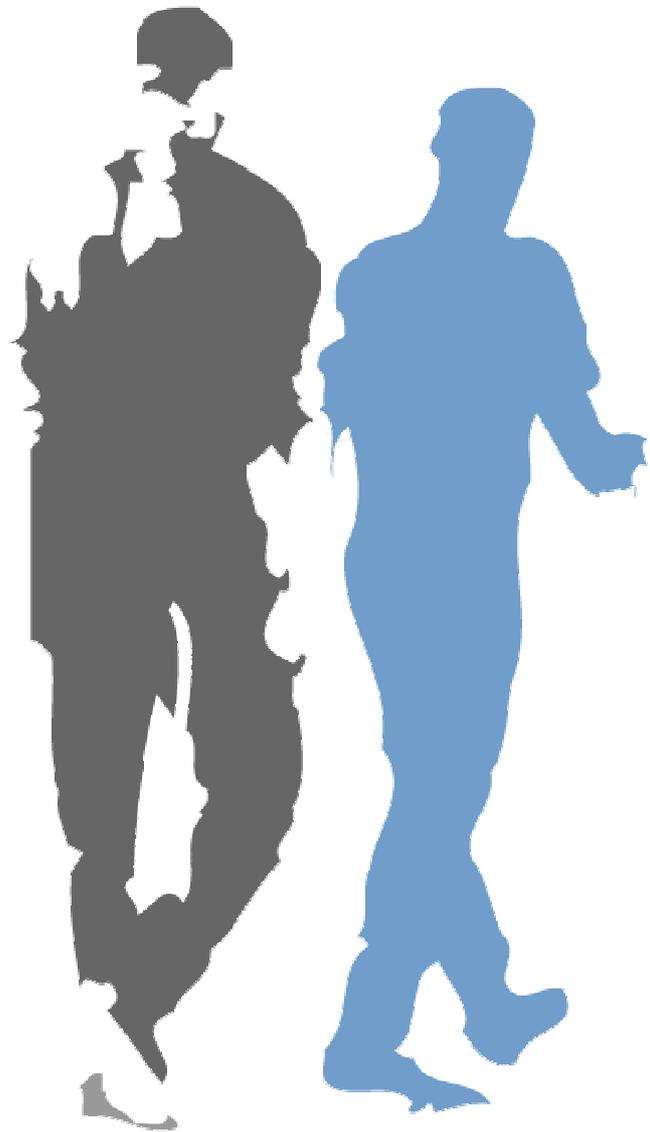


milestone
XProtect

Smart Client 2.0
User's Manual





Target Audience for this Document

This document is aimed at users of Milestone XProtect Smart Client.

This document provides detailed descriptions of Milestone XProtect Smart Client features. It furthermore provides a number of targeted "how-to" examples, guiding users through completing common tasks in Milestone XProtect Smart Client.

Note that depending on your user rights and your role in your organization, some features in the Milestone XProtect Smart Client may not be available to you. Ask your surveillance system administrator if in doubt.

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Introduction

About the Smart Client

The *Smart Client* provides remote users with extremely feature-rich access to the surveillance system. With the *Smart Client* it is possible to access multiple servers at a time, allowing remote user access across systems.



Example of the *Smart Client*, displaying images from 16 cameras

The *Smart Client* must be installed locally on the remote user's computer.

DirectX 9.0 and .Net Framework 1.1 are required on computers running the *Smart Client*; both are available from <http://www.microsoft.com/downloads/>.

What are Remote Users Able to do with the Smart Client?

With the *Smart Client*, remote users are able to:

- View live images from cameras on the surveillance system.
- Browse recordings from cameras on the surveillance system.
- Create and switch between an unlimited number of views, each able to display images from up to 16 cameras from multiple servers at a time*. Views can be placed in *private* groups (only accessible by the user who created them) or *shared* groups (accessible by all *Smart Client* users connected to the surveillance system server).
* Depending on the Milestone XProtect surveillance system used
- Use HTML pages and static images in views.
- Create special views for widescreen monitors.
- Control PTZ (Pan/Tilt/Zoom) and IPIX (360° view) cameras.
- Activate manually triggered events.
- Activate external outputs.
- Get quick overviews of sequences with detected motion.
- Get quick overviews of detected events.
- Quickly search selected areas of camera images for motion, also known as *Smart Search*.



- Print images.
- Generate and export evidence in AVI (movie clip) and JPEG (still image) formats.
- Assign user-specific keyboard shortcuts to common actions.

How does the Smart Client get Images from the Surveillance System?

Images viewed by *Smart Client* users are provided by the *Image Server*. The *Image Server* runs as a service on the surveillance system server; it does not require separate hardware.

The access rights of individual *Smart Client* users are defined by the surveillance system administrator on the *Image Server*.

How can User Rights Affect Use of the Smart Client?

The rights of individual remote users are specified centrally by the surveillance system administrator. Your user rights will determine your ability to use the *Smart Client's* features.

Basically, the surveillance system administrator is able to restrict a user's rights to the following:

- Access to the *Smart Client*
- Access to each of the *Smart Client's* tabs: *Live*, *Browse* and *Setup*
- Ability to use features on the *Smart Client's* tabs
- Ability to create views (views determine the way in which images from one or more cameras are displayed)
- Ability to view images from specific cameras

The ability to use various features of the *Smart Client* may therefore vary considerably from user to user. Ask your surveillance system administrator if in doubt about your user rights.

Download and Installation

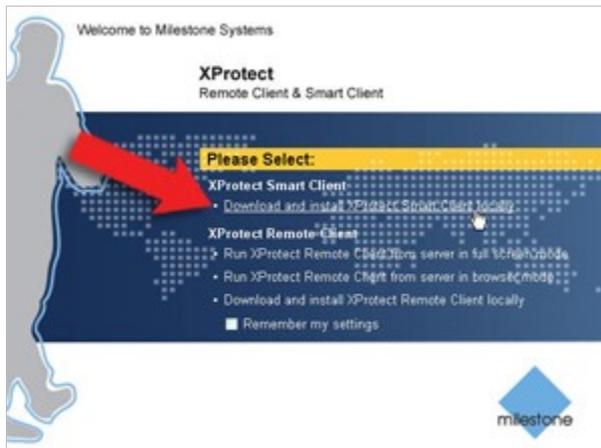
The *Smart Client* must be installed on your computer before you are able to use it.

Typically, you download the *Smart Client* from the surveillance system server, and then install it on your computer. Alternatively, your surveillance system administrator may ask you to install the *Smart Client* from a CD.

Downloading and Installing the Smart Client

To download and install the *Smart Client*, do the following:

1. Open an Internet Explorer browser (version 6.0 or later), and connect to the URL or IP address specified by your system administrator in order to connect to the surveillance system server. When you connect to the surveillance system server, you will see a welcome page.
2. In the *XProtect Smart Client* section of the welcome page, click the *Download and install XProtect Smart Client locally* link:



Detail from welcome page; arrow indicates *Download And install XProtect Smart Client locally* link

3. Depending on your security settings, you may receive a security warning (*Do you want to run or save this file?*).

When this is the case, click the *Run* button.

4. Depending on your security settings, you may receive a further security warning (*Do you want to run this software?*).

When this is the case, click the *Run* button.

5. The *Smart Client Setup Wizard* begins. In the wizard, click *Next* and follow the installation instructions.



Installing the Smart Client from a CD

To install the *Smart Client* from a CD, do the following:

1. Insert the CD, and run the *Smart Client* installation file (*MilestoneXProtectSmartClient.exe*) from the CD.
2. When the installation wizard starts, click *Next* to continue the installation and follow the steps in the installation wizard.

Logging In to the Smart Client

Logging in to the *Smart Client* is very straightforward. So is the initial configuration of the *Smart Client* upon your first login—in fact, configuration may in some cases not be required at all.

To log in to the *Smart Client*, do the following:

1. Double-click the *Smart Client* shortcut on your desktop:



If no *Smart Client* desktop shortcut is available, select the *Smart Client* from Windows' *Start* menu (exactly how you do this is determined by where and how you have installed the *Smart Client* on your computer, but you would typically select *Start > All Programs > Milestone XProtect Smart Client > Smart Client*).

2. A splash screen is displayed while the *Smart Client* loads.

Loading the *Smart Client* typically takes a few seconds only.

3. The *Smart Client* login window appears:



The *Smart Client* login window

4. Specify your login information in the following fields:

- **Connect to:** Type the URL or IP address specified by your surveillance system administrator. Internet connections may use different ports for different purposes; therefore, the URL or IP address may include a port number, in most cases port 80 (example: 123.123.123.123:80, where :80 indicates the port number). If you have logged in before, you may simply select the required server from the *Connect to* list.
- **Username:** Type your user name as specified by your system administrator. The user name is case-sensitive, i.e. there is a difference between typing, for example, *amanda* and *Amanda*.

- *Password*: Type your password as specified by your system administrator. The password is case-sensitive.
5. Click *OK*.
 6. After a short wait, the *Smart Client* window will open.

The *Smart Client* window has three tabs: *Live*, *Browse* and *Setup*:



The *Live* tab is used for viewing live images from cameras, the *Browse* tab is used for browsing recorded images from cameras, and the *Setup* tab is used for configuring the *Smart Client*.

Note: Depending on your user rights, you may not be able to access all three tabs.

If You Log In for the First Time

If you have logged in for the first time, you need to determine whether any *views* exist. Views determine how images from cameras are displayed in the *Smart Client*, and are thus required in order to be able to use the *Smart Client*.

One or more views may already have been created for you, or you may need to create views yourself. Read more about views, including how to determine if any views have already been created for you, in *Creating Views* on page 12.

Logging in on Different Computers

Your user settings are stored on the surveillance system server. This means that your login can be used on any computer that has a *Smart Client* installed.

Creating Views

The way in which images from one or more cameras are displayed in the *Smart Client* is called a *view*. A view may contain images from up to 16 cameras*. A *Smart Client* can handle an unlimited number of views, allowing you to switch between various collections of camera images.

* Depending on Milestone XProtect surveillance system used



Example of a *Smart Client* displaying a view with images from 16 different cameras (the view is highlighted in red frame)

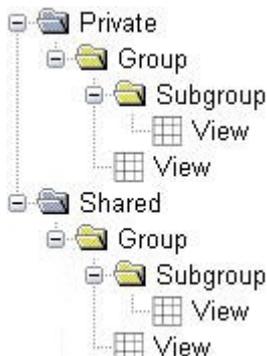
Views/Groups Concept

In order to help you maintain an easy overview when you navigate between various views in your *Smart Client*, all views are placed in folders called *groups*.

A group can contain any number of views and, if required, subgroups.

Private and Shared Groups

Groups, in turn, can be *private* or *shared*. Views placed in private groups can only be accessed by the user who created them, whereas views placed in shared groups can be accessed by all *Smart Client* users connected to the surveillance system server.



Simplified example of *views* in private and shared *groups*

Before you create any views, it is important that you are sure about the difference between views placed in *shared* and *private* groups—not least because a number of views in shared groups may already have been created for *Smart Client* users in your organization.

When that is the case, you can start using your *Smart Client* straight away; creating further views in your *Smart Client* will not be necessary unless you want to supplement the views in the shared groups with views of your own, placed in private groups.

If you want to create views yourself, for example if no views in shared groups are available in your organization, the *Smart Client's Setup* tab lets you create groups and views, and specify which cameras should be included in each view.

Note: Particular user rights may be required in order to access the *Setup* tab. Your ability to create groups and views also depends on your user rights. From time to time your surveillance system administrator may make changes to camera or user properties on the surveillance system server. When this is the case, such changes will take effect in the *Smart Client* the first time you log in after the changes were made. Such changes may require you to re-create your views. Ask your surveillance system administrator if in doubt.

Are Any Views in Shared Groups Available?

Especially if you are a first-time user of the *Smart Client*, you will want to know whether any views have already been created and placed in *shared* groups for your organization's *Smart Client* users.

Typically, your surveillance system administrator will have told you if views in shared groups are used in your organization.

Alternatively, to quickly determine whether any views have already been created and placed in shared groups, do the following:

Note: This method requires that your user rights permit you to access the *Smart Client's Live* tab and/or *Browse* tab. Most users will have access to at least one of these tabs.

1. Go to the *Smart Client's Live* or *Browse* tab.
2. On the *Live* or *Browse* tab, look at the *Views* section:
 - If the *Views* section contains any folders under the *Shared* folder, shared groups are available.



Example of *Views* section containing shared groups with a number of views

When this is the case you may—your user rights permitting—immediately begin using the views in the shared groups for viewing live and recorded images. See *Viewing Live Images* on page 32 and *Viewing Recorded Images* on page 37. Only if you want to add more views, e.g. customize your *Smart Client* with views in private groups, do you need to create further views on the *Setup* tab.

- If the *Views* section contains only the two top-level folders, *Private* and *Shared*, without any content in any of the two folders, no views are available.



Example of *Views* section containing no expandable folders

In this case, you must create at least one view on the *Setup* tab before you can begin using the *Smart Client*.

- If the *Views* section contains one or more expandable folders labeled *[Private] ...*, you have already created one or more views in private groups.

Which Types of Groups Can You Create Views in?

Depending on your user rights, you may be able to create and edit views in the following types of groups:

- Private and shared
- Private, but not shared
- Shared, but not private
- Neither private, nor shared (in which case you simply rely on views created by others and placed in shared groups)

Typically only a few people in an organization are able to create and edit views in shared groups.

For example, the surveillance system administrator may create and maintain a number of views and place them in shared groups: When *Smart Client* users log in, the views placed in the shared groups will automatically be available to them, and the users will basically not need to create further views unless they want their own views in *private* groups.

To quickly determine which types of groups your user rights permit you to create and edit views in, do the following:

1. Select any of the *Smart Client's* tabs.
2. Look at the *Views* section: You are able to create and edit views in any groups **not** marked by a padlock icon. If a group is marked by a padlock icon, it is protected: You can still use any views in the group, but you cannot create or edit views in the group.



Example: The user is able to create and edit views in private groups, but not in shared groups. Note the padlock icon on the shared group folder (clearly visible in the enlarged example).

Consult your system administrator if in doubt about your user rights.

Creating Views in Private Groups

To create your first view in a private group, you first create a group under the *Private* top-level group, and then create the required view within the group.

If you have created views in private groups before, you may create new views in existing private groups, or you may create a new private group for the view.

Note: Views are created on the *Smart Client's Setup* tab. Particular user rights may be required in order to access the *Setup* tab.

Creating a Private Group

To create a private group, do the following on the *Setup* tab:

1. In the *Setup* tab's *Views* section, select the group under which you wish to create the new group. This may be the top-level *Private* group, or it may be a group under the top-level *Private* group.



Example: Selecting the top-level *Private* group

2. Click the *Create New Group* button:



3. A new group is created under the group you selected. The new group is simply named *New Group*:



Example: A new group is created

4. Overwrite the default name *New Group* with a group name of your choice:



Example: Overwriting default group name

You are now able to create a view within the group.

Creating a View in a Private Group

To create a view in a private group, do the following:

1. In the *Setup* tab's *Views* section, make sure the group in which you want to create the view is selected:

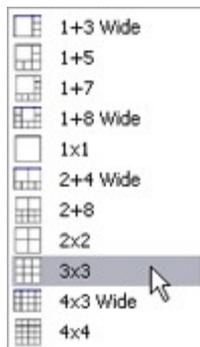


Example: Selecting required group

2. Click the *Create New View* button:



3. Select the required layout for your new view:



i Tip: Layouts marked *Wide* are particularly suited for widescreen monitors.

4. A new view is created under the group you selected.

The new view carries the default name *New View* plus an indication of the selected layout:



Example: A new view is created

5. Overwrite the default name with a view name of your choice:



Example: Overwriting the default view name

You are now able to add cameras to the view.

i Tip: A group, whether private or shared, can contain an unlimited number of views. More than one private and shared group can exist.

Creating Views in Shared Groups

To create your first view in a shared group, you first create a group under the *Shared* top-level group, and then create the required view within the group.

If you have created views in shared groups before, you may create new views in existing shared groups, or you may create a new shared group for the view.

Note: Views are created on the *Smart Client's Setup* tab. Particular user rights may be required in order to access the *Setup* tab.

When creating a shared view, bear in mind that depending on their user rights not all users may have access to all cameras on the surveillance system.

Creating a Shared Group

To create a shared group, do the following on the *Setup* tab:

1. In the *Setup* tab's *Views* section, select the group under which you wish to create the new group.

This may be the top-level *Shared* group, or it may be a group under the top-level *Shared* group.



Example: Selecting the top-level *Shared* group

2. Click the *Create New Group* button:



3. A new group is created under the group you selected. The new group is simply named *New Group*:



Example: A new group is created

4. Overwrite the default name *New Group* with a group name of your choice:



Example: Overwriting default group name

i Tip: Bear in mind that shared groups are visible by all *Smart Client* users connected to the surveillance system server; therefore, use a name that will be meaningful to all users.

You are now able to create a view within the group.

Creating a View in a Shared Group

To create a view in a shared group, do the following:

1. In the *Setup* tab's *Views* section, make sure the group in which you want to create the view is selected:

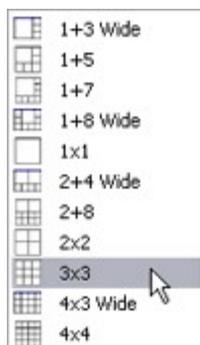


Example: Selecting required group

2. Click the *Create New View* button:



3. Select the required layout for your new view:



i Tip: Layouts marked *Wide* are particularly suited for widescreen monitors.

4. A new view is created under the group you selected.

The new view carries the default name *New View* plus an indication of the selected layout:



Example: A new view is created

5. Overwrite the default name with a view name of your choice:



Example: Overwriting the default view name

i Tip: Bear in mind that shared groups are visible by all *Smart Client* users connected to the surveillance system server; therefore, use a name that will be meaningful to all users.

You are now able to add cameras to the view.

i Tip: A group, whether private or shared, can contain an unlimited number of views. More than one private and shared group can exist.

Adding Cameras to a View

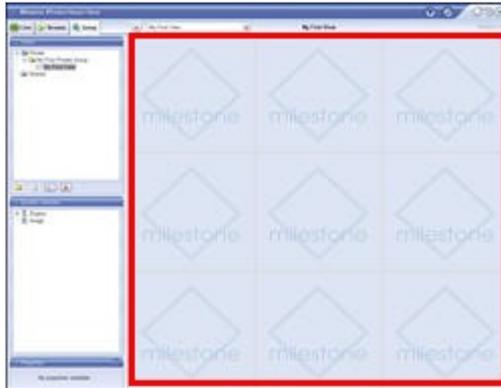
Having created a view within a group, you can specify which cameras to include in the view.

Note: Bear in mind that depending on their user rights not all users may have access to all cameras on the surveillance system. Thus, even though you may be able to view images from all cameras in a shared view, other users may not necessarily be able to view images from all the cameras. Consult your surveillance system administrator if in doubt.

To add cameras to a view, do the following:

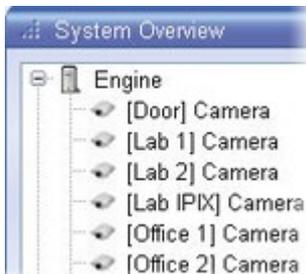
1. In the *Setup* tab's *Views* section, select the required view.

When you select a view, the layout of the selected view is outlined in the main section of the *Smart Client* window:



Layout of selected view is outlined in main section (indicated in red frame in this example)

2. In the *Setup* tab's *System Overview* section, click the plus sign \oplus next to the required engine (server) to view a list of available cameras:



Example: Engine with a number of available cameras

3. Click the name of a camera, and drag the camera name to the required position in the view.

When you have dragged a camera to a position in the view, an image from the camera will—provided a connection can be established—appear in the selected position.

If a connection cannot be established, for example if the surveillance system's *Monitor* application is not running, the name of the camera will be displayed in the selected position.

Repeat for each camera required in the view.

i Tip: If you want to use all of the cameras under an engine, you may simply drag the required engine link to the view; this will automatically place all of the engine's cameras in the view *from the selected position onwards*. Remember to have sufficient positions available in the view.

i Tip: You can easily change the cameras in your view: Either clear the position by clicking the clear button , then drag another camera to the cleared position, or simply "overwrite" a position by dragging a different camera to the position.

4. You are now able to use your view: You may—your user rights permitting—select the view on the *Live* tab (see *Viewing Live Images* on page 32) and on the *Browse* tab (see *Viewing Recorded Images* on page 37).



i Tip: In addition to cameras, you are able to add static images and HTML pages to views. Read more in *Further Configuration* on page 22.

Using Your Views on Different Computers

Your user settings, including your private views, are stored on the surveillance system server. This means that you are able to use your private views on any computer that has a *Smart Client* installed, provided you log in to the *Smart Client* with your own user name and password.

Further Configuration

In addition to creation of groups and views, the *Smart Client's Setup* tab lets you edit existing groups and views. The *Setup* tab furthermore lets you adjust camera settings, and set up joystick control for PTZ (Pan/Tilt/Zoom) cameras.

Note: Particular user rights may be required in order to access the *Setup* tab. Your ability to edit groups and views also depends on your user rights. Basically, if you are able to create groups and views, you are also able to edit them. From time to time your surveillance system administrator may make changes to camera or user properties on the surveillance system server. When this is the case, such changes will take effect in the *Smart Client* the first time you log in after the changes were made. Such changes may require you to re-create your views. Ask your surveillance system administrator if in doubt.

Which Types of Groups Can You Edit Views in?

Depending on your user rights, you may be able to create and edit views in the following types of groups:

- Private and shared
- Private, but not shared
- Shared, but not private
- Neither private, nor shared (in which case you simply rely on views created by others and placed in shared groups)

Typically only a few people in an organization are able to create and edit views in shared groups. For example, the surveillance system administrator may create and maintain a number of views and place them in shared groups: When *Smart Client* users log in, the views placed in the shared groups will automatically be available to them, and the users will basically not need to create further views unless they want their own views in *private* groups.

To quickly determine which types of groups your user rights permit you to create and edit views in, do the following:

1. Select any of the *Smart Client's* tabs.
2. Look at the *Views* section: You are able to create and edit views in any groups **not** marked by a padlock icon. If a group is marked by a padlock icon, it is protected: You can still use any views in the group, but you cannot create or edit views in the group.



Example: The user is able to create and edit views in private groups, but not in shared groups. Note the padlock icon on the shared group folder (clearly visible in the enlarged example).

Consult your surveillance system administrator if in doubt about your user rights.

Using Static Images in Views

You are not limited to viewing camera images in a view; you are able to view static images (such as GIF or JPEG) as well.



Example: A company logo inserted as a static image (in this case viewed on the *Live* tab). The feature could equally well be used for inserting maps, floor plans, photos of wanted persons, etc.

To use a static image in a view, do the following on the *Setup* tab:

1. Drag the *System Overview* section's *Static Image* link to the required position in the view.
2. Release the mouse button over the required position.

When you release the mouse button you are able to select the required static image file.

Using HTML Pages in Views

In addition to viewing camera images and static images in a view, you are able to import HTML pages and display them in the view. This way, you are able to include company web pages, intranet pages, navigation pages, link collections, etc. together with the camera images in the view.



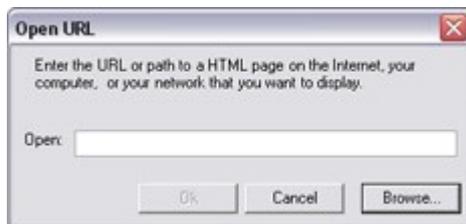
Example: A company web page inserted in a view (in this case viewed on the *Live* tab). The feature could equally well be used for inserting clickable maps, news services, e-learning courses, etc.

i Tip: When your imported HTML pages contain links, it is recommended that links have the `target='blank'` attribute (example: `Link`). This will make the links open in separate windows, which will help you avoid losing view of the *Smart Client* window itself due to a link opening a web page in the same browser window as the *Smart Client*.

To include an HTML page in a view, do the following on the *Setup* tab:

1. Drag the *System Overview* section's *HTML Page* link to the required position in the view.

When you release the mouse button over the required position, the *Open URL* window opens:



Open URL window

2. In the *Open URL* window's *Open* field, type the URL of the required HTML page (example: `http://www.mywebsite.com/mywebpage.htm`).

- or -

If the HTML page is stored locally on your computer, specify its location on your computer (example: `C:\myfiles\mywebpage.htm`), or click the *Browse...* link to browse for the required HTML page.

3. Click the *OK* link.

Changing the Properties of an Imported HTML Page

Once an HTML page is imported into a view, you are able to change its properties by doing the following:

1. On the *Setup* tab, select the imported HTML page in the view.

Properties of the HTML page will appear in the *Setup* tab's *Properties* section:



2. Change the required property:

- **URL:** Click the *New* button to specify a new URL or location of the required HTML page.
- **Scaling:** Select the required scaling of the HTML page. The optimal scaling depends entirely on the content of the imported HTML page and how you want to display it.

As a rule of thumb, with a high scaling value, e.g. 1280×1024, text on the HTML page will appear relatively small, and a considerable amount of content will be visible without the need for scrolling. With a low scaling value, e.g. 320×200, text on the HTML page will appear relatively large, and a relatively small amount of content can be displayed without the need for scrolling.



Examples of the same HTML page viewed with different scaling values

Navigating an Imported HTML Page

An imported HTML page can be navigated using the links on the HTML page itself.

Furthermore, each HTML page imported into a view features four navigation buttons in the top bar:



From left to right the buttons are: *Back*, *Forward*, *Refresh* and *Home*.

Renaming Groups

To rename a group, do the following on the *Setup* tab:

1. Select the required group in the *Views* section.
2. Click the *Rename* button:



3. Overwrite the existing group name with a new name of your choice.

Deleting Groups

Note: Deleting a group will delete all views and any subgroups within the group as well.

To delete a group, do the following on the *Setup* tab:

1. Select the unwanted group in the *Views* section.
2. Click the *Delete* button:



You will be asked to confirm that you want to delete the selected group and all of its content.

Renaming Views

To rename a group, do the following on the *Setup* tab:

1. Select the required group in the *Views* section.
2. Click the *Rename* button:



3. Overwrite the existing group name with a new name of your choice.

Deleting Views

To delete a group, do the following on the *Setup* tab:

1. Select the unwanted group in the *Views* section.
2. Click the *Delete* button:



You will be asked to confirm that you want to delete the selected group and all of its content.

Adjusting Camera Settings

In the *Setup* tab's *Camera Control* section, you are able to adjust camera settings.

To adjust camera settings, select the position of the required camera in the view. The position you select will be indicated by a bold border.

Camera Name

The *Camera Name* field displays the name of the selected camera. The field is read-only.

Image Quality

The *Image Quality* setting determines the quality of the images when viewed, but also affects bandwidth usage.

If the *Smart Client* is used over the internet, over a slow network connection, or if for other reasons you need to limit the bandwidth used by the *Smart Client*, image quality can be reduced on the server side by selecting e.g. *Low* or *Medium*

i Tip: You can quickly reduce the bandwidth usage for all cameras in the view by reducing the image quality for a single camera, then clicking the *Apply To All* button.

Frame Rate

The *Frame Rate* setting lets you select a frame rate for the selected camera. Default is *Unlimited*.

IPIX Split Mode

Available only if the selected camera is an IPIX camera. IPIX is a technology that allows creation and viewing of 360-degree panoramic images. The *Smart Client* supports up to four different viewpoints from a single IPIX camera.

The IPIX Split Mode list lets you select the required split mode:

- *One by One* lets you view a single viewpoint.
- *Two by Two* lets you view four different viewpoints at a time.

When viewed on the *Live* and *Browse* tabs, the IPIX camera will appear as specified, with either one or four viewpoints from the same image:



Two by Two: Live tab displaying four different viewpoints from a single IPIX camera; in this example, the IPIX camera's four viewpoints are enlarged for clarity.

i Tip: When viewing different viewpoints from an IPIX camera on the *Live* or *Browse* tabs, you are able to navigate each viewpoint independently by clicking inside each viewpoint, or by using the buttons in the *PTZ Control* section.

Apply to All

The *Apply To All* button lets you quickly apply the camera settings for the selected camera to all cameras in the view.

Customizing Joystick Setup

You are able to customize joystick setup for control of PTZ (Pan/Tilt/Zoom) cameras in the *Smart Client*.

Customizing joystick setup requires that a joystick is attached to the computer running the *Smart Client*.

Note: Even though joystick control is supported for a large number of PTZ cameras, not all PTZ cameras may be joystick-controlled. Consult your surveillance system administrator if in doubt; your surveillance system administrator may refer to the surveillance system's release note for information about joystick support for cameras.

To customize joystick setup, do the following:

1. Click the *Show Application Menu* button in the *Smart Client*'s top bar:



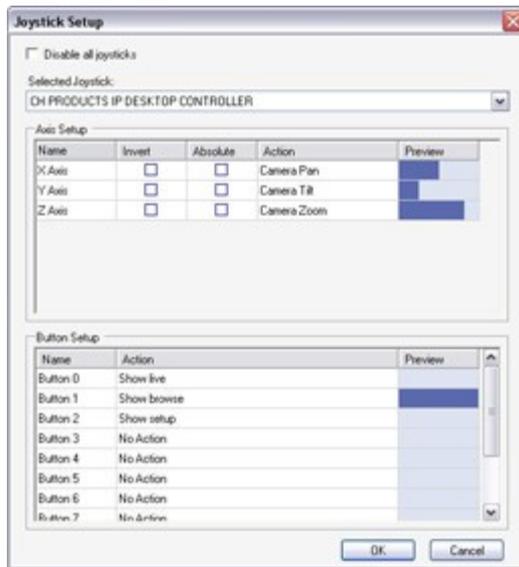
2. From the menu that appears, select *Joystick Setup*:



The *Joystick Setup* window will appear.

3. In the *Joystick Setup* window, select the required joystick in the *Selected Joystick* list.

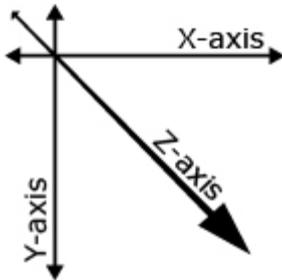
The axes and buttons available on then selected joystick will be listed in the *Axis Setup* and *Button Setup* sections respectively:



Joystick Setup window, displaying available axes and buttons on a selected joystick

4. In the *Axis Setup* section, specify settings for the available axes.

With a joystick, you are typically able to navigate camera images three-dimensionally, along three axes: an X-axis, a Y-axis, and a Z-axis, where the Z-axis typically refers to the depth (zoom) level:



Example: X-, Y-, and Z-axes

- **Invert:** By default, a PTZ camera will move to the right when you move the joystick to the right along the X-axis, move up when you move the joystick towards you along the Y-axis, etc. By selecting *Invert*, you are able to change this to the opposite. You are thus able to freely determine whether the camera should, for example, move up or down when you move the joystick towards you and away from you respectively.
- **Absolute:** By default, joystick control takes place based on a relative positioning scheme. This means that moving a joystick will move the joystick-controlled object based on the object's current position rather than based on any fixed position. By selecting *Absolute*, you are able to change this and use an absolute rather than a relative positioning scheme.
- **Action:** Lets you select the required action for an axis: *Camera Pan*, *Camera Tilt*, *Camera Zoom* or *No action*.
- **Preview:** Lets you quickly test the effect of your selections. When you have selected an action for the axis you want to test, simply move the joystick along the required axis to view the effect, indicated by a movement of the dark blue bar.

- In the *Button Setup* section, specify an action for each required joystick button. You select the required action in the *Action* column.

i Tip: To quickly verify that you are indeed configuring the required button, simply press the required button on the joystick. When the button is pressed, a dark blue color will appear in the *Button Setup* section's *Preview* column for the button in question.

Disabling Joystick Use

To disable the use of joysticks on your *Smart Client*, select the *Joystick Setup* window's *Disable all joysticks* check box.

Assigning Keyboard Shortcuts

You are able to assign shortcut key combinations to particular actions in the *Smart Client*.

To assign shortcut key combinations, do the following:

- Click the *Show Application Menu* button in the *Smart Client*'s top bar:



- From the menu that appears, select *Keyboard Setup*:



The *Keyboard Setup* window will appear:



Keyboard setup window



- When the *Keyboard Setup* window appears, click in the *Press shortcut key* fields, then press the required key combination.

Note: Key combinations must begin with CTRL or ALT. Example: CTRL + B (i.e. first pressing the CTRL key, then—while still pressing the CTRL key—pressing the B key).

This will display the pressed key combination in the *Press shortcut key* field.

- In the *Select action* list, select the required action for the shortcut key combination.
- In the *Use new shortcut in* list, select when the shortcut key combination should apply:
 - Global:* When working on any of the *Smart Client's* three tabs (*Live*, *Browse* and *Setup*).
 - Browse Mode:* When working on the *Smart Client's* *Browse* tab only.
 - Live Mode:* When working on the *Smart Client's* *Live* tab only.
 - Setup Mode:* When working on the *Smart Client's* *Setup* tab only.

- Click the *Assign* button. This will add the specified shortcut key combination to the *Assigned keys* list:

Key	Use in	Action
B, Control	Browse Mode	Browse Next Image
D, Control	Global	Toggle Side Pane
Delete, Alt	Global	Show keyboard setup
Q, Alt	Global	Close the application
Z, Control, Alt	Live Mode	Camera PTZ Zoom In

Example of user-defined keyboard shortcuts

- Click *OK*.

i Tip: Your keyboard shortcuts are kept as part of your user settings on the surveillance system server. This means that you will be able to use your keyboard shortcuts on any computer that has a *Smart Client* installed, provided you log in to the *Smart Client* with your own user name and password.

Deleting a Keyboard Shortcut

To delete an existing keyboard shortcut from the *Assigned keys* list, simply select the required row in the list, then click the *Delete* button.

Viewing Live Images

You view live images on the *Smart Client's Live* tab. When you select the *Smart Client's Live* tab, the *Smart Client* will connect to the surveillance system server, and display live images from the cameras in the selected view.

Note: Particular user rights may be required in order to access the *Live* tab. In order to view live images in the Smart Client, the *Monitor* application must be running on the surveillance system server; consult your surveillance system administrator if in doubt. Depending on your user rights, access to viewing live images from some cameras may be restricted.



The *Live* tab, in this example displaying a view with images from nine cameras

Selecting a View

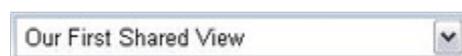
You are able to select a view for display on the *Live* tab in two ways:

- By selecting the required view in the *Live* tab's *Views* section:



Detail from *Live* tab's *Views* section

- By selecting the required view from the *Views* list located in the upper part of the window:

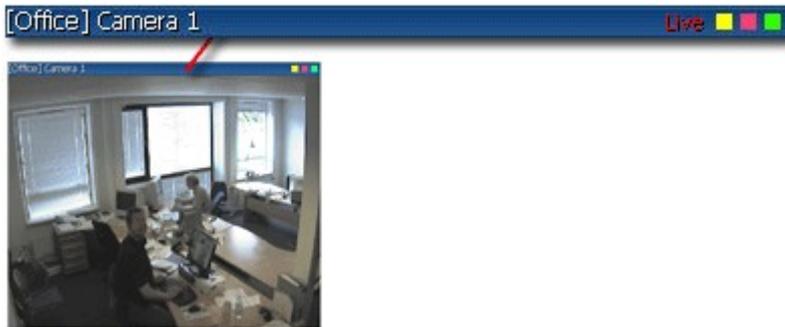


Views list

Image Bars

Each camera in the view is identified by an image bar, located in the top of each camera image.

The image bar is blue. When you select a particular camera in the view, the image bar of the selected camera image becomes a lighter blue.



Camera image; enlarged detail shows image bar

The image bar displays the name of the camera as well as the name of the device to which the camera is connected. The device name is displayed first, in square brackets, followed by the camera name.

Each image bar will display the word *Live* when live images are displayed, and the word *Stopped* if the camera is stopped.

Each image bar features three colored indicators:

- *Event indicator (the leftmost of the three indicators, solid yellow)*: Lights up when specific events, defined by the surveillance system administrator, occur. Click anywhere inside the image to reset the event indicator. This indicator may appear black if event indication has not been specified for the camera in question, or if no specified events have occurred. Consult your surveillance system administrator if in doubt.
- *Motion indicator (the indicator in the middle, solid red)*: Lights up when motion is detected in the image. Click anywhere inside the image to reset the motion indicator.
- *Online indicator (the rightmost of the three indicators, blinking green)*: Changes state every time an image is received from the camera.

Enlarging Images from a Particular Camera

To enlarge images from a particular camera in a view, double-click the blue title bar above the image.



Double-clicking blue bar above image enlarges view

To return to normal view, simply double-click the blue title bar again.

i Tip: If you have selected reduced image quality for the camera (on the *Setup* tab), images from the camera will be displayed in full quality when viewed enlarged.

Event Control

If manual triggering of events has been defined on your surveillance system, you can trigger events from the *Smart Client*.

Note: Depending on your user rights, access to manually triggering events may be restricted.

What is an Event?

Events are used by the surveillance system for triggering *actions*.

Typically, events on the surveillance system are generated automatically. For example, detected movement can be defined as an event which in turn triggers an action, such as recording on a camera. However, it is also possible to trigger events manually.

Depending on surveillance system configuration, manually triggered events can be used for a wide variety of purposes, including triggering combinations of actions.

For example, the manual triggering of an event could make a camera record with a particular frame rate, activate two different outputs, and send an e-mail alert to three different recipients.

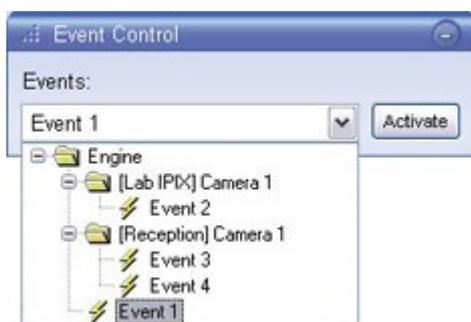
Manual events can be global or tied to a particular camera/device.

Exactly what happens when you manually trigger an event is defined by your surveillance system administrator.

Ask your surveillance system administrator if in doubt about using manually triggered events in your organization. Your surveillance system administrator may occasionally know manually triggered events under the name *event buttons*.

Manually Triggering an Event

To manually trigger an event, select the required event in the *Event Control* section, and click the *Activate* button.



The list of selectable events is grouped by server (engine) and camera/device with which the event is associated. Global events are displayed immediately under the relevant server (engine). In the above example, *Event 1* (the selected event) is a global event.

Output Control

If external outputs have been defined on your surveillance system, for example for switching on lights or sounding a siren, such outputs can be triggered from the *Smart Client*.

Note: Depending on your user rights, access to triggering outputs may be restricted.

To trigger an output, select the required output in the *Output Control* section, and click *Activate*.



The list of selectable outputs is grouped by server (engine) and camera/device to which the output is attached. In the above illustration, the output *Lights on* is attached to the device *[Door] Camera 1* on the server with the default name *Engine*.

PTZ Control

PTZ (Pan/Tilt/Zoom) and IPIX (technology allowing creation and viewing of 360-degree panoramic images) cameras can be controlled from the *Smart Client*.

Note: Depending on your user rights, access to PTZ controls from some cameras may be restricted.

Point-and-Click Control

Many PTZ cameras may be controlled simply by pointing and clicking inside the images from the camera.

If you see a set of crosshairs when placing your mouse pointer over the images from a PTZ camera, point-and-click control is supported for the camera.



Crosshairs indicate point-and-click control.
For some cameras, crosshairs may look different.

For some cameras, crosshairs surrounded by a square may be displayed.

When this is the case, you are able to zoom in on an area by dragging a square around the required area in the image.

For such cameras, zoom level is controlled by holding down the SHIFT key on your keyboard while moving the mouse up or down; this will display a zoom level slider inside the image.

PTZ Navigation Buttons

As an alternative to point-and-click PTZ control, use the navigation buttons in the *PTZ Control* section to move the selected PTZ or IPIX camera.

The round middle button lets you quickly move the camera to its home (i.e. default) position.

The *plus* and *minus* buttons lets you zoom in and out respectively.



PTZ Control section

PTZ Preset Positions

If preset positions have been defined for the selected PTZ camera, you are able to select such positions from the *Presets* list. Selecting a preset position from the list will make the PTZ camera move to the specified position.

Preset positions are defined by the system administrator; the *Presets* list will be empty if no preset positions have been defined for the selected PTZ camera.

IPIX PTZ Positions

You are able to move to a specific position in an IPIX view, and then save that position by clicking the *Save* button. When you later want to return to the saved position, click the *Load* button.

i Tip: You may be able to use a joystick for controlling your PTZ cameras. Joystick control is configured in the *Smart Client's Application Menu*; see *Further Configuration* on page 22. Note that even though joystick and point-and-click control is supported for a large number of PTZ cameras, not all PTZ cameras may be controlled this way. Consult your surveillance system administrator if in doubt; your surveillance system administrator may refer to the surveillance system's release note for information about joystick and point-and-click support for PTZ cameras.

Viewing Recorded Images

You view recorded images on the *Smart Client's Browse* tab. When you select the *Smart Client's Browse* tab, the *Smart Client* will connect to the surveillance system server, and display recorded images from the cameras in the selected view. This way, you are able to browse recorded images.

Note: Particular user rights may be required in order to access the *Browse* tab. Depending on your user rights, access to browsing images from some cameras may be restricted. Date and time formats used when browsing recorded images may vary depending on your computer's regional settings. Illustrations in this help topic, and date and time formats used in these illustrations, are thus for guidance only.

The *Browse* tab provides you with a number of advanced features for browsing recorded images. In addition to image browsing features, the *Browse* tab also lets you print images, and export AVIs (movie clips) and JPEGs (still images).



The *Browse* tab, in this example displaying a view with eight cameras and an imported HTML page

Selecting a View

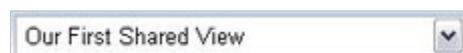
You are able to select a view for display on the *Browse* tab in two ways:

- By selecting the required view in the *Browse* tab's *Views* section:



Detail from *Live* tab's *Views* section

- By selecting the required view from the *Views* list located in the upper part of the window:



Views list

Enlarging Images from a Particular Camera

To enlarge images from a particular camera in a view, double-click the blue title bar above the image.



Double-clicking blue bar above image enlarges view

To return to normal view, simply double-click the blue title bar again.

i Tip: If you have selected reduced image quality for the camera (on the *Setup* tab), images from the camera will be displayed in full quality when viewed enlarged.

Time Navigation

The *Browse* tab's *Time Navigation* section provides you with controls for browsing and playing back recorded images from the camera selected in the view.



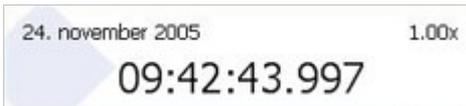
Time Navigation section. Date and time format may be different on your computer.

Master Time

The *Time Navigation* section's *Master Time* area shows the master time and date of the recordings viewed. The master time is the time to which all the cameras viewed are tied. This means that when you browse recordings, all the images you see in the view will, in principle, be from exactly the same point in time.

Some cameras, however, may only record if motion is detected. Also, there may be no recorded images from one or more cameras in the view matching the specified point in time. When this is

the case, the last image in the camera's database prior to the specified point in time will be displayed in the view.



Master Time area. Date and time format may be different on your computer.

The *Master Time* area also displays the current playback speed (example: 1.00x, indicating real-time).

Browse Buttons

The *Time Navigation* section's browse buttons lets you manually navigate through recordings from the camera selected in the view.



Browse buttons



Previous image: Moves to the image just before the one currently viewed



Next image: Moves to the image just after the one currently viewed



Previous sequence: Moves to the first image in the previous sequence



Next sequence: Moves to the first image in the following sequence



First image: Moves to the first image in the database for the selected camera



Last image: Moves to the last image in the database for the selected camera

Time Sliders

The *Time Navigation* section's time sliders let you browse recordings simply by dragging the sliders' handles.

Drag to the left to move backwards in time; drag to the right to move forward in time.

Use the upper times slider for fine browsing within a limited period of time; use the lower slider for coarser browsing within longer time spans.



Time sliders

Playback Slider and Buttons

The *Time Navigation* section's playback slider lets you specify the required playback speed. In the slider's middle position, playback speed is real-time (1.00x). Drag the slider to the left for a slower playback speed; drag to the right for a faster playback speed.

An indication of the exact playback speed is displayed in the upper right corner of the *Time Navigation* section's *Master Time* area.



Playback slider and buttons

Use the playback buttons to play back recordings:



Play reverse: Plays back recordings backwards in time



Play forward: Plays back recordings forward in time



Stop: Stops playback

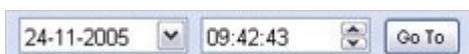


Tip: Dragging the playback slider to its leftmost position pauses playback.

To automatically skip gaps in recordings during playback, select the *Skip gaps during playback* check box. Such gaps are primarily evident when a camera has relatively few recordings.

Go To Time

The *Time Navigation* section's *Go To Time* fields let you quickly jump to a specific point in time.



Go To Time fields. Date and time format may be different on your computer.

Specify required date in the first field and required time in the second field, then click the *Go To* button.

Sequences

The *Browse* tab's *Sequences* section provides you with an overview of recorded sequences for the camera selected in the view.

To use the *Sequences* section, select the required camera in the view, then click the *Sequences* section's *Get Sequences* button.

Clicking the *Get Sequences* button will retrieve a list of up to 40 sequences: 20 sequences prior to the point in time displayed in the view, and 20 sequences following the point in time displayed in the view.

Each sequence will be listed with date and time as well as the length of the sequence. Clicking a sequence in the list will move all images in the view to the time of the sequence.

If the *Preview* check box is selected, you are able to quickly view each sequence by placing the mouse pointer over the required sequence in the list:



Sequences section; placing mouse pointer over a sequence indication lets you quickly view the incident. Date and time format may be different on your computer.

Clicking the *expand* icon \oplus next to a sequence in the list will show you the exact date and time of the first and last image in the sequence as well as the exact date and time of the motion detection, event, etc. triggering the recording.

Sequences may often begin some seconds before a motion detection, event, etc. and end some seconds after.

This so-called *buffer* allows you to be able to see what happens immediately before and after an incident; the buffer length is determined by the surveillance system administrator.

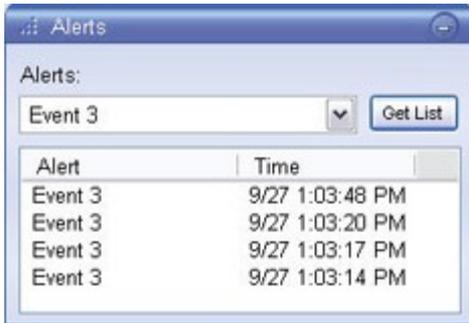


Expanded sequence indication. Date and time format may be different on your computer.

Alerts

The *Browse* tab's *Alerts* section lets you view a list of detected events (occasionally known as alerts).

Listed events are clickable, allowing you to quickly jump to the time at which an event occurred.



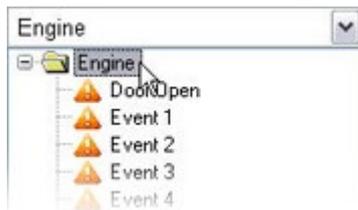
To get a list of events, do the following:

1. Select the required event or events in the *Alerts* list.

You may either select a single event:



Or all events on a particular server (engine):



2. Click the *Get List* button. This will display a list of detected events.

You are able to click the listed events to view recordings from the required event in the view.

i Tip: To view what took place prior to and after the event, use the *Time Navigation* controls to browse recordings from around the time of the event.

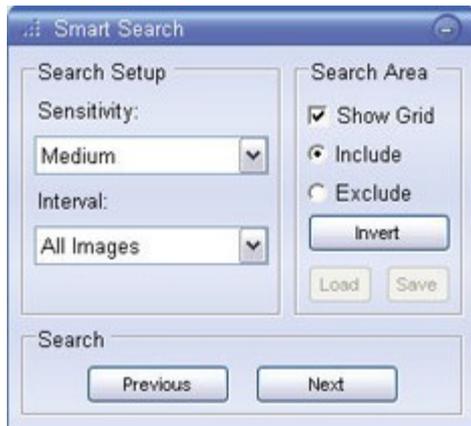
Smart Search

Smart search lets you search for motion in one or more selected areas of images from a particular camera.

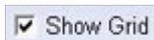
Note: Smart search cannot be used for images from IPIX cameras.

To use smart search, do the following:

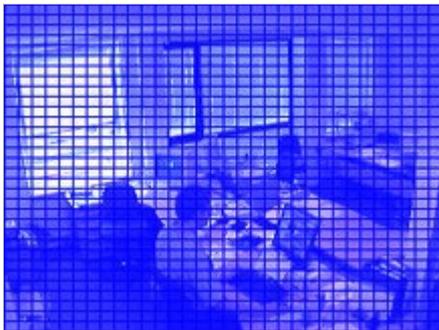
1. Select the *Browse* tab's *Smart Search* section:



2. Select the *Smart Search* section's *Show Grid* check box:



3. Select the required camera in the view. A blue grid overlay will appear on the image from the camera; this is the grid you selected in the previous step:



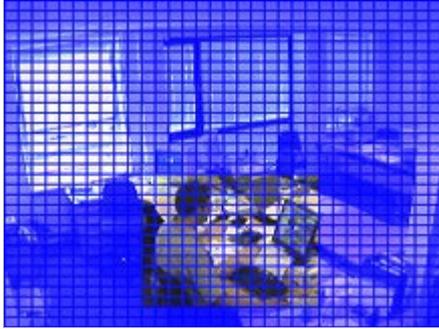
The overlay can be removed by clearing the *Show Grid* check box.

i Tip: For a better view, enlarge the camera image by double-clicking the blue bar above the image.

4. Click and drag inside the image to select the area in which you want to perform the smart search.

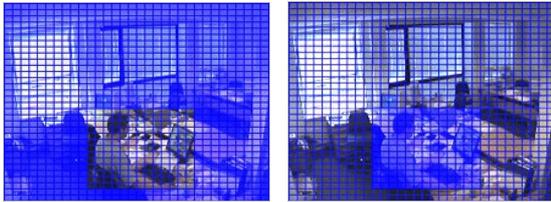
i Tip: You are able to select more than one area.

The areas you select will become visible through the blue overlay. The blue overlay thus indicates areas to be *excluded* from the smart search:



Example of selected area

With the *Smart Search* section's *Include* and *Exclude* options, you are able to toggle between including/excluding areas when you drag. With the *Smart Search* section's *Invert* button, you are able to quickly invert your selection, if required. Example:



Original selection (left) and inverted selection (right)

- Click the *Smart Search* section's *Save* button to save your search area settings.

i Tip: If you want to experiment with further changes to the search area, you can return to your saved search area settings by clicking the *Load* button.

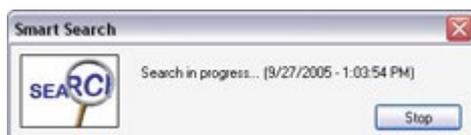
- In the *Smart Search* section, select required search sensitivity (*Very Low-Very High*) in the *Sensitivity* list.
- Select required image interval in the *Interval* list.

If you select *All Images*, all images will be analyzed. If you select e.g. *10 seconds*, only one image per ten seconds of recordings will be analyzed. Selecting a long interval will greatly reduce the time required to complete the search. However, with a long interval, the search may not find motion sequences that are shorter than the specified interval.

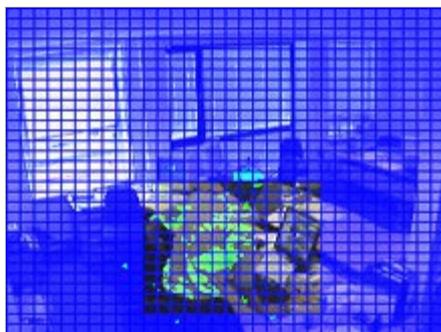
- Click the *Next* (move forward in time) or *Previous* (move back in time) buttons to search through sequences with motion detected in the selected areas.

Note: Smart search is always carried out from the time of the image you are viewing and forwards or backwards.

- The smart search begins, and a progress window displays search progress:



When a sequence with motion inside the selected area(s) is found, it will be displayed in the view. Motion will be highlighted:



Motion highlighted in light green color

i **Tip:** The *Browse* tab's *Time Navigation* section control panel will show exact corresponding time information.

10. If required, click the *Next* or *Previous* button again to continue the smart search.

PTZ Control

The *Browse* tab's PTZ Control section lets you navigate recorded images from IPIX cameras (IPIX is a technology allowing creation and viewing of 360-degree panoramic images).

Note: The *Browse tab's PTZ Control section* cannot be used for controlling PTZ (Pan/Tilt/Zoom) cameras, as the *Browse* tab is used for viewing already recorded images.

Navigation by Dragging inside IPIX Images

Many IPIX images may be navigated simply by dragging inside the images.

If your mouse pointer changes to  or similar when placed over an image from an IPIX camera, navigation by dragging is supported for the camera.

Refer to the release note for information about supported features for individual IPIX cameras.

Navigation Buttons

As an alternative to navigation by dragging inside IPIX images, use the navigation buttons in the *PTZ Control* section to move around the view from the selected IPIX camera.

The round middle button lets you quickly move the camera to its home (i.e. default) position.

The *plus* and *minus* buttons lets you zoom in and out respectively.



PTZ Control section

Presets

The *Presets* list does not apply for navigating recorded images from IPIX cameras.

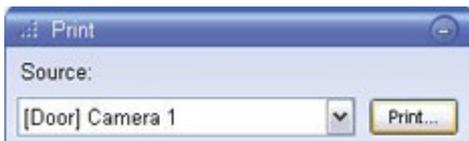
IPIX PTZ Positions

You are able to move to a specific position in the IPIX view, and then save that position by clicking the *Save* button.

When you later want to return to the saved position, click the *Load* button.

Printing Images

With the *Browse* tab's *Print* section, you are able to print recorded images.



Print section

To print an image, do the following:

1. Select the required camera from the *Print* section's *Source* list. Alternatively, you may select the camera in the view.
2. Select the required date and time by using the controls in the *Time Navigation* section.
3. Click the *Print* section's *Print...* button.

This will open the *Smart Client Surveillance Report* window with a preview of the image to be printed as well as information about camera name, image capture time, print time and user name of the user printing the image.

You have the option of including a user's note, for example a description of the recording.



Window with preview and information about printed image. Date and time format may be different on your computer.

4. **Optional:** If you want to change or verify paper size, source and orientation for the printout, click the *Smart Client Surveillance Report* window's *Page Setup* button to open the *Page Setup* window:



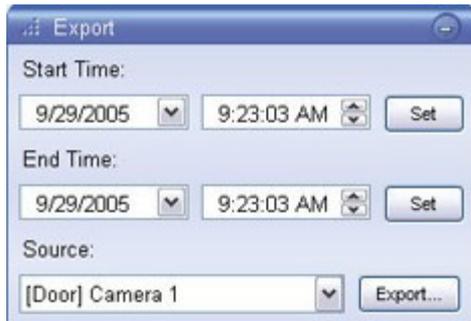
Page Setup window

When ready, click the *Page Setup* window's *OK* button to return to the *Smart Client Surveillance Report* window.

5. **Optional:** If you want to preview your printout, click the *Smart Client Surveillance Report* window's *Preview* button.
6. Click the *Print* button to print the image and associated details.

Exporting Images

With the *Browse* tab's *Export* section, you are able to export recorded images in the AVI (movie clip) and JPEG (still image) formats.



Export section. Date and time format may be different on your computer.

For detailed information about exporting recorded images, see *Exporting Evidence in AVI and JPEG Formats* in the following.

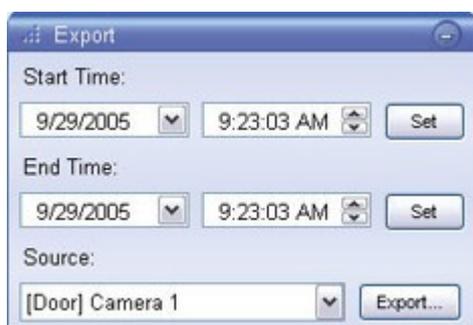
Exporting Evidence in AVI and JPEG Formats

With the *Smart Client* you are able to quickly generate and export video evidence in the AVI (movie clip) and JPEG (still image) formats.

Note: Depending on your user rights, access to generating AVI or JPEG evidence from some cameras may be restricted. Date and time formats used when browsing recorded images may vary depending on your computer's regional settings. Illustrations in this help topic, and date and time formats used in these illustrations, are thus for guidance only.

To export video evidence, do the following:

1. Select the *Smart Client's Browse* tab.
2. In the *Browse* tab's *Export* section, specify start date and time for the export by typing the date in the first *Start Time* field and the time in the second field.



Export section. Date and time format may be different on your computer.

Tip: Instead of manually specifying date and time, you may use the *Browse* tab's *Time Navigation* features to move to the required start point, then click the upper of the *Export* section's *Set* buttons.

This will automatically set the date and time of the viewed image in the *Start Time* fields.

3. In the *End Time* fields, specify end date and time for the export.
You may use the *Set* button as described above.
4. Select the required camera from the *Source* list.
5. Click the *Export...* button. This will open a separate export dialog:



Export Status

Start Time: Tuesday, September 27, 2005 1:06:03 PM
 End Time: Tuesday, September 27, 2005 1:06:10 PM
 Camera: [Door] Camera 1

Export Type

Export Format: AVI JPEG
 Add Timestamp: Yes No
 Framerate: Full Half
 AVI Codec: Microsoft Video 1

Export Destination

Desktop
 Path
 AVI Filename: c:\20050927-130603.avi

Close On Completion

Export Close

Export dialog. Date and time format may be different on your computer.

The export dialog will list the specified start time, end time, and camera.

6. In the export dialog's *Export Type* section, select the required export format: *AVI* (movie clip) or *JPEG* (still images).
7. Select whether to add timestamps from the surveillance system to the exported images.

If selected, timestamps will appear in the corner of the images:



Timestamps; arrow indicates actual position. Date and time format may be different on your computer.

8. ***This step applies for export in the AVI format only; if using the JPEG format, go to step 10***

Select required frame rate for the export. With the *Full* option, all images between the start and end times will be included in the export; with the *Half* option, only every second image will be included, yet still play back in real-time.

9. **This step applies for export in the AVI format only; if using the JPEG format, go to step 10**

In the *AVI Codec* list, select required AVI codec. The list will contain the video codecs available on your computer.

i Tip: A video codec is a particular compression/decompression technology used when generating video files. Your choice of codec will affect the quality and size of the AVI file. The Indeo® video 5.10 codec, if available on your computer, generally provides a very good compromise between quality and file size.

10. Specify export destination in the export dialog's *Export Destination* section.

- *Desktop:* If you select *Desktop*, your exported file will be saved in an automatically created *Exported Images* folder on the desktop of your computer.
- *Path:* If you select *Path*, you are able to specify a path yourself. The exported file will be saved in an automatically created *Exported Images* folder under the path you specify (example: If you specify a path like C:\My Stuff\My Files, the exported file will be saved in C:\My Stuff\My Files\Exported Images). When specifying a path this way, the folders you specify do not have to be existing ones; if they do not already exist, they will be created automatically.

11. **This step applies for export in the AVI format only; if using the JPEG format, go to step 12**

By default, the AVI file will get a file name based on the export start time in the 24-hour format, along the structure *yyyymmdd-hhmmss.avi* (year, month, day, hour, minute, second; example: 20050927-130603 for a file with a start time of 13:06:03 on 27th September 2005). The name will automatically appear in the *AVI File Name* field.

The default file name format is independent of regional settings on your computer.

You are always able to change the default file name to a name of your choice, simply by overwriting the default file name. Remember that the file name *must* include the .avi file extension.

12. Click the *Export* link to begin the export.

The status bar in the upper part of the export dialog will display the status of the export:



Export status bar

i Tip: If you are exporting very long sequences, export may—depending on your selected export settings—take a while. You can continue to use the *Smart Client* for other purposes while the export process is underway.

If the *Close On Completion* check box is selected (default), the export dialog will automatically close when the export is finished.

Upon completion, you are able to view and distribute the exported file.

Logging Out of the Smart Client

To log out of the *Smart Client*, simply click the *Log Out* button in the *Smart Client's* top bar:



Log Out button



Glossary

A

AVI: A popular file format for video. Files in this format carry the .avi file extension.

C

Codec: A technology for compressing and decompressing audio and video data, for example in an exported AVI file. MPEG and Indeo are examples of frequently used codecs.

D

DirectX: A Windows extension providing advanced multimedia capabilities.

F

Frame Rate: A measure indicating the amount of information contained in motion video. Frame rate is typically measured in FPS (Frames Per second). The higher frame rate, the smoother motion in video sequence will appear.

H

HTTP: HyperText Transfer Protocol, a standard for exchanging files across the internet. HTTP is the standard used for formatting and transmission of data on the world wide web.

I

IP Address: Internet Protocol address; the identifier for a computer or device on a network. Used by the TCP/IP protocol for routing data traffic to the intended destination. An IP address consists of four numbers, each between 0 and 256, separated by full stops (example: 192.168.212.2).

IPIX: A technology that allows creation and viewing of 360-degree panoramic images. IPIX is a trademark of Internet Picture Corporation (IPIX).

J

JPEG: An image compression technology, named after the Joint Photographic Experts Group. Files created with JPEG compression usually carry the .jpg file extension.

P

PTZ: Pan/Tilt/Zoom; a highly movable and flexible type of camera.

U

URL: Uniform Resource Locator; an address of a resource on the world wide web. The first part of a URL specifies which protocol (i.e. data communication standard) to use when accessing the resource, whereas the second part of the URL specifies the domain or IP address at which the resource is located. Example: <http://www.milestonesys.com>.



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