

STRATAG

Correlate gamma. Pick tops. Stay on the well.

User Manual

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Blackstone Analytics, LLC

StrataG is the correlation sheet you already know — just on the screen, with the active well locked in red and the offsets free to slide. This guide walks you through a typical pad well, in plain language.

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1. What StrataG is for

If you have ever lined up offset gamma next to the well you are drilling, you already know this job. StrataG does that on one screen: the drilling well stays put in bright red, the offsets slide to match character, and you pick tops as you go. Nothing leaves this computer — no cloud, no account, no upload.

What you will do most days

- Bring in offset LAS files, then the well you are drilling
- Drop in the prognosis tops and any offset tops lists you have
- Slide (or stretch) offsets until the gamma character lines up
- Press **V** when you pick a top, then Project Down if you want the next ones forecast
- Save the project. Send a Morning PDF when ops asks for a picture

2. Install and first open

You do not need Python, a browser, or an internet connection. If Windows asks whether to run an unknown app, that is normal until the installer is signed — choose More info, then Run anyway when your IT folks allow it.

The usual way — StrataG_Setup.exe

- Copy **StrataG_Setup.exe** onto the PC (USB, email, or remote desktop)
- Double-click it, click through Next / Install / Finish. You do not need admin rights
- Desktop shortcuts appear for StrataG and this User Manual
- To remove it later: Windows Settings → Apps, or Uninstall StrataG in the Start menu

No install — portable zip

Unzip **StrataG_Portable.zip** anywhere you can write (Desktop is fine). Keep the whole folder together — StrataG.exe will not run if you copy it out by itself. Double-click StrataG.exe.

The first time it opens

You will see an empty dark window. That is correct. Nothing is preloaded. Green buttons on the left are for the well you are drilling. Blue buttons are for offsets. If it asks to recover a session, say Yes only if you want last night's work. No starts you clean.

A good first well

- **Import New Offset** for each offset LAS (you can pick several at once)
- **Import to Active** for the well you are drilling
- **Import Active Survey** if you have one
- **Import Active Tops** for the prognosis list
- Select an offset, then **Import Offset Tops** if you have a called-tops spreadsheet
- Slide the offsets until they match the red curve. Pick a top. Press **V**. Save.

StrataG stays on this PC. It does not send logs anywhere. Uninstall warns you that saved projects for this install will be deleted; your original LAS and Excel files are left alone.

3. A tour of the window

Think of it as a correlation sheet with a toolbox on top:

Region	Purpose
Top toolbar	Left (green): New, Open, Save, Import to Active, Import Active Tops, Import Active Survey. Center (blue): Imp
Drilling strip	Bit TVD · last verified (Hi/Lo) · next top · ΔTVD · dMD/dTVD · flatten datum if set
Left panel	Project, KB, wells (visibility/solo), Depth ADJ, Suggest ADJ, stretch, display, layout, zoom
Center tracks	Tiles, Compare (type well + backups), or Overlay; TVD scrubber; lock zoom; wheel zoom
Right panel	Formation Tops — Verify / Project Down / Add / Delete / Load Uinta list (optional). Right-click a verified row to

Two vertical **sashes** (drag handles) resize panels: one between offset and active tracks (dual mode), and one between the plots and the Formation Tops panel.

4. Bringing your data in

This is the part that used to crash if you handed StrataG the wrong kind of spreadsheet. It will not do that anymore. LAS, CSV, TXT, and Excel (.xlsx and old .xls) all come in the same buttons. StrataG looks at the file and decides: gamma curve, survey, or tops list.

Which button?

A gamma LAS is a well. A tops spreadsheet is not a well. A survey spreadsheet is not a well. If you pick a tops Excel under Import New Offset, StrataG will say so and offer to hang those tops on the offset you already loaded — it will not die, and it will not invent a fake curve.

Gamma — three doors, on purpose

The well you are drilling grows all day. Offsets are usually one-and-done. That is why there is more than one Import button:

- **Import to Active** — merges samples into the existing drilling-well curve (creates the active well if none exists). Overlapping depths update in place; deeper samples append. Re-import as new exports arrive.
- **Add to Offset Gamma** — merges additional gamma into the **selected** offset (select the well first). Does not create a new track. Depth ADJ and offset tops are preserved.
- **Clear Selected Offset** — removes that offset's gamma samples and stretch pins so you can reload a clean file with Add to Offset Gamma. Name, color, survey, and imported tops stay.
- **Import New Offset** — each selected file becomes a **new** offset track/column.

Null GR values (–9999, –999.25, etc.) are set to **0 API**. TVD is preferred; if only MD is present it is used as TVD.

4.2 Surveys — Import Active Survey (merge by default)

Toolbar **Import Active Survey** always attaches to the **drilling (active) well**. Import a survey LAS/CSV/Excel with MD, inclination, azimuth, and TVD. Surveys drive MD estimates when verifying tops and when using Project Down. Both modern **.xlsx** and legacy **.xls** Excel surveys are supported (xlrd is bundled for .xls).

If the well already has a survey, StrataG asks: **Yes = MERGE** (append new stations and update near-duplicates — recommended while drilling) or **No = REPLACE** the entire survey. Use merge the same way you use Import to Active for growing gamma.

4.3 Prognosis tops — Import Active Tops

The right-hand list starts empty. That is the prognosis for the well you are drilling. Use the green **Import Active Tops** button. Spreadsheets headed Formation + TVD, ML TVD, Top TVD, Actual TVD, or Progged TVD all work — even if Actual is only filled down to ICP and the rest of the list lives in the Progged column.

- Accepts **CSV** or **Excel** with formation name + TVD columns
- Imported TVDs become **Progged TVD** (status **progged**)
- Replaces the existing Formation Tops list (warns if verified/projected picks would be cleared)
- Gray dashed lines plot at progged TVD on the correlation tracks
- Sample file: `sample_data\Remington_active_tops_sample.csv`

> *After import: correlate gamma → select a row → **Verify Selected** to lock actual TVD/MD → optional **Project Down** for deeper forecasts. If the sheet has Actual TVD filled only down to ICP and a Progged/Projected TVD for the whole list, StrataG uses the fuller column so deeper tops still import. SS (subsea) is KB minus TVD — set **KB elev** on the left panel.*

4.4 Offset tops — Import Offset Tops

Called tops on an offset belong to that well. Select the offset first, then **Import Offset Tops**. Each top sits on that well's gamma at its TVD — a colored tick on the curve, not a line that stays behind when you slide the well. If you accidentally choose this Excel under Import New Offset, StrataG will notice and offer to put the tops on the offset you already have.

- Re-import with matching names prompts to **REPLACE** (recommended) — prevents duplicate lines
- Duplicate names **inside the file** also warn before import
- **Clear Offset Tops** (Tops tools, above the traces) removes all imported tops from the selected well
- Clear does **not** touch the right-hand Formation Tops table

5. Wells: Active vs Offsets

Role	Color	Behavior
Active	Bright red	Right track (or red on Overlay); fixed original TVD — correlation datum
Offset	Blue, orange, purple, teal, …	Left track; drag / Depth ADJ to match active character

- **Set Active** — makes the selected well the drilling/correlation well
- **Solo** — show only that offset (+ active always remains)
- **Show all** — clear solo and make every well visible
- Eye button on each offset — toggle visibility without removing the well
- ▲ / ▼ — move a well up or down in the list (left/right in Tiles)
- **Remove** — deletes the selected well from the project
- List shows role, Depth ADJ, tops count (t=), stretch anchors (s=), sample count, active TD

6. Correlation Tracks & Layout Modes

Tiles

StrataG opens in Tiles. One GR column per well, all sharing the same TVD scale. Best when several offsets have tops labels that would clutter Overlay. Visibility and Solo still apply. Drag the **colored tabs above the tiles** left or right to rearrange track order (or use ▲ / ▼ in the Wells list). Click a tile to select that well. Order is saved with the project and is undoable.

Compare (type well)

Right track overlays the **active well on one type well**. Left track keeps the other offsets visible as **backups** (you do not have to hide them). Select an offset, use **Set as type well**, or the Type well dropdown to switch which offset is overlaid with active. Drag the type well on the right track to shift it. This is the layout for one primary correlation plus backups in view. Use **Close tracks (narrow offset)** to pull the two columns closer.

Overlay

All wells share one TVD track (offsets multi-color, active red). Best for detailed gamma character matching. Drag shifts the **selected offset** only; the active curve stays locked to true TVD.

Flatten on selected top

Select a formation in the tops table → **Flatten on selected top** to hang all wells on that datum (relative depth). Active uses verified or progged TVD; offsets use a matching imported top (see Top name map). **Absolute TVD** clears flatten.

> *Matplotlib rectangle zoom tools are disabled. Use wheel zoom, middle-drag pan, or left-drag in dead space / the left or right edge of a correlation pane to pan TVD. Left-drag on the gamma grid still shifts the offset. The vertical TVD scrubber also moves the window.*

7. Shifting Gamma (Depth ADJ & Stretch)

Correlation shifts apply to **offset wells only**. The active (drilling) well remains at original TVD — the fixed reference for picks and Verify.

Bulk Depth ADJ

- Select an **offset** well (required when multiple offsets)
- **Drag** on the offset / overlay / tile track to slide that offset
- **Suggest ADJ from tops** — aligns a matching offset top to active actual/progged TVD (clears stretch and applies bulk ADJ)
- **API ADJ** shifts GR horizontally for display (any selected well)

Multi-horizon stretch (StarSteer-style pins)

When packages expand or contract between markers, bulk ADJ is not enough. Stretch uses anchors: each maps an **offset original TVD** to a **correlation / active TVD**. Between anchors the log is linearly stretched; outside the range, identity (1:1) continues from the end pin so correlated zones stay locked. **Pin Offset** freezes the curve on click; drag free packages below to stretch.

- **Pin Offset** — click the offset gamma where it matches the active well; locks that depth (above = correlated, below free). Unlimited pins

- **Match tops (pin)** — freeze all matching offset tops to active formation TVDs (select one formation first to pin only that top)
- Drag free packages **below** a pin to stretch; frozen pins stay locked
- Amber square markers = frozen pins · open circles = free handles
- **Add pair…** — type well TVD + correlation TVD (+ optional label)
- One pin alone acts as bulk shift; ≥2 anchors give piecewise stretch
- **Clear Active Pins** returns the offset to bulk ADJ only

Hold the active log still; move offsets — same mental model as the Excel correlation sheet.

8. Depth Scale, Zoom & Crosshair

Control	Effect
Mouse wheel	Zoom depth window centered on the cursor
Middle mouse drag	Pan the TVD window
Vertical TVD scrubber	Fine pan of the current window
Linked crosshair	Horizontal line tracks cursor across dual/overlay tracks
Cursor TVD	TVD of the log under the pointer is shown next to the cursor (offset ADJ / stretch unmapped; tiles i
Auto GR scale	Fit GR min/max to data in the visible TVD window, including values below 0. Rescales when you s
GR min / max (manual)	Used when Auto GR scale is off. Apply view after typing.
Smooth	Display moving-average window (does not change raw data)

***Lock zoom** is on by default after the first window is set: Import to Active keeps the current TVD window so a fast well does not throw you back to TD on every MWD dump. First import still frames near TD.*

9. Project Formation Tops (Active)

The right-hand **Formation Tops** panel holds the project top list used for **active-well verification** and **Project Down**. A new or recovered-as-clean project starts with an **empty** table. Load the operator prognosis with **Import Active Tops**. Optionally click **Load Uinta list** for the built-in Uinta / Remington names if you are not importing a prognosis yet.

How active tops enter the table

- **Import Active Tops** (toolbar, green group) — operator CSV/Excel of projected/progged TVDs
- **Load Uinta list** — optional built-in names/TVDs (asks before replacing an existing table)
- **Add Top / Delete** — manual edits
- **Double-click a formation name** — type to rename (Enter to save, Esc to cancel)

Verify workflow (while drilling)

- Slide offsets (Depth ADJ / stretch) until gamma character matches the fixed active log
- Select the formation row that matches the marker you just correlated
- Hover the track at the pick TVD — the status/title tracks cursor depth

- **Verify @ cursor (V)** — locks TVD at cursor; MD from survey (confirm dialog)
- Or **Verify Selected** — type TVD (defaults to cursor if available, else progged)
- Line turns **red solid** (active well color) across every track; status **verified**; Hi/Lo updates; next deeper top auto-selected
- Optional: **Project Down** to forecast deeper tops from the deepest verified anchor

Unverify a pick

A bad pick does not require deleting the formation. **Delete** removes the whole row, including the progged TVD. **Unverify** clears only the verified pick.

- Right-click the verified row in the Active tops table and choose **Unverify**
- Or right-click the **red solid** line on any track and choose **Unverify**
- Actual TVD, actual MD, and Hi/Lo clear. Status returns to **progged**. The gray dashed line returns at the progged TVD
- The formation name and progged TVD stay
- If that top was the deepest verified pick, Project Down forecasts below the new anchor are cleared. Run **Project Down** again after the corrected pick
- A shallower unverify leaves deeper verified tops and their forecasts alone
- **Undo** or **Ctrl+Z** puts the pick back

*Right-click on a progged or projected row does not unverify it. Offset tops are separate: use **Delete** on the Offsets tab to remove one of those.*

Column	Meaning
Prog	Progged / planned TVD (from import or default list)
Act TVD / Act MD	Verified values after Verify Selected
Prj TVD / Prj MD	Projected values after Project Down
SS	Subsea = KB – TVD (uses project KB)
Hi/Lo	Actual – Progged (negative = high to prog)
Status	progged | verified | projected

Chart line	Meaning
Gray dashed	Progged (not yet verified)
Red solid	Verified on active well (same red as the active gamma). Right-click the line to Unverify
Amber dotted	Projected after Project Down

Active tops (Formation Tops table) and offset tops (per-well import) are separate. Only the Formation Tops table drives Verify and Project Down.

10. Offset Tops (CSV / Excel)

Offset tops are **per well**, separate from the project Formation Tops table. They document tops already verified on offset wells and display on the offset chart.

- Select the offset well → toolbar **Import Offset Tops…**
- Each top rides on that well's curve (same color) and moves when you slide the well
- The name sits next to the tickRe-import warns on duplicates; prefer Replace over Append
- **Clear Offset Tops** (Tops tools, above the traces) removes all tops for the selected well
- Tops are saved inside the .stratag.json project file
- **Top name map** (Tops tools) — map offset labels to Formation Tops names when wording differs (e.g. `Wasatch Sand = Wasatch (WSTC)`); used by Suggest ADJ and flatten
- SS on both Active and Offsets tables is KB − TVD. Set KB elev on the left panel.

Example tops CSV

```
Formation,Verified_TVD,MD
Green River (GRRV),941,950
Mahogany Zone Base (MHGB),1601,1610
Douglas Creek (DGCK),2593,2620
```

11. Project Down (Tangent Projection)

After at least one top is **verified** on the active well:

- StrataG takes the deepest verified top as the anchor
- Deeper tops keep the original **progged TVD isochores** from that anchor
- Projected TVD = verified TVD + (progged ΔTVD from anchor)
- Projected MD uses local survey dMD/dTVD (prefer 1/cos(inc) when inclination is valid)
- Projected tops show as dotted amber lines on the active track

This supports planning sampling and target windows while drilling toward the next marker.

12. Drilling Dashboard, Undo & Autosave

Drilling strip (under toolbar)

Always-visible summary for the wellsite loop:

- **Bit TVD** — deepest sample on the active gamma curve
- **Last verified** — name and Hi/Lo (actual − progged)
- **Next** — next deeper non-verified top with projected or progged TVD/MD
- **ΔTVD** — remaining true vertical to that top from bit
- **dMD/dTVD** — local survey ratio at bit (for MD planning)

Undo

Toolbar **Undo** or **Ctrl+Z** restores the previous state for Depth ADJ, stretch, verify, unverify, Project Down, imports, visibility, flatten, and top name map (last ~40 actions).

Autosave

While the project is dirty and has wells, StrataG autosaves about every two minutes to `.stratag_autosave.stratag.json` next to the executable (or project folder when run from source). On the next launch, if an autosave with wells exists, you are offered recovery. **Yes** restores that session. **No** starts a blank project (no wells, no tops, no KB) and deletes the autosave so it will not reappear. File → New also

discards the autosave. Prefer Save As… for named project archives.

13. Saving, Opening & Exporting

Action	Description
Save / Save As…	Writes .stratag.json (wells, shifts, stretch, surveys, tops, map, view)
Open…	Loads .stratag.json (legacy .bcorr.json also opens)
Morning PDF	Ops report using the current zoom, GR scale, and layout (Tiles / Compare / Overlay). StrataG watermark
Copy Tops	Formation tops as tab-separated text on the clipboard (Excel / Teams)
Print CSV	Tops table + well shift summary to a file
Print PDF	Correlation chart only — same live view as on screen, including Tiles. StrataG watermark. Same WellNan

Project files embed curve samples so they are portable, but can become large with long gamma files. Keep a copy of original LAS files as the source of truth.

14. File Formats & Column Names

Gamma logs

Role	Accepted headers (examples)
TVD	TVD, TVD_FT, True_Vertical_Depth
MD	MD, DEPT, Depth, Measured_Depth
GR	GR, GR_MWD, Gamma, Gamma_Ray, SGR

Surveys

Role	Accepted headers
MD	MD, DEPT, Depth
TVD	TVD
Inc	Inc, Incl, Inclination
Azm	Azm, Azi, Azimuth
VS	VS, VSec (optional)

Active tops (Import Active Tops… → Formation Tops table)

Role	Accepted headers
Name	Formation, Top, Name, Marker, Horizon

Role	Accepted headers
TVD	TVD, Projected_TVD, Progged_TVD, Planned_TVD, Verified_TVD, Actual_TVD
MD	MD, Projected_MD, Progged_MD (optional; not stored as progged MD)

Example: `Formation,Projected_TVD,MD` — imported TVDs become **Progged TVD** for Verify Selected.

Offset tops (Import Offset Tops… → per-well reference)

Role	Accepted headers
Name	Formation, Top, Name, Marker, Horizon
TVD	TVD, Verified_TVD, Actual_TVD, Projected_TVD, Progged_TVD
MD	MD, Verified_MD (optional)

Column names are matched loosely (Formation, ML TVD, Top TVD, GR_MWD, GAPI, and friends). Merged headers, thousands separators, italic/underline names, and a blank first TVD are fine. Excel workbooks are scanned sheet by sheet. A survey calculation report is not treated as tops. LAS nulls like –9999 and –999.25 become 0 API on gamma.

15. When something looks off

Issue	What to try
Curves look far apart	Enable Auto GR scale; use Overlay or Close tracks
LAS says no depth/gamma	A picker should appear — choose MD (or TVD) and Gamma. Noralis / GeoGraphix / Total exports
Import New Offset on a tops Excel	That file is a tops list, not a well. Import the LAS first, then Import Offset Tops. If an offset is alread
Import New Offset on a survey Excel	That is a directional survey. Load the gamma first, then Import Active Survey.
Black flash while scrolling	Wheel-zoom should stay smooth. If a pane goes black, click Fit all or switch layout once to rebuild
Import resets zoom	Lock zoom is on by default so Import to Active keeps the window
No gamma on plot	Confirm TVD/GR columns; check Depth scale window
Cannot drag curve	Select an offset; drag on offset / overlay / tile — active is fixed
Import Log created extra wells	Use Import to Active / to Offset (merge), not Import New Offset
Suggest ADJ finds nothing	Import offset tops; set Top name map if names differ
Stretch not changing curve	Need ≥ 2 anchors on the selected offset
Project Down no result	Verify at least one top; import survey for MD
V does nothing	Select a tops row first; hover a track so cursor TVD exists
Active tops import failed	Need Name + TVD; see sample_data\Remington_active_tops_sample.csv

Issue	What to try
Survey .xls fails	Use latest portable (xlrd bundled) or Save As .xlsx
Empty Formation Tops on first open	Expected. Use Import Active Tops, or Load Uinta list
Offset gamma retraces in the lateral	Common on horizontal / time-based MWD. Clear Selected Offset then Add to Offset Gamma with a
Lost work after crash	Accept Recover session? from autosave on next launch
Antivirus blocks .exe	Allow the file, or run python desktop_app.py from source

16. Glossary

Term	Definition
TVD	True Vertical Depth (ft)
MD	Measured Depth along wellbore (ft)
SS	Subsea depth = KB – TVD
GR / API	Gamma ray reading in API units
Depth ADJ	Bulk TVD shift on an offset well (active never shifted)
Stretch	Piecewise linear map of offset TVD → correlation TVD via anchors
KB	Kelly Bushing elevation (ft)
Active well	Drilling well at true TVD (bright red) — fixed datum
Offset well	Reference well; Depth ADJ / stretch to match active
Bit TVD	Deepest gamma sample on the active curve
Hi/Lo	Actual – progged TVD (negative = high to prog)
Flatten	Hang all wells on a selected datum top (relative depth)
Project Down	Forecast deeper tops from deepest verified marker
Unverify	Clear one verified pick. Formation and progged TVD stay. Right-click the row or the red line
Morning PDF	Ops report of the current view; named WellName_Latest_Correlation_(date)

17. Keyboard & Mouse Shortcuts

Input	Action
Hover on a track	TVD of that log appears next to the cursor
V	Verify selected formation at cursor TVD
Right-click verified row	Unverify that pick (progged TVD stays)

Input	Action
Right-click red top line	Unverify that pick from the chart
Ctrl+Z	Undo last correlation / import / verify / unverify action
Mouse wheel over track	Zoom depth window about cursor
Middle-button drag	Pan depth window
Left-drag pane edge / dead space	Pan TVD (pull data up/down for the next dump)
Double-click formation name	Rename the top in place (Enter saves, Esc cancels)
Left-drag on offset grid	Change Depth ADJ (bulk shift)
Pin Offset mode	Click offset gamma to freeze stretch pins
Pick anchors mode	Two left-clicks to add a stretch pair
Drag colored tabs (Tiles)	Reorder tracks left/right
▲ / ▼ in Wells list	Move a well up/down (same order as Tiles)

18. While-Drilling Loop (Active Log Updates)

This is the daily workflow once the project is set up with offsets, prognosis tops, and an initial active gamma. The active well is a **growing log** — you do not create a new well every time MWD exports a new file.

When a new gamma export arrives

- Click toolbar **Import to Active** (not Import New Offset)
- Select the latest LAS / CSV / Excel export (multi-select OK if several files)
- StrataG **merges** samples into the same red active curve: deeper points append; overlapping depths update in place
- View auto-zooms near the active well's TD (bit TVD) so new character is visible
- Status bar reports samples added, updated, and new TVD max

When a new survey arrives

- Select the active well (or ensure it is the active role)
- Toolbar **Import Active Survey**
- Choose **Yes = MERGE** to append new stations (recommended while drilling)
- Choose No only if you intend to fully replace the survey

Correlate → verify → project

- Drag offsets (or use stretch / Suggest ADJ) so signatures match the fixed active curve
- Select the formation you just saw → hover the pick → press **V**
- Wrong TVD? Right-click the row or the red line → **Unverify**, then verify again
- Optionally **Project Down** to refresh deeper MD/TVD forecasts from the new anchor
- Watch the drilling strip: Bit TVD, last Hi/Lo, next top, ΔTVD
- **Save** the .stratag.json project; send **Morning PDF** or **Copy Tops** as needed

*Common mistake: using **Import New Offset** for successive active exports creates extra wells. Always use **Import to Active** for the drilling well.*

19. PDF Watermark

The Formation Tops panel is reserved for the tops list. There is no in-app logo slot. Morning PDF, Print PDF, and this user manual carry a small, faded StrataG mark near the bottom of the page so the tool is identifiable without covering the correlation.

The installer welcome page uses the Blackstone Analytics logo (publisher). The loading animation plays when you start StrataG, not during Setup. Neither mark is shown inside the running application.

That is the whole loop. Save often, send the Morning PDF when someone asks for a picture, and keep the original LAS files — they are still the source of truth.