PRACTICAL EXERCISE

EX-30

USAREUR-AF

EX_30 — Advanced Builder

Practical Exercise — SL 3 Proficiency

HEADQUARTERS
UNITED STATES ARMY EUROPE AND AFRICA
(USAREUR-AF)
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EX_30 — ADVANCED BUILDER

PRACTICAL EXERCISE — SL 3 PROFICIENCY

Version	1.0 — March 2026
Prerequisite	SL 3 (and SL 1, SL 2)
Duration	2–3 hours
Environment	MSS training instance with Pipeline Builder and Contour/Quiver access — see ENVIRONMENT_SETUP.md

SCENARIO

G2 has a raw intelligence summary dataset (synthetic) covering 60 days of SIGACT-type events across a training AOR. Build an analytical pipeline that cleans and enriches the data, produces a Contour geospatial view, and builds a Quiver pivot for pattern-of-life analysis. No code required — Pipeline Builder and no-code tools only.

Training dataset: synthetic SIGACT-analog events with date, grid, event type, and unit fields.

TASK LIST

Task 1 — Data Profiling (20 min)

- ☐ Load the raw dataset into a Pipeline Builder branch
- ☐ Identify: null rate per column, duplicate records, date range coverage
- ☐ Produce a written data quality summary (3–5 bullet points) for your evaluator
- **Go:** Summary accurately reflects null rates and duplicates; date range is correct
- **No-Go:** Summary contains factual errors about the dataset

Task 2 — Clean and Enrich (40 min)

- ☐ Deduplicate records on event ID
- ☐ Fill null unit fields with "UNKNOWN"
- ☐ Add a derived column: `week_number` from the date field
- ☐ Output to a clean dataset following naming standards
- **Go:** Output has no duplicates; no null unit fields; `week_number` present and correct
- **No-Go:** Duplicates remain or derived column is wrong

Task 3 — Contour Geospatial View (30 min)

- ☐ Connect the clean dataset to Contour
- ☐ Plot events as points using the grid coordinate field
- ☐ Color-code by event type
- ☐ Add a time filter for the past 30 days
- **Go:** Points render on map; color coding correct; time filter functions
- **No-Go:** Map does not render or color coding is absent

Task 4 — Quiver Pattern-of-Life (30 min)

- ☐ Create a Quiver pivot: rows = `week_number`, columns = event type, values = count
- ☐ Add a heat-map color scale
- ☐ Identify the week with the highest activity (annotate for evaluator)
- **Go:** Pivot is correct; heat map renders; high-activity week identified accurately
- **No-Go:** Pivot counts are incorrect or high-activity week is wrong

Task 5 — AIP Logic Filter (no-code) (20 min)

- ☐ Build a simple AIP Logic rule in the UI (no code): flag any event with a null grid as "INCOMPLETE"
- ☐ Verify flagged records appear in a filtered view
- **Go:** Rule fires correctly on null grid records
- **No-Go:** Rule does not fire or fires on wrong records

EVALUATOR NOTES

Scoring: 5 tasks. Go on 4 of 5 = overall Go. No-Go on Task 2 = automatic No-Go.

Pre-exercise checklist: - Confirm Contour is enabled and grid projection is configured for WGS84 decimal degrees (see ENVIRONMENT_SETUP.md) - Verify synthetic dataset contains at least 5 duplicate event IDs and at least 3 null unit fields - Confirm AIP Logic is available in the training tenant

Common failure modes:

Task	Common Failure	Evaluator Guidance
Task 1	Null rate reported as zero	Participant likely previewed a cached/clean version; confirm they loaded the raw dataset
Task 2	Deduplication removes wrong records	Ask which field they deduplicated on; only event ID is correct
Task 2	Null fill applied to wrong column	Event type or date filled instead of unit — check output schema directly
Task 3	Map renders but no color coding	Default point style used; color-by-field must be explicitly set
Task 3	Contour projection error	Coordinate format mismatch — see ENVIRONMENT_SETUP.md; environment failure, not participant failure
Task 5	AIP Logic rule fires on wrong field	Show rule definition; null grid vs. null unit is a common confusion

Timing notes: - Task 3 (Contour) is the most environment-sensitive — budget 45 min total including setup issues - Task 5 (AIP Logic) often faster than expected (~10 min for participants familiar with rule editors) - Cohorts with G2/S2 backgrounds typically complete Tasks 3–4 faster than average

NEXT STEPS

Upon successful completion of EX-30, participants are cleared to proceed to SL 4 tracks. SL 3 is a **required** prereq for all TM-40A–O tracks.

SL 4 Tracks (select by role):

WFF Functional Tracks (TM-40A–F): - SL 4A — Intelligence (G2/S2 staff, targeting officers, all-source analysts) - SL 4B — Fires (FSOs, FSEs, targeting officers, fires NCOs) - SL 4C — Movement & Maneuver (G3/S3 staff, operations officers, maneuver planners) - SL 4D — Sustainment (G4/S4 staff, logistics officers, supply chain managers) - SL 4E — Protection (FP officers, CBRN officers, provost marshal staff) - SL 4F — Mission Command (battle captains, XOs, CDRs, MC-function staff)

Specialist Tracks (TM-40G–O): - SL 4G — ORSA (FA49, quantitative analysts) - SL 4H — AI Engineer (AI/ML specialists, AIP Logic developers) - SL 4M — ML Engineer (ML engineers, data scientists) - SL 4J — Program Manager (technical PMs, G8/S8, resource managers) - SL 4K — Knowledge Manager (KMOs, 37F, knowledge officers) - SL 4L — Software Engineer (SWEs, OSDK developers) - SL 4N — UI/UX Designer (UI/UX designers, Workshop developers) - SL 4O — Platform Engineer (platform engineers, DevSecOps)

After completing a SL 4 specialist track, participants may continue to the corresponding **SL 5 advanced track** (TM-50G–O). Advanced exercises for SL 5 tracks are available in the EX-50 series directories.