



Hanwha Wisenet RoadAI Analytics Integration with Milestone XProtect

User Guide

Identify vehicles-of-interest in real-time and receive alerts and notifications in Milestone XProtect

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Summary

This document provides a basic overview, plus installation and operating instructions for the Hanwha Wisenet Road AI License Plate Recognition (LPR) analytics integration with Milestone XProtect.

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1. Hanwha Wisenet RoadAI LPR Analytics – Integration with Milestone XProtect

1.1. Product Summary

Hanwha Vision's edge-based LPR camera solution, Wisenet Road AI, uses AI camera technology to help identify vehicles on the road. These License Plate Recognition (LPR) cameras, featuring Make, Model, and Color Recognition (MMCR), can accurately capture vehicle information in various traffic conditions ranging from low-speed parking situations to free-flowing fast-moving highway scenarios.

Bridge-to-XProtect ("BTX") enhances the capabilities of Road AI cameras by generating XProtect alarms in REAL-TIME when "platesof-interest" (e.g. stolen vehicle, unauthorized personnel) are detected. Key integration features include:

- CREATE and MANAGE any number of user-defined license plate lists with BTX.
- TRIGGER XProtect alarms, notifications, and other security actions in real-time based on a positive plate list match.
- RECEIVE and CLASSIFY detections from any number of Road AI cameras, no need to manage whitelist/blacklist per device.
- AUTOMATE security responses with list-specific security actions in XProtect.
- REVIEW Road AI detection snapshots and video bookmarks in the XProtect Smart Client.
- SEARCH license plate detection metadata plate #, list, make, model, region, color directly in the XProtect Smart Client.
- SIMPLIFY. XProtect Management Client and XProtect Smart Client Workstation plug-ins are not required. Configuration of driver-based events is not required.

BTX informs you NOW ... immediately ... when a plate-of-interest is detected, which improves situational awareness and allows you to respond faster.

1.2. Basic Data Flow

BTX uses a sub-system called the **BTX HTTP Webhook Listener** ("**BWL**") to listen for license plate detections from any number of Hanwha Wisenet Road AI cameras.

The **BWL** receives plate detection data in real-time. User-defined license plate lists are used to filter and classify detections. Qualifying alarms are forwarded to **BTX**. Non-qualifying alarms are logged as "received" and discarded.

In BTX, qualifying alarms are associated with XProtect cameras and forwarded to XProtect as event and/or alarm records with Video Bookmarks. XProtect alarms records include the camera's native detection snapshot (which is received and parsed by the BWL).

BTX provides additional features to activate PTZ presets, display live matrix views, and fire XProtect user-defined events with minimal configuration required in the XProtect Management Client.

The result ... a detection matching a plate list entry triggers immediate security action in the Milestone XProtect Smart Client.



1.3. Data Flow Diagram





2. Installation

BTX and the BWL are typically installed on the Milestone XProtect Management Server.

After installing BTX, the BWL can be found in the following directory:

- C:\App-Techs\BTX\Third-party\HttpBTXWebhookListener

To configure, run the executable below.

- (Be sure to RUN AS ADMINISTRATOR.)
- "HttpBTXWebhookListener.exe" (BTX HTTP Webhook Listener) as a desktop application.

The BWL itself does not require licensing. However, BTX requires a valid license to receive Hanwha Road AI alarms and send them to Milestone XProtect.

2.1. Run the BWL as a Windows Scheduled Task

Once devices are configured, "HttpBTXWebhookListener" (BWL) may be run in the background as a Scheduled Task. To set up as a schedule task, follow the directions below.

- Open the Task Scheduler on the system that will be running the HttpBTXWebhookListener.exe application.
- In the Actions pane on the right, click Import Task.
- Navigate to the following file and select it:
- 0 C:\App-Techs\BTX\Third-party\HttpBTXWebhookListener\HttpBTXWebhookListener_TaskScheduler.xml
- Select the Change User or Group ... button.
 - Specify the user that you wish to run this task and click "Check Names" to verify the user and then click OK to close the selection.
 - o If you have located the application in the default location, no other modifications should be necessary.
- Click OK to finish creating the task and supply the password for the user specified.

The scheduled task will run at start-up or it can be manually run by clicking the "Run" button in the Actions pane. Optionally, start and stop the scheduled service from a command line:

Run Task

schtasks /run /TN "HttpBTXWebhookListener_TaskScheduler.xml"

End Task

schtasks /end /TN "HttpBTXWebhookListener TaskScheduler.xml"



3. BTX HTTP Webhook Listener ("BWL") Setup and Configuration

The BWL is a sub-system that receives Hanwha Road AI license plate detection data as in the form of HTTP posts. BWL receives, classifies, and formats the incoming detection data.

Based on user-defined settings and user-created license plate lists, qualifying plate detections are forwarded to BTX. Non-qualifying alarms are logged as "received" and then discarded. BTX provides the user-interface to associate Hanwha Road AI cameras with XProtect cameras.

3.1. Configure the BWL to receive Hanwha Road AI device data

Open the BWL as a Desktop application (RUN AS ADMINISTRATOR).

- C:\App-Techs\BTX\Third-party\HttpBTXWebhookListener\HttpBTXWebhookListener.exe

Go to the "Settings" tab.

Enter the preferred device listening port and URI "tail". The default port is 2234 followed by "/BTX/".

Check your IP network settings, firewall, and subnets to make sure data sent from the camera can be received by the BWL.

A BTX Http Plate Recognizer		-			
Http Listener Configuration Setting	IS History About html message				
Save Settings	🗹 Auto Start 🗹 Send to TCP Output	Require Uri Match Process 'Park POW' and JSO	N 🗸 Test Ta		
HTTP Listener Prefix: http://+:2234/BTX/					
TOD 0 0TV					

Click "Save Settings."

3.2. Configure connection to the BTX (Bridge-to-XProtect)

In the "Output to BTX" section, enter the IP address of the server where BTX is installed (typically 127.0.0.1. Default BTX port is 7227).

TCP Output t	- BTX		
IP Address:	10.11.11.190		
Port:	7227	Note: DrX	s 'Reader:' should be set to "ReadLine (CRLF)".

Click Save Settings.

The BWL is now configured to receive Road AI plate detections and pass formatted detection data to BTX.

3.3. Configure License Plate Lists

Go to the BWL "Configuration" tab.

Users have three options to enter or select which plate detections will be forwarded to BTX.

- 1) Use the table to manually enter license plates of interest.
 - a. Use the "Plate Number" column to enter the plate number. Enter the license plate number as a simple character string; do not include any dashes or spaces. The "Plate Number" field is not case-sensitive, so use either upper or lower cases. Use the "Description" column to define a plate list.
 - b. Use the "Import 'blacklist.in' button to import a csv file with a pre-configured list of license plates. To import, modify the BlacklistPlates.csv file with a list of plates, located in the directory: c:\app-techs\BTX\Thirdparty\HttpBTXWebhookListener.
 - c. Check the "AllPlatesAsActive" checkbox to send <u>ALL</u> detections to BTX. Plates not on the list will be reported as: "not_in_list".



A BTX Http Plate Recognizer

o List ackli	tener C st Plates i	onfiguration that are sent	Settings to Milestor	History	About html message	3
In	nport bla	cklist.in' <mark>2</mark>) Ex	port black	dist.out' 🛛 🖂 AliPla	tesAsActive Json to Notepad
	Active	Plate Numb	er		Description	region,vehicle,make,color
\leq		ntm5766		1	Unauthorized_Vehicle	region, chicle make color
	\checkmark	ksm4461		_	Employee_venicle	region, vehicle, make, color
	\checkmark	ldg5840			Employee_Vehicle	region, vehicle, make, color
		hlw5265			Employee_Vehicle	region,vehicle,make,color
		Izn 1418			Employee_Vehicle	region, vehicle, make, color
		kye7996			Employee_Vehicle	region, vehicle, make, color
		lxg7539			Employee_Vehicle	region, vehicle, make, color
	\checkmark	mcb9824			Employee_Vehicle	region, vehicle, make, color
		bd2814			Employee_Vehicle	region, vehicle, make, color
		hmx9512			Employee_Vehicle	region, vehicle, make, color
	\checkmark	lbk6009			Employee_Vehicle	region, vehicle, make, color

Click Save "Settings".

3.4. Run the BTX HTTP Webhook Listener ("BWL)"

After configuration, you can begin listening for license plate messages by going to the "Http Listener" tab and clicking the "Http Listener: Start Button".

ttp Listener	Configuration	Settings	History	About	html message
Http	Listener: Start			SaveJust	Jpg

The "= Listening..." message in the log window will indicate if the BWL if your configuration is correct, and that the software is listening for incoming messages.

✓ Log to file View	Log days: 30 CDat	a to BTX (not Log) 🗸 🗸	Clear log on Start
10:08:41: iniFile OPENING: ' 10:08:41: **** ATTENTION 10:09:41: === Prefixes water 10:08:41: http://+:2234/BT> 10:08:41: === Listening	C:\App-Techs\BTX\Third-part See_ConfigTab, NEEDS	y∖HttpBTXWebhookListen .TO.BE.ZERO[is now 0]: .	er∖PlateRecognizer.ini" Send 200 /XTimes

If you receive an error message, check your firewall settings and permissions to make sure the BWL can listen on the configured port.

3.5. Auto-start the "BWL" Listener to run as a Scheduled Task

To automatically begin listening for incoming message when the BWL program starts, go to the "Settings" tab and check the "Auto Start" checkbox. Click "Save Settings".



The BWL will now automatically start listening for incoming messages when the desktop application is open, or when the Windows Scheduled Task is executed (such as when the server / system starts).



4. Configure Hanwha Road AI Cameras

Individual devices require a one-time configuration to send plate detection data to the "BWL". Log-in to the camera web UI and access the Road AI Open Platform software.

Go to:

- a. Camera "Settings".
- b. Choose "Open platform".
- c. Choose "Go App".
- d. (Make sure the Road AI software is activated / running).
- e. Navigate to Road AI "SETTINGS" tab.
- f. Scroll down to "Integration options".
- g. Check the "JSON via HTTP(S) integration" checkbox.
- h. Enter the http address for the "WBL" listener. The IP address is where the "WBL" resides. Be sure to include the port and tail.
- i. Choose the image type that will embedded in the XProtect Smart Client alarm record.
- j. Indicate a Camera ID. This will be used in BTX to associate this camera camera with Milestone XProtect devices. Each Road AI device should have its own distinct name entered in this field.
- k. Be sure to "Save Settings"





5. Test Camera Connectivity

Go to the "BWL" Configuration tab and check the "AllPlatesAsActive" checkbox. Click "Save Settings". This will ensure that a camera detection is sent, regardless of the detection read accuracy.

Http Lister	ner C	onfiguration	Settings	History	About	html message	
Blacklist	Plates	that are sent	to Milestor	ne			
Impo	ort bla	cklist.in'	Exp	port blac	klist.out'	AliPlates	AsActive DJs
	Active	Plate Numb	ber		Descript	tion	region,ve
		ABC-123			plate description		
•		ABC-123			plate des	scription	region,vel
•	\checkmark	ABC-123 htm5766			plate des Unautho	scription rized_Vehicle	region,vel region,vel

Go to the "Http Listener" tab to view incoming detections.

Run a test detection to confirm network connectivity between the camera and the "BWL".

A successful test will display the image snapshot from the camera, confirmation of data received, and an outbound message to BTX.

If unsuccessful, check your firewall settings and permissions, and rerun the test.





6. HTTP BTX Webhook Listener "BWL" Deployment

With a successful test, configure all Road AI cameras to send data to the BWL. Based on preferences, update your license plate list as specified in Section 3.3.

Optionally choose to enable / disable the "AllPlatesAsActive" checkbox.

- When enabled, the BWL will send ALL license plate detections to BTX. Plates not included on the "Configuration" tab table will be sent to BTX as "not_in_list".
- When disabled, the BWL will only send confirmed license plate matches to BTX.

Click "Save Settings".

To run as a scheduled task, close the "BWL" desktop application. Start the Windows Scheduled Task.

To confirm the BWL listener is running and receiving detections, optionally check the log file(s) located in the following directory: C: \App-Techs\BTX\Third-party\HttpBTXWebhookListener\



7. Configure Bridge-to-XProtect ("BTX") to Integrate Road AI detections with Milestone XProtect

Refer to the BTX User Manual for instructions on associating Hanwha Road AI detection events with XProtect cameras and sending events and alarms to Milestone XProtect.

The BTX User Manual can be found in the following directory:

- C:\App-Techs\BTX\doc



8. Software Settings

8.1. Http Listener Tab

HttpListener: Start SaveJustJpg	 Http Listener: Start / Stop (Toggle) – Start and stop the BWL from actively listening to incoming messages. SaveJust.Jpg Button – Export current on-screen jpg as a file, saved in the BTXHttpWebhook List.
☑ Log to file View	 Log to file (checkbox) – Default is checked. Log data transactions into the log files. If unchecked, log files will not be created for diagnostic purposes. View (Button) – View today's log file.
Log days: 30 CData to BTX (not Log) CData to BTX (not Log) CData to BTX and Log CData to BTX and Log CData to Log (not BTX) CData (Ignored) data content length: T46136	Log days (text) – Set archive duration for BTX log files. CDATA to BTX (not log) – Default setting is "CData to BTX (not log)". CDATA is base64 image data. Choose "CDATA (ignored)" to not send image data to XProtect. Unless running diagnostic tests on a temporary basis, it is NOT recommended to LOG CDATA, since it results is very large log files and can slow integration performance.
Clear log on Start	Clear log on Start (checkbox) – Default is unchecked. This will delete previous data collected in the log file prior to the start of the program. Uncommon; used in certain testing situations.

8.2. Configuration Tab

Import 'blacklist.in' Export 'blacklist.out'	 Import 'blacklist.in' (Button) – Import *.csv file with pre-populated plate numbers and list. Export 'blacklist.out' (Button) – Export current plate lists as a *.csv file.
AllPlatesAsActive 🗌 Json to Notepad	AllPlatesAsActive (checkbox) – Default is unchecked. Optionally choose to send ALL plate detects to BTX. Plates not currently assigned to a list will be reported as "not_in_list"
	Json to Notepad (checkbox) – Default is unchecked. Optionally save incoming detection data as a JSON file. For diagnostic purposes only.

		Active	Plate Number	Description	region,vehicle,make,color
	•		llm5766	Unauthorized_Vehicle	region,vehicle,make,color
L					

Active Toggle (checkbox) - Toggle a plate number entry row on or off. Inactive rows will not be sent to BTX.

Plate Number (text field) - Enter license plate number here as a text string. Case sensitivity not required. Remove any spaces or dashes.

Description (text field) – Define the license plate List Name in this field.

Region, vehicle, make, model (text field) - Control which metadata fields are sent to BTX. Default is all fields.



8.3. Settings Tab

Save Settings	Save Settings (button) – Save current configuration.
Auto Start 🗹 Send to TCP Output	Auto-start (checkbox) – Default is checked. Auto-start listener for license plate detections. If running as a Task, this box MUST be checked to receive plate detections.
Require Uri Match	Send to TCP Output (checkbox) – Default is checked. A checked button enables detected events to be sent to BTX. If unchecked, detections will not be forwarded.
HTTP Listener Prefix: http://+:2234/BTX/	HTTP Listener Prefix: Specify receiving address for incoming plate detection data.
TCP Output to BTX IP Address: 10.11.11.190 Port: 7227	TCP Output to BTX – Specific BTX network address.
BTX Alarm date: Use BTX system date 🗸 🗸	BTX Alarm Date – Choose which time to send to BTX. Option is to forward event time as reported by the device; or, optionally choose to ignore device time and substitute system time.
Markup (bounding boxes) in the snapshot Color Pen Width: 2 ~	Markup (bounding boxes) in the snapshot (checkbox) – Default is checked. BWL includes the option to draw a bounding box around the detected license plate. Optionally select to include or omit bounding boxes in the snapshot image sent to Milestone XProtect.



9. Legal

9.1. Surveillance Privacy

Always use discretion when installing video and / or surveillance equipment especially when there is perceived privacy, or an expectation of privacy. Inquire regarding federal, state and / or local regulation applicable to the lawful installation of video and / or audio recording or surveillance equipment. Party consent may be required.

9.2. Disclaimer

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