fob - Valid, Motion Detection	SUPPLY_RM_3_09_16_2009_15_41_...
9/16/2009 3:41:34 PM	00:00:18	SHIPPING 1	Motion Detection	SHIPPING_1_4_09_16_2009_15_41_...
9/16/2009 3:39:51 PM	00:00:12	SHIPPING 1	Motion Detection	SHIPPING_1_4_09_16_2009_15_39_...
9/16/2009 3:39:00 PM	00:00:15	SHIPPING 2	Motion Detection	SHIPPING_2_5_09_16_2009_15_39_...

Each recorded video event includes information about the recording including: date and time, duration, camera name (defined in Installer programming), the event type that triggered the recording (e.g., motion detection or an ESI Presence Management **Call** key press, valid fob, or fob access denied) and the file name of the recording. Also included is the IP address of the ASC that stores the event.

Video recording playback

Video recordings are stored on the Applications Services Card. When needed, authorized employees can use *ESI Media Manager* to find and playback any recording directly on a PC using the built-in player. Simply select and double-click the desired event and the file will begin to play. Alternatively, playback can be started by right-clicking on the desired recording and selecting **Play in Mini View** (in the lower-left corner of the *ESI Media Manager* window) or **Play in Large View**.

Video playback can be controlled by clicking on the **Pause**, **Stop**, **Play**, **Slow Motion**, and **Fast Forward** buttons in the player.



Mini View (within main *ESI Media Manager* window)



Large View (standalone player)

By default, all video is played at an accelerated pace, due to the variable rate at which it is recorded. This rate is dependent upon network traffic, video server load, and other factors. Playback speed can be regulated with the **Slow Motion** and **Fast Forward** buttons. Clicking the buttons repeatedly will cycle through a series of available speeds.

User authorization

User authorization is controlled by the *ESI Media Manager* system administrator and is done on an extension-by-extension basis. In this manner, customers can control access to stored recordings based on specific managers' areas of responsibility.

Exporting a video file

To download a video file from the ESI Applications Services Card, select and right-click the desired event, and choose **Save Video As** command.

ESI video is stored in the MPEG-4 SP format. To view video outside *ESI Media Manager* after the video has been downloaded to your PC or LAN, you will need to install a media player compatible with MPEG4-SP. ESI recommends *VLC Media Player*, a free, open-source application that plays ESI video files and also is the only free media player that supports MPEG-4. (Available from www.videolan.org/vlc).

Recorded video events can be exported from the ESI Applications Services Card in standard comma separated value (.csv) format for use in a spreadsheet or database. Use the **Save Results as .csv** command from the File menu in *ESI Media Manager* to export all records displayed in the event list.

About video files

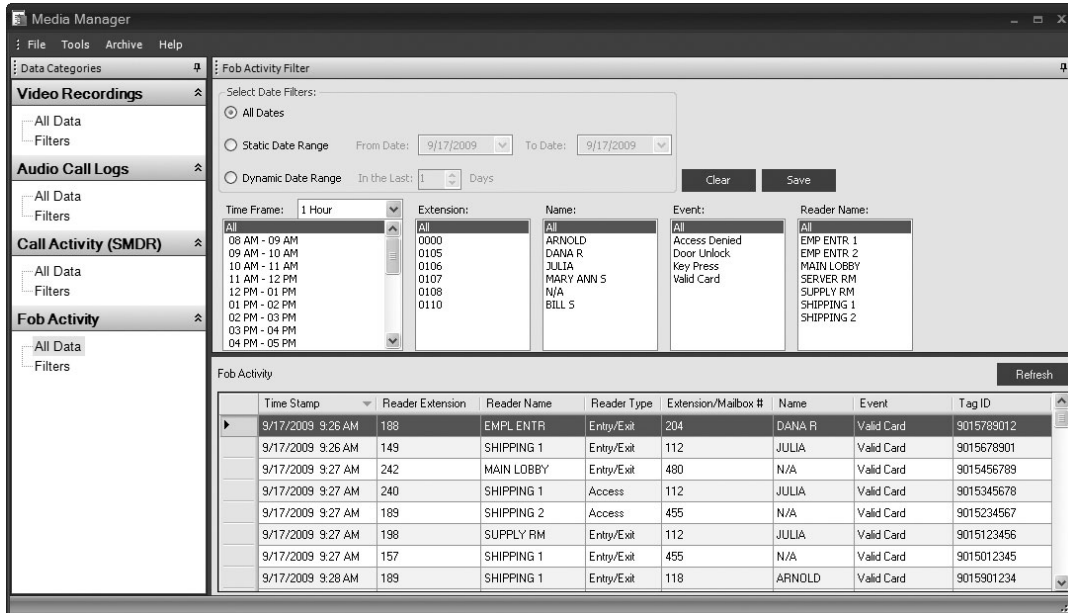
Approximately five hours of video consumes 1 GB of space on the ESI Applications Service Card's Memory Module; thus, the 160 GB Memory Module can store approximately 800 hours of video. ESI video is compressed and stored using the MPEG-4 SP algorithm — which ESI chose because it offers the highest compression ratio of those considered, and reflects both the current and future state of the technology.

Advantages of recorded video

- Provides a historical visual record of access to your facility or secured areas.
- Enables quick location of recorded events, for exporting to a human resources department, external authorities, and other individuals who require such data.

Fob activity records (ESI Presence Management key fob/card events)

In addition to call logging and video information, your Communications Server together with ESI Presence Management lets you monitor and record building access events from RFID Readers throughout your building. The *ESI Media Manager* administrator can filter records by employee name or extension – then review all the building access details.



All ESI Presence Management fob and key card events collected from the ESI phone system are stored on the ESI Applications Services Card. Each system fob activity event includes the following information: date and time, RFID Reader extension, RFID Reader Name, RFID Reader type (e.g. Entry/Exit or Access), extension and name of the person assigned to the key card or key fob, event type (e.g. access granted or access denied) and the unique ID number for that key card or fob. Also included is the IP address of the ASC that stores the event; for fob/card events, this will always be the first ASC in the system.

Records access

Fob activity record data stored on the Applications Services Card is available to only the *ESI Media Manager* administrator. Only one extension may be assigned as administrator on any ESI Communications Server.

Exporting a fob activity record

Building access records can be exported from the ESI Applications Services Card in standard comma-separated value (.csv) format for use in a spreadsheet or database.

About fob activity records

The ESI Applications Service Card's 160 GB Memory Module can store fob activity records for up to 20,000 events (i.e., if the Memory Module is storing no other data).

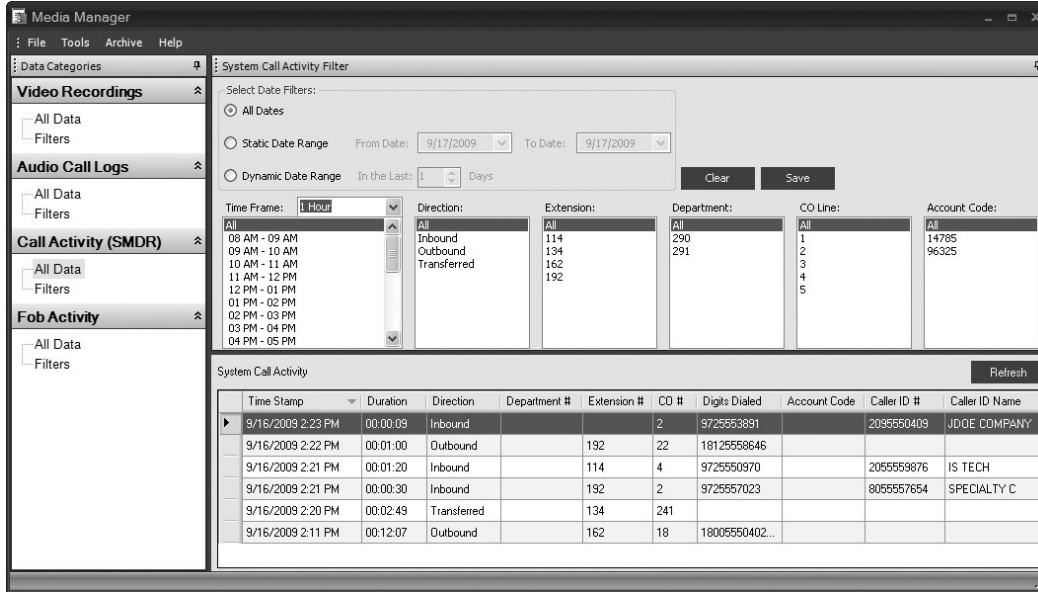
Advantages of fob activity records

- Allows you to identify and monitor secured areas and quickly spot unusual activity.
- Provides managers a “quick” list of entrance and exit times for reference in employee reviews.

Call activity (SMDR)

Unlike typical business communications systems, an ESI Media Management-equipped ESI Communications Server **stores** call detail records, more commonly known as SMDR, directly on the Applications Services Card.

ESI Media Manager makes it easy for the *ESI Media Manager* administrator to find, sort and evaluate basic SMDR data so customers can make informed management decisions.



All call activity events collected from the ESI system are stored on the ESI Applications Services Card. There is no audio associated with these events. Each system call activity event includes the following information: date and time, duration, direction (inbound, outbound or transferred), department number (if applicable), extension number, CO line number, digits dialed, account code (if applicable), Caller ID name and number. Also included is the IP address of the ASC that stores the event; for call activity data, this will always be the first ASC in the system.

Records access

Call activity (SMDR) data stored on the Applications Services Card is available to only the *ESI Media Manager* administrator. Only one extension may be assigned as administrator on any ESI Communications Server.

Exporting call activity (SMDR) records

Call activity records can be exported from the ESI Applications Services Card in standard comma separated value (.csv) format for use in a spreadsheet or database. Use the **Save Results as .csv** command from the File menu, to export all records displayed in the event list.

About call activity records

The ESI Applications Service Card's 160 GB Memory Module can store SMDR data for up to 20,000 events (*i.e.*, if the Memory Module is storing no other data).

Advantages of call activity records

- Provide details to evaluate call activity in an organization's Sales department.
- Help you see why long distance costs are on the rise.
- Enable you to measure how effectively you're using your phone lines.
- Provide more information than available through an ESI system's usual implementation of SMDR, because call activity records in ESI Media Management include department numbers (which are not sent to the NSP or serial port).

Guidelines regarding system call activity records

Important: When Function 18 is set as *STORED* (so events are logged to the ASC), SMDR data will no longer be output to the NSP or the serial port.

System call activity records are provided only for inbound and outbound calls between a station and a CO line. This includes all calls answered by, or originating from, a system extension.

None of the following types of calls will generate a system call activity record:

- An incoming call to the auto attendant that doesn't leave the auto attendant.
- An incoming call directly to a voice mailbox.
- An incoming or outgoing call that is call-forwarded off-premises (using ESI Presence Management or ESI's Intelligent Call Forwarding feature).
- An outgoing call sent to the auto attendant and forwarded out using a go-to-outdial branch.
- An outgoing call generated using message delivery notification.

The duration of each call record represents the period of time during which the station controlled its portion of a call. A record is generated each time a station does any of the following:

- Disconnects.
- Places a call on hold.
- Transfers a call.

A single CO call could be included in multiple records if it is transferred from station to station.

Periods when calls are placed on hold or when attempts at supervised transfers are unsuccessful are included in a station's record.

Periods when calls are on hold, in the auto attendant, leaving/retrieving voice mail, or in an ACD queue are **not** included in call records.

A new record begins when a station answers an incoming call, a transferred call, or a hold recall.

Records will be generated independently for all stations in a conference. If more than one CO line is involved in a conference, each call record generated by the conference will be associated with only the last line disconnected.

Dialed digits don't include the line group or location number.

Outbound calls begin a call record 10 seconds after the call has cleared toll restriction.

Applications/benefits: ESI Media Management in action

The applications for ESI Media Management are endless, limited only by the creativity and imagination of the ESI Reseller seeking to best assist his customer. The extensive storage of call recordings and SMDR call records provides a vast amount of data that managers can use for many varied purposes. When ESI Media Management is used together with ESI Presence Management, users can now talk to **and see** who is calling from any RFID Reader. Additionally, ESI Media Management can be used alone — *i.e.*, without ESI Presence Management — to provide live video monitoring for any areas needing increased security or surveillance.

Here are some examples that highlight just a few of the benefits ESI Media Management can provide.

Cutting costs by monitoring call activity

Doe and Company knows it has a problem with rising long distance charges, but doesn't know why. Apparently, someone is using an approved account code to make many unauthorized long distance calls, but it seems unlikely that the department director to whom the account code was assigned is the person who's making those calls. After installing ESI Media Management, Doe and Company begins analyzing call activity, using the extensive SMDR data available from the ESI Communications Server. Thanks to *ESI Media Manager's* intuitive filtering capabilities, an authorized user quickly determines that the calls actually are coming from the department head's employee — who, it later turns out, accidentally learned the account code when the manager let it slip during a meeting. The SMDR data is then exported to a .CSV file (for use from within a spreadsheet) which the *ESI Media Manager* user forwards to the department head, so that appropriate action can resolve the issue.

Analyzing SMDR data can also help Doe and Company determine whether it really needs all the phone lines for which it currently pays. Using *ESI Media Manager* to filter call activity by CO lines gives the authorized user a clear picture of which lines are used to the fullest extent and which aren't. With this knowledge, Doe and Company can discontinue the underused lines, lowering the company's monthly bill.

Advantages:

In each case, the authorized user can use the simple *ESI Media Manager* interface to filter through otherwise daunting amounts of data to gain exactly the evidence needed to resolve the issue. In one case, resolution means stopping a source of financial drain and successfully enforcing intracompany rules concerning use of account codes and long distance access. In the other case, the successful conclusion frees up company funds which had been going to monthly payments for underused lines.

Safe, efficient control of external access

Jason arrives at the employee entrance and discovers he left his ID badge at home. He presses the **Call** key of the RFID Reader of his ESI Media Management/ESI Presence Management-enabled system, and asks the receptionist, Kimberly, to let him in. Along with his voice call to her ESI desktop Feature Phone, Kimberly instantly receives a popup window, bordered in red, showing streaming video of Jason. She then uses her pre-programmed *DOOR UNLOCK* key to buzz Jason into the building (and reminds him to pick up a temporary ID badge on his way in). Later in the day, at the back loading dock, the shipping company arrives just as the agent begins a planned break. The delivery person presses **Call** on the RFID Reader at the back door, which rings to the Shipping Department call list and initiates live video. The manager on duty sees the streaming video, answers the call, communicates with the delivery person, and then quickly reaches the dock agent (who's staying in touch on his ESI Cordless Handset) to tell him he needs to return immediately to the loading dock.

Advantages:

Although the employee entrance is out of sight from the receptionist's desk, Kimberly can utilize the supporting video image to make an informed decision to remotely unlock the door; and she can remain at her desk all the while, thus boosting productivity. At the loading dock, the Shipping Department can be sure it won't miss an important delivery, despite the responsible employee's momentary absence from his station.

Additional information for evaluating employees' performance

Phillip is a sales manager who needs to give Cindy, a salesperson, her review. Phillip asks the *ESI Media Manager* administrator to give him an exported list of Cindy's call activity and fob records. He can use this information as supportive documentation during the review. Fob records can pinpoint tardiness, extended lunches, or excessive breaks. As is true for many salespeople, Cindy is given a goal of how many clients she should contact within a given time period; and call activity records show how many inbound and outbound calls were made, and to whom. Phillip can also take this opportunity to advise Cindy on her sales techniques by reviewing audio call logs of her conversations with her clients. Phillip doesn't have to **assume** how Cindy is handling calls, or review her solely based on other people's opinions; he can hear for himself. If he encounters a conversation that's especially meaningful, such when Cindy either receiving praise from one client or engaging in a heated argument with another client, Phillip can export the audio file and e-mail it to Human Resources for safekeeping.

Advantages:

Effective performance review processes are vital in helping an organization perform well, and *ESI Media Manager* makes it easier than ever before to obtain the data needed to establish how well employees are doing their jobs and, when necessary, what changes they should make in order to improve.

The convenience of event- and motion-triggered alerts

There are no staff members in the lobby, where customers arrive for a scheduled presentation. They press the **Call** key on the RFID Reader mounted near the door, signaling ESI Presence Management to call Kimberly, the receptionist. Simultaneously, their motion in the room has already sent Kimberly a video alert — thanks to the ESI Video Adapter, a video camera, and *ESI Video Viewer*. On Kimberly's monitor, the motion alert trims the lobby camera's video panel in blue, which then changes to red to indicate that this is a location where the **Call** key has been pressed. She sees the streaming live video of the expected visitors and answers the call: "Oh, hello, Mr. Morgan. I see that you and your group are here. Please have a seat, and Paul will be right there to greet you." After disconnecting the call, Kimberly presses her DSS key for Paul and lets him know his guests have arrived, so he can go to the lobby and personally escort them into the building.

Advantages:

The alerts, triggered by an event (pressing of the **Call** key) and motion in the lobby, let Kimberly respond more quickly and effectively to the guests' presence. She instantly recognizes the guests by video image and personally responds to them by name. Then she quickly communicates information to the appropriate individual, so no time is wasted by any employees' standing around the lobby awaiting visitors. Security is maintained by preventing direct building access and assuring that only escorted visitors may enter.

Constant, cost-efficient monitoring of secured areas

As the facilities manager, Chuck is responsible for all property movement within the building. He must safeguard valuable property which includes warehouse inventory, computer equipment, and a supply room containing both office supplies and marketing literature. At his desktop, Chuck uses the Advanced version of *ESI Video Viewer*, which allows constant video monitoring via the nine cameras he's deployed around the building to help him monitor the various areas whenever he's not actually out on the floor.

Advantages:

The theft of company property is a significant expense for many customers. The presence of video surveillance cameras monitoring those critical areas can greatly reduce theft and make employees or potential intruders think twice before they break the law. ESI Media Management enables one person to monitor up to 15 cameras at one time, eliminating the expense of an outside security firm.

Protecting things that really need protecting

The receptionist at a doctor's office can allow entry into the medicine closet by seeing a live video feed of the person "buzzing in" at an ESI Presence Management RFID Reader. Without getting up, the receptionist can unlock the door for authorized personnel by using either a programmed *DOOR UNLOCK* key on the ESI Feature Phone or the **Door Unlock** icon in *ESI Video Viewer*. There's also a recorded video and audio event of who entered, and when.

Advantages:

It's critical, not to mention required by law, for a medical facility to let only authorized persons have access to the various substances which doctors may retain in-house for administering to patients. The use of ESI Media Management in league with ESI Presence Management provides the extra layer of security needed while still freeing up office personnel to perform their other functions.

Controlling an area in multiple ways

The car repair bay at an major automobile dealership stores many parts so as to provide customers with the most rapid repairs possible. The implementation of ESI Media Management allows managers to monitor the repair facility in order to prevent:

- Personnel theft of parts.
- Intruders sneaking into unmanned bays to steal parts.
- Customers coming into the bay area (despite warnings to the contrary), causing liability issues.

Advantages:

This sort of watchfulness is something that every customer needs to practice, but some need it more than others. It can be particularly difficult when there are a lot of people, and a lot of things to watch. But ESI Media Management allows **really** watching, with the advantages of both live and recorded video, and makes doing that from a central location a thing of ease that any properly authorized user can do.

Archiving and purging data from the Applications Services Card

<p>Note: Only the <i>ESI Media Manager</i> administrator can perform the tasks described on this page.</p>

Purge

A **purge** is a permanent deletion of events from the ASC Memory Module. A purge can be done only manually; there is no automatic schedule for purging records. (See also "Drive capacity," *below*.) Once records are purged, there is no way to retrieve them.

Archive

Archiving removes events (and associated video and audio files) from the ASC Memory Module and moves them to another location, such as a LAN or removable storage. Archiving can be done either manually or by using a schedule for automatic archiving. The file extension for an archive file is *.ema* (for *ESI Media Manager archive*). Archiving 1 GB of data to the LAN takes approximately 60 minutes; therefore, ESI recommends setting an automatic archive schedule, particularly for busy sites. The *ESI Media Manager* administrator's PC and *ESI Media Manager* must be running for the automatic archiving to initiate. Automatic archiving will archive all ASCs in the system.

Drive capacity

The *ESI Media Manager* administrator will be notified when the ASC Memory Module reaches 75% capacity, giving the administrator time to purge or archive events to make more room on the Memory Module. The notification comes to the administrator via a voice mail message and ESI Feature Phone display alert. If the Memory Module fills up (95% capacity), it will automatically begin purging the oldest records, and continue until the Memory Module reaches a 90% capacity level.

Multiple ASCs

When the system is using multiple ASCs, data is stored on the ASC as follows:

- Fob and call activity (SMDR) records are always stored on the first ASC in the system. This can't be changed.
- Video can be stored on more than one ASC, by assigning a specific Video Adapter/camera to an ASC.
- Audio is stored starting with the first ASC in the system. If more than 32 channels are being recorded simultaneously, the additional channels will automatically be recorded on the second ASC in the system.

Example: Let's say you have two ASCs, and are set up to record 36 channels or extensions. A single ASC can record a maximum of 32 channels. So, if 32 channels are actively being recorded (in use), the other four channels will automatically be recorded on the second ASC. Since the channels are dynamic, it's possible that a single CO line will have recordings on both ASCs in the system.

Regardless of which ASC is storing an event, *ESI Media Manager* shows all events together.

For information on archiving with multiple ASCs, see "Archiving and purging data from the Applications Services Card," page 18.

ESI Video Adapter

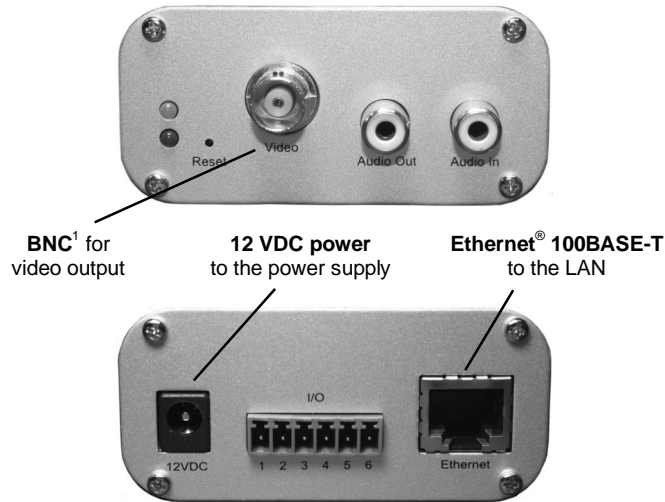
The **ESI Video Adapter** (ESI # 5000-0544, *below*) is a hardware interface between a LAN and a compatible video camera (see “Video camera requirements,” page 24). The adapter is not required for compatible IP video cameras.



Each ESI Video Adapter supports, and connects via a video cable directly to, one camera. (To see how many ESI Video Adapters may be installed in each compatible ESI Communications Server, see “Capacities,” page 25.)

Important: To ensure that you purchase appropriate cameras, see “Video camera requirements,” page 24.

The ESI Video Adapter contains the following **external connectors**:



Note: The Adapter’s additional connectors — *Audio Out*, *Audio In*, and *I/O* — aren’t used by ESI Media Management.

Power is supplied by an external power supply, which is included with each Video Adapter.

Compatible video cameras

Supported Vivotek IP cameras include the following models: IP7330; IP7153; IP7130; IP8161; and FD7131.

ESI does not offer cameras for use with ESI Media Management applications. See “Video camera requirements” (page 24) for guidelines on purchasing cameras.

¹ A standard coaxial cable connector. The letters *BNC* refer to its *bayonet* style and the last names of its inventors, Paul Neill and Carl Counsellmann.

Using remote cameras

ESI Video Adapters and IP cameras installed at a remote site can be viewed and recorded. “Hot spots” can be set up to retrieve motion events. Remote IP RFID Readers (see “Using ESI Media Management with ESI Presence Management,” *below*) also can be installed at the remote location and associated with the remote cameras, thus providing fob and call events.

Using ESI Media Management with ESI Presence Management

An ESI Communications Server equipped with **both** ESI Media Management **and** ESI Presence Management¹ provides an additional dimension in facility security and monitoring.

ESI Media Manager

When you're using *ESI Media Manager*, events captured by an ESI Presence Management RFID Reader are stored on the Applications Services Card. Data about individual events can be reviewed by the *ESI Media Manager* administrator. For additional information, see “Fob activity records (ESI Presence Management key fob/card events),” page 13.

ESI Video Viewer

When an ESI Presence Management RFID Reader is associated with an ESI Video Adapter, the Advanced version of *ESI Video Viewer* receives notification of specific **events** at the RFID Reader and indicates each by applying a specific color to the trim of the associated camera's **panel**:

Event at RFID Reader	Panel color trim
Call keypress — Call key is pressed.	Red
Call-waiting Call keypress — Second ESI Presence Management call is presented while the <i>ESI Video Viewer</i> station is already on another such call.	Green
Valid fob.	Dotted orange
Access-denied fob (a valid fob attempting to access an area for which fob isn't authorized).	Solid orange

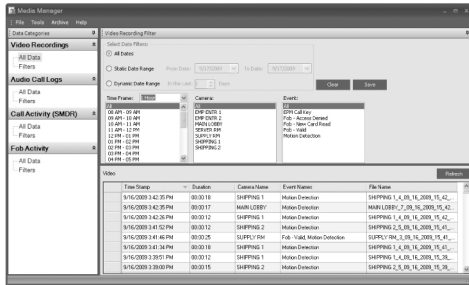
Note: Basic *ESI Video Viewer* applies no color to the panel trim.

If one of these events occurs when *ESI Video Viewer* is minimized, *ESI Video Viewer* will “pop” to the front of other applications, to gain the user's attention.

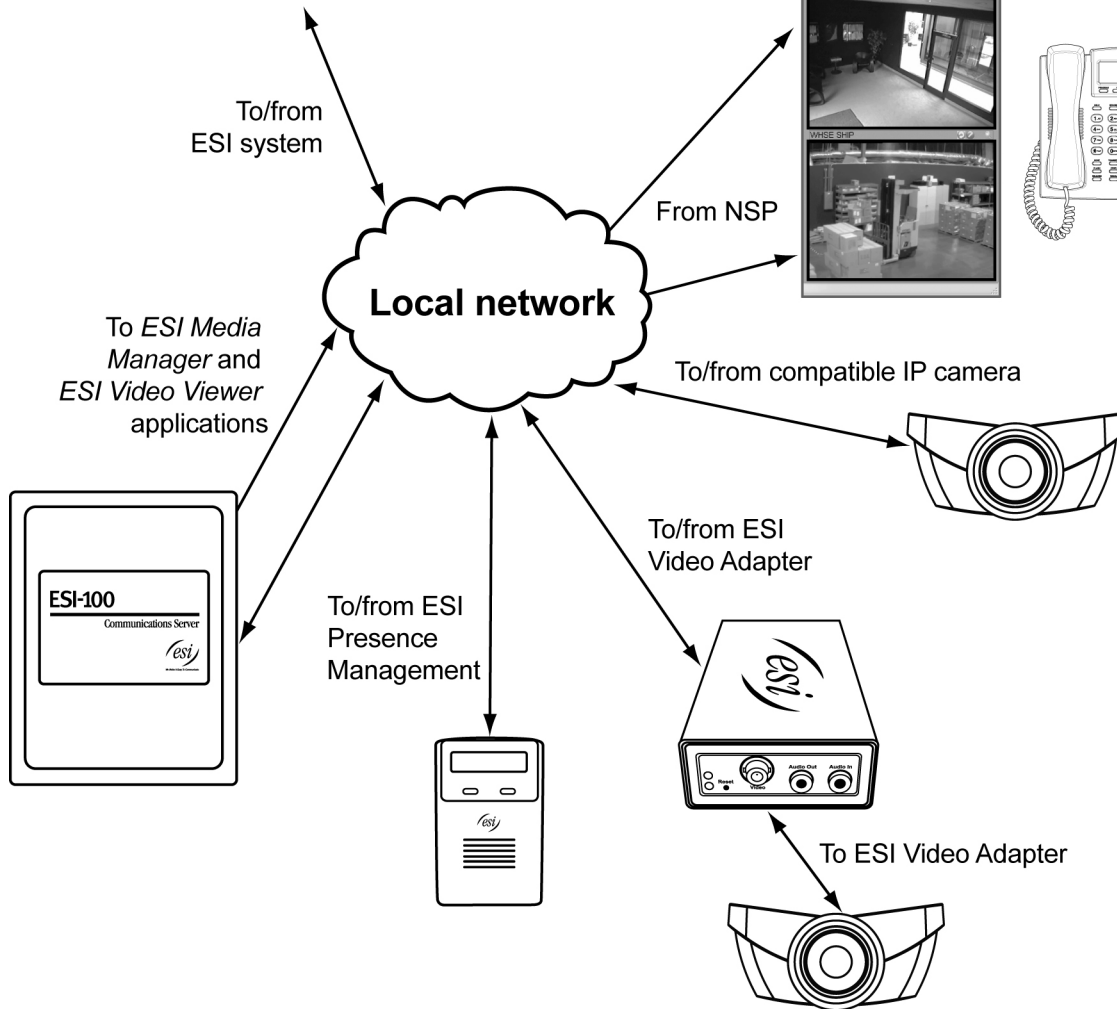
¹ For full details on ESI Presence Management, see its *Product Overview* (ESI # 0450-0794).

Technical overview

ESI Media Manager application



ESI Video Viewer application



Minimum requirements

ESI hardware and software requirements

ESI Media Management requires an ESI Communications Server — ESI-1000, ESI-600, ESI-200, ESI-100, or ESI-50¹.

The **minimum operating software** for each ESI Communications Server model to be compatible with ESI Media Management, at the issuance of this document, is xx.05.13.00.

For recording video from IP cameras, *ESI Media Manager* 3.0.1.2 (or higher) is required. For viewing live video from IP cameras, *ESI Video Viewer* 2.0.1.2 (or higher) is required.

The ESI Communications Server must have an installed Applications Services Card (ASC), and therefore must have one available port card slot. To maximize storage capabilities, the ASC (ESI # 5000-0548) should have an ASC Memory Module (ESI # 5000-0571), which has a capacity of 160 GB. This Memory Module can store five hours of video per gigabyte and 250 minutes of audio per gigabyte.

For recording remote camera images, the ASC requires a firmware update (contact ESI Technical Support).

Licensing

One *ESI Media Manager* license is required per user. Additional licensing is required for the following capabilities within ESI Media Management:

Capability	Requirement	License
ESI Media Manager	One per user	5000-0538
Recorded video	One per camera	5000-0568 (2 channels) 5000-0580(4 channels) 5000-0581 (12 channels)
Audio call logging	One per CO, line, extension, or department	5000-0569 (4 channels) 5000-0582 (8 channels) 5000-0583 (32 channels)
ESI Video Viewer (Basic)	No license required	N/A
ESI Video Viewer (Advanced)	One per user	5000-0536

Computer system requirements

ESI Media Management and its associated applications require a PC using *Windows 7, XP, or Vista* (including the 64-bit version of *Windows 7* or *Vista*) and meeting the following **minimum** requirements:

- 2 GB of RAM.
- A Pentium® 4 processor or better with a minimum speed of 2.0 GHz.
- 256-color (eight-bit) video output. ESI recommends using a **separate video card**, as opposed to built-in CPU video support, especially for viewing multiple motion-detection cameras. This is because a separate video card exerts less of a drain on the CPU, allowing the PC — and *ESI Video Viewer* — to run more smoothly than when depending upon built-in video support on the CPU.

A single PC can view only 15 cameras simultaneously. The more motion-detection cameras that are in the layout being used by *ESI Video Viewer*, the higher the CPU usage. If motion occurs constantly in these camera views, the CPU usage will increase even more. Even on a PC that fulfills the computer system requirements, it's possible for the PC to run slowly due not only to other running applications (such as anti-virus scanners) but also the number of cameras being viewed simultaneously that are receiving a continuous flow of events, especially motion.

¹ The entry-level ESI-50L must be upgraded to an ESI-50 to support ESI Media Management.

Network performance

In a local environment

ESI Video Management uses only **multicast** technology to stream video to multiple users. Multicasting decreases the amount of network bandwidth used for streaming video. Ten ESI Video Adapters running on a 100Mbps network will consume about 3% of the available bandwidth.

Because each network is different, it is the responsibility of the Reseller and the System Administrator to evaluate available bandwidth and any impact upon users' network performance.

Over a WAN

It's not possible to multicast packets over a wide area network (WAN). Packets coming from the remote cameras use **UDP** (User Datagram Protocol), which consumes more bandwidth. Each *ESI Video Viewer* user at the local site viewing a remote camera is initiating a stream from the camera; thus, the more *ESI Video Viewer* users viewing that remote camera, the more bandwidth is consumed. A remote camera sharing an Internet connection with ESI remote IP phones, Internet service, e-mail, *etc.*, could cause the quality of these services to degrade. For better quality, ESI recommends separating these services.

Video camera requirements

ESI does not offer cameras for use with ESI Media Management. To be compatible, a video camera must meet these requirements:

- 380 to 480 lines of resolution (LOR).

Notes: Resolution will vary by camera.

You may use a higher-resolution camera if you wish, but the ESI Video Adapter will process only up to 480 LOR.

- Either color or black-and-white is supported.
- NTSC only (PAL and ATSC are not supported).¹
- Wireless and webcam-type cameras are not supported.
- Supported Vivotek IP cameras include the following models: IP7330; IP7153; IP7130; IP8161; and FD7131.

Cabling and power

Keep in mind the following when purchasing and installing video equipment:

- Each non-IP camera and ESI Video Adapter will require power from a 120 VAC outlet.
- A video cable is needed to connect the camera to the ESI Video Adapter. This cable isn't always included with the camera.
- An Ethernet cable is required to connect the ESI Video Adapter to the LAN.
- For all cables, be sure the lengths are sufficient for the appropriate connections.

¹ NTSC is the standard analog television system used in the U.S.; NTSC and PAL are incompatible. (ATSC is a **digital** standard; most cameras used for closed-circuit video are still analog.)

Capacities

Here are the capacities different ESI Communications Servers have for supporting ESI Media Management:

	ESI-50	ESI-100	ESI-200	ESI-600	ESI-1000
ESI Video Adapters per system	12	12/14 ¹	16	24	32
ESI Presence Management RFID Readers per ESI Video Adapter (and vice versa)	1	1	1	1	1
User extensions/departments per ESI Video Adapter ²	32	32	48	64	64
Video recording channels	12	12	24	36	48
Call recording channels	32	32	64	192	384
ESI Media Manager users per system	5	10	15	20	30
ESI Video Viewer users per system:					
Advanced	5	10	15	20	30
Basic	Unlimited (no license required)				

One ASC can record up to 12 ESI Video Adapters. One PC user can view up to 15 cameras simultaneously.

For more details, see the *ESI Media Management Installation Guide* (ESI # 0450-1240).

¹ Supports 12 Video Adapters if using three-digit dial plan, or 14 Video Adapters if using four-digit dial plan.

² A department number is considered to be a single entry.

Disclaimers

Video recording disclaimer

The *ESI Media Manager* application, the *ESI Video Viewer* application, and the *ESI Video Adapter* — hereafter collectively referred to as “ESI Media Management” — constitute a surveillance product only. It is not expressly stated or implied that ESI Media Management shall protect or secure any property, possession or person, animal or public good. ESI relies solely on the ESI Reseller's and end user's investigation of ESI Media Management itself as to whether it shall be suitable for the purposes for which it is intended. ESI has used its best endeavors to ensure that ESI Media Management shall be suitable for its general intended purpose, surveillance. In recognition of these best endeavors, anyone using ESI Media Management agrees that ESI shall not be responsible for any defects or occurrences that may arise from or during the use of ESI Media Management with any other products, goods, or services.

Camera surveillance can be prohibited by laws that vary from state to state, as well as by union guidelines. ESI advises that the ESI Reseller, end user, or third-party installer take any necessary precautions and training to understand and adhere to local, federal, and union guidelines for installing and using video in the home, workplace, or other environment. ESI is not responsible for educating the ESI Reseller or end user on either the law (local or federal) or union guidelines.

Audio recording disclaimer

IN **MOST** JURISDICTIONS, IT IS PERMISSIBLE TO RECORD A CONVERSATION IF ONE OF THE TWO PARTIES IS AWARE THAT IT IS BEING RECORDED. HOWEVER, ESI TAKES **NO** RESPONSIBILITY AS TO ITS LEGALITY IN **ALL** JURISDICTIONS. IT IS THE RESPONSIBILITY OF THE INSTALLING COMPANY AND THE END USER TO DETERMINE AND FOLLOW THE APPLICABLE STATE AND LOCAL LAWS REGARDING RECORDING OF CONVERSATIONS.

About ESI

ESI (Estech Systems, Inc.) is a privately held corporation based in Plano, Texas. Founded in 1987, ESI specializes in business communications systems. ESI pioneered the all-in-one telephone and voice mail system. The original IVX, introduced in 1996, represented a radical breakthrough in system design: the inclusion of a full suite of features within a single integrated system.

Since its days as a small start-up, ESI has enjoyed exceptional stability and growth while maintaining its dedication to small-company values — including the need to take care of the most important part of the equation: your business.



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