



DRILL PIRATE

User Handbook

Design, rehearse, and publish complete marching productions.
No technical knowledge required.

BETA V3.0.1

Making creativity accessible.

Complete user reference for Windows and MuseHub distribution

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Start Here

Use this handbook while learning Drill Pirate or as a desk reference during production. Menu names, buttons, shortcuts, and field terms are written exactly as they appear in the app whenever possible.

Core Idea

The field is the primary workspace. Select performers, choose a tool, adjust the preview directly on the field, and apply only when the picture is ready.



A dependable show is built in passes: picture, timing, motion, safety, rehearsal, then publishing.

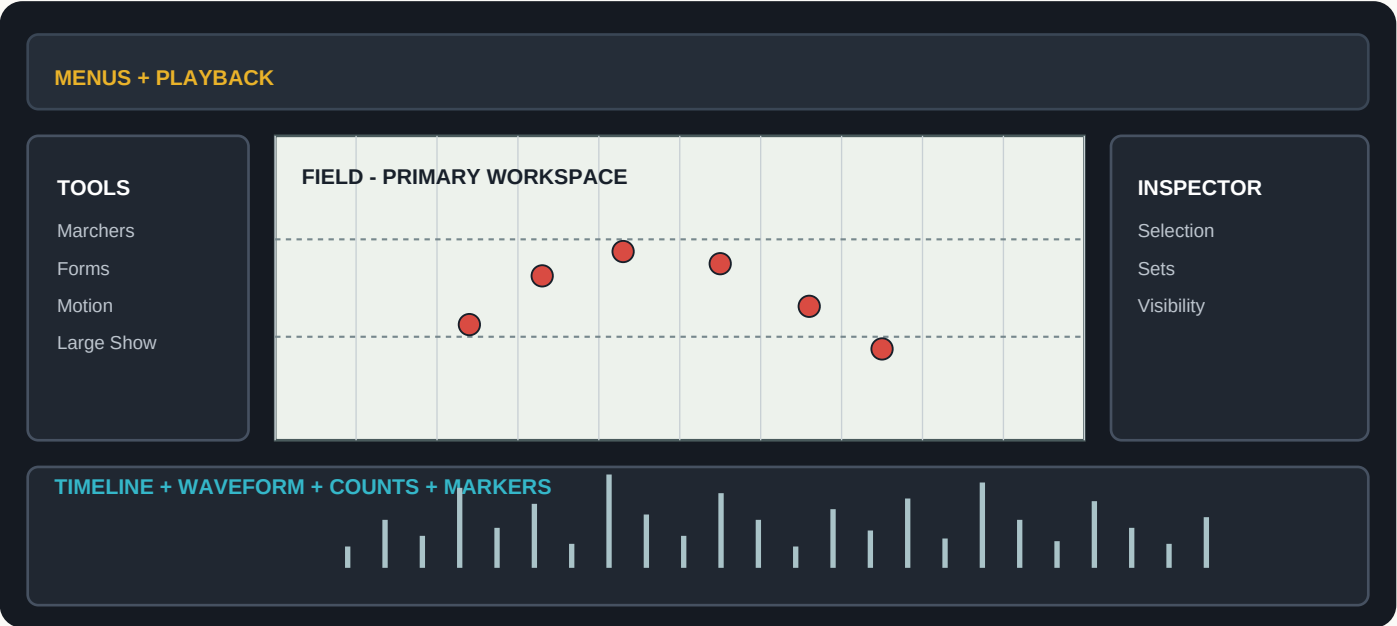
Step	What to do
1. Start	Create or open a <code>.drill</code> project from the home screen.
2. Build Set 1	Place the opening picture, assign roster details, colors, props, and equipment.
3. Add sets	Set counts and tempo, then create each destination picture.
4. Shape motion	Use form tools, movement windows, Follow the Leader, ribbons, and custom paths.
5. Check	Play with audio, review warnings, inspect coordinates, and rehearse in 2D or 3D.
6. Publish	Preview and export video, drill sheets, dot books, staff packets, CSV, or project ZIP.

Save Often

Drill Pirate autosaves and keeps recovery history, but `Ctrl+S` before major edits and exports remains a good production habit.

Interface at a Glance

Drill Pirate keeps the field central while surrounding it with task-focused docks. Switch workspaces instead of forcing every panel onto the screen at once. Any dock can be moved, floated onto another monitor, closed, or restored.



Area	Use it for
Center field	Selecting, positioning, direct tool handles, paths, props, guides, coordinates, and visual review.
Left docks	Marcher search, formation tools, motion tools, large-show tools, and plugin actions.
Right inspector	Selection properties, set data, visibility, colors, facing, movement, and batch editing.
Bottom timeline	Counts, waveform, markers, movement windows, choreography, conflicts, and playback.
Top menus	Files, workspaces, editing commands, tools, settings, export, and help.

Crowded Screen?

Choose a workspace from **View**, hide set thumbnails or the minimap, float a dock to another monitor, or use **Reset Layout** to restore a readable arrangement.

Install and Keep Current

Drill Pirate is distributed through MuseHub. Install it from your MuseHub library, then launch it from MuseHub or the Windows Start menu. Updates are delivered through MuseHub rather than through an in-app updater.

Task	What to do
Install	Open MuseHub, locate Drill Pirate in your library, and choose Install.
Update	When MuseHub offers an update, close Drill Pirate, install the update, then reopen the show.
Open a show	Double-click a <code>.drill</code> file or choose its card on the Drill Pirate home screen.
Move a show	Copy the <code>.drill</code> document. Keep a backup before moving an active production between systems.
Uninstall	Use MuseHub's product controls or Windows Installed Apps. Your project files remain separate.

MP4 Note

Video export requires a compatible FFmpeg installation. PDF, CSV, ZIP, playback, waveform display, and normal editing do not require FFmpeg.

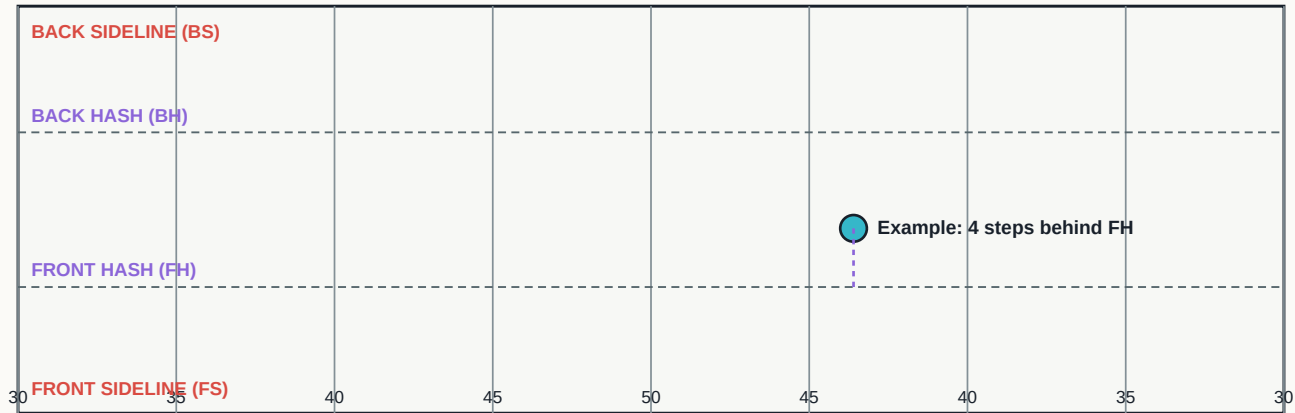
Feature Finder

Use this index when you know what result you want but not which workspace or tool to open.

Goal	Start here
Create clean geometric pictures	Forms workspace: Line, Arc, Circle, Shape Line, Grid, Polygon, Star, or SVG.
Create flowing curves	Curvilinear, Free Curve, Warp/Bend, Group Motion Ribbon, or CAD Path Toolkit.
Keep sections organized	Searchable marcher list, Selection Sets, hierarchy groups, section locks, and section-aware form fitting.
Delay part of a form	Timeline movement bars or Start Selected Move Here .
Make a conveyor or snake	Follow the Leader with travel-facing and preserved order.
Fix long travel or swaps	Smart Transition Composer or Optimize Selected Spot Assignment, then preview suggested destination swaps.
Check safety	Analyze Paths, conflict heatmap, physical limits, and conflict timeline.
Write guard or prop motion	Specialized workspace: Choreography Tracks and Performer Prop Attachments.
Prepare rehearsal materials	Print workspace: dot books, coordinate summaries, staff/section packets, and director notes.
Review the production	2D playback, 3D Playback View, set comparison, storyboard, and export previews.

Field Coordinates in Plain Language

Drill Pirate converts field positions into standard performer-friendly instructions. Horizontal placement uses yard lines and Side 1/Side 2. Vertical placement uses only the front sideline, front hash, back hash, and back sideline.



Reference	Meaning
S1	Side 1 - audience left.
S2	Side 2 - audience right.
FS	Front sideline.
FH	Front hash.
BH	Back hash.
BS	Back sideline.

Coordinate Standard

Printed instructions use standard 8-to-5 step language even if a different drafting grid is visible. Always preview performer exports before distribution.

Complete Workflow Reference

This guide explains the full Drill Pirate workflow from creating a project to exporting production materials.

Home Screen

When Drill Pirate opens, it shows a branded splash screen and then the home screen.

The home screen has:

- A project gallery from your Drill Pirate project library.
- Field-preview cards for existing projects.
- A large create-project card with a plus button.
- A **Plugins** tab for enabling and disabling plugin folders.
- Settings access for preferences and audio output devices.

Click a **.drill** project card to open that show. Click the create-project card to start a new show. Legacy folder cards offer conversion to **.drill** while preserving the original folder as a backup.

Create a Project

The project dialog creates one portable `.drill` document containing the show data and its linked show assets.

Fields:

Field	Meaning
Show Title	Project display name and default folder name.
Audio Upload	Optional MP3/WAV file added to the project.
Initial Tempo	Universal/default BPM for the show.
Default Counts Per Set	Count length used when new sets are created.
Time Signature	Display metadata for the project.
Marchers	Number of performers to create in the starting block when no instrumentation roster is entered.
Roster	Optional lines like <code>Flute=5</code> or <code>Trumpet Brass = 5</code> . Instrument is the specific assignment, while Section is the broader selectable group. Generated performers use compact labels like <code>F1</code> , <code>T1</code> , <code>TR1</code> , and <code>M1</code> .
Front Ensemble Props	Optional movable front ensemble props placed in front of the field.
Drum Major Stands	Optional movable drum major stand props placed in front of the field.
Save Location	Project library where the <code>.drill</code> document is created.

New projects start with red performers in a centered block that is optimized to fit on the field. Front ensemble and drum major stand items are props, so they can be moved independently through sets.

Open Projects from Windows

After installation, double-click any `.drill` project to open it directly in Drill Pirate. If Windows asks which app to use, choose Drill Pirate and enable the option to remember the choice.

Main Interface

The main window is organized around the field:

Area	Purpose
Center Field	Primary editing canvas for marchers, props, forms, paths, and field coordinates.
Left Docks	Marcher list, tool controls, formation tools, visibility filters, and plugin actions.
Right Dock	Inspector for selected marcher, set, coordinate, color, section, and metadata editing.
Bottom Dock	Timeline, waveform, markers, audio/timing controls, and rehearsal tools.
Top Menus	File, Edit, View, Playback, Tools, Settings, and plugin-added menus.

Panels can be docked, floated, closed, and restored from [View > Panels](#).

Workspaces

Use workspaces to reduce panel crowding.

Workspace	Shortcut	Best For
Design Workspace	Ctrl+Alt+1	General drill writing.
Forms Workspace	Ctrl+Alt+2	Formation tools and shape editing.
Rehearse Workspace	Ctrl+Alt+3	Playback, timing, waveform, markers, and movement styles.
Print Workspace	Ctrl+Alt+4	Export and staff/performer review.
Focus Field	Ctrl+Alt+5	Larger field view with condensed side and timeline panels still visible.
Music Design Workspace	Ctrl+Alt+6	Score import, phrase planning, storyboarding, and automated set suggestions.
Specialized Design Workspace	Ctrl+Alt+7	Custom surfaces, guard choreography, performer-linked props, and physical-limit analysis.

Music and Show Design

Open the **Music** workspace or use **Tools > Music & Show Design**.

- 1 Import **.musicxml**, **.xml**, **.mxl**, **.mid**, or **.midi** from **Score Import**.
- 2 Review imported measures, pickups, meter, tempo, rehearsal marks, and warnings.
- 3 Use **Phrase & Set Planner** to detect phrases and edit their ranges, intensity, and design notes.
- 4 Choose a target set length and transition profile, then generate a working set plan. Existing authored movement is preserved by default.
- 5 Use **Storyboard** to organize movements, scenes, production notes, and visual pacing.
- 6 Review **Automated Suggestions** for explainable recommendations based on phrase energy and existing form travel.
- 7 Click **Save Changes** to apply everything as one undoable project edit, or **Cancel** to discard the working plan.

Field and Coordinates

The field uses real field units rather than screen pixels.

- Horizontal field coordinates are measured from the 50-yard line.
- Vertical drill instructions reference only the front sideline, front hash, back hash, and back sideline.
- The display includes yard lines, hashes, sidelines, grid lines, and readable drill labels.
- Performer coordinates are translated into drill-sheet language such as **On 45 S2, 2 steps inside 40 S1**, or **6 steps in front of FH**.

Coordinate references:

Term	Meaning
S1	Side 1 / left side from the audience perspective.
S2	Side 2 / right side from the audience perspective.
FS	Front sideline.
BS	Back sideline.
FH	Front hash.
BH	Back hash.

Custom Surfaces

Open **Tools > Specialized Design > Surface & Parade Route** or the **Specialized** workspace.

- Load College, High School, Indoor, Parade, or Staging presets, then customize dimensions and grid spacing.
- Football surfaces support college, high-school, custom, or hidden hashes plus configurable end zones and yard numbers.
- Parade surfaces use reorderable route points and a route-width corridor.
- Optional surface and line colors are saved with the project and appear in the editor, minimap, home cards, set thumbnails, PDFs, and MP4 exports.
- Indoor/staging coordinates export as centered X/Y values. Parade coordinates export as route station and left/right offset.
- Keyboard coordinate entry accepts **T1 X 4.5, Y -2** on any surface.

Guard and Choreography

Select one or more performers, then open **Tools > Specialized Design > Guard Choreography Tracks**.

- 1 Choose choreography, toss, equipment change, spin, or dance/body.
- 2 Enter its count range and optional equipment, toss revolutions/height, and teaching notes.
- 3 Add the event; select a row and use **Update Selected Event** to revise it.
- 4 Review all events in the studio lane view or the bottom **Choreography** timeline.

Equipment changes update the performer's active equipment after the event's ending count. Overlapping toss/equipment-change assignments are blocked when saving.

Marchers

Marchers are editable performers.

Each marcher stores:

- ID.
- Name.
- X/Y field position.
- Color.
- Section.
- Instrument.
- Rank.
- Equipment.
- Layer.
- Per-set positions.
- Optional path anchors and Bezier controls.
- Optional count-level keyframes.
- Optional movement style for a set.
- Optional authored visual pose for a set.

Default marchers are red unless changed manually or by group color tools.

Add or Delete Marchers

Use:

- **Tools > Add Marcher.**
- **Tools > Delete Selected.**
- **Ctrl+M** to add.
- **Del** to delete selected marchers.

Add/delete is intended for Set 1 so the roster stays consistent across the show.

Moving During Set 1

Set 1 can have movement. Drill Pirate treats each marcher's captured starting position as the opening picture, then moves into the authored Set 1 destination.

Use:

- Build the opening form on the field.
- Run **Tools > Set Opening Positions From Current View** or press **Ctrl+Alt+Shift+H**.
- Move the same marchers into the Set 1 ending form.
- Playback Set 1; marchers move from the captured opening form into the Set 1 form.

When the timeline is on Count 1 of Set 1, dragging marchers edits the opening picture. Scrub later in Set 1, or to the end count, to edit the Set 1 destination picture.

If marchers are selected, only selected marchers update their opening positions. If nothing is selected, all marchers update.

Search and Batch Edit

Use the searchable marcher list to find performers by ID, name, section, instrument, rank, equipment, or layer. Select visible search results, then batch-edit metadata such as section, color, layer, instrument, rank, or equipment.

For selections of two or more marchers, toggle compact on-field transform handles with **Ctrl+Shift+T**, **View > Transform Handles**, the Selection inspector, or the field context menu. Handles are off by default. Drag corners to scale, the cyan handle to rotate, the white handle to move the pivot, or the yellow handle to move the form. Exact stretch/skew values remain in the Selection inspector. Arrow keys nudge by one 8-to-5 step; hold Shift for a half-step, Ctrl for one yard, or Alt for five yards.

Use **F4** to repeat the latest transform or other repeatable edit on the current selection.

Props

Props are imported or designed visual objects that can move through sets like marchers.

Use:

- **Tools > Import Prop Image.**
- **Tools > Open Prop Designer.**
- Left panel **Prop Designer** tab.
- **Ctrl+Alt+I.**

Props store:

- ID.
- Name.
- Image file.
- X/Y position.
- Width.
- Height.
- Rotation.
- Layer.

Imported images are stored with the project. Props are included in project previews and export images.

The in-app **Prop Studio** is a layered, field-scaled design workspace. Set the prop's real width and height first, then use yard rulers, adjustable snapping, rectangles, ellipses, lines, freehand paths, text, and imported images. Selected layers have direct resize and rotation handles plus exact X/Y/width/height, rotation, opacity, fill, stroke, lock, alignment, duplicate, and ordering controls.

The **Field Preview** tab renders the actual design-not a placeholder-at its real field dimensions and initial position. Switch among White, Inverted, and Grass fields and use full-field, 60-yard, 30-yard, or 20-yard detail ranges. A six-foot performer reference appears beside the prop for scale.

Prop Studio supports undo/redo, keyboard nudging, multi-layer selection, visibility and locking, zoom-to-fit, and high-resolution transparent output. Saving creates both the image used by the show and an editable Prop Studio source document. Use **Open** in Prop Studio to continue editing a saved source document.

Use **Fit Form to Selected Prop** to scale selected marchers to fit a selected prop while preserving the selected form shape.

To attach a prop to performers, select the prop and its carriers/pushers before opening **Tools > Specialized Design > Performer Prop Attachments**. Choose Carry, Push, or Rotate; set a count range, leader/handle, local offset, and rotation behavior. Drill Pirate initializes the offset from the prop's current location to avoid a jump when the link begins. During playback and export, the prop follows the interpolated performer positions.

Use the **Physical Limits & Warnings** page to review instrument defaults, save performer-specific overrides, and analyze the current set for travel, backward/lateral movement, turning, toss/recovery, surface-boundary, and parade-route risks.

Selection

Supported selection methods:

- Click a marcher.
- Drag a rectangle around marchers.
- Hold **Shift** and click dots to add or remove selection.
- Use the lasso tool for freehand selection.
- Search marchers and select visible results.

Selected marchers show yellow transition paths:

- In edit mode, the path points toward the next set.
- During playback, the path represents the active transition.

Sets and Counts

A show is divided into sets.

Each set contains:

- Name.
- Start count.
- End count.
- Optional tempo override.
- Dot positions.
- Prop positions.
- Path anchors.
- Count-level keyframes.
- Movement styles.
- Transition mode.
- Director's Notes describing visual intent or rehearsal priorities.

Use the set list to add, remove, copy, rename, reorder, and edit counts/tempo. If a set does not specify its own tempo, it uses the project tempo or timing-map tempo active at that count.

Enter **Director's Notes** at the bottom of **Inspector > Sets > Set Details**. Notes save with the selected set, support application-level undo/redo, appear in the set-list tooltip, and print above that set's field chart in Drill Sheet and Staff Packet PDFs. Use this area for visual descriptions, staging intent, production cues, or rehearsal focus rather than performer-specific coordinate instructions.

The Ripple Edit Scope controls whether marcher edits affect only the current set, all following sets, a selected set range, sets until the next keyframe, or every set containing the same normalized formation. The same scope is honored by transforms, movement timing, facing, movement styles, path edits, and the property paintbrush.

Open the bottom panel's Movement Lanes tab to edit transition timing visually. Drag a bar edge to create a hold or change when a section starts/finishes. Drag the whole bar to move its timing window. The displayed yards-per-count value updates as the movement window changes.

Use the Beat-to-Set Generator from the timeline or Tools menu to turn musical markers into set boundaries. Drill Pirate samples the existing animation at each generated destination and leaves tempo events, ritardandos, fermatas, and audio anchors attached to their counts.

The Smart Transition Composer compares shortest-travel, rank-preserving, section-preserving, clockwise, counterclockwise, follow-leader, and lowest-conflict assignments. Review the distance and conflict scores, preview any row, then apply the preferred assignment.

The Property Paintbrush copies only the categories you select: relative form position, path geometry, facing, movement style, move timing, appearance metadata, and constraints. Copy from one marcher or an equal-sized form, select the targets, then paint with **Ctrl+Shift+V**.

Timeline and Playback

Audio is the main playback source when loaded.

Timeline features:

- Play/pause.
- Scrub by count or waveform position.
- Go to count.
- Loop current set.
- Slow/fast rehearsal playback rates.
- Count markers.
- Auto hit-marker detection from waveform peaks.
- Count-level micro editing.

Use **Ctrl+G** to focus the count finder.

3D Playback View

Open the synchronized 3D viewer with **Ctrl+3**, **Playback > Open 3D Playback View**, or **View > Open 3D Playback View**. Drill editing remains in the main 2D field; the separate 3D window is for playback, camera work, selection, and presentation.

The viewer reads the current interpolated field state every frame, so set boundaries, custom paths, mid-set move windows, facings, movement styles, prop positions, field mode, custom surfaces, and audio-driven scrubbing stay aligned with the 2D editor.

Performers animate a marching gait only while their field position is actually changing. Holds remain still even while the music continues. The gait alternates contact feet on successive counts, adds a lifted passing-foot pose between counts, follows the real direction of travel for forward, backward, and lateral movement, and preserves the assigned upper-body facing.

Viewer controls:

- Left-drag to orbit the camera.
- Right-drag to pan the camera target.
- Use the mouse wheel or **+** / **-** to zoom.
- Double-click to reset the camera.
- Press **1** through **5** for common camera positions.
- Press **Space** to play or pause, **R** to restart, **L** to toggle labels, and **F** for full screen.
- Click a performer to select the matching marcher in the 2D editor; Shift-click adds or removes that marcher from the selection.
- Enable Follow Selection to smoothly center the camera on selected performers.
- Use Auto quality for normal work. Full preserves every model detail, Auto batches larger formations to avoid per-performer draw overhead, and Performance reduces instrument and limb detail for the largest casts.

The 3D window can remain on a second monitor while the main window stays in the 2D design workspace. Closing the viewer hides it without closing the project, and reopening it resumes synchronization.

Audio and Timing Map

The audio/timing panel supports:

- Active audio playback.
- Waveform analysis without ffmpeg.
- Reload audio.
- Multiple audio versions.
- Timing anchors that map counts to exact audio timestamps.
- Tempo events.
- Ritardandos.
- Fermatas.
- Pickup offsets.
- Auto detected hit markers.

Use timing anchors when the music does not line up perfectly with a single fixed BPM.

Movement Styles

Movement styles can be assigned to selected marchers for the current set:

- Normal.
- Half Time.
- Double Time.
- Jazz Run.
- At Halt.
- Visual.

Visual Poses

Visual is no longer only a generic movement-style label. Drill Pirate can store and render a specific pose for each marcher in each set.

- 1 Select one marcher or Shift-select an entire section/form.
- 2 Open the Rehearse workspace and find **Marcher Movement + Visual Pose** in the inspector, use **Tools > Choose Visual Pose...**, or choose a direct command from **Tools > Visual Poses**.
- 3 Choose Attention, Second Position, Parade Rest, Horns Up, Horns Down, T Pose, Lunge Left, Lunge Right, Kneel, or Crouch.
- 4 Select **Apply Visual Pose**. The selected marchers are also marked with the Visual movement style for that set.
- 5 Use **Clear Pose** to remove the authored pose without changing positions.

The Ripple Edit Scope applies the same pose to the current set, following sets, a selected set range, until the next keyframe, or matching formations. Pose edits support application undo/redo. Open the 3D Playback View to see the authored stance; Second Position visibly widens both feet while holds remain stationary.

Use **Ctrl+Alt+Shift+V** to open the visual-pose chooser without leaving the field workflow.

These values appear in performer/staff export materials and help communicate intent. They are set-based metadata for selected marchers.

Formation Tools

Formation tools work on selected marchers and show previews before committing changes.

Built-in tools:

Tool	Purpose
Select	Normal selection and movement.
Line	Evenly spaces marchers on a straight line.
Curve	Bends a selected line with a draggable control.
Curvilinear	Draws an editable master spline, optional parallel ranks, and curved travel paths between changing forms.
Arc	Places selected marchers on a circle segment.
Scatter	Creates organized circle, square, or rectangle scatter layouts with spacing.
Mirror	Mirrors selected performers across an axis.
Shape Line	Uses selected marchers as anchors for straight/curved line segments.
Circle / Oval	Places selected marchers on a hollow or solid round form.
Rectangle / Triangle / Diamond	Places selected marchers on hollow or solid common shapes.
Polygon / Star	Builds configurable hollow or solid polygons and stars.
Lasso	Freehand multi-select.
Scale Form	Scales the selected form larger/smaller without changing its shape identity.
Warp/Bend	Bends an existing form into waves or multi-bend shapes using draggable handles.
Rotate	Rotates a selected form with preview before applying.
Spiral	Places selected marchers on a spiral.
Block/Grid	Builds block and grid layouts.
SVG Shape	Imports and places selected marchers along an SVG outline or inside closed SVG paths.

Tool controls only appear when that tool is active. Advanced tools also expose on-field handles when available. Shape tools include a **Fill** control. Use **Hollow** for outlines and **Solid** for filled-in forms.

Curvilinear Forms

- 1 Select at least two marchers and choose **Curvilinear** in the Forms workspace or press **Ctrl+Alt+Shift+U**.
- 2 Set the spline node count, number of parallel ranks, and interval between ranks.
- 3 Drag red nodes directly on the form. Drag cyan tangent handles to shape how the line enters and exits each node; hold **Alt** for symmetric edits.
- 4 Leave **Flow Along Curves Between Sets** enabled to generate the gold path-following transition preview. Optional travel-facing rotates triangle symbols with movement direction.
- 5 Press **Ctrl+Enter** to apply or **Esc** to cancel. The complete form and every generated path undo as one action.

Closed Loop connects the first and last nodes. Tool presets and direct formation reopening preserve spline nodes, tangents, rank settings, and transition-flow settings.

Path Editing

Paths describe how a marcher travels from one set to the next.

To edit a path:

- 1 Select one or more marchers.
- 2 Make sure their yellow next-set path is visible.
- 3 Right-click the yellow path to add a red anchor.
- 4 Drag the red anchor to bend the path.
- 5 Drag cyan tangent handles for Bezier-style control.

Use **Clear Selected Paths** to remove custom path anchors/controls from selected marchers.

Follow the Leader

Use **Follow the Leader...** or **Ctrl+Alt+F** when selected performers should trace one shared route instead of cutting directly between spots. Every follower retains its distance behind the marcher ahead, including through multiple curves and angle changes.

Group Motion and CAD Drafting

Open the **Motion** tab for transition-level design tools:

- **Group Motion Ribbon** creates one shared curved route for the selected rank or section. Drag red route nodes or cyan tangent handles; hold **Alt** to mirror the opposite tangent. Marcher movement is locked while handles are active, and each drag creates one undo step.
- **Formation Morph** previews a coordinated blend into the current set picture with assignment, coherence, section/rank preservation, precision, and travel-facing options.
- **Continuity Designer** writes count-ranged step size, direction, body/horn facing, and performer instructions. These instructions appear in dot books and coordinate CSV exports.
- **Construction Guides** creates permanent draggable geometry. Lock finished guides to prevent accidental movement. No-go circles and rectangles are included in path warnings and the conflict timeline.
- **CAD Path Toolkit** operates on the active ribbon, selected guides, or selected marcher paths. Transition endpoints remain exact after CAD edits.

This is useful for:

- Circles.
- Squares.
- Stars.
- Conveyor-belt visuals.
- Custom plugin or SVG shapes where performers should preserve outline order.

The preview dialog supports incoming or current-form routes, automatic/open/closed topology, smooth curves or sharp corners, forward/reverse travel, roster or spatial order, and separate routes by disconnected form, row, file, or section. The red line is the shared route, gold dots are destinations, and the labeled gold handle identifies each leader.

Enable **Face the direction of travel throughout the move** to create per-count facing changes. Triangle marcher symbols continuously turn with the route tangent; **Facing Offset** adds an intentional visual orientation without changing the travel path.

Snapping and Alignment

Drill Grid & Snap

Use the always-visible **Grid Off / Grid 8:5** control in the top editor toolbar, the **Drill Grid & Snap** card at the top of the **Forms** tab, or **Tools > Configure Drill Grid...**

- **8-to-5** creates eight equal marching steps in each 5-yard interval: **0.625 yd** or **22.5 in** per step.
- Standard presets include 6-to-5, 8-to-5, 12-to-5, and 16-to-5.
- Custom grids can use different horizontal and vertical step spacing plus an offset origin.
- When enabled, a clean purple snap-point lattice replaces the normal drafting subdivisions while official field markings remain visible. A full-line grid remains available in the grid dialog.
- Marcher drags, multi-selection moves, transform handles, draggable formation handles, and generated form spots snap to exact nodes.
- Formation handles remain attached to the previewed form. Curve draggers sit on the actual curve instead of floating at invisible Bezier control points.
- Built-in forms, SVG forms, and plugin forms use unique grid nodes so enabled snapping never stacks multiple marchers on one point.
- Official football front/back hashes remain exact priority snap rows at both 8-to-5 and 16-to-5, even though college hash offsets are not whole center-origin grid intervals.
- Dot-card and coordinate-sheet instructions always use standard 8-to-5 steps, even when a different construction grid is displayed.
- Grid settings are saved with the project and are undoable.

Use **Ctrl+Shift+G** to configure the grid and **Ctrl+Alt+Shift+N** to toggle it.

Smart Alignment Guides

Enable **Smart Alignment Guides** when dragging marchers to show temporary purple alignment guides. This is separate from the exact drill-step grid.

Snap targets include:

- Yard-line alignment.
- Horizontal alignment with performers.
- Vertical alignment with performers.

Alignment tools include:

- Horizontal align.
- Vertical align.
- Interval spacing.
- Center to field.
- Fit form to prop.
- Scale form.

Constraint tools include:

- Create Line Constraint.
- Create Pivot Constraint.
- Create Arc Constraint.
- Create Block Constraint.
- Apply Constraints.

Active constraints are enforced while constrained marchers are moved.

Previous-Set Ghost

Enable **Ghost Previous Set** in the **View** tab to show the previous set as a faint, non-editable formation behind the current picture. The ghost updates when changing sets or crossing playback boundaries and follows the selected marcher-symbol and field-theme settings.

Path Safety

Path analysis warns about:

- Close spacing.
- Crossing paths.
- High travel speed.
- Conflict-heavy counts in the timeline.

Optimize Selected Spot Assignment keeps every destination coordinate in place and changes only which selected marcher owns each spot. The solver evaluates synchronized spacing, crossing risk, travel outliers, movement windows, speed limits, and unselected marchers. It does not create path anchors or alter the destination picture. Review unresolved warnings when the fixed start and destination pictures make a conflict unavoidable.

Large-Show Accelerators

Open **Tools > Large-Show Accelerators** or use the **Large Show** tab in the left panel.

Import a roster

- 1 Choose **Import Roster CSV**.
- 2 Select a CSV containing any common combination of name, ID, instrument, section, rank, color, layer, or equipment columns.
- 3 Choose Merge to update matching IDs or Append to guarantee new IDs.
- 4 Review the generated IDs, colors, and layers before importing.

Build and lock a hierarchy

Use **Hierarchy & Linked Formations**, then choose **Build From Roster** to create Ensemble to instrument family to section to rank groups. Double-click a group to select its members. Group transforms use numeric move, rotate, and scale values. Locked parent groups lock every descendant member.

Link repeated or mirrored forms

Create equal-size groups for the master and each copy. Select the master group, choose **Link Groups**, then choose whether the instance is repeated or mirrored. Corresponding marcher edits remain connected until **Detach** is selected.

Replace or swap performers

- Select one marcher to replace roster information at that drill spot.
- Select exactly two marchers to swap their roster identities.

Coordinates, paths, timing windows, facings, and set data remain assigned to the original drill spots.

Clean a formation

Select a form and open **Automatic Form Cleanup**. Configure spacing, strength, and cleanup passes. Drill Pirate previews the proposed result and reports overlaps and average interval before applying it.

Compare and save alternatives

- **Compare Sets** displays two field views and sortable difference vectors.
- **Formation Variations** stores selected or full-set alternatives without duplicating the project.

Work across projects

Use **File > Open Project in New Tab (Ctrl+Shift+O)**. Tabs can be reordered and closed independently. **File > Copy From Open Project Tab** copies a source formation, timing map, or props into the current project and supports undo.

Exporting

Open **File** > **Export** or press **Ctrl+E**.

Export options:

- MP4 Video.
- 3D MP4 Video.
- Drill Sheet PDF.
- Dot Book PDF.
- Staff Packet PDF.
- Section Packet PDF.
- Coordinate Summary PDF.
- Coordinate CSV.
- Project ZIP.

For a modeled video, choose **3D MP4 Video** or click **Export 3D MP4** in the 3D Playback toolbar. Choose the current custom camera or a camera preset, 1080p/1440p/4K resolution, 24-60 FPS, model detail, labels, props, HUD, encoder quality, and an optional title splash. The offline renderer follows the project's audio clock, tempo map, set boundaries, movement styles, visual poses, and moving props rather than recording the screen.

Choose **PDF Layout Designer** in the Export window, or choose **Customize PDF Layout** inside any PDF's options. Layouts support movable/resizable text, images, field views, data tables, rectangles, and lines; portrait/landscape Letter, Legal, A4, and A3 pages; colors, typography, opacity, borders, image fitting, layers, locking, dynamic project tokens, and reusable presets. Use `{director_notes}` to place the active set's notes in a custom Drill Sheet or Staff Packet layout. Project images are stored with the show, and each PDF type keeps its own project layout.

Settings

Open settings with:

- **Settings > Preferences.**
- **Ctrl+,.**
- Home-screen settings button.

Tabs:

Tab	Purpose
General	Switch Dark/Light Mode, choose White/Inverted/Grass field mode, choose marcher symbol style, and toggle tooltips.
Appearance	Customize UI font size plus app background, panels, surfaces, inputs, buttons, text, borders, accent, and selection colors.
Field Logo	Show or hide center-field branding, upload a custom PNG/JPG/WebP image, restore the Drill Pirate logo, and adjust opacity and size.
Devices	Choose Windows Default or a specific audio output device.

Use **Refresh** in the Devices tab after plugging in headphones or changing audio hardware. Use **Load Defaults For Selected Theme** in Appearance to return to clean Dark or Light colors. Uploaded field logos are copied into Drill Pirate's local app data, so the original image can be moved afterward. Transparent PNG files produce the cleanest field result. Custom logos use full color on Grass fields, shaded grayscale on White fields, and inverted grayscale on Inverted fields.

Plugins

Open the home screen **P**lugins tab to enable or disable plugins.

Plugin folders live in:

```
Documents\Drill Pirate Plugins
```

Plugins can add form tools, commands, buttons, styles, and UI changes.

MuseScore Live Sync

The bundled MuseScore plugin uses MuseScore Studio as the live audio source. It does not export or regenerate an MP3/WAV file.

- 1 Enable **M**useScore **L**ive **S**ync on the home-screen **P**lugins tab.
- 2 Open a Drill Pirate project.
- 3 Choose **P**layback > **L**ink **M**useScore **P**roject... or press **C**trl+**A**lt+**M**.
- 4 Select a **.mscz** or **.mscx** file.
- 5 Click **O**pen + **S**ync in the plugin panel, or use **P**layback > **O**pen **L**inked **M**useScore + **L**ive **S**ync.
- 6 Play, pause, or seek in either application. Drill Pirate follows MuseScore's live playhead and score timing map.

On first use, choose **P**lugins > **D**rill **P**irate **L**ive **S**ync inside MuseScore. If that command is not visible, open **P**lugins > **M**anage **p**lugins, enable it, and run it once. Follow the connection steps shown in Drill Pirate if the two applications do not connect automatically. Use the latency control when Bluetooth, ASIO, or a particular Windows device needs visual compensation.

Edits saved in the linked MuseScore score are detected while the bridge is running and refresh the score-to-count timing map. The MuseScore file remains external to the **.drill** project, so include it separately when transferring the project to another computer.

Data Safety and Recovery

Drill Pirate protects project data with:

- Protection against interrupted saves.
- Dated save and autosave backups.
- Automatic conversion of older project formats.
- Corrupt-project detection.
- Recovery cards on the home screen.
- **File > Restore Previous Save.**

If a project cannot open, Drill Pirate offers to restore the newest backup or export a bug report bundle.

Crash Reports

Use:

```
Help > Export Bug Report Bundle
```

The bundle includes recent crash logs, diagnostics, and the current project working data. Send this ZIP when reporting project-specific bugs.

Recommended Workflow

- 1 Create project with audio, BPM, default counts, and starting marcher count.
- 2 Import the roster and build the ensemble hierarchy.
- 3 Build the opening form, then capture opening positions if Set 1 should move.
- 4 Add Set 2 and shape the next form.
- 5 Preview selected paths.
- 6 Add path anchors or follow-leader motion where needed.
- 7 Analyze paths for warnings.
- 8 Add markers and timing anchors to match music.
- 9 Rehearse playback by set and full show.
- 10 Export project ZIP, PDFs, CSV, and MP4 as needed.

Export Reference

Open the export dialog with:

```
File > Export  
Ctrl+E
```

The export dialog includes:

- MP4 Video.
- 3D MP4 Video.
- Drill Sheet PDF.
- Dot Book PDF.
- Staff Packet PDF.
- Section Packet PDF.
- Coordinate Summary PDF.
- PDF Layout Designer.
- Coordinate CSV.
- Project ZIP.
- Set ffmpeg.exe.

MP4 Video

MP4 export renders the full show animation and audio through ffmpeg.

Requirements:

- `ffmpeg.exe` must be available.
- The project should be saved.
- Audio should be loaded if you want audio in the rendered video.

Set ffmpeg:

- 1 Open **File** > **Export**.
- 2 Click **Set ffmpeg.exe**.
- 3 Select the actual `ffmpeg.exe` file.

Or add `ffmpeg\bin` to the Windows **PATH**.

MP4 export uses a progress dialog. Encoding may spend time near the end while ffmpeg finalizes the video file. If it never completes, verify the ffmpeg path and check available disk space.

3D MP4 Video

3D MP4 export renders the modeled performance instead of recording the 3D window. Open it from **File > Export > 3D MP4 Video** or from the **Export 3D MP4** action in the 3D Playback toolbar.

Options include:

- Current custom 3D camera or any standard camera preset.
- 1080p, 1440p, or 4K output.
- 24-60 frames per second.
- Auto, Full, or Performance model detail.
- Optional marcher labels, props, information HUD, and title splash.
- Automatic, H.264, or compatibility video encoder selection.

The renderer samples each frame from the project's audio clock. Tempo events, timing anchors, ritardandos, fermatas, set boundaries, mid-set move windows, paths, movement styles, authored visual poses, facings, and moving props therefore remain synchronized with the exported audio. Rendering can be cancelled before or during FFmpeg encoding, and the temporary PNG frames are removed automatically.

Project ZIP

Project ZIP creates a backup/share package of the project folder.

It includes:

- Audio files.
- Prop images.
- Show data files.
- Dot data.
- Set data.
- Metadata.
- Show-level markers, timing events, constraints, and audio versions.

Recovery history is excluded so normal project exports stay smaller.

Use this when reporting bugs because it preserves the project state.

Drill Sheet PDF

Drill Sheet PDF creates a landscape page for each set.

Typical contents:

- Show title.
- Set name.
- Count range.
- Tempo.
- Field image.
- Director's Notes and set details relevant to staff.

The field image is designed to take most of the page.

PDF Layout Designer

Every PDF type has an independent project layout. Open it from **File > Export > PDF Layout Designer**, or select **Customize PDF Layout** from that PDF's options window.

Editable page properties:

- Portrait or landscape orientation.
- Letter, Legal, A4, or A3 page size.
- Page background color.

Editable elements:

- Free text with font, size, bold/italic, color, alignment, opacity, and dynamic tokens.
- PNG, JPG, BMP, WebP, or SVG images with contain, cover, or stretch fitting.
- Live field views and export data tables.
- Rectangles and lines for custom branding and page structure.
- Position, size, layer order, borders, visibility, and locking.

Drag an element to move it and drag its purple lower-right corner to resize it. The numeric property panel provides exact percentage-based positioning. Images are stored with the project so layouts remain portable in project ZIP exports.

Available text tokens include `{show_title}`, `{page_title}`, `{page_subtitle}`, `{set_name}`, `{counts}`, `{tempo}`, `{director_notes}`, `{performer}`, `{section}`, `{instrument}`, `{page}`, `{pages}`, and `{footer}`. `{director_notes}` resolves to the active set's visual/rehearsal notes on Drill Sheet and Staff Packet set pages and resolves blank on pages without a single active set. Layout presets can be saved and reused between projects. Batch exports use the saved project layout for each PDF type.

Dot Book PDF

Dot Book PDF creates performer-focused coordinate pages.

Typical contents:

- Performer name/ID.
- Section/instrument metadata when available.
- Set-by-set coordinates.
- Movement-style notes where assigned.

Use this for individual performer packets.

Staff Packet PDF

Staff Packet PDF is intended for staff and instructor review.

Typical contents:

- Show summary.
- Set pages.
- Larger field images.
- Set-specific Director's Notes.
- Path/safety warning summaries.
- Key metadata needed for rehearsal planning.

Coordinate CSV

Coordinate CSV exports performer coordinates for every set.

Use this for:

- Spreadsheet review.
- External dot-card workflows.
- Debugging coordinate problems.
- Importing into another tool.

PDF and CSV Requirements

PDF and CSV exports do not require ffmpeg.

They use the project data currently saved in Drill Pirate. Save before exporting if you want to be certain the files match the current window state.

Export Quality Checklist

Before sharing exports:

- 1 Save the project.
- 2 Scrub through every set.
- 3 Analyze selected or all paths.
- 4 Check markers and timing anchors.
- 5 Confirm props are visible and correctly scaled.
- 6 Export a project ZIP for backup.
- 7 Export PDFs/CSV for rehearsal.
- 8 Export MP4 last because it takes the longest.

Common Export Problems

Problem	Fix
MP4 says ffmpeg is missing	Use <code>Set</code> <code>ffmpeg.exe</code> or add <code>ffmpeg\bin</code> to PATH.
MP4 stays near the end for a while	Wait for ffmpeg finalization; large shows/audio can take time.
MP4 never finishes	Re-select ffmpeg, check disk space, then try a shorter project.
PDF misses a recent edit	Save the project and export again.
Exported project is too large	Audio and prop image files are included; compress or replace oversized media.
Coordinates look wrong	Check the set position and verify the performer is on the intended side/hash.

Keyboard Reference

Drill Pirate includes built-in shortcuts and a shortcut editor.

Open the shortcut editor with:

```
Edit > Keyboard Shortcuts  
Ctrl+Alt+,
```

Open the command palette with:

```
Edit > Command Palette  
Ctrl+Shift+P
```

File and Edit

Command	Shortcut
Save	Ctrl+S
Save As	Ctrl+Shift+S
Export	Ctrl+E
Undo	Ctrl+Z
Redo	Ctrl+Y
Repeat Last Action	F4
Command Palette	Ctrl+Shift+P
Keyboard Shortcuts	Ctrl+Alt+,

Settings and Playback

Command	Shortcut
Preferences	Ctrl+,
Open 3D Playback View	Ctrl+3
Toggle Loop Current Set	Ctrl+L
Go To Count	Ctrl+G

3D Viewer Controls

Command	Shortcut
Play / Pause	Space
Restart	R
Toggle Labels	L
Full Screen	F
Press Box Camera	1
Front Sideline Camera	2
Back Sideline Camera	3
Corner Camera	4
Overhead Camera	5
Orbit Camera	Arrow keys
Zoom Camera	+ / -

Workspace Presets

Command	Shortcut
Design Workspace	Ctrl+Alt+1
Forms Workspace	Ctrl+Alt+2
Rehearse Workspace	Ctrl+Alt+3
Print Workspace	Ctrl+Alt+4
Focus Field	Ctrl+Alt+5
Music Design Workspace	Ctrl+Alt+6
Specialized Design Workspace	Ctrl+Alt+7

Roster and Sets

Command	Shortcut
Add Marcher	Ctrl+M
Delete Selected	Del
Import Prop Image	Ctrl+Alt+I
Open Specialized Design Studio	Ctrl+Shift+F12
Add Set	Ctrl+Alt+S
Remove Set	Ctrl+Alt+Backspace
Copy Current Set	Ctrl+Alt+C
Select Same Section	Ctrl+Alt+Shift+A
Invert Selection	Ctrl+Alt+Shift+I
Select Moving This Set	Ctrl+Alt+Shift+M
Carry Selected Forward	Ctrl+Alt+Shift+F
Start Selected Move Here	Ctrl+Alt+H
Set Opening Positions From Current View	Ctrl+Alt+Shift+H
Face Selected Front	Ctrl+Alt+Up
Face Selected Back	Ctrl+Alt+Down
Rotate Selected Facing Left 45	Ctrl+Alt+Left
Rotate Selected Facing Right 45	Ctrl+Alt+Right
Choose Visual Pose	Ctrl+Alt+Shift+V

Large Shows and Projects

Command	Shortcut
Open Project in New Tab	Ctrl+Shift+0
Copy From Open Project Tab	Ctrl+Shift+Alt+0
Import Roster CSV	Ctrl+Shift+F6
Hierarchy & Linked Formations	Ctrl+Shift+F7
Replace / Swap Performer	Ctrl+Shift+F8
Automatic Form Cleanup	Ctrl+Shift+F9
Compare Sets	Ctrl+Shift+F10
Formation Variations	Ctrl+Shift+F11

Tools

Command	Shortcut
Select Tool	Alt+1
Line Tool	Alt+2
Curve Tool	Alt+3
Arc Tool	Alt+4
Scatter Tool	Alt+5
Mirror Tool	Alt+6
Shape Line Tool	Alt+7
Circle Tool	Alt+8
Rectangle Tool	Alt+9
Lasso Tool	Alt+0
Ellipse/Oval Tool	Ctrl+Alt+0
Triangle Tool	Ctrl+Alt+T
Diamond Tool	Ctrl+Alt+J
Polygon Tool	Ctrl+Alt+Y
Star Tool	Ctrl+Alt+Shift+G
Scale Form Tool	Ctrl+Alt+X
Warp Form Tool	Ctrl+Alt+W
Rotate Form Tool	Ctrl+Alt+Shift+O
Spiral Tool	Ctrl+Alt+P
Block/Grid Tool	Ctrl+Alt+B
SVG Shape Tool	Ctrl+Alt+V
Free Curve Tool	Ctrl+Alt+U
Curvilinear Tool	Ctrl+Alt+Shift+U

Path, Form, and Rehearsal Commands

Command	Shortcut
Toggle Snap Align	Ctrl+Alt+N
Enable Drill Grid Snapping	Ctrl+Alt+Shift+N
Configure Drill Grid	Ctrl+Shift+G
Analyze Paths	Ctrl+Alt+A
Optimize Selected Spot Assignment	Ctrl+Alt+R
Clear Selected Paths	Ctrl+Alt+Shift+R
Set Count Keyframe	Ctrl+Alt+K
Follow the Leader	Ctrl+Alt+F
Group Motion Ribbon	Ctrl+Shift+F1
Edit Group Path Handles	Ctrl+Shift+F2
Continuity Designer	Ctrl+Shift+F3
Construction Guides	Ctrl+Shift+F4
CAD Path Toolkit	Ctrl+Shift+F5
Formation Morph	Ctrl+Shift+F12
Fit Form to Selected Prop	Ctrl+Alt+Shift+X
Smart Transition Composer	Ctrl+Alt+Shift+C
Section-Aware Form Fit	Ctrl+Alt+Shift+J
Copy With Property Paintbrush	Ctrl+Shift+C
Paint Copied Properties	Ctrl+Shift+V
Beat-to-Set Generator	Ctrl+Alt+G

Precision Field Editing

Command	Shortcut
Nudge one 8-to-5 step	Arrow key
Nudge half step	Shift+Arrow key
Nudge one yard	Ctrl+Arrow key
Nudge five yards	Alt+Arrow key

Direct Manipulation

Action	Gesture
Temporary rotate	Hold R , drag the angle handle, release
Temporary scale	Hold S , drag width/height handles, release
Temporary warp	Hold B , drag bend handles, release
Temporary arc / curve / line	Hold A , C , or L
Temporary mirror / lasso	Hold M or V
Apply any active field tool	Enter
Cancel any active field tool or drag	Esc
Constrain movement or snap angles	Hold Shift while dragging
Edit symmetrically around the pivot	Hold Alt while dragging
Reopen a path, prop, preview, or formation	Double-click it on the field
Toggle compact transform handles	Ctrl+Shift+T

Transform handles are off by default and only appear for selections of two or more marchers. Toggle them with **Ctrl+Shift+T**, **View > Transform Handles**, the Selection inspector button, or the field context menu. The compact gizmo provides move, rotate, corner scale, and an editable white pivot; exact stretch/skew values remain in the inspector.

Plugin Shortcuts

Plugins can register their own shortcuts. They appear in the command palette and shortcut editor after the plugin is enabled.

The default starter form-tool plugin registers:

Command	Shortcut
Diamond Form	Ctrl+Alt+D

Shortcut Editing Notes

- Search by command name or shortcut.
- Select a command.
- Press the new key sequence in the shortcut editor.
- Apply/reset as needed.
- Custom shortcuts are saved in user settings.

If two commands use the same shortcut, Qt may trigger only one depending on focus and command context. Avoid duplicate shortcuts for core editing tools.

Troubleshooting

Use this page to diagnose common user-facing problems.

The App Does Not Open

Try:

- 1 Extract the ZIP fully before running.
- 2 Run **Drill Pirate.exe** from inside the extracted folder.
- 3 Do not move only the **.exe** out of the folder.
- 4 If SmartScreen appears, choose **More info** then **Run anyway** only if the file came from the official release page.

If the app still fails, send the release version, Windows version, and a screenshot of the error.

Projects Are Missing From the Home Screen

The home screen shows valid `.drill` projects from your Drill Pirate project library. If a show is stored elsewhere, double-click it or use **File > Open Project in New Tab**. Move or copy it into the project library when you want it to remain visible as a home-screen card.

A Project Says It Needs Recovery

This means Drill Pirate detected missing or damaged project data, a project created by a newer app version, or another load problem.

Try:

- 1 Click the project recovery card.
- 2 Choose **Restore Latest Backup** if available.
- 3 If restore fails, choose **Export Bug Report**.
- 4 Send the bug report ZIP with the issue.

Inside an open project, use **File > Restore Previous Save** to choose a specific backup.

UI Looks Crushed

Try:

- Maximize the window.
- Use **View > Workspaces > Focus Field**.
- Float panels to another monitor.
- Condense panels with Focus Field before closing panels manually from **View > Panels**.
- Use the command palette instead of keeping every tool panel open.

If the layout gets stuck after opening a project while already fullscreen, resize the window once or switch workspaces.

Audio Plays From the Wrong Device

Open:

Settings > Preferences > Devices

Then:

- 1 Choose **Windows Default** to follow the system device.
- 2 Or choose a specific connected output.
- 3 Click **Refresh** after plugging in headphones.
- 4 Apply/OK.

If a selected device is unplugged, Drill Pirate falls back to Windows Default.

Console Shows AUDCLNT_E_DEVICE_INVALIDATED

This means Windows invalidated the selected audio device, usually because headphones, Bluetooth audio, or the default device changed while Qt was using it.

Fix:

- 1 Open Settings.
- 2 Go to **Devices**.
- 3 Click **Refresh**.
- 4 Select **Windows Default**.
- 5 Restart Drill Pirate if audio remains distorted.

Audio Is Clipping or Distorted

Try:

- Select **Windows Default** instead of a specific output device.
- Reopen the project after changing audio devices.
- Lower the Windows app volume for Drill Pirate.
- Check whether the source audio file itself is clipping.
- Avoid rapidly switching Bluetooth/headphone devices during playback.

Waveform Looks Flat

Try:

- 1 Open the timeline/audio area.
- 2 Click **Reload Audio**.
- 3 Confirm the project has an active audio file.
- 4 Try a WAV file if the MP3 decoder fails on that file.
- 5 Confirm the audio is not extremely compressed/limited.

Waveform display does not require ffmpeg.

Auto Hit Markers Do Not Appear

Auto hit detection depends on waveform peaks. If a track is heavily compressed or has no clear transients, the detector may find few or no hits.

Try:

- Reload audio.
- Add manual markers.
- Use count markers for the current set.
- Use timing anchors for precise musical alignment.

MP4 Export Says ffmpeg Is Missing

Open:

```
File > Export > Set ffmpeg.exe
```

Select the actual **ffmpeg.exe** file, not just the folder.

Or verify PATH in a new terminal:

```
ffmpeg -version
```

MP4 Export Seems Stuck Near the End

The progress dialog may spend time near the end while ffmpeg finalizes video/audio encoding.

If it never completes:

- 1 Re-select `ffmpeg.exe`.
- 2 Export a short test project.
- 3 Check disk space.
- 4 Avoid exporting to a protected folder.
- 5 Try a simpler audio file path with no unusual characters.

Director's Notes Do Not Appear in a PDF

- Confirm the notes were entered for the intended set in **Inspector > Sets > Set Details**.
- Default Drill Sheet and Staff Packet set pages include notes automatically.
- Custom PDF layouts must contain a text element using `{director_notes}` where the notes should appear.
- Dot Books and coordinate summaries do not insert set-level Director's Notes automatically because those pages summarize multiple sets.
- Save the project and regenerate the PDF after changing the layout.

SVG Import Fails

Try:

- Use a simple SVG path.
- Convert text to paths in your vector editor.
- Expand strokes/outlines.
- Avoid embedded raster images inside the SVG.
- Avoid extremely complex SVGs with thousands of tiny path segments.

If a file always fails, include the SVG with the bug report.

SVG or Shape Import Puts Dots on Top of Each Other

Try:

- Increase selected performer count only after confirming the shape path is clean.
- Use a simpler path with fewer sharp corners.
- Use scale form after placement.
- Review corners and manually adjust anchors if needed.

This area is still improving; include the SVG and project ZIP when reporting cases.

Form Paths Look Chaotic

Try:

- 1 Undo the form placement.
- 2 Select the affected marchers and use **Optimize Selected Spot Assignment**.
- 3 Confirm that the target picture is unchanged and review the yellow preview lines.
- 4 Use **Analyze Paths** to inspect any conflicts that remain unavoidable with the fixed pictures.
- 5 Use **Clear Selected Paths** if old manual anchors are affecting the move.
- 6 Add path anchors manually only when the intended route must curve around traffic.
- 7 Use **Follow the Leader...** for shared-route outline, conveyor, line, and complex-shape motion.

Spot optimization changes destination ownership, not the target coordinates or manual path geometry.

Dragging a Tool Handle Moves the Whole Form

Make sure the correct tool is active. Advanced tool handles only behave as handles when the corresponding tool is active. Switch to the tool again from the toolbar or shortcut, then drag the visible handle.

Plugins Do Not Appear

Check:

Documents\Drill Pirate Plugins

Each plugin should remain inside its complete plugin folder. Do not remove or rename files inside that folder.

Then:

- 1 Restart Drill Pirate or return to the home screen.
- 2 Open the **Plugins** tab.
- 3 Enable the plugin.
- 4 Open a project if the plugin adds project-window features.

Plugin Crashes or Breaks the UI

Disable the plugin from the home screen **Plugins** tab.

If Drill Pirate cannot open far enough to disable it:

- 1 Go to **Documents\Drill Pirate Plugins**.
- 2 Move the plugin folder somewhere else.
- 3 Reopen Drill Pirate.

Enabled plugins can access project and application data. Only enable plugins from people or organizations you trust.

MuseHub Update Does Not Install

Try:

- Check internet access.
- Save and close Drill Pirate before updating.
- Restart MuseHub and retry the update from your library.
- Confirm antivirus did not quarantine MuseHub or the Drill Pirate package.
- Contact MuseHub support if the package remains unavailable or installation repeatedly fails.

Drill Pirate does not contain a separate in-app updater or update-log popup. Update availability and release descriptions are provided by MuseHub.

Performance Is Slow on Large Shows

Try:

- Hide labels.
- Hide unused sections/layers.
- Use Focus Field workspace to keep controls visible while expanding the field.
- Avoid extremely large prop images.
- Close extra floating panels.
- Use path analysis on selected sections instead of everything when possible.
- Save and reopen after heavy SVG/path editing.

Projects with 200-400 performers are the target range, but dense paths, labels, props, and PDFs can still be expensive.

Final Production Checklist

- Save the current project and confirm the intended audio version.
 - Scrub every set boundary and verify continuous motion, holds, movement windows, and visual poses.
 - Run path and physical-limit analysis; review every unresolved warning.
 - Verify performer labels, sections, instruments, equipment, colors, layers, and facing.
 - Preview all dot books, coordinate sheets, staff packets, and director notes.
 - Export a short video sample before committing to the full MP4 render.
 - Create a project ZIP or duplicate `.drill` backup before delivery.
 - Open the final deliverables on another device before sending them to staff or performers.
- You Are Ready

A production is ready to share when the field picture, timing, coordinate language, safety review, and exported materials all agree.