

Motorola Solutions System Design Tool

User Guide

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Motorola Solutions 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-story 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 a CSV file with 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.

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

You can also take the SDT tutorial on the [MSI VS&A Training Center](#).

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.

Launching the System Design Tool

Launch SDT from sdt.motorolasolutions.com on a browser-enabled device. A stable internet connection is required when using it online to prevent loss of work.

When you log in to SDT successfully, you land on the home page. See *Logging in to SDT* below. The SDT home page shows all your system designs in either a list or cards view. Use the **View** field to toggle between the list or the cards views.

To search for and narrow down the list of designs, enter text in the **Search designs** text box to filter the list. For any design from the list or cards view, use the 3-dots menu to quickly rename, duplicate, archive, delete, or change the status of a design.

Logging in to SDT

To be able to log in to SDT, you need your **My Video Access One ID Login** credentials. If you do not have the

credentials, register to sign up and access all Motorola Solutions Video Security & Access Control digital tools, including documentation, self-service support, training, downloads, marketing material and more.

To register and sign up to the **My Video Access One ID Login**:

1. Launch SDT in a web browser. See *Launching the System Design Tool* on the previous page.
2. Click **Sign in**. You will be redirected to the Motorola Solutions **My Video Access One ID Login** page.
3. Click **Get Started**.
4. Follow the on-screen instructions by filling up the registration form.
5. Click **Submit & Activate Account**. You will receive an email confirming your registration.

To log in to SDT:

1. Launch SDT in a web browser. See *Launching the System Design Tool* on the previous page.
2. Click **Sign in**.
3. Enter your **My Video Access One ID Login** credentials.
4. Click **Sign in**.

To log out of SDT, click on your profile icon in the top-right from the navigation bar and click **Logout**.

Creating a new design

After launching SDT, you can create a new design from the **System Design Tool** home page. To create a new design, click **Create a new design** and follow the topics below.

Design settings

The **New Design Settings** dialog allows you to configure the global or default settings for your design and scene requirements:

- **Brand** — Select the name of the brand to use for your site design.
- **Region** — Select a region for your site design.
- Under Scene Requirements, select **Use maximum record time** to max out the record time for your devices.

Tip: To specify a custom record time for your design, clear the **Use maximum record time** check box and enter a number in days.

- **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 height** — Enter the desired minimum target height for the scene.

- **Target distance** — Enter the anticipated distance of a 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 camera with a bigger lens.

- Select the **Set desired min {{ unit }} at target** check box to configure the required minimum pixel density at target.
- **Desired minimum pixel density at target** — Enter the desired pixel density to be captured at the configured **Target distance** value.
- **Detection** - Select the ppf/ppm value for the desired detection DORI zone.
- **Observation** - Select the ppf/ppm value for the desired observation DORI zone.
- **Recognition** - Select the ppf/ppm value for the desired recognition DORI zone.
- **Identification** - Select the ppf/ppm value for the desired identification DORI zone.
- **Flicker control** — Select the frequency of alternating current electricity relevant to the country or region where the video security system will be installed.
- **Field of view mode** - Select the field of view mode satisfying the selected DORI values or the configured analytics.
- Select the **Always use these settings** check box to default to the selected settings.

To reset the selected settings and to restore to the defaults, click **Restore to default**. Click **Apply** to confirm the selected settings and create a new design.

Tip: To change the site design settings after you create a design, click  **Settings** from the left navigation.

Design overview

When you create a new design, you land on the **Overview** page. It shows important metrics about your site design like the total storage and bandwidth, the number of storage devices and cameras used. It also shows the name and status of your design, and any relevant notes.

Renaming a design

To rename your design, replace the text in the **Name** field with the desired name for your design. SDT automatically updates the name of your design. Select a relevant status for your design by selecting the appropriate status tag from the **Status** drop-down menu, and add any relevant notes in the **Notes** field.

Interacting with the List view

The List view shows a tabulated list of all the cameras and storage devices in your design. The list details the name, model number, quantity, storage capacity, record time (if applicable), and the maximum bandwidth for

each device in your design.

To add a device to your site design, see:

- *Adding a camera* on page 9
- *Adding a storage device* on page 11

Click on any device from the list to see the device settings in the right panel. Use the right panel to edit and configure device settings for the selected device. To bulk edit multiple devices at once, select the corresponding check box from the first column of the table and use the right panel to modify settings. Use the 3-dots menu to delete or duplicate a storage device or camera, or to assign a camera to a storage device. You may also drag and drop a camera on to a storage device to assign that camera to the storage device.

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.


To add a device to your site design, see:

- *Adding a camera* on page 9
- *Adding a storage device* on page 11

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 top-left of the map view and select:

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

Use the View toggles to toggle the camera name labels or the field of view zone numbers.

To design a site layout on the map, see *Editing the Map view* below.

Editing the Map view



The Map view in SDT allows you to design your video security system laid out anywhere on the world 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 in SDT, you must add a building first. Once a building is added, you can then add levels within the building, and then add floor plans for each of those levels.

Note: 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. Locate an area on the map to add your site layout.
2. Click **Edit map** in the top-right corner of the map view. A panel slides in on the screen from the right.
3. Add a building:
 - a. Under **Building**, click . A text box appears below.
 - b. Enter a building name. The Level field is activated.
4. Add a level:
 - a. Under **Level**, click . Two text boxes appear.
 - b. Enter a level name for the **Name** field.
 - c. Enter a level indicator to label the level for the **Label** field. The Floor Plan field is activated.
5. Add a floor plan:

- a. Under **Floor Plan**, click  to upload a compatible file. Compatible files include PNG, JPG or JPEG file formats.
- b. Select the file to upload and click **Open**. The **Confirm floor plan size** dialog appears.
- c. Under **What would you like to do?**, choose **Use current image**.
- d. Click **Continue**.
- e. Select **Scale floor plan manually** to be able to manually scale the floor plan size on the map area.

OR

Select **Set floor plan scale** to specify the size of the floor plan with respect to the uploaded image size:

- i. Click and drag the ruler points on the image to set the floor plan scale.
 - ii. Enter the distance value that corresponds to the set distance between the ruler points.
 - f. 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** in the right panel to pin the uploaded image on the map as positioned.
6. Click **Save**.

You can add multiple buildings within your site layout. To add multiple buildings, repeat the steps as described in *Adding a site layout* on the previous page. 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 active. Click **X** below the level indicator to close the currently active 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. Use the List view or the Map view to add cameras.

Tip: To quickly add a camera to your site layout, enter the camera part number in the **Quick add devices** field and select the camera from the list.

To add a camera to your site layout:

1. Click  **Add item** and then  **Add camera**. The **Add camera** dialog opens.
2. Enter a camera name for the **Name** field and select the number of cameras for the **Quantity** field.
3. Use the search bar to search for a specific camera or use the  filters to narrow down the results by various facets.

4. Locate the camera to add and click **Add to design**. The camera is added to your site layout.
5. Click **X** in the top-right to close the dialog.
6. Use the right panel to configure the following camera settings:
 - **Camera name** — Enter a name for the camera.
 - **Part number** — Select the required camera model part number from the drop-down list.
 - **Quantity** — Enter the number of cameras to be added.
 - **Lens model** — Select the appropriate lens model from the drop-down list if available.
 - **Bandwidth & Storage** — Select or configure the bandwidth calculation, maximum and average bandwidth, max record time or the daily recording cycle.
 - **Camera Settings** — Select the format, resolution or image rate.
 - **Scene Settings** — Select the mounting height, target height & distance, scene width, pixel density or camera rotation.
7. Drag the camera from the left pane and drop it on to the map or the desired location on a selected floor plan. Change the camera position, rotation and field of view by interacting with the camera 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.

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 **Analytics Settings** panel.

Adding a camera to or removing a camera from the map

To add a camera on the map in the Map view, 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 a camera from the map:

1. Locate the camera from the list of cameras in the pane on the left or from the Map view.
2. Use the 3-dots menu and click **Remove from map**. The camera is removed from the map.


Locating a camera on the map

To locate a camera placed anywhere on the map:

1. Locate the camera from the list of cameras in the pane on the left or from the Map view.
2. Use the 3-dots menu and click **Locate on map**. The camera is located on the map.

Hiding or showing a camera on the map

To hide or show an added camera from the Map view:

- Click the  icon after the camera name to toggle the visibility of the camera to either show or hide on the map.

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

Deleting a camera from the map

To delete a camera from the map:

1. Locate the camera from the list of cameras in the left pane and use the 3-dots menu to click **Delete**.
OR
Right-click the camera on the map and click **Delete**
2. Click **Delete** in the confirmation dialog. The camera is deleted.

Duplicating a camera on the map

To duplicate an added camera:

- Locate the camera from the list of cameras in the left pane and use the 3-dots menu to click **Duplicate**.
OR
Right-click the camera on the map and click **Duplicate**.

Assigning a camera to a storage device on the map

To assign a camera to a storage device:




- Locate the camera from the list of cameras in the Unassigned list from the left pane and drop it on an added storage device.
OR
Locate the camera from the list of cameras in the Unassigned list from the left pane and use the 3-dots menu to click **Assign to storage**, select a storage device, and click **Assign**.
OR
Right-click the camera on the map to click **Assign to storage**, select a storage device, and click **Assign**.

Adding a storage device

You can add multiple storage devices to your site layout as per your video storage and retention needs. Use the List view or the Map view to add storage devices.

Tip: To quickly add a storage device to your site layout, enter the storage device part number in the **Quick add devices** field and select the storage device from the list.

To add a storage device to your site layout:

1. Click  **Add item** and then  **Add storage**. The **Add storage** dialog opens.
2. Enter a storage device name for the **Name** field and select the number of devices for the **Quantity** field.
3. Use the search bar to search for a specific device or use the  filters to narrow down the results by various facets.
4. Locate the device to add and click **Add to design**. The storage device is added to the list of storage devices.
5. Click **X** in the top-right to close the dialog.
6. Use the right panel to configure the following storage device settings:
 - **Storage name** — Enter a name for the storage device.
 - **Part number** — Select the required device model part number from the drop-down list.
 - **Storage Settings** — Select or configure the data aging or network interface settings.

Tip: Adjust the total effective capacity and the total max bandwidth settings in accordance with your storage needs if you add a **Custom Storage** to your design.

Deleting a storage device

To delete a storage device:

1. Locate the storage device from the list of storage devices.
2. Use the 3-dots menu and click **Delete**.
3. Click **Delete** in the confirmation dialog. The storage device is deleted.

Important: When you delete a storage device that has cameras assigned to it, the assigned cameras are also deleted with the storage device.

Duplicating a storage device

To duplicate a storage device:

1. Locate the storage device from the list of storage devices.
2. Use the 3-dots menu and click **Duplicate**.
3. Click **Duplicate** in the confirmation dialog. The storage device is duplicated.

Important: When you duplicate a storage device that has cameras assigned to it, the assigned cameras are also duplicated with the storage device.

Licensing a design

Designs for the Avigilon brand also support adding licensing information to your site design.

To add licensing information to your design:

1. Click **Licensing** from the left navigation.
2. From the **Software version** drop-down list, select **Unity** or **ACC 7**.
3. For the **Software Edition** field, select either **Core**, **Standard** or **Enterprise**, based on your site requirements, or select **None**.
4. For the **Smart Assurance Plan** field, select the appropriate option for the number of years based on your site requirements, or select **None**.

A summary of the site licenses based on your selections is shown on the page.

Exporting a system design report

SDT allows you to export the designed system and the configuration data including the selected devices, the quantity and types of devices, site layout, floor plans, and the licenses in your design. 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 download a CSV file including the number and types of devices and licenses used in the design.

Creating and exporting a PDF report

To create and export a PDF report of your design:

1. Click **Report** in the left navigation menu.
2. Under **Include section**, select the required options:
 - **Planning overview** — Includes the site layout with your building and level information.
 - **Storage** — Includes the storage device models, accessories, configured settings, and assigned devices.
 - **Camera** — Includes the camera models, settings, placement, bandwidth & storage, scene settings, and pixel density reference.
 - **Pixel density** — Includes the pixel density and the corresponding reference images for monitoring, detection, observation, recognition, and identification.
3. From the **Cover** tab, configure the following optional settings:
 - **1. Report name** — Enter a name for the report to export.
 - **2. Report description** — Enter a description for the report.
 - **3. Created by** — Enter the name of the person exporting the report.
 - **Version** — Enter a version number for the report.
 - **4. Contact 1** — Enter contact information.
 - **5. Contact 2** — Enter contact information.
 - **6. Footnote** — Enter footnotes.
 - **7. Notes** — Enter any notes you want included as comments in the report.

4. (Optional) Click **Preview report** to see a preview of the PDF report in a modal window:
 - Click **Download** to download and save the PDF report on your system.

OR

 - Click **Close** to close the preview modal.
5. Click **Create report** on the top-right of the **Report** page.

SDT generates the PDF report and downloads it on your computer.

Downloading a CSV file

To download a CSV file of your design:

1. Click the drop-down menu next to the Motorola logo in the top-left from the navigation bar.
2. Click **Download .csv file**.
3. Click **Save**.

SDT generates the CSV file and downloads it on your computer.

Importing a design

SDT allows you to import a saved SDT version 3.x design from your computer. You need the SDT-compatible file with the `.sdt3x` extension to import the design in SDT.

You can import an existing design from the SDT home page.

To import an existing design:

1. Navigate to the SDT home page.
2. Click **Import an existing design**.
3. Select the SDT-compatible `.sdt3x` file and click **Open**.
4. Click **Import** in the confirmation dialog.

The design from the file is imported in SDT.


Important: An imported SDT design file may include potential compatibility issues. It is essential to review the project and make necessary updates after importing a design.

Creating a cart

Once you have designed your system as per your requirements, you can create a cart of your system design including the storage devices, cameras, accessories, and licenses from within SDT, if you are a registered user of the [VSA Partner Community](#).

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

To create a cart:

1. Click  **Create cart** in the top-right from the navigation menu. The **Create cart** confirmation dialog appears.
2. Click **Continue**. SDT creates a cart and shows the cart contents from your design.
3. Click **Open cart**.

SDT redirects you to the [VSA 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 system design report* on page 13.

Account settings

The **Account settings** dialog displays your name and email. It also shows your default preferences for the brand of your design, the units of measuring distance, and the flicker control.

To access your account settings:


1. Click on your profile icon in the top-right from the navigation bar.
2. Click **Account settings**. The **Account settings** dialog is displayed.

To update your default preferences for the **Brand**, **Units**, or **Flicker control** settings from the **Account settings** dialog, select the desired values from the drop-down menus for those fields and click **Apply**.

Changing the system language

You can use SDT in various available languages.


To change the system language:

1. Click  **Settings** in the top-right from the navigation bar. The **Settings** panel slides in on the right of your screen.
2. From the **Language** field drop-down list, select the desired language.

Changing the system theme

You can use SDT in either a light or a dark theme.

To change the system theme:

1. Click  **Settings** in the top-right from the navigation bar. The **Settings** panel slides in on the right of your screen.
2. From the **Theme** field, select the desired theme option from **Light**, **Dark**, or **System**. The system theme is updated.

Light — corresponds to a light theme based on white or lighter shades of gray.

Dark — corresponds to a dark theme based on black or darker shades of gray.

System — corresponds to the default browser theme.

For More Information

For additional product documentation, visit motorolasolutions.com.

Technical Support

Contact Technical Support at motorolasolutions.com/support.