

GeoFoundry One

TEMPLATE BUILDER

COMPLETE USER GUIDE & REFERENCE MANUAL

Edition: Version 1.0 - prepared from the current Template Builder source supplied on 17 August 2026.

*Templates • Features • Fields • Validation • Conditional Rules • Live Preview • Data Viewer • Shapefile • .gct
• .gcp*

How to Use This Manual

This manual documents the current GeoFoundry One - Template Builder Windows application represented by the supplied source. It follows the practical workflow from opening the licensed application, creating a template, defining geometry and fields, configuring validation and conditional rules, testing the form in Live Preview, saving/exporting .gct templates, and using Map Viewer to prepare .gcp base-layer packages.

Scope: The guide describes functions supported by the supplied Template Builder source. It does not invent workflows that are not represented in that build.

Recommended workflow

1. Confirm the Template Builder licence gate is satisfied and open the application.
2. Create a new template and select the required geometry types.
3. Create meaningful Point, Line and/or Polygon features.
4. Add fields and configure their properties, defaults and validation.
5. Configure conditional rules where the form must react to previous answers.
6. Use Preview to test field visibility, enabled state, required state and dropdown filtering.
7. Save the working template and export the final .gct file for Field Mapper.
8. Use Map Viewer separately when Shapefiles must be compiled into a .gcp base-layer package.

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Part I - Application Orientation

1. Template Builder Overview

GeoFoundry One - Template Builder is the Windows desktop authoring application for designing survey templates used by GeoFoundry One - Field Mapper. The current build also includes Map Viewer for viewing Shapefile data and compiling map layers into GeoFoundry .gcp packages.

1.1 Two distinct outputs

Output	Purpose
.gct	GeoFoundry survey/template file. Defines features, geometry, fields, validation and conditional form behaviour for Field Mapper.
.gcp	GeoFoundry base-layer package produced from layers in Map Viewer for use as offline/context mapping in Field Mapper.

Do not confuse the formats: .gct is the survey definition. .gcp is the base-layer/map package. They serve different purposes.

2. Main Workspace and Navigation

The design workspace uses a desktop layout with the template structure on the left, a mobile-style form preview in the centre and a Properties panel on the right.

2.1 Top application bar

The top bar identifies GeoFoundry One - Template Builder and the current document. It provides Home, Preview, Tools and Help.

2.2 Main toolbar

Control	Purpose
New	Create a new template.
Open	Open an existing template.
Save	Save the current working template.
Add Feature	Add another Point, Line or Polygon feature.
Add Field	Add a field to the current feature/section.
Export	Export the completed template.

2.3 Tools

Tools contains Map Viewer and Theme. Theme supports System, Light and Dark appearance.

2.4 Centre preview

The centre of the designer represents how the active feature form is structured. It is also a direct editing surface for adding and reordering fields.

2.5 Properties

Properties changes according to the selected object: template, feature, section or field. Selecting the correct item before editing properties is essential.

3. Licensing and Application Access

The supplied application includes a licensing gate and a Supabase-backed licensing service. Template Builder access is therefore licence-aware rather than an unrestricted standalone editor.

If the application cannot pass its licensing state, resolve the GeoFoundry account/licence condition before relying on the design workspace.

Part II - Template Design

4. Creating a New Template

9. Select New from the main toolbar.
10. Enter the template name in Create New Template.
11. Choose the geometry types that the template will support.
12. Confirm creation.
13. Add the actual survey features and fields required by the field workflow.

The current data model supports including Point, Line and Polygon geometry types in one template.

Design principle: Choose geometry based on how the real-world object must be captured, not merely on its name.

5. Template Structure and Geometry

A template contains one or more features. Each feature has its own geometry type and its own form structure.

Geometry	Typical representation
Point	A single surveyed location.
Line	A linear feature recorded along a path.
Polygon	An area or boundary.

A multi-geometry template can therefore contain Point, Line and Polygon features together, while each individual feature still has one geometry type.

6. Features

6.1 Adding a feature

Use Add Feature from the toolbar, template tree or geometry group. Choose the geometry type and provide the feature identity requested by the dialog.

6.2 Feature properties

The Properties panel allows editing of feature information and Geometry type.

6.3 Duplicate

Feature context menus provide Duplicate. Duplication is useful when a new feature shares much of an existing form structure.

6.4 Delete

Feature context menus provide Delete. Confirm that the feature is genuinely unnecessary before removing it from the template.

6.5 Geometry grouping

The template explorer groups features by Point, Line and Polygon where those geometry types are included.

7. Sections and Form Organization

The current template model retains sections as form-organization containers. Sections contain fields and can carry their own title/description.

Use sections to make long field forms easier to understand. A section should group related attributes rather than being used merely to add visual spacing.

8. Fields and Field Types

Fields define the individual values collected in Field Mapper.

Field type	Use
Text	Free text or textual codes.
Integer	Whole-number values.
Decimal	Numeric values that may contain decimals.
Date	Date values.
Yes/No	Explicit Yes or No selection.
Options	Selection from a defined list.
Photo	Photo capture field.
Video	Video capture field.

Yes/No behaviour: The current preview represents Yes/No as an explicit Yes/No dropdown, not as an ambiguous tick box.

9. Field Properties and Defaults

Select a field to edit it in Properties. The field property editor contains General, type-specific settings, Behaviour, validation and Conditional rules.

9.1 General

General properties include the field label/type and supporting text such as hint/helper information represented by the field model.

9.2 Default values

Yes/No fields can have No default, Yes or No. Options fields can have No default or one of their defined options. Other field types can also carry a default value where supported by the model.

9.3 Behaviour

Setting	Effect
Required	The field must satisfy required-field behaviour.
Visible by default	Controls the field's initial visibility before rules alter it.
Read only	Prevents normal editing until a rule or design change makes it editable.

9.4 Required message

The field model supports a custom required message, allowing the designer to provide a more useful instruction when a required value is missing.

10. Validation

Validation constrains what values Field Mapper should accept. The current model supports numeric limits, text-length limits and pattern validation.

10.1 Numeric validation

Integer and Decimal fields can use Minimum and Maximum limits.

10.2 Text validation

Text fields can use Minimum Length, Maximum Length and Pattern.

Validation practice: Use the least restrictive rule that still protects data quality. Overly narrow limits can block legitimate field observations.

11. Options and Dependent Dropdowns

11.1 Options

An Options field contains a list of allowed choices. Define meaningful values and avoid near-duplicates that differ only by spelling or capitalization.

11.2 Default option

The designer can select No default or one of the available options.

11.3 Depends On

An Options field can depend on another suitable field. The editor provides Depends On and Parent Value mappings.

11.4 Parent-value mapping

Option Parent Values associate child options with values from the parent field. This is useful for hierarchical choices where the second list should be constrained by the first.

12. Conditional Rules

The current Template Builder contains a general conditional rule engine. Rules can change field behaviour in response to values entered in other fields.

12.1 Rule actions

Action	Result
Show field	Makes the target field visible when the rule is satisfied.
Hide field	Hides the target field.
Enable field	Allows interaction with the target field.
Disable field	Disables interaction.
Make required	Makes the target field required.
Make optional	Removes required state.
Make read-only	Prevents editing.
Make editable	Allows editing.
Filter dropdown options	Restricts the target Options field to selected allowed options.

12.2 Rule logic

Logic	Meaning
All conditions (AND)	Every condition in the rule must be true.
Any condition (OR)	At least one condition must be true.

12.3 Operators

Operator	Meaning
Equals	Value equals the comparison value.
Does not equal	Value differs from the comparison value.
Contains	Value contains the comparison value.
Does not contain	Value does not contain it.
Greater than	Numeric/value comparison above the threshold.
Greater than or equal	At or above threshold.
Less than	Below threshold.
Less than or equal	At or below threshold.
Is empty	No value is present.
Is not empty	A value is present.

12.4 Creating a rule

14. Select the target field.
15. Open Conditional rules in Properties.
16. Choose Add rule.
17. Choose the Action.
18. Choose All conditions (AND) or Any condition (OR).
19. Add a condition and select the controlling Field.
20. Choose the Operator and comparison Value where required.
21. For Filter dropdown options, select the options that remain allowed.
22. Test the rule in Preview.

Rule direction: A rule belongs to the field being affected. The condition points to the field whose value controls that behaviour.

13. Reordering, Duplicating and Deleting

Fields can be reordered in the form preview using the reorderable field interface. Context menus also provide actions such as Add Field, Duplicate, Move Up, Move Down and Delete in the current build.

Use duplication for repeated field patterns, then immediately rename and review the copied field's defaults, options and rules.

14. Properties Panel

Properties is selection-sensitive. If no object is selected it displays Select an item. Template, Feature, Section and Field selections each expose different property editors.

Common mistake: If the property you expect is missing, first confirm that you selected the correct object in the template tree or designer.

Part III - Testing and File Management

15. Live Preview

Preview opens a live, interactive representation of the template form. It is more than a static mock-up: it evaluates conditional rules against test values.

15.1 Testing fields

Enter test values into Text, Integer, Decimal, Date, Yes/No and Options fields. Photo provides a simulation control and Video is represented by a capture-video control.

15.2 Reset test values

Use Reset test values to return the preview to its initial state.

15.3 Save Test Feature

The preview includes Save Test Feature so the designer can exercise the form flow without treating the test as production Field Mapper data.

15.4 Back to Design

Use Back to Design to return to the editor after testing.

16. Rule Debugger

Live Preview includes a Rule Debugger that can be shown or hidden. It allows selection of a field and displays evaluated state such as Visible/Hidden and Enabled/Disabled.

Use the debugger when a field does not behave as expected. Test the controlling values, inspect the target field state and then return to the rule editor to correct the logic.

17. Saving and Opening Templates

17.1 Save

Save writes the current working template. Save is unavailable until a template exists.

17.2 Open

Open loads an existing template into the editor.

17.3 Unsaved changes

When an operation would discard unsaved work, the current UI can present an Unsaved changes dialog with Cancel and Discard changes.

Working practice: Save regularly during design, but treat Export as the deliberate handoff step for a field-ready template.

18. Exporting .gct Templates

Export produces the GeoFoundry template file used by Field Mapper. The model identifies the file type as GeoCollectorTemplate with signature GCT.

23. Complete the feature and field design.
24. Test conditional behaviour in Preview.
25. Save the working document.
26. Select Export.
27. Choose the destination/name requested by the file dialog.
28. Transfer/import the resulting .gct into Field Mapper and perform a field-side acceptance test.

Acceptance test: A template is not fully validated merely because it exports. Open it in Field Mapper and test representative Point, Line and Polygon workflows that the template actually contains.

19. Compatibility and Template Metadata

The current template model stores template version, schema version, minimum app version, author, created-with information, created/modified timestamps and included geometry types.

The parser also contains backward compatibility for the original single-feature .gct schema and some legacy field-type names.

Version control: When changing a template already used operationally, maintain a clear versioning practice so field teams can identify which schema they are using.

Part IV - Map Viewer and Base Layers

20. Opening Map Viewer

Open Tools -> Map Viewer. The viewer is a separate GIS-oriented workspace for inspecting imported Shapefiles and preparing .gcp packages.

The viewer contains a map, Layers panel and Attribute Table controls.

21. Importing Shapefiles

29. Open Map Viewer.
30. Use File -> Import Shapefile.
31. Select the Shapefile requested by the file picker.
32. Allow the viewer/compiler to load geometry and attributes.
33. Review the resulting layer, attributes and extent.

The Shapefile compiler service is responsible for reading the source and preparing the viewer layer representation.

Shapefile completeness: A Shapefile dataset normally relies on companion files such as DBF for attributes. Keep the source dataset components together when preparing data for import.

22. Layers Panel

Each imported layer can be managed from the Layers panel.

Layer action	Purpose
Visibility	Show or hide the layer without deleting it.
Zoom to Layer	Navigate the map to the layer extent.
Layer Properties	Open symbology and label configuration.
Remove Layer	Remove the layer from the viewer.

The Layers panel can be collapsed and restored.

23. Attribute Table

The Attribute Table displays the fields and records for the selected layer. It can be shown or hidden from the viewer interface.

Use it to verify that expected Shapefile attributes were imported before packaging the layer for Field Mapper.

24. Layer Properties and Symbology

Layer Properties provides geometry-specific styling and common opacity controls.

24.1 Point symbols

Point layers support symbol shapes including Circle, Square, Triangle, Diamond, Star, Cross and Location pin, together with symbol colour, outline colour, symbol size and outline width.

24.2 Polygon styling

Polygon layers support outline colour/width and fill opacity.

24.3 Line styling

Line layers support line colour, width and styles including Solid, Dashed, Dotted and Dash-dot.

24.4 Overall opacity

Layer opacity can be adjusted independently of geometry-specific fill settings.

24.5 Reset, Apply and OK

Reset returns styling to the viewer defaults represented by the dialog. Apply commits the preview while keeping the dialog workflow active; OK applies and closes.

25. Labels

Labels can be enabled per layer and draw a selected attribute field beside features.

Label control	Purpose
Enable labels	Turns labels on/off.
Field	Selects the attribute used as label text.
Font size	Controls label text size.
Font colour	Controls text colour.
Halo colour	Controls the label halo.
Halo width	Controls halo thickness.
Minimum zoom	Lowest zoom at which labels are drawn.
Maximum zoom	Highest zoom at which labels are drawn.

Label performance: Use sensible zoom limits for dense layers. Drawing every label at every scale can make the map difficult to read.

26. Map Navigation and Basemaps

The viewer supports mouse-wheel zoom, gesture/pan interaction, Zoom in, Zoom out and Zoom to full extent.

26.1 Mouse Zoom Speed

Tools -> Mouse Zoom Speed provides an adjustable speed from 1.0x to 3.0x and stores the preference.

26.2 Basemap behaviour

The current viewer code includes OpenStreetMap street tiles and Esri World Imagery satellite tiles, with zoom handling designed to prevent abrupt resets while layer visibility changes.

26.3 Full extent

Use Zoom to full extent when you need to return to the complete imported data extent.

27. Exporting .gcp Packages

Use File -> Export All Layers (.gcp) to package the current viewer layers as a GeoFoundry base-layer package.

34. Import the required Shapefile layers.
35. Verify their geometry and attributes.
36. Configure visibility, styling and labels.
37. Use Zoom to Layer/Attribute Table as needed for QA.
38. Select Export All Layers (.gcp).
39. Choose the destination.
40. Import the resulting .gcp into Field Mapper and verify its extent, labels and appearance.

Package scope: Export All Layers packages the viewer's current layer set. Remove unwanted layers before export.

Part V - Appearance and Good Practice

28. Theme and Tools

Tools -> Theme supports System, Light and Dark. The selected preference is stored by the application. Theme changes appearance only; it does not alter template schema or exported survey data.

29. Template Design Practice

- Use feature names that match the terminology field teams and downstream GIS users actually use.
- Keep field labels short enough for mobile forms while still being unambiguous.
- Prefer Options fields over free text where the value set is controlled.
- Use Required only where omission is genuinely unacceptable.
- Use validation to prevent impossible values, not to encode assumptions that may fail in the field.
- Use conditional rules to simplify forms, but test every branch in Live Preview.
- Do not create circular or confusing dependencies between fields.
- Version templates deliberately when operational schemas change.
- Test the exported .gct in Field Mapper before deployment.
- Test .gcp packages on the target mobile device at realistic zoom levels.

30. Troubleshooting Reference

Problem	What to check
New/Open action would lose work	Save first, or use the Unsaved changes dialog deliberately.
Properties shows Select an item	Select the template, feature, section or field you intend to edit.
Cannot add a rule	Ensure another suitable field exists to act as a condition source.
Filter dropdown options has nothing to select	Add options to the target Options field first.
Conditional field behaves incorrectly	Open Preview, enter controlled test values and use Rule Debugger.
Options dependency is wrong	Review Depends On and Parent Value mappings.
Imported Shapefile has missing attributes	Check the source Shapefile companion files and inspect Attribute Table.
Layer is loaded but not visible	Check layer visibility and use Zoom to Layer.
Labels are missing	Enable labels, select a valid field and check minimum/maximum zoom.
.gcp contains unwanted data	Remove unwanted viewer layers before Export All Layers.
Field Mapper form differs from expectation	Confirm the correct .gct version was imported and

	retest the exported template.
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Appendix A - Field Type Reference

Type	JSON representation in current model	Key configuration
Text	text	Hint/helper, default, required, visibility, read-only, length/pattern validation, rules
Integer	integer	Default, required, numeric min/max, rules
Decimal	decimal	Default, required, numeric min/max, rules
Date	date	Default/behaviour/rules
Yes/No	boolean	No default / Yes / No, behaviour, rules
Options	dropdown	Options, default option, dependency mapping, filter-options rules
Photo	photo	Behaviour/rules
Video	video	Behaviour/rules

Appendix B - Conditional Rule Reference

Category	Supported values
Logic	All conditions (AND); Any condition (OR)
Actions	Show; Hide; Enable; Disable; Make required; Make optional; Make read-only; Make editable; Filter dropdown options
Operators	Equals; Does not equal; Contains; Does not contain; Greater than; Greater than or equal; Less than; Less than or equal; Is empty; Is not empty

Appendix C - File Type Reference

Extension	Created/used by	Purpose
.gct	Template Builder -> Field	Survey/template definition.

	Mapper	
.gcp	Map Viewer -> Field Mapper	Compiled base-layer package.
.shp + companion files	External GIS -> Map Viewer	Source vector dataset for base-layer preparation.

End of GeoFoundry One - Template Builder Complete User Guide v1.0.