

# ACTi Floor Planner

User's Manual

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# Introduction

**ACTi Floor Planner** is a Windows-based tool from ACTi that aims to help system integrators design surveillance projects. You may:



1. Import the floor plan image file
2. Add ACTi cameras to the floor plan, adjust their installation position and settings based on the real camera specifications to simulate the real scenario, and export a new floor plan with camera placement on it.
3. Export system hierarchy diagram based on your system architecture.

## Installation

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**Floor Planner** utilizes Adobe Flex to implement its functions. You will find two files in the download section:

1. **Adobe AIR installer:** is a runtime install that will be the foundation of **Floor Planner**.
2. **Floor Planner:** an .air file that contains the actual **Floor Planner**.

Name	Date modified	Type	Size	Filename
 AdobeAIRInstaller.exe	2013/11/14 上午 1...	Application	17,672 KB	AdobeAIRInstaller.exe
 Floorplanner2.3.air	2013/12/12 上午 1...	Installer Package	18,498 KB	Floorplanner2.3.air

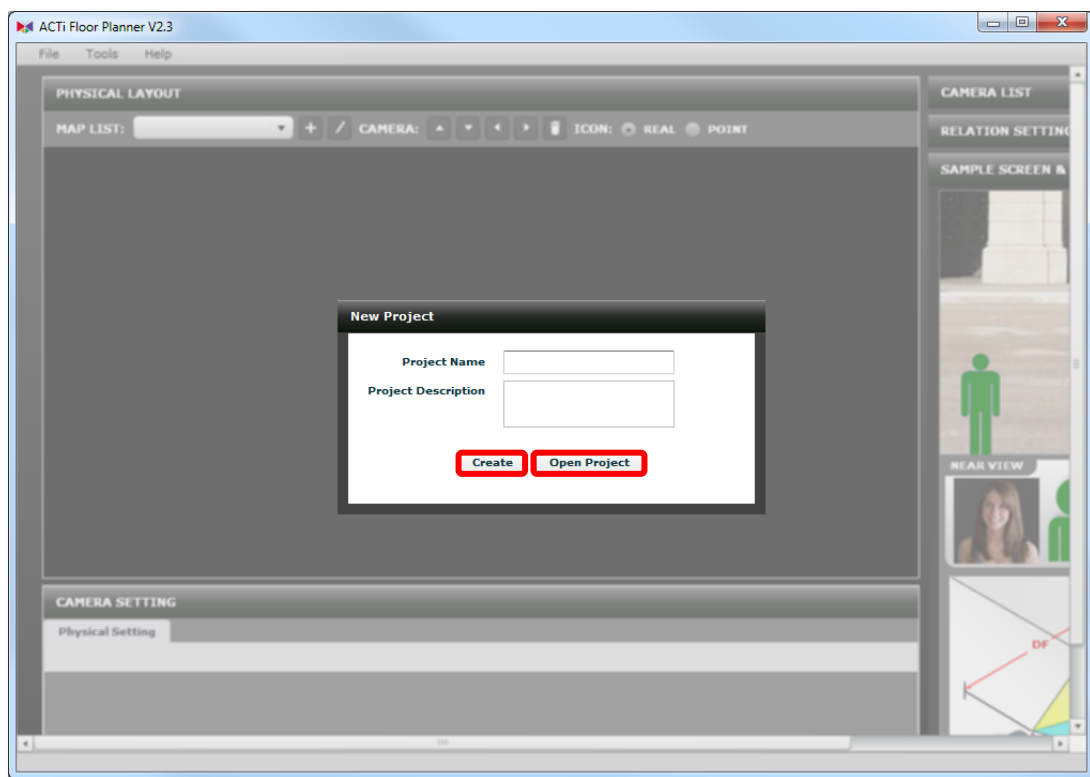
Please first run the **AdobeAIRInstaller.exe** and then double-click on the **Floorplanner2.3.air**. Follow the instructions and install **Floor Planner**.

## Startup

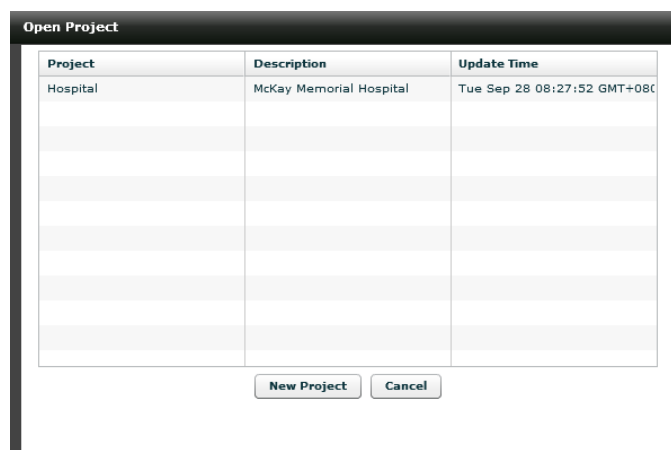
You may start **Floor Planner** by going to **My Computer** → **All Programs** and click on the link.



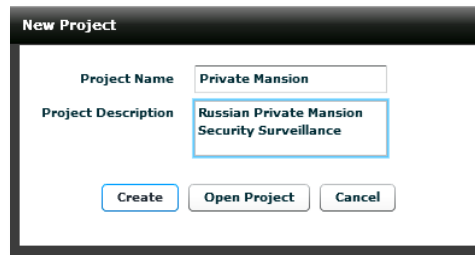
On startup, **Floor Planner** will ask you to either create a new project or open an existing project. Everything you do in **Floor Planner** is associated with the given project, allowing you to revisit past plans at any time.



To open an existing project, click on **Open Project** to locate an existing project file.



To create a new project, type in the **Project Name** and **Description** and click the **Create** button to create a new project.

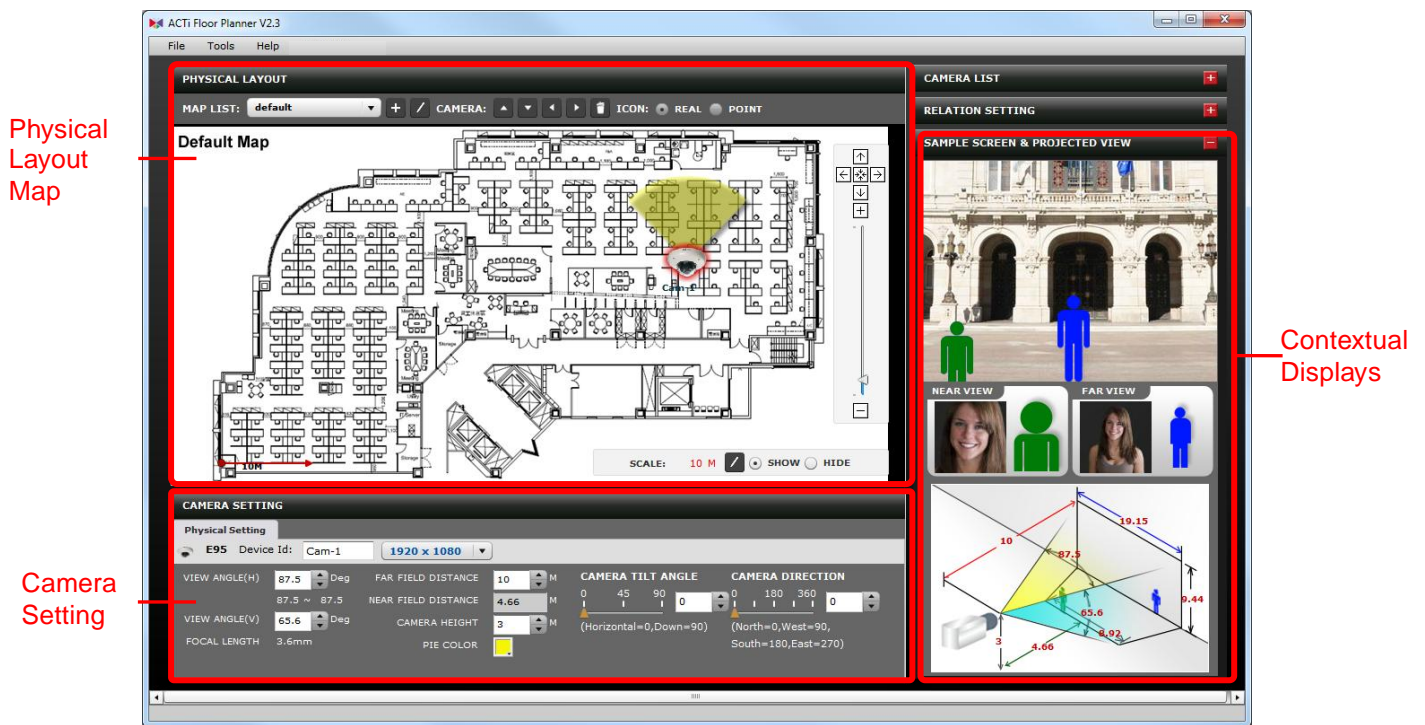


Once a new project is created, **Floor Planner** will add a default map to your project automatically.



# User Interface

## Main Screen

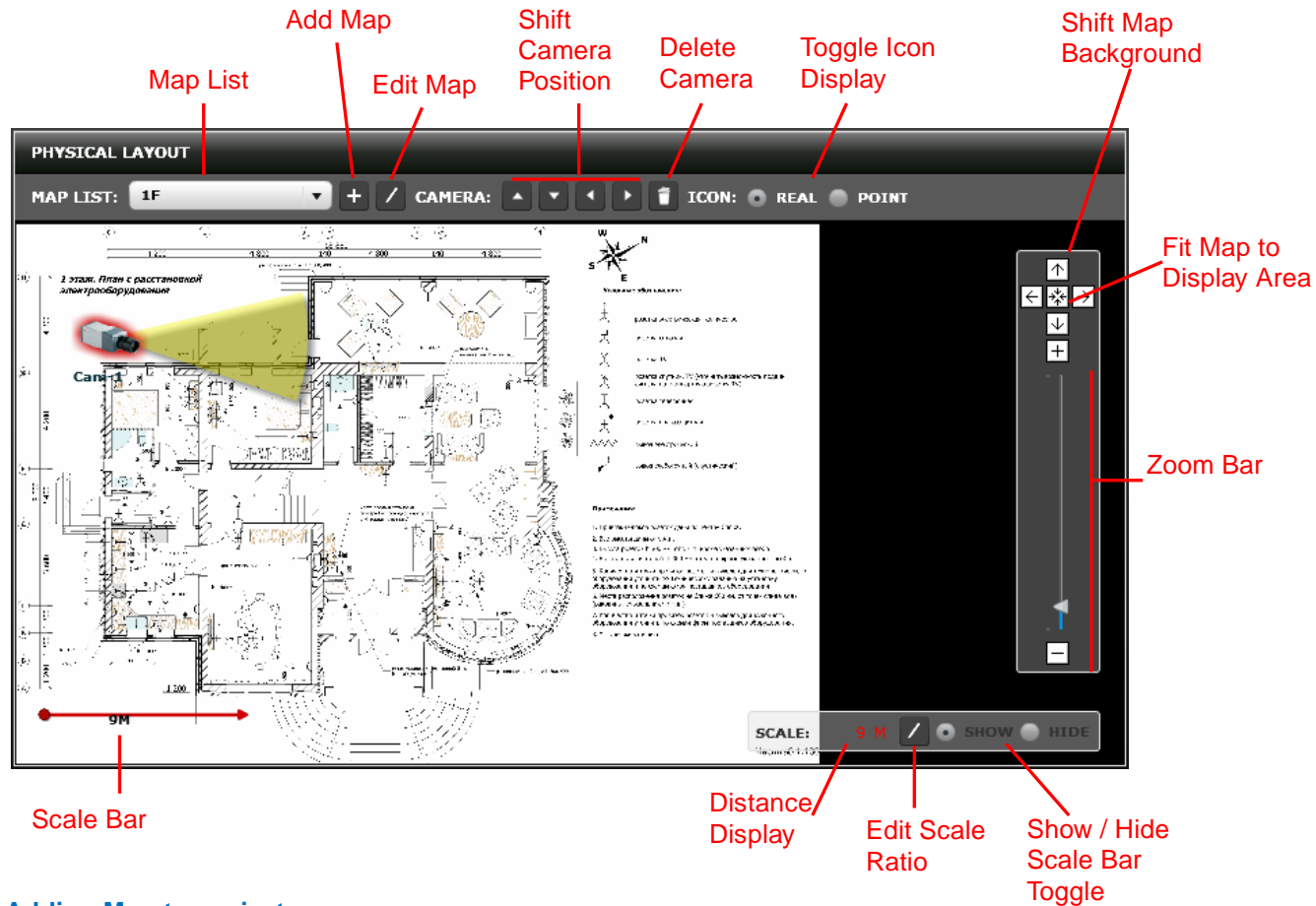


The main screen is composed of three areas; the Physical Layout Map, the Camera Settings, and the Contextual Displays.

## Physical Layout

Physical Layout is where you setup, display and arrange the cameras. You can visualize the whole physical area here, and create a realistic simulation.

This section allows for loading map image with dynamic rescaling, zoom in, zoom out and scrolling.



### Adding Map to project

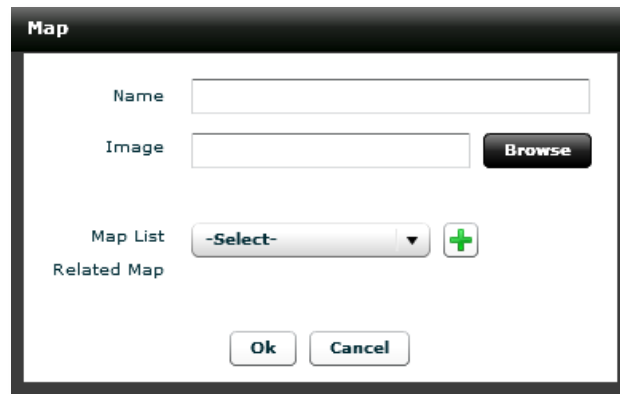
Click on the **Add Map** button. A dialog box will appear below. Provide the name for this map, select the image, and define the related map. As for related map, please see \_\_\_\_\_



Relation Setting on page 16 for details. **Floor Planner** allows importing of **.BMP**, **.JPG**, **.PNG** and **.GIF** files. Image size is limited to 16 million pixels. This means 4096 x 4096 pixels for square images, or 5796 x 2892 pixels for images twice as wide as high. The screen area available for display at one time is 800 x 400 pixels. The original image is kept in the background and zoomed in or out.

If you have AutoCAD or other file formats, please export them to one of the four supported above, then import into **Floor Planner**. Please see Use AutoCAD with Floor Planner on page 24 for details.

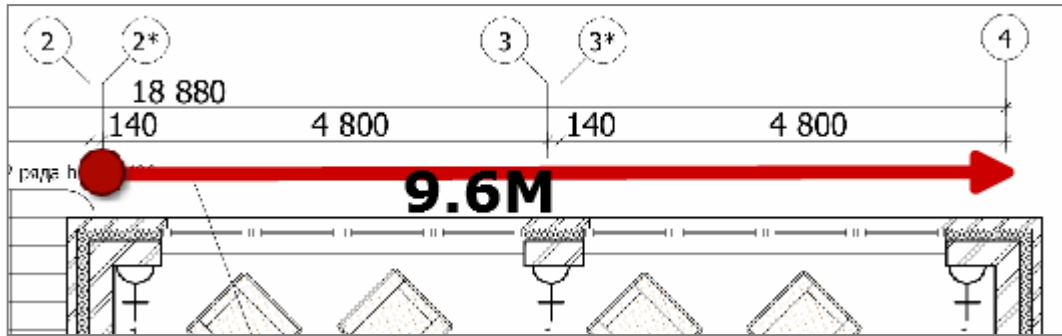
As **Floor Planner** allows for multiple maps, you can either separate one big map into convenient areas to allow detailed processing on the whole project, or put them all together to get an overview.



You may change the background image or the map name or the related map by clicking on the edit map button. In the edit map dialog box, you may also remove the current map. All information associated with this map will be lost if you delete the map. Select from the drop-down map list to go to the target map.

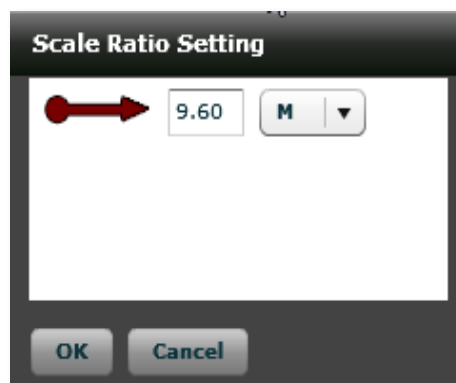
### Defining Map Scale

As the camera view pies are displayed according to real distance, we need to properly define map image magnification so that the pie sizes make sense. To do so, there is a scale bar shaped like an arrow in the map view area.



You may move the arrow by clicking on the round dot at the arrow base. This will reposition the arrow without changing the direction and length. Clicking and dragging the arrow tip will change the length and direction of the arrow.

You can move and resize the arrow to align with sections on the map you know the length about. Then you can click on the **Edit Scale Ratio** button to the lower right of physical layout window. A Scale Ratio setting dialog window will pop-up in center of screen. Enter the dimension and unit for the scale bar and click **OK** to confirm. All the view pies will be recalculated based upon your new scale ratio.

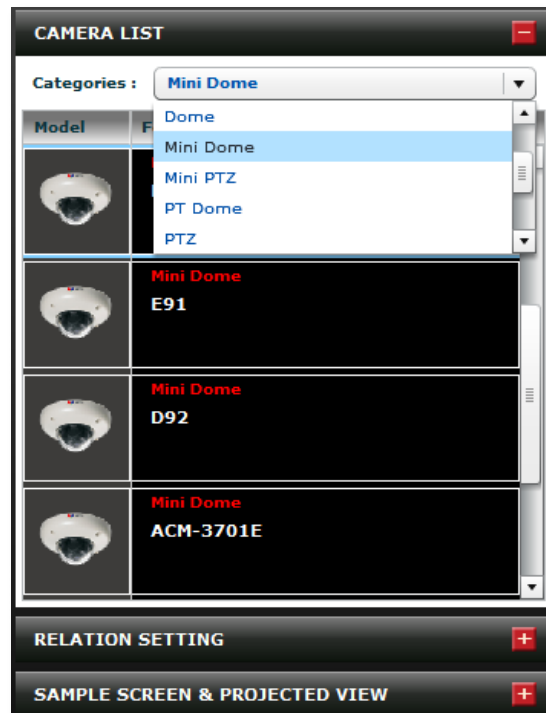


This works on any image, and does not have to be line drawing. Other images also work fantastically well with **Floor Planner**, like the Pyramids of Giza from Google map satellite image shown below.



## Adding Camera

To insert cameras into a map, click the red plus sign to the right of **CAMERA LIST** in the contextual display area. This will maximize the camera selection area and minimize the rest.



Click on the **Categories** to select camera type. Hover your cursor over the target camera and a small list of features will pop up for your easy reference. Click and drag the camera onto the map to insert it.

Once a camera is inserted, the camera icon and its view pie will be shown on the map. Camera name will also be displayed under the icon itself. You can continue to drag more cameras into the view, or click on the camera to edit its settings.

To delete a camera, you may click and drag it to the trash can, select the camera then click on the trash can, or just press delete from your keyboard to delete highlighted camera from this project.

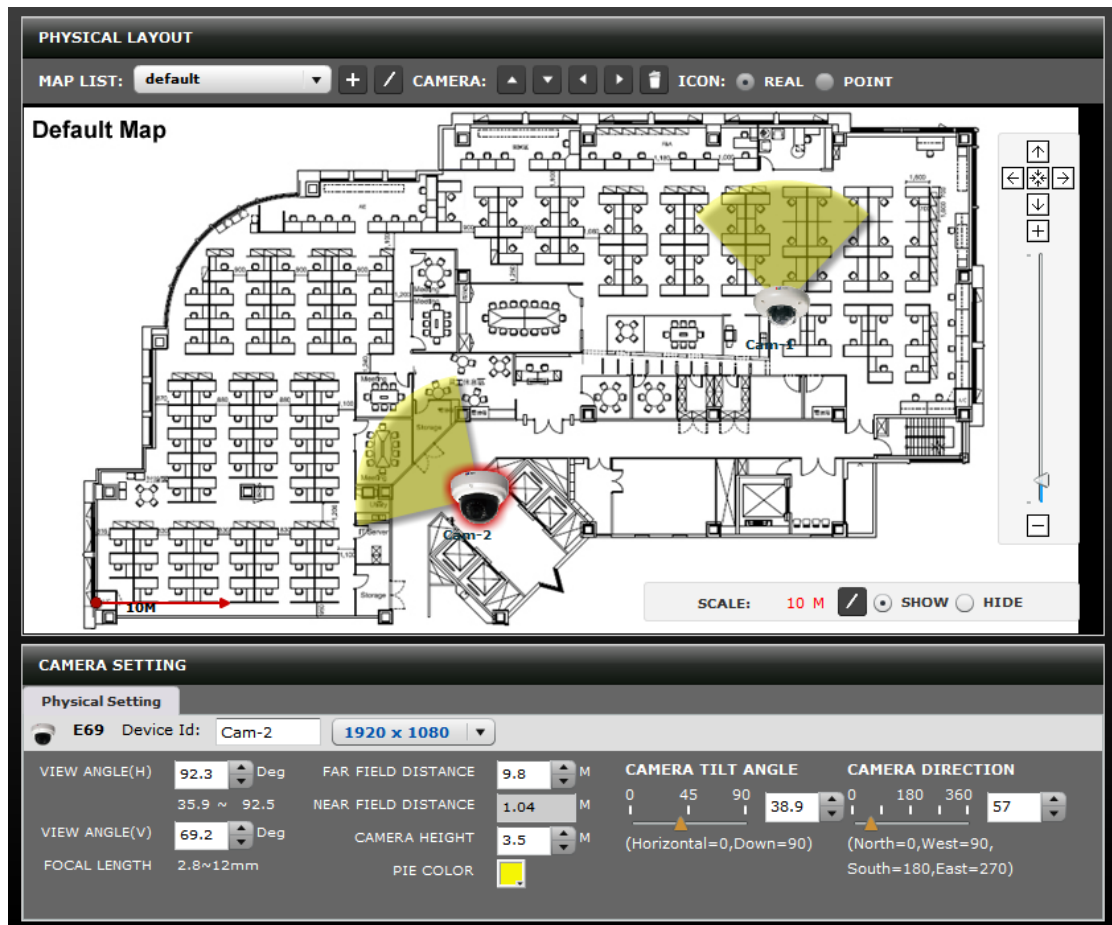
When a camera is highlighted, you may click and drag it to place this at the position you desire, you may also click on the shift camera buttons to more precisely adjust its position. If the camera icons are too crowded, you can click on the Real / Point Icon display radio button to toggle between the two. The display will automatically changes to Point view when you zoom in for detailed view.

## Camera Settings and Sample Screen

By changing camera's physical settings in **Camera Settings**, you may observe the view changes displayed in **Projected Window**.

### Physical Settings

Physical settings concern the viewing angle, direction, install height and tilt. In effect, what you will see and how you will install.



You can modify many parameters in the physical setting. These will influence two other sections on screen.

1. **Camera View Pie** in the **Physical Layout** map view
2. **Sample Screen & Projected View**.

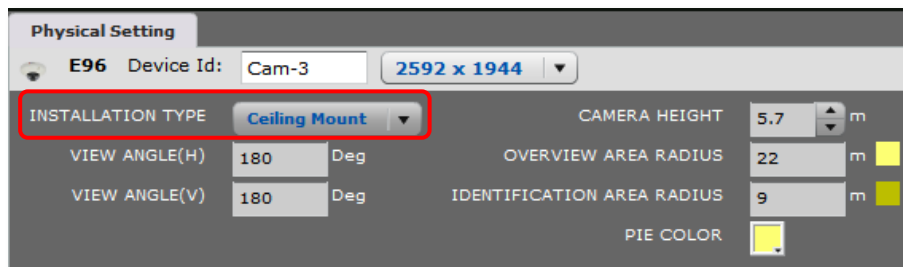
**Camera View Pie** gives a visual representation of the area you expect to see with this camera. The direction of the pie is determined by **Camera Direction** slider control. Click on the marker and drag it around to change direction.

**Camera View Pie** width is determined by the View Angle (H), Horizontal view angle. Vertical View angle is automatically calculated from Horizontal View angle, as there is a simple ratio between them. The radius of the View Pie is determined by **Far Field Distance**. This value denotes the farthest position you expect to see target objects.

View Pie color is determined by the **Pie Color** dropdown tab. Select different colors for different cameras to make camera grouping easy to understand. Pies are semi-transparent, and the colors will merge when overlapped.

The **Near Field Distance** is calculated by checking the camera angle to find the nearest point on the ground that the camera may see. If the **Near Field Distance** is farther than **Far Field Distance**, this means that the camera does not see the ground at the desired distance, and a person standing at that distance will not be seen in full body.

For specific camera models, the configurable setting may differ on **Physical Setting** panel. For example, a hemispheric camera will have the **Installation Type** setting:



**Physical Setting**

E96 Device Id: Cam-3 2592 x 1944

INSTALLATION TYPE: **Ceiling Mount**

VIEW ANGLE(H): 180 Deg

VIEW ANGLE(V): 180 Deg

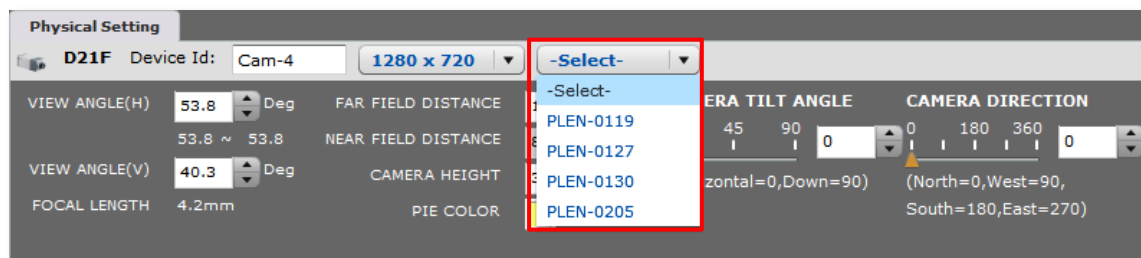
CAMERA HEIGHT: 5.7 m

OVERVIEW AREA RADIUS: 22 m

IDENTIFICATION AREA RADIUS: 9 m

PIE COLOR: [Yellow]

Certain cameras can go with different lens:



**Physical Setting**

D21F Device Id: Cam-4 1280 x 720

Lens: **-Select-**

VIEW ANGLE(H): 53.8 Deg

VIEW ANGLE(V): 40.3 Deg

FOCAL LENGTH: 4.2mm

FAR FIELD DISTANCE

NEAR FIELD DISTANCE

CAMERA HEIGHT

PIE COLOR

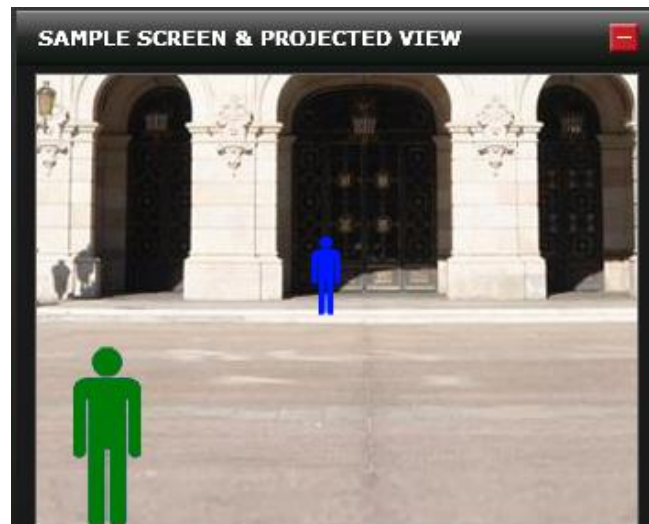
ERA TILT ANGLE: 45 90 0

CAMERA DIRECTION: 0 180 360 0

(North=0, West=90, South=180, East=270)

## Projected View

**Projected View** shows a simulated view where a person is standing at the near field distance (green), and another at the far field distance (blue). The sample screen shows the person in relation to the whole screen. This is how the actual screen will look like if shrunk down. A building façade is placed at the far field distance to give a sense of proportion. The sample persons are both 170cm tall (5 feet 8).



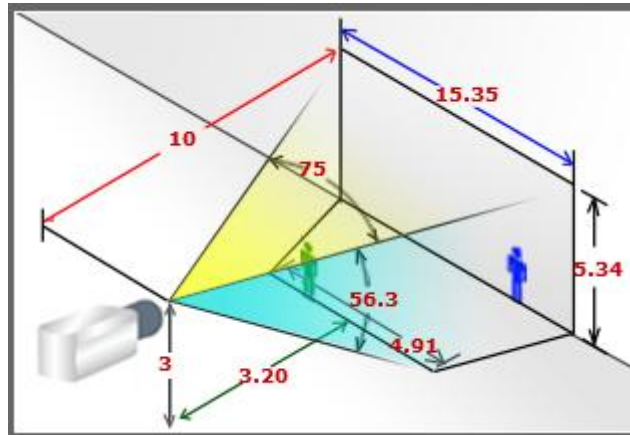
## Sample Screens

Sample Screens are simulated cropped portion of the actual screen in actual pixel dimensions. While **Projected View** gives a taste of the overview, **Sample Screens** show you how much detail will you get out of the video. This means that While Projected view is affected only by **View Angle**, camera Tilt and near/far field distance, **Sample Screen** is affected by distance, view angle and camera resolution.

The same view angle will give different levels of detail depending upon different resolution. This is illustrated with the Near / Far faces. These faces are constructed as how a real person standing in that position will look like when the video is displayed at 100% original size.



The relationships between all the camera variables are shown clearly in our diagram to the lower right corner. The numbers in the diagram is the real calculated distance or angle with this camera install setup.





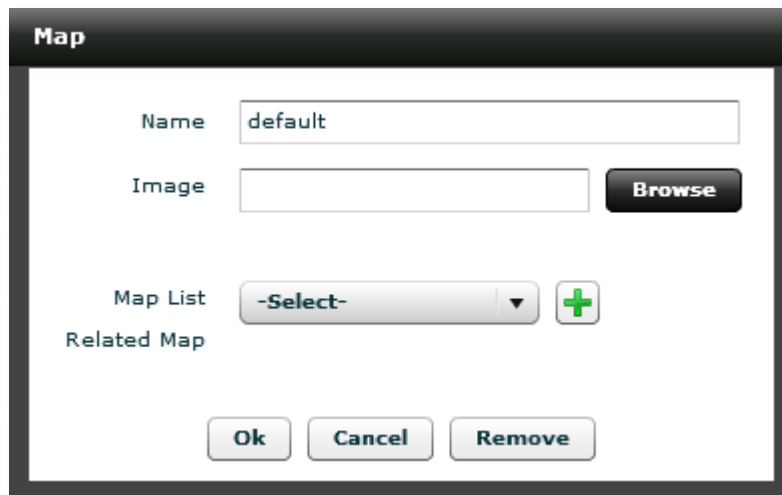
## Relation Setting

**Floor Planner** now includes more than Floor Plan, also the network system plan. In describing system configurations, there are several layers of entities.

### Maps

Maps are the foundation of system configuration. Every CMS server, NVR server, switch and camera belongs to a single map.


You may connect one map to another by clicking on the edit map button. Select from the drop-down map list, and then click the green plus to add map to related map list.

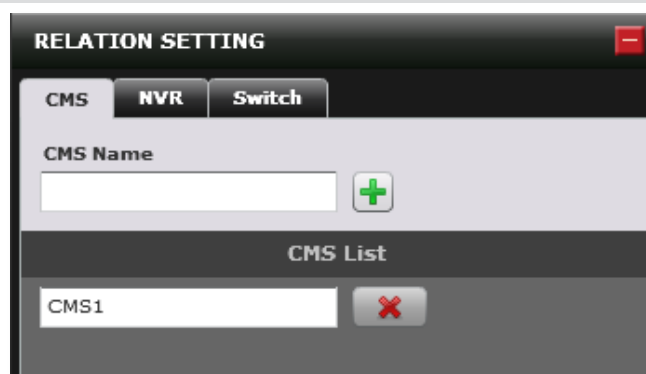


The image shows a 'Map' configuration dialog box. It has a title bar 'Map'. Inside, there are three main sections: 'Name' with a text input field containing 'default'; 'Image' with a text input field and a 'Browse' button; and 'Map List' with a dropdown menu showing '-Select-' and a green plus button. Below the dropdown is the label 'Related Map'. At the bottom are three buttons: 'Ok', 'Cancel', and 'Remove'.

### CMS Servers


CMS servers are central management servers. They may be located in the same map as the NVR servers they manage or in different maps.

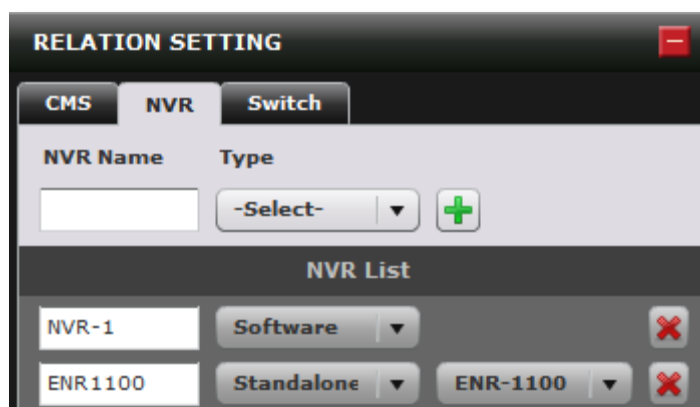
Setting up CMS servers: Go to the map you wish to insert CMS server to. Click the **CMS** tab in **Relation Setting** section. Type in the name of CMS server, and then click the green plus to add CMS to this map. The CMS server will be added to the list below, denoting CMS servers for this map. Click on the red X  beside the name of CMS server to remove this CMS.



## NVR Servers

NVR servers are computer storage / processing clusters. They may be located in the same map as the cameras they record or in different maps.


Setting up NVR servers: Go to the map you wish to insert NVR server to. Click the **NVR** tab in **Relation Setting** section. Type in the name of NVR server, select the type and model number of NVR server, and then click the green plus to add NVR to this map. The NVR server will be added to the list below, denoting NVR servers for this map. Click on the red X  beside the NVR server to remove this NVR.



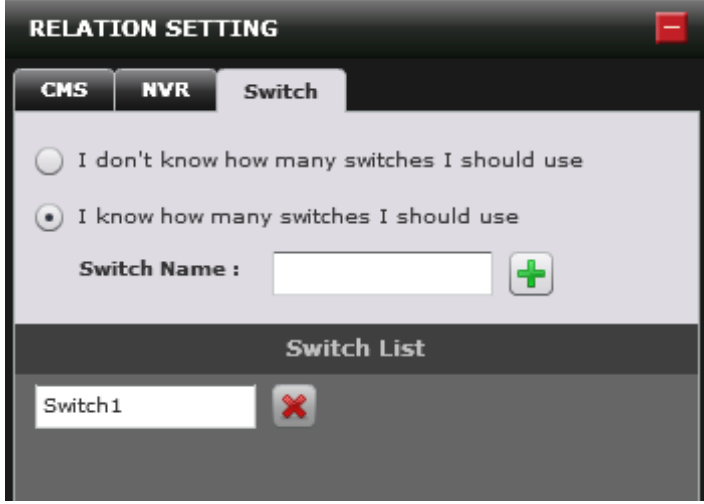
## Switches

Switch is a computer networking device that connects network segments. Every camera, NVR server, and CMS server needs to be wired to a switch in an Ethernet network. Switches need to be located in the same map as the cameras, NVR servers, and CMS servers they connect with.

Setting up Switches: Select your target map. Go to the **Relation Setting** section and click on the **Switch** tab. You may add switches on your own when choosing "I know how many switches I should use". Type in the name of switch, and then click the green plus to add switch

to this map. Click on the red X  beside the name of switch to remove this switch.

Once you choose “**I don’t know how many switches I should use**”, this tool will add switch to this map automatically according to the number of camera in this map.



RELATION SETTING

CMS

NVR

Switch

☐ I don't know how many switches I should use

☒ I know how many switches I should use

Switch Name :

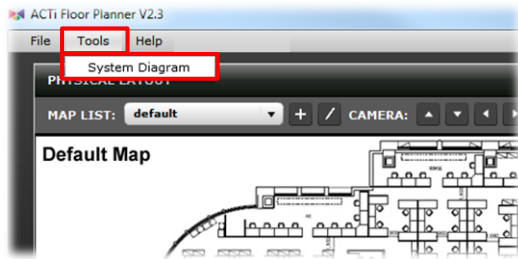
+

Switch List

Switch1	X
---------	---

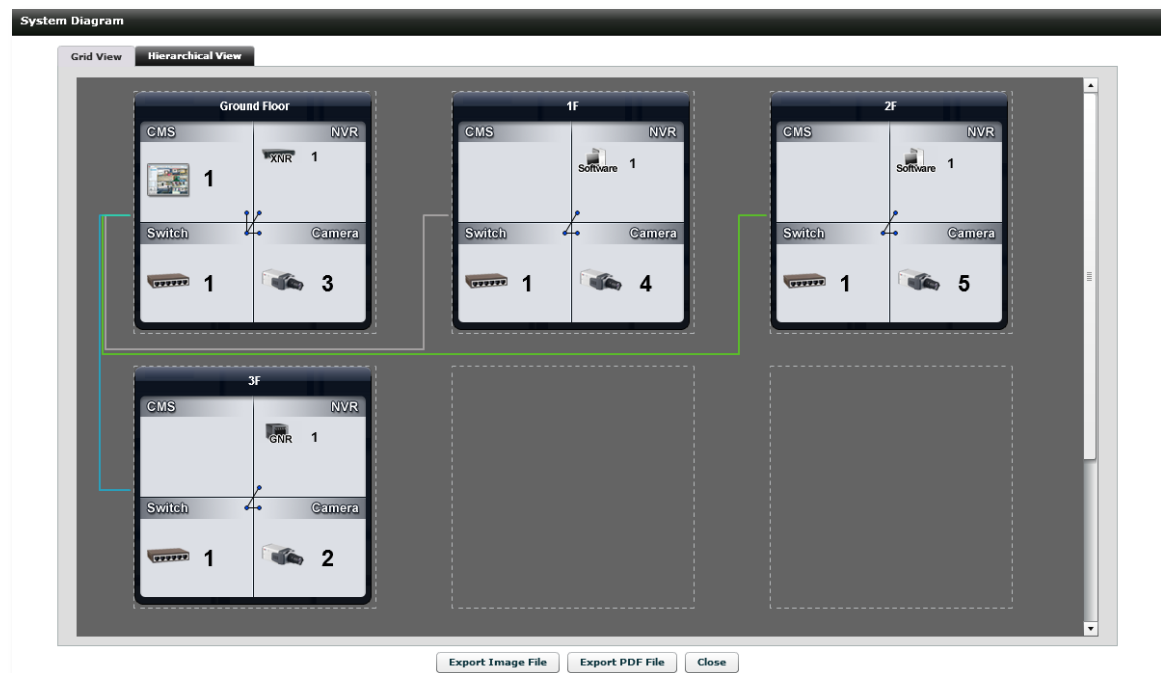
## System Diagram

Once you have completed the relation setting, go to **Tools → System Diagram** to see the network system layout. There are two modes available. One is the Hierarchical View, the other is the Grid View.



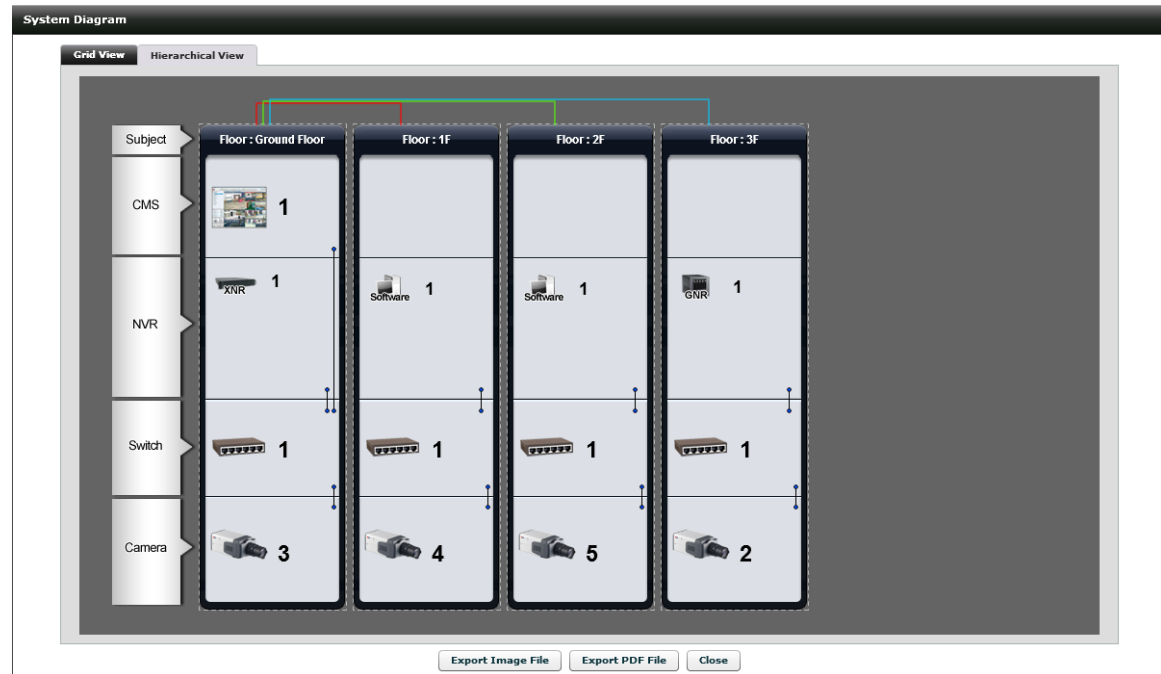
### Grid View

Grid View displays all the elements according to the map they are located in. The camera and switch are shown in the lower half of each cell, while the CMS server and NVR server are on the top of each cell. The lines in the middle of each map connect the camera to the switch, the NVR server to the switch, and the CMS server to the switch. And the lines out of each cell connect the map to the map. You may click and drag the map to another grid location, so that the wires will be less tangled.



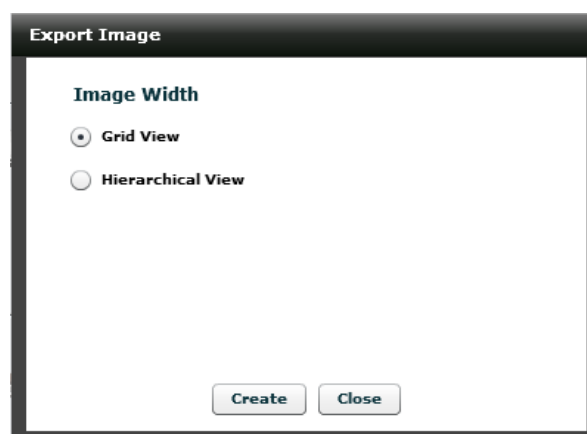
## Hierarchical View

In Hierarchical View, the different maps are located side by side. You may move them among slots to rearrange the connection. CMS servers, NVR servers, switches and cameras are located on different layers so that the hierarchical relation is clear.



## Exporting System Diagram Image

You may export the system diagram image as an illustration to be used elsewhere. The export format will be .BMP file. Click on **Export Image File** and then **Grid View** or **Export Hierarchical View** to export image. You may adjust the output size to fit your required image size.



## Exporting System Diagram in PDF

Besides .BMP file, you may export system diagram images into \*.PDF file. Click on **Export PDF File** to export **Grid View** or **Hierarchical View**.



# Tips

## Saving Projects

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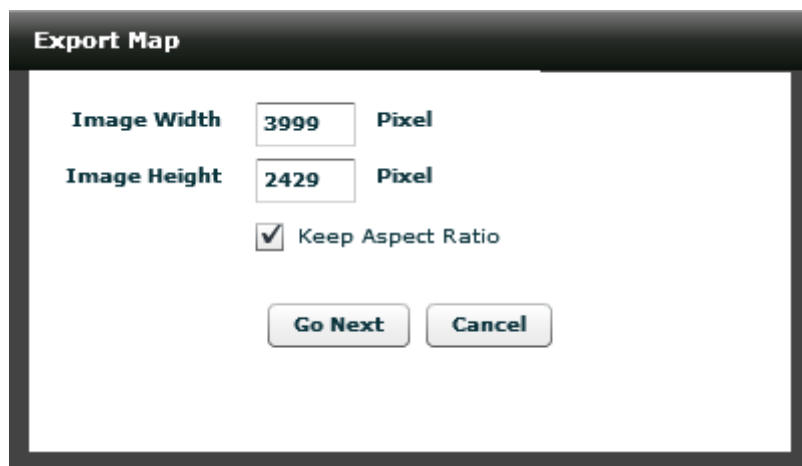
For each project, you need to create the project, and you need to save the project before you switch to another project or leave **Floor Planner** to keep the data.

Go to **File** → **Save Project** to save your project every time you edited it.

## Export Layout Image

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You may export floor plan images with the overlays of camera view pie. Go to **File** → **Export** → **Export Layout Images** to take a snapshot of current view. The export format will be .BMP file. The exported dimension is customizable. This may be much larger or smaller than the embedded background image.



## Export Camera Setting

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You may export the camera setting to get a view of relation on your project. The export format will be .CSV file. Go to **File → Export → Export Camera Setting** to export file.

## Export Layout PDF

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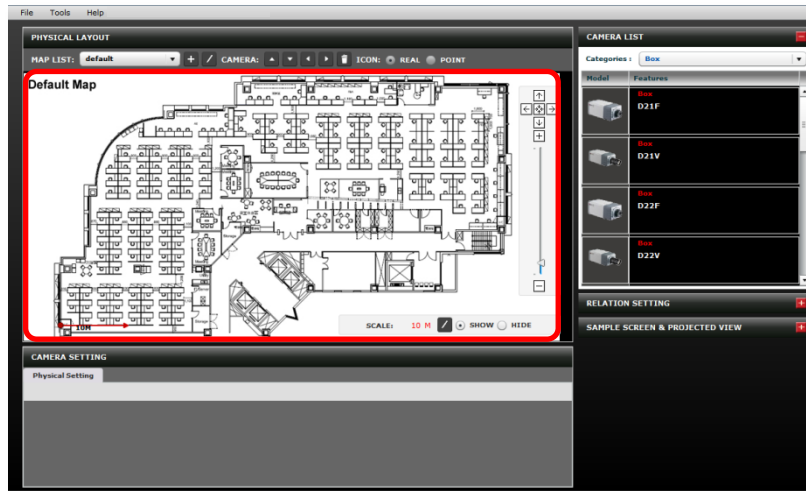
Besides .BMP file, you may export floor plan images with the overlays of camera view pie into .PDF file. Go to **File → Export → Export Layout PDF** to take a snapshot of current view.





# Use AutoCAD with Floor Planner

**AutoCAD** is the standard software used in building layout design. **Floor Planner** displays cameras over map images to help layout design. This creates an intuitive overview on surveillance coverage and camera location.



This document will describe how to combine these two powerful tools to use **AutoCAD** layouts in **Floor Planner**. When installers receive layout drawings of the target area, they may be in one of three formats:

1. Physical printout on sheets of paper
2. PDF files exported from **AutoCAD**
3. **AutoCAD** drawing electronic files (in DWG / DXF format)

For the first two formats, you should convert them into images then load into **AutoCAD**. For the **AutoCAD** drawing files, we have provided you with an **AutoCAD** LISP macro to help you export a proper image.

When importing images to **Floor Planner**, you need to consider (1) image size and (2) scale ratio. Images for **Floor Planner** are limited in size to 16 million pixels. In practical terms, this means no larger than 4096 x 4096 pixels when the image is square, or other combinations of length and width that does not go over the allowed total area.

Listed below are the maximum dimensions for a few popular and commonly encountered aspect ratios.

Aspect Ratio	Max Width (pxls)	Max Height (pxls)
2:1	5792	2896
16:9	5456	3069
3:2	5016	3344
4:3	4728	3546
1:1	4096	4096

**Floor Planner** keeps an internal conversion factor that matches the corresponding actual distance and the image pixels. For general image files, you may use our built-in scale bar to rescale the whole background image.

## Converting from Physical Printouts

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Many installers will encounter physical printouts and be required to put together a bid from this info. To use **Floor Planner**, you need to convert the printout into an image. You should use a scanner to scan this printout into an image. You should then resize the image to no larger than the limits in the table above.

**Step 1:** Connect your computer to a scanner. Many all-in-one office machines offer scanning function now. Consult your scanner manual for details.

**Step 2:** Scan the printout into image file. This can be either **JPG** or **PNG** format.

**Step 3:** Crop or resize the image so that it fits within the limits listed in the table above.

**Step 4:** Add map image in **Floor Planner**.

## Converting from PDF files

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Adobe PDF is another popular format used to convey building plan. To use this in **Floor Planner**, you need to convert it to images. You may open the **PDF** file in **Adobe Reader** and take screenshots, or search online for tools to convert PDF into **JPG** or **PNG** images.

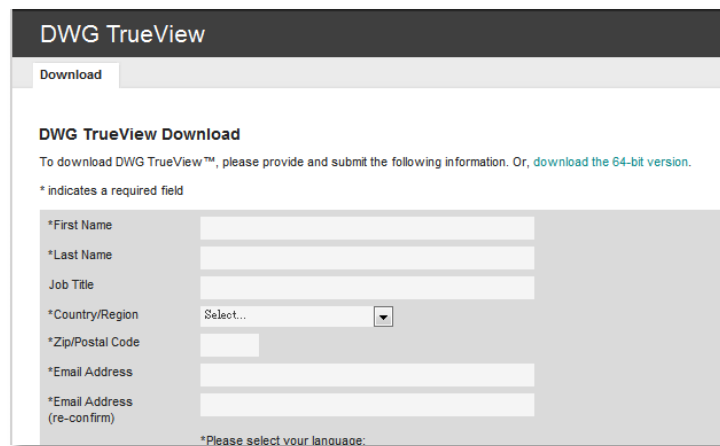
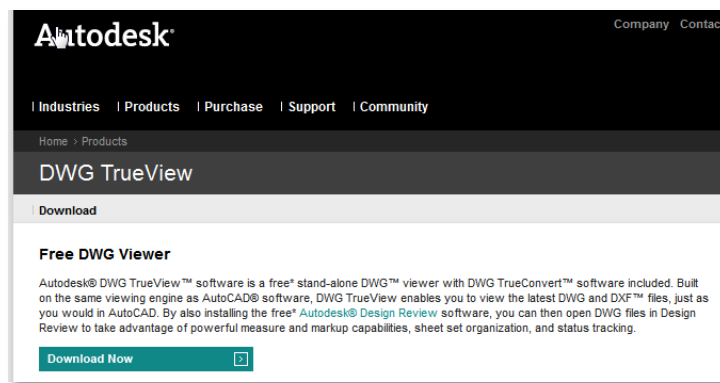
## Converting from Drawing Files with Autodesk DWG

### TrueView

**DWG / DXF** files are the universal file formats for **AutoCAD** drawings. Autodesk provides a free tool to view **DWG / DXF** drawings without using the costly **AutoCAD** software.

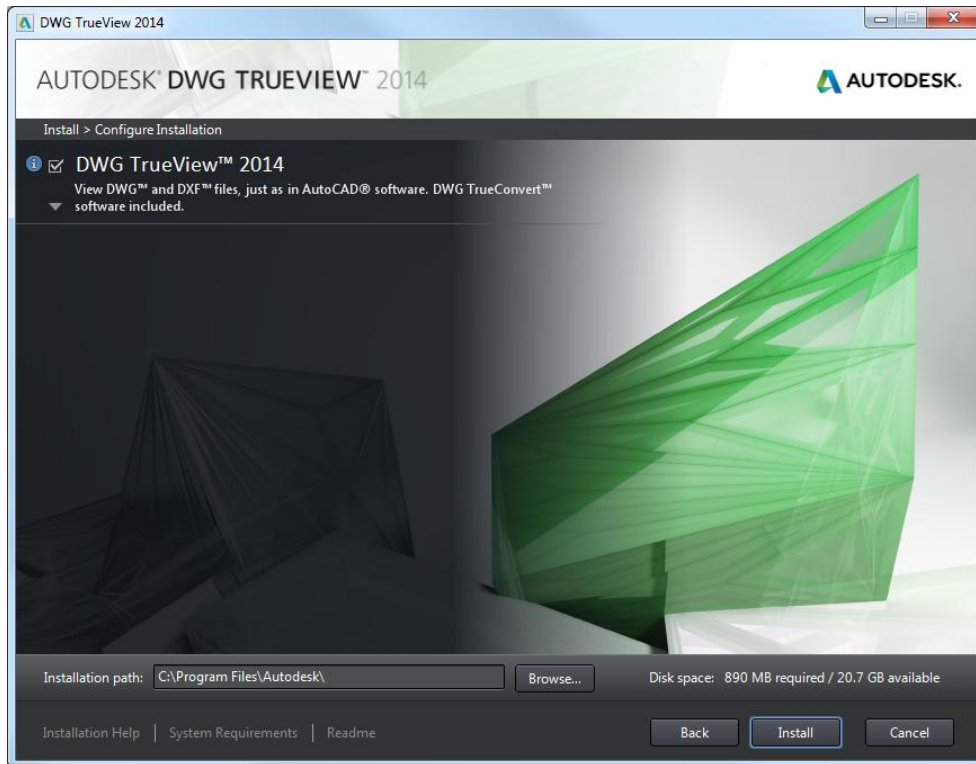
#### Step 1: Download TrueView from AutoDesk

Please go to [www.autodesk.com](http://www.autodesk.com) and look for **DWG TrueView** in the products list for the download link. You will need to enter some information to proceed with the free download.

The screenshot shows the 'DWG TrueView Download' registration form. It starts with the heading 'DWG TrueView Download' and a note: 'To download DWG TrueView™, please provide and submit the following information. Or, download the 64-bit version.' Below this is a note: '\* indicates a required field'. The form contains several input fields: '\*First Name', '\*Last Name', 'Job Title', '\*Country/Region' (a dropdown menu showing 'Select...'), '\*Zip/Postal Code', '\*Email Address', and '\*Email Address (re-confirm)'. At the bottom right of the form, there is a note: '\*Please select your language:'.

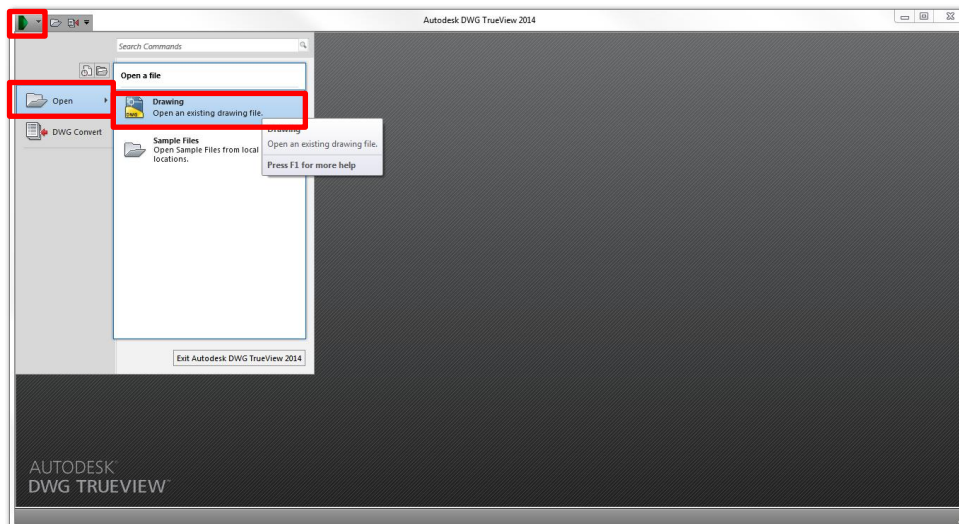
#### Step 2: Install TrueView

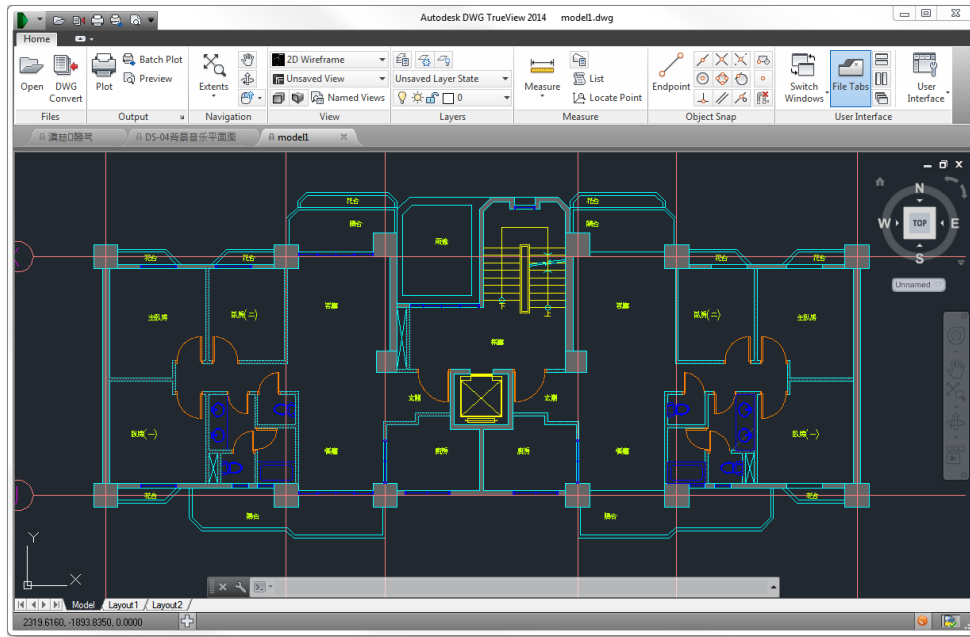
After downloading the proper install file from **Autodesk**, please install it in your computer by following the instructions. Use the default setup options.



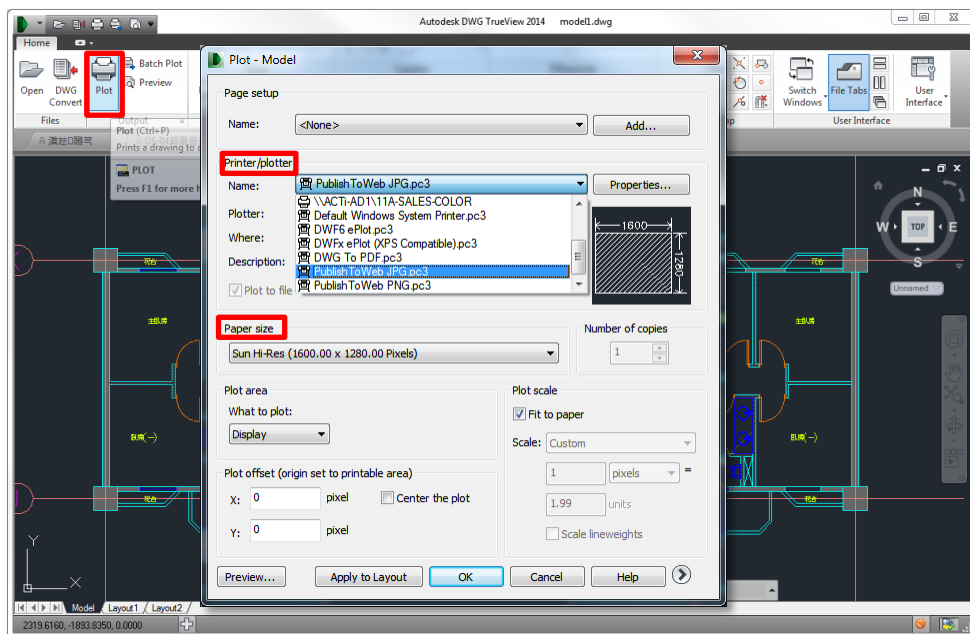
## Step 3: Open drawing via TrueView

Start the **TrueView** Program. Click the dropdown menu on the top left, and select “**Open**” → “**Drawing**”. Find the target drawing file (**DWG** or **DXF** file) and open it.





**Step 4:** Select **"Plot"** from the menu bar on top and configure the **Printer/Plotter** setting. You need to select **"Publish to Web PNG"** or **"Publish to Web JPG"** as the plotter, and select the output image size in the **Paper size** section. The largest available default size is 1600 x 1280 pixels. Click **OK** to print to image.



**Step 5:** Import the image into **Floor Planner** and configure the scale ratio.