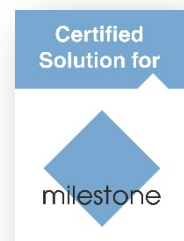




Milestone Certified Solution



iCetana

Date certified : Mon 9 July 2018

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About iCetana

We are the world leader provider of real-time AI-assisted video monitoring for a complex world. We believe it's a shortcoming of modern technology that surveillance equipment requires constant monitoring by human eyes, so we've redesigned the technology to see through the chaos and identify undesirable events first. This provides the ability to catch those events that don't play by the rules and deal with them before they escalate.

Our AI-assisted video monitoring analyses what 'normal' is across the whole scene, looks for the 'not normal', then alerts operators before it's too late. It uses a rolling baseline to learn daily, constantly adapting to new environmental and behavioural conditions. This establishes 'new norms' to identify any unpredictable activity over time. The system displays only undesirable events to security operators in real-time, preventing monitoring fatigue and boredom while increasing engagement. As a result, security operators are enabled to proactively assess and respond only to the events that matter.

Designed to scale to thousands of cameras in one installation, our system future proofs the use of the video surveillance infrastructure. Our solution isn't a concept, it's a reality – already delivering breakthroughs in monitoring performance across everything from university campuses, shopping malls, mass transport hubs to smart cities. We are proving that the future is here, some just haven't seen it yet. With iCetana you will see things differently.

About Milestone Systems

Milestone Systems is a global leader in providing open platform IP video surveillance software. Milestone has provided easy-to-use, powerful video management software in more than 150,000 installations, worldwide.

Milestone XProtect® provides open architecture products that are compatible with more IP cameras, encoders, and digital video recorders than any other manufacturer. Because Milestone provides an open platform, you can integrate today's best business solutions and expand what's possible with future innovations. Visit www.milestonesys.com for more.

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Executive Summary

iCetana boasts a set of advanced, automated, video analysis tools that provide for the immediate detection and extraction of events and valuable data from surveillance footage. iCetana increases the surveillance system's ROI, and improves overall security, safety and business operations.

The integration with Milestone XProtect® allows iCetana's capabilities on every camera connected to the surveillance system. iCetana is embedded in Milestone XProtect® Smart Client for real-time detections of anomalies, enabling full event management through the Smart Client. This includes event notification with graphic overlay for both live and recorded (playback) video, simplified configuration, triggered recording, activation of outputs and more. iCetana's video search and rTrack business intelligence capabilities are embedded in the Smart Client, enabling seamless retrieval of stored video and display of analytics results.

Certified Products

- iCetana g1.3e
- Milestone XProtect Corporate 2018 R2 (tested XProtect version)
- XProtect® Express 2018 R1
- XProtect® Express 2017 R3
- XProtect® Express 2017 R2
- XProtect® Express 2017 R1
- XProtect® Express 2016 R3
- XProtect® Express 2016 R2
- XProtect® Express 2016
- XProtect® Express+ 2018 R1
- XProtect® Express+ 2017 R3
- XProtect® Express+ 2017 R2
- XProtect® Professional 2018 R1
- XProtect® Professional 2017 R3
- XProtect® Professional 2017 R2
- XProtect® Professional 2017 R1
- XProtect® Professional 2016 R3
- XProtect® Professional 2016 R2
- XProtect® Professional 2016
- XProtect® Professional+ 2018 R1
- XProtect® Professional+ 2017 R3
- XProtect® Professional+ 2017 R2
- XProtect® Expert 2018 R1
- XProtect® Expert 2017 R3
- XProtect® Expert 2017 R2
- XProtect® Expert 2017 R1
- XProtect® Expert 2016 R3
- XProtect® Expert 2016 R2
- XProtect® Expert 2016
- XProtect® Corporate 2018 R1
- XProtect® Corporate 2017 R3
- XProtect® Corporate 2017 R2
- XProtect® Corporate 2017 R1
- XProtect® Corporate 2016 R3

XProtect® Corporate 2016 R2

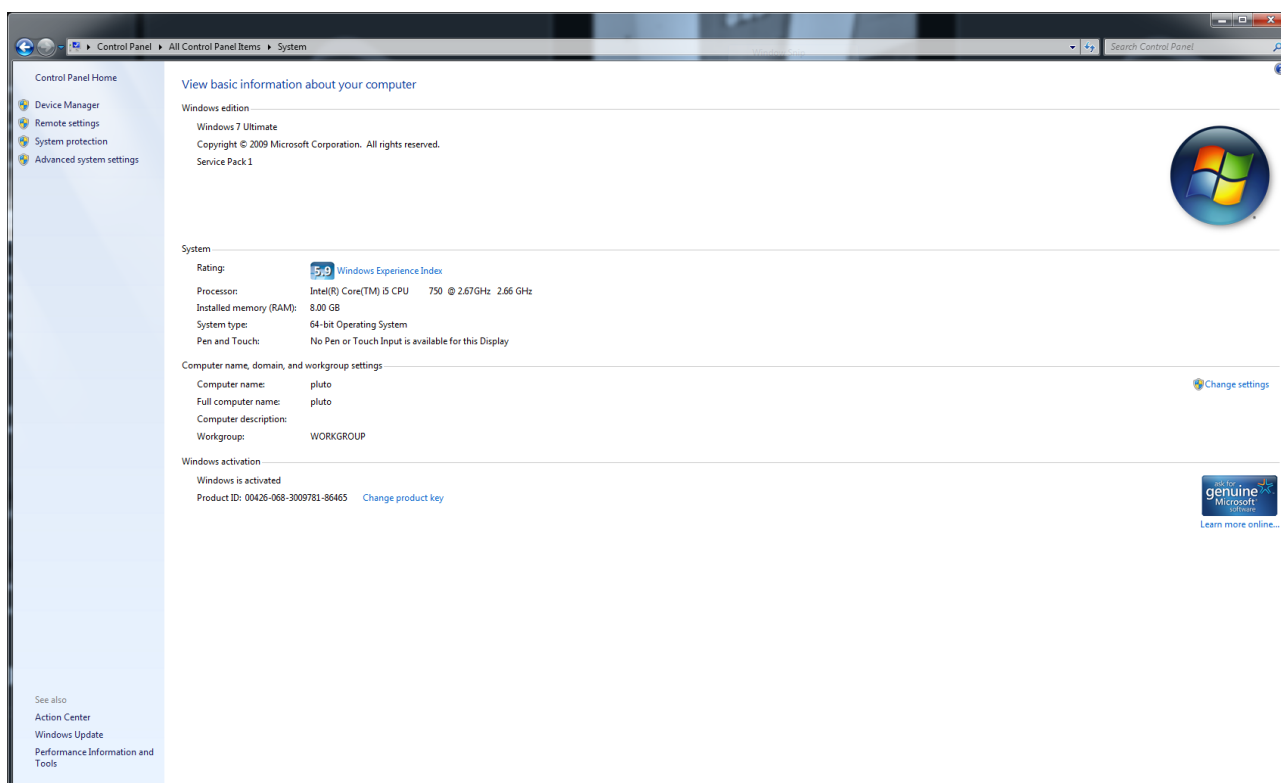
XProtect® Corporate 2016

- Milestone XProtect Smart Client 2018 R2

Performance of the solution may vary if different XProtect products and/or system components not listed in the tests details are included.

Test Setup

Milestone XProtect Smart Client 2018 R2 installed on a desktop PC, core i7, 8GB RAM running Windows 7 Ultimate. See below for basic system information from Windows.



A combination of streams were configured on the Milestone system ranging from D1 through to 1080P. Framerates varied from 5FPS through to 25FPS. The number of streams totaled 94 and represented a combination of manufacturers including Axis, HIKVision, Sony and virtualized camera feeds:

- D1 704x480 (0.3Megapixel)
- 720P 1280x720 (0.9Megapixel)
- 1080P 1920x1080 (2.1 Megapixel / 1080p / 2.3 Mbit/s)

Performance Results / Features Tested Described

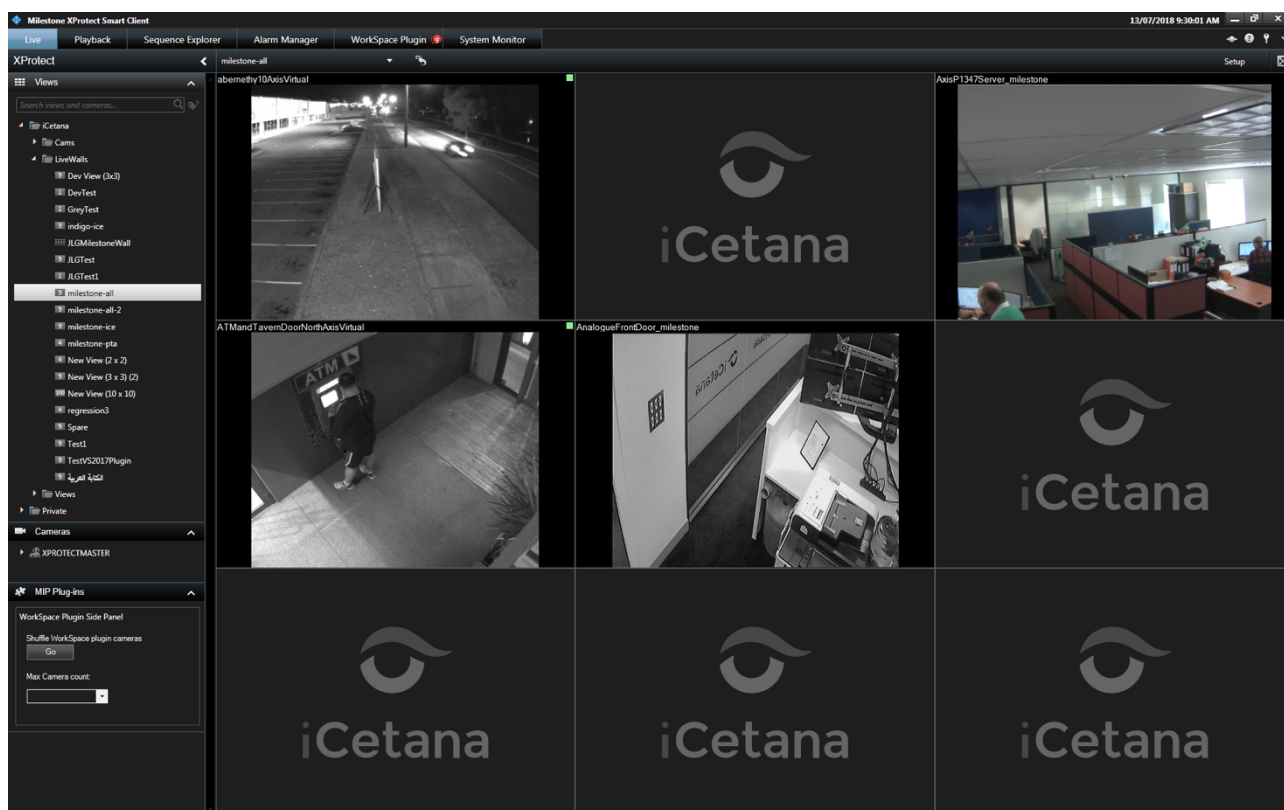
The iCetana xProtect Smart client bundles several distinct components of functionality. These are:

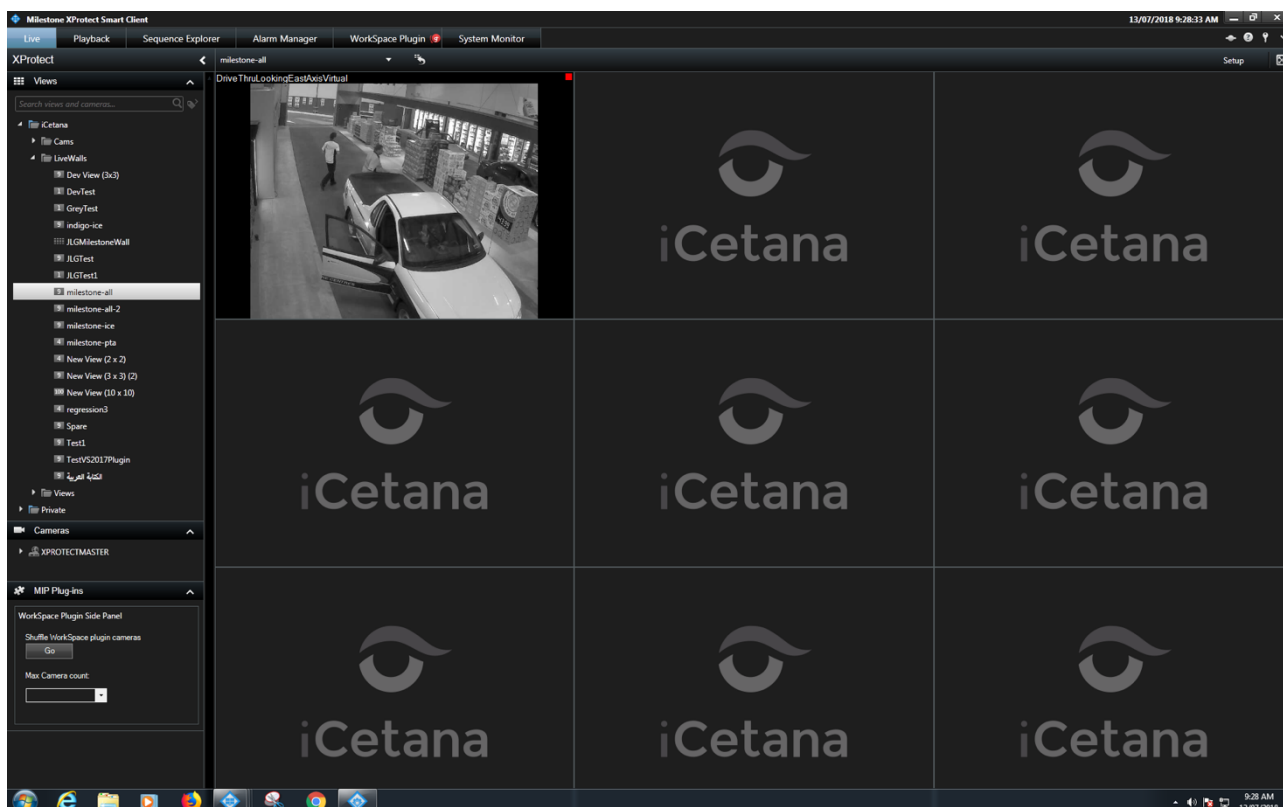
- iCetana LiveWall interface
- iCetana camera playback interface
- iCetana configuration elements for xProtect Management Client

Each of these interfaces was tested as part of the certification testing.

iCetana LiveWall

The iCetana LiveWall is the key interface and main component of the iCetana plugin. It displays iCetana detections in a grid, that is defined using the standard milestone layouts. This integration is good, as it allows end users to setup the system with any grid size already available within milestone to customise the live wall to their given situation. It seems that 9 or 16 grids would be the most useful however, as iCetana have quoted that a 9 grid will allow between 200 and 300 cameras to back it, and the 16 grid can go to 600 cameras. This means that a single operator can effectively monitor 600 cameras from a single interface, just observing the footage of anomalous events.





The configuration of the LiveWall is in keeping with the standard configuration of milestone views, and allows separate views to be setup with different groupings of cameras as defined on the iCetana server. This also allows for multiple iCetana servers to be configured in a single Milestone environment. Basic UI elements are also able to be tweaked, such as the font size for the camera name overlay and the initial speed up factor.

☒ Properties

iCetana

iCetana Server:

milestone-ice

LiveWall Camera Group:

milestone-all

Camera Name Size:

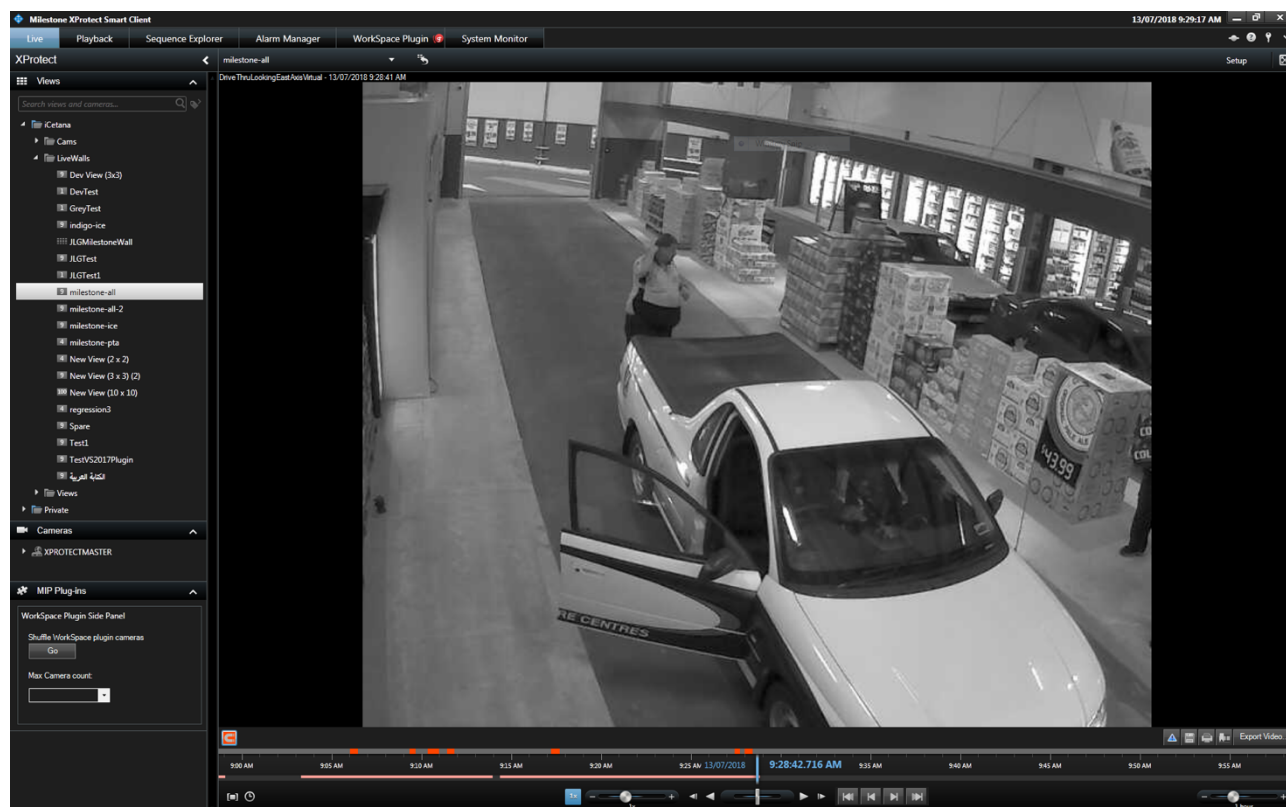
Speed-Up factor:

3

☒ Show Speed-Up indicator

iCetana Playback Tool

The iCetana Playback tool is accessed by double clicking on a detection from the livewall, which maximises the interface. It can also be popped out into a separate window using all the standard milestone send to screen functions. An innovative approach to the popout functionality is that by double clicking a further detection, the popped out window is updated, rather than a new one being created. This seems to work well with the iCetana two screen workflow.



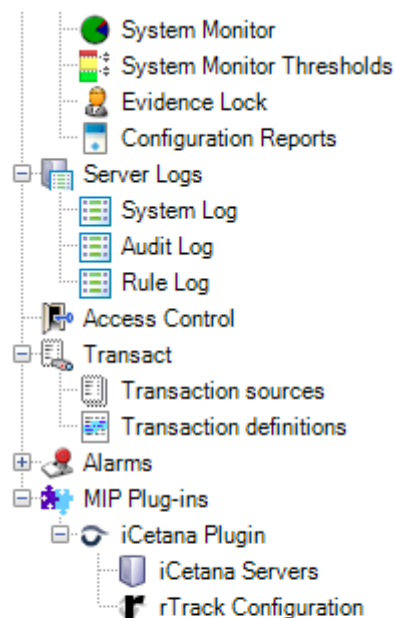
The playback tool incorporates the standard milestone playback interface, but augments this with an additional detection bar that shows the iCetana detections. This means that end users are able to skip between detections using the overlaid controls and to quickly find events of interest.

Overall, the responsiveness of the interface was on par with the rest of the Smart Client and the integration is laid out in such a manner that existing milestone users will find it easy to use and intuitive.

xProtect Management Client Integration

The management client integration provided by the iCetana plugin is simple and in keeping with the existing Milestone Configuration options.

The plugin appears under the MIP Plug-ins tree section and provides the functionality to configure the key elements, namely the iCetana servers and enable or disable the incident reporting system.



The configuration elements each present a simple forms interface to configure the required parameters, and include reasonable defaults upon first installation of the plugin. See below screenshots. The plugin options are documented within the plugin user guide provided by iCetana.

iCetana Servers

- iCetana Servers
 - Dev
 - indigo-ice alex test
 - Innovation
 - Microsoft
 - milestone-ice
 - MilestoneIP
 - Regression3
 - Spare

iCetana Information

Name: Microsoft

Server URI: http://microsoft/

Username: admin

Password:

Min video duration: OFF seconds

Max video duration: 45 seconds

Video start error margin: 5 seconds

Min Milestone commit buffer: 2.0 seconds

Max Milestone commit timeout: 30 seconds

Screen wait timeout: 0 seconds

☒ Include the ALL Camera Video Group

☒ Show Debug Overlay

☒ Show viewer during connect

☒ Allow playback 28 days

Last Camera shown memory time: 5 minutes

Viewer No. of CPUs: 1

Viewer Buffer: 75 % (2 seconds)

Configuration

rTrack Enabled?: ☒

rTrack Server Host: innovation Port: 80

rTrack Server User Name: admin

rTrack Server Password:

iCetana Recommended Server Specifications

iCetana Recommended Server Appliance Information

ITEM	SPECIFICATION
Operating System	• Linux - Ubuntu
Processors	• 2 x Intel Silver 4110 8C or 4114 10C Processors
Memory	• 96GB RAM, Preferable 12 x 8GB Modules
Boot Disk	• 2 x 480GB M.2 SSDs, or 2x 1TB RAID1
Storage Disks	• 6 x 8TB RAID 6 split into 2 Partitions
RAID Adapter	• RAID 5 Adapter
GPU Processing	• 4 x NVIDIA P4000 GPU
Power	• Dual Redundant Power Supplies
Warranty	• 3 Years NBD
Network	• 2/4 x RJ45 1Gbps NIC
Remote Management	• 1x RJ45 IPMI or similar
Operating Environment	• Operating Temperature Range: 10°C ~ 35°C • Non-Operating Temperature Range: -40°C ~ 70°C • Non-Operating Relative Humidity Range: 20% - 90% (non-condensing)

This server will support 300 cameras per server (2RU) at the recommended resolution of 1280x720 at 12 frames per second using the H.264 video format.

Supported Video Stream Formats and Protocols

Video Source	Protocol	Codec	Notes
Camera/Encoder	HTTP	MJPEG	-
	RTSP UDP	H.264	Recommended
	RTSP UDP multicast	H.264	-
	RTSP UDP	H.265	Beta support
Milestone XProtect VMS	Milestone Integration Platform (MIP)	H.264	Recommended
		MJPEG	-

Video Resolutions and Frame Rates

	Recommended Minimum	Recommended Range	Recommended Maximum
Resolution	704x480 (4CIF)	720x576 (D1) to 1280x720 (720P)	1920x1080 (1080P)
Frame Rate (FPS)	5	7.5 to 15	30
Note: iCetana appliances are provisioned with a capacity of 300 cameras within the recommended range or below. Exceeding the recommended range may affect the capacity of the appliance.			

Network Infrastructure Bandwidth Capacity Requirements

# Video Streams	Format	Resolution	Frame Rate (fps)	Approximate Bandwidth (Mbps)
300	H.264	720P	15	600
300	H.264	D1	7.5	212
300	MJPEG	D1	7.5	1000

Resolution Reference			
Reference	Resolution Pixels	Reference	Resolution Pixels
5MP	2560 x 1920	4CIF	704 x 480
3MP	2148 x 1536	DCIF	528 x 320
1080p	1920 x 1080	2CIF	704 x 240
720p	1280 x 720	CIF	352 x 240
D1 (PAL for Europe)	720 x 576	QCIF	176 x 120

Specific queries on the new platform can also be directed to Anthony Jones - aj@icetana.com

Purchasing iCetana

iCetana offers an Operating Expense (Opex) purchasing option based on a licence per camera basis

Conclusion

The iCetana Milestone plugin was tested and found to be an innovative approach to the display of CCTV footage, showing only anomalous behavior from the cameras. The plugin itself was found to be very stable, with no crashes, freezes or hangs. The interfaces have been carefully designed so that they are in keeping with the rest of the Smart Client, which will minimize the amount of training that operators will require in order to be effective with it.

The linkage between the operator interfaces between LiveWall and playback are well designed to improve operator efficiency. This does, however, not follow the standard Live, Playback, Explorer tabbed design of the smart client, but in this case seems to have been implemented like this on purpose to improve operator efficiency, which it does. Splitting up the interface across the live/playback tabs in this case would be to the detriment of the operator as they would no longer be able to monitor the rest of the LiveWall once they clicked into a particular detection.

On the configuration side, the plugin provides all the necessary configuration options in a simple and not overly cluttered interface.