June 26, 2018

**Composite Transaction Enhancements**

**Monitoring Changes In Progress – MKS Request 1274254 (Proposed August Release)**

**8/15/18 - CAD is good with all of this. Trying for September.**

CSSAMI\_RN\_AmiRcdCompTransRpt\_Hourly\_prod

CSSAMI\_RN\_AmiRcdCompTransRpt\_Daily\_prod

* Implement alternative driving cursor logic to handle multiple rows on CSS\_ESB\_RESPONSE table
* Add flag to output identifying transactions that have multiple response rows
* Add comment to text displayed in body of email when multiple response rows are encountered
* Add layer to output data
* Provide failure rates on each run at electric, gas, and total levels.
* Add enhanced analysis to hourly/daily runs? See Enhanced Analysis – Example below.

*Notes- VG: This will be going in Nov/2018 release*

**Hourly** – Break things out by %...will give failure % rate for each hour during the day for gas, elec and combined.

**Daily** – Enhanced information breakdowns.

New RH Job for Error Condition Notification

* Run every 15 minutes (24x7)
* Purpose of job is notify of error conditions that impede RCD processing
* Fail job when any of the following are encountered in the prior 15 minutes:
  + Timeout (CSS)
  + Exception without any remaining retries
  + Complete or Fail Transactions with multiple response rows
  + Cumulative electric fail percentage above 5% with a minimum of 50 transactions
  + Cumulative gas fail percentage above 35% with a minimum of 50 transactions
* **Put an autosys job in place to call out if there are issues. This will go in the August push.**

*Notes- VG: This will be going in Nov/2018 release*

CUBSO066.pco

* Modify to update TS\_ESB\_STAT when CD\_ESB\_STAT is changed to T – Timeout(CSS) or Exception processing is triggered.
* **Row where we track status needs a time stamp. This is for August push.**

*Notes- VG: This will be going in Nov/2018 release*

**Enhance on request process to mass maintain Failed orders back to MDMS to be configurable to process all or all but Cut In orders. Want more flexibility for what to be able to pull back and put back into buckets to run.**

* Modify cs\_ami\_rcd\_mass\_maint.ksh
* Modify cs\_ami\_rcd\_mass\_maint.sql
* New ksh shell for job
* New on request AutoSys job (2) -- Should this be scheduled

*Notes- VG: This will be going in Nov/2018 release*

**Possible Other Changes**

**None of the below items exist today**

* Route all Exception and Timeout(CSS) errors to OAS. After issues has been resolved mass maintain orders back to MDMS.
  + **Don't send anything back to CSS that was not successful.**
  + **If can't get a read out of somewhere, either goes to CAD or Field to work.**
* Modify CUBSO066
* New plsql script to identify orders
* New ksh shell for job
* New on request AutoSys job
* Today we have 2 places to send (2nd step or field)
* Timeout should not be happening unless issues with system
* Switch should work and read should work, but if not, go to OAS
* Can we prorate read back to time requested?
* PROS
  + If we can prorate read back to time requested, it would save CAD time. (Concerned will have to wait minutes after hitting pushbutton for info to be returned)
* CONS
  + Will impact Field or CAD
  + May have a wasted truck roll
  + May have Customer Satisfaction impact?
* Work Group Impacts
  + Truck roll cost –vs- CAD work

*Notes- VG: This will be going in Mar/2019 release – would need some analysis with the business*

* Implement CSS Side retry strategy for select errors based on L+G confirmation. (5.2, 5.3, ?) **IT to get with L+G on this one and then take back to business.**
  + **Something happened in system and we were not able to send it. These failed for technical reasons.**
  + **We could implement a retry strategy based on decisions.**
  + Need confirmation from L+G on which error codes this makes since. Which ones would not repeat on a retry. Confirm with L+G it will work.
  + Build strategy to run back through instead of dumping to OAS or CAD.
  + Discuss impacts with IOC. They will need to understand which items to look at.
  + PROS
  + CONS
  + Workgroup Impacts

*Notes- VG: This will be going in Mar/2019 release – would need some analysis with CAD*

* Implement Order Banking processing for Read Only order failures.
* 8/15/18 **CAD interested in this one!**
  + **Following day run process that would find those, bank them and process them. Issue is if there are other orders, will they flow out door the way we want.**
  + Would only be done for Read Only orders
  + What happens to orders downstream from the banked order?
  + Would prevent other scheduled orders for meter processed
  + PROS
    - Interested in testing this one because it would save CAD work
  + CONS
  + Workgroup Impacts

*Notes- VG: Unclear until we complete analysis with CAD. We will start doing analysis in Nov/2018.*

**8/15/18 CAD Comments:**

**While this may be an enhancement, it needs to be looked at from a business continuity perspective. Think Verizon as well as staffing.**

* Implement order banking processing for read only order failures  (Physical turn on and turn off orders continue to issue orders to the field)
* Implement order banking process on all electric dial billed meters and gas meters on rates GDS1, GDS2 and GDS-3
* Program CSS to use the on demand engine and calculate the reading at the time of the customer request
* Bank order for four days to allow for reads to come in, eliminating unnecessary WFM's to CAD
* Physical turn on and turn off orders continue to issue to field using the same logic as legacy meters
* Do we want to do this with all of these orders? Or, use composite transaction?
* Want automated, no pushing buttons. ☺

**Items for Testing.**

* Following day run process that would find those, bank them and process them.  Issue is if there are other orders, will they flow out door the way we want?
* Would only be done for Read Only orders? Yes.
* What happens to orders downstream from the banked order? Have this all the time where custs call in with banked discon order tried to process, can't and now customer calls to connect. How does this work? Will bank stay until we get a read? Group them? Connect needs to go out on its day to get a read.
* Would prevent other scheduled orders for meter processed?
* How does this work for AMR? Wouldn't it work the same way? Can't have stacked orders in AMR. Would group and try to complete same day.
* Test landlord leave-on. Don't want landlord to have service for 4 hours. What happens today?
* Check on this….If order already pending and AMR, we didn't go ahead & switch, we left them banked. If changed to AMI prior to us asking customer for con/discon time, we left banked.

Timm

* One fails & is disconnect for 8AM & we go banked, will that hold a connect at 2PM from going out the door for the afternoon? Answer = That would be a physical turn off.
* Calculate read – Is it begin time, end time, time of disconnect? Calculate back to 8AM? CAD said 8 would be less impact to customer.
* Failure, after 4 days, these come back to CAD.
* Barb said Mike has this process for TOU meters midnight read & may be able to tag onto that.
* 2 calls to MDMS…1 for register and 1 for interval reads.
* Have to allow for both hourly and 15 minute.
* Simple non-interval meters for elec/gas.
* Think about training impacts. Involve Vickie Niles.
* Need to determine consequences via scope and testing.
* **Secondary Item:** Switch works, but read fails would fail to CAD to get a read. Maybe put in a push button to calculate the read for these. Pull midnight read or calc back to time of order check box.
* Analyze MDMS Timeout (4.1) errors to determine if adjustments to MDMS Timeout & Retries can improve completion rate. **IT already checking on this one.**
  + **Which attempt was this? 1st, 2nd, 3rd?**
  + Need ability to determine for failed orders if CC requests are completing and in what timeframe**. RITM 0190067 for Brent to allow us to query CC database to aid with this analysis.**
  + **Above analysis by Brent will tell us if more retries is feasible or if more time will even help.**

*Notes- VG: Need to open an L+G ticket and continue analysis in Nov/2018.*

* Implement keep alive monitoring of RCD flow with alarm processing when not completed in normal processing time.
  + **Read request every 30 min to lab meter to get read, not associated to any order in CSS or field order. We just want read request to go out and come back. Do we want it more often than 30 min? If fails, alert someone that things are not running end to end.**
  + Insert Read Only order on a production lab meter on a scheduled basis and look for previous failed orders and alert.
  + How do we prevent false alarms/alerts?
  + How do we identify earlier…7AM instead of 8AM?
  + PROS
  + CONS

*Notes- VG: Analysis to be done between ESB, MDMS and CC in Nov/2018*

* Develop process to look for Composite Transaction failures due to lack of readings where the order has not been completed in CSS after the midnight read has been validated, and automate the processing of the 2nd Step WFM in CSS/DNAC WFM.
  + **Can I send enough things in to complete the order to work/auto complete the WFM?**
  + This would involve writing a new batch driver module to identify and order completion processing correctly. Processing would include:
    - Obtaining the validated midnight read leveraging the existing CSS/MDMS database read process used in CSS today.
    - Building a batch process to complete the WFM. Processing limited to happy path processing. We will not be overriding pre-bill errors.
  + Concerned that doing this would still result in additional errors due to completion date not matching requested date. Will have to determine if this can be addressed by altering the completion data.
  + Process would continue to attempt to process orders until completed or they have been addressed manually.
  + Ultimately any order that fails automated completion processing will still need to be addressed by CAD. An appropriate timeframe for CAD to address these open WFMS will need to be addressed, and work load identified via existing online tools.
  + Have to write proration read logic as CAD wants. No midnight read, but have read following day.
  + What else do you have to do to complete WFM's?
  + PROS
  + CONS
    - May impact Customer Satisfaction?
    - Prebill errors – Don't want them to use auto override…CAD should review them.

*Notes- VG: If we can get the banking process to work, then we don't have to work on this item because there wouldn't be as much volume of the second step WFMs as we currently have – analysis to be done starting Nov/2018.*

* CAD - What problems are you seeing that is causing you to have to go back multiple times to find a reading?
  + When is it not in MDMS?

*Notes- VG: Open question to CAD.*

* If IOC collector issues, do we roll trucks for the day instead of sending to CAD?
  + Stop sending orders by collector/OC.
  + Today it's all or nothing for shutting down.
  + Can do so at OC easier than at collector.

*Notes- VG: Analysis to start Nov/2018*

**Enhanced Analysis - Example**

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\*\*\*\*\*\*\*\*\*\*\*\*\*\* Cumulative Percentages for the Previous Hour of 21 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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Gas

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Total Count : 50

Fail Count : 8

Fail Percentage : 16%

Electric

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Total Count : 378

Fail Count : 23

Fail Percentage : 6.08%

All

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Total Count : 428

Fail Count : 31

Fail Percentage : 7.24%

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\*\*\*\*\*\*\*\*\*\*\*\*\*\* Cumulative Percentages for the Day \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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Gas

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Total Count : 110152

Fail Count : 16740

Fail Percentage : 15.2%

Electric

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Total Count : 420213

Fail Count : 17339

Fail Percentage : 4.13%

All

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Total Count : 530381

Fail Count : 34081

Fail Percentage : 6.43%

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\*\*\*\*\*\*\*\*\*\*\*\*\*\* Additional Analysis for the Day \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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READ ONLY COMPOSITE TRANSACTIONS ++

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Gas

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Exception Count : 25

Fail Count : 7999

- Invalid Meter (2.4) : 392

- Request Timed Out (4.1) : 6513

- Unable to process request - attempted and failed (5.3) : 224

- Some or all of the requested Reading Types are unavailable in MDMS (5.6) : 1

- Cancelled Per Business Rule (6.1) : 776

- The command cannot be issued to the endpoint when endpoint is in Lost status. : 25

- The endpoint(s) collector is experiencing a communication issue and cannot send commands at this time. : 391

- The command cannot be issued to the endpoint when the parent endpoint is in Inventory status. : 16

- The command will not be issued because the associated collector is not in a Normal state. : 42

- The command cannot be issued to the endpoint when endpoint is in Discovered status. : 118

- The command cannot be issued to the endpoint (6TC57309I) when endpoint is in Installed status. : 66

- The command cannot be issued to the endpoint when endpoint is in Failed status. : 37

- The command cannot be issued to the endpoint when the parent endpoint is in None status. : 33

- On demand read to the device needs readingTypes defined : 42

- The data definitions that were in the request are not programmed in the meter : 6

- Undefined : 93

Timeout (CSS) Count : 8716

Electric

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Exception Count : 48

Fail Count : 6279

- Invalid Meter (2.4) : 193

- Request Timed Out (4.1) : 4746

- Unable to process request - attempted and failed (5.2) : 1

- Unable to process request - attempted and failed (5.3) : 331

- Some or all of the requested Reading Types are unavailable in MDMS (5.6) : 115

- Cancelled Per Business Rule (6.1) : 887

- The endpoint(s) collector is experiencing a communication issue and cannot send commands at this time. : 634

- The command will not be issued because the associated collector is not in a Normal state. : 23

- The command cannot be issued to the endpoint when endpoint is in Discovered status. : 54

- The command cannot be issued to the endpoint (6TC57309I) when endpoint is in Installed status. : 22

- The command cannot be issued to the endpoint when endpoint is in Failed status. : 90

- Failure Parsing Message CorrelatedPassThrough; Table S23; : 3

- On demand read to the device needs readingTypes defined : 60

- The data definitions that were in the request are not programmed in the meter : 1

- Undefined : 6

Timeout (CSS) Count : 814

SWITCH COMPOSITE TRANSACTIONS (Electric)

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Switch Failures \*\*

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Fail Count : 7028

- Invalid Meter (2.4) : 254

- Request Timed Out (4.1) : 4820

- Unable to process request - attempted and failed (5.2) : 1

- Unable to process request - attempted and failed (5.3) : 417

- Unable to process request - attempted and failed (5.7) : 80

- Cancelled Per Business Rule (6.1) : 1456

- The command cannot be issued to the endpoint when endpoint is in Lost status. : 770

- The endpoint(s) collector is experiencing a communication issue and cannot send commands at this time. : 468

- The command cannot be issued to the endpoint when the parent endpoint is in Inventory status. : 2

- The command will not be issued because the associated collector is not in a Normal state. : 37

- The command cannot be issued to the endpoint when endpoint is in Discovered status. : 27

- The command cannot be issued to the endpoint (6TC57309I) when endpoint is in Installed status. : 11

- The command cannot be issued to the endpoint when endpoint is in Failed status. : 110

- ... with an endpoint model of ... is not supported for this command : 12

- Remote Connect Commands are not available during this blackout period : 1

- Undefined : 18

Timeout (CSS) Count : 10

Read Failures ++

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Fail Count : 2101

- Request Timed Out (4.1) : 1882

- Unable to process request - attempted and failed (5.3) : 210

- Cancelled Per Business Rule (6.1) : 9

- The endpoint(s) collector is experiencing a communication issue and cannot send commands at this time. : 7

- The command will not be issued because the associated collector is not in a Normal state. : 1

- Failure Parsing Message CorrelatedPassThrough; Table S23; : 1

Timeout (CSS) Count : 126

++ Orders will be sent to CAD via 2nd Step Completion due to missing Reads

\*\* Orders are redirected to OAS for processing

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\*\*\*\*\*\*\*\*\*\*\*\*\*\* Analysis of Switch Failures sent to OAS \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

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The following details the status of the service orders related to the field orders that failed a switch operation and were sent to OAS for resolution.

Open : 11

RTC : 2

Void : 2

Complete : 7 (Completed from OAS: 5)

TOTAL : 22