Autonomy Surveillance

Face Recognition

Version: 11.0

User Guide

Document Revision: 0
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About This Document

This document is for all users of Face Recognition.

- Documentation Updates
- Related Documentation
- Conventions
- Autonomy Product References
- Support
- Contact Autonomy

Documentation Updates

You can retrieve the most current product documentation from the HP Autonomy Knowledge Base on the Customer Support Site.

A document in the Knowledge Base displays a version number in its name, such as IDOL Server 7.5 Administration Guide. The version number applies to the product that the document describes. The document may also have a revision number in its name, such as IDOL Server 7.5 Administration Guide Revision 6. The revision number applies to the document and indicates that there were revisions to the document since its original release.

Autonomy recommends that you periodically check the Knowledge Base for revisions to documents for the products your enterprise is using.

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1. Go to the Autonomy Customer Support site:

   https://customers.autonomy.com

2. Click Login.

3. Type the login credentials that you were given, and then click Login.

   The Customer Support Site opens.

4. Click Knowledge Base.

   The Knowledge Base Search page opens.

5. Search or browse the Knowledge Base.

   To search the knowledge base:
In the Search box, type a search term or phrase and click Search. Documents that match the query display in a results list.

To browse the knowledge base:

- Select one or more of the categories in the Browse list. You can browse by:
  - Repository. Filters the list by Documentation produced by technical publications, or Solutions to Technical Support cases.
  - Product Family. Filters the list by product suite or division. For example, you could retrieve documents related to the iManage, IDOL, Virage or KeyView product suites.
  - Product. Filters the list by product. For example, you could retrieve documents related to IDOL Server, Virage Videologger, or KeyView Filter.
  - Version. Filters the list by product or component version number.
  - Type. Filters the list by document type. For example, you could retrieve Guides, Help, Packages (ZIP files), or Release Notes.
  - Format. Filters the list by document format. For example, you could retrieve documents in PDF or HTML format. Guides are typically provided in both PDF and HTML format.

6. To open a document, click its title in the results list.

   To download a PDF version of a guide, open the PDF version, click the Download icon in the PDF reader, and save the PDF to another location.

   To download a documentation ZIP package, click Get Documentation Package under the document title in the results list. Alternatively, browse to the desired ZIP package by selecting either the Packages document Type or the ZIP document Format from the Browse list.

**Related Documentation**

The following documents provide more details on Face Recognition.

- **Image Server Administration Guide.**

  The Image Server Administration Guide provides information about installing and using an Autonomy Image Server.

- **Video Input Service User Guide.**

  The Video Input Service User Guide explains how to use the VIS ACI Server to make video available to Autonomy applications, including Face Recognition.
Conventions

The following conventions are used in this document.

Notational Conventions

This document uses the following conventions.

<table>
<thead>
<tr>
<th>Convention</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bold</strong></td>
<td>User-interface elements such as a menu item or button. For example: Click <strong>Cancel</strong> to halt the operation.</td>
</tr>
</tbody>
</table>
| *Italics*  | Document titles and new terms. For example:  
- For more information, see the *IDOL Server Administration Guide*.  
- An *action command* is a request, such as a query or indexing instruction, sent to IDOL Server. |
| monospace font | File names, paths, and code. For example:  
The FileSystemConnector.cfg file is installed in C:\Program Files\FileSystemConnector\. |
| monospace bold | Data typed by the user. For example:  
- Type run at the command prompt.  
- In the **User Name** field, type Admin. |
| *monospace italic* | Replaceable strings in file paths and code. For example:  
user *UserName* |

Command-Line Syntax Conventions

This document uses the following command-line syntax conventions.

<table>
<thead>
<tr>
<th>Convention</th>
<th>Usage</th>
</tr>
</thead>
</table>
| [ optional ] | Brackets describe optional syntax. For example:  
[ -create ] |
### Convention and Usage

<table>
<thead>
<tr>
<th>Convention</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bars indicate “either</td>
</tr>
<tr>
<td></td>
<td>[ option1 ]</td>
</tr>
<tr>
<td></td>
<td>In this example, you must choose between option1 and option2.</td>
</tr>
<tr>
<td>{required}</td>
<td>Braces describe required syntax in which you have a choice and that at least one choice is required. For example:</td>
</tr>
<tr>
<td></td>
<td>{ [ option1 ] [ option2 ] }</td>
</tr>
<tr>
<td></td>
<td>In this example, you must choose option1, option2, or both options.</td>
</tr>
<tr>
<td>required</td>
<td>Absence of braces or brackets indicates required syntax in which there is no choice; you must type the required syntax element.</td>
</tr>
<tr>
<td>variable</td>
<td>Italics specify items to be replaced by actual values. For example:</td>
</tr>
<tr>
<td>&lt;variable&gt;</td>
<td>-merge filename1</td>
</tr>
<tr>
<td></td>
<td>(In some documents, angle brackets are used to denote these items.)</td>
</tr>
<tr>
<td>. . .</td>
<td>Ellipses indicate repetition of the same pattern. For example:</td>
</tr>
<tr>
<td></td>
<td>-merge filename1, filename2 [, filename3 ... ]</td>
</tr>
<tr>
<td></td>
<td>where the ellipses specify, filename4, and so on.</td>
</tr>
</tbody>
</table>

The use of punctuation—such as single and double quotes, commas, periods—indicates actual syntax; it is not part of the syntax definition.

### Notices

This document uses the following notices:

**Caution:** A caution indicates an action can result in the loss of data.

**Note:** A note provides information that emphasizes or supplements important points of the main text. A note supplies information that may apply only in special cases—for example, memory limitations, equipment configurations, or details that apply to specific versions of the software.

**Tip:** A tip provides additional information that makes a task easier or more productive.
Autonomy Product References

This document references the following Autonomy products.

- Autonomy Image Server.
- Video Input Service (VIS).

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- **Knowledge Base.** The CSS contains an extensive library of end user documentation, FAQs, and technical articles that is easy to navigate and search.

- **Case Center.** The Case Center is a central location to create, monitor, and manage all your cases that are open with technical support.

- **Download Center.** Products and product updates can be downloaded and requested from the Download Center.

- **Resource Center.** Other helpful resources appropriate for your product.

To contact Autonomy Customer Support by e-mail or phone, go to

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<table>
<thead>
<tr>
<th>Europe and Worldwide</th>
<th>North and South America</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail: <a href="mailto:autonomy@autonomy.com">autonomy@autonomy.com</a></td>
<td>E-mail: <a href="mailto:autonomy@autonomy.com">autonomy@autonomy.com</a></td>
</tr>
<tr>
<td>Telephone: +44 (0) 1223 448 000</td>
<td>Telephone: +1.415.243.9955</td>
</tr>
<tr>
<td>Fax: +44 (0) 1223 448 001</td>
<td>Fax: +1.415.243.9984</td>
</tr>
<tr>
<td>Autonomy Corporation plc</td>
<td>Autonomy, Inc.</td>
</tr>
<tr>
<td>Cambridge Business Park</td>
<td>One Market Plaza</td>
</tr>
<tr>
<td>Cowley Rd.</td>
<td>Spear Tower, Suite 1900</td>
</tr>
<tr>
<td>Cambridge CB4 0WZ</td>
<td>San Francisco CA 94105</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>USA</td>
</tr>
</tbody>
</table>
Chapter 1: Introduction

This section introduces HP Autonomy Face Recognition.

- "Face Recognition"

Face Recognition

Face Recognition detects and recognizes faces in video footage or still images.

Face Recognition accepts video from Digital Media Ingest (DMI) plug-ins, and includes plug-ins to accept video from the Video Input Service (VIS), or a Milestone XProtect Enterprise surveillance system. You can run Face Recognition on up to 16 cameras simultaneously.

Face Recognition can detect and recognize multiple faces in each frame or image, and supports integration. Integration is the process of using consecutive video frames to increase accuracy when detecting and recognizing faces.

After a face is recognized, Face Recognition generates an alarm, which you can send to an Autonomy Surveillance Commander or a Milestone XProtect Enterprise surveillance system.
Chapter 2: Install Face Recognition

This section describes how to install Face Recognition.

- "Install Face Recognition"
- "Set Up the License"
- "Connect to an Image Server"
- "Configure the Video Input"

Install Face Recognition

To install Face Recognition, run the installation wizard and follow the on-screen instructions.

Set Up the License

To use Face Recognition, you must obtain a license. Face Recognition is licensed through Autonomy License Server. For information about licensing services with License Server, refer to the License Server Administration Guide.

To set up the license

1. Close Face Recognition, if it is running.
2. In the Face Recognition installation folder, open the configuration file `FaceRec.cfg`.
3. Modify the parameters in the [LICENSE] section to point to your License Server.

```plaintext
[LICENSE]
LicenseServerHost=licenses
LicenseServerACIPort=20000
LicenseServerTimeout=600000
LicenseServerRetries=3
```

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LicenseServerHost</td>
<td>The host name or IP address of your License Server.</td>
</tr>
<tr>
<td>LicenseServerACIPort</td>
<td>The ACI port of your License Server.</td>
</tr>
<tr>
<td>LicenseServerTimeout</td>
<td>The amount of time (in milliseconds) that Face Recognition should wait for a response from the License Server.</td>
</tr>
<tr>
<td>LicenseServerRetries</td>
<td>The number of times that Face Recognition should attempt to connect to the License Server if the first attempt is not successful.</td>
</tr>
</tbody>
</table>
4. Save and close the file.

**Connect to an Image Server**

Face Recognition uses an Autonomy Image Server to analyze video frames and images. To use Face Recognition, you must install an Autonomy Image Server. For information about how to install Image Server, refer to the *Image Server Administration Guide*.

In your Image Server configuration file, you must specify the location of the Face Recognition database. The default location of this database is `C:\Autonomy\FaceRecognition\FaceDatabase\faceData.db`. For information about how to configure Image Server, refer to the Image Server documentation.

After you have installed and configured Image Server, configure Face Recognition to use the Image Server. To do this, use the following procedure.

**To connect to an Image Server**

1. Close Face Recognition, if it is running.

2. In the Face Recognition installation folder, open the configuration file `FaceRec.cfg`.

3. Modify the parameters in the `[IMAGESERVER]` section to point to your Image Server. For example:

   ```
   [IMAGESERVER]
   ImageServerHost=ImageServer
   ImageServerPort=18000
   
   ImageServerHost | The host name or IP address of your Image Server.
   ImageServerPort | The ACI port of your Image Server.
   ```

4. Save and close the file.

You can now start Face Recognition.

**Configure the Video Input**

Face Recognition accepts video from Digital Media Ingest (DMI) plug-ins. You can analyze video from the following sources:

<table>
<thead>
<tr>
<th>Video Source</th>
<th>DMI Plug-in</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Input Service (VIS)</td>
<td>plug_dmi_vis.dll</td>
</tr>
<tr>
<td>Milestone surveillance system</td>
<td>plug_dmi_milestone.dll</td>
</tr>
</tbody>
</table>
Face Recognition accepts up to 16 different inputs. If you have multiple cameras, each camera provides a separate input. All of the inputs that you analyze must be ingested through the same plug-in.

**To configure the Video Input**

1. Open the Face Recognition configuration file, FaceRec.cfg.
2. Find the [Cameras] section.
3. Set the following configuration parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Plugin&quot;</td>
<td>The DMI plug-in to use to ingest video. If you are using multiple inputs, they must all be ingested through the same plug-in.</td>
</tr>
<tr>
<td>&quot;InputN&quot;</td>
<td>The path to the configuration file that contains the settings for the corresponding input, where N is an integer between 1 and 16.</td>
</tr>
<tr>
<td>&quot;VideoFormat&quot;</td>
<td>The format of video supplied to Face Recognition (Set this parameter to 1 for PAL or 2 for NTSC).</td>
</tr>
</tbody>
</table>

For example:

```
[VIDEO]
Plugin=plug_dmi_vis.dll
Input1=vis_input_1.visx
Input2=vis_input_2.visx
Input3=vis_input_3.visx
...
Input16=vis_input_16.visx
VIDEOFORMAT=1
```

4. Save and close the configuration file.

5. Configure the settings for each input, by modifying the configuration files you specified using the InputN parameter. For information about how to do this, see the following topics:
   - "Configure a VIS Input" below
   - "Configure a Milestone Input" on the next page

**Configure a VIS Input**

To configure a video input from the VIS DMI plug-in, follow these steps.

**Note:** For information about how to configure VIS, refer to the *Video Input Service User Guide*. 
To configure a VIS input

1. Open the configuration file that contains the settings for the input (the file that you specified using the InputN parameter in the Face Recognition configuration file). Sample configuration files are supplied with Face Recognition: see vis_input_1.visx, vis_input_2.visx, and so on, in the Face Recognition installation folder.

2. Find the <input> element, and modify the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>The VIS input that you want to analyze in Face Recognition. The id is 1-based, not 0-based.</td>
</tr>
<tr>
<td>aciport</td>
<td>The ACI port of the VIS ACI server. VIS must be installed on the same machine as Face Recognition.</td>
</tr>
</tbody>
</table>

For example:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<vis_dmi_config>
  <input id="1" aciport="8515" timecode="card"/>
</vis_dmi_config>
```

3. Save and close the configuration file.

Configure a Milestone Input

To configure a video input from the Milestone DMI plug-in, follow these steps.

To configure a Milestone input

1. Open the configuration file that contains the settings for the input (the file that you specified using the InputN parameter in the Face Recognition configuration file). Sample configuration files are supplied with Face Recognition: see milestone_input1.mcfg, milestone_input2.mcfg, and so on, in the Face Recognition installation folder.

2. Find the [SERVER] section and set the following configuration parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host</td>
<td>The host name or IP address of the server that hosts the Milestone surveillance system.</td>
</tr>
<tr>
<td>Port</td>
<td>The port to use to communicate with the Milestone surveillance system.</td>
</tr>
</tbody>
</table>

3. In the [INPUT] section, set the following parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VideoId</td>
<td>The GUID of the camera to analyze with Face Recognition. For information about how to find the GUID, refer to the Milestone documentation.</td>
</tr>
</tbody>
</table>
4. In the [AUTH] section, configure the authentication parameters:

- To use Windows authentication, set the Method parameter to Windows. Face Recognition uses the credentials of the user who is logged on to the Face Recognition machine. To specify a different user name and password, you can set the User and Pass parameters.

<table>
<thead>
<tr>
<th>Method</th>
<th>The authentication method to use to log on to the Milestone surveillance system. To use Windows authentication, set this parameter to Windows.</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>(Optional) The user name to use to log on.</td>
</tr>
<tr>
<td>Pass</td>
<td>(Optional) The password to use to log on. For instructions on how to encrypt the password, see &quot;Encrypt Passwords&quot; below.</td>
</tr>
</tbody>
</table>

- To use Milestone authentication, set the following parameters:

<table>
<thead>
<tr>
<th>Method</th>
<th>The authentication method to use to log on to the Milestone surveillance system. To use Milestone authentication, set this parameter to basic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>The user name to use to log on.</td>
</tr>
<tr>
<td>Pass</td>
<td>The password to use to log on. For instructions on how to encrypt the password, see &quot;Encrypt Passwords&quot; below.</td>
</tr>
</tbody>
</table>

5. Save and close the configuration file.

**Encrypt Passwords**

Autonomy recommends encrypting all passwords that are entered into configuration files. You can encrypt passwords using autpassword.exe, a command-line utility that is included with Face Recognition. To encrypt a password and add it to a configuration file, follow these steps.

**To encrypt a password**

1. Open a command-line window and change directory to the Face Recognition installation folder.

   For example:

   ```
   cd c:\Autonomy\Face Recognition\n   ```

2. If this is the first password you are encrypting, create a new key file. To create the key file, type the following command:

   ```
   autpassword -x -tAES -oKeyFile=./MyKeyFile.ky
   ```
where,

\[ MyKeyFile \]  The file name for the new key file.

**Note:** To keep your passwords secure, you must protect the key file. Set the permissions on the key file so that only authorized users and processes can read it. Face Recognition must be able to read the key file to decrypt the password, so do not move or rename it.

3. Type the following command, which encrypts the password and adds it to the configuration file:

```
autpassword -e -tAES -oKeyFile=./MyKeyFile.ky -cFILE -sSECTION -pPARAMETER PasswordString
```

where,

\[ MyKeyFile \]  The file name of your key file.

\[ FILE \]  The file name of the configuration file that will contain the password.

\[ SECTION \]  The name of the section in the configuration file that contains the configuration parameter.

\[ PARAMETER \]  The name of the configuration parameter that stores the password.

\[ PasswordString \]  The password to encrypt.

For example:

```
autpassword -e -tAES -oKeyFile=./MyKeyFile.ky -cmilestone_input.mcfg -sAUTH -pPass EncryptThisPassword
```

The encrypted password is added to the configuration file. If the parameter that you specified already exists, the value is overwritten.
Chapter 3: Use Face Recognition

This section describes how to use Face Recognition.

- "Log on to Face Recognition"
- "Face Recognition Overview"
- "Configure Recognition Options"
- "Start or Stop Face Recognition"
- "Edit the Database (Watch List)"
- "Manage Users"

Log on to Face Recognition

To log on to Face Recognition, use the following procedure.

**To log on to Face Recognition**

1. Click Login.
   
   The User Verification dialog box opens.

2. In the **User Name** and **Password** boxes, type your user name and password.

3. Click Login.

**Related Topics**

- "Manage Users"
Face Recognition Overview

The following image shows the Face Recognition user interface.

![Face Recognition User Interface Diagram](image)

The **Live View** area shows video from the selected camera (if you are running Face Recognition on video) or an image (if you are running Face Recognition on still images).

The results list displays the results of face recognition, which includes the following information:

- The name of the recognized face (or “Unknown Face” if the face was not recognized).
- The camera on which the face was detected.
- The score, which indicates the similarity between the detected face and the match selected from the database.
- The time and date when the face was detected.

Face Recognition stores detailed information for the 30 most recent results. If you click one of the 30 most recent results:

- The **Details** area displays information about the recognized face from the database, such as the person’s name, address, and date of birth.
- The **Captured Image** area displays the face that was detected in the video (or still image).
• The **Database Image** area displays the face from the database that was selected as a match. To be considered a match, the similarity between the captured image and database image must exceed the recognition threshold. If more than one match is found in the database, Face Recognition displays the match with the highest score.

• The **Database matches** area displays thumbnails of images in the database that exceed the recognition threshold for the detected face. You can specify the maximum number of recognition results to display for each detected face by setting the **Rank** configuration parameter, or by typing a value in the **Results to Display** box. The thumbnails are sorted by their score. The thumbnail at the top of the list has the highest score. When you click one of the thumbnails, that image is displayed in the **Database Image** area, and the **Details** area displays the information associated with the image.

Two status indicators are displayed in the bottom left corner of the window. The upper indicator is green when the Face Recognition engine is running. The lower indicator is green when the application is connected to the Virage Network Video Recorder. Otherwise, the indicators are red.

![Status Indicators](image)

**Select a Camera**

To choose the camera that you want to watch in the Live View area, use the following procedure.

**To choose a camera**

• In the **Live Camera** list, click the camera that you want to view.

**Configure Recognition Options**

This section describes how to configure Face Recognition using the controls in the Face Recognition application. These controls allow you to change the recognition options for the live camera.
To configure advanced settings, and change settings for other cameras, modify the Face Recognition configuration file. The configuration file, FaceRec.cfg, is located in the Face Recognition installation folder. For more information about the configuration parameters that you can use to configure Face Recognition, see “Face Recognition Configuration Parameters”.

Set the Brightness and Contrast of Video

To increase the accuracy of face detection and recognition, you can specify the brightness and contrast of the video that is supplied from the camera to Face Recognition.

To specify the brightness and contrast

- To specify the brightness, drag the red indicator around the **Brightness** dial. If the video supplied from the camera is dark, decrease the brightness value. If the video supplied from the camera is bright, increase the value.

- To specify the contrast, drag the red indicator around the **Contrast** dial. If the video supplied from the camera is low-contrast, decrease the contrast value.

Detection and Recognition Threshold

The **Detection Threshold** specifies the confidence level required for Face Recognition to detect a face. If an object in the video has a confidence level below the detection threshold, Face Recognition does not classify the object as a face. The default detection threshold is 25%.

The **Recognition Threshold** specifies the confidence level required for Face Recognition to match a face in the video to a face in the database. Increasing the recognition threshold means that higher standards must be met for a match to occur. The default recognition threshold is 50%.

To change the detection or recognition threshold

- In the **Detection Threshold** or **Recognition Threshold** box, type the new threshold.

Display Options

You can choose what information to display in the Face Recognition application.
To configure the display options

- In the Results to Display box, type the maximum number of results that you want to display in the database matches area. Only matches that exceed the Recognition Threshold will appear. The default value is 5 matches, and the maximum value is 10 matches.

- To display the confidence score and other information for each face that is detected, select the Display Msg check box. To hide the information, clear the check box.

- To show the position of each face that is detected, select the Display Faces check box. Face Recognition draws a rectangle around faces in the Live View area.

- To show the position of the eyes for each face that is detected, select the Display Eyes check box. Face recognition draws a red circle around the eyes in the Live View area.

Store Face Images

Face Recognition can save images of detected faces. The images are saved in the FaceImages subfolder, in the Face Recognition installation directory.

To save images of detected faces

- In the Detection/Recognition Options area, select the Store Face Imgs check box.

Start or Stop Face Recognition

If the AutoStart parameter in the Face Recognition configuration file is set to 1 (true), Face Recognition runs automatically when the application starts.

To start or stop the recognition engine manually, use the following procedures.

To start Face Recognition

1. In the Active Cameras area, select the check box for each camera on which you want to run Face Recognition. The number of cameras that you can use is determined by your Face Recognition license.

2. Click Start.

To stop Face Recognition

- Click Stop.
Run Face Recognition on Still Images
To run Face Recognition on still images, follow these steps.

To run Face Recognition on Still Images

1. Close the Face Recognition application, if it is running.

2. Open the Face Recognition configuration file (FaceRec.cfg, in the Face Recognition installation folder).

3. In the [FaceRecSettings] section, set the configuration parameter ReadFromVideo to 0.

4. Save and close the configuration file.

5. Start the Face Recognition application.

6. If Face Recognition is not configured to run automatically, start the recognition engine (click Start).

7. Add the images that you want to process to the folder InputImages, in the Face Recognition installation folder.

   Face Recognition detects that new images have been added to the folder and analyzes the images.

Clear the Results List

When Face Recognition detects a face, an entry is added to the Results list. To remove entries from the list, or clear the list, use the following procedure.

To clear the results list

- To remove a single record from the Results list, right-click the record and click Delete Record.
- To clear the entire Results list, double-click in the list area.

Edit the Database (Watch List)

This section describes how to add faces to the Face Recognition database.

Add Images to the Database from Image Files

To add images to the database from image files, follow these steps. You can use JPEG (.jpg or .jpeg), Bitmap (.bmp), PNG, GIF, PPM, or TIFF (.tif or .tiff) images.

To add an image to the database

1. Click Database.
The Watch List dialog box opens.

2. Click **Add**.

   The Open dialog box opens.

3. Select the images that you want to add to the database, and click **Open**.

   The images are added to the database.

4. Enter the identification information associated with each image.

   a. In the list, click an image thumbnail.
   
   b. Enter the identification information (**First name**, **Last name**, and so on).
   
   c. Click **Update Details**.

   The data is saved with the image. Repeat steps a to c for each image.

5. Click **Close**.

**Add an Image to the Database from Live Video**

You can enroll an image into the database from the video displayed in the **Live View** area.

**To manually enroll an image**

1. If the Face Recognition engine is running, stop it by clicking **Stop**.

2. When the face is displayed in the **Live View** area, click **Enroll**.

   The Watch List dialog box opens.

3. **(Optional)** Enter identification information for the image (for example a first and last name), and click **Update Details**.

   The captured image is added to the database.

**Add Unknown Faces to the Database Automatically**

You can configure Face Recognition so that unknown faces are automatically added to the database.

The new faces are added to the database with the name unkfaceXXX (where XXX is a unique number), until they are given appropriate details. For information about how to update the data that is associated with an image, see "Update a Record in the Database".
To automatically add unknown faces to the database


2. Open the Face Recognition configuration file (FaceRec.cfg, in the Face Recognition installation folder).

3. Set the EnrolUnknownFaces parameter to 1.

4. (Optional) To show unknown faces in the Results list, set the DisplayUnknownResults parameter to 1. To show only recognized faces in the Results list, set the DisplayUnknownResults parameter to 0.

5. Save and close the configuration file.

Update a Record in the Database

To update the identification information that is associated with an image in the database, follow these steps.

To modify the data associated with an image in the database

1. Click Database.

   The Watch List dialog box opens.

2. Find the image for which you want to update the identification information. Face Recognition displays 100 thumbnails in the watch list. The total number of images in the database is displayed in the Total Images box. If you need to navigate to another page of thumbnails, follow these steps:

   a. In the Page box, type a page number.

   b. Click Go.

3. Click the image for which you want to edit data.

4. Enter the new information to associate with the image.

5. Click Update Details.

   The database is updated.

6. Click Close.
Delete an Image from the Database

To delete an image from the database, follow these steps.

To delete an image from the database

1. Click Database.
   
The Watch List dialog box opens.

2. Find the image that you want to delete. Face Recognition displays 100 thumbnails in the watch list. The total number of images in the database is displayed in the Total Images box. If you need to navigate to another page of thumbnails, follow these steps:
   
a. In the Page box, type a page number.
   
b. Click Go.

3. Select the image or images that you want to delete.

4. Click Delete.
   
   A message box opens, asking you to confirm.

5. Click Yes.

   The images and any associated data are removed from the database.

Manage Users

A new installation of Face Recognition includes the following users by default:

<table>
<thead>
<tr>
<th>User Type</th>
<th>User name</th>
<th>Password</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator</td>
<td>USER</td>
<td>USER</td>
</tr>
<tr>
<td>Engineer</td>
<td>ENGINEER</td>
<td>ENGINEER</td>
</tr>
<tr>
<td>Administrator</td>
<td>ADMIN</td>
<td>ADMIN</td>
</tr>
</tbody>
</table>

The users have the following privileges:

- An **Operator** can only view the results of face recognition.
- An **Engineer** can start and stop face recognition, add or remove images from the database, and configure event settings.
- An **Administrator** can manage users and therefore has full privileges.
Add a New User

To add a new user, follow these steps.

To add a new user

1. Log on to Face Recognition as an administrator (see "Log on to Face Recognition").
2. Click Admin.
   The User Management dialog box opens.

   ![User Management Dialog Box]

3. In the User Name box, type a user name for the new user.
4. In the User Type list, choose a role for the new user.
5. In the Password and Retype Password boxes, type a password for the new user.
6. Click Add.
   A new user account is created.

Edit or Delete an Existing User Account

To edit an existing user account (for example, to change a password), follow these steps.

To edit or delete an existing user account
1. Log on to Face Recognition as an administrator (see "Log on to Face Recognition").

2. Click **Admin**.

   The User Management dialog box opens.

   ![User Management Dialog Box]

3. In the list, click the user that you want to modify.

   - To update the user type or password, enter the new details and click **Update**. You cannot change a user’s user name.

   - To delete the user, click **Delete**.

4. Click **Close**.
Chapter 4: Set up Alarms

Face Recognition can send alarms to one or more of the following systems:

- An Autonomy Surveillance Commander.
- A Milestone XProtect Enterprise surveillance system.

This section describes how to configure Face Recognition to send alarms.

- "Send Alarms to Commander"
- "Send Alarms to a Milestone Surveillance System"

Send Alarms to Commander

When sending alarms to Commander, you can run one or more actions for each alarm. For example, you might want to store an image of a detected face, or send the information to an IDOL Server.

An Engineer can choose the actions to run when a face is detected. There are two groups of actions:

- Actions for detected faces that are in the database.
- Actions for detected faces that are not in the database.

Configure Face Recognition

To configure Face Recognition to send alarms to a Commander

1. Open the Face Recognition configuration file.

2. In the [Commander] section, set the configuration parameters "CommanderIP" and "Port". These parameters specify the host name or IP address, and port, of your Commander. For example:

   [Commander]
   CommanderIP=localhost
   Port=9999

3. Save and close the configuration file.

4. Configure the actions that you want Commander to run.
   a. Log on to Face Recognition as an Engineer.
   b. Click Event.

      The Event Actions dialog box opens.
c. In the **In Database** area, select the check boxes for the actions that you want to run when a face is detected that is in the database.

d. In the **Not In Database** area, select the check boxes for the actions that you want to run when a face is detected that is not in the database.

e. Click **OK**.

### Configure Action Settings

To specify the settings for an action (for example, the IP address and port of your IDOL Server), follow these steps. You can specify different settings for each camera.

**To configure action settings**

1. Log on to Face Recognition as an Engineer.

2. Click **Event**.

   The Event Actions dialog box opens.

3. Click **Settings**.

   **Note:** If the **Settings** button is not available, ensure that you have specified the IP address of your Commander in the Face Recognition configuration file. To specify the IP address of the Commander, use the "**CommanderIP**" parameter.

   The Camera number dialog box opens.

4. In the box, type the number of the camera (from 1 to 16) for which you want to modify the
settings, and click **OK**.

The configuration file opens.

5. Modify the configuration parameters and click **OK**.

---

**Spoof Event**

You can send an alarm to Commander to test the connection between Face Recognition, Commander, and Wittwin.

**To send a Face Recognition event to Commander**

- Click **Spoof**.

---

**Send Alarms to a Milestone Surveillance System**

Face Recognition can send alarms to a Milestone XProtect Enterprise Surveillance System.

---

**Configure Face Recognition**

**To configure Face Recognition to send alarms to a Milestone Surveillance System**

1. Open the Face Recognition configuration file.

2. In the `[Milestone]` section, set the configuration parameter "MilestoneIP" to the host name or IP address of your Milestone server. If you are not using the default port, you can also specify the port using the "Port" parameter, for example:

   ```
   [Milestone]
   MilestoneIP=10.0.0.1
   Port=2345
   ```

3. Save and close the configuration file.

4. In the Face Recognition installation folder, open each of the event configuration files (XMLEvent_Camera1.ini, XMLEvent_Camera2.ini, and so on), and complete the following steps:
   
   a. At the bottom of the `[CameraDetails]` section, set the GUID parameter to the GUID of the Milestone camera to which you want to send alarms.
   
   b. Save and close the configuration file.
Configure the Milestone System

After configuring Face Recognition to send alarms to a Milestone surveillance system, you must configure your Milestone system to process the alarms.

To configure the Milestone Surveillance System to process alarms from Face Recognition

1. Make sure that the Milestone system has *Analytics Events* enabled, and is listening on the same port you specified in the Face Recognition configuration file.

2. Add an *Analytic Event* to the Milestone system, using the same name as the Face Recognition alarm. Face Recognition uses the name DATABASE for faces that are in the database, and NOTINDATABASE for faces that are not in the database. If the face is in the database, Face Recognition also sends the name of the face to the Milestone system.

3. Add an *Alarm Definition* to the Milestone system, using the Analytic Event that you created as the *Triggering Event*.

For more information about how to configure your Milestone system, refer to the Milestone documentation.
Chapter 5: Face Recognition Configuration Parameters

This section describes the configuration parameters that you can use to customize Face Recognition. These parameters are set in the configuration file (FaceRec.cfg, in the Face Recognition installation folder). You can modify the configuration file using a text editor.

**Note:** Always close Face Recognition before modifying the configuration file. If you make changes to the configuration file when Face Recognition is running, the changes are not saved because they are overwritten when Face Recognition is closed.

- "Commander Parameters"
- "Milestone Parameters"
- "Image Server Parameters"
- "Camera Parameters"
- "Face Detection Parameters"
- "Face Recognition Parameters"

### Camera Parameters

This section describes the configuration parameters that you can use to specify the properties of the video supplied to Face Recognition.

#### Brightness

The brightness of the video supplied from each camera (specified as an integer from 0-255). If the video supplied from a camera is bright, increase the brightness value. The following example sets the brightness to 127 for camera 1, 137 for camera 2, and 110 for camera 3.

You can also configure the brightness from the Face Recognition application.

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>127</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>Cameras</td>
</tr>
</tbody>
</table>
Camera

The Camera parameter specifies a name for each camera.

<table>
<thead>
<tr>
<th>Type</th>
<th>String</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>Camera1,Camera2,Camera3...</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>Cameras</td>
</tr>
</tbody>
</table>

Example:
- Camera1=Entry at 2nd floor
- Camera2=Main entrance
- Camera3=Exit
- Camera4=Camera4

See Also: "Contrast"

CameraDeviceNo

A bitwise number that specifies the cameras to monitor for faces.

The default value of 0 specifies that no cameras are monitored. To monitor cameras, add 1 for the first camera, 2 for the second camera, 4 for the third camera, and so on.

You can choose the cameras that are monitored by selecting the check boxes in the Active Cameras area in the Face Recognition application.

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>0</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>Cameras</td>
</tr>
</tbody>
</table>

Example:
- CameraDeviceNo=0

See Also: User Guide Chapter 5: Face Recognition Configuration Parameters
Contrast

The contrast of the video supplied from each camera (specified as an integer from 0-255). You can specify the contrast for each camera. If the video supplied from a camera is low-contrast, decrease the contrast value. The following example sets the contrast to 127 for camera 1, 137 for camera 2, and 110 for camera 3.

You can also configure the contrast from the Face Recognition application.

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>127</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>Cameras</td>
</tr>
<tr>
<td>Example</td>
<td>Contrast1=127</td>
</tr>
<tr>
<td></td>
<td>Contrast2=137</td>
</tr>
<tr>
<td></td>
<td>Contrast3=110</td>
</tr>
<tr>
<td>See Also</td>
<td>&quot;Brightness&quot;</td>
</tr>
</tbody>
</table>

ControlSource

A Boolean that specifies whether to display the controls for brightness and contrast in the Face Recognition application. To hide the controls, set this parameter to 0.

<table>
<thead>
<tr>
<th>Type</th>
<th>Boolean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>1</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>Cameras</td>
</tr>
<tr>
<td>Example</td>
<td>ControlSource=0</td>
</tr>
<tr>
<td>See Also</td>
<td></td>
</tr>
</tbody>
</table>

InputN

The path to the configuration file that contains the settings for the video input N, where N is an integer between 1 and 16.

<table>
<thead>
<tr>
<th>Type</th>
<th>String</th>
</tr>
</thead>
</table>
Default: | Required: | Yes
---|---
Configuration Section: | Cameras
Example: | Input1=vis_input_1.visx
| Input2=vis_input_2.visx
| Input3=vis_input_3.visx
| ...
See Also: | "Plugin"

**Plugin**

The path to the Digital Media Ingest (DMI) plug-in to use to ingest video.

<table>
<thead>
<tr>
<th>Type:</th>
<th>String</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default:</td>
<td>plug_dmi_vis.dll</td>
</tr>
<tr>
<td>Required:</td>
<td>Yes</td>
</tr>
<tr>
<td>Configuration Section:</td>
<td>Cameras</td>
</tr>
<tr>
<td>Example:</td>
<td>Plugin=plug_dmi_vis.dll</td>
</tr>
<tr>
<td>See Also:</td>
<td>&quot;InputN&quot; on the previous page</td>
</tr>
</tbody>
</table>

**VideoFormat**

The format of video supplied to Face Recognition. If you are using PAL video, set this parameter to 1. If you are using NTSC video, set this parameter to 2.

<table>
<thead>
<tr>
<th>Type:</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default:</td>
<td>1</td>
</tr>
<tr>
<td>Required:</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section:</td>
<td>Cameras</td>
</tr>
<tr>
<td>Example:</td>
<td>VideoFormat=2</td>
</tr>
<tr>
<td>See Also:</td>
<td></td>
</tr>
</tbody>
</table>
Commander Parameters

This section describes the configuration parameters that you can use to send alarms to an Autonomy Surveillance Commander.

CommanderIP

The IP address of the machine that hosts Commander. To send alarms to more than one Commander, specify further IP addresses on the following lines.

<table>
<thead>
<tr>
<th>Type</th>
<th>String</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default:</td>
<td>No</td>
</tr>
<tr>
<td>Required:</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section:</td>
<td>Commander</td>
</tr>
</tbody>
</table>

Example:

CommanderIP=10.0.0.1  
10.0.0.2  
10.0.0.3

See Also:  "Port"

Port

The port that Commander listens on.

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default:</td>
<td>7710</td>
</tr>
<tr>
<td>Required:</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section:</td>
<td>Commander</td>
</tr>
</tbody>
</table>

Example:

Port=7710

See Also:  "CommanderIP"

Milestone Parameters

This section describes the configuration parameters that you can use to send alarms to a Milestone Surveillance System.
**MilestoneIP**

The host name or IP address to use to send alarms to a Milestone surveillance system.

<table>
<thead>
<tr>
<th>Type</th>
<th>String</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td></td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>Milestone</td>
</tr>
<tr>
<td>Example</td>
<td>MILESTONEIP=10.0.0.1</td>
</tr>
<tr>
<td>See Also</td>
<td>&quot;Port&quot;</td>
</tr>
</tbody>
</table>

**Port**

The port that Face Recognition uses to send data to a Milestone surveillance system.

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>9090</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>Milestone</td>
</tr>
<tr>
<td>Example</td>
<td>Port=9090</td>
</tr>
<tr>
<td>See Also</td>
<td>&quot;MilestoneIP&quot;</td>
</tr>
</tbody>
</table>

**Image Server Parameters**

This section describes the configuration parameters that you can use to connect to an Autonomy Image Server. You must connect to an Autonomy Image Server to run Face Recognition.

**ImageServerHost**

The host name or IP address of the Image Server.

<table>
<thead>
<tr>
<th>Type</th>
<th>String</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>Localhost</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
</tbody>
</table>
ImageServerPort

The ACI port of the Image Server.

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>18000</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
</tbody>
</table>

Face Detection Parameters

This section describes the configuration parameters that you can use to customize Face Detection.

DisplayEyes

A Boolean that specifies whether Face Recognition displays the position of eyes on detected faces in the Live View window. To show the position of eyes, set this parameter to 1.

You can choose whether to display the position of eyes from the Face Recognition application. To do this, select or clear the Display Eyes check box.

<table>
<thead>
<tr>
<th>Type</th>
<th>Boolean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>1</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
</tbody>
</table>

**DisplayFaces**

A Boolean that specifies whether Face Recognition displays the position of detected faces in the Live View window. To display the position of detected faces, set this parameter to 1.

You can choose whether to display the position of detected faces from the Face Recognition application. To do this, select or clear the **Display Faces** check box.

<table>
<thead>
<tr>
<th>Type</th>
<th>Boolean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>1</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>FaceDetectSettings</td>
</tr>
<tr>
<td>Example</td>
<td>DisplayFaces=1</td>
</tr>
<tr>
<td>See Also</td>
<td>&quot;DisplayEyes&quot;</td>
</tr>
</tbody>
</table>

**DisplayMessagesOnLiveViewWindow**

A Boolean that specifies whether Face Recognition displays information messages in the Live View window when a face is detected. To display the information, set this parameter to 1.

You can choose whether to display messages from the Face Recognition application. To do this, select or clear the **Display Msg** check box.

<table>
<thead>
<tr>
<th>Type</th>
<th>Boolean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>0</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>FaceDetectSettings</td>
</tr>
<tr>
<td>Example</td>
<td>DisplayMessagesOnLiveViewWindow=0</td>
</tr>
<tr>
<td>See Also</td>
<td></td>
</tr>
</tbody>
</table>

**MaxRelativeFaceSize**

The maximum width of a detected face, relative to the width of the image or video. For example, to specify that the width of a face must not exceed 90% of the width of the video, set this parameter to 0.9.

<table>
<thead>
<tr>
<th>Type</th>
<th>Floating Point</th>
</tr>
</thead>
</table>
### Default: 0.950000
### Required: No
### Configuration Section: FaceDetectSettings
### Example: MaxRelativeFaceSize=0.950000
### See Also: "MinRelativeFaceSize"

## MinFaceWidthPixels

The minimum width for a detected face (in pixels). Objects that are narrower than this value are ignored.

- **Type:** Integer
- **Default:** 25
- **Required:** No
- **Configuration Section:** FaceDetectSettings
- **Example:** MinFaceWidthPixels=25
- **See Also:** "MinRelativeFaceSize"

## MinRelativeFaceSize

The minimum width of a detected face, relative to the width of the image or video. For example, to specify that the width of a face must be at least a quarter of the width of the video, set this parameter to 0.25.

- **Type:** Floating Point
- **Default:** 0.250000
- **Required:** No
- **Configuration Section:** FaceDetectSettings
- **Example:** MinRelativeFaceSize=0.250000
- **See Also:** "MaxRelativeFaceSize"
RejectFaceIfEyesNotDetected

A Boolean that specifies whether to ignore faces where eyes cannot be detected. If you set this parameter to 1, faces are detected only when both eyes are detected. If you are processing high-resolution, high-quality video, set this parameter to 1 to increase detection accuracy.

<table>
<thead>
<tr>
<th>Type</th>
<th>Boolean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>0</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>FaceDetectSettings</td>
</tr>
<tr>
<td>Example</td>
<td>RejectFaceIfEyesNotDetected=0</td>
</tr>
<tr>
<td>See Also</td>
<td></td>
</tr>
</tbody>
</table>

StoreDetectedFaceImages

A Boolean that specifies whether Face Recognition saves an image of each face detected in video. To save images, set this parameter to 1. When you run face recognition on still images, this parameter is ignored.

The images are saved in the FaceImages folder, in the Face Recognition installation directory.

<table>
<thead>
<tr>
<th>Type</th>
<th>Boolean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>0</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>FaceDetectSettings</td>
</tr>
<tr>
<td>Example</td>
<td>StoreDetectedFaceImages=1</td>
</tr>
<tr>
<td>See Also</td>
<td></td>
</tr>
</tbody>
</table>

Threshold

Image Server assigns a confidence level to each object detected during face recognition. The confidence level ranges from 0 to 1, where 1 represents maximum confidence. This parameter specifies the minimum confidence level required for an object to be considered a face. Objects with less than the specified confidence level are ignored.

You can set a different threshold for each camera by using numbered parameters. The following example specifies a threshold of 0.15 for the first camera, 0.25 for the second, and 0.20 for the third:
[FaceDetectSettings]
Threshold0=0.15
Threshold1=0.25
Threshold2=0.20

The Threshold parameter (when used without a number) specifies the threshold for the camera that is being watched in the Face Recognition application. This parameter has a range from 0-100, for example:

[FaceDetectSettings]
Threshold=15

If you set Threshold and numbered Threshold parameters, the numbered parameters are used and Threshold is ignored.

You can also configure the Detection Threshold from the Face Recognition application.

<table>
<thead>
<tr>
<th>Type</th>
<th>Floating Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>0.250000</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>FaceDetectSettings</td>
</tr>
</tbody>
</table>
| Example       | Threshold0=0.15
                Threshold1=0.25
                Threshold2=0.20
                ...                   |
| See Also      | "Threshold"    |

### VerifyFaceColour

A Boolean that specifies whether Face Recognition uses color to determine whether it has detected a face. When Face Recognition is used to process grayscale images, this parameter is ignored.

<table>
<thead>
<tr>
<th>Type</th>
<th>Boolean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>0</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>FaceDetectSettings</td>
</tr>
<tr>
<td>Example</td>
<td>VerifyFaceColour=0</td>
</tr>
<tr>
<td>See Also</td>
<td></td>
</tr>
</tbody>
</table>
Face Recognition Parameters

This section describes the configuration parameters that you can use to customize Face Recognition.

**AutoStart**

A Boolean that specifies whether to begin recognizing faces automatically when the Face Recognition application starts. To start recognition automatically, set this parameter to 1.

<table>
<thead>
<tr>
<th>Type</th>
<th>Boolean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>1</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>FaceRecSettings</td>
</tr>
<tr>
<td>Example</td>
<td>AutoStart=1</td>
</tr>
</tbody>
</table>

**DigitalOutputDuration**

The minimum amount of time that must pass (in milliseconds) between two consecutive digital output signals.

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>1000</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>FaceRecSettings</td>
</tr>
<tr>
<td>Example</td>
<td>DigitalOutputDuration=1000</td>
</tr>
</tbody>
</table>

**DisplayOn**

A Boolean that specifies whether to display live video in the Face Recognition application. To show live video, set this parameter to 1. Modifying this parameter does not disable face detection or recognition. You can also show or hide the live video display from the Face Recognition application (press F4).
DisplayUnknownResult

A Boolean that specifies whether to display unknown faces in the Face Recognition application. To display faces that are detected but not recognized, set this parameter to 1.

EnrolUnknownFaces

A Boolean that specifies whether to add unknown faces to the database automatically. To automatically add faces that have been detected but not recognized, set this parameter to 1.

ExtractPersonNameFromFilenameDuringTraining

A Boolean that specifies how to name faces that are added to the database.
If you set this parameter to 0, the name is `unknown#.jpg`, where # is a number.

If you set this parameter to 1, the name is extracted from the file name of the image file. The first and last name must be separated by a space. For example, if an image is named `john brown.front.uk.2009.jpg`, Face Recognition extracts the first name John and the last name Brown.

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>1</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>FaceRecSettings</td>
</tr>
<tr>
<td>Example</td>
<td>ExtractPersonNameFromFilenameDuringTraining=1</td>
</tr>
<tr>
<td>See Also</td>
<td></td>
</tr>
</tbody>
</table>

### Integration

The Integration parameter specifies how integration is used to increase accuracy. Integration is the process where Face Recognition uses multiple video frames to recognize a single face. You can set this parameter to one of the following values:

- **0** - Face Recognition analyzes each frame separately. If a face is detected and recognized, the result is displayed immediately.

- **1** - Face Recognition analyzes a series of video frames, until either no face is detected or `MaximumIntegrationFaces` is reached. Face Recognition then selects the result that has the highest confidence value.

- **2** - Face Recognition analyzes a series of video frames, until either no face is detected or `MaximumIntegrationFaces` is reached. Face Recognition then selects the result that has the highest average confidence value.

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>1</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>FaceRecSettings</td>
</tr>
<tr>
<td>Example</td>
<td>Integration=0</td>
</tr>
<tr>
<td>See Also</td>
<td>&quot;MaximumIntegrationFaces&quot;</td>
</tr>
</tbody>
</table>
MaximumIntegrationFaces

Integration is the process where Face Recognition uses multiple video frames to recognize a single face. This parameter specifies the maximum number of faces that are detected during integration, before Face Recognition outputs a result and starts to analyze a new series of frames.

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>8</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>FaceRecSettings</td>
</tr>
<tr>
<td>Example</td>
<td>MaximumIntegrationFaces=8</td>
</tr>
<tr>
<td>See Also</td>
<td>&quot;Integration&quot;</td>
</tr>
</tbody>
</table>

Rank

The maximum number of recognition results to display for each detected face. You can specify the number from the Face Recognition application by typing a value in the Results to Display box.

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>5</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section</td>
<td>FaceRecSettings</td>
</tr>
<tr>
<td>Example</td>
<td>Rank=5</td>
</tr>
<tr>
<td>See Also</td>
<td></td>
</tr>
</tbody>
</table>

ReadFromVideo

A Boolean that specifies whether Face Recognition accepts video from Digital Media Ingest (DMI) plug-ins. To run Face Recognition on video, set this parameter to 1. To run Face Recognition on still images in the InputImages folder (in the Face Recognition installation folder), set this parameter to 0.

<table>
<thead>
<tr>
<th>Type</th>
<th>Boolean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>1</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
</tbody>
</table>
### RepeatDelay

The amount of time that must pass (in seconds) between Face Recognition recognizing a face, and reporting the same face again. You can use this parameter to prevent the same face being detected repeatedly within a short space of time.

<table>
<thead>
<tr>
<th>Type</th>
<th>Integer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>10</td>
</tr>
<tr>
<td>Required</td>
<td>No</td>
</tr>
</tbody>
</table>

### Threshold

Image Server assigns a confidence level to each face recognized during face recognition. The confidence level ranges from 0 to 1, where 1 represents maximum confidence. This parameter specifies the minimum confidence level required for a face to be recognized as a specific person.

You can set a different threshold for each camera by using numbered parameters. The following example specifies a threshold of 0.55 for the first camera, and 0.65 for the second, and 0.45 for the third:

```
[FaceRecSettings]
Threshold0=0.55
Threshold1=0.65
Threshold2=0.45
```

The Threshold parameter (when used without a number) specifies the threshold for the camera that is being watched in the Face Recognition application. This parameter has a range from 0-100, for example:

```
[FaceRecSettings]
Threshold=50
```

If you set Threshold and numbered Threshold parameters, the numbered parameters are used and Threshold is ignored.
You can also configure the recognition threshold for the live camera from the Face Recognition application. To do this, type a value in the **Recognition Threshold** box.

<table>
<thead>
<tr>
<th>Type:</th>
<th>Floating Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default:</td>
<td>0.5</td>
</tr>
<tr>
<td>Required:</td>
<td>No</td>
</tr>
<tr>
<td>Configuration Section:</td>
<td>FaceRecSettings</td>
</tr>
<tr>
<td>Example:</td>
<td>Threshold0=0.55 Threshold1=0.65 Threshold2=0.45 ...</td>
</tr>
<tr>
<td>See Also:</td>
<td>&quot;Threshold&quot;</td>
</tr>
</tbody>
</table>
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