MDMS *UPDATE*

FROM THE PROGRAM MANAGER

By: Michael Ott, MDMS Project Manager, USACE—Huntsville Center

It is the intent of *MDMS Update* to keep our end users apprised of developments and planned improvements to the Meter Data Management System (MDMS).

The April-May issue reported the excellent input received from Energy Managers participating in the COTS software evaluation. The findings from that evaluation have been received. Army leadership now must review and decide when and how to proceed. Because the information is procurement sensitive and pre-decisional, we cannot share any details with you at this time. I do, however, want to thank those who participated in the COTS evaluation for the excellent job performed and your selfless service.

Our first Deep Dive site visits made progress in improving meter data accuracy and sharing ideas for more effective uses of MDMS. Meter network reliability is improving; capabilities of the MDMS are improving, and through these deep dives our teamwork will also improve. I look forward to the reports from the next round of site visits

Do note the near term improvements planned for the MDMS and other initiatives described on pages 3 and 4. These planned improvements will need your input and suggestions.

This issue's Tech Notes on page 4 is primarily for the NEC folks upon whom we rely to keep the Army meter network operational. Good job by the way, and thank you!

Last but not least, please note our major accomplishment in obtaining ATO under RMF. Definitions of these acronyms can be found in the article on page 2.

As always your input is valuable, and we welcome your feedback at usarmy.coe-huntsville.cehnc.mbx.armymeterhelp@mailmail.mil.

Michael Ott, Project Manager, MDMS
USACE—Huntsville Center

Inside this issue:

REPORTS FROM THE FIRST DEEP DIVE VISITS

The Deep Dives program is underway with visits by the Deep Dives team to the U.S. Army Engineer Research and Development Center (ERDC) at Vicksburg, MS and Fort Campbell, KY. Following are reports from each site.

Vicksburg ERDC
The Vicksburg ERDC is the first U.S. Army Corps of Engineers (USACE) site reporting meter data to the MDMS. Of the 253 meters shown to be connected to the system, the team found that 36 were not reporting data. The team assisted in the association of meters with ERDC facility data from the Real Estate Management Information System (REMIS). This allowed ERDC to take advantage of the entire suite of MDMS capabilities. Note that the rest of the Army uses the HQIIS database for facility data.

Vicksburg Energy Manager Cynthia Ray and others reviewed the recently developed Quick Reference Usage Report (QRUR) that provides near instantaneous reports of monthly energy usage per building by commodity. Thank you, Ms. Ray for suggesting how that report could be improved. See the article, *"The New Quick Reference Usage Report"* on pg. 4.

A cubic feet to gallons conversion error was discovered for a total of 52 meters that grossly inflated reported water usage at ERDC. As a solution, Deep Dive team member Christian Robeson worked with ACE/IT to correct the conversion factor on the MDMS Gateway thereby correcting the problem.

Deep Dive team member Christian Robeson and USACE-Vicksburg Energy Manager Cynthia Ray review energy data.

BUILDING STRONG®

MDMS UPDATE

REPORTS FROM THE FIRST DEEP DIVE VISITS

A lesson learned from the ERDC deep dive is that over-reporting of water usage by meters of the type shown at right (B-4384 cubic feet water meter) may be happening at other Army installations. Energy Managers who suspect they might have an over-reporting problem should report this to MDMS through the Army Meter Service Desk.

Fort Campbell, KY

Fort Campbell is one of the Army's largest installations, home of the famed 101st Airborne Division (Air Assault). Data continuity has occasionally been an issue for the 84 meters that report to MDMS. Continuity can be impacted by daily issues such as construction, storms, voltage surges/lags, and power quality issues. Reports need to be generated: the energy team needs a daily report of what is and isn't being generated, while the installation Directorate of Public Works, (DPW) would like a report of the other meter data points being considered.

Installation AMP personnel have developed ways to identify and correct lost connectivity until final AMP contract training and performance verification testing (PVT) is completed. During its Fort Campbell visit, the Deep Dive team learned how to reset the Java Application Control Engine (JACE) and was also able to reconnect a building that had lost its MDMS connection. They explained the easiest way to restore connectivity is to reset the Building Point-of-Connection (BPOC).

Fort Campbell has several renewable projects installed, underway or planned, and MDMS future plans call for metering of those sources. The team engaged in detailed discussions about possible initiatives such as:

- metering the output of the 1.9 MW solar array
- installing flow meters to measure rainwater-collection
- metering energy output from the base's half-dozen Ground Source Heat Pump (GSHP) installations.

Fort Campbell is working with MDMS to add meter data from privatized utility providers (UP) Clarksville Gas and CH2MHill, which supply natural gas and water to Fort Campbell. Addition of this data would aid MDMS data reliability, said Lee Troope, Fort Campbell Building Energy Monitor (BEM). MDMS would employ Pulsimatic meters to capture the data. MDMS is looking into uploading current end-of-month readings from the UP providers. A current AMP contract will also allow connectivity to the UP gas and water meters to provide more frequent meter data for MDMS.

Fort Campbell Energy Mgr. Karen Kopp-Voshel points out inverter at 1.9 MW solar array.

Deep Dive team member Bob Hennessee suggested that Fort Campbell use the existing "mock billing," functionality for its buildings. Troope favored the idea, saying, "Mock billing would help me to know what my building utilities are costing and by how much my energy conservation measures are benefiting the Army." Hennessee also looked into further improvements to MDMS billing that would make it truly useful for reimbursable billing at the installation level. The successful implementation of MDMS automated meter data information would streamline billing efforts, which could also reduce manpower costs.

MDMS HAS RENEWED ITS AUTHORITY TO OPERATE

On July 1, 2016, MDMS was granted Authority to Operate (ATO) under the newly implemented Risk Management Framework (RMF) for cybersecurity compliance. It is one of the first Army IT systems to be accredited under RMF, a major accomplishment. Beyond protection of the data, the MDMS has been hardened to prevent unauthorized access to the Army's NIPRNET.

The RMF certification for MDMS involved the assessment of 18 Control families, 310 technical/administrative controls and 1,370 Control Correlation Identifiers. Consistent with

the tenets of Information Security: Confidentiality, Integrity, and Availability, the MDMS employs the controls set forth for both system management and managing user access to the MDMS.

As system users, we often take security for granted; but know that it takes hard work, diligence, and effective teamwork among Government and contractor professionals to achieve both the mission of the system and security of the network. The MDMS cybersecurity team is hereby congratulated for this impressive milestone achievement.

BUILDING STRONG®

ENERGY USE INTENSITY

One of the goals for MDMS is to equip Energy Managers with Energy Use Intensity (EUI) benchmarks to enable energy efficiency comparisons across their facility portfolios. For EUI comparisons to be valid, buildings must at least share a common use (function) and climate zone location. The MDMS has all the data needed to show this comparison except for climate zone. This missing data point is now being added using 2009 International Energy Conservation Code (IECC) designations.

We plan to provide two comparison options: a Target EUI (model based profile) and the Army's average EUI for each CAT Code by Climate Zone. Initially, the Target EUI profiles will be limited to those developed by the Pacific Northwest National Laboratories to include the following categories: Unaccompanied Enlisted Personnel Housing, Company Operations Facilities, Tactical Equipment, Maintenance Facilities, Brigade Headquarters, and Dining Facilities constructed after 2008. The Army average EUI will be available for all facilities.

The next logical step will be to enable MDMS users to input data about a facility. The added facility data could be used to filter out buildings that may be distorting the average Army EUI (due to unusually high plug loads or other justifiable reason). For more information, see the following article, *"Tagging Facility Records."*

TAGGING FACILITY RECORDS

One of many excellent suggestions by Energy Managers who participated in the COTS software evaluation efforts was to provide MDMS end users the capability to enter and save data about a metered building and/or a certain meter data report. Text entered into a meter data report must be saved by the software application that created the report. For this reason, the matter of tagging meter reports is being deferred pending the Army's decision on the COTS software.

Conversely, text input about a metered facility can and should be saved in the data warehouse along with its other facility description records. This new function is being developed. Certain rules apply: facility data imported from the Army's Real Property Inventory, such as total SF, CAT Code, etc. cannot be overwritten or changed within the MDMS. However, any other user text input germane to a building's energy performance is fair game.

In addition to providing a place to enter and save information about a metered facility, the tagging mechanism can be used to filter query results. Examples include "unoccupied," "high plug loads," "multiple CAT codes, "bad meter," "tenant facility," etc. Of course, this will require a consensus as to the keywords and phrases to be used for filtering purposes. Details remain to be worked out, but be alert to a near future request for standardized tagging terminology suggestions.

1,600 METERS NEED A HOME

MDMS seeks the assistance of Energy Managers to help solve a persistent problem: meters that report data to MDMS but have not been associated with a particular facility. Presently, almost 1,600 meters are assigned to only the installation. This number excludes over 3,300 unassociated UP meters at Forts Wainwright and Richardson.

You may have noticed that the Meter Status dashboard now tracks the total square feet metered at each installation, MACOM, and Army-wide -- over 246 million square feet at this writing. That figure would be even more impressive if we could find a home (building) for all of those unassociated meters. More importantly, an unassociated electric meter may be installed on a building that has an associated electric meter. The result is under reporting of electricity usage by that building. There are other scenarios, but suffice it to say that unassociated meters are not helpful at best, and at worst, harmful from a data reliability/quality perspective.

Where am I?

The AMP Team would very much appreciate input from the Energy Manager community to correct this problem. As the AMP team begins phase 2 metering, the USACE Program Managers will work with the Energy Managers to help reduce the number of unassociated meters. We understand that a problem created over several years cannot be fixed quickly but it can be fixed with an effective team effort.

BUILDING STRONG®

TECH NOTES

Windows 2012 R2 Updates

Testing of EEDRS Windows Server 2012 R2 versions will commence at the ISEC Army Metering Program lab at Fort Huachuca, AZ, over the next month or two. While the EEDRS Plan of Action & Milestones (POA&M) only goes out to December 2016, it is expected to be extended. ACSIM, NETCOM (Network Support technical advisor), Theater POCs, and the Brigades are being kept informed of developments.

Guidance from the Army Cyber Action Officer, Mr. Phillip Barry, indicates that MDMS does not have to be upgraded at this time to Windows Server 2012 R2. Based on this guidance, the suspense date for the MDMS gateway server upgrades is June 30, 2019. However, the team is currently working on an implementation plan for the upgrade with no POA&M required for the delayed upgrade.

If you, or your supporting NEC personnel, have questions, please do not hesitate to ask. It is also asked that you advise the NEC not to execute changes that impact meter reporting to MDMS without direction from the Brigade/ Theater so that NETCOM and the AMP office may stay informed of potential impacts.

THE NEW QUICK REFERENCE USAGE REPORT

The initial release of the Quick Reference Usage Report (QRUR) received positive feedback from Energy Managers. Several asked, "Can you make the report show partial monthly usage and indicate the percent of the month for which that usage pertains?" We are pleased to report that we can and have.

To ensure accurate reporting, the original QRUR would show the usage of all the common commodity meters for the facility only if it had reported data to the MDMS at midnight on the first of the month and at midnight on the first of the next month. A lot of buildings failed that data reliability test.

In the updated version of the QRUR, buildings shown to be "Offline" are only those that were offline for the entire month, or experienced a meter roll-over (we are still working on the correction to that infrequent event). All other buildings show the reported usage and the percent of the month that the reported usage represents. Note the first row example below where the reported usage is 9% of the month.

Now Energy Managers can decide whether the percent of usage captured by the MDMS is sufficient to extrapolate up to 100% (divide the usage by the percentage). This is certainly valid for the 86% example shown below, but probably not for the 9% one.

We also added the facility SF (square footage) column as requested. Please continue to provide us feedback on this and other improvements as we roll them out.

Quick Reference Usage Report

View report options

Export to Excel

Building Number	Building Name	SqFt	Month/Year	Commodity	Usage	Units	% Month Reported
SITE: FORT CARSON							
1049	ADM & SUPPLY BLDG	12115	MAR 2016	Electricity	113.38	kWh	9
1049	ADM & SUPPLY BLDG	12115	FEB 2016	Electricity	1374.41	kWh	100
1049	ADM & SUPPLY BLDG	12115	JAN 2016	Electricity	1287.82	kWh	100
1049	ADM & SUPPLY BLDG	12115	DEC 2015	Electricity	1383.43	kWh	100
1049	ADM & SUPPLY BLDG	12115	NOV 2015	Electricity	1444.98	kWh	100
1049	ADM & SUPPLY BLDG	12115	OCT 2015	Electricity	1478.55	kWh	100
1282	VEHICLE MAINTENANCE SHOP	18000	MAR 2016	Electricity	Offline	kWh	0
1282	VEHICLE MAINTENANCE SHOP	18000	FEB 2016	Electricity	1628.29	kWh	86
1282	VEHICLE MAINTENANCE SHOP	18000	JAN 2016	Electricity	2281.75	kWh	100

BUILDING STRONG®