DART

Studio

Release 4 Documentation

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Contents

DART STUDIO INTRODUCTION

DART uses realistic 3D graphics and video to simulate a firing range or scenario that law enforcement officers may experience in their jobs. DART Studio is used to create the courses of fire which are used in DART Range.

DART Studio is similar in many respects to DART Creator but includes advanced features that allow it to create courses with multiple targets and props that enable training to go beyond the basic qualification courses which can be developed in DART Creator.

The Program Interface and Screen Layout

The DART Studio screen (also referred to as the user interface or UI) is divided into four sections: the info bar, navigation panel, command panel, and the menu bar.

Info Bar

Courses are made up of stages which can include flat targets, 3D targets (called TruTargets), video sequences, and scene props. Throughout this documentation we refer to these collectively as objects.
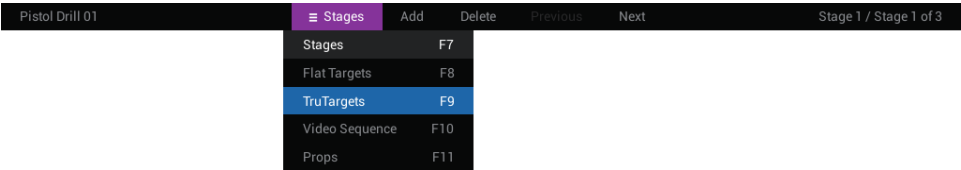
The info bar at the top of the screen displays the course name on the left side of the screen and information about the currently selected stage, target, sequence, or prop on the right side.

The info bar menu, in the center section, allows you to select Stages, Flat Targets, TruTargets, Video Sequences, and Props. Once selected, you can add, delete, and select the various objects in a course.

- **Stages** – each course may contain up to 30 stages.
- **Flat Targets** – each stage may contain up to 10 flat targets.
- **TruTargets** – each stage may contain up to 10 TruTargets.
- **Video Sequence** – each stage may contain 1 video sequence.
- **Props** – each stage may contain up to 20 props.

Tip! You can use function keys F7-F11 to quickly move between selections in the info bar.

Navigation Panel

Targets and props can be positioned and moved using the mouse and navigation panel at the top of the screen.
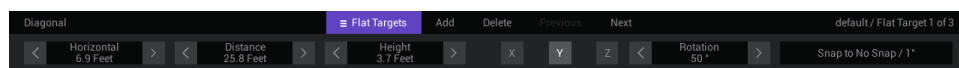
Menu Bar

The menu bar at the bottom of the screen allows you to move between the main sections of DART Studio. Each section has its own commands and options. For example, course commands affect the entire course, stage commands apply only to the selected stage, flat target commands affect flat targets, and so on.

Selecting a menu form the menu bar will automatically update the info bar at the top of the screen to correspond with the selected menu. Menus are color coded to help you know at a glance which section of the program you are working in.

Tip! You can use function keys F1-F6 to quickly move between menu selections.

Command Panel

Some menus items have additional options which are shown in the command panel. For example, selecting the Scoring option in the Course menu opens a command panel with the controls needed for scoring the course.
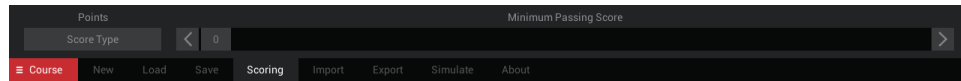
Dialog Windows

Some menu options will open a dialog window when selected. Clicking Load option in the Course menu opens a dialog for selecting courses previously saved on the system.

THE COURSE MENU

Controls under the Course menu affect the whole course (all stages within the course), and include options for loading, saving, simulating (previewing) courses, and scoring requirements for the course.
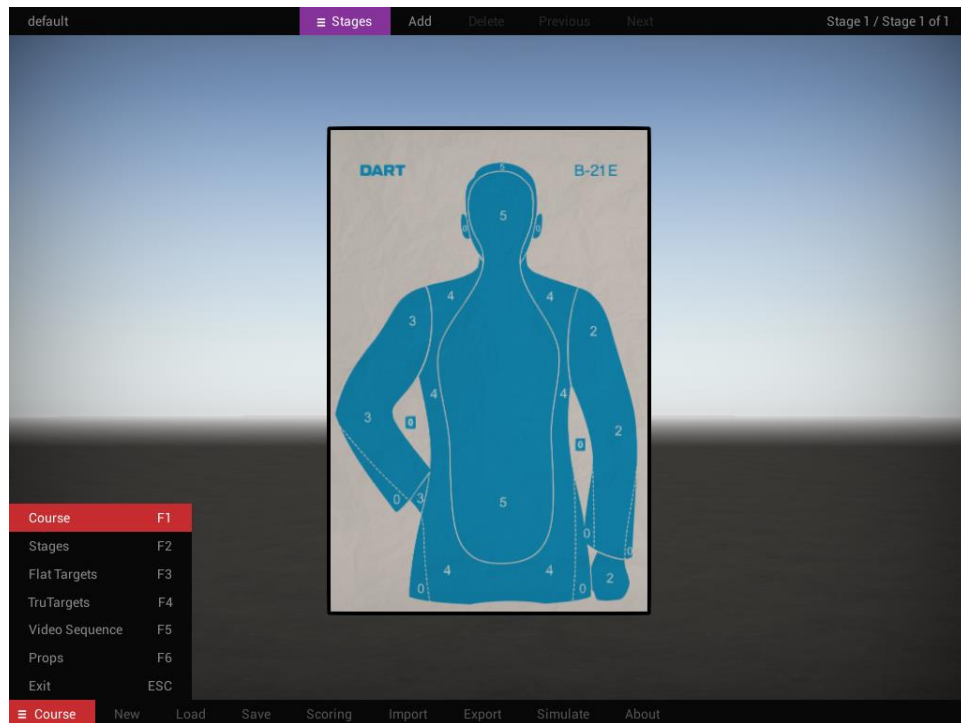
Tip! Use the F1 key to instantly jump to the Courses menu from anywhere in the program.

New

The New option resets all course settings (including all stages, targets, video sequences, and props) to their default values. Any unsaved changes to your course will be lost when you click New, so a warning box will appear asking you to confirm the action.
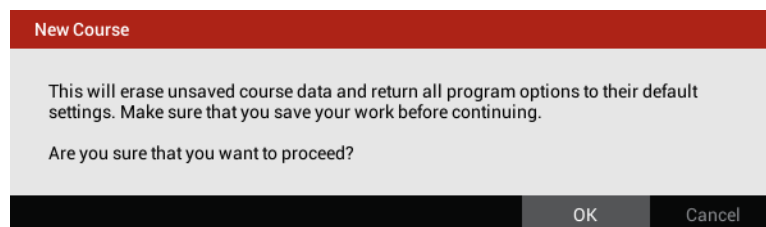
Tip! Because the New command resets all program options to their default settings, use it before starting to build a new course.

Load

The Load option opens a dialog which shows all available courses. Loading a course will replace the current course you may be working on.

The load window in DART is a little different than those found in a typical Windows program. The left column shows a list of folders which contain one or more courses. Clicking a folder will show a list of available courses in the right column.

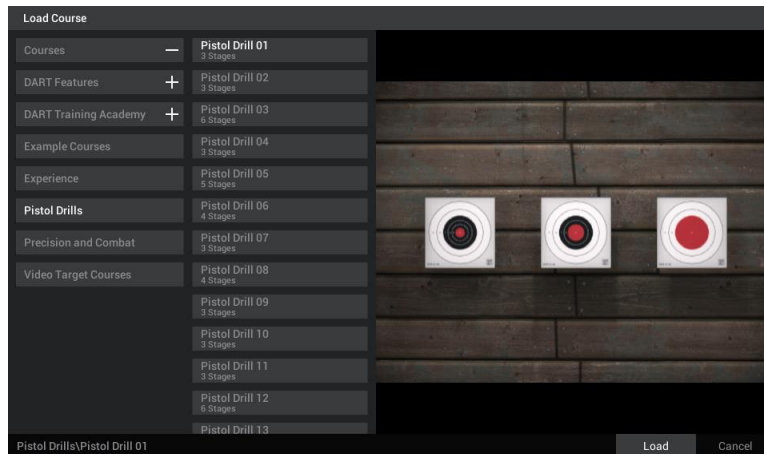Single-clicking a file name will display a preview image of the course you have selected. Double-clicking a name will load the selected course or you may select a course name and click the Load button at the bottom right of the window. Clicking the Cancel button will close the window without loading a course.

Save

The Save option opens a dialog which will save the current course, along with all its stages, targets, and options. Saved courses can be run in DART Range or reopened and edited in DART Studio and DART Creator.

Like the load window, the left column shows a list of all folders containing a DART course. Clicking a folder will show a list of all courses within that folder in the right column.

The New Folder button located at the bottom left corner of the window allows you to create a new folder to store courses. To create a new folder, select a parent folder and click the New Folder button. For example, if you wanted to create a new folder under the main Courses folder, you would select the Courses folder and click New Folder. A new folder with the name "New Folder" will appear. To rename the folder, double-click the name, type a new name, and press Enter.
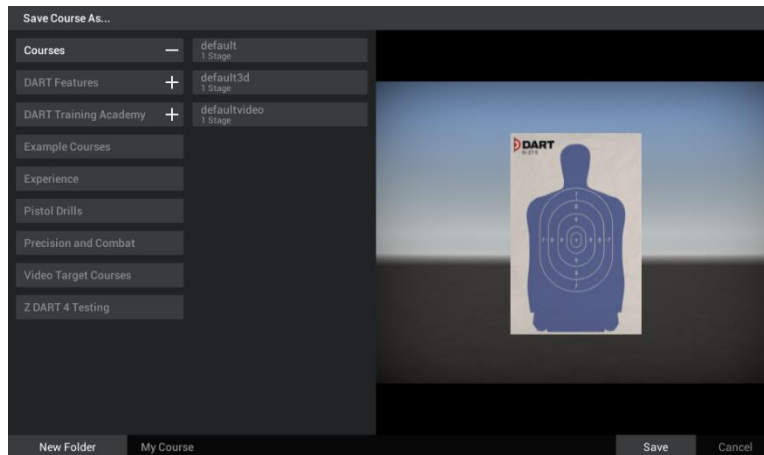
To save a course, left-click the dark bar to the right of the New Folder button, type the name of the new course, and click the Save button.

Tip! Saving a course does not save certain changes made to flat targets, TruTargets, and video sequences such as point values. This is an important principle to understand. Some changes made to targets can only be retained by saving the target itself. For example, if you are using the B-21E Blue target in your course and you have changed the point value for the target's scoring zones, the only way to save this information is by using the Flat Targets/Save+ command. This is covered in more detail in the Flat Targets, TruTargets, and Video Sequence sections.

Scoring

The Scoring options are used for setting course passing score requirements.

Score Type

There are two ways to score a course in DART; the traditional way of total points or by the percentage of shots that hit the target. The Score Type button allows you to select your preferred method. By default, the Points option is selected.

The Minimum Passing Score slider allows you to set the minimum score (up to 300 points) a shooter must achieve to pass a given course. Pass and fail grades are displayed in the after action review section of DART Range after a course of fire has been completed. Setting the slider to 0 will mean that any score achieved will be enough to pass a given course. This may be useful when designing courses in which the goal is not point oriented.
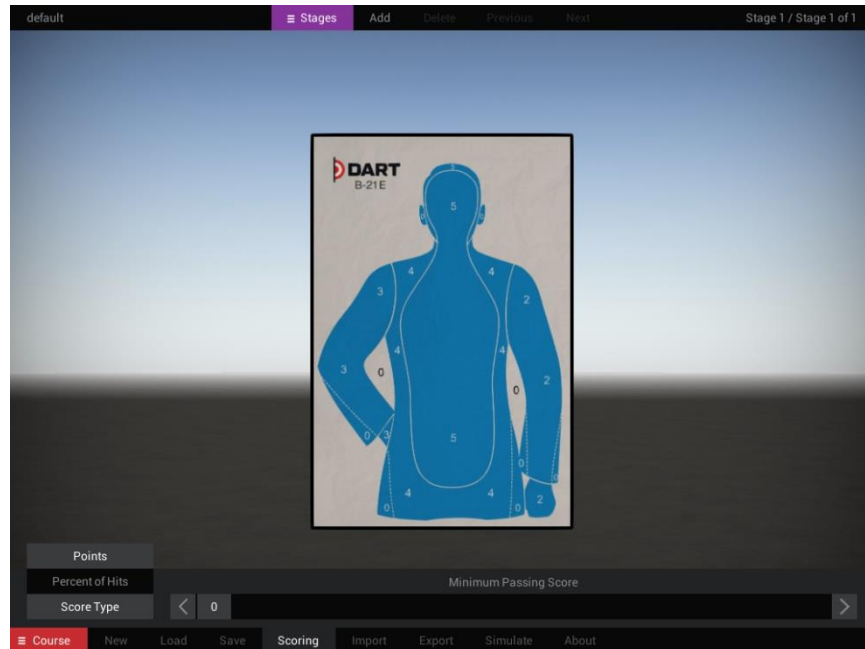
The second scoring option is Percent of Hits. When Percent of Hits is selected, the Minimum Passing Score slider can be set between 0 and 100(%). Like the Points option, a setting of 0 means that any score will pass. A setting of 75 means that at least 75% of the shooter's shots during the course must hit the target to pass.

In DART, a "hit" is defined as any shot that earns at least one point. Shots that earn less than one point (including negative value shots), are considered misses.

Tip! Remember, the course score is determined by adding points or hits from all stages in a course. You can adjust target scoring using the Flat Target/Points+ option for 2D targets, the TruTargets/Points+ options for 3D targets, and the Video Sequence/Points+ option for video-based targets.

Import and Export Options

A single DART course can include dozens (or even hundreds) of individual assets including targets, video, sound files, scene props, etc. The import/export options allow you to easily share your courses with other DART users by automatically gathering all the required course assets together in a single file.

Import

The Import option opens a window that will allow you to select a course which has been previously created with the Export option. Select the file for importing and click the Import button. After a few moments, the course assets will have been saved to the DART Data folder and the course will open.

Export

The Export option opens a window that will allow you to save all your course assets to a single zip file. Once saved, you can share the file with colleagues anywhere in the world. By default, exported courses are saved in the DART Data/Import Export folder.

Tip! Course files from DART Studio can be loaded into DART Creator, however some assets such as TruTargets, video sequences, and props will not be editable in DART Creator.

Simulate

The simulate option provides an easy way to preview a course - including any instructions, countdown, target movement, behaviors, video, etc. This provides a convenient way to test a course in DART Studio before running it in DART Range. Simulating a course will take into account ammo and time limits, and other settings to correctly advance through all stages of your course.

Tip! You can simulate a course at any time by pressing the 2 key.

About

The About button opens a window that displays the version of DART Studio as well as a link to an online version of this documentation.
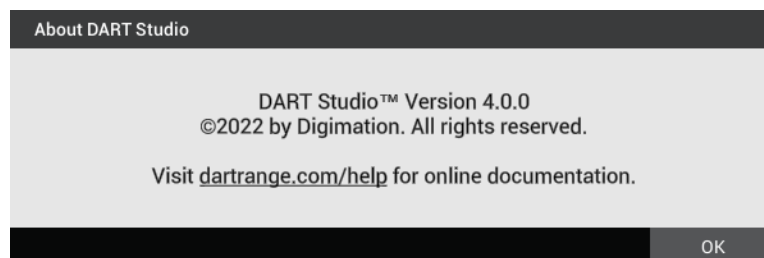
THE STAGES MENU

Each course can have one or more stages; each with its own rules, requirements, and targets. The Stages menu provides options for stage rules, instructions, and other stage settings.

When you select the Stages menu at the bottom of the screen, the info bar at the top of the screen automatically switches to show additional stage options. You can use these to add, delete, and move between stages.
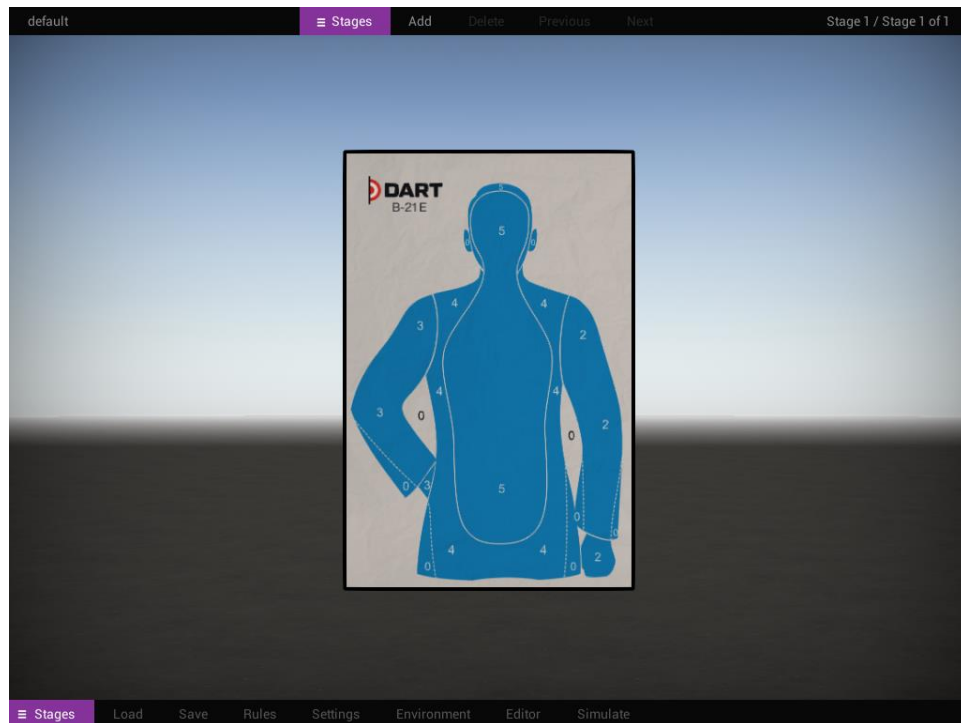
Load

Like courses, individual stages can be saved and loaded. This can make course creation easier because it allows you to use sections of previously designed courses in a new course without recreating each stage from scratch.

The Load option opens a dialog which shows a list of available stages. Loading a stage will insert the new stage as the current stage in a course. For example, if your course has two stage and you are currently in stage one, loading a stage will make it stage one and the other stages will now be two and three.

Like the Load Course window, the left column shows a list of folders which contain one or more stages. Clicking a folder will show a list of available stages in the right column.
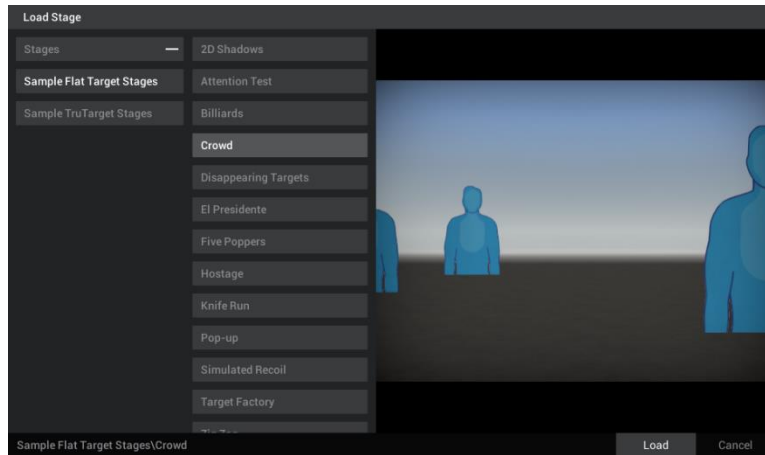
Single-clicking a file name will display a preview image of the stage you have selected. Double-clicking a name will load the selected stage or you may select a stage name and click the Load button at the bottom right of the window. Clicking the Cancel button will close the window without loading a stage.

Save

The Save option opens a dialog which will save the current stage.

Like the load window, the left column shows a list of all folders containing a DART stage. Clicking a folder will show a list of all stages within that folder in the right column.

The New Folder button located at the bottom left corner of the window allows you to create a new folder to store stages. To create a new folder, select a parent folder and click the New Folder button. For example, if you wanted to create a new folder under the main Stages folder, you would select the Stages folder and click New Folder. A new folder with the name "New Folder" will appear. To rename the folder, double-click the name, type a new name, and press Enter.
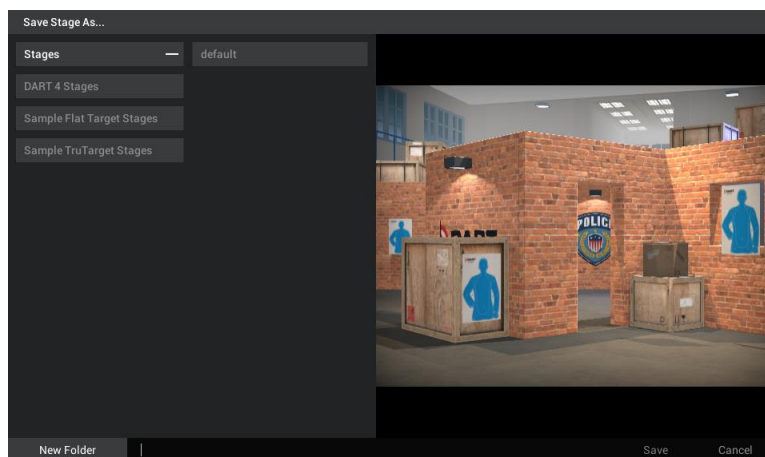
To save a stage, left-click the dark bar to the right of the New Folder button, type the name of the new stage, and click the Save button.

Tip! Saving a stage does not save certain changes made to flat targets, TruTargets, and video sequences such as point values. This is an important principle to understand. Some changes made to targets can only be retained by saving the target itself. For example, if you are using the B-21E Blue target in your stage and you have changed the point value for the target's scoring zones, the only way to save this information is by using the Flat Targets/Save+ command. This is covered in more detail in the Flat Targets, TruTargets, and Video Sequence sections.

Rules

Each stage can have its own set of rules which can be used to determine when one stage ends, and another begins. The Rules command panel contains two limiting options for a stage – shots and time. Reaching the limit of either of these options will end a stage and advance the shooter to the next stage or end the course if the shooter is on the last stage.

Shots Allowed

Shots Allowed can be set between 0 and 50 and sets the maximum number of shots allowed in a stage. Moving the slider to 0 provides the shooter with unlimited ammunition.

Time Allowed

Time Allowed can be set between 0 to 120 and sets the maximum amount of time (in seconds) for a stage. Moving the slider to 0 provides unlimited time.

These rules act on "first occurrence" basis. The stage will end when the first of these limits is reached. For example, if Shots Allowed is set to 10 and Time Allowed is set to 30 seconds, the stage will end once 10 shots have been fired even though time is left on the clock. Likewise, the stage will end if 30 seconds is reached before all 10 shots are fired.

Creating a stage with unlimited shots and unlimited time can result in an endless stage with no way to end one stage and move to the next.

Tip! In addition to these rules, stages can end based on assigned behaviors. For example, a stage can end once a certain score is achieved, or a threat eliminated. These options are described in more detail in the sections of behaviors.

Instructions

Because each stage can have different rules and requirements, it is often necessary to provide instructions to the shooter before the stage begins. The Instructions multi-select option allows you to select no instructions or text, image, and video instructions.

- When **None** is selected, no instructions will be shown.
- **Text** opens a dialog window for entering text-based instructions, which is shown prior to the beginning of a stage. The text dialog has two options indicated in the lower left corner of the window: Text and HTML. When in text mode, you can enter text simply by typing in the window. In HTML mode, you can use rich text tags to alter the appearance and layout of your text. These tags work like HTML commands but have less strict syntax. This allows advanced users to adjust the size, color, and position of text among other things. For a description of rich text tags, refer to the guide here; http://digitalnativestudios.com/textmeshpro/docs/rich-text/
- **Image** opens a load dialog that will allow you to select an image to be displayed as instructions prior to the beginning of a stage. Instruction images are created outside of the DART program and must be located in the DART Data\Instructions folder. Instruction images must be saved in PNG format and should be no larger than 1024 x 768 pixels in size.
- **Video** opens a load dialog that will allow you to select an .MP4 video file that will be played prior to the beginning of a stage. Instructional videos are created outside of the DART program and must be located in the DART Data\Instructions folder.

Instruction Time

The Instruction Time slider moves from 0 to 30 (seconds) and sets the length of time the instruction screen will be displayed. A setting of 0 sets the slider to Unlimited Instruction Time which means that the instructions will be displayed indefinitely until the mouse is clicked or a keyboard key is pressed.

The Instruction Time slider is inactive when video instructions are used. Instead of setting the time with a slider, the entire length of the video will be played.

Settings

Settings options are used to set a countdown at the beginning of a stage and add background sounds to a stage.

Countdown

You can choose to add a countdown before the beginning of any stage. The Countdown button has three options.

- **Audio Only** will play audible beeps prior to the beginning of a stage.
- **Video Only** will display countdown numbers prior to the beginning of a stage.
- **Audio & Video** will display numbers AND play audible beeps.

Countdown in Seconds

The Countdown in Seconds slider can be adjusted from 0 to 10. A setting of 0 means that no countdown will be shown. A setting of 1-9 will cause a countdown between 1 and 9 seconds. As you move the slider, you will see the main display update in real time. Notice that the background will blur slightly during a countdown to hide the exact nature of a target(s) from the shooter until the stage begins.

Setting the countdown slider to 10 creates a special instructional break. In this case, a graphic is shown on the screen and will remain there until a mouse button is clicked or a keyboard button is pressed. This provides an extended pause that can be used as coaching time before the beginning of a stage.

Tip! The instructional break graphic can be changed by replacing the file called break.png in the root of the DART Data folder. The file must be in .PNG format and should be no more than 1024x768 pixels in size.

Load Audio

In some cases, you may want to add audio to a stage. The sound of people yelling or a dog barking in the background can be used to increase stress during training. Clicking the Load Audio button opens a dialog that can be used to load an audio file for this purpose.
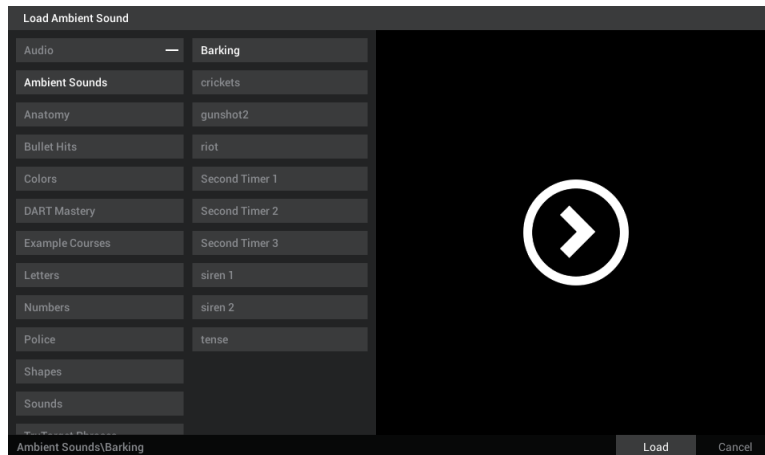
If you want to remove a previously loaded audio file, click the Remove button.

The Loop checkbox determines if the audio file will play once or continually repeat during the duration of the stage.

Environment

The Environment options allows you to set the overall appearance of the scene by adjusting the lighting and the scene viewpoint.

Time of Day

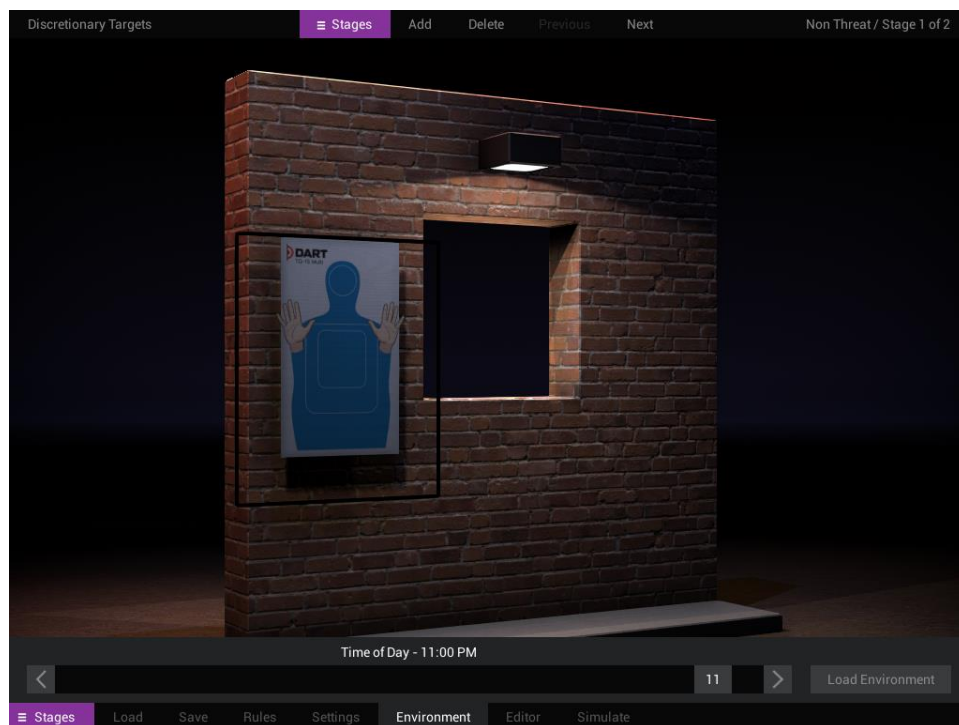The Time of Day slider is used to simulate lighting that may occur at a particular time of day. The default setting is 0 – or noon. Moving the slider to the right moves into afternoon and evening, while moving the slider to the left move through morning hours. Time of Day affects shadow direction and intensity, ambient light color, and overall scene brightness.

The Time of Day setting does not affect the appearance of video sequences.

Try It! Try moving the Time of Day slider back and forth and notice the effect it has on your scene.

Load Environment

Environments are files that can adjust the viewpoint (or camera) position, ground cover, and lighting of a stage. While you are not able to create your own environments, there are several pre-saved options available.

The default view in DART is approximately 6 feet above the ground, but what if you wanted to practice firing while lying on the ground? In this case you could use a different environment to change the view.

Try It! Click the Environment button and load the environment called default/Prone. Notice that your viewpoint now is very close to the ground.
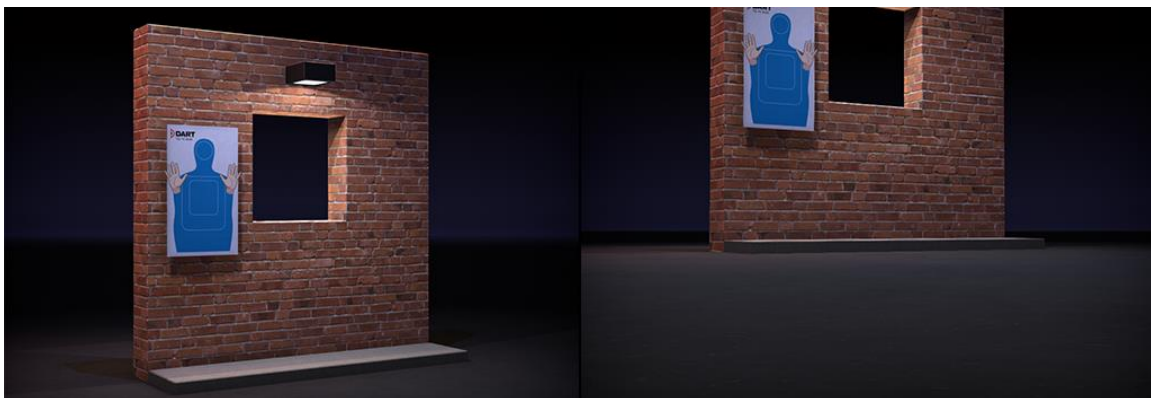
Editor

The stage editor provides a quick way to add, copy, and rearrange stages with just a few clicks of the mouse. Clicking the Editor button will open the stage editor window where you can name and rename stages, delete stages, add a new stage, clone an existing stage, and change the order of stages.
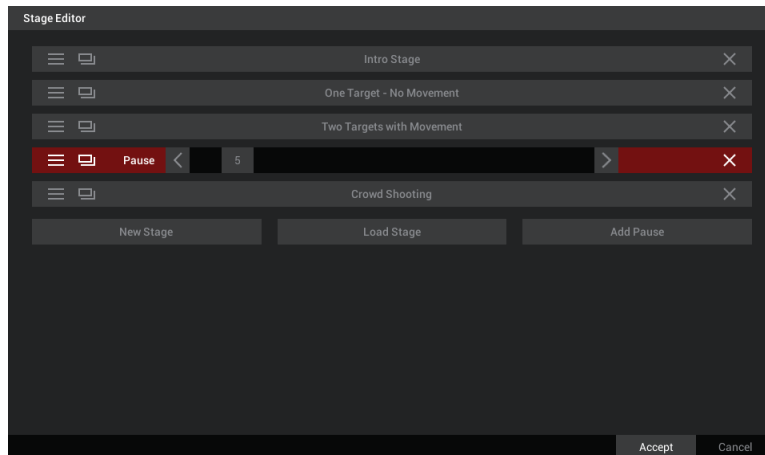
Arranging Stage Order

Each stage is given a bar with options related to that stage. The icon to the far left shown as three lines is used to rearrange the order of stages. Positioning the cursor over the icon will activate the bar.

Left-click and hold the mouse while dragging the stage to its new location. Release the mouse button to drop the stage in its new location. There must be at least two stages for this feature to work.

Duplicating a Stage

The icon shown as two rectangles is the clone icon. It will create an exact duplicate of the selected stage, including all targets, scoring, and settings. To duplicate a stage, click the clone icon.

Renaming a Stage

By default, stages are given names Stage 1, Stage 2, Stage 3, and so on. However, you can rename a stage to something more descriptive by positioning the cursor over the stage name and double-clicking the mouse. This will cause the text to highlight. Type in the new name and press the Enter key when finished.
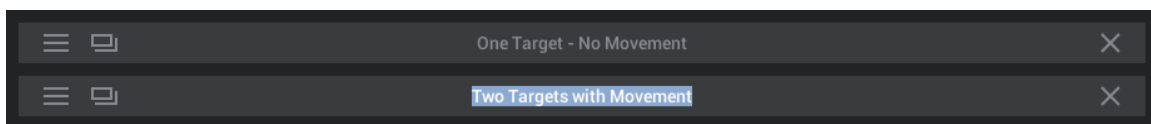
Tip! The after-action review that appears after completing a course in DART Range, will list stages by their name. You may find it helpful to name stages based on their goals or content – for example Threat Stage or No Threat Stage. This can help add clarity to the after-action review.

Deleting a Stage

To delete a stage, click the X icon at the far-right of the stage bar. Every course requires at least one stage, so you may not delete the last stage.

Important! Deleting a stage cannot be undone; however, changes to the stages are not saved until you click the Save button at the bottom of the dialog window. If you delete a stage by accident, click the Cancel button, and the course will remain unchanged.

New Stage

To add a new stage, left-click the New Stage button at the bottom of the stage stack. Unlike the clone icon, adding a new stage creates a stage with all default settings.

Load Stage

The Load Stage button is similarly to the Load option in the Stages menu. It will open a dialog that will allow you to load a pre-saved stage and add it to the bottom of the stack. Once loaded, it can be positioned anywhere by arranging the stage order.

Add Pause

Normally when a stage end, the next stage immediately begins. However, there may be times when you want to pause between stages. This can be done with the pause slider. Clicking the Add Pause button will add a pause slider to the bottom of the stack. The slider can be adjusted between 1 and 60 seconds and positioned, duplicated, and deleted like regular stages.

Once you are satisfied with your changes, click the Accept button at the bottom of the dialog window. Clicking the Cancel button will cancel ALL changes you have made while the dialog window was open.

Tip! Any changes you have made using the stage editor are only saved to disk once you save the course using the Courses/Save option.

THE FLAT TARGETS MENU

Each stage can have its own unique target(s) including flat targets, TruTargets, a video sequence, or any combination of these. Courses created in DART Studio may have up to 10 flat targets per stage.

When we refer to a flat target in DART, we mean a 2D target which is a combination of a target image (the part of the target the shooter sees), a zone image (a separate image of colored zones which the computer uses to identify various scoring areas), scoring values, and sounds – all of which combine to create a flat target. The Flat Targets menu provides options for loading these targets, as well as controlling their movements, behaviors, and other settings.

When you select the Flat Targets menu at the bottom of the screen, the info bar at the top of the screen automatically switches to show additional options. You can use these to add, delete, and switch between flat targets.
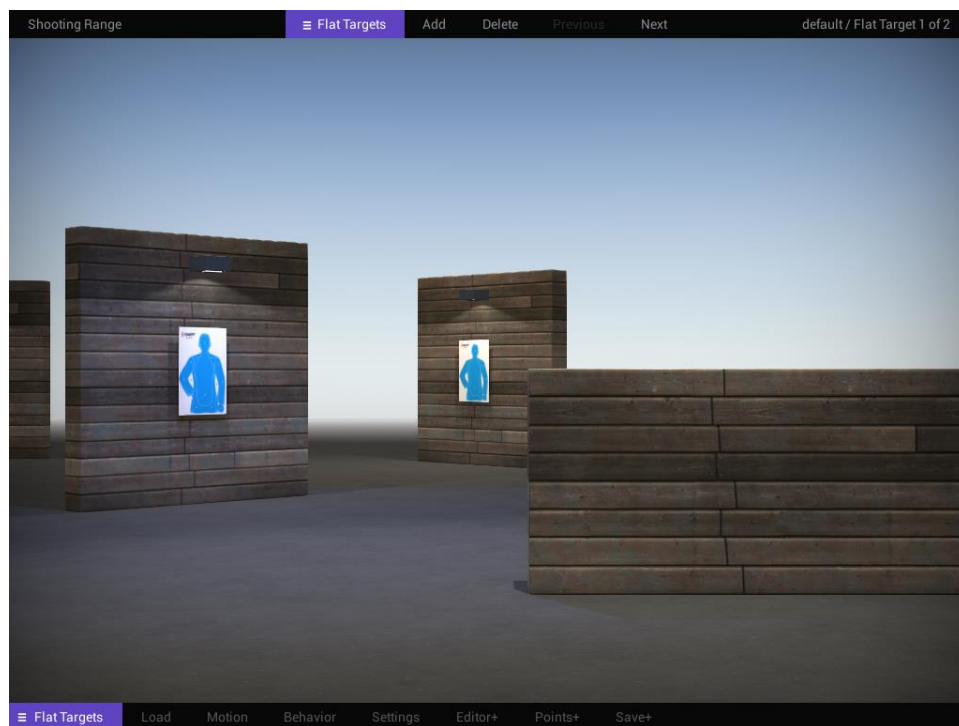
Adding and Deleting Flat Targets

A default stage has a single flat target placed in the center of the screen. Use the info bar (set to Flat Targets) to add and remove flat targets from a stage. Click the Add button to add a new flat target to the stage. The default target will appear in the center of the screen, and you will see the target counter increase at the top right corner of the screen. Each stage is limited to a maximum of 10 flat targets. Once you reach the target limit, the Add button will be inactive.

Click the Delete button to remove the currently selected target from the stage. The currently selected target will have a bright pink outline. Every stage must have at least one target (either a flat target, TruTarget, or video target). The Delete button will be inactive once you are down to the last target.

Tip! If two or more flat targets occupy the same space, it may appear as though there is only one target in the scene.

Selecting Flat Targets

Since each stage supports up to 10 flat targets, it is important to know which target you are working on at any given time. Selected targets are shown with a pink outline to distinguish them from other targets in the scene. Any changes you make will only apply to the selected target with the pink outline.
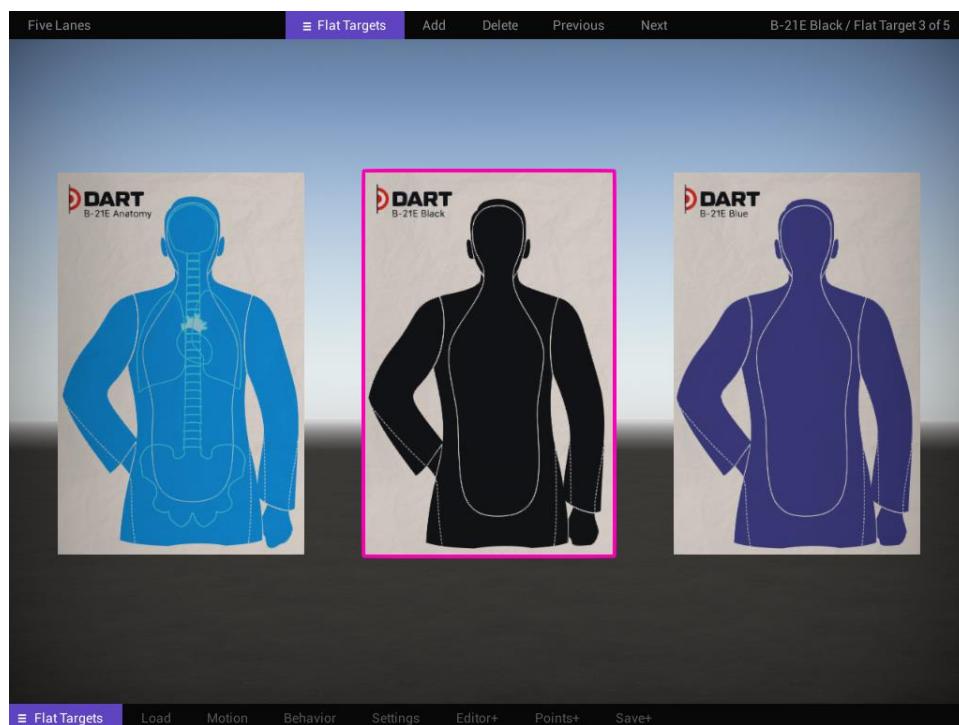
You can select a flat target by using the Previous and Next button in the info bar at the top of the screen when "Flat Targets" is selected. Alternatively, you can left-click on a target using the mouse when the Flat Targets/Motion menu is selected.

When the info bar is set to Flat Targets, the right side of the bar will show you the name of the currently selected target and the total number of flat targets in the stage.

Load

Clicking the Load button opens a window that will load a target in place of the selected flat target or add a flat target to the stage if there are no flat targets present.
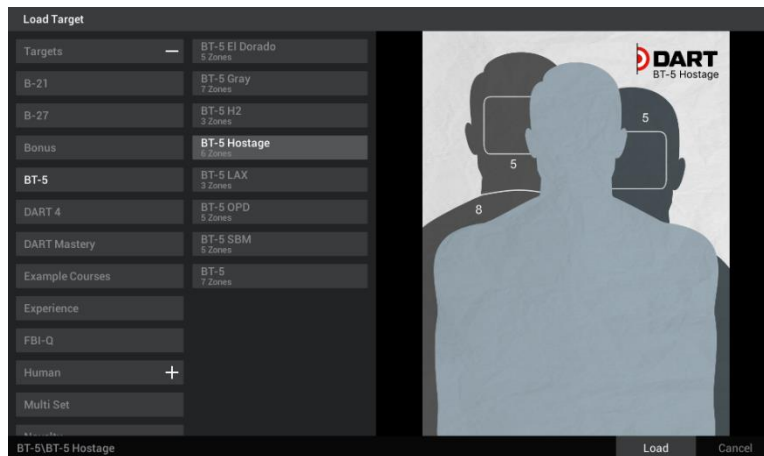
Motion

Flat targets can travel along paths which are defined by positional waypoints. The Motion commands allow you to place these waypoints anywhere you like using the mouse and the navigation commands at the top of the screen.
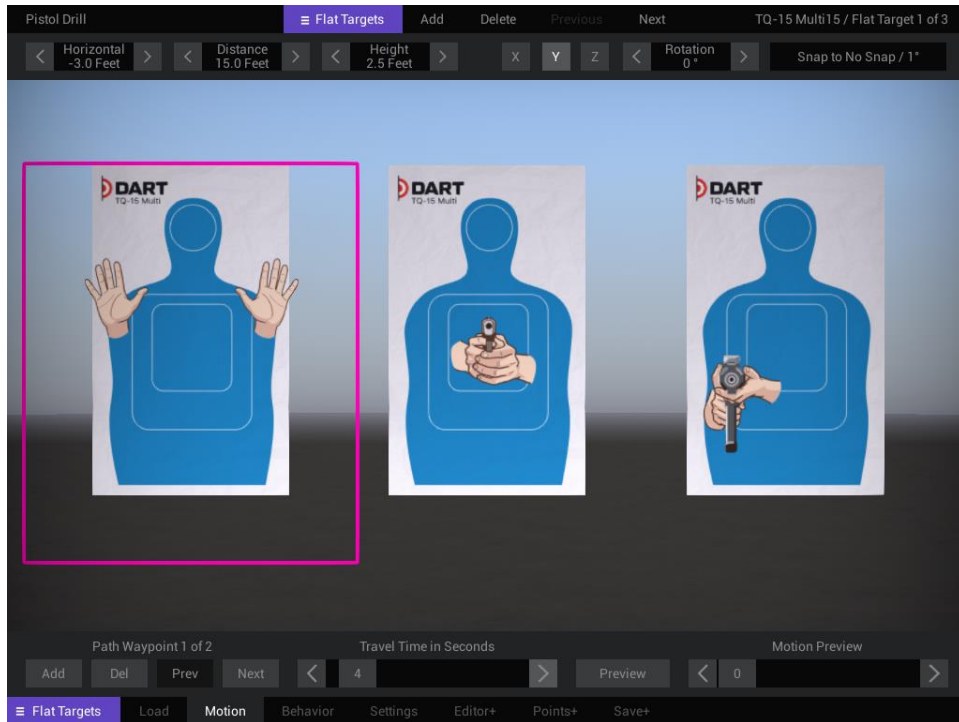
Waypoint Controls

Each flat target can have a path with up to ten waypoints. The waypoint controls allow you to add, delete, and select path waypoints. When you select a waypoint, the target position will instantly update to the selected waypoint's position. Once a waypoint is selected, you can edit its position using the mouse of navigation panel at the top of the screen.

Add will add a new waypoint to the existing path. Paths are limited to ten waypoints, so if a path already has ten waypoints, this option will be inactive.

Delete (Del) will remove the currently selected waypoint. All paths must have at least one waypoint, so when a path has just a single waypoint, this option will be inactive.

Previous (Prev) selects the previous waypoint in the path. If the first waypoint is selected, this option will be inactive.

Next selects the next waypoint in the path. If the last waypoint is selected, this option will be inactive.

Try it! With the Motion menu active, left-click your mouse on a flat target, and while holding the mouse button down, move it anywhere on the screen. You will notice that the position and distance counters will update as you move the target around the screen. Releasing the mouse button will set the position of the first waypoint. Now click the Add button to create a new waypoint. Repeat the process and move the target using the mouse. Once the waypoints are set, you have created a path for

Travel Time in Seconds

Sets the number of seconds it will take the target to travel the distance of the entire path. Shorter travel times results in quicker movement. A setting of 0 will prevent the target from moving.

Preview

The Preview button has two options. Selecting **One Target** will preview the motion of the currently selected target. **All Targets** will preview the motion of all targets (2D and 3D) in the stage. This allows you to test target speed and interaction.

Unlike the simulate options, target previews do not consider some course settings such as countdown, instructions, etc. Also, you cannot fire test shots with the mouse while in the Motion menu.

Tip! The preview options can also be accessed using keyboard shortcuts. Pressing the 3 key will preview the motion of the currently selected target, no matter how many are in the scene. Pressing the 4 key will preview the motion of all targets and props in a stage. Pressing the 3 and 4 keys will work in most areas of DART Studio. You do not have to have the Flat Targets menu open to preview target motion.

Motion Preview

The Motion Preview slider provides another way to test the motion of the selected target while you are working with the motion commands. The slider can be scrubbed back and forth quickly, which is especially useful for testing the motion of targets that pass through doorways or move along a very specific path.

Like most options in DART, the Motion Preview slider provide real-time feedback. Simply move the slider back and forth to see the target move along the path.

The Navigation Panel

The navigation panel appears when the following options are selected; Flat Targets/Motion, TruTargets/Motion, and Props/Motion. It can be used to track the position of a target or prop, make precise adjustments to the position of a target or prop, and set snap options which affect how a target or prop is moved when using the mouse.

The **Horizontal** setting changes the left/right position of a path waypoint in feet or yards based on the Snap setting. A value of 0 places the waypoint directly in the center of the screen. Increasing the value will move the waypoint to the right. Decreasing the value will move the waypoint to the left.

Tip! It is possible to place the waypoint beyond the visible edge of the screen or even behind the shooter. This can be useful for starting or ending a target's movement beyond the vision of the shooter.

The **Distance** setting changes the distance of a waypoint in feet or yards based on the Snap value. Acceptable distance values are between -300 and 300 feet (-100 and 100 yards).

The **Height** setting changes the height of a waypoint in feet or yards based on the Snap value. A value of 0 places the target on the ground. This is useful for human TruTargets or other targets that should remain anchored to the ground. For most flat targets, a value of 3 feet (1 yard) would place the top of the head at about six feet above the ground. Acceptable height values are between -30 and 30 feet (-10 and 10 yards).

The **Rotation** setting changes the rotation of a target based on the selected axis (X, Y, or Z). Acceptable values are between -359 and 359 degrees.

You can make small changes to any of these settings by clicking the left and right arrows on either side of a specific setting. You can make precise settings, by clicking the number, typing in a new value, and pressing the Enter key.

Snap

By default, a target will rotate in 1-degree increments, but this can be changed with the Snap option in the top navigation panel.

Click the Snap button on the right side of the navigation panel and select Snap to 1 Foot / 5 degrees. Now use your mouse to move a target around the screen. Notice that it jumps in 1-foot increments. Try rotating a target and you will notice that it rotates much more quickly. If you move the target around the screen, it will now move in one-foot increments.

You can also use the navigation panel to precisely place your target. Click the numerical value under Horizontal until it is highlighted in gray. Type 5 and press Enter. Set the numerical value under Distance, to 20 and press Enter. Finally enter 1 under height and press Enter. In all cases, the target will instantly jump to the new position.

Tip! the selected target will always be outlined in bright pink. This lets you know exactly which target you are working on in instances where there is more than one target in a scene.

Try it! With the Motion menu open, left-click the mouse on any flat target to select it. Continue to hold down the mouse button as you move the mouse around. Notice that the horizontal and distance

Behavior

Behaviors can control what happens to a target throughout the stage by defining trigger events and resulting actions that can change the way a target moves and looks throughout the stage. Behaviors offer a simple but very powerful way to create realistic and unpredictable target reactions.

For example, you can set a flat target behavior that causes the target to fall down when it is shot in a certain location, or have a target pause when it reaches a certain location.

Start

The Start options set the starting behavior of a target. A flat target may start as Normal, Hold Visible, Hold Invisible, Rotate 90, or Pop Up. Hold Visible and Hold Invisible are special behaviors that will cause a target to remain in place, even if it is assigned a motion, until a specific trigger event happens. Hold options work in conjunction with the Release action described later.

- **Normal** will start the target normally without any effects.
- **Hold Visible** will hold the target in place at its starting position until a Release action is triggered.
- **Hold Invisible** will hold the target in place at its starting position, but invisible to the shooter, until a Release action is triggered, at which point it will instantly appear.
- **Rotate 90** will rotate the target from a side view to a full-frontal view very quickly. This is similar to some live-fire ranges.
- **Pop Up** will rotate the target from the bottom up very quickly. This effect is also like some firing ranges where the target seems to pop up from the ground.

Triggers

A trigger is an event that causes an action to take place. A trigger event can be based on time, distance, shots fired, score, or when the target reaches a specific waypoint. A simple example might be having a target fall if it is hit in the bullseye. In this case, the trigger would be a zone hit (a hit in a specific area of the target), and the Action would be to fall down. Or suppose you wanted a target to stop moving once it was 5 yards away from the shooter. In this case, you could set the Trigger to be a distance of 5 yards and the Action to change speed to zero.

You might not always want a trigger to happen at the same exact moment. By varying the trigger parameter sliders, you can add an element of unpredictability. For example, you can instruct a target to stop moving when it is somewhere between 5 and 10 yards from the shooter. This can help ensure that the shooter will not know what the target is going to do.

There are six types of behavioral triggers for flat targets.

Time

The Time trigger includes parameter for Starting Time and Ending Time, which can be set between 0 and 120 seconds. Together, these sliders establish the time period at which the trigger can occur. If both sliders are set the to the same value – for example 10, the trigger event will happen precisely 10 seconds after the beginning of the stage (not including instruction and countdown time). However, if the sliders are set to different values – for example 15 and 30, the trigger event will happen at a random point between these two times.

Tip! The time slider cannot exceed the max time for the stage. For example, if your stage has a time limit of 15 seconds, the maximum value of the time sliders will be 15 seconds.

Distance

The Distance trigger uses parameter sliders for Near Distance and Far Distance. Together, these sliders establish the distance (in yards) from the shooter the target must be to trigger an action. Sliders values are based on the selected target. For example, if the target is never more than 10 yards away from the shooter, the maximum value of the distance sliders will be 10. If both sliders are set the to the same value – for example 5, the trigger event will happen at the first point the target is 5 yards away from the user. However, if the sliders are set to different values – for example 10 and 25, the trigger event will happen at a random point between these two distances.

Any Shot

The Any Shot trigger uses parameter for Low Shot Count and High Shot Count, which establish a range for the trigger to occur. The sliders range between 1 and the maximum number of shots allowed by the stage (up to a maximum of 50). If both sliders are set the to the same value – for example 10, the trigger event will happen as soon as any 10 shots are fired, regardless of whether the shots are hits or misses. If the sliders are set to different values – for example 10 and 20, the trigger event will happen at a random point between the 10th and 20th shot fired.

Zone Hit

The Zone Hit trigger checks for a certain number of hits in a precise area of the target. The sliders determine how many hits must occur in a specific target zone to trigger an action. The Shot Count slider has a value between 1 and 10 shots. The Target Zone slider has a value between 0 and 8 (with corresponding zone color values). If the Shot Count slider is set to 3 and the Target Zone value is set to 3 (Blue), the trigger event will happen as soon as 3 shots strike the blue zone of the target. Setting the Zone slider to 0/Any will check for shots that hit any of the defined zones of a target.

Tip! The Shot Count slider cannot exceed the total shots allowed for the stage.

Waypoint

The Waypoint trigger uses parameter for Starting Waypoint and Ending Waypoint. The trigger will occur as soon as the target reaches the waypoint defined by the slider. Both sliders have values between 1 and 10. If the sliders are set the to the same value – for example 2, the trigger event will happen as soon as the target reaches the second waypoint. If the sliders are set to different values – for example 2 and 5, the trigger event will happen when the target reaches a random waypoint between the second and fifth waypoints.

Tip! The waypoint sliders cannot exceed the number of waypoints in the selected target's path. For example, if your target's path has only three waypoints, the maximum value for the Ending Waypoint slider will be 3.

Score

Score can cause a trigger event to happen once the specified score reaches a predefined threshold. Using the Score Type selector, you can test the score of the entire course, the current stage, or the selected target. The Minimum Score slider sets the minimum score that must occur to trigger an action. Below is an explanation of the various score types.

- **Course** – the total score of all targets in all stages.
- **Stage** – the total score of all targets in the current stage.
- **Target** – the total score of all hits to the selected target.

Actions

When a trigger condition is met, an action can be initiated. There are eight possible actions for flat targets. When **None** is selected, no action will occur although other options may be activated as a result of the trigger such as Change Target, Load Audio, and Return Fire.

Pause causes the target to pause for 1 or more seconds as set by the Pause Time slider. Once the required number of seconds has elapsed, the target will continue its motion.

Fall Down quickly rotates the target backward 90° (the opposite of Pop Up).

Disappear causes the target to disappear. Targets which disappear can no longer be hit.

Release is a special action that works with the Hold starting options. If a target is being held in place by the Hold starting option, this action will release the target and let it begin its movement along a path. This allows a target's motion to be delayed.

Change Speed causes the target to change travel speed based on the setting of the Speed Percentage slider. A setting of 50(%) would cause the target to move at half of its originally designated speed. A speed change of 200(%) would cause the speed to double. Setting the Speed Percentage to 0 would cause the target to stop.

End Stage causes a stage to immediately end and move to the next stage if there is one or end the course completely if there are no more stages. This action overrides all stage rules and can end a stage even if there are shots/time left according to the stage rules.

Jump to Stage will instantly move to the specified stage once triggered. This is a powerful option that can be used to create branching scenarios. For example, you may have a course that goes to stage 2 if a target is shot or stage 3 if the shot misses the target.

End Course causes the entire course to immediately end. This action overrides all other stage rules and can end a course even if there are uncompleted stages.

In addition to these actions, there are three secondary actions that can be executed when a trigger condition is met. This allows a target to have multiple actions when a single trigger condition is met.

Change Target selects an alternate target to display once the trigger condition is met. For example, you may change a no-threat target to a threat target after a certain amount of time. Clicking the Change Target button will open the Load Target dialog where you can select any pre-saved target.

Load Audio causes the target to play an audio file once the trigger conditions are met. For example, you may have a target change to a no-threat target (using the Change Target option) and simultaneously play the audio "I surrender".

The **Return Fire** option requires an optional hardware device which consists of a laser emitting box and laser detecting vest worn by the shooter. With this option installed, the DART system can "shoot back" at the shooter and is useful for practicing "off the X" and cover drills. The Return Fire button has options for narrow and wide laser bursts. See the hardware instructions for more information.

Settings

The Settings menu allows you to set target hit requirements that can end one stage and move to the next. For example, you might require two hits to a target's center zone before moving from one stage to another. In addition, you can add a simulated recoil effect to a target.
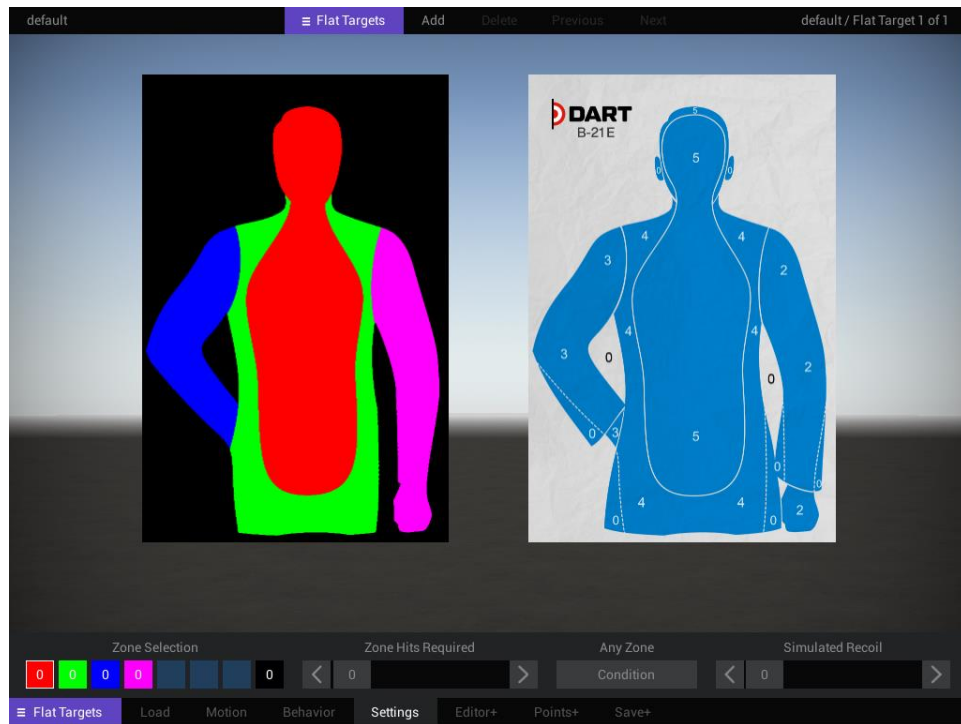
Zone Selection

Each flat target can have up to eight hit zones. These zones are defined by specific colors in a target zone image. The zone selection boxes allow you to specify which target zones the shooter must hit before advancing to the next stage. An image of the target and target zone are shown in the main viewport so that you can easily determine which target zone should be selected. Click a colored box to select the associated target zone.

Zone Hits Required

Once a zone has been selected, move the Zone Hits Required slider to adjust the number of hits that should be made in a particular zone. For example, if you wanted to require two hits to the red zone, you would select the red box and move the slider to 2. Any value between 0 and 10 can be selected. A value of 0 means that no hits are required for that zone. The slider value will be shown inside the zone selection boxes.

Condition

The Condition button gives you two options for zone hit requirements.

When **All Zones** is selected, all zone hit requirements must be satisfied before advancing to the next stage. This means that if the red zone is set to 2 and the green zone is set to 1, both conditions must be met before advancing.

When **Any Zone** is selected, any single zone hit requirement will advance the shooter to the next stage. This means that if the red zone is set to 2 and the green zone is set to 1, either two hits to the red or one hit to the green will be enough to advance to the next stage.

Tip! All stage requirements; ammo, time, and zone hit requirements operate on a "whichever occurs first" basis. If you have Max Time Allowed set to 10 (seconds) and you require two red zone hits, the stage will end at 10 seconds even if the shooter has not fired a single shot.

Simulated Recoil

The Simulated Recoil slider shifts the target position after each hit. The higher the value, the more the target will move. A setting of zero effectively turns this option off. This is a way of compensating for the lack of recoil in most laser training weapons, forcing the shooter to reacquire the target after each shot.

Tip! Even when simulated recoil is used, the target will only move when hit. If a shot misses the target completely, the target will not move.

Editor+

The Editor+ options allow you to change the size and picture associated to a flat target. Notice that "+" sign behind the Editor, Points, and Save options. This is a reminder that any changes made in the Editor+ and Points+ sections can only be retained by using the Save+ option.
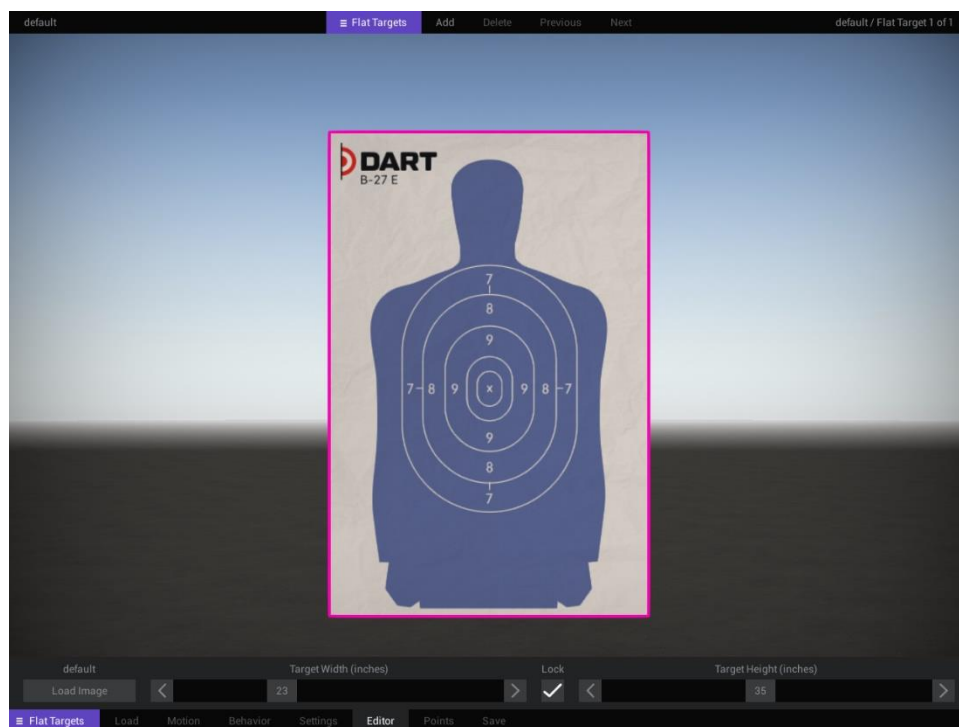
Load Image

The Load Image button opens a window that will load a target image in PNG format. This is the main target graphic seen by the shooter.

Flat targets can be saved in different folders inside the DART Data/Targets directory. Once you select a folder by clicking on it, a list of target images contained in the selected folder appears. Once you select a target image, a preview of the target will be displayed. Click the Load button at the bottom of the dialog window to load the selected target image.

DART uses colored areas called zones to distinguish areas of a target. This allows the system to know the difference between a target's head and body and allows points to be assigned to different areas of a target. Flat targets can have up to eight zones. When DART loads a target image, it automatically loads the corresponding zone image which is the name of the target file with a "z" added to the end. For example, if a target's name is B-21.png, the corresponding zone image would be B-21z.png.

Tip! Creating a completely new target requires the use of a third-party graphics application like Microsoft Paint, or similar program, to draw the target graphics and zone areas. DART will assemble these images into a finished target.

Target Width

This sets the width (in inches) for the currently loaded target. When the Lock option is on, DART will constrain target sizing so that it always remains proportional. The maximum size of a target is 72 inches (6 feet) in any direction.

Target Height

Sets the height (in inches) for the currently loaded target. When the Lock option is on, DART will constrain target sizing so that it always remains proportional. The maximum size of a target is 72 inches (6 feet).

Points+

The Points commands are used to set the score values and zone hit sounds to be played when a particular zone is hit.

You cannot simulate a course or stage, or preview target motion while the Targets/Settings menu is active.
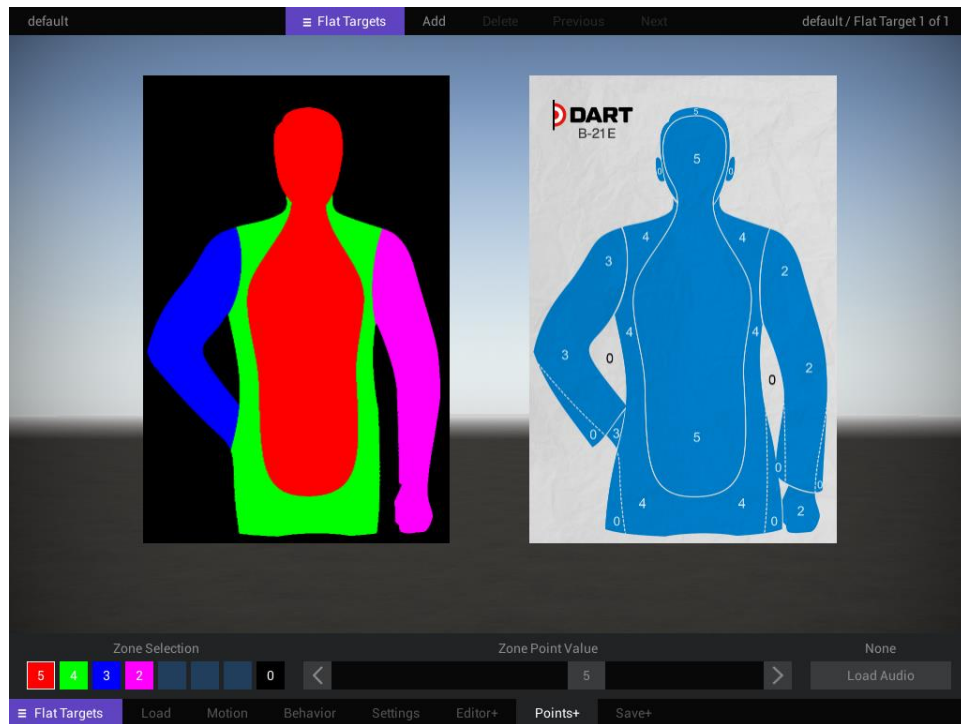
Zone Selection

DART targets can have up to eight zones, each represented by a colored square. Select a zone by clicking one of a colored square. The selected zone will be outlined in a white frame. Once a zone is selected, you can set the score value for shooting the zone to a positive or negative value using the Zone Point Value slider. Once a score is set, it will appear in the zone's colored square. Unused zones will have their zone selection boxes grayed out.

Zone Point Value

Sets the point value for the currently selected zone. Point values can vary between -25 and 25 points.

Tip! In some DART courses, scoring is based on a percentage of hits. Hits are defined as any shot that results in a score of 1 or higher.

Load Audio

Every zone can have an audio file assigned to it that will play whenever the zone is hit. This is especially useful when shooting targets at long distances where it becomes impossible to see bullet holes in the target. Clicking the Load Audio button will open a dialog window that will allow you to load a sound. The DART system includes more than 100 sounds and you can add your own by placing a .WAV file inside the DART Data/Audio folder. Once a sound file is loaded, it can be removed by clicking the Remove button.

Tip! The volume of zone hit audio can be independently adjusted in the DART Range program.

Save+

The Save button opens a window that allows you to save the current target configuration as a DART target.

Saving a target saves a .tgt file which includes target size and zone point values, and pointers to the target image, zone image, and associated audio files. It does not save information set under the Settings, Behavior, and Motion command panels. This information is saved when you save a course or stage.

THE TRUTARGETS MENU

Paper targets found on a firing range use silhouettes or the likeness of a person to simulate an encounter with a real human, however the motion of paper targets cannot simulate the movement of a real person. TruTargets do a much better job of simulating real people because they are three-dimensional and move similarly to a real person.

Each stage of your course can have up to ten TruTargets. The TruTargets menu provides options for loading targets, defining a target's movement, and other settings.
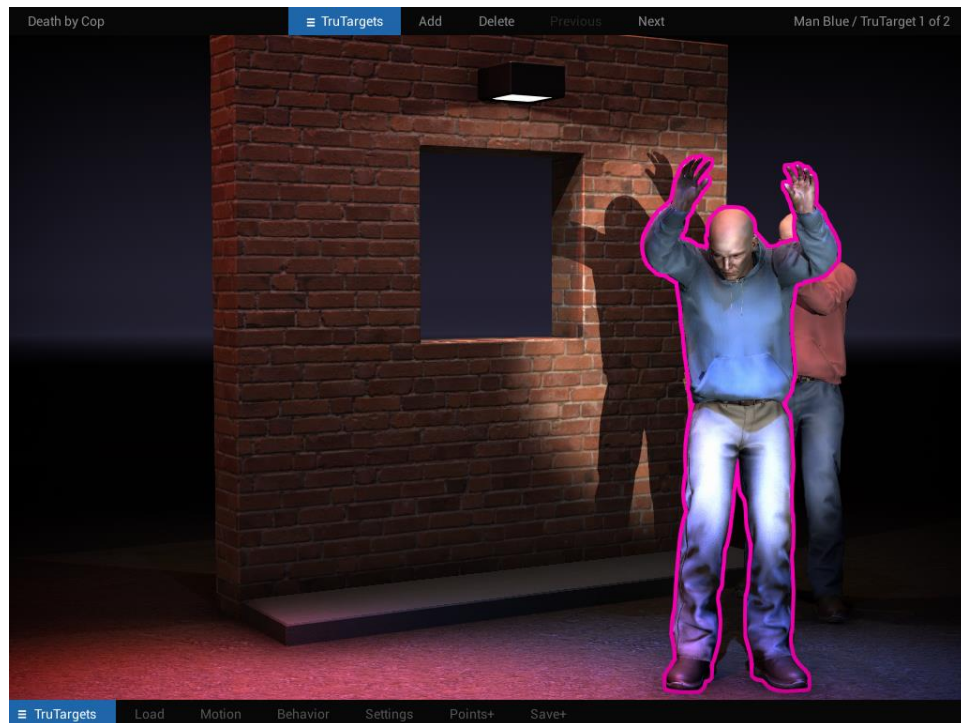
Adding and Deleting TruTargets

By default, the TruTargets options are inactive because TruTargets are not included in a new stage. To add a TruTarget to the current stage, click the Add button at the top of the screen whenever TruTargets is selected in the info bar. Alternatively, you can select the Load option in the TruTargets menu.

Try it! Press the F4 key (or select TruTargets from the bottom menu bar). You'll notice that the top info bar will automatically change to TruTargets. Click the Add button at the top of the screen. The default TruTarget will appear in the center of the screen and the target counter at the top right corner of the screen will update. Click the TruTargets button at the top of the screen and change the selection to Flat Targets. Click the Delete button to remove the flat target from the scene.

Selecting TruTargets

Since each stage supports up to 10 TruTargets, it is important to know which target you are working on at any given time. Selected targets are shown with a pink outline to distinguish them from other targets in the scene. Any changes you make will only apply to the selected target with the pink outline.

You can select a TruTarget by using the Previous and Next button in the info bar at the top of the screen when "TruTargets" is selected. Alternatively, you can left-click on a TruTarget using the mouse when the TruTargets/Motion menu is selected.

When the info bar is set to TruTargets, the right side of the bar will show you the name of the currently selected target and the total number of TruTargets in a stage.

Tip! When the bottom menu is set to something other than TruTargets, the pink outline around the selected TruTarget will turn black. You can still use the info bar commands, but the black outline lets you know that the TruTargets menu is no longer selected.

Try it! Press the F4 key to ensure that you are in the TruTargets section. Click the Add button at the top of the screen twice to add two TruTargets to your scene. Click the Motion button at the bottom of the screen.

Click and hold the left mouse button on a TruTarget and move your mouse around. You can easily move the TruTarget prop front to back and left to right. Repeat the process to select and move the other TruTarget.

Load

Clicking the Load button opens a window that will load a TruTarget in place of the selected TruTarget, or if there are no TruTargets in the scene it will add one.
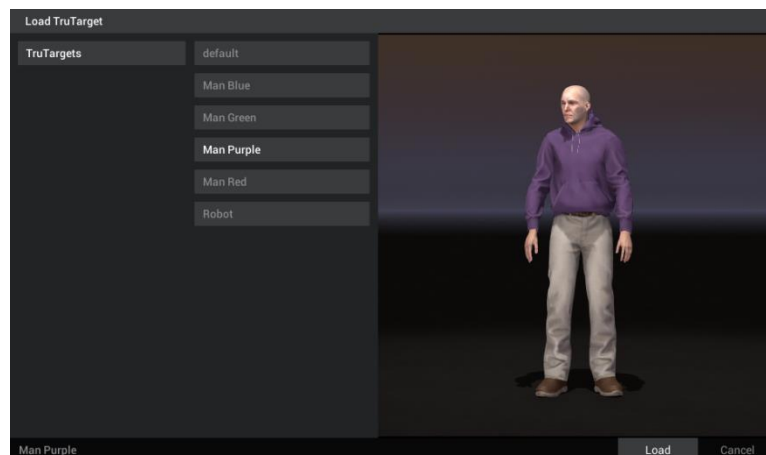
Motion

TruTargets can travel along paths which are defined by positional waypoints. The Motion commands allow you to place these waypoints anywhere you like using the mouse and the navigation commands at the top of the screen.

Editing path waypoints happens in real time. This makes it easy to place TruTargets exactly where you need them.

Waypoint Controls

Each TruTarget can have a path with up to ten waypoints. The waypoint controls allow you to add, delete, and select path waypoints. When you select a waypoint, the target position will instantly update to the selected waypoint's position. Once a waypoint is selected, you can edit its position using the mouse of navigation panel at the top of the screen.

Add will add a new waypoint to the existing path. Paths are limited to ten waypoints, so if a path already has ten waypoints, this option will be inactive.

Delete (Del) will remove the currently selected waypoint. All paths must have at least one waypoint, so when a path has just a single waypoint, this option will be inactive.

Previous (Prev) selects the previous waypoint in the path. If the first waypoint is selected, this option will be inactive.

Next selects the next waypoint in the path. If the last waypoint is selected, this option will be inactive.

Try it! With the Motion menu active, left-click your mouse on a TruTarget, and while holding the mouse button down, move it anywhere on the screen. You will notice that the position and distance counters will update as you move the target around the screen. Releasing the mouse button will set the position of the first waypoint. Now click the Add button to create a new waypoint. Repeat the process and move the target using the mouse. Once the waypoints are set, you have created a path for your target! You can preview the path, sliding the Motion Preview slider back and forth or by using the Preview option.

Travel Time in Seconds

Sets the number of seconds it will take the target to travel the distance of the entire path. Shorter travel times results in quicker movement. A setting of 0 will prevent the target from moving.

Preview

The Preview button has two options. Selecting **One Target** will preview the motion of the currently selected target. **All Targets** will preview the motion of all targets (2D and 3D) in the stage. This allows you to test target speed and interaction.

Unlike the simulate options, target previews do not consider some course settings such as countdown, instructions, etc. Also, you cannot fire test shots with the mouse while in the Motion menu.

Tip! The preview options can also be accessed using keyboard shortcuts. Pressing the 3 key will preview the motion of the currently selected target, no matter how many are in the scene. Pressing the 4 key will preview the motion of all targets and props in a stage. Pressing the 3 and 4 keys will work in most areas of DART Studio. You do not have to have the TruTargets menu open to preview target motion.

Motion Preview

The Motion Preview slider provides another way to test the motion of the selected target while you are working with the motion commands. The slider can be scrubbed back and forth quickly, which is especially useful for testing the motion of targets that pass through doorways or move along a very specific path.

Like most options in DART, the Motion Preview slider provide real-time feedback. Simply move the slider back and forth to see the target move along the path.

The Navigation Panel

The navigation panel appears when the following options are selected; Flat Targets/Motion, TruTargets/Motion, and Props/Motion. It can be used to track the position of a target or prop, make precise adjustments to the position of a target or prop, and set snap options which affect how a target or prop is moved when using the mouse.

The **Horizontal** setting changes the left/right position of a path waypoint in feet or yards based on the Snap setting. A value of 0 places the waypoint directly in the center of the screen. Increasing the value will move the waypoint to the right. Decreasing the value will move the waypoint to the left.

Tip! It is possible to place the waypoint beyond the visible edge of the screen or even behind the shooter. This can be useful for starting or ending a target's movement beyond the vision of the shooter.

The **Distance** setting changes the distance of a waypoint in feet or yards based on the Snap value. Acceptable distance values are between -300 and 300 feet (-100 and 100 yards).

The **Height** setting changes the height of a waypoint in feet or yards based on the Snap value. A value of 0 places the target on the ground. This is useful for TruTargets or other targets that should remain anchored to the ground. Acceptable height values are between -30 and 30 feet (-10 and 10 yards).

The **Pan** setting changes the rotation of a TruTarget's head. Acceptable values are between -90 and 90 degrees.

The **Tilt** setting allows a TruTarget to look up and down. Acceptable values are between -45 and 45 degrees.

You can make small changes to any of these settings by clicking the left and right arrows on either side of a specific setting. You can make precise settings, by clicking the number, typing in a new value, and pressing the Enter key.

Snap

By default, a target will rotate in 1-degree increments, but this can be changed with the Snap option in the top navigation panel.

Click the Snap button on the right side of the navigation panel and select Snap to 1 Foot / 5 degrees. Now use your mouse to move a target around the screen. Notice that it jumps in 1-foot increments.

Try rotating a target and you will notice that it rotates much more quickly. If you move the target around the screen, it will now move in one-foot increments.

You can also use the navigation panel to precisely place your target. Click the numerical value under Horizontal until it is highlighted in gray. Type 5 and press Enter. Set the numerical value under Distance, to 20 and press Enter. Finally enter 1 under height and press Enter. In all cases, the target will instantly jump to the new position.

Tip! the selected target will always be outlined in bright pink. This lets you know exactly which target you are working on in instances where there is more than one target in a scene.

Try it! With the Motion menu open, left-click the mouse on any TruTarget to select it. Continue to hold down the mouse button as you move the mouse around. Notice that the horizontal and distance values in the navigation panel (at the top of the screen) update in real-time as you move the target around.

Release the mouse button and right-click the mouse on a target. Continue to hold down the mouse button as you move the mouse up and down. Notice that the target now moves up and down. Now spin the mouse wheel. Notice that the Pan value will change.

Behavior

Behaviors can control what happens to a target throughout the stage by defining trigger events and resulting actions that can change the way a target moves and looks throughout the stage. Behaviors offer a simple but very powerful way to create realistic and unpredictable target reactions.

For example, you can set a TruTarget behavior that causes the target to pull out a gun when it reaches a certain location, or have a target pause after a certain amount of time.
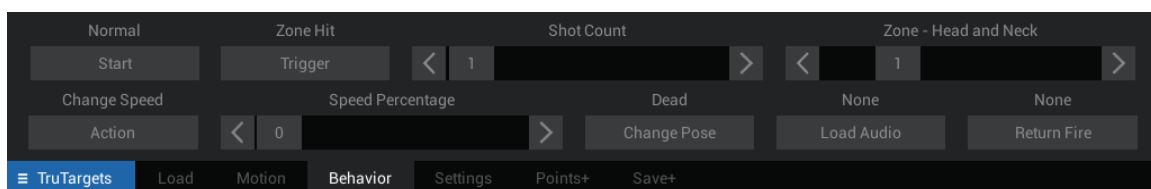
Start

The Start options set the starting behavior of a target. A TruTarget may start as Normal, Hold Visible, or Hold Invisible. Hold Visible and Hold Invisible are special behaviors that will cause a target to remain in place, even if it is assigned a motion, until a specific trigger event happens. Hold options work in conjunction with the Release action described later.

- **Normal** will start the target normally without any effects.
- **Hold Visible** will hold the target in place at its starting position until a Release action is triggered.
- **Hold Invisible** will hold the target in place at its starting position, but invisible to the shooter, until a Release action is triggered, at which point it will instantly appear.

Triggers

A trigger is an event that causes an action to take place. A trigger event can be based on time, distance, shots fired, score, or when the target reaches a specific waypoint. A simple example might be having a target raise its hands if a shot is fired. In this case, the trigger would be Any Shot and the Action would be to change the pose to Hands Up. Or suppose you wanted a target to stop moving once it was 5 yards away from the shooter. In this case, you could set the Trigger to be a distance of 5 yards and the Action to change speed to zero.

You might not always want a trigger to happen at the same exact moment. By varying the trigger parameter sliders, you can add an element of unpredictability. For example, you can instruct a target to stop moving when it is somewhere between 5 and 10 yards from the shooter. This can help ensure that the shooter will not know what the target is going to do.

There are seven types of behavioral triggers for TruTargets.

Time

The Time trigger includes parameter for Starting Time and Ending Time, which can be set between 0 and 120 seconds. Together, these sliders establish the time period at which the trigger can occur. If both sliders are set the to the same value – for example 10, the trigger event will happen precisely 10 seconds after the beginning of the stage (not including instruction and countdown time). However, if the sliders are set to different values – for example 15 and 30, the trigger event will happen at a random point between these two times.

Tip! The time slider cannot exceed the max time for the stage. For example, if your stage has a time limit of 15 seconds, the maximum value of the time sliders will be 15 seconds.

Distance

The Distance trigger uses parameter sliders for Near Distance and Far Distance. Together, these sliders establish the distance (in yards) from the shooter the target must be to trigger an action. Sliders values are based on the selected target. For example, if the target is never more than 10 yards away from the shooter, the maximum value of the distance sliders will be 10. If both sliders are set the to the same value – for example 5, the trigger event will happen at the first point the target is 5 yards away from the user. However, if the sliders are set to different values – for example 10 and 25, the trigger event will happen at a random point between these two distances.

Any Shot

The Any Shot trigger uses parameter for Low Shot Count and High Shot Count, which establish a range for the trigger to occur. The sliders range between 1 and the maximum number of shots allowed by the stage (up to a maximum of 50). If both sliders are set the to the same value – for example 10, the trigger event will happen as soon as any 10 shots are fired, regardless of whether the shots are hits or misses. If the sliders are set to different values – for example 10 and 20, the trigger event will happen at a random point between the 10th and 20th shot fired.

Zone Hit

The Zone Hit trigger checks for a certain number of hits in a precise area of the target. The sliders determine how many hits must occur in a specific target zone to trigger an action. The Shot Count slider has a value between 1 and 10 shots. The Zone slider has a value between 0 and 6 (with corresponding zone names). If the Shot Count slider is set to 1 and the Zone value is set to Head and Neck, the trigger event will happen as soon as 1 shot strikes the head or neck of the target. Setting the Zone slider to 0/Any will check for shots that hit the target anywhere.

Tip! The Shot Count slider cannot exceed the total shots allowed for the stage.

Waypoint

The Waypoint trigger uses parameter for Starting Waypoint and Ending Waypoint. The trigger will occur as soon as the target reaches the waypoint defined by the slider. Both sliders have values between 1 and 10. If the sliders are set the to the same value – for example 2, the trigger event will happen as soon as the target reaches the second waypoint. If the sliders are set to different values – for example 2 and 5, the trigger event will happen when the target reaches a random waypoint between the second and fifth waypoints.

Tip! The waypoint sliders cannot exceed the number of waypoints in the selected target's path. For example, if your target's path has only three waypoints, the maximum value for the Ending Waypoint slider will be 3.

Score

Score can cause a trigger event to happen once the specified score reaches a predefined threshold. Using the Score Type selector, you can test the score of the entire course, the current stage, or the selected target. The Minimum Score slider sets the minimum score that must occur to trigger an action. Below is an explanation of the various score types.

- **Course** – the total score of all targets in all stages.
- **Stage** – the total score of all targets in the current stage.
- **Target** – the total score of all hits to the selected target.

Death

The Death trigger is activated as soon as the target dies. You can define the number and location of shots needed to kill a TruTarget in the Settings menu.

Actions

When a trigger condition is met, an action can be initiated. There are seven possible actions for TruTargets. When **None** is selected, no action will occur although other options may be activated as a result of the trigger such as Change Pose, Load Audio, and Return Fire.

Pause causes the target to pause for 1 or more seconds as set by the Pause Time slider. Once the required number of seconds has elapsed, the target will continue its motion.

Disappear causes the target to disappear. Targets which disappear can no longer be hit.

Release is a special action that works with the Hold starting options. If a target is being held in place by the Hold starting option, this action will release the target and let it begin its movement along a path. This allows a target's motion to be delayed.

Change Speed causes the target to change travel speed based on the setting of the Speed Percentage slider. A setting of 50(%) would cause the target to move at half of its originally designated speed. A speed change of 200(%) would cause the speed to double. Setting the Speed Percentage to 0 would cause the target to stop.

End Stage causes a stage to immediately end and move to the next stage if there is one or end the course completely if there are no more stages. This action overrides all stage rules and can end a stage even if there are shots/time left according to the stage rules.

Jump to Stage will instantly move to the specified stage once triggered. This is a powerful option that can be used to create branching scenarios. For example, you may have a course that goes to stage 2 if a target is shot or stage 3 if the shot misses the target.

End Course causes the entire course to immediately end. This action overrides all other stage rules and can end a course even if there are uncompleted stages.

In addition to these actions, there are three secondary actions that can be executed when a trigger condition is met. This allows a target to have multiple actions when a single trigger condition is met.

Change Pose selects one of 17 alternate poses to display once the trigger condition is met. For example, you may change a no-threat target with his hands up to a threat target after a certain amount of time by selecting the Knife Attack pose.

Load Audio causes the target to play an audio file once the trigger conditions are met. For example, you may have a target change to a no-threat target (using the Change Pose option) and simultaneously play the audio "I surrender".

The **Return Fire** option requires an optional hardware device which consists of a laser emitting box and laser detecting vest worn by the shooter. With this option installed, the DART system can "shoot back" at the shooter and is useful for practicing "off the X" and cover drills. The Return Fire button has options for narrow and wide laser bursts. See the hardware instructions for more information.

Settings

Settings allow you to set mortality options for a TruTarget along with shot requirements for a stage and moving to the next. For example, you might require two hits to a TruTarget's chest before advancing to the next stage.

Body Zone

Unlike flat targets which use colored areas to define target zones, TruTargets have six fixed zone areas: Head and Neck, Chest, Abdomen, Pelvis, Arms, and Legs. This multi-selection box allows you to specify which target zones the shooter must hit before advancing to the next stage, and the number of shots to the selected area that will kill a target.

Zone Hits Required

Once a zone has been selected, use the Zone Hits Required slider to set the number of hits that must be logged to the selected zone. For example, if you wanted to require two hits to the chest, you would select Chest using the Body Zone button and move the Zone Hits Required slider to 2. Any value between 0 and 10 can be selected. A value of 0 means that no hits are required for that particular zone.

Condition

The Condition button gives you two options for zone hit requirements.

If **All Zones** is selected, all zone hit requirements must be satisfied before advancing to the next stage. This means that if the Head zone is set to 1 and the Chest zone is set to 2, both conditions must be met before advancing.

If **Any Zone** is selected, any single zone hit requirement will advance the shooter to the next stage. This means that if the Head zone is set to 1 and the Chest zone is set to 2, either one hit to the Head *or* two hits to the Chest will be enough to advance to the next stage.

Tip! Rules operate on a "first occurrence" basis. For example, if Max Shots Allowed is 10 and Max Time Allowed is 3 seconds, the stage could end at 3 seconds even if the shooter has not fired a single shot.

Zone Hits to Kill

Defines the number of hits to the selected body zone that will instantly kill a TruTarget.

Use the Body Zone button to select the Head and Neck zone. Move the Zone Hits to Kill slider to 1. You have just told the system that a single shot to the head will kill this target no matter what else is happening. It doesn't matter if the target is standing still, running, or in the middle of an Action; the first shot to the target will drop it to the floor dead.

Shots made to a target after it is dead will be logged and shown in the after action review.

Tip! By adjusting the number of hits required to kill a target you can simulate different situations. For example, two shots to the chest may kill a normal target, but a target wearing body armor may survive more than two shots.

Points+

The Target Settings options set the score value and optional zone hit sound to be played when a particular zone is hit.

Select Body Zone

TruTargets have six fixed zone areas; Head and Neck, Chest, Abdomen, Pelvis, Arms, and Legs. This multi-selection box allows you to specify the target zone that will be adjusted.

Zone Point Value

Sets the point value for the currently selected zone. Point values can vary between -25 and 25 points.

Tip! In some DART courses, scoring is based on a percentage of hits. Hits are defined as any shot that results in a score of 1 or higher.

Load Audio

Every zone can have an audio file assigned to it that will play whenever the zone is hit. This is especially useful when shooting targets at long distances where it becomes impossible to see the impact on the target. Clicking the Load Audio button will open a dialog window that will allow you to load a sound.

Once a sound file is loaded, it can be removed by clicking the Remove button.

Tip! The volume of zone hit audio can be independently adjusted in the DART Range program.

Save+

The Save button opens a dialog window that allows you to save the current settings to a TruTarget.

THE VIDEO SEQUENCE MENU

Each stage can have its own unique video sequence which may be used for instruction, video-based targets, and video scenarios.

Ideally, video sequences should be 1,024x768 resolution and saved in mp4 or webm formats.

When you select the Video Sequence menu at the bottom of the screen, the info bar at the top of the screen automatically switches to show additional options. You can use these to add, delete, and switch between flat targets.
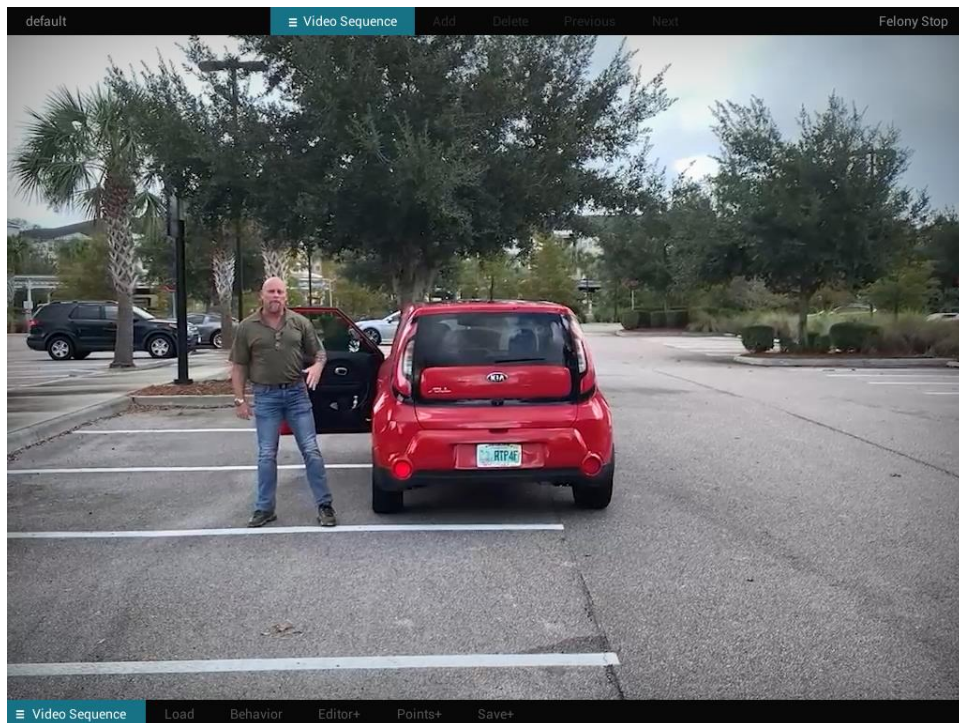

Adding and Deleting a Video Sequence

By default, a stage does not contain a video sequence. Use the info bar (set to Video Sequence) to add and remove a video sequence from a stage. Click the Add button to add a new sequence to the stage. The default sequence will appear in the center of the screen, and you will see the name of the sequence appear in the top right corner of the screen. Each stage is limited to a maximum of one video sequence, so once you add a sequence, the Add button will be inactive.

Click the Delete button to remove the video sequence from the stage. Every stage must have at least one target (either a flat target, TruTarget, or video sequence). The Delete button will be inactive once you are down to the last target.

Load

Clicking the Load button opens a window that will load a video sequence in place of the current sequence (if there already is one), or it will add a new sequence to the stage if there is not already a video sequence present.
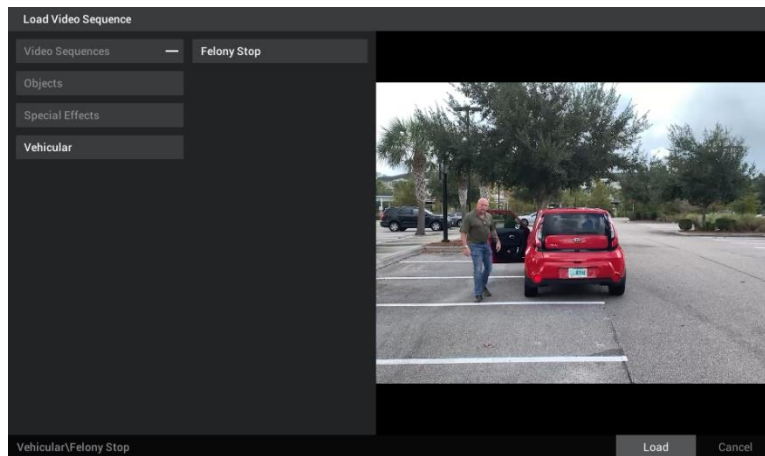
Tip! DART comes with several prebuilt video sequences, and it is possible to add your own using the Video Sequence/Editor+ options.

Behavior

Behaviors can control what happens to a video sequence throughout the stage by defining trigger events and resulting actions that can change certain aspects of a sequence or stage. For example, you can set a video sequence behavior to branch to another stage when it is shot in a certain location, or have a sequence pause after a certain amount of time.
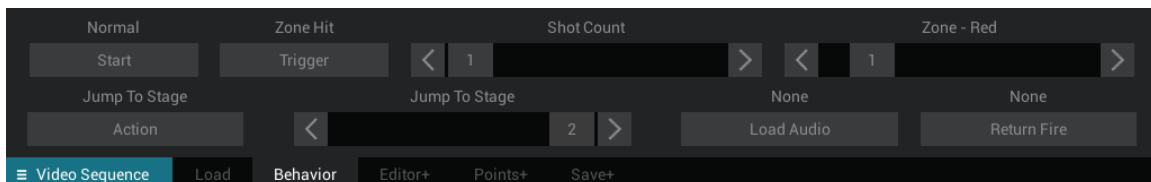
Start

The Start options set the starting behavior of a video sequence. A flat target may start as Hold Visible or Hold Invisible. Hold Visible and Hold Invisible option work in conjunction with the Release action described later.

- **Hold Visible** will pause the video sequence until a Release action is triggered.
- **Hold Invisible** will pause the video sequence, but it will be invisible to the shooter, until a Release action is triggered, at which point it will instantly appear.

Triggers

A trigger is an event that causes an action to take place. A trigger event can be based on time, reaching a specific frame of video, shots fired, or score. A simple example might be having a video sequence pause when a shot is fired. In this case, the trigger would be Any Shot and the Action would be to Pause.

You might not always want a trigger to happen at the same exact moment. By varying the trigger parameter sliders, you can add an element of unpredictability. For example, you can instruct a sequence to pause after a random number of shots between 1 and 6. This can help ensure that the shooter will not know exactly what the sequence is going to do.

There are five types of behavioral triggers for video sequences.

Time

The Time trigger includes parameter for Starting Time and Ending Time, which can be set between 0 and 120 seconds. Together, these sliders establish the time period at which the trigger can occur. If both sliders are set the to the same value – for example 10, the trigger event will happen precisely 10 seconds after the beginning of the stage (not including instruction and countdown time). However, if the sliders are set to different values – for example 15 and 30, the trigger event will happen at a random point between these two times.

Tip! The time slider cannot exceed the max time for the stage. For example, if your stage has a time limit of 15 seconds, the maximum value of the time sliders will be 15 seconds.

Frame

The Frame trigger uses parameter sliders for Starting Frame and Ending Frame. Together, these sliders establish a time (in video frames) to trigger an action. Sliders values are based on current video sequence. For example, if the sequence is 120 frames in length, the maximum value of the frame sliders will be 120. If both sliders are set the to the same value – for example 30, the trigger event will happen precisely when the video reaches the 30th frame. However, if the sliders are set to different values – for example 30 and 90, the trigger event will happen at a random point between these two frames.

Any Shot

The Any Shot trigger uses parameter for Low Shot Count and High Shot Count, which establish a range for the trigger to occur. The sliders range between 1 and the maximum number of shots allowed by the stage (up to a maximum of 50). If both sliders are set the to the same value – for example 10, the trigger event will happen as soon as any 10 shots are fired, regardless of whether the shots are hits or misses. If the sliders are set to different values – for example 10 and 20, the trigger event will happen at a random point between the 10th and 20th shot fired. The Any Shot trigger does not care if the shots are hits or misses.

Zone Hit

The Zone Hit trigger checks for a certain number of hits in a precise area of the video sequence. The sliders determine how many hits must occur in a specific target zone to trigger an action. The Shot Count slider has a value between 1 and 10 shots. The Target Zone slider has a value between 0 and 8 (with corresponding zone color values). If the Shot Count slider is set to 3 and the Target Zone value is set to 3 (Blue), the trigger event will happen as soon as 3 shots strike the blue zone of the sequence. Setting the Zone slider to 0/Any will check for shots that hit any of the defined zones of a video sequence.

Tip! The Shot Count slider cannot exceed the total shots allowed for the stage.

Score

Score can cause a trigger event to happen once the specified score reaches a predefined threshold. Using the Score Type selector, you can test the score of the entire course, the current stage, or the video sequence (target). The Minimum Score slider sets the minimum score that must occur to trigger an action. Below is an explanation of the various score types.

- **Course** – the total score of all targets in all stages.
- **Stage** – the total score of all targets in the current stage.
- **Target** – the total score of all hits to the selected video sequence.

Actions

When a trigger condition is met, an action can be initiated. There are five possible actions for a video sequence. When **None** is selected, no action will occur although other options may be activated as a result of the trigger such as Load Audio and Return Fire.

Pause causes the video sequence to pause for one or more seconds as set by the Pause Time slider. Once the required number of seconds has elapsed, the sequence will continue.

Release is a special action that works with the Hold starting options. If a sequence is being held by the Hold starting option, this action will release the sequence and let it begin playing. This allows a video to be delayed until a certain event.

End Stage causes a stage to immediately end and move to the next stage if there is one or end the course completely if there are no more stages. This action overrides all stage rules and can end a stage even if there are shots/time left according to the stage rules.

Jump to Stage will instantly move to the specified stage once triggered. This is a powerful option that can be used to create branching video scenarios. For example, you may have a course that goes to stage 2 if a target in a sequence is shot, or stage 3 if the shot misses the target.

End Course causes the entire course to immediately end. This action overrides all other stage rules and can end a course even if there are uncompleted stages.

In addition to these actions, there are two secondary actions that can be executed when a trigger condition is met. This allows a sequence to have multiple actions when a single trigger condition is met.

Load Audio causes the sequence to play an audio file once the trigger conditions are met. For example, you may play the audio "I surrender" or play prerecorded audio instructions.

The **Return Fire** option requires an optional hardware device which consists of a laser emitting box and laser detecting vest worn by the shooter. With this option installed, the DART system can "shoot back" at the shooter and is useful for practicing "off the X" and cover drills. The Return Fire button has options for narrow and wide laser bursts. See the hardware instructions for more information.

Editor+

The Editor+ options allow you to load a new video of your own. You can also use the Preview Frame slider to scrub through your video. Notice that "+" sign behind the Editor+, Points+, and Save+ menu options. This is a reminder that any changes made in these sections can only be retained by using the Save+ option.
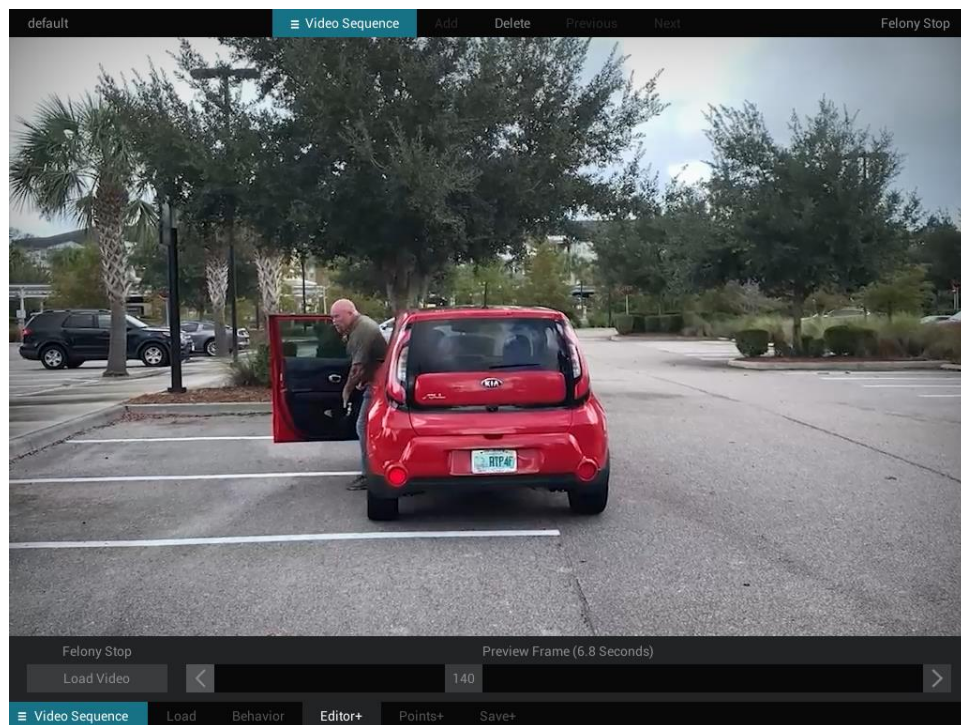
Load Video

The Load Video button opens a window that will load a video sequence in mp4 or webm format.

A video sequence can be saved in different folders inside the DART Data/Video Sequences directory. Once you select a folder by clicking on it, a list of video files contained in the selected folder appears. Once you select a video, a preview will be displayed. Click the Load button at the bottom of the dialog window to load the selected video.

DART uses colored areas called zones to distinguish areas of a video. This allows the system to know the difference between parts of a video that may be considered a target from the background and allows points to be assigned to different areas of a video. A video sequence can have up to eight zones. When DART loads a video sequence, it automatically loads the corresponding zone video which is the name of the video file with a "z" added to the end. For example, if a video's name is Concealed Weapon.mp4, the corresponding zone video would be Concealed Weaponz.mp4.

Tip! Creating a new video sequence requires the use of video capture equipment (which could be as simple as a phone), and a third-party program like Adobe Premier to edit the video, create zone maps, and convert it to mp4 or webm format. DART will assemble these images into a finished sequence.

Preview Frame

The Preview Frame slider allows you to scrub through the frames of a video. This is helpful because some video sequence behaviors can be triggered upon reaching a specific frame. For example, you may want an event to happen at the precise moment a suspect pulls out a gun. The Preview Frame slider can help you find the precise frame.

In addition, the slider will display the length of the video in seconds. Most video is comprised of 30 frames per second.

Points+

The Points commands are used to set the score values and zone hit sounds to be played when a particular zone is hit.

You cannot simulate a course or stage, or preview target motion while the Targets/Settings menu is active.
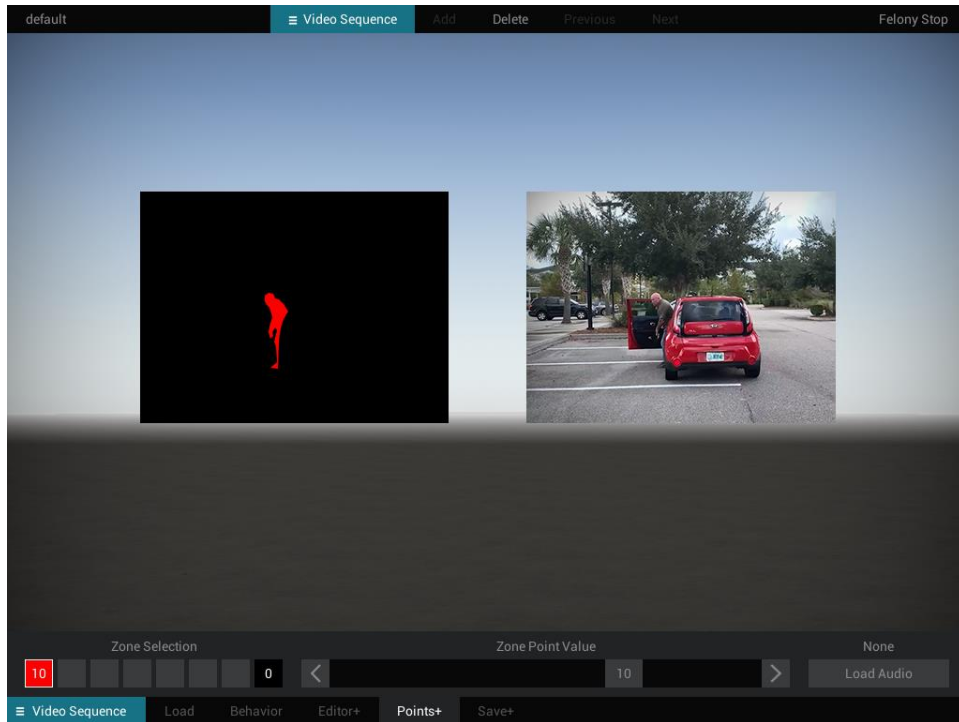
Zone Selection

DART targets and video sequences can have up to eight zones, each represented by a colored square. Select a zone by clicking one of a colored square. The selected zone will be outlined in a white frame. Once a zone is selected, you can set the score value for shooting the zone to a positive or negative value using the Zone Point Value slider. Once a score is set, it will appear in the zone's colored square. Unused zones will have their zone selection boxes grayed out.

Zone Point Value

Sets the point value for the currently selected zone. Point values can vary between -25 and 25 points.

Tip! In some DART courses, scoring is based on a percentage of hits. Hits are defined as any shot that results in a score of 1 or higher.

Load Audio

Every zone can have an audio file assigned to it that will play whenever the zone is hit. This is especially useful when shooting targets at long distances where it becomes impossible to see the impact area of a bullet on the target. Clicking the Load Audio button will open a dialog window that will allow you to load a sound. The DART system includes more than 100 sounds, and you can add your own by placing a wav format file inside the DART Data/Audio folder. Once a sound file is loaded, it can be removed by clicking the Remove button.

Tip! The volume of zone hit audio can be independently adjusted in the DART Range program.

Save+

The Save button opens a window that allows you to save the current video configuration as a DART video sequence.

Saving a video sequence saves a .vtg file which includes zone point values and pointers to the sequence video and zone video files and associated audio files. It does not save information set under the Behavior command panel. This information is saved when you save a course or stage.

THE PROPS MENU

Each stage can have its own setting which is created with 3D objects called props. Each stage can have up to 30 props.

When you select the Props menu at the bottom of the screen, the info bar at the top of the screen automatically switches to show additional options. You can use these to add, delete, and select the various props in a stage.
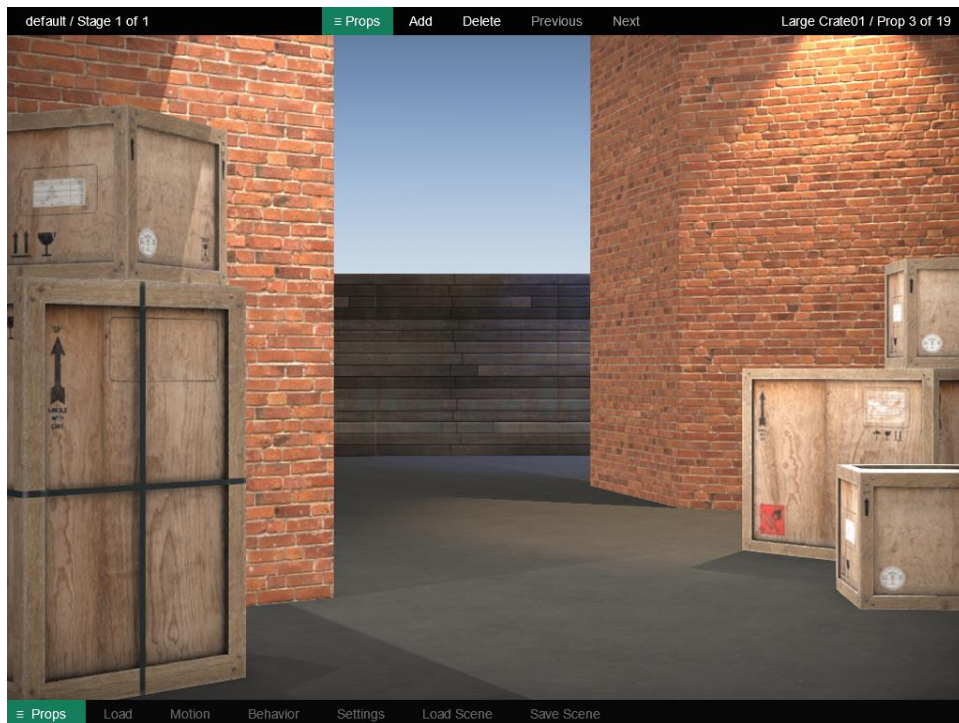

Adding and Deleting Props

By default, the Props menu options are inactive because props are not included in a new stage. To add a prop to the current stage, click the Add button at the top of the screen whenever Props is selected in the info bar. Alternatively, you can select the Load option in the Props menu at the bottom of the screen.

Try it! Press the F6 key (or select Props from the bottom menu bar). You'll notice that the top info bar will automatically change to Props.

Click the Add button at the top of the screen. The default wall prop will appear in the center of the screen and the prop counter at the top right of the screen will update.

Selecting Props

Since each stage supports up to 30 props, it is important to know which one you are working on at any given time. Selected props are shown with a pink outline to distinguish them from other props in the scene. Any changes you make will only apply to the selected prop with the pink outline.
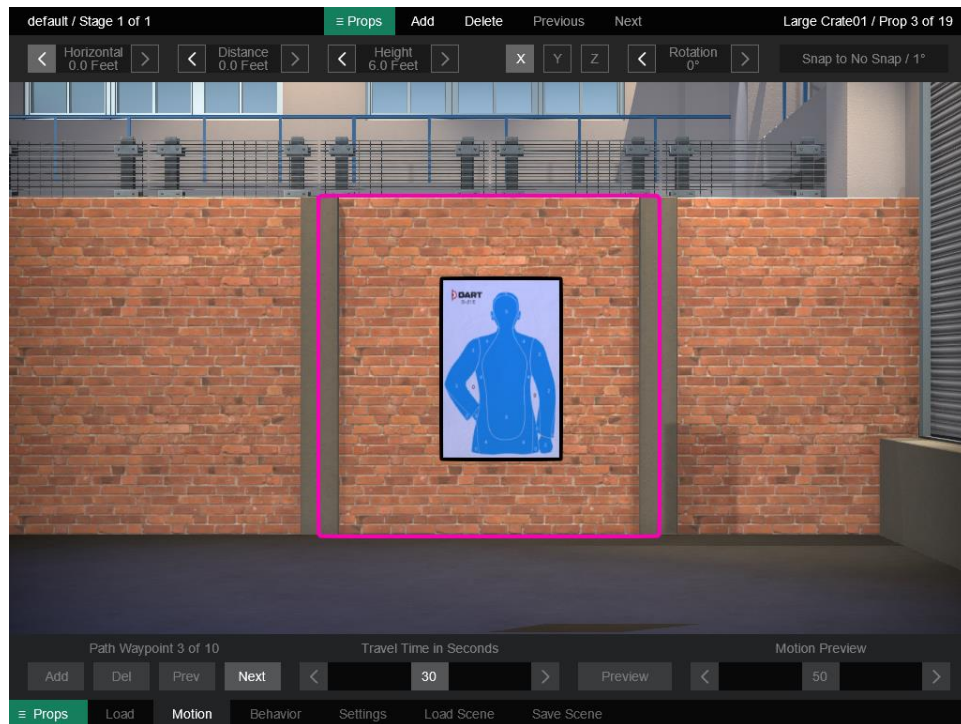

You can select a prop by using the Previous and Next button in the info bar at the top of the screen when "Props" is selected. Alternatively, you can left-click on a prop using the mouse when the Props/Motion menu is selected.

When the info bar is set to Props, the right side of the bar will show you the name of the currently selected prop and the total number of props in the stage.

Tip! When the bottom menu is set to something other than Props, the pink outline around the prop will turn black. You can still use the info bar commands, but the black outline lets you know that the Props menu is no longer selected.

Load

Clicking the Load button opens a window that will load a prop in place of the selected prop or add a prop to the stage if there are no props present.
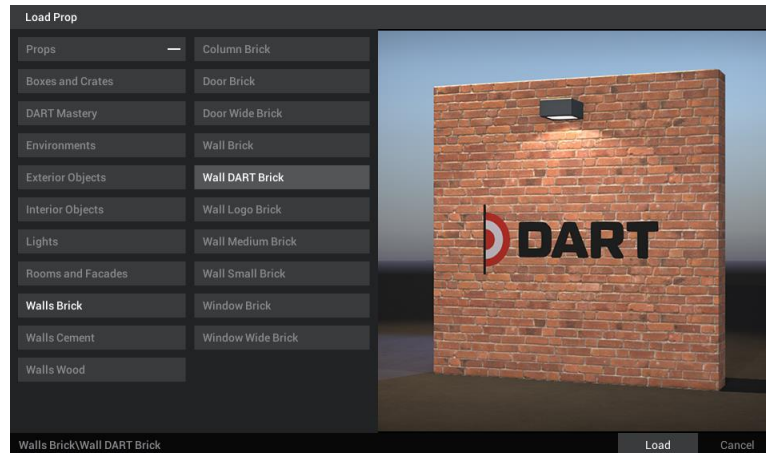
Motion

Like targets, props can travel along paths which are defined by positional waypoints. The Motion commands allow you to place these waypoints anywhere you like using the mouse and the navigation commands at the top of the screen.
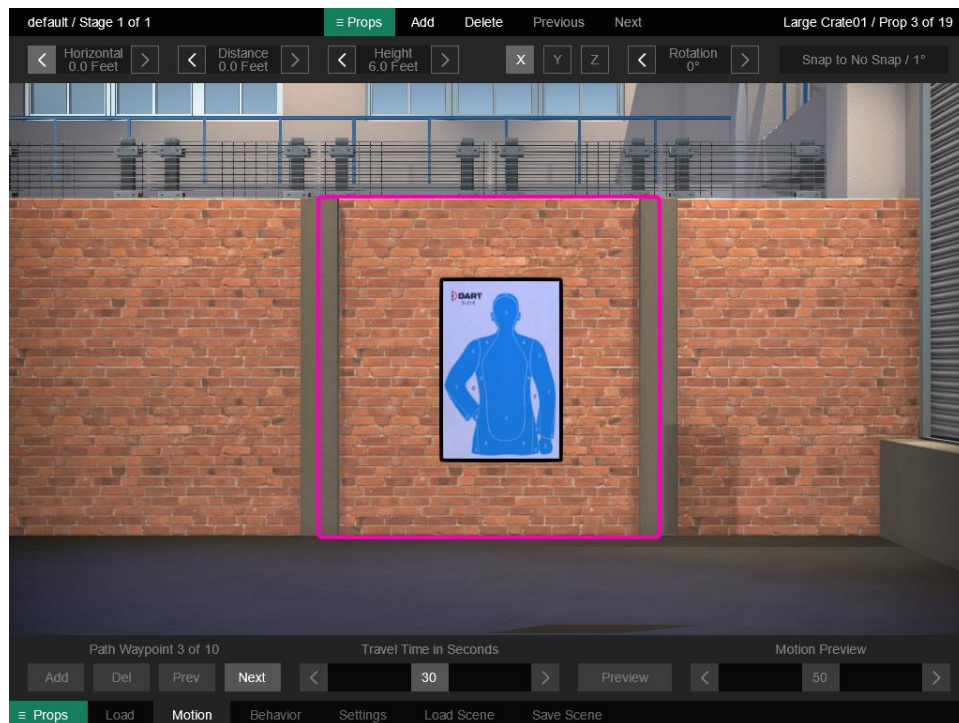
Waypoint Controls

Each prop can have a path with up to ten waypoints. The waypoint controls allow you to add, delete, and select path waypoints. When you select a waypoint, the prop position will instantly update to the selected waypoint's position. Once a waypoint is selected, you can edit its position using the mouse of navigation panel at the top of the screen.

Add will add a new waypoint to the existing path. Paths are limited to ten waypoints, so if a path already has ten waypoints, this option will be inactive.

Delete (Del) will remove the currently selected waypoint. All paths must have at least one waypoint, so when a path has just a single waypoint, this option will be inactive.

Previous (Prev) selects the previous waypoint in the path. If the first waypoint is selected, this option will be inactive.

Next selects the next waypoint in the path. If the last waypoint is selected, this option will be inactive.

Try it! With the Motion menu active, left-click your mouse on a prop, and while holding the mouse button down, move it anywhere on the screen. You will notice that the position and distance counters will update as you move the prop around the screen. Releasing the mouse button will set the position of the first waypoint. Now click the Add button to create a new waypoint. Repeat the process and move the prop using the mouse. Once the waypoints are set, you have created a path for your prop! You can preview the path, sliding the Motion Preview slider back and forth or by using the Preview option.

Travel Time in Seconds

Sets the number of seconds it will take the prop to travel the distance of the entire path. Shorter travel times results in quicker movement. A setting of 0 will prevent the target from moving.

Preview

The Preview button has two options. Selecting **One Prop** will preview the motion of the currently selected target. **All Props** will preview the motion of all targets (2D and 3D) in the stage. This allows you to test target speed and interaction.

Unlike the simulate options, prop previews do not consider some course settings such as countdown, instructions, etc. Also, you cannot fire test shots with the mouse while in the Motion menu.

Tip! The preview options can also be accessed using keyboard shortcuts. Pressing the 3 key will preview the motion of the currently selected prop, no matter how many are in the scene. Pressing the 4 key will preview the motion of all targets and props in a stage. Pressing the 3 and 4 keys will work in most areas of DART Studio. You do not have to have the Props menu open to preview prop motion.
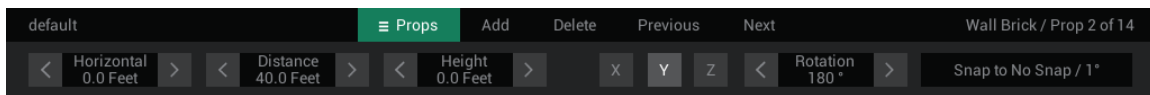
Motion Preview

The Motion Preview slider provides another way to test the motion of the selected prop while you are working with the motion commands. The slider can be scrubbed back and forth quickly, which is especially useful for testing the motion of props that pass closely to other objects or move along a very specific path.

Like most options in DART, the Motion Preview slider provide real-time feedback. Simply move the slider back and forth to see the prop move along the path.

The Navigation Panel

The navigation panel appears when the following options are selected; Flat Targets/Motion, TruTargets/Motion, and Props/Motion. It can be used to track the position of a target or prop, make precise adjustments to the position of a target or prop, and set snap options which affect how a target or prop is moved when using the mouse.

The **Horizontal** setting changes the left/right position of a path waypoint in feet or yards based on the Snap setting. A value of 0 places the waypoint directly in the center of the screen. Increasing the value will move the waypoint to the right. Decreasing the value will move the waypoint to the left.

Tip! It is possible to place the waypoint beyond the visible edge of the screen or even behind the shooter. This can be useful for starting or ending an object's movement beyond the vision of the shooter.

The **Distance** setting changes the distance of a waypoint in feet or yards based on the Snap value. Acceptable distance values are between -300 and 300 feet (-100 and 100 yards).

The **Height** setting changes the height of a waypoint in feet or yards based on the Snap value. A value of 0 places the target on the ground. Acceptable height values are between -30 and 30 feet (-10 and 10 yards).

The **Rotation** setting changes the rotation of a prop based on the selected axis (X, Y, or Z). Acceptable values are between -359 and 359 degrees.

You can make small changes to any of these settings by clicking the left and right arrows on either side of a specific setting. You can make precise settings, by clicking the number, typing in a new value, and pressing the Enter key.

Snap

By default, a prop will rotate in 1-degree increments, but this can be changed with the Snap option in the top navigation panel.

Click the Snap button on the right side of the navigation panel and select Snap to 1 Foot / 5 degrees. Now use your mouse to move a prop target around the screen. Notice that it jumps in 1-foot increments. Try rotating a prop and you will notice that it rotates much more quickly. If you move the prop around the screen, it will now move in one-foot increments.

You can also use the navigation panel to precisely place your prop. Click the numerical value under Horizontal until it is highlighted in gray. Type 5 and press Enter. Set the numerical value under Distance, to 20 and press Enter. Finally enter 1 under height and press Enter. In all cases, the prop will instantly jump to the new position.

Tip! the selected prop will always be outlined in bright pink. This lets you know exactly which one you are working on in instances where there is more than one prop in a scene.

Try it! With the Motion menu open, left-click the mouse on any prop to select it. Continue to hold down the mouse button as you move the mouse around. Notice that the horizontal and distance values in the navigation panel (at the top of the screen) update in real-time as you move the prop around.

Release the mouse button and right-click the mouse on a prop. Continue to hold down the mouse button as you move the mouse up and down. Notice that the prop now moves up and down.

Now spin the mouse wheel. Notice that the prop's Y rotation value will change. Change the rotation axis by clicking the X button at the top of the screen. Now when you spin the mouse wheel, the prop rotates differently. Click the Z button and try it again.

Behavior

Behaviors can control what happens to a prop throughout the stage by defining trigger events and resulting actions that can change the way a prop moves and looks throughout the stage. Behaviors offer a simple but very powerful way to create realistic and unpredictable reactions.

For example, you can set a prop behavior that causes it to disappear when it is shot, or have a prop pause when it reaches a certain location.
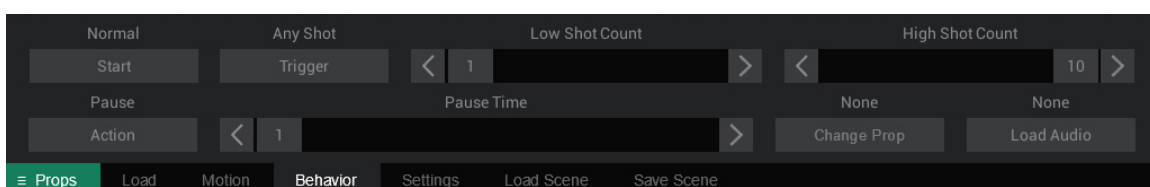
Start

The Start options set the starting behavior of a prop. A flat target may start as Normal, Hold Visible, and Hold Invisible. Hold Visible and Hold Invisible are special behaviors that will cause a prop to remain in place, even if it is assigned a motion, until a specific trigger event happens. Hold options work in conjunction with the Release action described later.

- **Normal** will start the prop normally without any effects.
- **Hold Visible** will hold the prop in place at its starting position until a Release action is triggered.
- **Hold Visible** will hold the prop in place at its starting position, but invisible to the shooter, until a Release action is triggered, at which point it will instantly appear.

Triggers

A trigger is an event that causes an action to take place. A trigger event can be based on time, distance, shots fired, score, or when the prop reaches a specific waypoint. A simple example might be having a prop disappear if it is shot. In this case, the trigger would be a ####Shot Hit and the Action would be to disappear. Or suppose you wanted a prop to stop moving once it was 5 yards away from the shooter. In this case, you could set the Trigger to be a distance of 5 yards and the Action to change speed to zero.

You might not always want a trigger to happen at the same exact moment. By varying the trigger parameter sliders, you can add an element of unpredictability. For example, you can instruct a prop to stop moving when it is somewhere between 5 and 10 yards from the shooter. This can help ensure that the shooter will not know what the prop is going to do.

There are five types of behavioral triggers for prop.

Time

The Time trigger includes parameter for Starting Time and Ending Time, which can be set between 0 and 120 seconds. Together, these sliders establish the time period at which the trigger can occur. If both sliders are set the to the same value – for example 10, the trigger event will happen precisely 10 seconds after the beginning of the stage (not including instruction and countdown time). However, if the sliders are set to different values – for example 15 and 30, the trigger event will happen at a random point between these two times.

Tip! The time slider cannot exceed the max time for the stage. For example, if your stage has a time limit of 15 seconds, the maximum value of the time sliders will be 15 seconds.

Distance

The Distance trigger uses parameter sliders for Near Distance and Far Distance. Together, these sliders establish the distance (in yards) from the shooter the target must be to trigger an action. Sliders values are based on the selected prop. For example, if the prop is never more than 10 yards away from the shooter, the maximum value of the distance sliders will be 10. If both sliders are set the to the same

value – for example 5, the trigger event will happen at the first point the prop is 5 yards away from the user. However, if the sliders are set to different values – for example 10 and 25, the trigger event will happen at a random point between these two distances.

Any Shot

The Any Shot trigger uses parameter for Low Shot Count and High Shot Count, which establish a range for the trigger to occur. The sliders range between 1 and the maximum number of shots allowed by the stage (up to a maximum of 50). If both sliders are set the to the same value – for example 10, the trigger event will happen as soon as any 10 shots are fired, regardless of whether the shots are hits or misses. If the sliders are set to different values – for example 10 and 20, the trigger event will happen at a random point between the 10th and 20th shot fired.

Hit

The Hit trigger checks for a certain number of hits to the prop. The sliders range between 1 and the maximum number of shots allowed by the stage (up to a maximum of 50). If both sliders are set the to the same value – for example 3, the trigger event will happen as soon as the prop is hit 3 time. If the sliders are set to different values – for example 3 and 6, the trigger event will happen at a random point between the 3rd and 6th hit.

Tip! The High Shot Count slider cannot exceed the total shots allowed for the stage.

Waypoint

The Waypoint trigger uses parameter for Starting Waypoint and Ending Waypoint. The trigger will occur as soon as the prop reaches the waypoint defined by the slider. Both sliders have values between 1 and 10. If the sliders are set the to the same value – for example 2, the trigger event will happen as soon as the prop reaches the second waypoint. If the sliders are set to different values – for example 2 and 5, the trigger event will happen when the prop reaches a random waypoint between the second and fifth waypoints.

Tip! The waypoint sliders cannot exceed the number of waypoints in the selected target's path. For example, if your prop's path has only three waypoints, the maximum value for the Ending Waypoint slider will be 3.

Actions

When a trigger condition is met, an action can be initiated. There are eight possible actions for props. When **None** is selected, no action will occur although other options may be activated as a result of the trigger such as Change Prop and Load Audio.

Pause causes the prop to pause for 1 or more seconds as set by the Pause Time slider. Once the required number of seconds has elapsed, the prop will continue its motion.

Disappear causes the prop to disappear. Props which disappear can no longer be hit or block shots.

Release is a special action that works with the Hold starting options. If a prop is being held in place by a Hold starting option, this action will release the prop and let it begin its movement along a path. This allows a prop's motion to be delayed.

Change Speed causes the prop to change travel speed based on the setting of the Speed Percentage slider. A setting of 50(%) would cause the prop to move at half of its originally designated speed. A speed change of 200(%) would cause the speed to double. Setting the Speed Percentage to 0 would cause the prop to stop.

End Stage causes a stage to immediately end and move to the next stage if there is one or end the course completely if there are no more stages. This action overrides all stage rules and can end a stage even if there are shots/time left according to the stage rules.

Jump to Stage will instantly move to the specified stage once triggered. This is a powerful option that can be used to create branching scenarios.

End Course causes the entire course to immediately end. This action overrides all other stage rules and can end a course even if there are uncompleted stages.

In addition to these actions, there are two secondary actions that can be executed when a trigger condition is met. This allows a prop to have multiple actions when a single trigger condition is met.

Change Prop selects an alternate prop to display once the trigger condition is met. For example, you may change an intact window prop to a broken window prop after a hit. Clicking the Change Prop button will open the Load Prop dialog window.

Load Audio causes the prop to play an audio file once the trigger conditions are met. For example, you may have a window prop play the sound of broken glass. Clicking the Play Audio button will open the Load Audio dialog window.

Settings

The Settings menu allows you to set penetration and lighting for a prop.
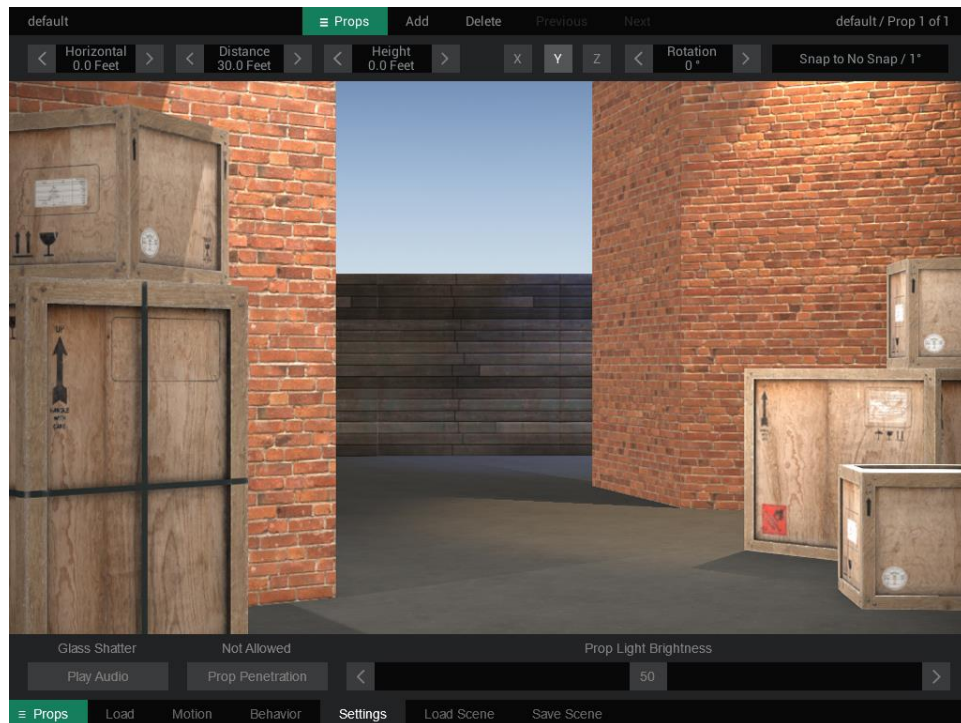
Play Audio

Causes an audio file to play whenever a prop is shot. For example, you may have a window prop play the sound of broken glass. This is different than the audio option in the Behavior menu, which only plays a sound when certain conditions are met. Clicking the Play Audio button will open the Load Audio dialog window.

Prop Penetration

Determines whether a shot can pass through a prop. For example, a target may be positioned behind a tree prop. If Prop Penetration is set to Not Allowed, shooting the tree will not affect the target behind it. However, if Prop Penetration is allowed, then the target can be shot through the tree.

Prop Light Brightness

Adjust the brightness of lights for props that include lights. If a prop has more than one light, the slider will adjust the brightness of all lights equally.

Load Scene

Groups of props can be saved together and later reloaded as scenes. A scene contains all information about each prop in the group including placement, movement, and settings. This can make course creation easier because it allows you to use previously constructed scenes without recreating them from scratch.

The Load option opens a dialog which shows a list of available scenes. Loading a scene will completely replace all props in a stage, with the props in the newly loaded scene. Like other load windows in DART, the left column shows a list of folders which contain one or more scenes. Clicking a folder will show a list of available scenes in the right column.
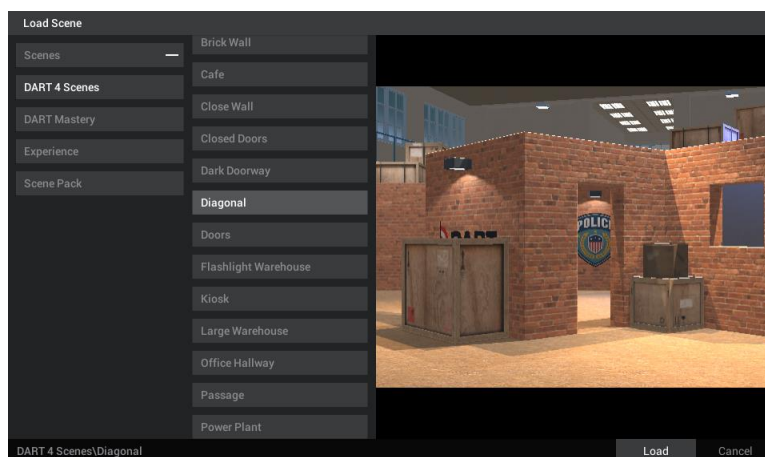
Single-clicking a file name will display a preview image of the scene you have selected. Double-clicking a name will load the selected scene or you may select a name and click the Load button at the bottom right of the window. Clicking the Cancel button will close the window without loading a scene.

Save Scene

The Save option opens a dialog which will save all of the stage props together as a scene.

Like the load window, the left column shows a list of all folders containing one or more DART scenes. Clicking a folder will show a list of all scenes within that folder in the right column.

The New Folder button located at the bottom left corner of the window allows you to create a new folder to store scenes. To create a new folder, select a parent folder and click the New Folder button. For example, if you wanted to create a new folder under the main Scenes folder, you would select the Scenes folder and click New Folder. A new folder with the name "New Folder" will appear. To rename the folder, double-click the name, type a new name, and press Enter.
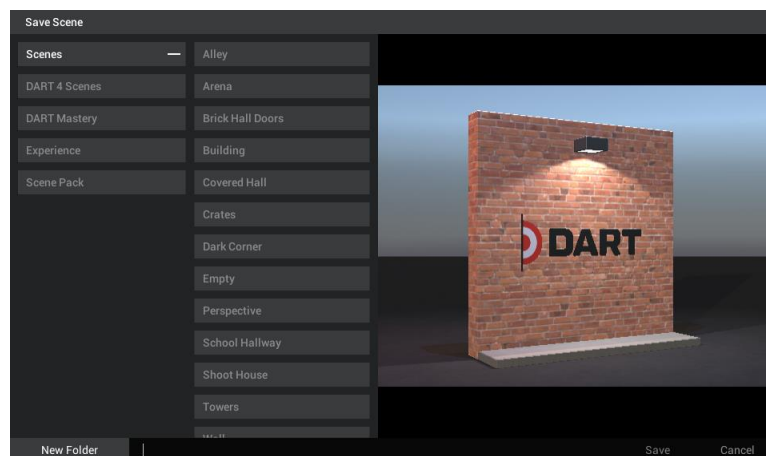
To save a scene, left-click the dark bar to the right of the New Folder button, type the name of the new scene, and click the Save button.

End of Documentation