

Digitarium® Software User Manual

For Digitarium® OP2 & Newer
Software Operating Platforms



Version 3.6
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Introduction

Your Digitarium® system runs free, open source simulation software called Nightshade®. Digitalis spearheads development of Nightshade, which is a fork of the award-winning Stellarium software (which we also helped develop). Nightshade is a community project devoted to meeting the simulation needs of the planetarium community. The Nightshade homepage is <http://NightshadeSoftware.org>

Digitarium® systems use a slightly customized version of Nightshade, the Digitalis edition, in order to work specifically with our systems. Your Digitarium® system also runs multimedia software that enables you to display images and videos. The Digitalis edition of Nightshade interfaces with these multimedia features.

This manual covers software features of all Digitarium® OP2 and newer operating platforms. Since not all features are available on all systems, it is important to know which platform you have. If you are unsure, update your system (see Software Updates on page 25). Then look at menu item 8.9 (see Menu Mode on page 11) to see a display of which operating platform you have. If you do not see a menu item 8.9, you have an OP2 system.

For brevity, operating platforms will be referred to simply as OP1, OP2, OP2B, OP3, OP4, or OP5 in the rest of this manual. If a feature only applies to one operating platform it will be marked with blue text in brackets. For example, **[OP2]** would signify a feature only available on the OP2 platform. A notation of **[OP3/4]** would signify a feature available on only the OP3 and OP4 platforms. A notation of **[OP2B+]** would signify a feature available on OP2B or newer systems (OP2B is newer than OP2 – the hardware is the same but all the software has been updated and is available free to OP2 owners).

If you have just downloaded a new version of this manual, remember that access to new features may require running a free Internet software update to get the latest software versions. We recommend that you always keep your system and user manuals up to date for the latest features and bug fixes.

Use

Remote Control

The Digitarium® system remote control is pictured below. There are four modes for the remote control:

- Normal operating mode: Control the sky simulation directly.
- Menu mode: Modify configuration settings using a text menu.
- Script playback mode: Play prerecorded segments or shows.
- Media mode: Display images or video from removable media.

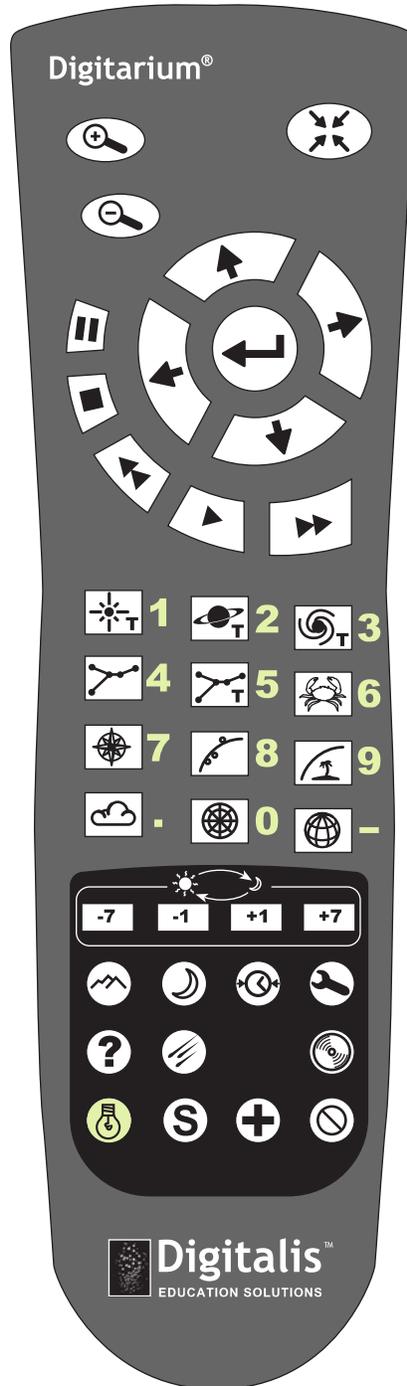
The following pages will explain in detail what the buttons do in each mode.

For best reception, point the remote toward the zenith while sending commands. The infrared (IR) signals will bounce off the dome and reach the receiver on top of the system. If you are using an external IR receiver, point the remote directly at the receiver. An external receiver may be required in domes over approximately 30 feet (9m) in diameter.

The remote control is backlit. To backlight the remote for a few seconds, push the  button. You can hold down the  button, but you must release it before you push another button.

Your Digitarium Remote Control

Older versions will vary slightly. In cases where the button icon shown in this manual does not match that on your older remote, the button functionality is the same regardless of the different icon.

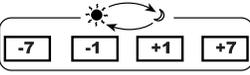


Normal Operating Mode

In normal operating mode, the buttons do what is shown by the icons on their faces.

Button	Normal Operating Mode Function
	Zoom in on selected object.
	Zoom out to full sky.
	Track (center view on) selected object.
	Move cursor toward zenith.
	Move cursor counterclockwise around the zenith.
	Move cursor toward horizon.
	Move cursor clockwise around the zenith.
	Select an object located near the cursor.
	Pause/continue movement of time.
	Stop time.
	Accelerate time rate in a negative (backward) direction. Can be pressed multiple times for faster rates. If the time rate is positive, this will act to decrease your time rate.
	Move forward in real time.

Button	Normal Operating Mode Function
	Accelerate time rate in a positive (forward) direction. Can be pressed multiple times for faster rates. If time is moving backward, will reduce the backward rate.
 1	Toggle labels for bright stars.
 2	Toggle planet labels. Note: Nightshade includes all solar system objects in the term “planet.” The sun, Earth's moon, Pluto, etc. will be labeled when this function is on.
 3	Toggle labels for deep sky objects.
 4	Toggle constellation line drawings. To show one constellation at a time, select a star in the constellation you wish to show. You can add line drawings one at a time by selecting a star in each constellation's line drawing. To resume showing all line drawings, select a star not in a constellation line drawing.
 5	Toggle labels for constellations. To show one label at a time, select a star in the constellation you wish to label. You can add labels one at a time by selecting a star in each constellation's line drawing. To resume showing all labels, select a star not in a constellation line drawing.
 6	Toggle constellation artwork. To show one constellation at a time, select a star in the constellation you wish to show. You can add artwork one at a time by selecting a star in each constellation's line drawing. To resume showing all artwork, select a star not in a constellation line drawing.
 7	Toggle compass points.
 8	Toggle the ecliptic. The ecliptic is the path of the sun across the sky. The planets and moon also lie on or near this line. Numbers on the ecliptic correspond to the months of the year and show when the sun will be in that position. The number for each month is roughly in the middle of that month's segment.
 9	Toggle the celestial equator. The celestial equator is an extension of Earth's equator onto the sky. The labels are hour marks for right ascension.
 .	Toggle Earth's atmosphere. For the blackest night sky, turn off the atmosphere.
 0	Toggle celestial meridian. The celestial meridian is a circle running through the north and south celestial poles; it passes through the zenith and intersects the observer's horizon at the north and south points.

Button	Normal Operating Mode Function
	<p>Toggle the equatorial grid. The equatorial grid is analogous to lines of latitude and longitude. It consists of parallels and meridians, with meridians crossing at the north and south poles.</p>
	<p>Move forward (+) or backward (-) in time the specified number of Earth calendar days (or local sidereal days if you configured this in menu item 2.3, described below).</p>
	<p>Toggle landscape.</p>
	<p>Increase size of moon to make phase more visible in full sky view. Press a second time to return moon to normal size.</p>
	<p>Change time and date to default settings.</p>
	<p>Enter menu mode.</p>
	<p>Toggle time and selected object information display.</p>
	<p>Toggle between background meteor rate, typical meteor shower, exceptional shower, and world record shower. Remember that the observed rate depends on the location of the radiant, maximizing at the zenith. Will only display meteors while at real time rate. The meteor radiant is always at the apex of the home planet's way (direction of travel through space). This feature is representative rather than simulating specific meteor showers.</p>
	<p>Enter media mode.</p>
	<p>Shift button. See functions below.</p>
	<p>Cancel an object selection or other action.</p>

Normal Operating Mode Shift Buttons

The shift button allows you to access additional features. To access the features below, first hit the  button, then the second button within three seconds. Both infrared signals need to be received by the computer in order for the action to occur.

Button	Normal Operating Mode Shift Function
	Go to selected planet.
	Replay the last run script.
 1	Toggle constellation boundaries.
 2	Toggle planet and moon orbits. To show one planet orbit at a time, select a planet. To resume showing all planet and moon orbits, select an object other than a planet.
 7	[OP2B+] Toggle the galactic coordinate grid.
 8	Toggle planet trails. As time passes, planet trails grow out to 60 days in length. Using the tracking button or zooming one level while in manual zoom mode allows great views centered on a particular planet.
 9	[OP2B+] Toggle planet tropic lines. These are lines of latitude equal to the limits of the travel of the Sun in the sky over one orbit of the planet around the Sun.
 -	[OP2B+] Toggle Earth cloud cover when viewing the planet from above or from another body.
 0	Toggle azimuthal grid. The azimuthal grid consists of parallels and meridians, with meridians crossing at the zenith (90 degrees above the horizon).
 -	[OP2B+] Toggle Earth's precession circle.
	Load default configuration.
	Drop all bodies added from a script. If you are on one of these bodies, nothing will happen.

Using the Cursor

The cursor enables you to move around the sky and select objects. Selecting an object provides basic information about the object and prepares you to zoom in on it.

To move the cursor around the sky, use the arrow buttons as directed above in the table of button functions for normal operating mode. The cursor will move slowly when an arrow button is first pressed and will speed up if the button is held down.



To select an object near the cursor, press the  button. If your destination object is very bright, such as the Sun, you do not have to position the cursor right over it in order to select it. The brighter the destination object, the farther the cursor can be from it and still allow you to select it. To unselect an object, press the  button.

When you start up your system, the cursor will be directly over the lens (typically the dome zenith). The cursor cannot cross this point. To move away from this point, you must press the down arrow.

We recommend setting the cursor to time out (hide itself) after five seconds so that the cursor does not distract from the sky when it is not being used. If you wish the cursor to remain visible at all times, set the timeout value to 0 using menu item 6.11, described below.

Menu Mode

This product uses a text-based menu system to modify configuration settings. The menu, activated by the  button, is displayed along the southwest horizon.

The configuration menu is organized into categories. Browse categories with the  and  buttons. Press  or  to enter a category.

Once within a category, browse the available configuration settings in that category with the  and  buttons. Use  or  to begin editing the currently displayed setting.

While editing, the setting value you are editing is displayed in white. Use the number buttons 0-9 and “.” or “-” to enter a number directly or use the  and  buttons to change gradually.

To finish your edit, press . To cancel your edit press . To leave the menu, press  again.

Note: Be sure to save your settings as default if want them to be used the next time you start up your system. See the “Administration” menu category.

Menu Tree

1. Set location

1.1 Latitude: Use + for north and – for south.

1.2 Longitude: Use + for east, - for west.

1.3 Altitude: In meters.

At very high altitudes you can look down on your home planet.

1.4 Solar System Body: Change your viewpoint to any planet or moon, or to a point above the solar system.

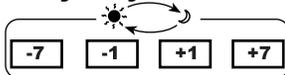
1.5 Heading: Rotate the sky simulation in your dome.

2. Set time

2.1 Sky Time: Set your sky for a different time.

2.2 Set Time Zone: Select continent, then city in your time zone. These account for daylight savings, if any. Be sure to update the time zone if you change longitude, or the time will not correspond to the sky.

2.3 Day Keys: Choose between calendar days or sidereal days for time steps with the



buttons. A sidereal day will vary in length depending on the planet or moon from which you are viewing the sky. Sidereal days are great for demonstrating planetary motion.

2.4 Preset Sky Time: Only used if startup time is set to “preset.”

2.5 Sky Time at Start-up: Use the actual clock time when you start up, or use a preset time you have chosen.

2.6 Time Display Format: 12 or 24 hour format.

2.7 Date Display Format: Choose between system default; yyyy/mm/dd; dd/mm/yyyy; and mm/dd/yyyy.

3. General

3.1 Landscape: Change the projected landscape.

3.2 Sky Culture: Select culture for constellations.

3.3 Sky Language: Select language for star, planet, and constellation labels.

4. Stars

4.1 Show: Display or hide the stars.

4.2 Star Value Multiplier: Modify brightness of stars to make more or fewer visible. 1 is the minimum; 30 is the maximum. Increasing this value will reduce star coloration, so this is only recommended if object sizing is set to “Point” (see menu item 6.3).

4.3 Maximum Magnitude to Label: Increase or decrease number of stars labeled.

4.4 Twinkling: 0 equals no twinkle; 1 is the maximum.

4.5 Limiting Magnitude: Increase or decrease number of stars projected based on their apparent magnitude. Default value is 6.5. This only affects stars. Set the light pollution luminance for a more realistic and comprehensive effect (menu item 6.1).

5. **Colors:** Adjust red, green, and blue color values independently from 0 to 1.

5.1 **Constellation Lines**

5.2 **Constellation Labels**

5.3 **Constellation Art Intensity: 0 is invisible; 1 is full intensity.**

5.4 **Constellation Art**

5.5 **Constellation Boundaries**

5.6 **Cardinal Points**

5.7 **Planet Names**

5.8 **Planet Orbits**

5.9 **Satellite orbits**

5.10 **Planet Trails**

5.11 **Meridian Line**

5.12 **Azimuthal Grid**

5.13 **Equatorial Grid**

5.14 **Equator Line**

5.15 **Ecliptic Line**

5.16 **Nebula Names**

5.17 **Nebula Circles**

5.18 **Precession Circle**

5.19 **Circumpolar Circle**

6. **Effects**

6.1 **Light Pollution Limiting Magnitude:** Simulate the effects of light pollution. Value is naked eye limiting magnitude at full sky view.

6.2 **Manual Zoom:** Zoom in or out on selected object in small steps rather than one large step.

6.3 **Object Sizing Rule:** To easily display magnitude differences between objects by using more than one pixel per star or planet in a full-sky view, select "Magnitude." If you select "Point" every object will be restricted to one pixel in size.

6.4 **Magnitude Scaling Multiplier:** When object sizing is based on magnitude, this allows you to adjust the final size and brightness range to your liking.

6.5 **Star Size Limit:** This will limit the size of bright stars to no more than this number of pixels in diameter. Use this option to get smaller stars at the expense of less magnitude differentiation.

6.6 **Planet Size Marginal limit:** Similar to 6.5 above, but for planets. The final planet pixel size diameter limit is the value entered here plus the current star size limit.

6.7 **Milky Way Intensity:** Adjust the brightness of the Milky Way, from 0 to 100. Default intensity is 1.

6.8 **Maximum Nebula Magnitude to Label:** Increase or decrease number of deep sky objects labeled based on their visual magnitude, from 0 to 100. Please note: objects whose magnitude is unknown (such as the Hubble Ultra Deep Field) are assigned a magnitude of 99.

6.9 **Zoom Offset:** Adjust where objects are tracked or zoomed in on. 0 is the zenith, +/- 0.5 is halfway toward the North /South horizon. This can make zooming more comfortable for your audience, but can add some distortion.

6.10 **Zoom Duration:** Amount of time (in seconds) it takes to zoom in on an object.

6.11 **Flight Duration:** Amount of time (in seconds) it takes to fly to another body.

6.12 **Cursor Timeout:** Amount of time (in seconds) pointer will remain visible in the

sky, from 0 (no timeout) to 60. Moving cursor or selecting/deselecting the cursor will make it reappear in the sky in its last location.

6.13 Correct for Light Travel Time: Yes or No. If yes, planet and moon positions are adjusted to correct for the time it takes light from each to reach the viewer. If “no,” light is assumed to travel instantaneously to the viewer. Unless you want to compare with telescope observations, set to “no” for the best system performance.

6.14 Antialias Lines: Yes or No. With antialiasing lines appear smoother, but also thicker and fuzzier. Without antialiasing lines are very sharp, but can be jagged looking since pixels are only either on or off in this mode.

6.15 Line Width: Adjust the width of drawn lines from 0.125 to 5 pixels (default is 1). Non-integer values only make sense when using antialiasing, above.

7. Scripts

7.1 Local Script: Select a built-in script to run. When you exit the menu, the selected script will run.

7.2 Internal Script: [\[OP2B with hard disk upgrade or OP3+\]](#) Select a script to run from the internal hard drive. This looks in the scripts directory on the drive, which you can synchronize from a USB drive (see menu item 8.7 below). Exit the menu to run the selected script.

7.3 USB Script: Arrow down to load a list of scripts from the scripts directory on a USB drive. Select a script and exit the menu to run.

7.4 CD/DVD Script [\[OP2/2B/3/4\]](#): Arrow down to load a list of scripts (from the “/scripts” directory) on a data CD or DVD. Select a script and exit the menu to run.

8. Administration

8.1 Load default configuration: Return all settings to your defaults.

8.2 Save current configuration as default: Option says “Do.” Save all current settings as default. Includes state of all settings, such as latitude, longitude, planet labels on or off, etc. On [\[OP3+\]](#) will also save current media positioning configuration (see the Media Mode section on page 18).

8.3 Shut down: Shut down computer control unit. Option says “Do.” Hit  and it will prompt “Are you sure?,” and then hit the same button once again to shut down.

8.4 Update me via Internet: Option says “Do.” See Software Updates section below for directions.

8.5 Set UI Locale: Change menu language.

8.6 Projector Offset (percent of dome radius): Adjust the projection to correct for the lens being placed off-center in a dome. Results will vary by model.

8.7 Synchronize Internal Drive from USB Drive: [\[OP2B with hard disk upgrade or OP3+\]](#) Copy files to the internal hard drive. Note that since this is a synchronization, the hard drive will look exactly like your USB drive when finished. Files on the hard drive but not on the USB drive will be deleted. You can hit the cancel button during a sync to stop it, although there may be a delay.

8.8 Projection Configuration: [\[Digitarium® Epsilon systems\]](#) The options are:

- **Lens at Dome Center:** The lens is at the center point of the dome (at the spring line of the dome). The horizon will not reach down to the dome spring line. This is a typical portable dome configuration.

- **Lens Below Dome Center:** The lens is below the dome zenith, but located below the spring line of the dome so the the horizon reaches down to the edge of the dome. This is a typical fixed dome configuration.
 - **Truncated Projection:** You want to project a higher resolution but truncated (cut off) projection. The lens should be at the dome spring line.
- 8.9 Info:** Displays the operating platform version, the release date of the last installed software update (note that this is not the last time a software update was actually installed on the system), and the system network address, if any.
- 8.10 Video Shear:** [\[Digitarium® Delta 1 systems\]](#) If the East and West horizons (with heading set to 0) are either both above or both below the North and South horizons, this setting allows you to adjust this until you have a level horizon.
- 8.11 Video Offset:** [\[Digitarium® Delta 1 and Iota systems\]](#) If the projection system is level but the projection is tipped to East or West (with heading set to 0), this allows the projection to be re-centered so that East and West horizons are level.
- 8.12 Reset password for Universal Console** (will not appear if you do not have the Universal Console software).
- 8.13 Reload factory defaults:** Resets all defaults to original factory settings.

Button	Menu Mode Function
	Move up in list of options or increase number value being edited.
	Go down a level in menu tree.
	Move down in list of options or decrease number value being edited.
	Go up a level in menu tree.
	Select an option or finish editing a setting.
	Enter the number 1.
	Enter the number 2.
	Enter the number 3.
	Enter the number 4.
	Enter the number 5.
	Enter the number 6.
	Enter the number 7.
	Enter the number 8.
	Enter the number 9.
	Enter a decimal point.
	Enter the number 0.
	Enter negative values (for southern latitudes and western longitudes).
	Exit menu mode.
	Cancel a selection.

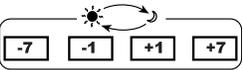
Script Playback Mode

Scripting makes it relatively easy to create your own prerecorded segments and play these back on a Digitalium® system. This allows you to automate repetitive or awkward tasks, customize aspects of Nightshade, or even create complete prerecorded shows. For information on writing scripts, see the documentation on the Digitalis Community website:

<http://Community.DigitalisEducation.com>

To run a script, bring up the menu in Nightshade and go to section 7, Scripts. You can choose either a local script located in the system (maintained by Digitalis) or a script located on a data CD, data DVD, USB drive, or the internal hard drive depending on your hardware features. Scripts must be located in a “scripts” directory in the root directory.

While a script is playing, you can pause, fast forward, play, stop, and adjust the volume as needed; you cannot rewind a script. You cannot affect Nightshade with the remote as you normally would while a script is playing unless the script specifically allows this. If you press the menu button before the end of the script, the script will stop. You cannot access the media browser while a script is playing.

Button	Script Playback Mode Function
	Pause/continue script playback.
	Stop script playback.
	Play script at normal speed.
	Fast forward script. Can be pressed multiple times for faster rates.
	Decrease (-7) or increase (+7) script audio volume.

Random Access Script Feature

If you have the latest remote control version (standard with **[OP4+]** and available as an upgrade for other systems) you can play a script directly from the remote control in normal operating mode without having to bring up the menu. Simply begin your script file names with two digits from 00 to 99. Press the  button followed by the two digits within three seconds. Use the numbers printed next to the central buttons to enter digits. Once entered, Nightshade will search through the scripts directories on the internal drive, USB drive, and DVD drive in that order. The first script found starting with those two digits will then be run, and you will be in script playback mode.

For example, if you had a script called “04-analemma.sts” in the scripts directory of your internal drive, you could start playing this script by pressing:  +  + 

Note that if you take more than three seconds to enter your digits, the number pad area buttons will stop functioning as digits and you will end up performing normal button actions.

Media Mode

The Digitarium® system control unit allows you to show your own or third-party content from a data CD, data DVD, unencrypted video DVD, USB drive, or the internal hard drive depending on your hardware features.

Many common formats of still images and video are supported. Audio files in WAV or OGG format can be played with an accompanying visualization. To show your own content, burn the chosen files onto a DVD-R, or CD-R, or copy them to a USB drive or the internal hard drive (see menu item 8.7 above) depending on your hardware features. See the “Creating Multimedia Content” section for directions.

We recommend, in order of preference, using:

- Internal hard drive
- USB flash drive
- DVD-R (dust and vibration can be problems)
- CD-R (dust and vibration can be problems)

Note: You cannot open the DVD drive while in media mode as the disk drive is in use.

Data CD or DVD:

1. Insert the disk into the disk drive.

2. Press the  button. A media browser will pop up displaying a directory of drive types. If a drive name is gray in color, that means the drive could not be mounted for some reason.

3. Use the  and  buttons to browse the directories and files. Press 



or  to select a subdirectory or file to view. Press  to go up a level in the directory tree. Note that not all files in a directory may be displayed in the list. Only files of types that can be displayed by the media browser will show up in the list.

4. If you are viewing a file, you can move between files without returning to the media browser

by using the  and  buttons. You can also use the  button to increase the size of a still image or [OP3+] video, and the  button to decrease the size. Video volume is controlled by buttons -7 and +7.

5. To stop showing an image or video, press the , , or  button.

6. To pause a video, press the  button; to resume playing, press . Fast forward by pressing the  button, and slow playback by pushing the  button.

7. To return to the sky, press the  button. The next time you press this button, you will be returned to the last file or directory you were viewing.

Video DVD (unencrypted):

An unencrypted DVD is exactly like a movie DVD, but without any encryption. Due to high licensing costs we do not support playback of encrypted DVDs.

1. Insert the disk into the disk drive.
2. Press the  button. The DVD's main menu will be displayed. On [OP2/2b/3/4] users will need to select "DVD" from the drive type list.

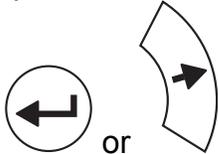
3. Use the arrow buttons to highlight menu items, then the  button to select an item.

4. To stop showing a video, press the  or  button. This will take you back to the DVD main menu. Pressing either of these a second time will return you to your position in the video. To return to the sky, press the  button.

USB Drive:

As noted above, a USB flash drive is a good option for displaying images and videos. They offer silent operation, ease of updating, high reliability, and often high throughput. To use a USB drive:

1. Insert the drive into any of the USB ports on the **Digitarium® CU-1**. Wait a few seconds for the system to recognize the drive.
2. Bring up the media browser as normal.
3. If there was a problem reading your USB drive, it will be grayed out. Otherwise use the up or down arrow buttons to highlight the USB drive, and press



- to select the USB drive.
4. If your USB drive has displayable content you will see the directory contents. Otherwise you will see an empty directory.

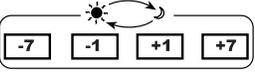
Note: Only remove the USB drive when the system is in normal operating mode (Media Browser is closed).

Note: If you need to show video files over 4 GiB in size, format your USB drive with an NTFS file system on a PC using the Windows disk format feature.

Internal Hard Drive: [\[OP2B with hard disk upgrade or OP3+\]](#)

The internal hard drive is the most convenient storage option as you can store content directly in your system. Simply select “internal” from the list of drives in the Media Browser to access this content. You synchronize content to the internal hard drive from a master USB drive using menu item 8.7, described above.

Button	Media Mode Function
	Increase size of a still image or [OP3+] video.
	Decrease size of a still image or [OP3+] video.
	Move up to next item in directory or video DVD menu.
	View selected file or subdirectory, or move right to next item in video DVD menu.
	Move down to next item in directory or video DVD menu.
	Go up a level in directory tree if in media browser. Move left to next item in a video DVD menu. Stop showing an image or video.
	View selected file or directory in media browser, or select a menu item in video DVD.
	Pause/continue playing video.
	Stop displaying an image or video.
	Slow video playback.
	Resume playing paused video.
	Fast forward video.
	[OP3+] Toggle between full dome and perspective projections for displaying media.
 2	Pan up in a large image or [OP3+] move perspective image or video up towards the zenith.
 3	[OP3+] Mirror image or video on opposite side of dome when in perspective projection mode.

Button	Media Mode Function
 4	Pan left in a large image or [OP3+] move perspective image or video clockwise around the dome.
 6	Pan right in a large image or [OP3+] move perspective image or video counter-clockwise around the dome.
 8	Pan down in a large image or [OP3+] move perspective image or video down towards the horizon.
 .	[OP3+] Perspective mode: Rotate image or video counter-clockwise in place. Fulldome mode: Rotate image or video counter-clockwise around the dome.
 -	[OP3+] Perspective mode: Rotate image or video clockwise in place. Fulldome mode: Rotate image or video clockwise around the dome.
	[OP3+] Reload default media position configuration. Your settings are saved when you save your default settings in the Nightshade configuration menu (item 8.2).
 then 	[OP3+] Reload factory default media position configuration.
	Decrease (-7) or increase (+7) video volume. May not work with some videos.
	Reset audio system. See troubleshooting section for more information.
	Exit media mode.
	Stop displaying an image or video.

Creating Multimedia Content

Creating a [OP2/2b/3/4] data CD or [OP2/2b/3/4] DVD with images and/or videos allows you to cover any topic in the dome . You can also play back content from a USB drive or [OP2B with hard disk upgrade or OP3+] the internal hard drive. Create slide shows for use in your lessons, or just have extra content on hand for questions that may come up.

You can find a huge amount of content on the Internet that is free to use (check copyrights to be sure). You can also easily create your own images with an image editor. A full dome image should be at least as large as your system resolution. If an image is larger than the projector resolution, it will be scaled down to fit when displayed.

Avoid or edit content with bright areas along the bottom of the image or video but outside the the projection circle. These will produce bright streaks across the dome when displayed, due to the lens design. On [OP3+] dynamic masking prevents this issue when using the built in media display software.

Most common image and video formats should work. However, due to the huge variety of video encoding formats available, you will probably encounter some video formats which will not play. The only way to know for sure is to test your file with the system. MPEG-2 or MPEG-4 [OP2B+] video is generally the best option, if you have a choice. Please also note that the Digitarium® system does not support encrypted video DVDs.

Burning a CD or DVD

To burn a CD or DVD, you will need a computer with a drive capable of burning this media and “burner” software.

Start by creating a directory where you will set up your disk content. If you want to organize your content into categories, you can create subdirectories. You can create any sort of directory tree you want, to as many levels as you need.

After you have created your directory, place your content into your directory tree so that you will be able to find it easily.

Tips for naming files:

- Use logical, easily understandable names.
- Keep the file and directory names under 29 characters in length or they will be abbreviated in the media browser.
- Keep the original file extension (.jpg, .mpg, .tif, etc.).
- Remember that subdirectories and files within a directory will be sorted alphabetically in the media browser, and that subdirectories will always appear before files in the list.
- If you want to create a slide show with images in a definite order, an easy solution is to append a zero padded number to the name. For example,
 - 01-start.jpg
 - 02-intro.tif
 - ...

- 19-conclusion.jpg

Once you are happy with your directory structure and content, use your CD or DVD burning software to burn your content directory tree to a recordable disk.

Lastly, try your disk out in the projector to see how it turned out, and if you need to make any changes.

Saving Content to a USB Drive

Usually copying files to a USB drive is as simple as inserting the drive into a USB port on a computer, then copying over the files to it. The Digitarium® system will not write to the drive itself and requires that there is only one partition on the drive.

Saving Content to the Internal Hard Drive [OP2B with hard drive upgrade or OP3+]

See menu item 8.7, above.

Media Scaling and Positioning by File Name

If you always want to scale a video up or down to the resolution of your system, you can simply rename the video file to end with a “.full.” before the extension. For example: “video.full.mpg” On Windows PCs the extension may be hidden from you, in which case this may appear as “video.full” in the file explorer.

There is a limited facility to position a video at a location away from the zenith. Simply rename the video file to include the altitude desired for the center of the video above the southern horizon. For example, “video.45.mpg” would display halfway between the horizon and the zenith and “anothervideo.0.mpg” would show up at the horizon. Note that in this last case on [OP2/2b] the position would be altered slightly so that the base of the video is on the horizon. Distortion correction is performed with this feature only on [OP3+].

On [OP3+] these file naming conventions can be used when displaying images.

On [OP2/2b] these file naming conventions can also be used when displaying videos from a script.

Software Updates

This product is driven by software, and it can be updated easily over the Internet. Software updates allow you to receive changes and enhancements that were made after your purchase. The update process will also correct your system date and time, if needed. Updates are free for the life of your system. Update descriptions and download sizes are posted in the support section of the Digitalis website.

To update the software:

1. Locate a 10 or 100 Mbps ethernet network that supports the DHCP protocol and has Internet access. The system will need to be able to open an outgoing connection on TCP port 80. This is usually not a problem unless you are behind a restrictive firewall. See your local network administrator if you need assistance with this.
2. Plug a network cable into the socket located on the system.
3. Bring up the menu using the Digitalarium® system remote control, and go to menu section 8, Administration.

4. Scroll down to 8.4, "Update me over the Internet" and press .

5. Press  to start and  once more to confirm.

 **Do not shut down your system while performing an update. This can lead to a corrupted system that won't function. Please be patient with the update process. It is normal for the update progress bar to pause for some time at 33 and 50% complete. If there is a problem, the update should provide an error message. Otherwise it is still working and you will see a blue starburst animation.**

6. When done, you can unplug the network cable and return your Digitalarium® system to its usual use. If the update does not work, you will receive an error message explaining what went wrong.

We strongly encourage you to have a technical person who is familiar with your network assist you during your first attempt at software updating. Some network changes may be required in order for the updates to occur.

Troubleshooting Common Problems

<i>Symptom</i>	<i>Possible Solution</i>
Remote buttons don't seem to work.	<ol style="list-style-type: none"> 1. Are you in menu mode or playing a script? If so, exit. 2. Are you aiming the remote control at the zenith (or external IR receiver)? 3. Point the remote directly into the infrared receiver window and push a button. 4. Check and replace the remote control batteries. 5. If all else fails, reset the computer using the reset button.
Can't find cursor.	<ol style="list-style-type: none"> 1. Are you in menu or media mode? If so, exit. 2. Press the arrow buttons to move the cursor so you can find it. (The cursor may have been set to time out via text menu item 6.11. If you do not wish the pointer to time out, enter 0 as the cursor timeout value.)
Cursor won't move.	<ol style="list-style-type: none"> 1. Press  to make sure that you are not stuck at the zenith and that the remote buttons are responding. 2. If neither of these is the cause, check to see if you are in menu mode, and exit if you are.
No sound when playing a video.	<ol style="list-style-type: none"> 1. Are you sure the video has an audio track? 2. Do you have speakers plugged in, turned on, and turned up loud enough to hear? 3. Turn up the volume using the +7 button 4. Reset the audio system. If you are playing a video DVD, press the  button and then exit media mode. Otherwise go back to the directory view and hit the  button. 5. If you play the video again, you should hear sound.
Blotches of light across zenith while displaying images or videos.	<p>This happens when an image or video has bright regions outside the projection circle. This can also be caused by projector menu or notification messages. Size or mask images and videos so that no bright part is outside the projected area, or avoid showing images or videos with these bright regions. [OP3+] systems perform dynamic masking so that this should not be necessary unless projecting an external video source.</p>

<i>Symptom</i>	<i>Possible Solution</i>
Computer does not seem to boot.	<p>Make sure the computer has power and that the power switch is on. Look for the red hard drive light flashing during boot up. If the computer is running the case fans should be running and detectable.</p> <p>Plug in speakers or headphones before booting so that you can hear the audible startup flute notes when Nightshade has started. If you DO NOT hear the flutes, the problem may be a loose video card. With power off jiggle the video card by grasping the vide cable connector. End by pushing down, away from the "Digitalium" labeled cover.</p> <p>If you hear the flutes, make sure your projector has the correct input source selected and that it is operating properly (bring up the menu, for example). If those seem correct, try reseating the video connectors and rebooting, or try a new video cable and reboot.</p>

How to Get Help

If you are experiencing problems with your Digitalium® system, please:

1. Reread the manuals to make sure you haven't missed a possible solution.
2. Contact your local distributor, or (English) technical support via:
 - email: support@digitaliseducation.com
 - phone: +1.360.616.8915
 - fax: +1.360.616.8917

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