User Guide

Valerus-Aureus Insight® Integration

XX281-80-00

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General

As an enterprise level video management solution, Valerus VMS provides the opportunity to integrate with a variety of integration partners. CyberExtruder® Aureus Insight® Face Recognition is one of the supported integration partners. Once added into the Valerus system, Valerus can react to events that occur within the CyberExtruder's Aureus Insight® Face Recognition system within the Valerus Alarms Management, as well as the Alarms and Rules features. This guide assumes the user has a functioning Aureus Insight Face Recognition system and is familiar with its settings and operations.

The integration of Aureus Insight and Valerus provides a simple and seamless communication between the two software platforms to:

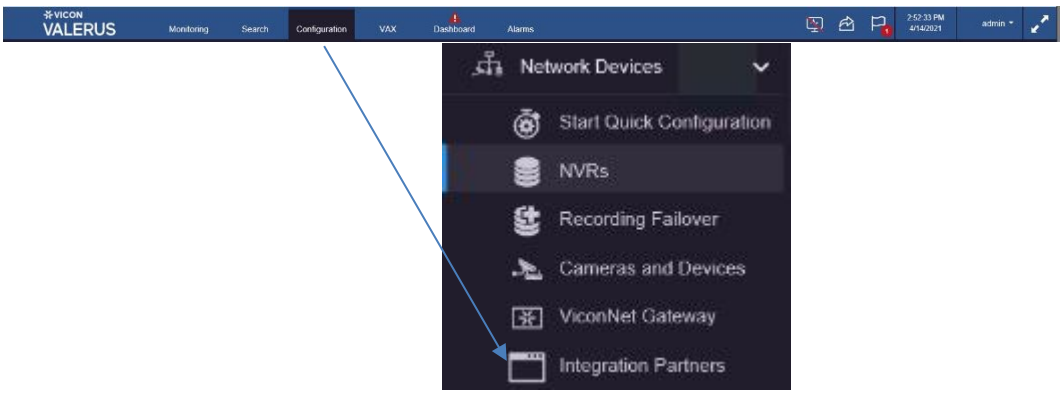
- Enter Valerus user credentials into Aureus Insight to facilitate authorized communication between the two systems.
- Automatically provide Aureus Insight with the list of cameras attached to the VMS, thus allowing Aureus Insight to provide live Facial Recognition (FR) processing and analysis on those camera streams.
- Automatically send Aureus Insight FR alerts to the VMS to provide the VMS user visual feedback when an FR event occurs.
- Ensure that the Aureus Insight alerts are bookmarked in the VMS thus allowing for searches of FR events.

Adding Aureus Insight to Valerus

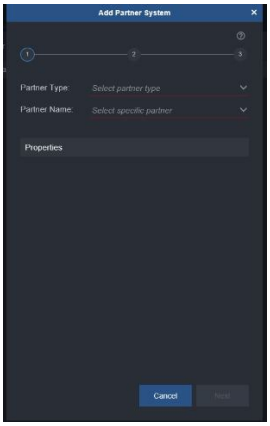
Integration Partners

The Aureus Insight Face Recognition program can be integrated into the Valerus system. Once the integration is complete, events from Aureus Insight can be received and viewed in Valerus. In this way, for example, if Aureus Insight recognizes a face, the face recognition is seen as a Resource and a related camera can provide video of the face.

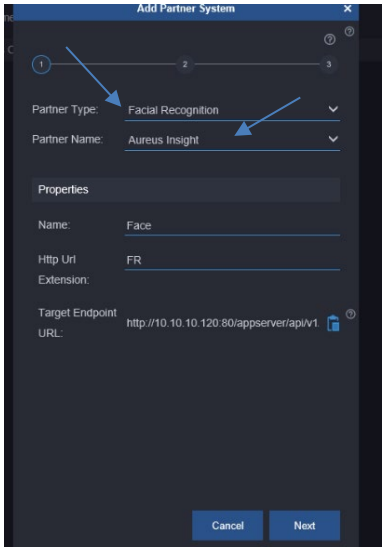
- From the Valerus main interface, select the Configuration tab from the top. Under Network Devices, select Integration Partners.



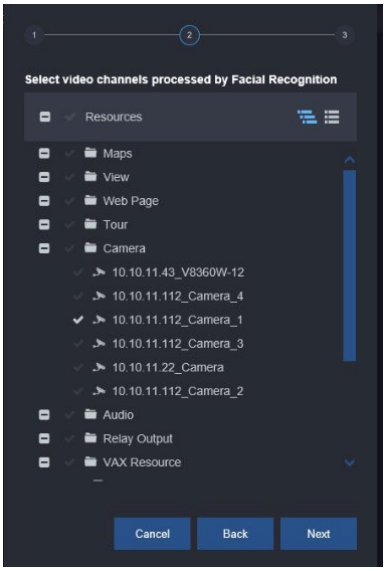
- The Add Partner System screen displays as below.



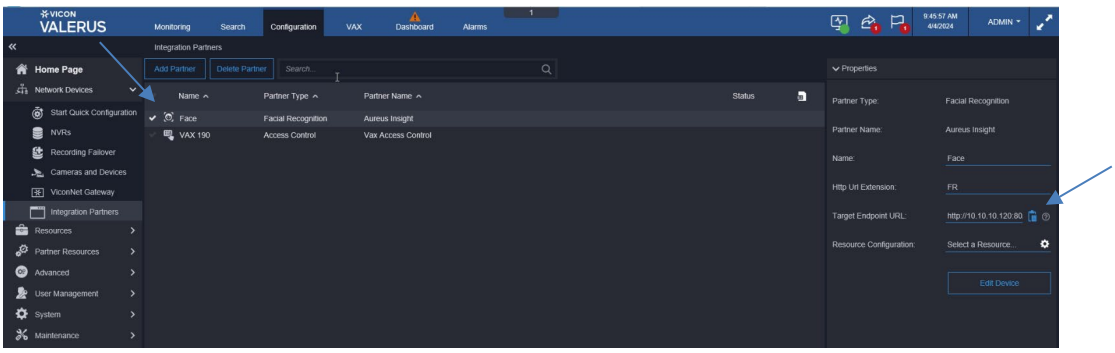
- From the Partner Type, select Facial Recognition. From the Partner Name, select Aureus Insight.



- Fill in the Properties fields as required. Enter a Name for the partner and an HTTP URL extension; the Target Endpoint URL will automatically populate. Click Next.
- From the Resources list, select the Resources (cameras) to associate with the event. Click Next.



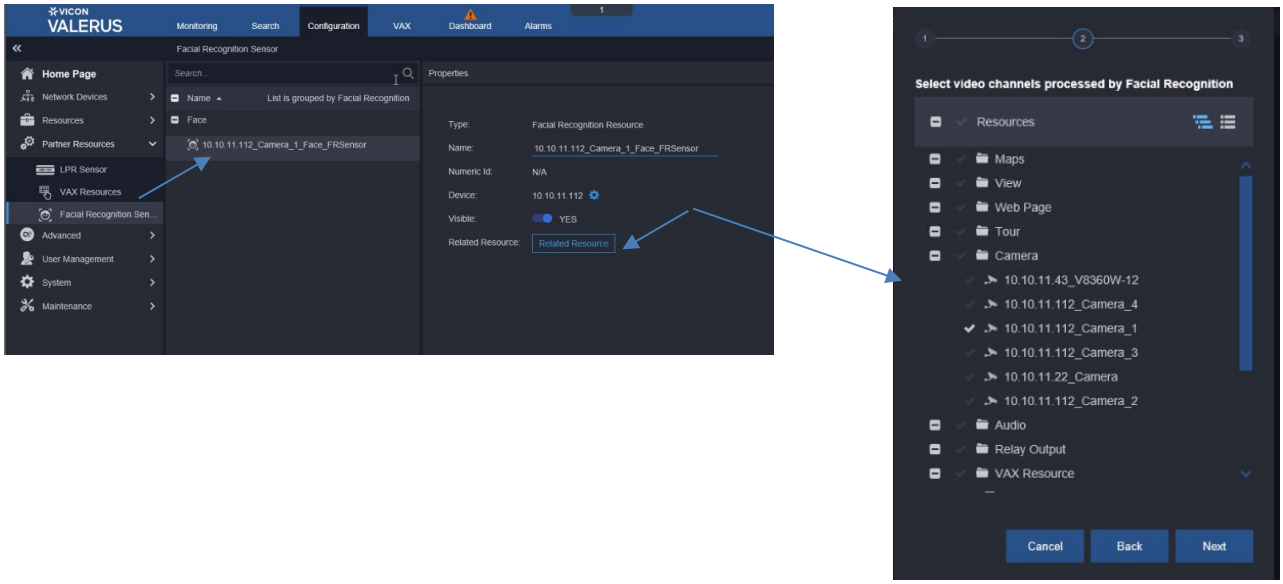
- Click Save. The partner is now listed on the Integration Partner screen. The Properties of the partner are listed to the right. The FR resource can be changed by clicking the Edit Device button. Click on the blue symbol next to Target Endpoint URL to copy the URL; this is needed on the Aureus Insight



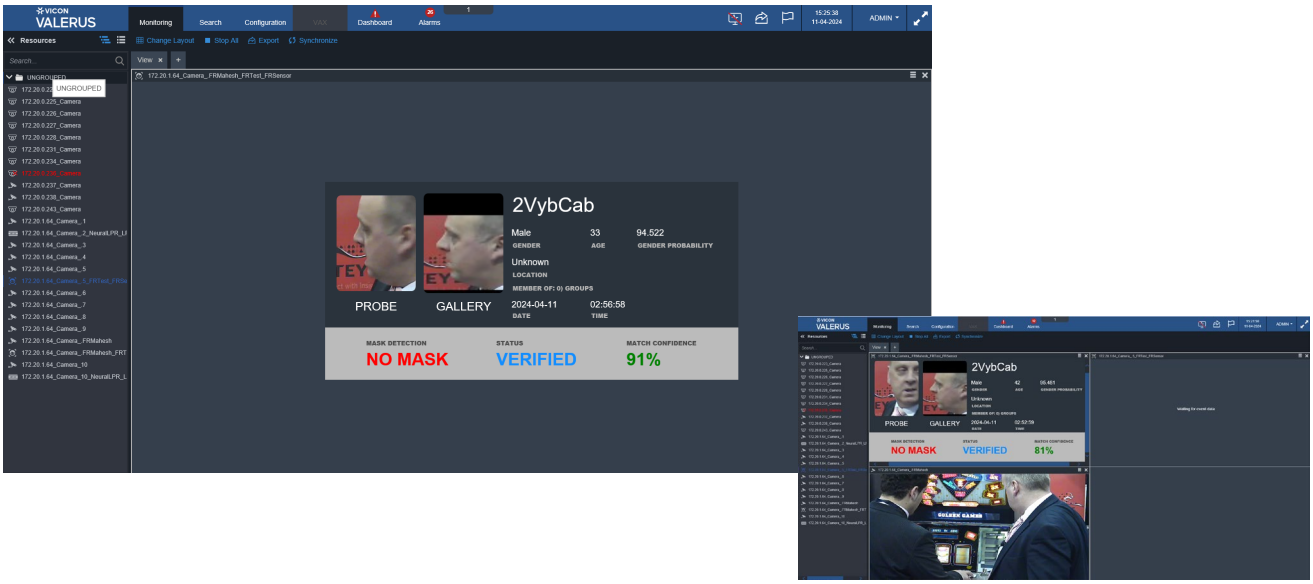
Partner Resources

After Aureus Insight Face Recognition has been added to Valerus, its resources can be added.

- Under Configuration, select Partner Resources, Facial Recognition Sensors. The following screen displays, showing the Facial Recognitions resources that were configured under Integration Partners. From here the Related Resources are selected. Select the checkmark next to the desired camera(s); click Save.



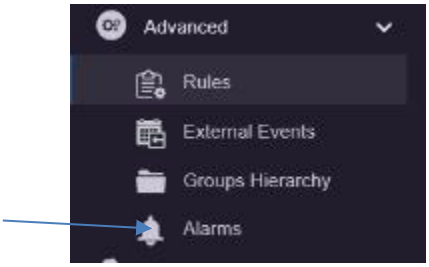
- The Face Recognition Resource(s) will show in the Resources List and can be dragged to a tile for display. If there is an event, it displays as below. If there is no event, a message displays saying waiting for event.

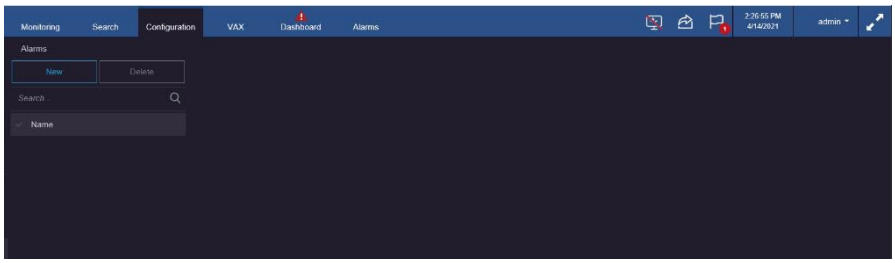


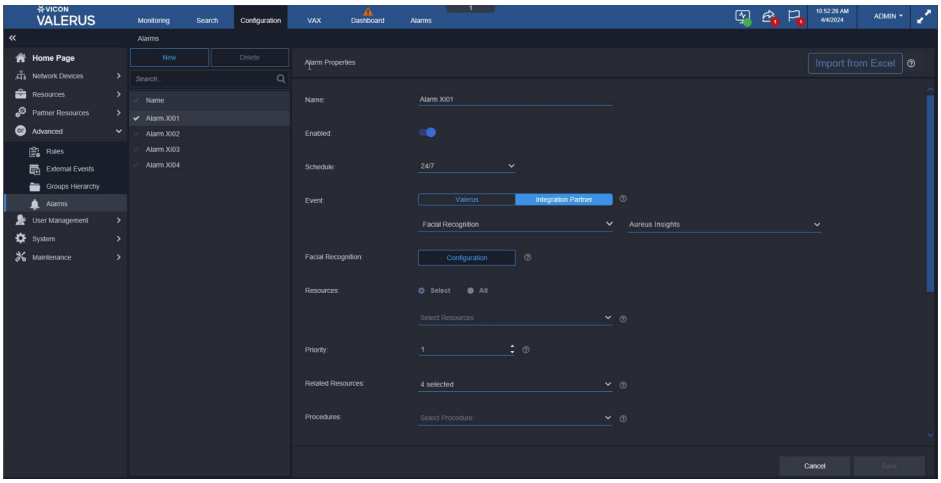
Alarms

The Alarms screen defines which events are elevated to an alarm level, what resources are bundled with it and the life cycle for the alarm.

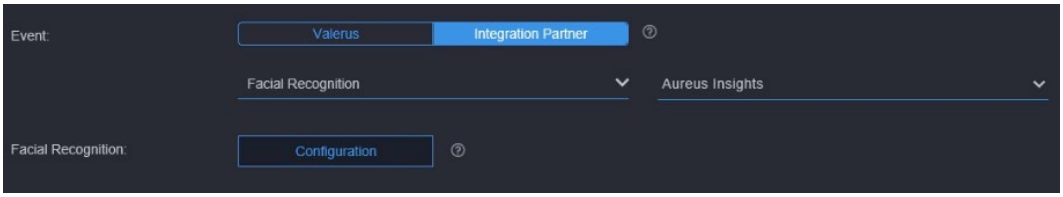
- From the Configuration tab, navigate to Advanced > Alarms. Click "New." The alarms editor screen displays. From Event, select Integration Partner.



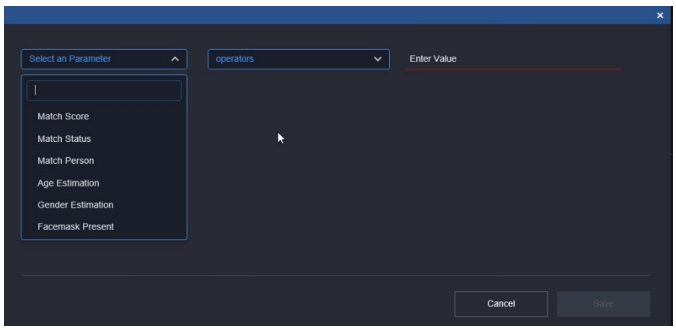


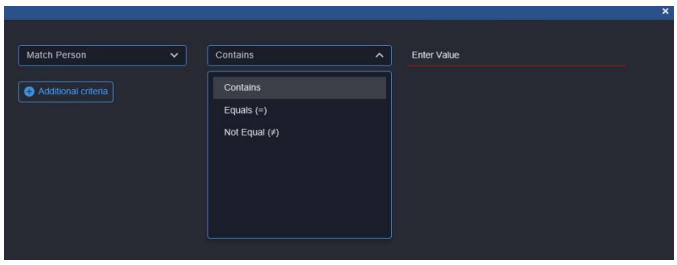


- Assign the alarm a name.
- The Enable/Disable button allows the alarm to be temporarily disabled as needed without deleting it. Use the slide button to enable/disable.
- Select a schedule from the dropdown list to define a schedule for this specific alarm to run on. This allows using an existing schedule or creating a new schedule using the scheduling system in Valerus. It is important to identify the correct schedule for each alarm to minimize the number of unwanted alarms.
- In the Event field, select Integration Partner for events that will be the trigger this alarm. Select Face Recognition event type and Aureus Insight from the next dropdown.



- Click on Configuration. The following screen displays.



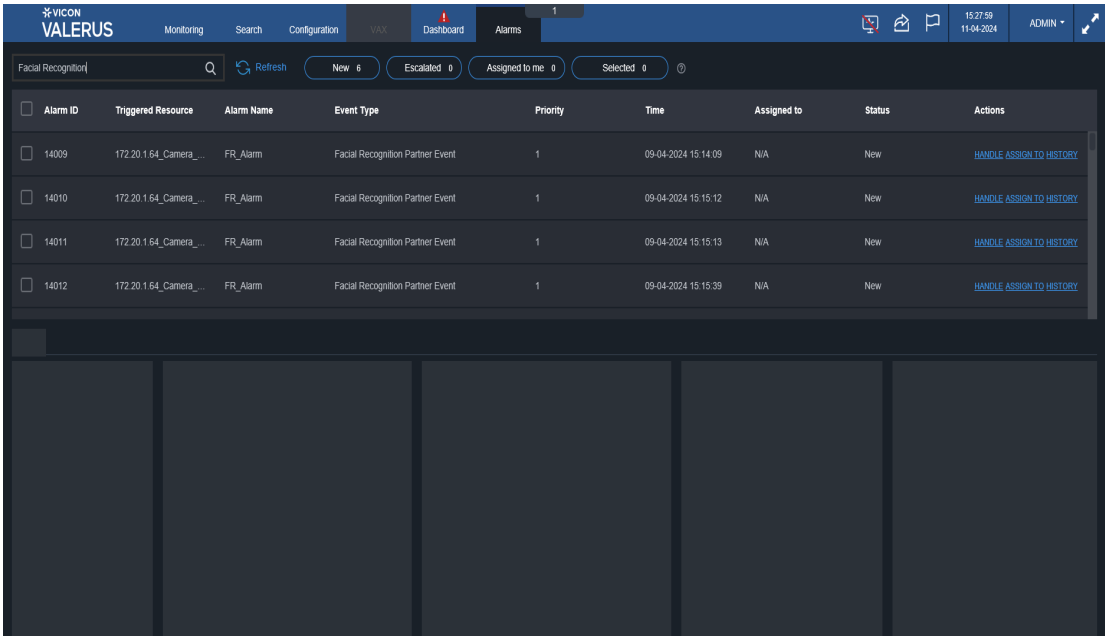


- Select the parameter needed from Match Score, Match Status, Match Person, Age Estimation, Gender Estimation or Facemask Preset. Select an expression from the field for Equals/Not Equals; this field will display Contains if Match Person is selected. Finally, enter a Value or text, depending on what is selected. Click Save to complete the configuration. The typical type of alarm from a facial recognition system is Match Person.
- To add another option, click Additional criteria. This additional criteria can be defined as a logical And/Or, meaning either of these can occur or both must occur for an alarm to be triggered. For example, you might want to know if the Match Person was detected, what the Match Score was.
- From the Resources dropdown (Select button), choose the device (i.e., camera) that the event is expected to trigger an alarm for. Multiple resources can be selected and will be treated as a logical OR if an alarm occurs; if an event is detected on one or the other device, the alarm will be triggered. Up to 5 devices can be linked to an alarm, so if, for example, 10 cameras need to be selected, two alarms will need to be defined. An All button can be used to select all resources in the list.
- Enter a priority for the alarm, 1-5 with 1 being the highest. This priority level can be used later to sort the alarms in the Alarms Management screen.
- Using the Related Resources dropdown, select the resource(s) that will also be available when the alarm is triggered, creating an alarm bundle or package. This is useful if there are multiple cameras in the same area with different views (i.e., a face from camera A relates to camera B in the same area); having a related camera resource can provide a video display to see the alarm. The related resources will show on the Alarms Management screen along with the triggering resource. Note that the related resources selected here are those that will show in the alarm record in the Alarms Management screen, while the single related resource set for the face recognition is used for Rules.
- As an added option, one of the procedures created (remember to create procedures prior to defining the alarms) can be selected to go along with the alarm.
- Select the users who will receive this alarm notification from the roles or users dropdown (or a combination of both). This is important in situations where certain alarms should be shared with specific users while others may need to be shared with different users (for instances where it is inappropriate for some users to view video from certain areas, i.e., alarms from the women's wing in a mixed prison should only go to the women's wing operators).
- When finished, click "Save."

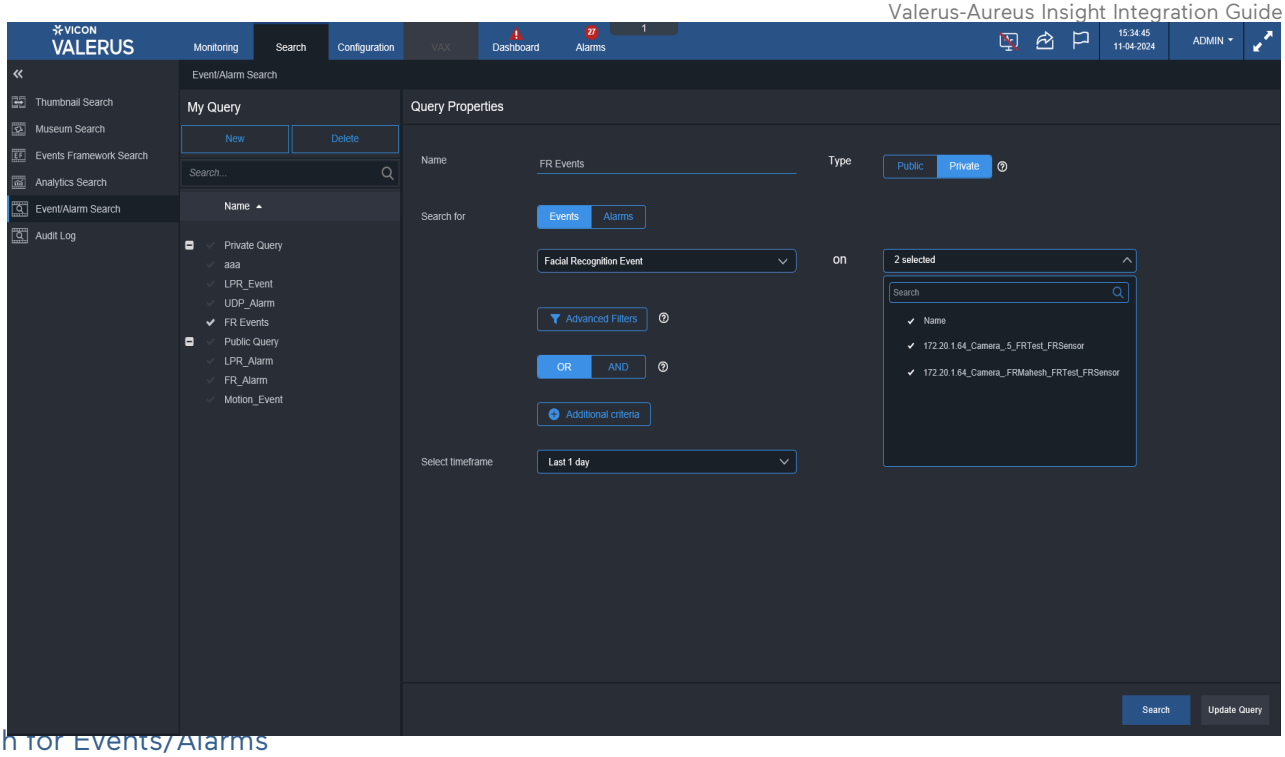
Alarms Management

The Alarms tab on the top of the Valerus interface opens a dedicated screen for Alarms Management and shows the alarms along with their status. These are the events that have been elevated to alarm status set in the Advanced, Alarms screen in Configuration, including Face Recognition alarms. From this screen, the operator can work to review and categorize the alarms. This tab can be moved to another monitor for ease of use. **Refer to the Alarms Management Guide for details on using this screen.**

- At the top of the alarm page, there are several filtering options meant to simplify the selection of the alarms the operator needs to view and work on. In the Search field, Face Recognition can be entered to sort the alarm list for only those types of alarms.

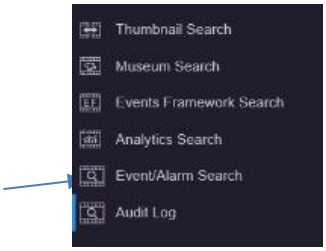


- After the list is sorted to show Face Recognition alarms, each alarm can be selected to assign or handle. Multiple alarms can be selected. When an alarm has been selected, its details will display in the area at the bottom of the screen. The Additional Information area will display the details provided by the Face Recognition system. In the example below, the video of the matched person is shown with details on Match Score, Match Status, Matched Person, Age Estimation, Gender Estimation and Gender Probability. In the example, the person was matched.



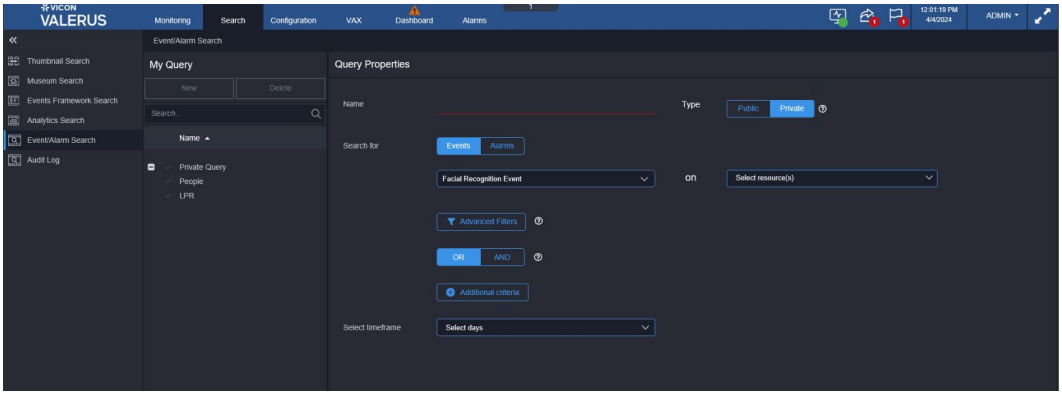
Search for Events/Alarms

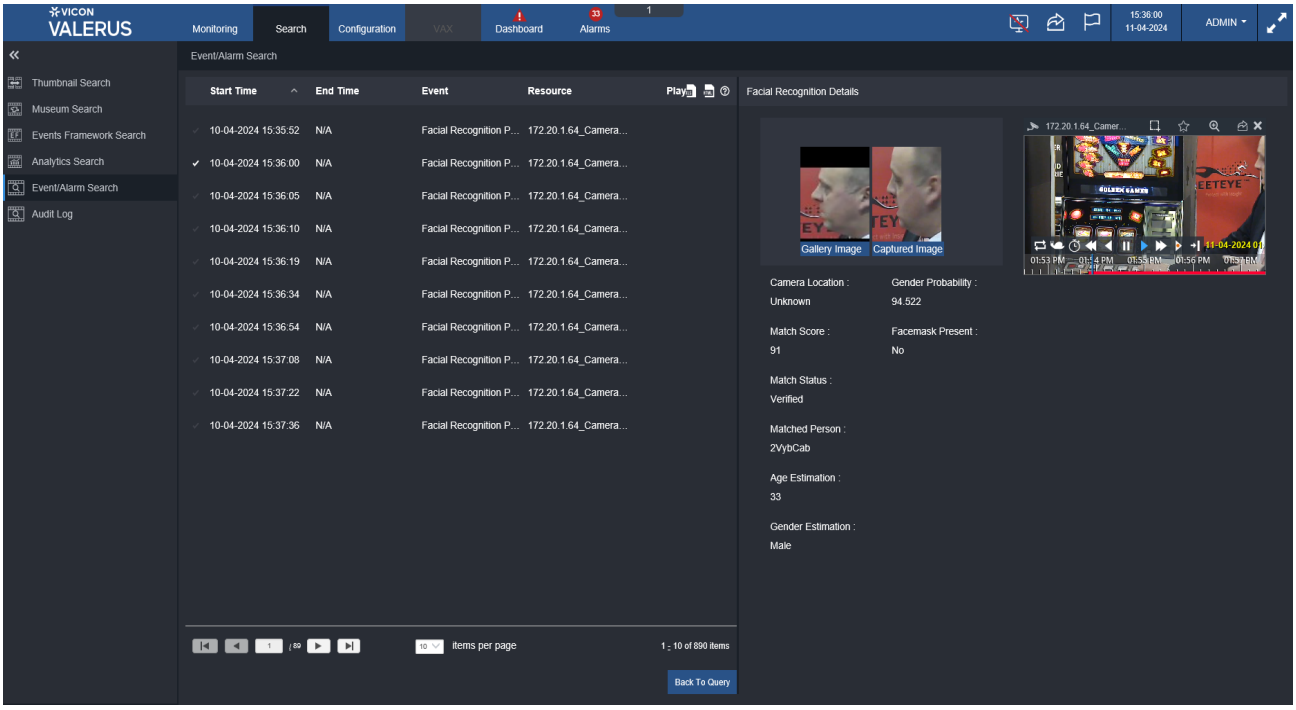
Under the Search tab, select Event/Alarm Search. Refer to the full Valerus user manual for details about the Search function.



- Select the Event or Alarm to start the search.

When Racial Recognition Event is selected, an Advanced Filters button is provided that allows the user to refine their search.



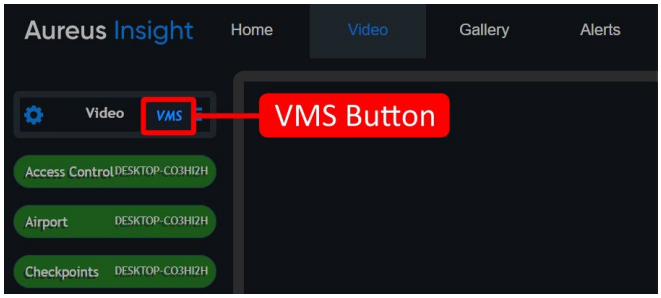

VICON
VALERUS
Monitoring
Search
Configuration
VAX
Dashboard
Alarms
15:36:00
11-04-2024
ADMIN
Thumbnail Search
Museum Search
Events Framework Search
Analytics Search
Event/Alarm Search
Audit Log
Event/Alarm Search
Start Time
End Time
Event
Resource
Play
10-04-2024 15:35:52 N/A Facial Recognition P... 172.20.1.64_Camera...
10-04-2024 15:36:00 N/A Facial Recognition P... 172.20.1.64_Camera...
10-04-2024 15:36:05 N/A Facial Recognition P... 172.20.1.64_Camera...
10-04-2024 15:36:10 N/A Facial Recognition P... 172.20.1.64_Camera...
10-04-2024 15:36:19 N/A Facial Recognition P... 172.20.1.64_Camera...
10-04-2024 15:36:34 N/A Facial Recognition P... 172.20.1.64_Camera...
10-04-2024 15:36:54 N/A Facial Recognition P... 172.20.1.64_Camera...
10-04-2024 15:37:08 N/A Facial Recognition P... 172.20.1.64_Camera...
10-04-2024 15:37:22 N/A Facial Recognition P... 172.20.1.64_Camera...
10-04-2024 15:37:36 N/A Facial Recognition P... 172.20.1.64_Camera...
items per page
1 - 10 of 890 items
Back To Query
Facial Recognition Details
Gallery Image
Captured Image
Camera Location :
Unknown
Gender Probability :
94.522
Match Score :
91
Facemask Present :
No
Match Status :
Verified
Matched Person :
2VybCab
Age Estimation :
33
Gender Estimation :
Male

Setting Up Aureus Face Recognition

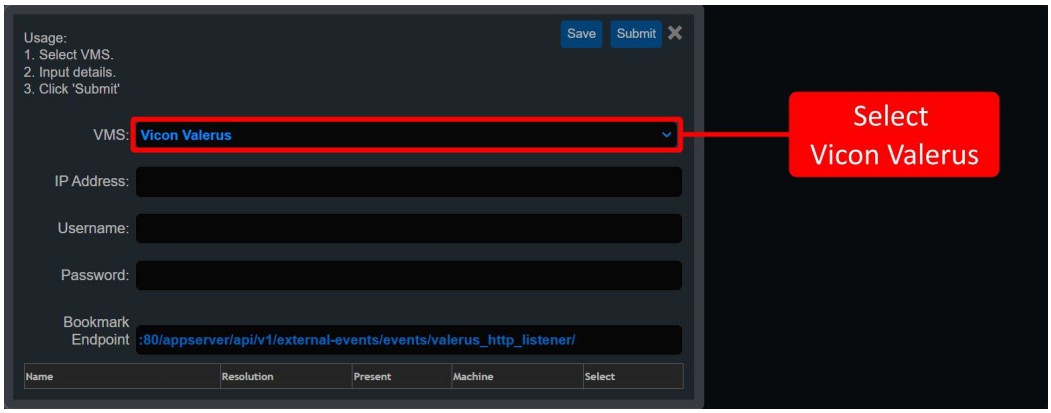
Configuring the Connections

Obtain a list of cameras connected to Valerus VMS

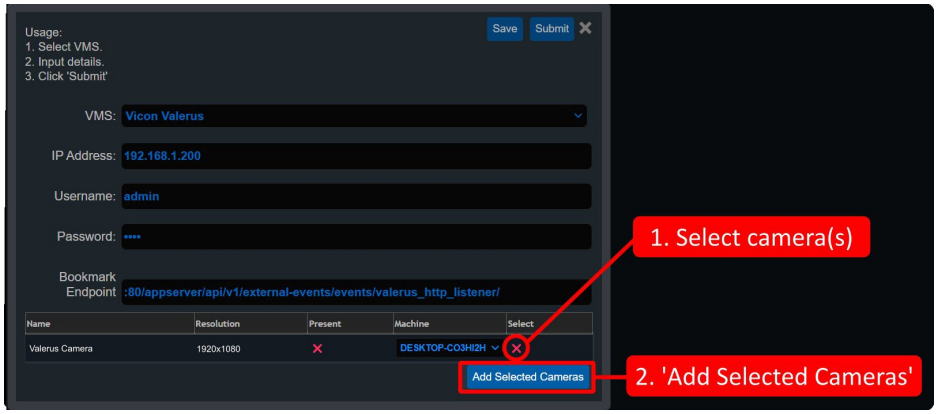
Login to Aureus Insight and select the Video tab in the top bar. Locate and click the VMS button above the list.



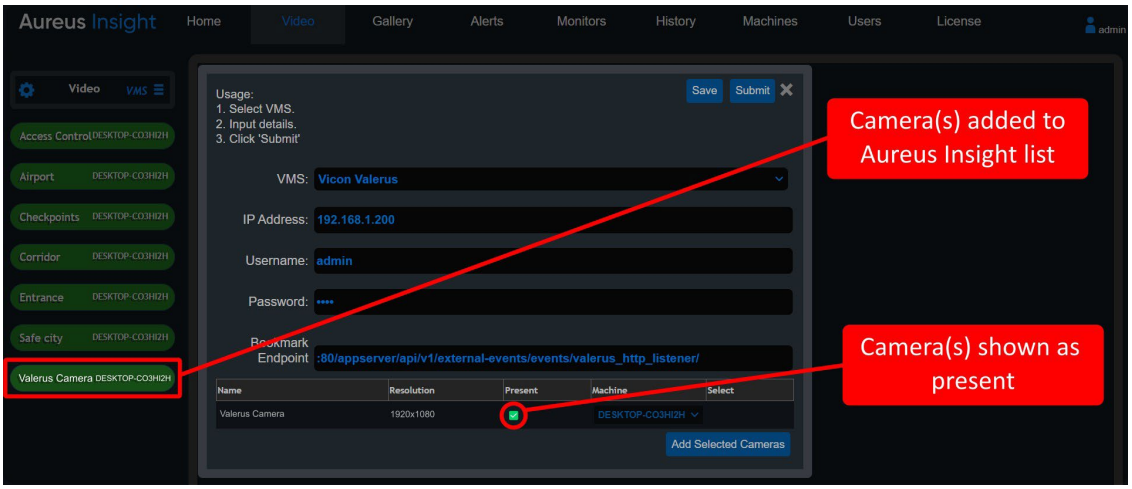
A VMS selection window displays. Select Vicon Valerus



- Enter the following information:
  - The local IP address of the server on which Valerus is running, e.g. *192.168.1.200*
  - The Valerus username, e.g., *admin*
  - The Valerus password, e.g., *1234*
  - Bookmark endpoint (Target endpoint link mentioned on page 4)
- After entering the Valerus credentials, click *Save* and *Submit*. A list of cameras obtained directly from the Valerus displays. In the example below there is a single camera.



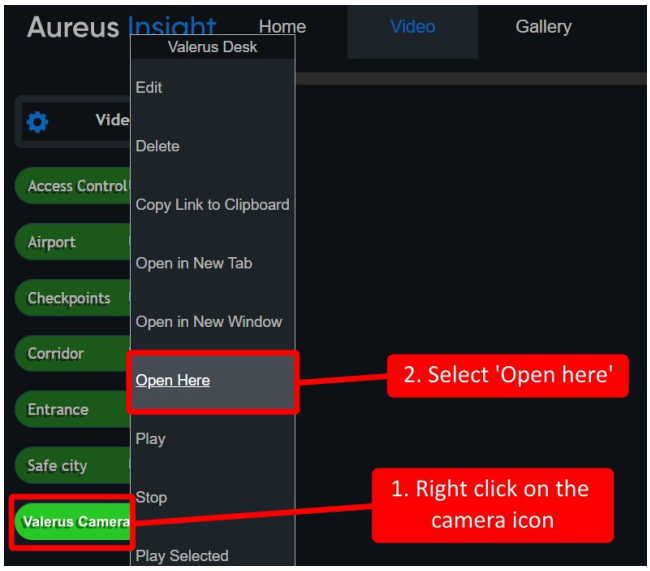
- Click the small red cross (x) to select the cameras to add to the Aureus Insight camera list. Click the blue Add Selected Cameras button. The camera(s) will be added to Aureus Insight, and they will be shown as present in the VMS selection window.



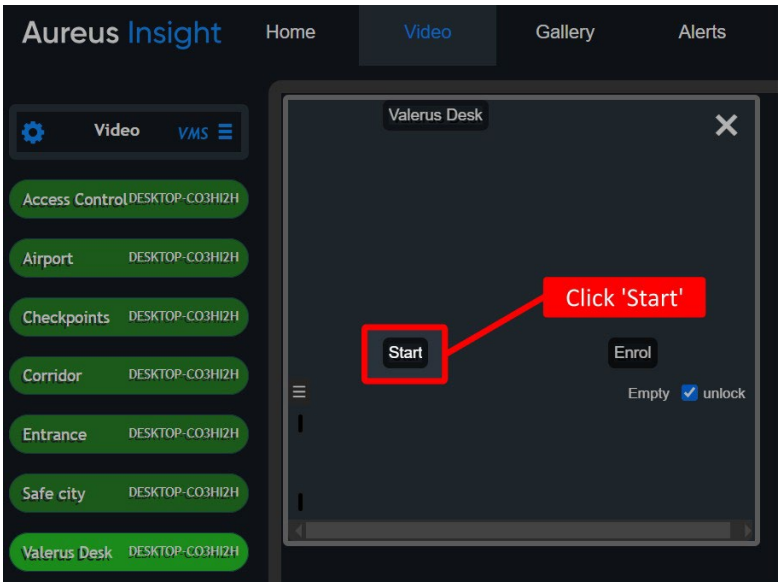
All the cameras listed on the Aureus Insight Video tab can be processed by Aureus. Consult the Aureus Insight User Guide for more details.

Viewing camera connections

View the video stream of the camera(s) that were just added by right clicking on the camera in the Aureus Insight list and selecting *Open Here*.

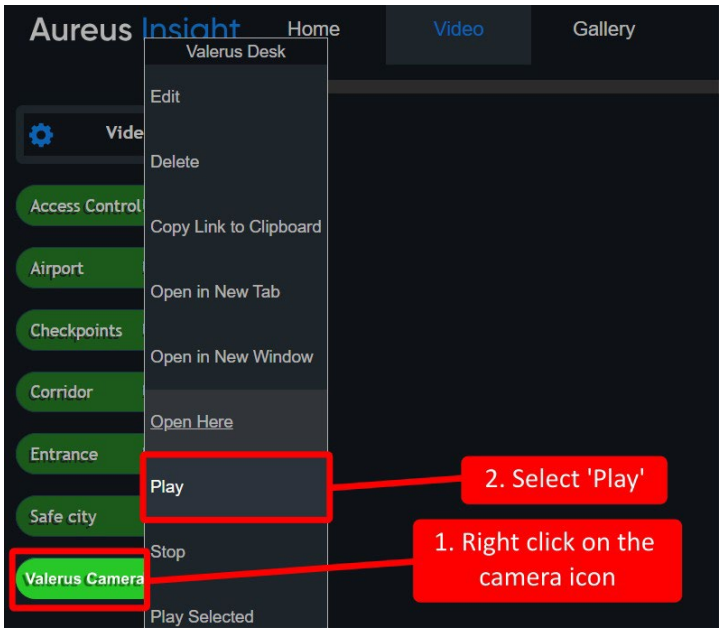


- A floating, resizable window opens on the Aureus Insight desktop. Click *Start* to begin processing the stream.

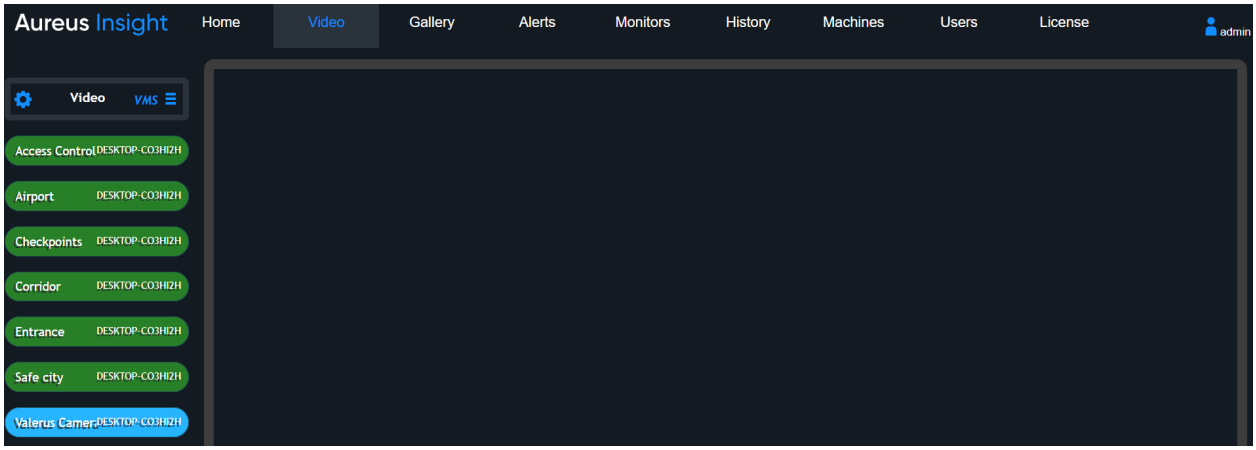


- The stream begins processing; the camera icon color changes to blue during this process.

Note that the stream can be processed in the background; it is not required to have the stream visible. To do this, simply close the visible window or select *Play* from the right click menu.



- The camera icon changes color to blue while the stream is being processed.



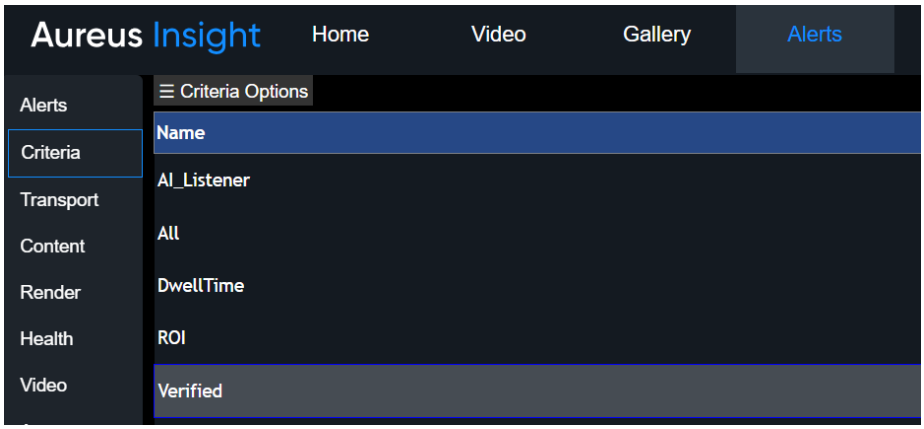
Set up an Aureus Insight Alert

Aureus Insight provides a powerful and flexible mechanism to make use of the analytics that Aureus provides while processing video streams. An Aureus Insight alert is constructed through three sub items: (1) Criteria (2) Transport (3) Content.

1) Criteria: To create an alert, it is necessary to define trigger criteria that determines when (and if) the alert is generated. For example, the alert may be triggered when a verified face identification has occurred, or a person has entered a region of interest.
2) Transport: To send an alert, decide how the alert will be transported. For example, the alert could be transported to a HTTP endpoint, a file, a server-side event or an email.
3) Content: The alert must contain some useful information in a format that is acceptable by the receiver of the alert. The content should be JSON format for Valerus integration.

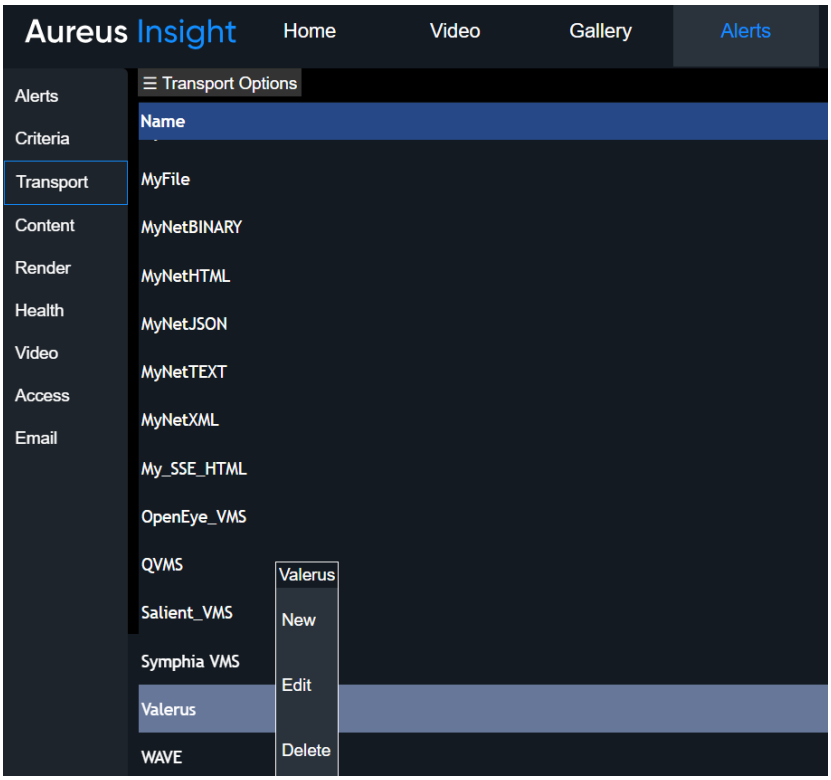
Alert Criteria for Valerus

Although a broad range of Criteria that will trigger an Alert can be defined, most users are interested in knowing when a Verified match has been made against a person who is in the Gallery.

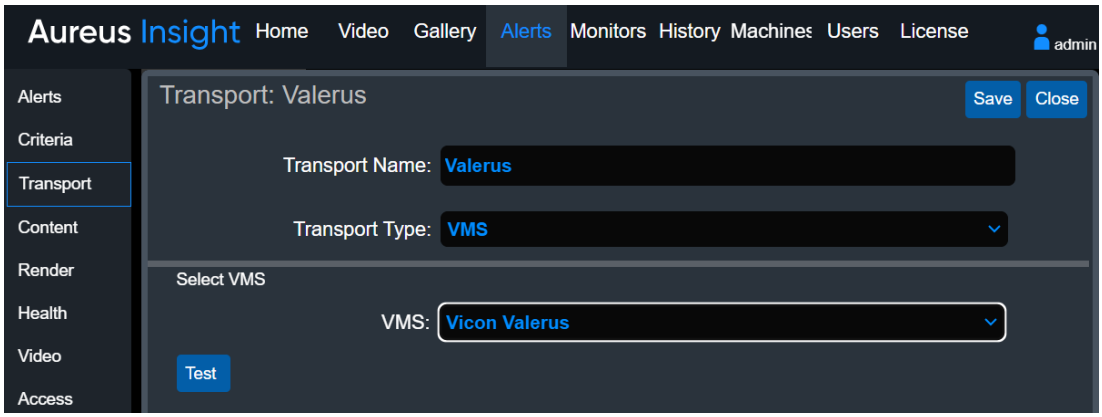


Alert Transport for Valerus

Aureus Insight has a built-in transport type called VMS. This transport uses the VMS credentials (set up in the previous section) to log into the VMS and transfer the alert content to the appropriate VMS endpoint. Aureus Insight has a built-in Valerus transport. Use this transport to ensure that alert content is correctly sent to the VMS.



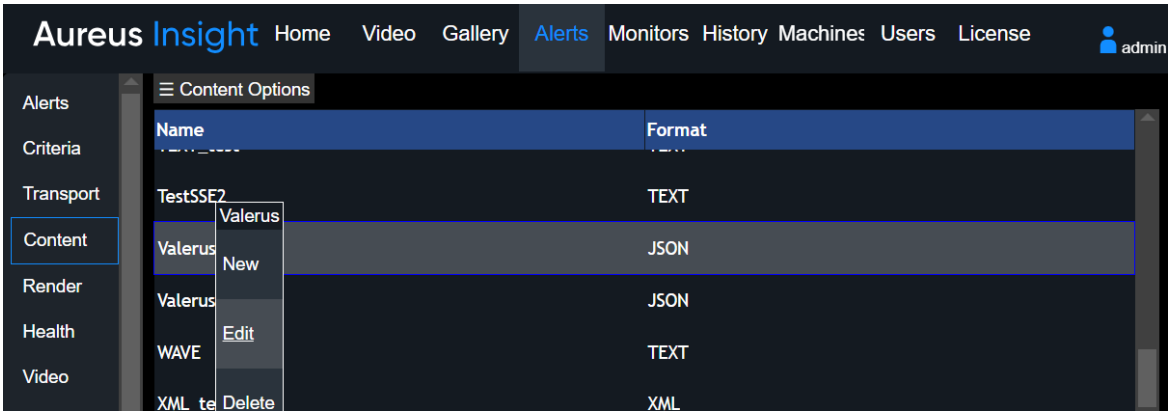
The built-in transport type can be viewed by selecting the *Alerts* tab at the top. Select the *Transport* item from the left-hand side menu and right click on the *Valerus* item; select *Edit*.



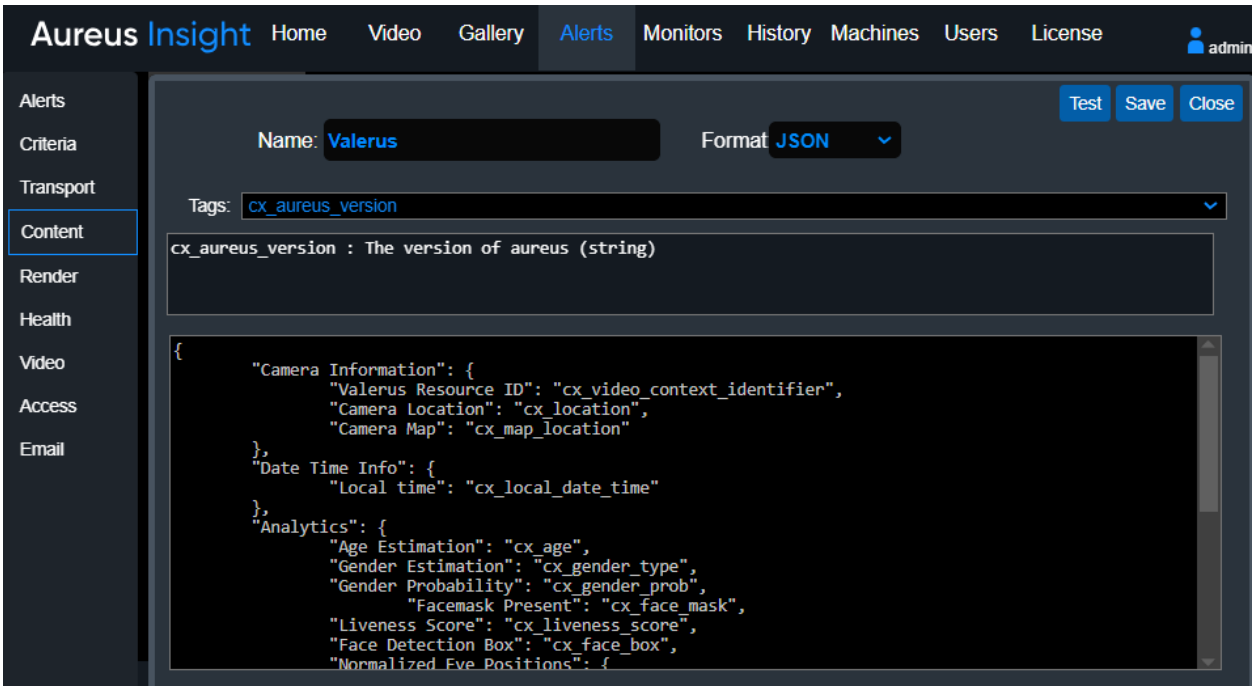
Alert Content for Valerus

The Valerus service expects to receive a specifically formatted JSON payload. Aureus Insight has a built in Alert Content that delivers the required alert content to Valerus.

- From the *Alerts* tab, select the *Content* menu on the left-hand side. Right click on the *Valerus* item in the list of contents and click *Edit*.



- The JSON content Valerus requires will be presented.



- Following is a list of the JSON content with the relevant parts highlighted:
  WARNING: If anything is changed from the JSON script then the Aureus integration will not work in Valerus!

```
{
        "Camera Information": {
          "Valerus Resource ID": "cx_video_context_identifier",
          "Camera Location": "cx_location",
          "Camera Map": "cx_map_location"
        },
        "Date Time Info": {
          "Local time": "cx_local_date_time"
        },
        "Analytics": {
          "Age Estimation": "cx_age",
          "Gender Estimation": "cx_gender_type",
          "Gender Probability": "cx_gender_prob",
              "Facemask Present": "cx_face_mask",
          "Liveness Score": "cx_liveness_score",
          "Face Detection Box": "cx_face_box",
          "Normalized Eye Positions": {
          "Right Eye": "cx_right_eye_position",
          "Left Eye": "cx_left_eye_position"
        },
        "Facial Recognition Results": {
                "Match score": "cx_matched_score",
          "Match status": "cx_matched_status",
          "Probe Image": "cx_probe_image_jpg",
          "Main Person Image": "cx_matched_person_main_image_jpg",
          "Matched Person": "cx_matched_person_name",
          "Match person GUID": "cx_matched_person_guid",
          "People Group Membership": "cx_people_groups",
          "Image Group Membership": "cx_image_groups"
        }
}
```

- The JSON items highlighted in yellow are replaced by Aureus Insight when the alert is generated, as follows:

  cx_video_context_identifier
  This is a unique identifier obtained from the VMS when the list of cameras is obtained. It identifies the camera that generated the Aureus event. Aureus Insight will replace this item with the identifier obtained from the VMS.

  cx_location
  Aureus Insight will replace this item with the camera geographic coordinates.

  cx_map_location
  Aureus Insight will replace this item with the google maps URL (camera geographic coordinates).

  cx_local_date_time
  Aureus Insight will replace this item with time stamp of the event.

  cx_age
  Aureus Insight will replace this item with estimation of the person's age.

  cx_gender_type
  Aureus Insight will replace this item with estimation of the person's gender.

cx_gender_prob
Aureus Insight will replace this item with estimation of the person's gender in percentage.

cx_face_mask
Aureus Insight will replace this item with estimation of face mask presence, from 0 to 1. Lower value indicates no face mask, higher values indicate face mask presence.

cx_liveness_score
Aureus Insight will replace this item with an estimation of liveness detection, from 0 to 1. Lower value indicates likelihood of a spoof attack.

cx_face_box
Aureus Insight will replace this item with the face detection box for this person. Normalized coordinates are used with the origin at the bottom left of the image.

cx_right_eye_position
Aureus Insight will replace this item with the location of the person's right eye. Normalized coordinates are used with the origin at the bottom left of the image.

cx_left_eye_position
Aureus Insight will replace this item with the location of the person's left eye. Normalized coordinates are used with the origin at the bottom left of the image.

cx_matched _score
Aureus Insight will replace this item with the FR match score.

cx_matched_status
Aureus Insight will replace this item with a string, either 'Verified' or 'Unverified' depending on whether the detected face produced a verified match to a gallery person.

cx_probe_image_jpg
Aureus Insight will replace this item with a string of the detected face image. This string contains a base 64 encoded jpeg.

cx_matched_person_main_image_jpg
Aureus Insight will replace this item with a string of matched person image. This string contains a base 64 encoded jpeg.

cx_matched_person_verified_name
Aureus Insight will replace this item with the name of the matched gallery person, if, and only if, the match was a verified match; otherwise, the item will be replaced with the string 'Unknown'.

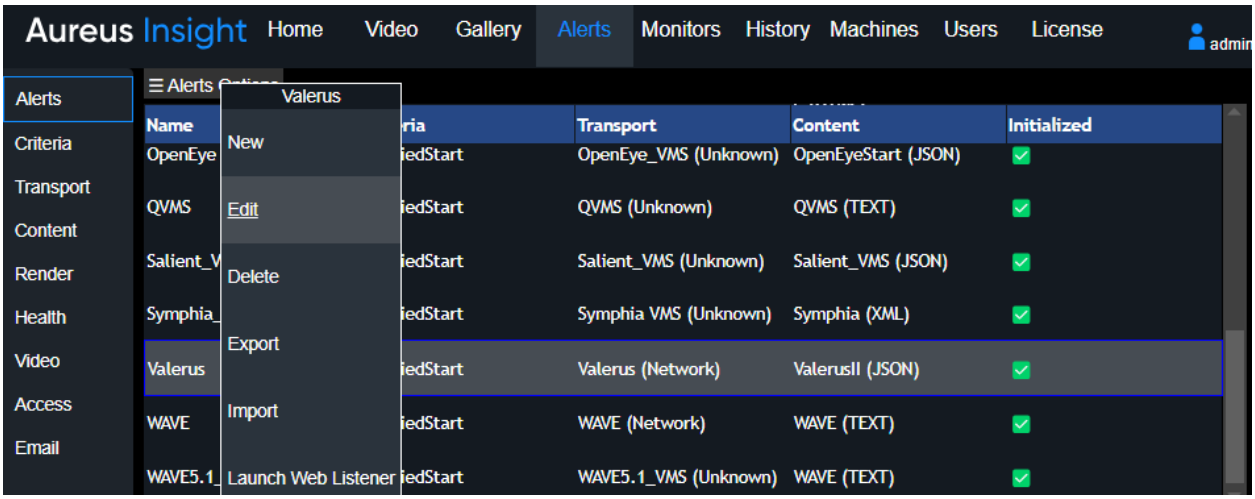
cx_matched_person_guid
Aureus Insight will replace this item with the solution wide gallery GUID (Globally Unique Identifier) of the matched person, only if there is a verified match.

cx_people_groups
Aureus Insight will replace this item with the people groups membership for this person. This information is only relevant for verified match.

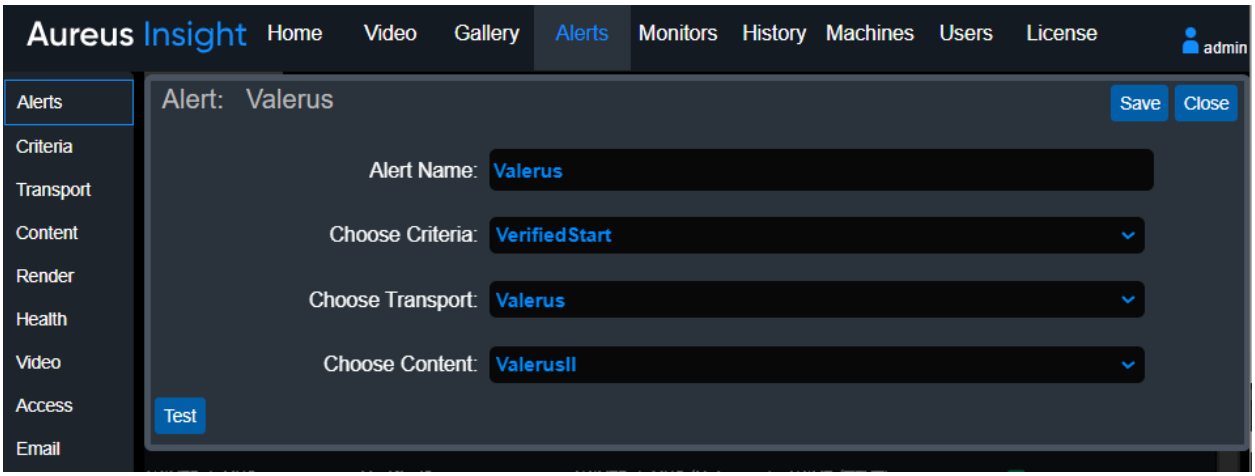
cx_image_groups
Aureus Insight will replace this item with the image groups membership for the matched gallery image. This information is only relevant for verified match.

Alert for Valerus

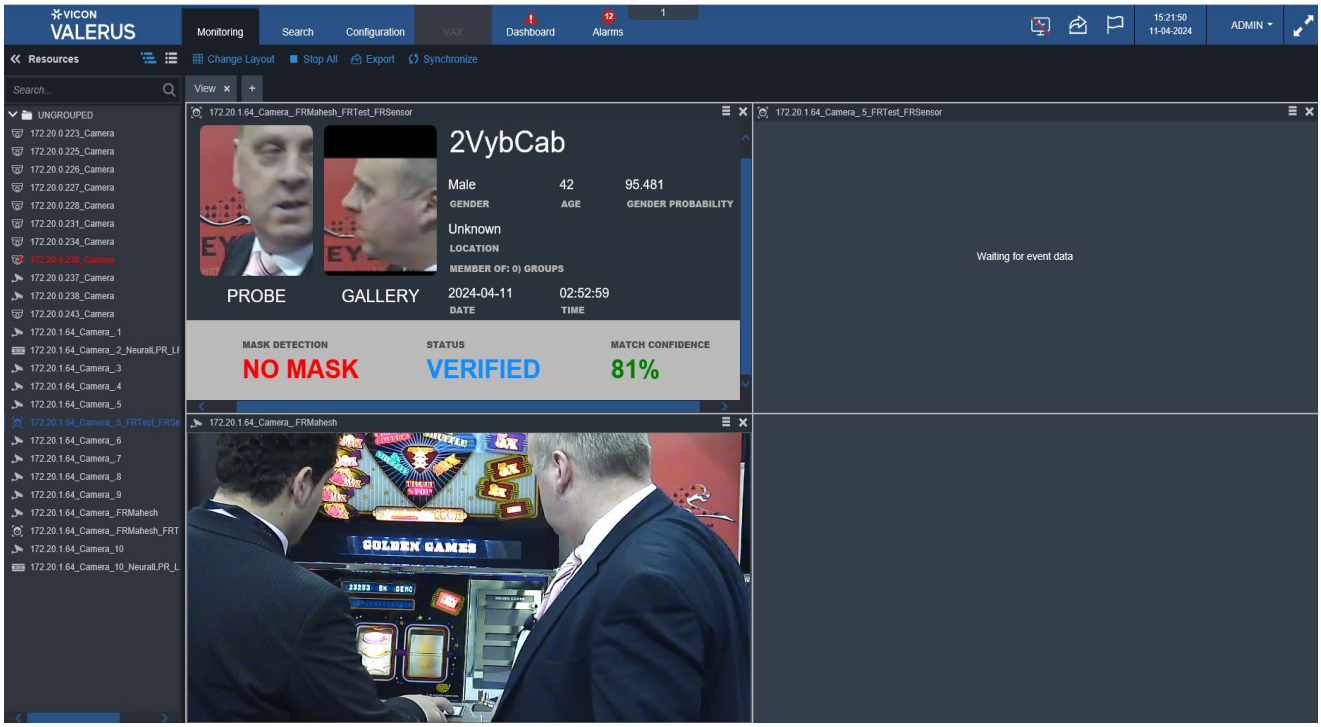
Aureus Insight contains a built-in alert for Valerus. Choose the *Alerts* menu in the *Alerts* tab. Right click on the Valerus item and select *Edit*.



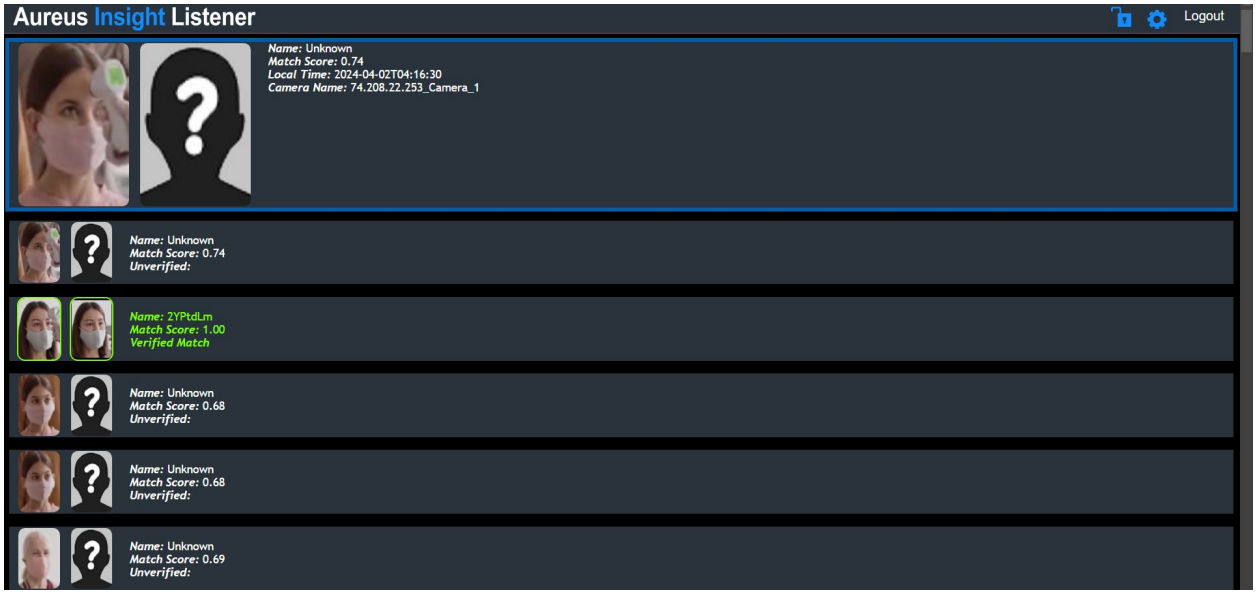
- The alert contains relevant, pre-selected criteria, transport and content. Clicking the *Test* button generates synthesized FR content and sends the alert to Valerus. Note that this test will determine the correct connectivity; the event will not show in the VMS events list, as the video unique identifier will be randomly constructed.



- VMS will display the received Aureus Alerts into its layout using the FRSensor.



NOTE: In addition to displaying the Aureus Alerts, the Aureus Insight Listener can also be displayed in an external web page. The example below demonstrates the Aureus Insight Listener displaying recent FR events.

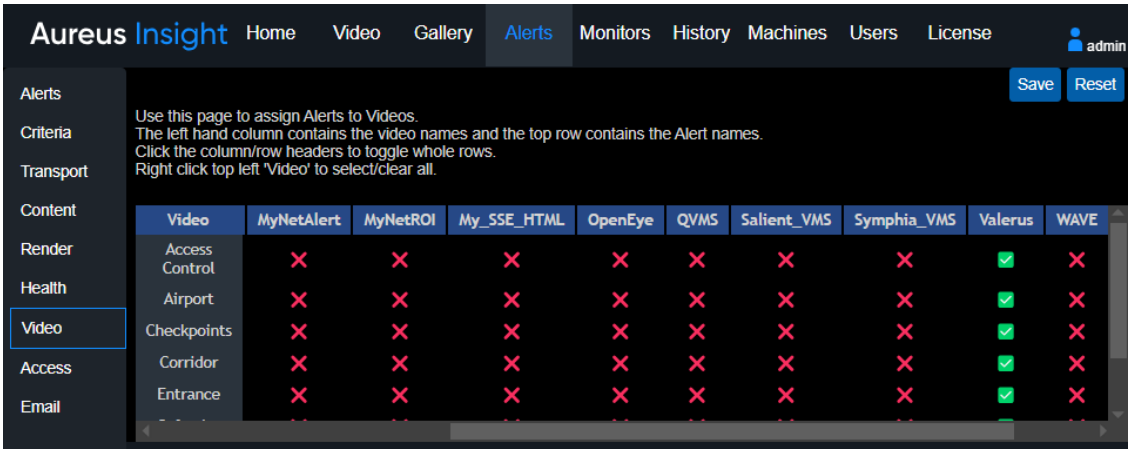


- To display the listener simply open a new web browser or tab with the URL: http://IP_Address:1984/AI_Listener.html (where IP_Address is the IP address of the server running Aureus Insight).

Switching the Alert On

The final step to ensure that all processed alerts are sent to the VMS is to activate the alert within Aureus Insight.

- Go to the *Alerts* tab and choose the *Video* menu from the left-hand side. Click the *Valerus* alert on the top row; this will activate the alert for all the video streams in Aureus Insight. Alternatively, click on the individual ticks or crosses to enable/disable the alerts for each stream. Remember to click *Save* when done.



- If additional cameras are added, revisit this web page to ensure the alert is activated for the new cameras.

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