

Manual – TrueView Dwell Time™ for Windows

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Document history

October 22, 2007 1.0.0	Initial version
November 6, 2007 1.0.0	Camera placement
December 17, 2007 1.0.1	Autostart
January 9, 2008 1.0.2	Image resolution, longer dwell times
March 10, 2008 1.0.4	SQL table datatype, NetCam 1280
May 16, 2008 1.0.5	Save data to XML
July 3, 2008 1.0.7	Auto activation
July 25, 2008 1.0.8	Web Report port specification

Overview

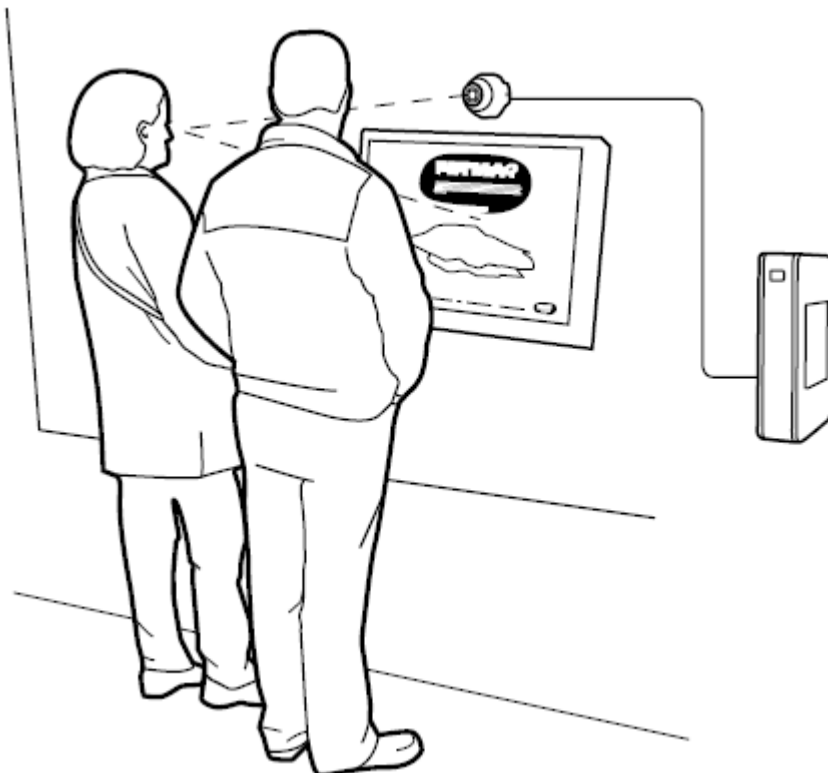
TrueView Dwell Time™ for Windows is a stand alone software for the Windows operating system running on standard PCs. The software is intended for shops and other indoor environments where you need to count people, and want to know how long they remain in front of e.g. a video screen. It allows you to connect cameras (network or USB) to a PC or a POS system. TrueView Dwell Time™ has seamless integration with TrueView Web Report, a system for web servers enabling you to view graphs of the data from anywhere in the world over the Internet. Data can also be stored into a MySQL database or saved to XML files if you prefer to use your own reporting system.

Easy to set up, with this software you can instantly monitor your customers per hour, day or week over the network. Integrated with your network, it supports your staff planning and entrance management. With the TrueView Dwell Time™ you may collect data such as customer flows, trend analyses, evaluation of advertising and promotions and enhance your strategic marketing decisions through effective monitoring of customer traffic. Improve your network video surveillance system with new cost-efficient possibilities.

There are two ways to use the data from the TrueView Dwell Time™, either monitor the real-time data feed, or by viewing or exporting the historical data when needed.

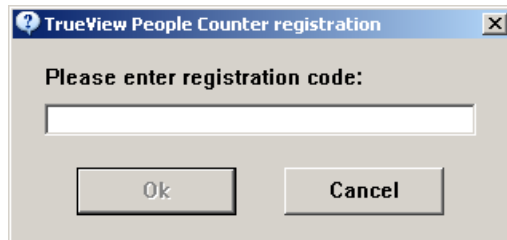
Installation

- 1) Install a camera to your PC according to the instructions from the manufacturer. You can use any camera that has a DirectShow driver, whether it is a network camera, USB connected web camera or an analog camera together with a frame grabber. If you want to use an Axis network camera together with Dwell Time, please install this DirectShow filter on your PC:
<http://face.cognimatics.com/CognimaticsNetCam640.msi> (resolution 640x480) or you can use this one with resolution 1280x960 if you have a megapixel camera:
<http://face.cognimatics.com/CognimaticsNetCam1280.msi>
- 2) Install TrueView Dwell Time™ on your computer by double clicking the installation file and go through the guided installation process. In some distributions TrueView Report™ is also installed.
- 3) Fasten the camera above or below the object (monitor?) that people are expected to be looking at. The ideal position would be when people are looking straight into the camera. Make sure that the camera focus is set to make faces as sharp as possible.
- 4) Start TrueView Dwell Time™ from the Start menu by pressing **Start** in the bottom left corner of your screen, then **all programs -> TrueView Dwell Time -> DwellTime**. (If this is the first time you start the application, please read chapter **Product activation**).
- 5) You should now see the video images from the camera.
- 6) Try to avoid placing the camera where it can be subjected to strong direct sun light or reflections.



Product activation

When starting the application for the first time, a dialog for entering the registration code will be shown. You should have received a registration code from the reseller of the product.



**** IMPORTANT **** Each registration code can only be used once. Be careful when deciding which computer to install TrueView Dwell Time on, because you will not be able to change your mind when the application has been installed and you have used up your registration code. If you format your hard drive and install Windows again, you should normally be able to use the same registration code as before when installing TrueView Dwell Time again on the same computer. But if you change any important hardware in your computer you might need to contact Cognimatics AB for re-activation of the application.

Enter your registration code and press **Ok**. If the code was valid, the application will then automatically connect to a server over the Internet and activate the product. If activation fails, the dialog below will instead be shown to the user.



Click on the blue text with the mouse pointer to open that URL in a web browser. Make sure that the **Registration code** and **Installation ID** are the same on the web page as in the activation dialog. Press the button on the web page to see your activation code, enter it into the dialog and press **Ok**.

If you intend to use more than one camera on a single PC, you will need to add one more paid license to Dwell Time for every extra camera. Select **Enable one more camera** from the **License** menu to bring up the registration dialog again.

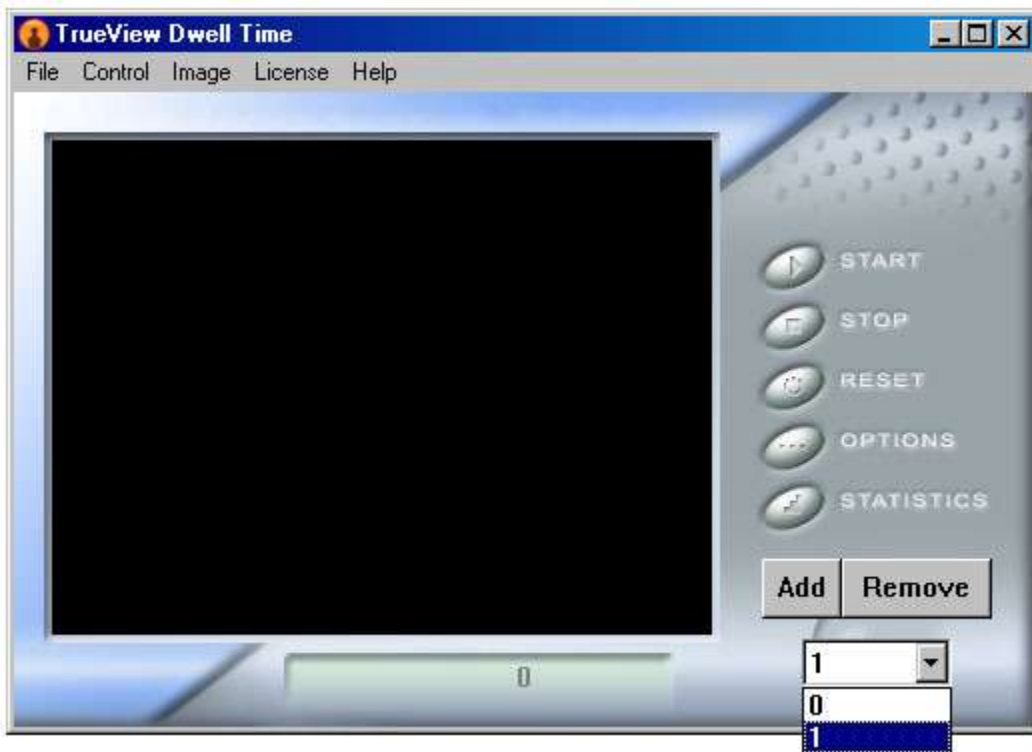
Multiple Cameras

It is possible to have several cameras running at once in the Dwell Time application, but one paid license per camera is needed. When you start up Dwell Time for the first time, it will be limited to one camera only and the controls for multiple cameras will not be visible. To enable more cameras, select **Enable one more camera** from the **License** menu and enter another registration code and activation code. The controls for multiple cameras will then become visible and you can have a maximum of two cameras running simultaneously. To increase the maximum number of simultaneous cameras, repeat the process by selecting **Enable one more camera** from the **License** menu again.

The performance of the computer will determine how many cameras it is feasible to have running simultaneously, but it is generally not recommended to have more than one of them. It is theoretically possible to have up to 99 cameras running simultaneously, but more than one will reduce the frame rate for each camera and thus reduce the counting accuracy.

After adding at least one extra license, you can add and remove cameras with the two new buttons in the bottom right corner of the application window. You can switch between visible cameras by using the pull-down menu below the buttons. The counting will be running even if a camera is not visible.

In the **Options** dialog, the first tab (**Camera**) contains settings that only affect the currently visible camera. The **Data** tab contains mixed settings. The last two tabs (**Web** and **SQL**) contain settings that affect all of the cameras.



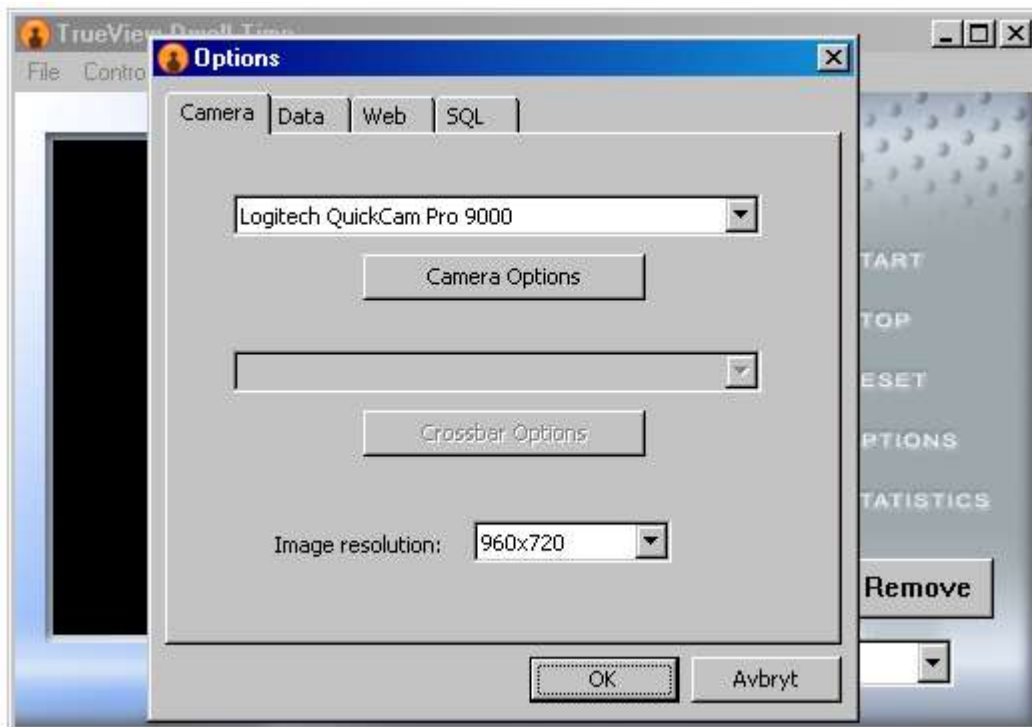
Configuration

Press the **OPTIONS** button to bring up the **Options** dialog. There are four different tabs to choose between in the top of the options dialog.

Camera:

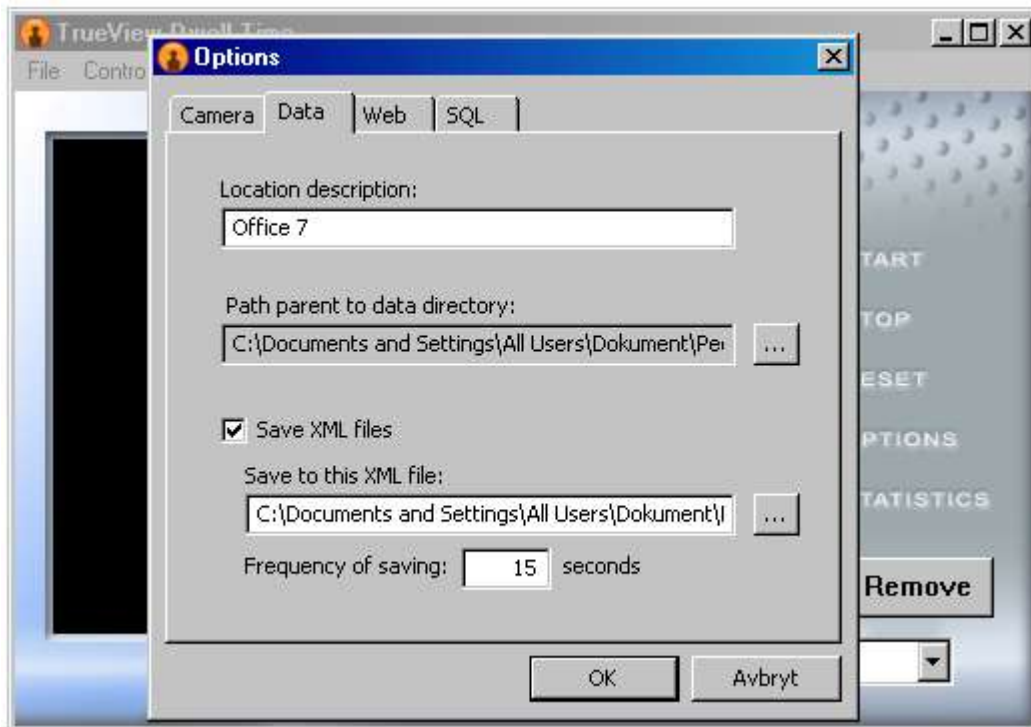
If you have added extra licenses to Dwell Time and are running several cameras at once, the settings under the **Camera** tab refer to the currently selected camera (the one that is shown). Camera settings for the other cameras will not be affected, to change them you must select another camera before pressing the **Options** button.

- 1) The uppermost dropdown menu lets you select camera. If no camera is connected to your PC, this option will be disabled. If you want to use an Axis network camera together with Dwell Time, please install this DirectShow filter on your PC:
<http://face.cognimatics.com/CognimaticsNetCam640.msi>
- 2) **Camera Options** lets you set options for your selected camera. If no camera is connected to your PC, this option will be disabled.
- 3) **Crossbar Options** lets you set options for any crossbars on your PC. (A crossbar can typically be found on TV or frame grabber cards. It let's you choose between different inputs, e.g. composite or S-Video.) If no crossbar can be found on your PC, this option will be disabled.
- 4) **Image resolution:** A list of image resolutions supported by this camera. 960 x 720 is a good value to select here, if available.



Data:

- 1) **Location description:** The name of the data set in TrueView Report for data saved from this camera. Different for each camera.
- 2) **Path parent to data directory:** A subfolder caled **data** will be created in the selected parent folder, and in the **data** folder one folder for each camera will be created, containing a file called **Cache.cnt** with all the data saved for that camera. Press the “...” button to bring up a folder tree to select the parent folder. This setting is for all cameras.
- 3) **Save XML files:** Check this box if you also want data in an XML file. If not, the settings below this checkbox are irrelevant and will be disabled. A specification of the XML files can be found in appendix A of this manual.
- 4) **Save to this XML file:** Full path of the XML file to which data will be saved.
- 5) **Frequency of saving:** How often, in seconds, that data will be saved to the XML file.

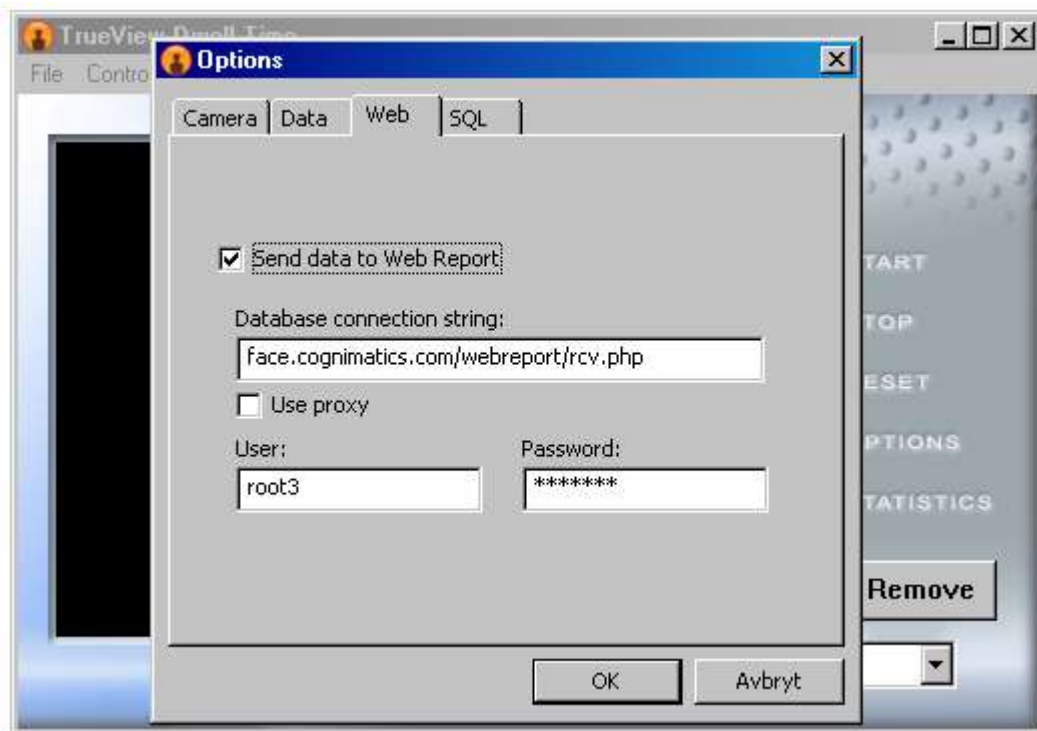


Web:

Settings under the **Web** tab affect all cameras, data from all cameras will be sent to the same web server.

- 1) **Send data to Web Report:** Check this box if you want data to be sent to a Web Report server via HTTP. If not, the settings below this checkbox are irrelevant and will be disabled.
- 2) **Database connection string:** This URL will be called by Dwell Time to transfer the data to Web Report. The URL will typically end with “/webreport/rcv.php”. You can specify a port by adding a colon (:) and the port number after the server name but before the first slash (/). For example like this:

<http://face.cognimatics.com:80/webreport/rcv.php>
- 3) **Use proxy:** Check this box if you want Dwell Time to try to use a proxy server when transferring data to Web Report. Will make the data transfer take longer time, but is required in some networks.
- 4) **User:** The Web Report user name that you use to log into Web Report and see the data from Dwell Time. Different users store data in different tables, therefore it is a requirement to specify the Web Report user here.
- 5) **Password:** Password for the Web Report user.



SQL:

Settings under the **SQL** tab affect all cameras, data from all cameras will be stored in the same database.

The target table in the SQL database must have these fields:

Field	Type	Null	Key	Default	Extra
cnttime	datetime	YES		NULL	
cntlocation	varchar(100)				
cnttype	int(11)			0	
cnt	int(11)			0	

The field *cnttype* can have the following values for Dwell Time data:

- 1024 - Dwell Time 0-2 seconds
- 1025 - Dwell Time 2-5 seconds
- 1026 - Dwell Time 5-10 seconds
- 1027 - Dwell Time 10-20 seconds
- 1028 - Dwell Time 20-30 seconds
- 1029 - Dwell Time 30 seconds – 1 minute
- 1030 - Dwell Time 1-2 minutes
- 1031 - Dwell Time 2-5 minutes
- 1032 - Dwell Time 5-10 minutes
- 1033 - Dwell Time >10 minutes

- 1) **Send data to SQL database:** Check this box if you want data to be sent to an SQL database via the Microsoft ADO layer. If not, the settings below this checkbox are irrelevant.
- 2) **ADO connection string:** A string with instructions for the Microsoft ADO layer regarding how to connect to the database. This is a typical MySQL connection string:

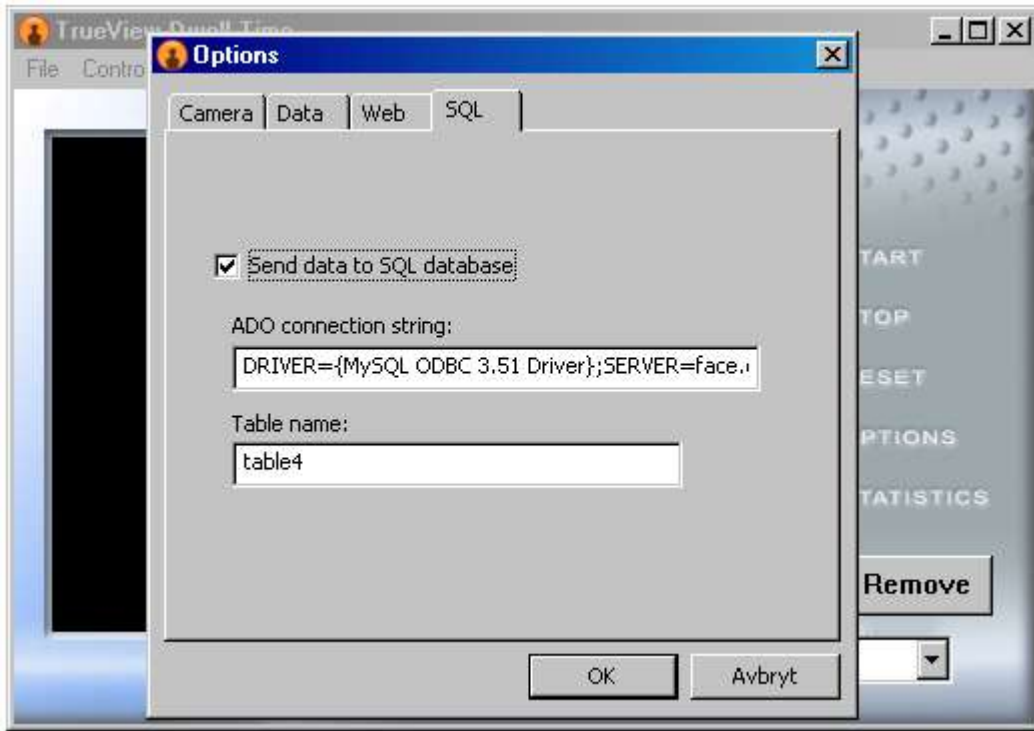
```
DRIVER={MySQL ODBC 3.51  
Driver};SERVER=some.server.com;DATABASE=db;UID=username;PWD=password;
```

The string above will connect to a MySQL server found at “some.server.com” using the MySQL ODBC driver that can be downloaded here:

<http://mysql.org/downloads/connector/odbc/3.51.html>

The ODBC driver above must be installed in order to enable a MySQL connection. The database specified in the connection string must already exist, but Dwell Time can automatically create the table if the account has the necessary permissions (grants).

- 3) **Table name:** Name of the table in which data from Dwell Time will be stored.



Counting

- 1) Select **START** to the right of the image to start counting. Video from the camera will be displayed. The number of people that have been detected (and no longer can be seen in the video) is shown under the image. Data will be saved to disk every fifth minute.
- 2) Select **STOP** to the right of the image to stop counting. The camera will be turned off and the screen will turn black. Data will instantly be saved to disk whenever the counting is stopped.
- 3) Select **RESET** to the right of the image to set the counter to zero. This will not affect the data that is saved to disk (and can be viewed in TrueView Report™). The only way to reset data saved to disk is to manually delete the data file.

Statistics

Please see the manual for TrueView Report™ or TrueView Web Report™ for information about the statistics.

Autostart in system tray

During installation, a shortcut to TrueView Dwell Time™ is created in the **Startup** folder in the **All Programs** folder on the Windows start menu. Dwell Time will start each time the user logs in, and be minimized to the system tray so that the application does not require any attention from the user. If you wish to stop Dwell Time from starting automatically, just remove the shortcut **Dwell Time minimized** from the **Startup** folder. It can later be restored by copying the shortcut **Dwell Time minimized** from the **TrueView Dwell Time** folder in the **All Programs** folder on the Windows start menu.

Troubleshooting

- 1) If the graph in TrueView Report™ is not updated, close the application and then open it again.
- 2) If you can not see any video in TrueView Dwell Time™, then please uninstall all cameras from the PC and then install a single camera from the list of supported camera equipment.
- 3) If you want to use an Axis network camera together with Dwell Time, please install this DirectShow filter on your PC:
<http://face.cognimatics.com/CognimaticsNetCam640.msi> (resolution 640x480) or you can use this one with resolution 1280x960 if you have a megapixel camera:
<http://face.cognimatics.com/CognimaticsNetCam1280.msi>
- 4)

System requirements

- 1) At least Intel Pentium IV, Core 2 or equivalent CPU. One CPU core per camera.
- 2) CPU speed at least 1.8 GHz for one camera.
- 3) At least 128 MB RAM for Win2000, 256 MB RAM for WinXP and 512 MB RAM for Vista.
- 4) Microsoft Windows 2000, XP or Vista.
- 5) At least 10 MB available free hard disk space.

Appendix A: XML specification

```
<?xml version="1.0" encoding="UTF-8"?>

<!-- The version attribute of countdata is an integer starting at 1. -->
<!-- A cntset element contains a number cnt elements with the counting -->
<!-- during each time interval. -->
<!-- The name parameter in cntset is a UTF-8 encoded string. -->
<!-- The first cnt element is the data between -->
<!-- starttime and starttime+delta, while the second is between -->
<!-- starttime+delta and starttime+2*delta -->
<!-- Delta is specified in seconds -->
<!-- starttime is a 14 digit number representing local time, for example: -->
<!-- 20080225132005 = 2008-02-25 13:20:05 = 13:20:05 February 25, 2008 -->
<!-- The attributes of cnt are optional, they will only be included when -->
<!-- their value is greater than zero. Here is a description -->
<!-- of the attributes: -->
<!-- t0 - Pedestrians (direction undefined) -->
<!-- t1 - Cars -->
<!-- t2 - Bicycles -->
<!-- t3 - Pedestrians going in -->
<!-- t4 - Pedestrians going out -->
<!-- t5 - Number of faces counted during [now-delta,now] -->
<!-- t6 - Average view time for the faces, given in tenths of seconds, -->
<!-- i.e. the maximum possible value is  $(2^{15}-1)/10$  s ~ 3276 s ~ 54 min. -->
<!-- t1024 - Dwell Time 0-2 seconds -->
<!-- t1025 - Dwell Time 2-5 seconds -->
<!-- t1026 - Dwell Time 5-10 seconds -->
<!-- t1027 - Dwell Time 10-20 seconds -->
<!-- t1028 - Dwell Time 20-30 seconds -->
<!-- t1029 - Dwell Time 30 seconds - 1 minute -->
<!-- t1030 - Dwell Time 1 - 2 minutes -->
<!-- t1031 - Dwell Time 2 - 5 minutes -->
<!-- t1032 - Dwell Time 5 - 10 minutes -->
<!-- t1033 - Dwell Time >10 minutes -->
<!-- -->
<!-- t1280 - Dwell Time Man 0-2 seconds -->
<!-- t1281 - Dwell Time Man 2-5 seconds -->
<!-- t1282 - Dwell Time Man 5-10 seconds -->
<!-- t1283 - Dwell Time Man 10-20 seconds -->
<!-- t1284 - Dwell Time Man 20-30 seconds -->
<!-- t1285 - Dwell Time Man 30 seconds - 1 minute -->
<!-- t1286 - Dwell Time Man 1 - 2 minutes -->
<!-- t1287 - Dwell Time Man 2 - 5 minutes -->
<!-- t1288 - Dwell Time Man 5 - 10 minutes -->
<!-- t1289 - Dwell Time Man >10 minutes -->
<!-- -->
<!-- t1536 - Dwell Time Woman 0-2 seconds -->
<!-- t1537 - Dwell Time Woman 2-5 seconds -->
<!-- t1538 - Dwell Time Woman 5-10 seconds -->
<!-- t1539 - Dwell Time Woman 10-20 seconds -->
<!-- t1540 - Dwell Time Woman 20-30 seconds -->
<!-- t1541 - Dwell Time Woman 30 seconds - 1 minute -->
<!-- t1542 - Dwell Time Woman 1 - 2 minutes -->
<!-- t1543 - Dwell Time Woman 2 - 5 minutes -->
<!-- t1544 - Dwell Time Woman 5 - 10 minutes -->
<!-- t1545 - Dwell Time Woman >10 minutes -->
```

```
<!ELEMENT countdata (cntset+)>
  <!ATTLIST countdata
    version CDATA #REQUIRED>
<!ELEMENT cntset (cnt+)>
  <!ATTLIST cntset
    name CDATA #REQUIRED
    starttime CDATA #REQUIRED
    delta CDATA #REQUIRED>

<!ELEMENT cnt EMPTY>
  <!ATTLIST cnt
    t0 CDATA #IMPLIED
    t1 CDATA #IMPLIED
    t2 CDATA #IMPLIED
    t3 CDATA #IMPLIED
    t4 CDATA #IMPLIED
    t5 CDATA #IMPLIED
    t6 CDATA #IMPLIED
    t1024 CDATA #IMPLIED
    t1025 CDATA #IMPLIED
    t1026 CDATA #IMPLIED
    t1027 CDATA #IMPLIED
    t1028 CDATA #IMPLIED
    t1029 CDATA #IMPLIED
    t1030 CDATA #IMPLIED
    t1031 CDATA #IMPLIED
    t1032 CDATA #IMPLIED
    t1033 CDATA #IMPLIED
    t1280 CDATA #IMPLIED
    t1281 CDATA #IMPLIED
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