

DRAFT — UNOFFICIAL — NOT FOR OPERATIONAL USE

QUICK REFERENCE CARD

# MSS-QRC



---

## MAVEN SMART SYSTEM — QUICK REFERENCE CARD

---

*Quick Reference Card*

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

DRAFT — NOT FOR OFFICIAL USE. FOR TRAINING PLANNING PURPOSES ONLY.

**26 MARCH 2026**

DRAFT — UNOFFICIAL — NOT FOR OPERATIONAL USE

# MAVEN SMART SYSTEM — QUICK REFERENCE CARD

USAREUR-AF Operational Data Team — Keep This Open While You Work

## WHERE TO GO FOR MORE

Need	Publication
Never used MSS before	<a href="#">SL 1 — Maven User</a>
Building dashboards / basic pipelines	<a href="#">SL 2 — Builder</a>
Advanced transforms, ontology, AIP, OSDK	<a href="#">SL 3 — Advanced Builder</a>
Intelligence (INT) WFF staff	<a href="#">SL 4A — Intelligence</a>
Fires WFF staff	<a href="#">SL 4B — Fires</a>
Movement & Maneuver (M2) WFF staff	<a href="#">SL 4C — Movement &amp; Maneuver</a>
Sustainment WFF staff	<a href="#">SL 4D — Sustainment</a>
Protection WFF staff	<a href="#">SL 4E — Protection</a>
Mission Command (MC) WFF staff	<a href="#">SL 4F — Mission Command</a>
ORSA / quantitative analysis specialist	<a href="#">SL 4G — ORSA</a>
AI engineering / AIP Logic / Agents	<a href="#">SL 4H — AI Engineer</a>
ML model development and deployment	<a href="#">SL 4M — ML Engineer</a>
Technical program / project management	<a href="#">SL 4J — Program Manager</a>
Knowledge management / AAR / lessons learned	<a href="#">SL 4K — Knowledge Manager</a>
Software engineering / OSDK / external apps	<a href="#">SL 4L — Software Engineer</a>
Advanced specialist training (post-SL 4G–O)	<a href="#">SL 5 Series Index</a>
Brief commanders / senior leaders	<a href="#">Data Literacy for Senior Leaders</a>
Comprehensive data concepts reference	<a href="#">Data Literacy Technical Reference</a>
What does this term mean?	<a href="#">Glossary — Data &amp; Foundry</a>

## THE STACK (READ BOTTOM TO TOP)

```

Workshop App / AIP Agent
  ↑
  Ontology (Objects, Links, Actions)
  ↑
  Curated Dataset
  ↑
  Staging Dataset
  ↑
  Raw Dataset (never touch)

```

## TRANSFORM SKELETON

```

from transforms.api import transform_df, Input, Output
import pyspark.sql.functions as F

@transform_df(
    Output("/path/output"),
    source=Input("/path/input"),
)
def compute(source):
    return source.filter(F.col("field").isNotNull())

```

## COMMON PYSPARK

```

# Filter          df.filter(F.col("x") == "Y")
# Add column     df.withColumn("new", F.upper(F.col("old")))
# Rename         df.withColumnRenamed("old", "new")
# Drop dupes     df.dropDuplicates(["id"])
# Join           df1.join(df2, "id", "left")
# Group/count    df.groupBy("unit").agg(F.count("*").alias("n"))
# Cast           df.withColumn("x", F.col("x").cast("integer"))
# Null fill      df.fillna({"col": "DEFAULT"})
# Timestamp now  F.current_timestamp()
# Date parse     F.to_timestamp(F.col("s"), "yyyy-MM-dd HH:mm:ss")

```

## DECORATOR QUICK PICK

Data size	Needs history	Use
Large	No	@transform_df
Large	Yes (append only)	@incremental
Small	No	@lightweight_transform

## ONTOLOGY SETUP ORDER

1. Build curated dataset
2. Create Object Type → set primary key
3. Map properties
4. Create Link Types
5. Add Computed Properties (optional)
6. Test in Object Explorer

## WORKSHOP WIDGET PICK

Need	Widget
Show many objects	Object Table
Show one object	Object Detail
Filter input	Filter Panel / Dropdown
Chart	Bar / Line / Pie Chart
Map	Map Widget
Write data	Button + Action / Action Form
Big number	Metric Tile

## NAMING QUICK RULES

- Datasets: `/Project/AOR/source/raw|staging|curated`
- Object Types: `PascalCase` (`UnitStatus`)
- Code Repos: `kebab-case` (`unit-status-transforms`)
- Functions/Transforms: `snake_case` (`raw_to_staging`)
- Properties: `camelCase` API name, "Title Case" display name

## PERMISSIONS I NEED (ASK TEAM LEAD)

- Editor on project folder
- Editor on ontology branch
- Developer on Code Repos
- Viewer on source datasets

## IF SOMETHING IS BROKEN

1. **Build fails** → read the full error, find "Caused by:"
2. **Empty output** → check your filters, add `.count()` to debug
3. **Schema mismatch** → delete output dataset, rebuild
4. **App not showing objects** → check ontology branch is correct
5. **Object not searchable** → check primary key is set and unique
6. **Action fails** → check validation rules and user permissions

## WHICH TM DO I NEED?

Viewing data and dashboards only?

→ SL 1: MAVEN USER (all staff)

Building dashboards, Workshop apps, or basic pipelines?

→ SL 2: BUILDER (all staff)

WFF functional staff (INT/FIRES/M2/SUST/PROT/MC)?

- SL 4A through SL 4F (WFF tracks, after SL 3 – no coding required)
  - Intelligence → SL 4A
  - Fires → SL 4B
  - Movement/Manvr → SL 4C
  - Sustainment → SL 4D
  - Protection → SL 4E
  - Mission Command → SL 4F

17/25-series, S6, G6, G2, or operational data analyst?

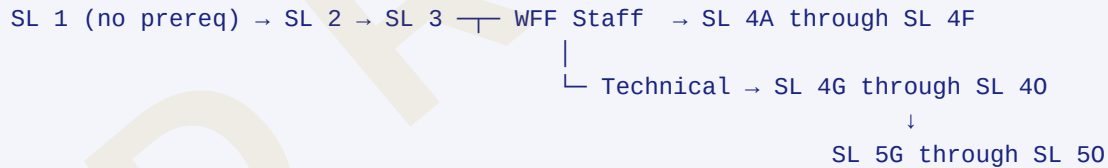
- SL 3: ADVANCED BUILDER (data-adjacent), then SL 4G-0

Technical specialist role? (after SL 3)

- ORSA / quantitative analyst → SL 4G / SL 5G
- AI engineer / AIP Logic → SL 4H / SL 5H
- ML engineer / model development → SL 4M / SL 5M
- Program manager / pipeline PM → SL 4J / SL 5J
- Knowledge manager / IM officer → SL 4K / SL 5K
- Software engineer / OSDK/Python → SL 4L / SL 5L

Completed SL 4G-0? → Take the corresponding SL 5G-0 advanced track.

## PREREQUISITE CHAIN



All staff must complete SL 1 before any other TM.

WFF tracks (SL 4A-F): require SL 1 + SL 2 + SL 3. No coding required.

Technical tracks (SL 4G-0): require SL 3 (or demonstrated equivalent).

Advanced tracks (SL 5G-0): require corresponding SL 4G-0.

## COMMON TASK QUICK REFERENCE

Task / Question	Go To
How do I log into Maven/MSS?	SL 1, Task 1-1
How do I find and filter a dataset?	SL 1, Task 2-1

Task / Question	Go To
How do I create a Workshop dashboard?	SL 2, Task 3-1
How do I build a Pipeline Builder pipeline?	SL 2, Task 3-1
How do I write a Python transform?	SL 3 / SL 4L
How do I create an Object Type in the Ontology?	SL 3 / SL 4L
How do I configure an Intelligence COP layer?	SL 4A
How do I display targeting and fires data on MSS?	SL 4B
How do I track unit positions and maneuver routes?	SL 4C
How do I view LOGSTAT and readiness data on MSS?	SL 4D
How do I configure force protection CCIRs?	SL 4E
How do I configure CCIRs and build a BUA product?	SL 4F
How do I build a statistical model for a commander product?	SL 4G
How do I deploy an AIP Logic workflow?	SL 4H
How do I train and validate an ML model in Foundry?	SL 4M
How do I track a data pipeline project in MSS?	SL 4J
How do I manage forms and lessons learned in MSS?	SL 4K
How do I use the OSDK in an external application?	SL 4L
How do I implement advanced Bayesian methods?	SL 5G
How do I build a multi-step AIP Agent?	SL 5H
How do I perform model validation for operational deployment?	SL 5M
How do I manage a portfolio of data products?	SL 5J
How do I build a federated knowledge taxonomy?	SL 5K
How do I architect a full OSDK application?	SL 5L