

# SMART Document Camera™ 330

**User's guide**

Scan the following QR code to read this guide on your smart phone or other mobile device.



Extraordinary made simple® | **SMART**

# Product registration

If you register your SMART product, we'll notify you of new features and software upgrades.

Register online at [smarttech.com/registration](http://smarttech.com/registration).

Keep the following information available in case you need to contact SMART Support.

Serial number:

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Date of purchase:

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## FCC warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**User installer caution:** Your authority to operate this FCC verified equipment could be voided if you make changes or modifications not expressly approved by the party responsible for compliance to Part 15 of the FCC rules.

## Trademark notice

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Patents pending.

02/2012

# Important information

## **WARNING**

- Failure to follow the installation instructions shipped with your SMART product could result in personal injury and damage to the product.
- Ensure that any cables extending across the floor to your SMART product are properly bundled and marked to avoid a trip hazard.
- Do not push foreign objects into the openings on your SMART product.
- Do not open or disassemble the SMART product. You risk electrical shock from the high voltage inside the casing. Opening the casing also voids your warranty.
- The camera arm on your SMART product has joints that present a pinch hazard when you move the camera arm. Keep clear of the pinch points.
- Do not stare into the lamp or shine the lamp directly into someone's eyes. Turn off the lamp when displaying or capturing images of people.
- Do not overload power outlets or extension cords as this can result in a fire or electric shock.
- Turn off and disconnect your SMART product before a thunderstorm. During a thunderstorm, do not touch your SMART product or the power plug, because there is a risk of electrical shock.
- To reduce the risk of fire or electric shock, do not expose the SMART product to rain or moisture.

## **CAUTION**

- Place your SMART product on a solid surface to prevent it from falling.
- If you have a security cable attached to your SMART product, do not carry or swing your SMART product by the security cable.
- Do not connect non-shielded interface cables to your SMART product and do not leave cables connected to unused connectors, because this can cause interference levels that exceed FCC regulations.
- Avoid setting up and using the SMART product in an area with excessive levels of dust, humidity and smoke.

## IMPORTANT INFORMATION

- Do not block or cover the openings or slots on your SMART product. These slots provide ventilation, ensure reliable operation and protect your SMART product from overheating.
- Do not carry your SMART product by the camera arm. Carry it by the base of the unit.
- Disconnect your SMART product from the power outlet before cleaning it. Use a clean damp cloth and do not use liquid or aerosol cleaners or solvents when cleaning your SMART product.
- Only use your SMART product with the type of power source that is written on the power supply and do not modify the plug.
- Do not aim the camera lens at the sun.
- If your SMART product requires replacement parts, make sure the service technician uses replacement parts specified by SMART Technologies or parts with the same characteristics as the original.

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Your SMART Document Camera™ 330 enables you to display 3D objects, printed documents and microscope slides on your computer, projector or television. You can capture images and save them to a SMART Notebook™ collaborative learning software file or to an SD or SDHC memory card.

Your document camera integrates with SMART Notebook software and SMART Board® interactive whiteboards, creating an interactive presentation environment.

If you have a mixed reality cube and SMART Notebook software 10.8 or later, you can use the cube with your document camera to manipulate 3D models in SMART Notebook files.

## Document camera features

### Camera

- High resolution 1.3 MP CMOS sensor
- 5.2× optical zoom, 8× digital zoom
- Up to 30 frames per second
- Automatic or manual focus
- Microscope mode that doesn't require adapters

### Output

- SXGA, WXGA, 720p or XGA resolution
- DVI-D output

### Physical construction

- Security lock slot
- Collapsible design for easy transport and storage
- Bright LED camera lamp

### Software

- SMART Notebook software, including SMART Notebook 3D Tools and Mixed Reality Tools software
- SMART Product Drivers
- Image Mate® software

### Image storage

- Supports memory cards with a built-in SD slot
- Supports USB memory sticks with a built in USB hub
- Supports image storage on connected computer



## Document camera views

Your document camera has three views you can use to control how it sends data to a computer, projector or television.

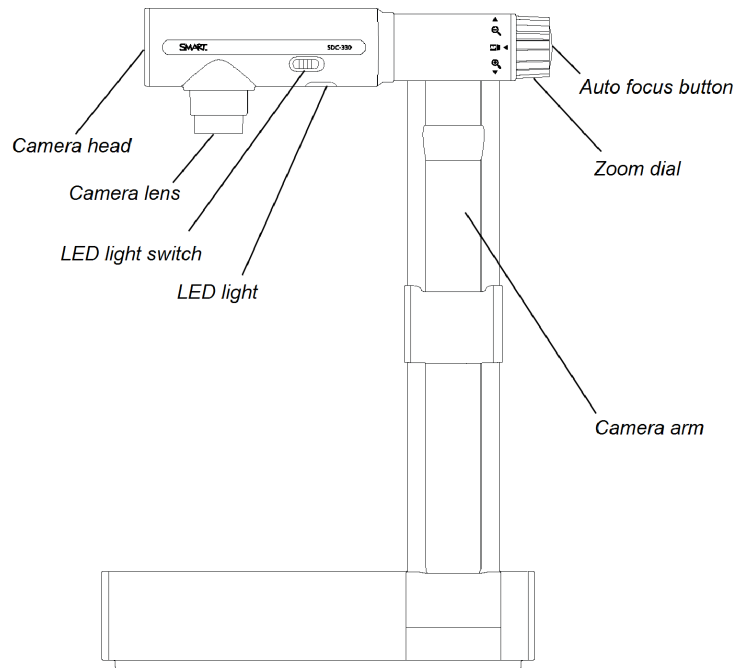
- Computer view displays images from your document camera in a SMART Notebook file on your computer.
- Camera view controls your document camera from the camera's control panel and displays images on a projector or television. You can also view images through SMART Notebook software.
- SD Card view controls your document camera from the camera's control panel and displays images from a memory card on a connected projector or television.

See *Understanding Computer, Camera and SD Card views* on page 19 for more information on these views.

## Parts of the document camera

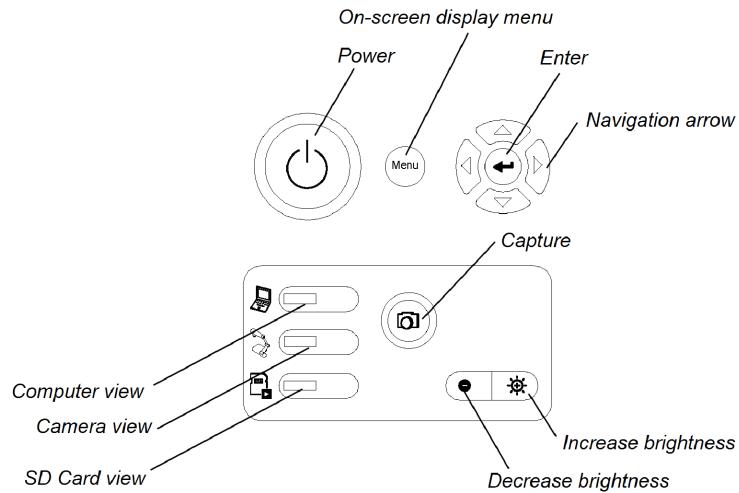
### Adjustable camera arm and camera head

You can unfold and adjust the camera arm. You can also rotate the camera head to display objects at a range of angles. The camera head has a zoom dial, an auto focus button and an LED light with a light switch.




## Control panel

You can use the control panel to switch between Computer, Camera and SD Card view, capture an image to a memory card and adjust brightness settings. You can also use it to control features and settings in the Camera view or the SD Card view's on-screen display menu.



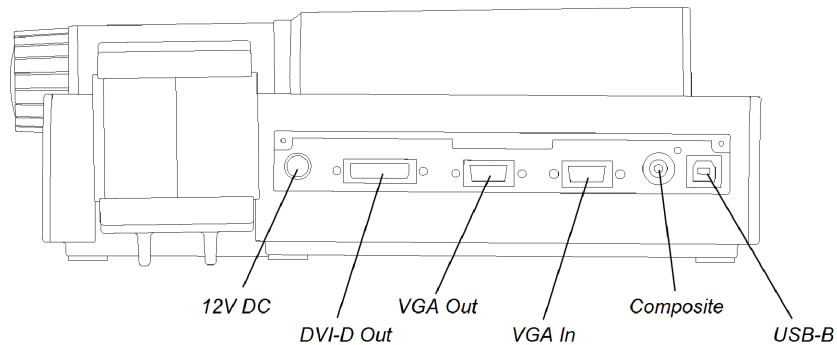
### **i** NOTE

On some cameras, Camera view is represented by a  symbol.

For information on views, see *Understanding Computer, Camera and SD Card views* on page 19.

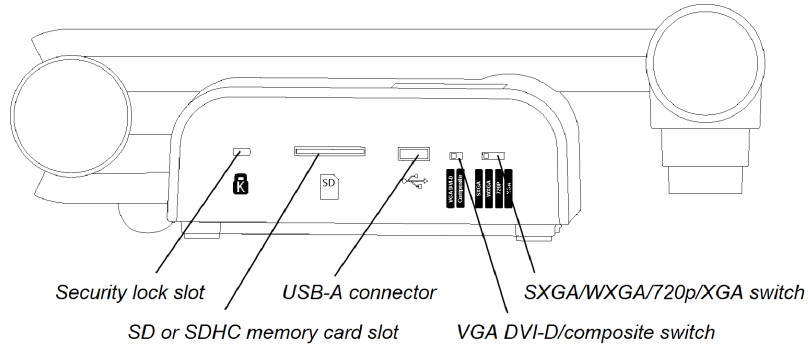
## Rear connection panel

The rear connection panel has 12V DC, DVI-D Out, VGA Out, VGA In, Composite video out and USB-B connectors.



## Side connection panel

The side connection panel has a security lock slot, an SD or SDHC memory card slot, a USB-A connector, a switch for selecting VGA DVI-D or composite video output, and a switch to select either SXGA, WXGA, 720p or XGA resolution.



## NTSC/PAL switch

The NTSC/PAL switch is on the bottom of your document camera. This switch enables you to change the format of composite video output for your television. See *Switching between NTSC and PAL* on page 15.

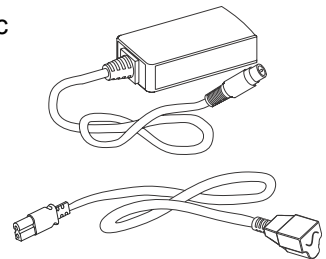
## Mixed reality cube

With a mixed reality cube, you can interact with 3D models in SMART Notebook software using Mixed Reality Tools. See *Using SMART Notebook 3D Tools and Mixed Reality Tools* on page 51.



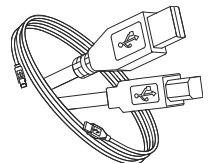
## Power supply

Your document camera comes with a power supply and a country-specific power cable.



## USB cable

Use the USB cable to connect your document camera to your computer. You can display objects, capture images to SMART Notebook files and control your document camera from SMART Notebook software.

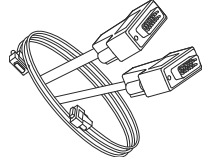


## CHAPTER 1

### Overview

#### VGA cable

Use the VGA cable to connect your document camera to a projector or display. You can display objects, capture images to a memory card and use the features in the on-screen display menus.



#### Anti-glare sheet

Place the anti-glare sheet over printed documents to reduce glare.



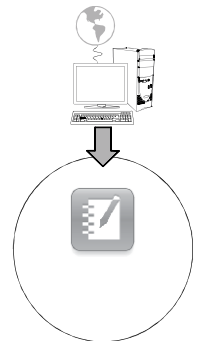
### Document camera software

Your document camera includes software downloads that will help you present images from your document camera.

#### SMART Notebook software and SMART Product Drivers

Your document camera uses SMART Notebook software and SMART Product Drivers. SMART Notebook software is presentation software designed to work with SMART Document Cameras and the touch features of SMART Board interactive whiteboards. In addition, if you have a mixed reality cube, you can manipulate 3D models in SMART Notebook files using Mixed Reality Tools (see *Using SMART Notebook 3D Tools and Mixed Reality Tools* on page 51).

You can download SMART Notebook software and SMART Product Drivers at [smarttech.com/software](http://smarttech.com/software).



You can find system requirements for your computer in the *SMART Notebook software 10.8 release notes* ([smarttech.com/kb/158853](http://smarttech.com/kb/158853)).



#### IMPORTANT

You need SMART Notebook software 10.8 or later to use SMART Notebook 3D Tools and Mixed Reality Tools.

## CHAPTER 1

### Overview

#### Image Mate software (Windows only)

You can use your document camera with Image Mate software. Visit the SMART download page at [smarttech.com/software](http://smarttech.com/software) to download Image Mate software.



## Chapter 2

# Setting up your SMART Document Camera

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## Basic connection

Connect your SMART Document Camera to a power supply and your computer to use your document camera with SMART Notebook software.



### IMPORTANT

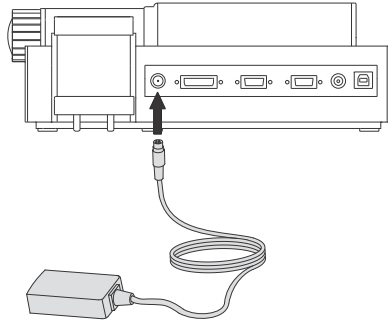
This configuration requires SMART Notebook software. To use Camera view or SD Card view, connect your document camera directly to an external display.

## CHAPTER 2

### Setting up your SMART Document Camera

#### To connect the power supply

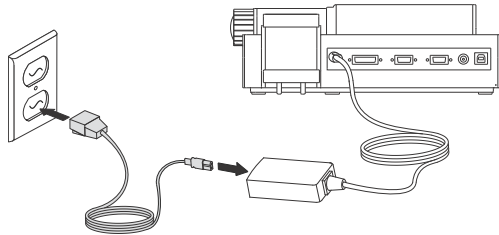
1. Connect the power supply cable to the **12V DC** receptacle on the rear connection panel.



#### CAUTION

Ensure you connect the power cable to the power supply before connecting the power plug to a power outlet.

2. Connect a country-specific power cable to the power supply, and then connect the plug to a power outlet.



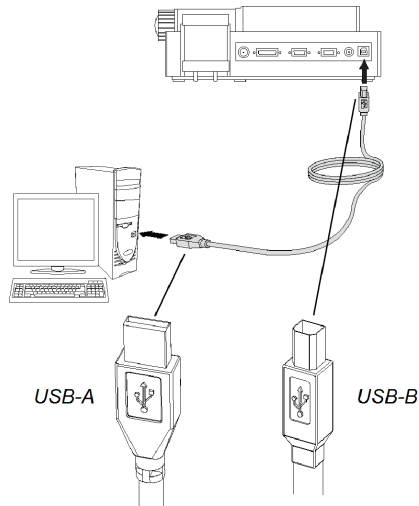


## CHAPTER 2

### Setting up your SMART Document Camera

#### To connect your document camera to your computer

Connect the USB-B plug of your USB cable to your document camera, and then connect the USB-A plug to your computer.



## Setup configurations for Camera view and SD Card view

After you complete the basic connection procedure (see page 9), you can connect your document camera to an external display. This enables you to use the document camera in Camera view and SD Card view (see page 19).

You can connect your computer and your document camera to different displays or they can share a display.

## Connecting your document camera and computer to different displays

In this configuration your document camera images appear on one display, and your computer's desktop appears on the other display. You can also access document camera images through SMART Notebook software on your computer.

### To connect your document camera and computer to different displays

1. Complete the basic connection steps (see page 9).
2. Connect your computer or laptop to the projector of an interactive display.

#### NOTE

This is the normal configuration for using interactive whiteboards.

3. Connect your document camera to another external display (see page 13).

## Connecting your document camera and computer to a shared display

In this configuration your document camera is connected to your computer with both a USB and a VGA cable. Your document camera is connected to an external display.

### To connect your document camera and computer to a shared display

1. Complete the basic connection steps (see page 9).
2. Connect your computer's **VGA Out** port to your document camera's **VGA In** port with a VGA cable.
3. Connect your document camera to an external display with a VGA cable (see page 13).

#### NOTE

DVI-D or composite video displays will not display your computer view. A VGA display is required.

This configuration makes it easy to transition from Computer view to Camera view or SD Card view using the same projector or display for all three views.

# Connecting your document camera to an external display

You can connect your document camera directly to an external display to enable the following functions:

- Use Camera view to view the camera image in full-screen on the external display.
- Use SD Card view to view a full-screen slide show on the external display.
- Access the Camera view's or SD Card view's on-screen display menu.

## Connecting to a projector or flat-panel display

You can connect your document camera to a projector or a display with the VGA cable.



### CAUTION

Ensure your projector or display is not connected to a power outlet when connecting it to your document camera.

#### To connect to a projector or display

1. Connect the VGA cable to the **VGA Out** connector on the back of your document camera.
2. Connect the other end of the VGA cable to the **VGA In** connector on your projector or display.

#### Switching between VGA DVI-D and Composite output

If you're using a projector or computer display with a VGA or DVI-D cable, switch your document camera to VGA DVI-D mode. If you're using a television with the Composite video cable, switch your document camera to Composite mode.

#### To switch to VGA DVI-D mode

Switch the **VGA DVI-D/Composite** switch on the side panel to **VGA DVI-D**.

#### To switch to composite mode

Switch the **VGA DVI-D/Composite** switch on the side panel to **Composite**.

### Connecting to a digital projector or HD display with DVI-D

You can connect your document camera to a digital projector or high-definition display using a DVI-D single link cable.

#### CAUTION

Ensure your digital projector or display is not connected to a power outlet when connecting it to your document camera.

#### NOTES

- Don't use a DVI-I or DVI-A cable.
- You can use a DVI-D dual link cable, but it will function as a single link DVI-D.
- If you connect your document camera directly to a projector or high-definition display with a DVI-D cable, you display only the camera image, and not your computer desktop or SMART Notebook presentation.

#### To connect to a digital projector or display

1. Connect a DVI cable from the **DVI-D Out** connector on your document camera to the **DVI-D In** connector of your digital projector or high-definition display.
2. Switch to VGA DVI-D mode (see page 13).

### Connecting to a television

You can connect your document camera to a television with a Composite video cable.

#### CAUTION

Ensure your television is not connected to a power outlet when connecting it to your document camera.

#### To connect to a television

1. Connect a Composite video cable from the **Composite Out** connector on your document camera to the **Video In** connector on your television.
2. Switch to Composite mode. See *Switching between VGA DVI-D and Composite output* on the previous page.

## CHAPTER 2

### Setting up your SMART Document Camera

#### Switching between NTSC and PAL

When you connect your document camera to a television, switch it to your television's encoding system (either NTSC or PAL).

#### To switch between NTSC and PAL

Switch the **NTSC/PAL** switch on the bottom of your document camera to **NTSC** if your television uses NTSC encoding, or to **PAL** if your television uses PAL encoding.

### Setting output resolution

You can set your document camera's output resolution to match the projector or display you're using.

#### To set the output resolution

Set the **SXGA/WXGA/720p/XGA** switch to match the resolution of your display. Refer to the chart below to determine the output resolution you need.

Setting	Resolution
SXGA	1280 × 1024
WXGA	1280 × 800
720p	1280 × 720
XGA	1024 × 768

## Downloading software

Your document camera includes software downloads that you can use to create more effective presentations.

#### To install SMART Notebook software and SMART Product Drivers

1. Go to [smarttech.com/software](http://smarttech.com/software).
2. Scroll to *SMART Notebook collaborative learning software*.
3. Under *Choose a version*, select the latest version of SMART Notebook software for Windows® or Mac, and then follow the on-screen instructions.

### ■ To download and install Image Mate software

1. Visit the SMART download page at [smarttech.com/software](http://smarttech.com/software).
2. Scroll to *Image Mate software for SMART Document Cameras*.
3. Under *Choose a version*, select **Image Mate 2.0 software for SMART Document Camera 330**, and then follow the on-screen instructions.

## Activating SMART Notebook 3D Tools and Mixed Reality Tools

SMART Notebook 3D Tools and Mixed Reality Tools provide an intuitive way for students and teachers to explore digital content with the SMART Document Camera.

When you connect your document camera to your computer, SMART Notebook 3D Tools and Mixed Reality Tools activate automatically. If you want to use SMART Notebook 3D Tools on a computer that has never been connected to a document camera, you can activate SMART Notebook 3D Tools by obtaining a product key and following the procedure below.

### **i** NOTE

You can obtain a product key for SMART Notebook 3D Tools by registering your document camera's serial number at [smarttech.com/register](http://smarttech.com/register).

### ■ To activate SMART Notebook 3D Tools

1. For Windows operating systems, select **Start > All Programs > SMART Technologies > SMART Tools > SMART Product Update**.

For Mac OS X operating system software, browse to and double-click **Applications\SMART Technologies\SMART Tools\SMART Product Update**.

The *SMART Product Update* window appears.

2. Click **Activate** in the *SMART Notebook* row.

The *SMART Software Activation* dialog box appears.

3. Click **Add**.
4. Type the product key you received from SMART in the *Product Key* box, and then click **Add**.
5. Click **license agreement**, review the license agreement, and then click **Close**.

## CHAPTER 2

### Setting up your SMART Document Camera

6. If you accept the license agreement, select the **I accept the terms in the license agreement** check box.
7. Click **Next**.  
SMART Notebook 3D Tools activates.
8. Click **Finish**, and then close the *SMART Product Update* window.





## Chapter 3

# Using your SMART Document Camera

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## Understanding Computer, Camera and SD Card views

You can use your SMART Document Camera in Computer, Camera and SD Card views. Each view enables you to do different things and requires a specific connection to either a display, projector or computer.

- **Computer view**

Connect your document camera to your computer with the included USB 2.0 cable, and then set your document camera to Computer view to view document camera images only in SMART Notebook software.

You can then save images to your SMART Notebook file for later presentation, or if your computer is connected to an interactive whiteboard, projector or television, you can deliver your SMART Notebook presentation with live images from your document camera.

See *Using your SMART Document Camera in Computer view* on page 27.

## CHAPTER 3

### Using your SMART Document Camera

#### • Camera view

Connect your document camera to a projector or television, and then set your document camera to Camera view. You can then view full-screen images from your document camera using a projector or high-definition display, even without a computer. You can still view images through SMART Notebook software.

You can use the Camera view on-screen display menu for greater control of the image, using Microscope mode, highlight boxes, screen masks and more.

See *Using your SMART Document Camera in Camera view* on page 29.

#### • SD Card view




Connect your document camera to a projector or television, place an SD or SDHC memory card in your document camera, and then set your document camera to SD Card view. You can then view full-screen images and slide shows from the memory card directly on a projector or high-definition display, even without a computer.

You can use the SD Card view's on-screen display menu for greater control of the image, using highlight boxes, screen masks and more.

See *Using your SMART Document Camera in SD Card view* on page 43.

## Identifying view features

The following table describes the differences between each view:

Feature description	Computer view 	Camera view 	SD Card view 
View computer input (VGA In)	Yes (VGA Out only)	No	No
View document camera image	Yes (DVI-D Out only)	Yes	No
View pictures from a memory card	No	No	Yes
Access memory card from computer with a USB cable	Yes <sup>1</sup>	Yes <sup>1</sup>	Yes <sup>1</sup>
Control document camera from computer	Yes <sup>2</sup>	Yes <sup>2</sup>	No
Capture to SMART Notebook or Image Mate software	Yes <sup>2</sup>	Yes <sup>2</sup>	No
Capture to a memory card	Yes <sup>2</sup>	Yes <sup>2</sup>	No
Access related on-screen display menu	No	Yes	Yes




1. Only when USB-B mode is set to **SD Storage**. See *Setting USB-B SD Storage mode* on page 40.

2. Only when USB-B mode is set to **Application**. See *Setting USB-B Application mode* on page 39.

## CHAPTER 3


### Using your SMART Document Camera

The following table describes outputs when your document camera is connected to a display with VGA DVI-D or Composite Video Out:

Feature description	Computer view 	Camera view 	SD Card view 
Connect to projector or display (VGA Out)	VGA In	Camera image	Memory card images
Connect to high-definition projector or display (DVI-D Out)	Camera image	Camera image	Memory card images
Connect to television (Composite Video Out)	N/A	Camera image	Memory card images

## Setting document camera views


### To set Computer view

Press the **Computer view**  button on the control panel. For more information, see page 27.

### To set Camera view

Press the **Camera view**  button on the control panel. For more information, see page 30.

### To set SD Card view

Press the **SD Card view**  button on the control panel. For more information, see *Setting your document camera to SD Card view* on page 43.

## Performing basic operations

Use the following operations when your document camera is in any view.

### Positioning your document camera

The camera arm unfolds and the camera head rotates so you can position your document camera to display objects.

## CHAPTER 3

### Using your SMART Document Camera

#### ■ To unfold and position your document camera

1. Place a hand on the base of the document camera to stabilize it, and then pull the camera arm upward and forward.
2. Rotate the camera head and aim the lens at your subject.

### Turning your document camera on and off

#### ■ To turn your document camera on

Press the **Power**  button on the control panel.

The power light turns from amber to flashing green. When the light becomes solid green, your document camera is operational.

#### ■ To turn your document camera off

Press the **Power**  button on the control panel.

The power light turns from green to amber.

### Using the LED light

You can use the LED light on the camera head to illuminate your subject.

#### ■ To turn the LED light on

Switch the LED light switch to the left. See *Parts of the document camera* on page 3.


#### CAUTION

Do not stare into the lamp or shine the lamp directly into someone's eyes. Turn the light off when displaying or capturing images of people.

### Displaying printed documents

When you set your document camera to Computer view or Camera view, you can display printed documents, use the anti-glare sheet to reduce glare, optimize the image for text documents with Text modes and optimize the image for documents with graphics with Graphics modes.




### ■ To display printed documents

1. Place your documents on the table.
2. Adjust the document camera and aim its lens at your documents.
3. Rotate the zoom dial to adjust the zoom magnification.
4. Press the **Auto Focus**  button to adjust the focus.




### ■ To reduce glare with the anti-glare sheet

If glare makes it difficult for you to read printed documents that you're displaying, place the anti-glare sheet on top of the printed materials.

### ■ To optimize the image for text documents

1. When your document camera is in Camera view, press **Menu** on the control panel.  
The on-screen display menu appears.
2. Select **Image Setting**, and then press **Enter** .
3. Select **Image mode**, and then press **Enter** .
4. Select either **Text 1**, **Text 2** or **Text 3**, and then press **Enter** . See *Camera view Image Settings on-screen display menu* on page 32 for an explanation of the settings.

### ■ To optimize the image for documents with graphics

1. When your document camera is in Camera view, press **Menu** on the control panel.  
The on-screen display menu appears.
2. Select **Image Setting**, and then press **Enter** .
3. Select **Image mode**, and then press **Enter** .
4. Select either **Graphics 1** or **Graphics 2**, and then press **Enter** . See *Camera view Image Settings on-screen display menu* on page 32 for an explanation of the settings.

## Inserting and removing a memory card

Your document camera has a memory card slot, enabling you to save document camera images (when your document camera is in Computer view or Camera view) or to display previously captured images (when your document camera is in SD Card view).

#### CAUTION

Avoid static electricity near a memory card because it can damage the card.


#### To insert a memory card

1. Press the **Camera view**  button on the control panel.
2. Insert a memory card into the card slot on the side panel.

#### IMPORTANT

- Set your document camera to Application mode (see *Setting USB-B Application mode* on page 39) if you want to capture images to the memory card.
- Ensure the label on the memory card is facing up.

#### To remove a memory card

1. Press the **Camera view**  button on the control panel and wait until your document camera displays a live image.
2. Push in the memory card to eject it, and then remove the card.

#### CAUTION

To prevent memory card damage, do not remove the memory card while capturing or deleting images.

## Using your document camera with SMART Notebook software

Your SMART Document Camera integrates with SMART Notebook software, enabling you to control your document camera from your computer or from a SMART Board interactive whiteboard or display. You can display objects, capture an image and your annotations on an image to a SMART Notebook page, zoom, focus and adjust brightness settings.


#### NOTE

For information on using SMART Notebook 3D Tools and Mixed Reality Tools, see *Using SMART Notebook 3D Tools and Mixed Reality Tools* on page 51.

## CHAPTER 3

### Using your SMART Document Camera


#### ■ To open a SMART Document Camera window








1. Connect your SMART Document Camera to your computer and turn on the document camera.
2. Place the object or objects you want to display under the camera.
3. Press **SMART Document Camera** .

A *SMART Document Camera* window appears.



#### NOTE


Alternatively, you can open the SMART Document Camera window by pressing **Capture**  on the SMART Document Camera control panel.

4. Do any of the following:
  - Press **Zoom In**  to zoom in.
  - Press **Zoom Out**  to zoom out.
  - Press **Increase Brightness**  to brighten the image.
  - Press **Decrease Brightness**  to darken the image.
  - Press **Focus In**  or **Focus Out**  to change the focus manually.
  - Press **Autofocus**  to change the focus automatically.
5. Press **Close** when you're done.



## CHAPTER 3

### Using your SMART Document Camera


#### ■ To convert the image

1. Open a SMART Document Camera window.
2. Press **Additional Settings** .
3. Do any of the following:
  - Select **Rotate 180 Degrees** to rotate the image 180°.
  - Select **Convert to Color** to convert a black and white image to color.
  - Select **Convert to Black and White** to convert a color image to black and white.
  - Select **Convert to Positive** to convert a negative image to positive.
  - Select **Convert to Negative** to convert a positive image to negative.


#### ■ To use Microscope mode

1. Open a SMART Document Camera window.
2. Press **Additional Settings** , and then select **Start Microscope Mode**.
3. When you're done, press **Additional Settings** , and then select **Stop Microscope Mode**.



#### ■ To take a screen capture

1. Open a SMART Document Camera window.
2. Press **Capture and Close**  to insert a screen capture on the current page and close the window.

OR

Press **Capture to New Page**  to insert a screen capture on a new page and keep the window open.

#### ■ To take a series of screen captures

1. Open a SMART Document Camera window.
2. Press **Capture with Time-Lapse** , and then select a period of time. (For example, if you want to take a screen capture every 15 seconds, select **15 Seconds**.)
3. Press  when you're done.



## Chapter 4

# Using your SMART Document Camera in Computer view

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This view is for presenting images from your SMART Document Camera through your SMART Notebook software or Image Mate software. Connect your computer to both your document camera and your projector, and then set your document camera to Computer view.

The interactive whiteboard or projector displays your computer desktop or SMART Notebook file, and you can view or capture images from the camera.


Computer view is accessible in all computer, projector and document camera setup configurations.

## Setting Computer view

### **IMPORTANT**

Your document camera must be in Application mode. See *Setting USB-B Application mode* on page 39.

### **To set Computer view**

1. Ensure your document camera is connected to your computer with the included USB 2.0 cable.
2. Ensure your computer is connected to a projector or a display.
3. Press the **Computer view**  button on the control panel.

## CHAPTER 4

Using your SMART Document Camera in Computer view

# Using Computer view

Computer view enables you to bring images from your document camera into SMART Notebook software.

### To use Computer view

Refer to *Using your document camera with SMART Notebook software* on page 24.

## Chapter 5

# Using your SMART Document Camera in Camera view

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Connect your SMART Document Camera to an external display to see a full-screen image from your document camera.

You can use your document camera in Camera view to perform the following tasks:

- Display objects
- Capture images to an SD or SDHC memory card
- Capture images to SMART Notebook or Image Mate software
- Use the features and settings in the on-screen display menu

## CHAPTER 5

Using your SMART Document Camera in Camera view

- Use Microscope mode to use your document camera with a standard microscope eyepiece without additional adapters

## Setting Camera view

Switch your document camera to Camera view to display images on a projector, flat-panel display or television.



### IMPORTANT



Your document camera must be connected directly to an external display. See *Connecting your document camera to an external display* on page 13.

#### ■ To switch to Camera view

1. Connect your document camera to a projector or flat-panel display with the appropriate cable (see *Connecting your document camera to an external display* on page 13).

2. Press the **Camera view**  button on the control panel.



#### ■ To display objects

1. Press the **Power**  button on the control panel.
2. Press the **Camera view**  button on the control panel.
3. Place the object you want to display under the camera.
4. Rotate the camera head to aim the lens at your subject.

#### ■ To adjust the zoom magnification

Rotate the zoom dial on the camera head to increase or decrease the zoom magnification.

#### ■ To automatically adjust the focus

Press the **Auto Focus**   button on the camera head to automatically focus the image.

#### ■ To adjust brightness settings

Press the **Brighten**  or the **Darken**  button on the control panel.

# Using Microscope mode

The SMART Document Camera enables you to view the microscope stage through the document camera without additional attachments.




### ■ To display a microscope slide

1. Place a slide or object on the stage of the microscope.
2. Focus the microscope so that the subject is in sharp focus.
3. Position the microscope under your document camera so the camera lens is aligned with the microscope eyepiece.



#### CAUTION


Ensure you do not hit your document camera lens with the microscope. This could damage your document camera's lens.

4. Press the **Camera view**  button on the control panel.
5. Press **Menu** on the control panel.
6. Select the **Image Setting** menu.
7. Use the up and down arrow buttons to select **Microscope mode**, and then press **Enter** .
8. Use the up and down arrow buttons to select **On**, and then press **Enter** .

# Using the Camera view's on-screen display menu



You use the on-screen display menu to adjust several settings for your document camera.

### ■ To open the Camera view's on-screen display menu

1. Set your document camera to Camera view.
2. Press the **Menu** button on the control panel.  
The on-screen display menu appears.
3. Press the up and down arrow buttons on the control panel to navigate to a menu item.
4. Press the left and right arrow buttons to navigate forward or backward through menu items.
5. Press **Enter**  to select a menu item.

## CHAPTER 5

Using your SMART Document Camera in Camera view

- To return to the previous menu level, use the down arrow button to navigate to **Back** , and then press **Enter** .

OR

To exit the menu, press **Menu**.







The following on-screen display menu options are available when your document camera is in Camera view:

Menu	Options
Image Settings	Brightness, Reset Brightness, Auto focus, Focus, Shutter Speed, White Balance, R/B-Gain, Image mode, Edge Effect, Gamma, Image Rotation, Microscope mode, Color/B&W and Positive/Negative. See <i>Camera view Image Settings on-screen display menu</i> below.
Special Tools	Highlight, Mask, Scroll and Picture in Picture. See <i>Camera view Special Tools on-screen display menu</i> on page 34.
Function Settings	USB-B mode, Frequency, Save Settings, Load Settings, Menu Display and Language. See <i>Camera view Function Settings on-screen display menu</i> on page 38.

### Camera view Image Settings on-screen display menu















#### To access the Image Settings menu

Select **Camera view**  > **Menu** > **Image Settings** .

Image Settings menu options	Description
 <b>Brightness</b>	
• Auto	Adjusts image brightness automatically
• Manual	Allows you to manually adjust image brightness
 <b>Reset Brightness<sup>1</sup></b>	
• Yes	Resets image brightness
• No	Cancels resetting
 <b>AF mode</b>	
• Push	Sets the focus when you press the <b>Auto Focus</b>   button
• Zoom Sync	Automatically sets the focus when you adjust the zoom
 <b>Focus</b>	Allows you to manually adjust focus

## CHAPTER 5

Using your SMART Document Camera in Camera view

Image Settings menu options	Description
 <b>Shutter Speed</b>	
<ul style="list-style-type: none"><li>• Slow</li></ul>	Sets a slow shutter speed, resulting in a brighter image, but with more blur
<ul style="list-style-type: none"><li>• Fast</li></ul>	Sets a fast shutter speed, resulting in a darker image, but with less blur
 <b>White Balance</b>	
<ul style="list-style-type: none"><li>• Auto</li></ul>	Sets white balance automatically
<ul style="list-style-type: none"><li>• One-Push</li></ul>	Sets white balance when you press the <b>Auto Focus</b>  button
<ul style="list-style-type: none"><li>• Manual</li></ul>	Allows you to manually set the White Balance, using red grain and blue grain
 <b>R-Grain<sup>2</sup></b>	Manually sets red grain
 <b>B-Grain<sup>2</sup></b>	Manually sets blue grain
 <b>Image mode</b>	
<ul style="list-style-type: none"><li>• Text 1</li><li>• Text 2</li><li>• Text 3</li></ul>	Optimizes image for displaying text documents by emphasizing contrast. Setting is low at <b>Text 1</b> and high at <b>Text 3</b> .
<ul style="list-style-type: none"><li>• Graphics 1</li></ul>	Optimizes image for displaying graphics. Displays <b>Edge Effect</b>  and <b>Gamma</b>  icons.
<ul style="list-style-type: none"><li>• Graphics 2</li></ul>	Optimizes image from DLP projector
 <b>Edge Effect<sup>3</sup></b>	Emphasizes image outlines. Set to Low, Middle or High.
 <b>Gamma<sup>3</sup></b>	Sets Gamma for the image. Set to Low, Middle or High.
 <b>Image Rotation</b>	
<ul style="list-style-type: none"><li>• Off</li></ul>	Displays normal image rotation
<ul style="list-style-type: none"><li>• On</li></ul>	Rotates image 180°
 <b>Microscope mode</b>	
<ul style="list-style-type: none"><li>• On</li></ul>	Turns on Microscope mode
<ul style="list-style-type: none"><li>• Off</li></ul>	Turns off Microscope mode
 <b>Color/B&amp;W</b>	
<ul style="list-style-type: none"><li>• Color</li></ul>	Displays color images
<ul style="list-style-type: none"><li>• B&amp;W</li></ul>	Displays black and white images
 <b>Positive/Negative</b>	
<ul style="list-style-type: none"><li>• Positive</li></ul>	Displays normal image
<ul style="list-style-type: none"><li>• Negative</li></ul>	Displays film negative image

## CHAPTER 5





Using your SMART Document Camera in Camera view

1. Visible only when Brightness is set to Auto
2. Visible only when White Balance is set to Manual
3. Visible only when Image mode is set to Graphics 1

### Camera view Special Tools on-screen display menu

#### To access the Special Tools menu

Select **Camera view**  **> Menu > Special Tools** .

Special Tools menu options	Description
 <b>Highlight</b>	
<ul style="list-style-type: none"><li>• Highlight On</li><li>• Adjust Transparency</li><li>• Adjust Size</li></ul>	Highlights a center square on the displayed image
 <b>Mask</b>	
<ul style="list-style-type: none"><li>• Mask On</li><li>• Adjust Transparency</li></ul>	Covers the displayed image with an adjustable screen mask
 <b>Scroll</b>	
<ul style="list-style-type: none"><li>• Scroll on</li><li>• ×2</li><li>• ×3</li><li>• ×4</li></ul>	Zooms in on the displayed images and enables you to move the zoomed area with the up, down, left and right arrow buttons on the control panel
 <b>PiP</b>	Takes a picture, and then displays that picture in a corner of the screen while you move or zoom the camera

#### Using the highlight feature

When you use the highlight feature, a square in the center of the displayed image highlights your subject. You can change the size, transparency and position of the highlight square.

#### **NOTE**

The highlight feature is for display purposes only. If you capture an image while the highlight square is on, the image doesn't include the highlight.






## CHAPTER 5

Using your SMART Document Camera in Camera view

### ■ To use the highlight feature

1. Display an object in Camera view, and then press **Menu** on the control panel.

The on-screen display menu appears.

2. Press the up and down arrow buttons to select **Special Tools** , and then press **Enter** .
3. Use the up and down arrow buttons to select **Highlight > Highlight On**, and then press **Enter** .

Your document camera highlights a square in the center of the image and obscures the edges of the image.





### ■ To move the highlight square

Use the up, down, right and left arrow buttons to move the highlight square.

### ■ To change highlight transparency

1. Press **Menu**.






The on-screen display menu appears.

2. Press the up and down arrow buttons to select **Special Tools** , and then press **Enter** .
3. Press the up and down arrow buttons to select **Highlight On**, and then press **Enter** .
4. Press the up and down arrows to select **Highlight transparency**.
5. Press **Enter**  to save your settings.

### ■ To change the highlight area size

1. Press the **Menu** button on the control panel.

The on-screen display menu appears.

2. Press the up and down arrow buttons to select **Special Tools** , and then press **Enter** .
3. Press the up and down arrow buttons to select **Highlight**, and then press **Enter** .
4. Select **Adjust size**, and then press **Enter** .
5. Press the up, down, left and right arrow buttons to change the highlight area size.
6. Press **Enter**  to save your settings.

### ■ To turn off the highlight feature

Press **Enter** .

## CHAPTER 5

Using your SMART Document Camera in Camera view




### Using image masks

Image masks obscure most of the image. You can resize or move the mask to reveal more of the image.

#### NOTE

The image mask feature is for display purposes only. If you capture an image while the image mask is on, the image doesn't include the image mask.





#### To use an image mask

1. Display an object in Camera view, and then press **Menu** on the control panel.  
The on-screen display menu appears.
  2. Press the up and down arrow buttons to select **Special Tools** , and then press **Enter** .
  3. Press the up and down arrow buttons to select **Mask on**, and then press **Enter** .
- An image mask appears on the image.

#### To move the image mask

Press the up, down, right and left arrow buttons to move the mask area.

#### To change image mask transparency

1. Press **Menu**.  
The on-screen display menu appears.
2. Press the up and down arrow buttons to select **Special Tools** , and then press **Enter** .
3. Press the up and down arrow buttons to select **Image Mask Transparency**, and then press **Enter** .
4. Press the up and down arrows to select **Adjust transparency**.
5. Press **Enter**  to save your settings.

#### To turn off an image mask

Press **Enter** .

### Using the scroll feature

The scroll feature zooms in on the image and allows you to move the zoomed area with the arrow buttons.




## CHAPTER 5

Using your SMART Document Camera in Camera view

### NOTE

The scroll feature is for display purposes only. If you capture an image while the scroll is on, the captured image is the unscrolled image.

#### To display the scroll feature


1. Display an object in Camera view, and then press **Menu** on the control panel.  
The on-screen display menu appears.
2. Press the up and down arrow buttons to select **Special Tools**, and then press **Enter** .
3. Press the up and down arrow buttons to select **Scroll**, and then press **Enter** .
4. Press the up and down arrow buttons to select **Scroll On**, and then press **Enter** .

Your document camera displays a zoomed area of the image.

#### To move the zoomed scroll area

Use the up, down, right and left arrows to move the zoomed scroll area.

#### To change the scroll area magnification

When setting the scroll feature, select either **×2**, **×3** or **×4**, and then press **Enter** .



### Using the Picture in Picture (PiP) feature

The Picture in Picture (PiP) feature captures a temporary image from your document camera, and then displays it in one corner of the display. You can then change what is under the camera without the temporary image changing.

### NOTE

The PiP feature is for display purposes only. If you capture an image while the PiP is on, the image doesn't include the PiP.

#### To display the PiP image

1. Display an object in Camera view, and then press **Menu** on the control panel.  
The on-screen display menu appears.
2. Press the up and down arrow buttons to select **Special Tools**, and then press **Enter** .
3. Press the up and down arrow buttons to select **PiP**, and then press **Enter** .

Your document camera displays a picture in picture image.


## CHAPTER 5

Using your SMART Document Camera in Camera view

### To move the PiP image

When displaying the PiP image, press the up, down, left and right arrow buttons on the control panel to move the image.





### To turn off the PiP setting

Press **Enter**  on the control panel.

## Camera view Function Settings on-screen display menu



### To access the Functions Settings menu

Select **Camera view**  > **Menu** > **Function Settings** .

Function Settings menu options	Description
 <b>USB-B mode</b>	
• SD Storage	Allows you to copy or view your memory card from your computer. See <i>Setting USB-B SD Storage mode</i> on page 40.
• Application	Use SMART Notebook software to control your document camera, and more. See <i>Setting USB-B Application mode</i> on the next page.
 <b>Frequency</b>	
• 60 Hz	Sets frequency at 60 Hz
• 50 Hz	Sets frequency at 50 Hz
 <b>Save Setting</b>	
• 1	Saves presets for setting 1
• 2	Saves presets for setting 2
• 3	Saves presets for setting 3
• 4 [Power On]	Saves presets for when you turn your document camera on
• Cancel	Cancels preset save
 <b>Load Setting</b>	
• 1	Loads preset 1
• 2	Loads preset 2
• 3	Loads preset 3
• Default	Loads default settings

## CHAPTER 5

Using your SMART Document Camera in Camera view

Function Settings menu options	Description
<ul style="list-style-type: none"><li>• 4 [Power On]</li></ul>	Loads preset for when you turn your document camera on
<ul style="list-style-type: none"><li>• Cancel</li></ul>	Cancels load setting
 <b>Menu Display</b>	
<ul style="list-style-type: none"><li>• On</li></ul>	Turns on menu display
<ul style="list-style-type: none"><li>• Off</li></ul>	Turns off menu display
 <b>Language</b>	
<ul style="list-style-type: none"><li>• English</li></ul>	Sets language to English
<ul style="list-style-type: none"><li>• Français</li></ul>	Sets language to French
<ul style="list-style-type: none"><li>• Deutsch</li></ul>	Sets language to German
<ul style="list-style-type: none"><li>• Español</li></ul>	Sets language to Spanish

### Setting USB-B mode

USB-B mode sets how your document camera, your computer and a memory card interact.

#### To access the USB-B mode setting

Select **Camera view**  > **Menu** > **Function Settings**  > **USB-B mode** .

Action	SD Storage mode	Application mode
See the memory card from your computer	Yes	No
View and use your document camera from SMART Notebook or Image Mate software	No	Yes
Capture image to the memory card in both Computer view and Camera view	No	Yes
SD Card view menu includes SD Settings	No	Yes




### Setting USB-B Application mode

To use your document camera with your computer, you must set it to Application mode in the Camera view on-screen display menu.

#### **IMPORTANT**

Your document camera must be in Camera view to set it to Application mode. It cannot be in Computer view or SD Card view.




### ■ To set your document camera to Application mode

1. Connect your document camera to a projector or flat-panel display with the VGA cable (see page 13).
2. Turn on your computer, and set it to Camera view.
3. Press **Menu** on the control panel.  
The on-screen display menu appears.
4. Press the up and down arrow buttons on the control panel to select **Function Setting**, and then press **Enter** .
5. Select **USB-B mode**, and then press **Enter** .
6. Select **Application** and then press **Enter** .

### Setting USB-B SD Storage mode

This mode enables you to see the contents of your memory card from your computer.

### ■ To set SD Storage mode

1. Connect your document camera to a projector, flat-panel display or television (see page 13).
2. Press **Menu** on the control panel.  
The on-screen display menu appears.
3. Press the up and down arrow buttons on the control panel to select **Function Setting**, and then press **Enter** .
4. Select **USB-B mode**, and then press **Enter** .
5. Select **SD Storage** and then press **Enter** .

## Saving images to a memory card

You can capture images to a memory card when your document camera is in Camera view.


### Capturing images to a memory card

#### ■ To capture images to a memory card

1. Set your document camera to Camera view. See *Setting Camera view* on page 30.
2. Position your document camera.

## CHAPTER 5

Using your SMART Document Camera in Camera view

3. Make any camera settings you require using the Camera view's on-screen display menu.
4. Press the **Capture**  button on the document camera control panel.

The camera capture icon appears, indicating that a photo is being taken.



### IMPORTANT

If you do not see the camera capture icon, ensure your document camera's USB-B mode is set to Application. See *Setting USB-B Application mode* on page 39.

## Transferring images from a memory card to your computer

You can transfer images from a memory card to your computer.

### To transfer images to your computer

1. Set your document camera to SD Storage mode. See *Setting USB-B SD Storage mode* on the previous page.
2. Connect your document camera to your computer with the USB cable (see *Basic connection* on page 9).

Your computer recognizes your document camera and memory card as a removable disk.

3. Browse to the removable disk on your computer, and then transfer the images to your computer.





## Chapter 6

# Using your SMART Document Camera in SD Card view


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When you set your SMART Document Camera to SD Card view, your document camera acts as an SD or SDHC memory card reader, displaying previously captured images either individually or as a slide show. Your computer isn't used in an SD Card presentation.


## Setting your document camera to SD Card view

### ■ To set SD Card view

1. Ensure your document camera is connected directly to a projector or another display. For connection information, see page 11.
2. Insert a memory card in your document camera.
3. Press the **SD Card view**  button on the control panel.

## Using the SD Card view display


### To display images

1. Press the **SD Card view**  button on the control panel.
2. Use the left and right arrow buttons on the control panel to scroll through images on the memory card.

### To display and select thumbnail images

1. Press the **SD Card view**  button on the control panel.
2. Press **Enter**  to display up to 16 thumbnail-sized images.

### To return to displaying single images

Press **Enter**  to display a single image.

## Using the SD Card view on-screen display menu

The SD Card view's on-screen display's menu enables you to use the document camera as a memory card reader.

### SD Card view's on-screen display menu options

The following on-screen display menu options are available when your document camera is in SD Card view.

Menu	Options
SD Settings	Delete, Lock, Unlock and Format Media. See <i>Setting USB-B Application mode</i> on page 39. Your document camera's USB-B mode must be set to Application to see this menu. See <i>SD Settings on-screen display menu</i> on the next page.
Special Tools	Highlight, Mask and Scroll. See <i>Special Tools on-screen display menu</i> on page 48.
Slide Show	Start Slideshow, Interval, Select, Repeat and Order. See <i>Slideshow Settings on-screen display menu</i> on page 49.





## SD Settings on-screen display menu

### To access the SD Settings menu

Select **SD Card view**  > **Menu** > **SD Settings** .

#### IMPORTANT

The SD Settings are available only if you have your document camera set to Application mode in the Camera view on-screen display menu. See *Setting USB-B Application mode* on page 39.

SD Settings menu options	Description
 <b>Delete</b>	
• Current	Deletes current image
• All	Deletes all images in the current folder
• Cancel	Cancels image delete
 <b>Lock</b>	
• Current	Locks current image
• All	Locks all images
• Cancel	Cancels image lock
 <b>Unlock</b>	
• Current	Unlocks current image
• All	Unlocks all images
• Cancel	Exits Unlock settings
 <b>Format Media</b>	
• No	Cancels memory card formatting
• Yes	Formats memory card

## CHAPTER 6

Using your SMART Document Camera in SD Card view

### Deleting images from a memory card





You can delete images from a memory card in your document camera using the on-screen display menu.




#### IMPORTANT

- Your document camera must be set to Application mode. See *Setting USB-B Application mode* on page 39.
- You are unable to delete images from your computer, only from the document camera's memory card.

### To delete images

1. Press the **SD Card view**  button on the control panel.  
You see the current saved image from the memory card.
2. Use the left and right arrow buttons on the control panel to select the image you want to delete.
3. Press **Menu** on the control panel.  
The on-screen display menu appears.
4. Select **SD**, and then press **Enter** .
5. Select **Delete**, and then press **Enter** .
6. Select **Current**, and then press **Enter**  to delete the current image.

OR

Select **All**, and then press **Enter**  to delete all images in the viewed folder.

The deleting image icon displays briefly while your document camera deletes images.

### Locking and unlocking images

You can lock images to include them in slideshows set to **Select > Lock** in the Slideshow menu.




#### IMPORTANT

If you are unable to access the SD Menu, you must set your document camera's USB-B mode to Application. This is a Camera view menu setting. See *Setting USB-B Application mode* on page 39.



## CHAPTER 6

Using your SMART Document Camera in SD Card view

### ■ To lock images for a slideshow

1. Press the **SD Card view**  button on the control panel.
2. Use the arrow buttons on the control panel to select the image you want to lock, and then press the **Menu** button.

The on-screen display menu appears.

3. Select **SD > Lock**, and then press **Enter** .
4. Select **Current**, and then press **Enter** .

OR



Select **All** to lock all images.

Repeat steps 1 to 3 to lock other images for your slideshow.

### ■ To unlock images for a slideshow

1. In SD Card view, use the arrow buttons on the control panel to select the image you want to unlock, and press the **Menu** button.

The on-screen display menu appears.

2. Select **SD > Unlock**, and then press **Enter** .
3. Select **Current**, and then press **Enter** .

OR




Select **All** to unlock all images.

Repeat steps 1 to 3 to unlock other images for your slideshow.

## Special Tools on-screen display menu

### To access the Special Tools menu

Select **SD Card view**  > **Menu** > **Special Tools** .

Special Tools menu options	Description
 <b>Highlight</b>	
<ul style="list-style-type: none"> <li>Highlight On</li> <li>Adjust Transparency</li> <li>Adjust Size</li> </ul>	Highlights a center square on the displayed image
 <b>Mask</b>	
<ul style="list-style-type: none"> <li>Mask On</li> <li>Adjust Transparency</li> </ul>	Covers the displayed image with an adjustable screen mask
 <b>Scroll</b>	
<ul style="list-style-type: none"> <li>Scroll on</li> <li>×2</li> <li>×3</li> <li>×4</li> </ul>	Zooms in on the displayed images and enables you to move the zoomed area with the up, down, left and right arrow buttons on the control panel






The SD Card view's Special Tools menu includes the same tools as the Camera view's Special Tools menu, except that the SD Card view doesn't have the Picture in Picture (PiP) feature.

- For information on how to use the Highlight feature, see *Using the highlight feature* on page 34.
- For information on how to use the Mask feature, see *Using image masks* on page 36.
- For information on how to use the Scroll feature, see *Using the scroll feature* on page 36.

## Slideshow Settings on-screen display menu



### To access the Slideshow Settings menu

Select **SD Card view**  > **Menu** > **Slideshow** .

Slideshow menu options	Description
 <b>Start Slideshow</b>	Starts a slideshow of images
 <b>Interval</b>	
• 5 sec	Sets image interval to 5 seconds
• 10 sec	Sets image interval to 10 seconds
• 15 sec	Sets image interval to 15 seconds
• 30 sec	Sets image interval to 30 seconds
 <b>Select</b>	
• All	Selects all images for slideshow
• Lock	Sets so only locked images display in a slideshow
 <b>Repeat</b>	
• Off	Turns off slideshow repeat
• On	Turns on slideshow repeat
 <b>Order</b>	
• Forward	Sets slideshow order to forward
• Backward	Sets slideshow order to backward


### Showing slideshows

#### To start a slideshow

1. Access the Slideshow menu.
2. Select **Slideshow**, and then press **Enter** .
3. Select **Start Slideshow**, and press **Enter** .

Your document camera displays a slideshow of images on the memory card.

#### To stop a slideshow

Press **Enter**  or any of the arrow buttons on the control panel.

The image slideshow stops and the on-screen display menu appears.



## CHAPTER 6

Using your SMART Document Camera in SD Card view

### Displaying specific images in a slideshow

You can set your document camera to display only images that you select.

#### ■ To set SD settings to display selected images only

1. In SD Card view, press **Menu** on the control panel.  
The on-screen display menu appears.
2. Select **Slideshow > Select**, and then press **Enter** .
3. Select **Lock**, and then press **Enter**  so that only locked images display in a slideshow.



#### IMPORTANT

When you set the slideshow to Lock, it will include only images that are locked. You lock images in the SD Card view's SD menu, not the Slideshow menu.

#### ■ To lock images

See *Locking and unlocking images* on page 46.

#### ■ To unlock images

See *Locking and unlocking images* on page 46.



## Chapter 7

# Using SMART Notebook 3D Tools and Mixed Reality Tools

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Your SMART Document Camera can transform any classroom or lecture hall into a spontaneous and interactive learning environment. It uses a high-resolution video camera to display clear and detailed images of written material or any physical object.

SMART Notebook 3D Tools and Mixed Reality Tools take this experience to a new level by providing teachers and students with a new way to engage with digital 3D content.

This chapter provides the information you need to begin using SMART Notebook 3D Tools and Mixed Reality Tools with your SMART Document Camera as well as SketchUp™ sketching software and Google™ 3D Warehouse.

## CHAPTER 7

### Using SMART Notebook 3D Tools and Mixed Reality Tools

SMART Notebook 3D Tools and Mixed Reality Tools provide an intuitive way for students and teachers to explore digital content with the document camera. This technology is integrated with SMART Notebook software.

## Incorporating 3D content into your lessons

You can incorporate 3D content into your SMART Notebook software lessons. The following are examples of how to do this:

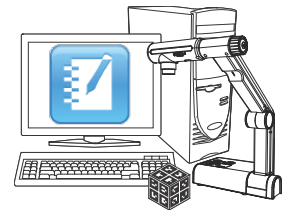
- If you're teaching a biology lesson, insert a 3D model of a heart into your .notebook file. Rotate and change the size of the 3D model to present the different parts of the heart.
- If you're teaching an English lesson, insert a 3D model of a city that is referenced in a novel the class is reading. Enter the 3D scene to navigate streets and interiors of buildings.
- If you're teaching a primary lesson, insert multiple 3D models and use the *Disguise* feature to reveal answers as a memory exercise.

## Getting started

### Hardware and software requirements

To get started with Mixed Reality Tools, you need the following:

- SMART Notebook software 11
- SMART Document Camera 330
- A mixed reality cube
- A Windows computer meeting the following requirements:
  - Pentium® 4 processor or better
  - 512 MB of RAM (1 GB recommended)
  - 2 GB of free hard disk space
  - Windows XP SP3, Windows Vista® SP2 or Windows 7 operating system
  - DirectX® 9 compatible graphics hardware



## CHAPTER 7

### Using SMART Notebook 3D Tools and Mixed Reality Tools

- A Mac computer meeting the following requirements:
  - 1.5 GHz Intel® processor or better
  - 1 GB of RAM
  - 1 GB of free hard disk space for minimum installation (2 GB for full installation with Gallery collections)
  - Mac OS X 10.6 operating system software or later

### Lighting requirements

Mixed Reality Tools works best in a bright room where the work surface doesn't have any noticeable shadows or glare.


The light must be as uniform as possible, shining on the cube and background. You can achieve this by setting up the document camera so that the camera is facing directly down, perpendicular to a uniform, neutral work surface. The work surface should not be darker than the black elements on the mixed reality cube or lighter than the white elements on the cube.

#### NOTES

- In very bright rooms, the work surface can appear whiter than the white elements on the cube.
- You can print a mixed reality mat and place it under the document camera to increase contrast between the cube and the background (see *Using the mixed reality mat* below).

A typical projector room is usually quite dark. For Mixed Reality Tools to work properly, the document camera's light should be turned on. Don't manipulate the cube more than 14" (35 cm) from the document camera.

#### NOTE

If SMART Notebook software doesn't enter Mixed Reality mode when you hold the cube under the camera, shake the cube under the camera. If the issue persists, press and hold the brighten button  on the document camera to maximize the brightness.

### Using the mixed reality mat

To increase the contrast between the mixed reality cube and background, you can use the mixed reality mat available from the SMART Support website. The mat includes marks that indicate the area in which you can move the cube while in Mixed Reality mode.

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### Using SMART Notebook 3D Tools and Mixed Reality Tools

To print the mixed reality mat, you need the following items:

- A computer with Internet access and Adobe® Reader® or Acrobat® software.
- A printer
- Tape

#### To print the mixed reality mat

1. Open the appropriate mixed reality mat file in Adobe Reader or Acrobat.

Region	Page size	Link
U.S. and Canada	Letter (8 1/2" × 11")	<a href="http://smarttech.com/kb/160487">smarttech.com/kb/160487</a>
Elsewhere	A4	<a href="http://smarttech.com/kb/160488">smarttech.com/kb/160488</a>

2. Select **File > Print**.

The *Print* dialog box appears.

3. Select **None** in the *Page Scaling* drop-down list, clear the **Auto-Rotate and Center** check box, and then press **OK**.

4. Arrange the pages:

- Page 1 is top left.
- Page 2 is top right.
- Page 3 is bottom left.
- Page 4 is bottom right.

Set page 1 as the bottom page in your stack.

5. Overlap, orient and align the pages according to the guidelines, and then tape the pages together.

#### **NOTE**

Due to different page sizes and printing options, your pages may not align perfectly onto the guidelines. If that is the case, align the pages to the central crosshairs.

#### **TIPS**

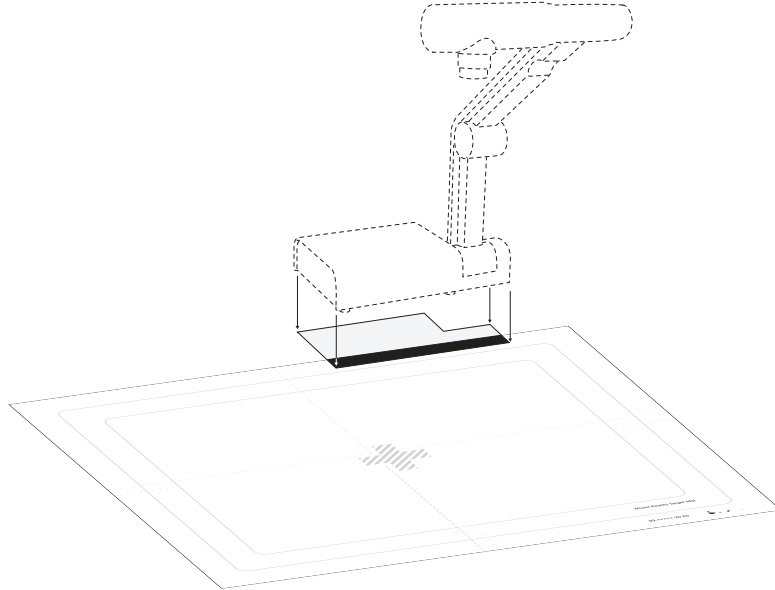
- Use a light table or a tablet device set to a white background as an aid when aligning the pages.
- To make the mat last longer, consider printing it on heavy cardstock.

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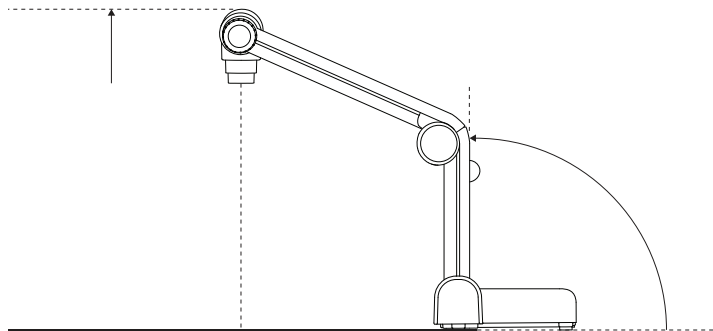
### Using SMART Notebook 3D Tools and Mixed Reality Tools

#### To use the mixed reality mat

1. Place the mixed reality mat on your work surface.
2. Place the document camera over the darkened area on the mat.



3. Rotate the bottom arm of the document camera so that it's 90° from your work surface.
4. Rotate the upper arm of the document camera upward until it's at its highest spot, ensuring the bottom arm is still set to 90°.



5. Turn on the document camera.

**i NOTES**

- The document camera image should show the target area in the center. You can adjust the mat slightly if necessary.
- The lines on the mat indicate where you can position the mixed reality cube while in Mixed Reality mode (see *Manipulating 3D models using Mixed Reality Tools* on page 62).

## Inserting and manipulating 3D models

To use SMART Notebook 3D Tools software, you need to insert a 3D model in your .notebook file. After you insert a 3D model, you can manipulate it in the same way you manipulate other objects in SMART Notebook software.

**i NOTE**

You can insert 2D images and 3D models on the same page and manipulate them the same way you manipulate other objects in SMART Notebook software.

### Inserting 3D models

3D models are available from the **3D Objects** folder in Lesson Activity Examples and the SMART Exchange™ website ([exchange.smarttech.com](https://exchange.smarttech.com)) as well as the Google 3D Warehouse (see *Using Google 3D Warehouse* on page 66). You can also insert your own 3D models if they are in one of the following formats:

- COLLADA (.dae)
- 3D Object (.obj)
- FBX (.fbx)

**i NOTE**

Textures and other information for some 3D models are stored in separate files and folders. When you insert these 3D models, ensure the 3D model file is located in the correct folder structure with the supporting files and folders.

**■ To insert a 3D model**

1. Select **Insert > 3D File**.

The *Insert 3D File* dialog box appears.

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Using SMART Notebook 3D Tools and Mixed Reality Tools

2. Browse to and select the 3D model you want to insert.
3. Press **Open**.

The 3D model appears on the page.

### Manipulating 3D models

After inserting a 3D model, you can manipulate it in the same way you manipulate other objects in SMART Notebook software. In particular, you can do the following:

- Cut, copy and paste
- Clone
- Move
- Scale
- Lock
- Attach links and sounds
- Add to the Gallery tab

#### **NOTES**

- For information on these basic options, see the Help for SMART Notebook software.
- When you add a 3D model to the Gallery tab, it appears in the **3D Objects** category.

In addition to these basic options, you can do the following:

- Rotate the 3D model
- Pause, resume, play and restart animation
- Add labels

#### **Rotating a 3D model**

You can rotate a 3D model along multiple axes. After rotating a 3D model, you can reset it to its original orientation.

#### **To rotate a 3D model along a single axis**

1. Select the 3D model.
2. Press and hold one of the side rotation handles.

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Using SMART Notebook 3D Tools and Mixed Reality Tools



3. Drag your finger around the center of the 3D model, and then release your finger when done.

### ■ To rotate a 3D model along multiple axes

1. Select the 3D model.
2. Press and hold the center rotation handle.



3. Drag your finger in the direction you want to rotate the 3D model, and then release your finger when done.

### ■ To reset a 3D model to its original orientation

1. Select the 3D model.
2. Press the 3D model's menu arrow, and then select **Reset Rotation**.

### Pausing, playing and restarting animation

If a 3D model contains animation, you can pause, resume and restart the animation.

#### **i** NOTE

If a 3D model doesn't contain animation, the *Animation* menu documented in the following procedures is disabled.

### ■ To pause animation

1. Select the 3D model.
2. Press the 3D model's menu arrow, and then select **Animation > Play/Pause Animation**.

### ■ To resume playing animation

1. Select the 3D model.
2. Press the 3D model's menu arrow, and then select **Animation > Play/Pause Animation**.

### ■ To restart animation

1. Select the 3D model.
2. Press the 3D model's menu arrow, and then select **Animation > Restart Animation**.



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### Using SMART Notebook 3D Tools and Mixed Reality Tools

#### Adding labels

You can use labels to highlight different components of a 3D model. Labels can be text, shapes or other 2D objects.

##### To add a label

1. Select the 3D model.
2. Right-click the 3D model where you want to connect the label, and then select **Add Label**.

A label appears.

3. To use text in the label, double-click the label's default text and then type your own text.

OR

To use a shape or other 2D object in the label, create the object and then drag it into the label.

4. Optionally, drag the label's connection point to a different location on the 3D model.

##### To hide and display a label

1. Press the label's connection point on the 3D model.




The label is hidden.

2. Press the label's connection point to display the label.



##### To remove a label

1. Select the label.
2. Press **Close** .

### Navigating 3D scenes

Large 3D models that contain internal details are called 3D scenes. You can navigate 3D scenes using controls in SMART Notebook software.

#### **i** NOTES

- You can use the navigation controls to navigate any 3D model. However, not all 3D models contain internal details. If you enter a 3D model that doesn't contain internal details, the interior appears empty or dark.
- If you're using Mac OS X operating system software, you're unable to enter a 3D scene while in Full Screen mode. To enter a 3D scene, first exit Full Screen mode and then complete the following procedure.

#### **To navigate a 3D scene**

1. Select a 3D model.
2. Press the 3D model's menu arrow, and then select **Enter 3D Scene**.

SMART Notebook software displays the 3D scene in Full Screen mode. A map of the 3D scene, navigation controls and the Close button appear.



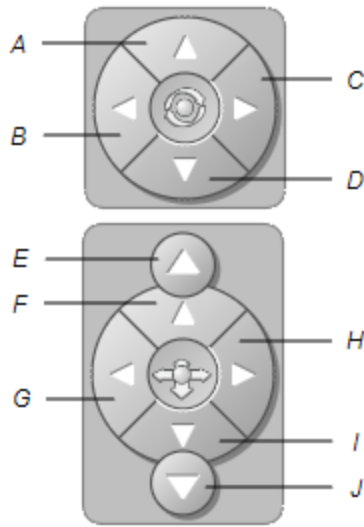
#### **💡** TIPS

- You can press the gray border of the map to drag it to another area of the page if it's covering materials you want to present. You can also resize the map by pressing and dragging the gray border in the lower-right corner.
- You can press the gray background or center icon of a navigation control to drag it to another area of the page if it's covering materials you want to present.

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Using SMART Notebook 3D Tools and Mixed Reality Tools

3. Navigate the 3D scene using the navigation controls.



Button	Use to:
A	Change your orientation upward.
B	Change your orientation to the left.
C	Change your orientation to the right.
D	Change your orientation downward.
E	Raise elevation.
F	Move forward in the scene.
G	Move to the left in the scene.
H	Move to the right in the scene.
I	Move backward in the scene.
J	Lower elevation.

Alternatively, you can use keyboard buttons to navigate the 3D scene.

Keyboard button	Use to:
W	Change your orientation upward.
A	Change your orientation to the left.
D	Change your orientation to the right.
S	Change your orientation downward.
PAGE UP	Raise elevation.
UP ARROW	Move forward in the scene.
LEFT ARROW	Move to the left in the scene.
RIGHT ARROW	Move to the right in the scene.

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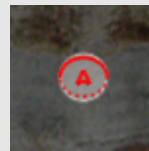
Keyboard button	Use to:
DOWN ARROW	Move backward in the scene.
PAGE DOWN	Lower elevation.
ESC	Close

### NOTE

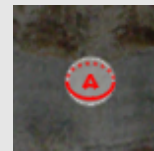
As you navigate the 3D scene, a red indicator in the map displays where you are in the scene and the direction you are viewing. The arrow in the center indicates orientation. The arrow becomes a circle when you're facing directly up or down.



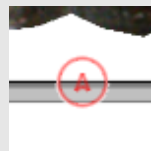
*Level*



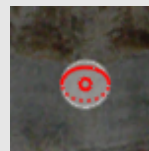
*Incline*



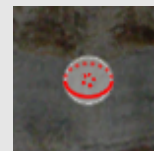
*Decline*



*Off-screen (level)*



*Upward*



*Downward*

4. Press **Close**  when you're done.

## Using Mixed Reality Tools

After inserting 3D models in your .notebook files using SMART Notebook 3D Tools, you can manipulate those models using Mixed Reality Tools.

### Manipulating 3D models using Mixed Reality Tools

You manipulate 3D models using your SMART Document Camera and the mixed reality cube.

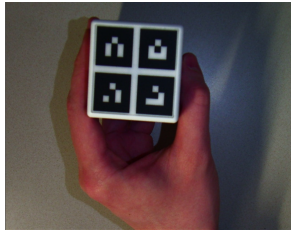
#### To manipulate a 3D model using the mixed reality cube

1. Connect your SMART Document Camera to your computer and turn on the document camera.
2. Open the .notebook file, and then display the page containing the 3D model.

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Using SMART Notebook 3D Tools and Mixed Reality Tools

3. Place the mixed reality cube under the SMART Document Camera, showing one side of the cube to the camera.



SMART Notebook software enters Mixed Reality mode and assigns the 3D model to the cube. If there is more than one 3D model on the page, move the cube until the animation on the page indicates that the cube is connected to the 3D model you want to manipulate.

### NOTE

SMART Notebook software enters Mixed Reality mode in this situation only if a 3D model is on the page. Alternatively, you can enter Mixed Reality mode by pressing **SMART Document Camera**  in the toolbar, and then pressing **Start Mixed Reality**  in the SMART Document Camera window.

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### Using SMART Notebook 3D Tools and Mixed Reality Tools

4. Do any of the following:

- To move the 3D model on the screen, move the cube.
- To rotate the 3D model on the screen, rotate the cube in your hand.
- To unassign the 3D model from the cube, cover the cube's markings with your hand.

#### NOTE

If you experience any of the following symptoms, the cause may be issues with tracking:

- The 3D model doesn't connect to the cube.
- The 3D model shakes when it's connected to the cube.
- The 3D model sporadically disconnects from the cube.
- SMART Notebook software enters Mixed Reality mode when the cube is under the camera even if you aren't moving the cube.

To address tracking issues, see *Lighting requirements* on page 53.

#### TIPS

- As you move and rotate the cube in your hand, ensure you don't cover the symbols on the cube's surface.
- To hide the image from the SMART Document Camera and show only the 3D model, move the transparency slider to the left.

5. If you've purchased a second cube from SMART and there is more than one 3D model on the page, manipulate another 3D model by completing steps 3 and 4 with the other cube.

#### NOTE

The two cubes must have different patterns if you want to use them both at the same time.

6. When you're done, move the cube (or cubes) away from the camera.

SMART Notebook software exits Mixed Reality mode after a few seconds.

## Disguising 3D models before presenting them

If you want to hide 3D models in your .notebook file before presenting them, you can use the Disguise feature to hide the 3D models with a magic hat.

When you use Mixed Reality Tools, the magic hat disappears after Mixed Reality Tools assigns the 3D model to the cube, revealing the 3D model.

### NOTE

If you hide multiple 3D models on the same page with magic hats, each magic hat has a different colored ribbon.

#### To hide a 3D model with a magic hat

1. Select the 3D model.
2. Press the 3D model's menu arrow, and then select **Disguise > Disguised**.

#### To change the magic hat's color


1. Select the magic hat.
2. Press the magic hat's menu arrow, and then select **Disguise > Change Color**.

#### To reveal a 3D model under a magic hat

Use Mixed Reality Tools as described in *Manipulating 3D models using Mixed Reality Tools* on page 62.

After Mixed Reality Tools assigns the 3D model to the cube, stars swirl around the magic hat, and then the magic hat disappears, revealing the 3D model behind it.

### TIP

You can also reveal the 3D model by pressing the hat  icon in the lower-left corner.

## Using SketchUp sketching software and Google 3D Warehouse

Google offers two 3D tools that you can use with SMART Notebook 3D Tools and Mixed Reality Tools:

- SketchUp sketching software
- Google 3D Warehouse

### Using SketchUp sketching software

You can use SketchUp sketching software to create 3D models. You can save these 3D models in COLLADA (.dae) format and then insert them in SMART Notebook software.

### ■ To save a 3D model in .dae format

1. Open the 3D model in SketchUp sketching software.
2. Select **File > Export > 3D Model**.  
The *Export Model* dialog box appears.
3. Browse to where you want to save the file.
4. Type a name for the file in the *File name* box.
5. Select **COLLADA File (\*.dae)** in the *Export type* drop-down list.
6. Press **Export**.


### ■ To insert the 3D model in SMART Notebook software

See *Inserting 3D models* on page 56.

## Using Google 3D Warehouse

Google 3D Warehouse is an online repository of 3D models. The Gallery tab in SMART Notebook software includes a link to Google 3D Warehouse. Using this link, you can search for 3D models and download them to your computer. You can then insert the 3D models into your .notebook files.

### ■ To download 3D models from Google 3D Warehouse

1. Press the **Gallery**  tab.
2. Press **Google 3D Warehouse**.  
Google 3D Warehouse appears in the bottom section of the Gallery tab.
3. Search or browse for a 3D model that you want to download.  
Select the model.
4. Press **Download Model**, and then press the **Download** link beside *Collada (.zip)*.

#### NOTES

- When you first download a 3D model, Google 3D Warehouse could prompt you for a nickname.
- If you're using Mac OS X operating system software and you cancel the download, the 3D model still saves to the **Downloads** folder.

5. Save the .zip file to your computer.
6. Extract the contents of the .zip file to a folder on your computer.



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Using SMART Notebook 3D Tools and Mixed Reality Tools

### To insert a 3D model downloaded from Google 3D Warehouse

See *Inserting 3D models* on page 56.



## Chapter 8


# Troubleshooting




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This chapter includes troubleshooting information for your SMART Document Camera.

### Document camera issues


Use the following table to troubleshoot issues with your document camera.

Issue	Solution
No image displays.	<ul style="list-style-type: none"><li>• Turn off your document camera (see page 22). Securely connect all cables and connect the camera's AC adapter to a power outlet. Turn on your document camera.</li><li>• Adjust the zoom dial. The camera may be on a blank section of your document.</li><li>• Ensure the output switches on the side panel are set to the proper image output:<ul style="list-style-type: none"><li>◦ VGA DVI-D or Composite on the side panel</li><li>◦ NTSC or PAL on the bottom of your document camera</li></ul></li></ul>
No image displays after you restart your computer when your document camera is connected through a USB hub.	<ol style="list-style-type: none"><li>1. Turn off your document camera, and then wait several seconds.</li><li>2. Turn on your document camera again.</li></ol>
The image is out of focus.	<ul style="list-style-type: none"><li>• Press the <b>Auto Focus</b>  button.</li><li>• Use the manual focus.</li><li>• Move the camera further away from the object.</li></ul>
The image is scrambled or black and white when a television is the display device.	Ensure the NTSC/PAL switch on the bottom of the document camera is set correctly. See <i>Switching between NTSC and PAL</i> on page 15.

Issue	Solution
The image is too dark.	<ul style="list-style-type: none"> <li>Press the brightness buttons on your document camera.</li> <li>If the object isn't well lit, turn on your document camera LED.</li> <li>Adjust the shutter speed. See <i>Camera view Image Settings on-screen display menu</i> on page 32.</li> </ul>
The image is broken apart by lines.	<ul style="list-style-type: none"> <li>Adjust the distance between the object and the camera.</li> <li>Adjust your projector settings.</li> </ul>
SMART Notebook software enters Mixed Reality mode accidentally.	<ol style="list-style-type: none"> <li>Press <b>SMART Document Camera</b>  in the toolbar.</li> <li>Press <b>Additional Settings</b> , and then clear the selection of <b>Automatically Start Mixed Reality Tools</b>.</li> </ol> <div> <p><b>i NOTE</b></p> <p>To enable the automatic detection of Mixed Reality again, press <b>Additional Settings</b> , and then select <b>Automatically Start Mixed Reality Tools</b>.</p> </div>

## SD Card view issues

Use the following table to troubleshoot issues with SD Card view.

Issue	Solution
No image appears when you press the <b>SD Card view</b> button.	<ul style="list-style-type: none"> <li>Check the connection between your document camera and the projector, television or display. See <i>Setup configurations for Camera view and SD Card view</i> on page 11.</li> <li>Ensure your document camera, projector or television is turned on.</li> </ul>
A crossed out, red SD Card icon appears when you press the <b>SD Card view</b> button.	Place a SD or SDHC memory card in your document camera SD card slot. OR There are no images on the memory card.
The SD Card view menu does not include <b>SD Settings</b>  .	In Camera view, set USB-B mode to Application. See <i>Setting USB-B Application mode</i> on page 39.
Slideshow doesn't start, and there are images in the memory card.	Your slideshow is set to Lock, and you don't have any locked images. Set the slideshow to All. See <i>Slideshow Settings on-screen display menu</i> on page 49. OR Lock some or all of the images in the memory card. See <i>Locking and unlocking images</i> on page 46.

## Appendix A

# Hardware environmental compliance

SMART Technologies supports global efforts to ensure that electronic equipment is manufactured, sold and disposed of in a safe and environmentally friendly manner.

## Waste Electrical and Electronic Equipment regulations (WEEE directive)

Waste Electrical and Electronic Equipment regulations apply to all electrical and electronic equipment sold within the European Union.

When you dispose of any electrical or electronic equipment, including SMART Technologies products, we strongly encourage you to properly recycle the electronic product when it has reached the end of its life. If you require further information, please contact your reseller or SMART Technologies for information on which recycling agency to contact.

## Restriction of Certain Hazardous Substances (RoHS directive)

This product meets the requirements of the European Union's Restriction of Certain Hazardous Substances (RoHS) directive 2002/95/EC.

Consequently, this product also complies with other regulations that have arisen in various geographical areas, and that reference the European Union's RoHS directive.

## Packaging

Many countries have regulations restricting the use of certain heavy metals in product packaging. The packaging used by SMART Technologies to ship products complies with applicable packaging laws.

## China's Electronic Information Products regulations

China regulates products that are classified as EIP (Electronic Information Products).

SMART Technologies products fall under this classification and meet the requirements for China's EIP regulations.

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