PRACTICAL EXERCISE

EX-40G

USAREUR-AF

EX_40G — ORSA

Practical Exercise — SL 4G Proficiency

HEADQUARTERS
UNITED STATES ARMY EUROPE AND AFRICA
(USAREUR-AF)
Wiesbaden, Germany

26 MARCH 2026

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EX_40G — ORSA

PRACTICAL EXERCISE — SL 4G PROFICIENCY

Version	1.0 — March 2026
Prerequisite	SL 3 REQUIRED; SL 4G (and SL 1 through SL 2)
Duration	3–4 hours
Environment	MSS with Python Transforms enabled; Quiver and Contour access — see ENVIRONMENT_SETUP.md

COMPANION RESOURCES

Resource	Reference
Technical Manual	SL 4G — ORSA
Syllabus	SYLLABUS_TM40G
Pre-Exercise Exam	EXAM_TM40G_PRE
Post-Exercise Exam	EXAM_TM40G_POST
Continuation Track	SL 5G — Advanced ORSA

WFF AWARENESS

This exercise produces analytical products (forecasts, dashboards) that directly support WFF track personnel (TM-40A–F Intelligence, Fires, Movement & Maneuver, Sustainment, Protection, Mission Command) as end-users and consumers. Evaluators should assess whether outputs are formatted for non-ORSA audiences — a key specialist competency.

SCENARIO

The G3 wants a readiness forecast for the next 30 days based on historical maintenance cycle data for a training brigade (synthetic). Produce: a descriptive analysis of current state, a regression-based forecast, and a commander's summary dashboard.

Training dataset: synthetic PMCS/maintenance cycle data, 180 days, 3 battalions, 4 equipment classes.

TASK LIST

Task 1 — Descriptive Analysis (45 min)

- ☐ Compute mean, median, and standard deviation of readiness percentage per battalion per equipment class
- ☐ Identify the equipment class with the highest variance
- ☐ Produce a summary table suitable for a commander's brief (clean labels, no raw code output)
- **Go:** Statistics are correct; high-variance class identified; table is brief-ready
- **No-Go:** Statistical errors or output is not brief-ready

Task 2 — Trend Analysis (30 min)

- ☐ Plot readiness trend over time per battalion (line chart in Quiver or Python/plotly)
- ☐ Annotate any clear inflection points (maintenance surges, drops)
- ☐ Identify whether the trend is improving, stable, or degrading for each battalion
- **Go:** Correct trend direction identified for each battalion; inflection points annotated
- **No-Go:** Trend direction wrong for any battalion

Task 3 — Regression Forecast (60 min)

- ☐ Build a linear regression model (Python Transform) forecasting readiness 30 days out per battalion
- ☐ Report R^2, RMSE, and a plain-language confidence statement
- ☐ Flag any battalion where the model fit is poor ($R^2 < 0.5$) and explain the limitation
- **Go:** Forecast runs; R^2/RMSE reported; poor-fit battalions flagged with explanation
- **No-Go:** Forecast errors or metrics not reported

Task 4 — Commander's Dashboard (45 min)

- ☐ Build a Workshop dashboard with: current readiness summary table, trend chart, and 30-day forecast line
- ☐ Add a data quality note (source, last updated, known limitations)
- ☐ Ensure the dashboard is readable at the O-5/CSM level — no statistical jargon without explanation
- **Go:** All three components present; data quality note visible; jargon-free for senior audience
- **No-Go:** Missing component or dashboard requires statistical background to interpret

EVALUATOR NOTES

Scoring: 4 tasks. Go on 3 of 4 = overall Go. No-Go on Task 3 = automatic No-Go.

Pre-exercise checklist: - Confirm Python Transforms are enabled for training accounts - Confirm training accounts have access to the synthetic PMCS dataset - Confirm evaluator can read participant Python Transform code (Viewer access to the build environment) - Know the expected trend direction for each battalion from the answer key in ENVIRONMENT_SETUP.md

Common failure modes:

Task	Common Failure	Evaluator Guidance
Task 1	Standard deviation reported but not interpreted	Stats present = Go; interpretation absent = coaching note only
Task 2	Trend direction wrong for one battalion	Battalion C has a non-obvious degrading trend obscured by noise; accept "stable" if participant explains the reasoning
Task 3	R^2 reported from training set not test set	Ask: "How did you partition your data?" — if no train/test split, No-Go
Task 3	Poor-fit battalion not flagged	Check whether $R^2 < 0.5$ for Battalion B (it should be) — failure to flag is No-Go
Task 4	Dashboard uses statistical notation without plain-language explanation	Evaluate against "can a CSM understand this without asking" — if not, No-Go

Timing notes: - Task 3 is the time sink — budget 75 min total if participant needs to set up the Python Transform environment for the first time - Task 4 is often underestimated; participants who produce clean visualizations in Tasks 2–3 may still spend 45 min on dashboard layout - If participant uses R instead of Python for Task 3, that is acceptable — verify R is enabled in the Transform environment

NEXT STEPS

Participants who receive an overall Go on EX_40G are eligible to enroll in **SL 5G — Advanced ORSA**. SL 5G extends this exercise's competencies into time-series modeling, multi-source fusion, and senior-leader analytical support. SL 5 is G–O (advanced specialist tracks).