

# Motorola Solutions System Design Tool

© 2022, Motorola Solutions, Inc. All rights reserved. MOTOROLA, MOTO, MOTOROLA SOLUTIONS, and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license. Other names or logos mentioned herein may be the trademarks of their respective owners. The absence of the symbols ™ and ® in proximity to each trademark in this document or at all is not a disclaimer of ownership of the related trademark.

This document has been compiled and published using product descriptions and specifications available at the time of publication. The contents of this document and the specifications of the products discussed herein are subject to change without notice. Motorola Solutions Inc. reserves the right to make any such changes without notice. Neither Motorola Solutions Inc. nor any of its affiliated companies: (1) guarantees the completeness or accuracy of the information contained in this document; or (2) is responsible for your use of, or reliance on, the information. Motorola Solutions Inc. shall not be responsible for any losses or damages (including consequential damages) caused by reliance on the information presented herein.

Motorola Solutions Inc.  
motorolasolutions.com

PDF-SDT-A

Revision: 1 - EN

20221101

# Table of Contents

Introducing the System Design Tool .....	4
Launching the System Design Tool .....	5
System Design Tool User Interface .....	6
Creating a New Design .....	6
SDT Project Settings .....	6
The General tab .....	6
The Scene Requirements tab .....	7
Interacting with the Map view .....	7
Searching for a Location .....	7
Zooming In and Out on a Map .....	8
Rotating the Map .....	8
Switching the Base Map .....	8
Editing the Map view .....	8
Adding a Site Layout .....	8
Adding a Camera .....	9
Adding a Camera to or Removing a Camera from a Map .....	10
Locating a Camera .....	10
Hiding or Showing a Camera .....	10
Deleting a Camera .....	11
Duplicating a Camera .....	11
Adding a Storage Device .....	11
Deleting a Storage Device .....	11
Duplicating a Storage Device .....	12
Saving a Design .....	12
Opening an Existing Design .....	12
Opening a Design from the Project Settings Dialog .....	13
Opening a Design from the Navigation Bar .....	13
Exporting a Design .....	13
Exporting PDF .....	13
Exporting CSV .....	13
Creating a Cart .....	14
For More Information .....	15

# Introducing the System Design Tool

The System Design Tool (SDT) aids you in selecting appropriate cameras, lenses, and storage appliances to design an effective video security system for specific sites. Use SDT to estimate camera bit-rate, storage calculations, field-of-view coverage and analytic capacity needs.

Your video security system needs can be as simple as a single office, a multi-storey building, an educational campus, an institutional or industrial complex, or similar other sites. You can use SDT to design a video security solution for either Avigilon or Pelco. Availability of some features may vary depending on the selected brand.

Once you have designed and specified your video security system, you can export the design to generate a PDF report or an order list of part numbers.

**Note:** A system designed for the Avigilon brand also allows you to create a cart for the e-commerce system.

This guide discusses the following:

- *Launching the System Design Tool* on the next page
- *System Design Tool User Interface* on page 6

# Launching the System Design Tool

Launch SDT from [sdt.motorolasolutions.com](https://sdt.motorolasolutions.com) on a browser-enabled device. SDT can be used either online in your browser or downloaded on your computer. A stable internet connection is recommended when using it online to prevent loss of work.

Optionally, you can also download and launch SDT locally. To download SDT, go to [sdt.motorolasolutions.com](https://sdt.motorolasolutions.com), click **File** and then **Download SDT** from the drop-down menu. The application downloaded on your system can be used without a stable internet connection, however background maps will require an internet connection to load.

You can explore and learn to use SDT on your own.

**Tip:** Motorola Solutions recommends that you review the *System Design Tool User Interface* on the next page topic in this guide as you explore.

You can also take the SDT tutorial.

- Click **Help** and then **Tutorial**. The [MSI VS&A Training Center](#) opens in a new browser tab. Log in if you have an account, or click **Sign Up** to create an account.

**Important:** You need to have an account on the [MSI VS&A Training Center](#). After you click Sign Up, follow the instructions to open the Sign Up form, enter the information requested on the form, and click the Sign Up button at the bottom. Next, check your email for a confirmation.

# System Design Tool User Interface

After you launch SDT, you can:

- Create a new design. See *Creating a New Design* below.
- Save a design that you created. See *Saving a Design* on page 12.
- Open a saved design. See *Opening an Existing Design* on page 12.
- Export a design. See *Exporting a Design* on page 13.
- Create a cart for the e-commerce system. See *Creating a Cart* on page 14.

## Creating a New Design

After launching SDT, you can create a new design from the **System Design Tool** dialog on your screen. To create a new design, click **New Design**.

This section describes the following:

- *SDT Project Settings* below
- *Interacting with the Map view* on the next page
- *Editing the Map view* on page 8
- *Adding a Camera* on page 9
- *Adding a Storage Device* on page 11

## SDT Project Settings

The Project Settings dialog allows you to configure the global or default settings for the project and scene requirements.

### The General tab

The general project-level settings configurable from the General tab are:

- **Facility Name** — Enter a name for your site design.
- **Brand** — Select the name of the brand that will be used for your site design.
- **Default Camera** — Select the camera model you want the system to add when you use the quick action button Add Camera.
- **Default Storage** — Select the storage model you want the system to add when you use the quick action button Add Storage.
- **Units** — Select either Feet or Meters from the drop-down list as the unit of measuring distance in your site design.
- **Flicker Control** — Select the frequency of alternating current electricity relevant to the country or region where the video security system will be installed.
- **Language** — Select the user interface language from the drop-down list.

## The Scene Requirements tab

The scene-level requirements configurable from the Scene Requirements tab are:

- **Mounting Height** — Enter the height at which you want the cameras mounted.


**Tip:** As a generally followed practice, mounting heights for cameras are between 8 and 15 feet.

- **Target Distance** — Enter the anticipated distance of a target.
- **Scene Height** — Enter the desired minimum scene height at the target.
- **Desired Scene Width** — Enter the desired minimum scene width at the target.

**Tip:** A wide scene with a short target distance may require a camera with a smaller lens whereas a narrow scene with a long target distance may require a long lens.

- **Set desired min px/ft at target** — Select the **Enabled** check box to configure the Desired minimum px/ft at target setting.
- **Desired minimum px/ft at target** — Enter the desired pixel density to be captured at the set Target Distance value.

Select the **Restore Defaults** check box to restore the default values for all the settings in both the General tab and the Scene Requirements tab.

Select the **Do not show again** check box to skip landing on the Project Settings dialog the next time you create a new design. To clear the **Do not show again** check box, click  in the top-right from the navigation bar.

Click **Done** to confirm the configured settings.

## Interacting with the Map view

You can interact with the map in SDT like you can with any commonly available map tools in the public domain. You can search for a particular address, locate areas or streets within cities, zoom in or out on a specific location, rotate the map in either direction, view the graphical representation or satellite imagery of the map, or simply disable the map view if you want.

### Searching for a Location

To search for a specific location on the map:

1. Click the **Search** toolbar.
2. Enter an address in the toolbar. The system displays results in a drop-down list as you enter text in the toolbar.
3. Select the located address from the drop-down list if found or press **Enter** on your keyboard.



Alternatively, you can also click



in the bottom-right of the map view to auto-locate your address. The located address loads on screen.

## Zooming In and Out on a Map


To zoom in and out on a map:

- Use the middle scroll wheel on your mouse.
- Click  to zoom in or  to zoom out in the bottom-right of the map view.


## Rotating the Map

To rotate the map in either direction:

- Press the **Ctrl** key on your keyboard and click and drag on the map.
- Right-click and drag on the map.

To reset map rotation to be in the North-South direction, click  in the bottom-right of the map view

## Switching the Base Map

To switch the base map view, click  in the bottom-right of the map view and select:

- **Map** — The default graphical representation of a map.
- **Satellite** — The satellite imagery of a map.
- **Blank** — No imagery in the view.


## Editing the Map view

The Map view in SDT allows you to design your video security system laid out anywhere on the Map. A site layout in SDT consists of Buildings, Levels and Floor Plans. A Building may have multiple Levels and each of those Levels must have an associated Floor Plan. You can add cameras on a Floor Plan or anywhere else on your site layout as per your video security system design needs.


When designing a site layout on the Map, you must add a Building first. Once a Building is added, you can then add Levels within the Building and add Floor Plans for each of those Levels. You cannot have a Building by itself without adding at least one Level and an associated Floor Plan added to the Level.

## Adding a Site Layout


To add a site layout at a location on the Map:

1. Click **Edit Map** in the top navigation bar. A window slides in on the screen from the right.
2. Add a Building:
  - a. Under **Building**, click . A text box appears below.
  - b. Enter a building name. The Level field is activated.

3. Add a Level:

- a. Under **Level**, click . Two text boxes appear.
- b. In the first text box, enter a level name.
- c. In the second text box, enter a level indicator to label the level. The Floor Plan field is activated.

4. Add a Floor Plan:

- a. Under **Floor Plan**, click  to upload a compatible file. Compatible files include PNG, JPG/JPEG and CAD DXF file formats.
- b. Select the file to be uploaded and click **Open**. The **Floor Plan Editor** dialog appears.
- c. For DXF files, select the layers you want included in the floor plan.  
For PNG, JPG/JPEG files, under **What would you like to do?**, choose **Upload Image**.
- d. Click **Continue**.
- e. Click and drag the ruler points on the image to set the floor plan scale.
- f. Under **Set floor plan scale**, enter the distance value that corresponds to the set width of the ruler in the previous step and click **Apply**.
- g. Position the image overlay on the map. You may zoom in, zoom out, drag or rotate the image overlay to position it as needed.
- h. Click **Pin to map** to pin the uploaded image on the map as positioned.


5. Click **Close** to close the slider window.

**Note:** You can add multiple Buildings within your site layout. To add multiple Buildings, repeat the steps as described in the *Adding a Site Layout* procedure above. Each Building needs to have at least one Level and an associated Floor Plan uploaded. You can add multiple Levels within a Building and add Floor Plans associated with the added Levels as per your site design needs. If you add multiple levels within a building, each level is denoted by the level indicator label on the bottom-left of the map. You can select a label to make the corresponding Level as the active level. Click **X** above the level indicator to close the currently active Floor Plan of a Level of a Building.

## Adding a Camera

You can add multiple cameras to different Floor Plans or Levels within a Building or anywhere on your site layout on the map.

To add a camera to your site layout:

1. Click **Add Camera** to add the default camera or click  to configure the following camera settings:
  - **Camera Model** — Select the required camera model from the drop-down list.
  - **Camera Quantity** — Enter the number of cameras to be added.
  - **Camera Name** — Enter a name for the camera.
  - **Lens Model** — Select the appropriate lens model from the drop-down list.

2. Optionally, select any camera model from the **Suggested Cameras** field. You can also filter the list of suggested cameras by selecting the available filtering options as per your needs.
3. Click **Add**. The camera is added to the list of cameras in the left pane on the screen.
4. Drag the camera from the left pane and drop it on to the map or the desired location on a selected floor plan.

You can change the camera position, rotation and field of view by interacting with the camera's graphical control elements.

When you add a camera, it will automatically be added to the selected storage device if it was already added. Otherwise it is added to the Unassigned list in the pane on the left of the screen. Drag a camera from the Unassigned menu and drop it on an added storage device entry to associate that camera with the added storage device. Alternatively, you can right-click a camera and under the Assign to Storage device menu, select a storage device to assign the selected camera to.

Click **Camera Settings** on the right of the screen to configure any of the camera settings for the selected camera. Similarly, click **Scene Requirements** to configure any scene requirements for the selected camera.

**Note:** In a system designed for the Avigilon brand, a selected camera in combination with the storage device it is added to may also support server side analytic features. Configure the supported analytic settings from the **Analytic Settings** panel.

## Adding a Camera to or Removing a Camera from a Map

To add a camera on the map, drag the camera from the left pane and drop it on to the map or the desired location on a selected floor plan.

To remove an added camera from the map:

1. Select the camera from the list of cameras in the pane on the left or from the Map view.
2. Right-click the selected camera and click **Remove From Map**. The selected camera is removed from the map.


## Locating a Camera

To locate a camera placed anywhere on the map:

1. Select the camera from the list of cameras in the pane on the left or from the Map view.
2. Right-click the selected camera and click **Locate on Map**. The selected camera is located on the map.

## Hiding or Showing a Camera

To hide or show an added camera on the map view:

- Click the  icon before the camera name to toggle the visibility of the camera to either show or hide from the list of cameras in the pane on the left.

**Note:** Hiding a camera only turns off the visibility of the camera and does not delete it from the map.

## Deleting a Camera

To delete an added camera:

1. Select the camera from the list of cameras in the pane on the left.
2. Right-click the selected camera and click **Delete**.
3. Click **OK** in the confirmation dialog. The camera is deleted.

## Duplicating a Camera


To duplicate an added camera:

1. Select the camera from the list of cameras in the pane on the left.
2. Right-click the selected camera and click **Duplicate**. The selected camera is duplicated.

## Adding a Storage Device

You can add multiple storage devices to your site layout as per your video storage and retention needs.

To add a storage device to your site layout:

1. Click **Add Storage** to add the default storage or click  if available to configure the following storage settings:
  - **Storage Model** — Select the required storage model from the drop-down list.
  - **Storage Quantity** — Enter the number of storage devices to be added.
  - **Storage Name** — Enter a name for the storage device.

**Note:** Pelco supports the **Custom Server** option only. Configure the **Total Capacity** and **Total Max Bandwidth** settings to adjust to your storage needs.

2. Optionally, select any storage model from the **Suggested Storage** field. This feature is available for the Avigilon brand only.
3. Click **Add**. The storage device is added to the list of storage devices in the left pane on the screen.

Click **Storage Configuration** on the right of the screen to configure any of the storage device settings for the selected storage device.

## Deleting a Storage Device

To delete an added storage device:

1. Select the storage device from the list of storage devices in the pane on the left.
2. Right-click the selected storage device and click **Delete**.
3. Click **OK** in the confirmation dialog. The storage device is deleted.

**Note:** When you delete a storage device that has cameras associated with it, the cameras are deleted as well along with the storage device.

## Duplicating a Storage Device

To duplicate an added storage device:

1. Select the storage device from the list of storage devices in the pane on the left.
2. Right-click the selected storage device and click **Duplicate**. The selected storage device is duplicated.

**Note:** When you duplicate a storage device that has cameras associated with it, the cameras are duplicated as well along with the storage device.

## Saving a Design

SDT allows you to save a design on your computer. After creating a design, you can save it in the form of an SDT-compatible file with a `.sdt3x` extension.

To save a design:

1. Click **File** in the top-right from the navigation bar.
2. Click **Save** from the drop-down menu to download the file.

To open a saved design in SDT, see *Opening an Existing Design* below.

## Opening an Existing Design

SDT allows you to open a saved design from your computer. You need the SDT-compatible file with the `.sdt3x` extension to open it in SDT. You may open a design from either the Project Settings dialog or from the File menu in the navigation bar.

**Important:** You may import SDT 2 files identified with the `.sdtx` extension in SDT 3. However, map information will not be ported over to SDT 3.

## Opening a Design from the Project Settings Dialog

To open a design from the Project Settings dialog, click **Open Design** and select the SDT-compatible .sdt3x file. The design from the file loads up in SDT.

## Opening a Design from the Navigation Bar

To open a design from the navigation bar:

1. Click **File**.
2. Click **Open** from the drop-down list.
3. Select the SDT-compatible .sdt3x file and click **Open**.

The design from the file loads up in SDT.

## Exporting a Design

SDT allows you to export the designed system and the configuration data including the selected devices, site layout, floor plans and map. You may use the exported design to reach out to Sales or your local representative to receive a quote on the exported design. You can export either a PDF report with detailed information or a CSV file including the number and types of devices and licenses used in the design.

## Exporting PDF

To export a PDF report of your design:

1. Click **File** in the top-right from the navigation menu.
2. Click **Export PDF**. The Export Design modal appears.
3. In the Configure section, configure the following optional settings:
  - **Project Name** — Enter a project name for the exported design.
  - **Subject** — Enter a subject for the exported design.
  - **Created By** — Enter the system designer's name.
  - **Version number** — Enter a version number for the exported design.
  - **Include Sections** — Select the sections you want included in the exported PDF.
4. In the Add Notes section, add any notes you want included as comments in the Design Comments section in the exported PDF.
5. In the Map section, select the **Pixel Density** check box to include pixel density markers in the camera field of view graphic.
6. Click **Ok**.

SDT generates the PDF and downloads it on your computer.

## Exporting CSV

To export a CSV file of your design:

1. Click **File** in the top-right from the navigation menu.
2. Click **Export CSV**.
3. For the Avigilon brand:
  - a. The Add Licensing modal appears. Select the **Site Wide** check box to set the Available Licenses to an Enterprise license. Clear the check box to select any other license.
  - b. From the Available Licenses section, select either **Core license**, **Standard license** or **Enterprise license**, depending on your site requirements. For more information, see the *ACC 7 Software Datasheet*.
4. Click **Continue**.

SDT generates the CSV and downloads it on your computer.

## Creating a Cart

**Note:** The cart creation feature is only available for the Avigilon brand.

Once you have designed your system as per your requirements, you can create a cart of the designed system from within SDT if you are a registered user of the Avigilon Partner Community.

To create a cart:

1. Click **File** in the top-right from the navigation menu.
2. Click **Create Cart**. The Add Licensing modal appears.
3. Select the **Site Wide** check box if you require site wide licensing. Clear the check box to select another option.

**Note:** Site wide licensing requires an Enterprise license.

4. From the Available Licenses section, select either **Core license**, **Standard license** or **Enterprise license**, depending on your site requirements. For more information, see the *ACC 7 Software Datasheet*.
5. Click **Continue**.

SDT redirects you to the Avigilon Partner Community website where you can see the created cart.

Alternatively, you may export your design and reach out to Avigilon Sales or your local Avigilon representative to receive a quote on the exported design. See *Exporting a Design* on the previous page.

## For More Information

For additional product documentation, visit [motorolasolutions.com](https://motorolasolutions.com).

## Technical Support

Contact Technical Support at [motorolasolutions.com/support](https://motorolasolutions.com/support).