



MDMS *UPDATE*

~ METER DATA MANAGEMENT SYSTEM ~



US Army Corps
of Engineers®

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FROM THE PROGRAM MANAGER

Welcome to our December 2024 - January 2025 issue of the *Meter Data Management System Update (MDMS)*, designed to keep you informed on the growth and latest developments of the Meter Data Management System and the Army Metering Program.

Our first article focuses on the formation of a Metasys Working Group to address the challenges of integrating the Metasys system into MDMS. The article discusses the challenges, preferred solutions, key phases of resolution, and observations from previous installations. A follow-up article discussing the outcomes and success of the working group will be published in a subsequent newsletter.

Our second article briefs the collaboration, changes, challenges and ultimate success

of the Metasys Working Group that was established in December 2024.

As always, our mission is to improve the MDMS experience for end users. Your input is valuable, and we welcome your feedback via the Army Meter Service Desk (AMSD) at: cehnc-army-meter-help@usace.army.mil



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METASYS WORKING GROUP

In December we established a Metasys Working Group to address the challenges of integrating the Metasys system into MDMS. Each of the members has played a role in tackling related issues at installations like Ft. Liberty, Ft. Moore, Ft. Riley, and Ft. Bliss, and we were able to leverage their expertise through this group.

The group was formed because despite tremendous individual efforts yielding some positive results, no installation had fully resolved the data transmission and receipt issues between Metasys and MDMS. Across multiple Metasys sites, significant challenges remained, particularly when compared to other systems within the Army.

For example:

- **Repeated Readings Failure Rate:** Metasys meters failed this criterion at 35%, compared to the rest of the Army average at 15%. This persistent issue highlighted a systemic problem despite extensive troubleshooting efforts.
- **Data Fluctuations:** Fluctuations in Metasys meters were higher than in comparable systems, indicating unresolved inconsistencies in data accuracy. This was higher as this issue was masked by several other factors in Metasys as shown below.
- **Data Smoothing:** Instances of data smoothing were also 50% higher for Metasys, potentially masking underlying issues.

Addressing these challenges is critical to ensure Metasys operates effectively and provides reliable data to MDMS.

Overview of Current Challenges

MDMS is designed to work with data that is measured at 15-minute intervals. Although Metasys trends data for MDMS in 15-minute intervals, the data is actually measured at inconsistent intervals. For cases where a new measurement hasn't been received since the previous interval, a repeated/redundant reading is typically recorded. (*Continued on pg. 2*)



MDMS UPDATE**METASYS WORKING GROUP (CONT. FROM PG. 1)**

Our preferred solution would be to:

1. Configure Metasys to measure the totalized interval at a 15-minute interval.
2. Ensure data is trended with accurate timestamps.
3. If a measurement was not available for an interval, then do not trend a value.

Key Phases for Resolution

If the current Metasys transmission cannot be changed, then we have a complex process consisting of four phases of fixes that seem to be monumental at each phase.

Phase 1: Prioritize Transmission

- Fixing the transmission priority is crucial as it prevents data delays and reduces repeated readings.
- Although MDMS now smooths repeated readings, the high volume (35% or more) still renders data unreliable.

Phase 2: Packet Scheduling

- Phase 1 is not adequate as moving the transmission only changes priority over other systems and if the majority of the data are meters, then it doesn't resolve the meter transmission clogging the network.
- Schedule measurements for once every 15-minute interval. We don't need more than one in a 15-minute interval so multiple readings are a waste of network time and may cause secondary issues.
- Include date-time stamps (DTS) to validate data accuracy, even in cases of delays. We will get delays from the network being down and other issues that could delay hours in some cases. When the network does send the data the DTS is critical to place the data in the correct time period otherwise it falls to whenever the data comes in which causes problems with the data.

Phase 3: Buffering Size and Scheduling

- We know that Metasys buffers data before trending. The size and schedule of that buffer is currently considered in the timing and duration of data transfer from the trend database to MDMS.
- However, it is unclear as to whether the buffer size or scheduling impacts these existing issues.

Phase 4: Resolve Data Flux Issues

- This is the last data issue in this series, and it doesn't show fully until the first three phases are resolved. It is also unclear whether full resolution of Phase 2 would solve this issue or not.
- Flux remains a significant challenge, with data varying from 30% to 250% between intervals.
- At Ft. Riley, despite resolving other issues, flux variability persisted.
- This does not impact the total usage as the usage is correct but it isn't in the correct interval therefore it makes detailed analysis impossible.

Observations from Previous Installations

1. **Ft. Liberty:** Significant improvement in repeated readings (reduced from 95% to 29%), but still over double that of average Army installations.
2. **Aberdeen Proving Ground:** Meter fixes have been a focus, yet 47% of meters still fail for repeated readings.
3. **Ft. Gregg-Adams:** Improved to 12% repeated readings. Flux issues persist, though less pronounced and not consistent at every meter. Not related to the Metasys is that the data often lacks decimals, impacting analytics on smaller buildings. (*Continued on pg. 3*)



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METASYS WORKING GROUP (CONT. FROM PG. 2)

4. **Ft. Bliss:** It was 97% repeat readings when we started the evaluation and the JCI guys improved the repeat failures down to 4%. They are now showing flux for all their buildings with about 50% change between the various 15-minute intervals.

Over the last five years, we've made incremental progress, but Metasys data is far behind the quality of other systems data. We must collectively find ways of resolving all four phases for reliable data and detailed analytics.

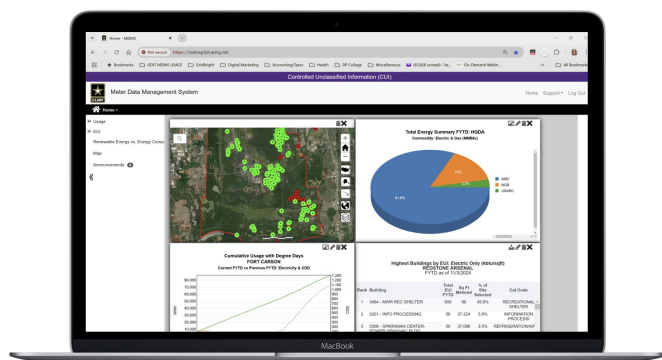
With Metasys systems installed at 12 Army locations, addressing these issues will ensure the systems become a viable solution for use by the Army. We pooled our collective expertise to work towards achieving this goal. Stay tuned for a summary of the collaboration, changes and success of this working group.

MDMS TRAINING UPDATE

The MDMS Outreach Team continues to provide many training opportunities and conducts 8-10 webinars on a bi-monthly basis, including an open Q&A session where participants can come with questions, challenges, or requests to look at specific meters, buildings, benchmarks, data quality, etc. Below are the 17 courses routinely offered.

Basics

1. Basic Orientation/Overview
2. Setting Up Your Dashboard
3. Setting Up Customer Billing
4. Checking Meter Status



Analytics

5. Basic Benchmarking (1st level) including plug load analysis
6. Understanding and Troubleshooting System Overrides
7. Using MDMS for M&V (Active Energy Management)
8. 2nd Level Benchmarking
9. Monitoring Commissioning (MCX) Process
10. Evaluating the Energy Use Intensity (EUI) Report
11. Comparing EUI to Other Metrics
12. Setting Up for Energy Projects
13. 3rd Level Benchmarking
14. Advanced Analytics 1: AEWRS/MDMS
15. Advanced Analytics 2: 4th Level Benchmarking
16. Advanced Analytics 3: Advanced Metrics for Systems
17. Advanced Analytics 4: Scatter Plot Diagnostics

MDMS Training Sessions Offered

The training session recordings, complete with abstracts, can be found on the MDMS Library page under Videos. Users may watch the recorded training sessions by selecting the Play button to the left of the course of interest. The PDF versions of the presented slides can also be found on the MDMS Library page under Presentations/Briefings. Both the recordings and slides are updated frequently.

Reporting for Q1 FY 2025, the MDMS Outreach Team:

- Offered 33 sessions for the training sessions listed above.
- Trained 250 attendees in these training sessions.
- Held 10 special sessions, including one-on-one sessions with sites/installations and the Trail of Champions program.
- Trained/collaborated with 24 attendees in these special sessions. *(Continued on pg. 4)*

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MDMS TRAINING UPDATE (CONT. FROM PG. 3)

- Trained/collaborated with 40 unique installations over the course of all sessions.

The AMSD sends out the invites to all of the monthly training sessions. If you would like to be added to the monthly webinar distribution, schedule a one-on-one session, or join the Trail of Champions program, please reach out to the AMSD.