

Motorola Solutions Technical Notification (MTN)

TITLE: PDG application may periodically stop working and is unable to recover

TECHNOLOGY: ASTRO 25

SYMPTOMS:

PDG application periodically may stop working and is unable to recover on its own. Manual intervention is required to restore Data Service. The time between failures varies depending on data traffic load of the system. Cases reported by customers included intervals from ~20 to 300 days. When the failure appears, the UEM may display an alarm labeled "Internal Software Error. If the problem persists, contact Motorola Solutions Support Center. - Actual Alarm Number: ...".

In non-DSR systems the packet data service is inaccessible for the end users until manual intervention (reset) is performed.

In DSR systems, the broken PDR instance may not be able to send a switchover trigger to its peer PDR causing switchover failure. This will be experienced as the packet data service loss and will persist until manual intervention of the system's operator is performed

MODELS / SYSTEM RELEASES / KITS / DATECODES AFFECTED:

A7.17.3: IVDPDG-ASTRO-07.17.01.87-01 and lower

A7.18: IVDPDG-Astro-07.18.00.07-09 and lower

A2019.2: IVDPDG-Astro-19.14.00.00-18 and lower

A2020.1, A2021.1: IVDPDG-Astro-20.14.00.00-26 and lower

SEVERITY RECOMMENDATION:

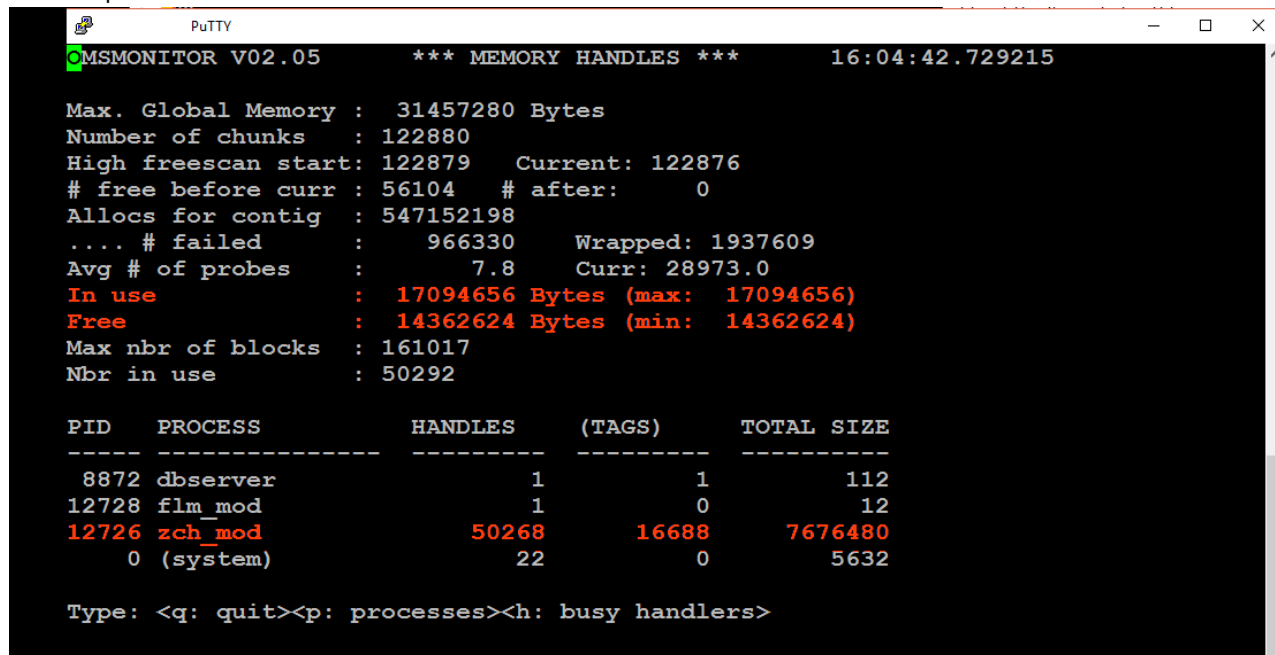
Medium / Operational - Schedule to implement

ANY USE NOT APPROVED BY MOTOROLA SOLUTIONS IS PROHIBITED. This Motorola Technical Notification (MTN) is issued pursuant to Motorola's ongoing review of the quality, effectiveness, and performance of its products. The information provided in this bulletin is intended for use by trained, professional technicians only, who have the expertise to perform the service described in the MTN. Motorola disclaims any and all liability for product quality or performance if the recommendations in this MTN are not implemented, or not implemented in compliance with the instructions provided here. Implementation of these recommendations may be necessary for the product to remain compliant with applicable laws or regulations. Please be advised, that failure to implement these recommendations in the manner instructed may also invalidate applicable warranties, or otherwise impact any potential contractual rights or obligations. MOTOROLA, MOTO, MOTOROLA SOLUTIONS, and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license. All other trademarks are the property of their respective owners. ©2016 Motorola Solutions, Inc. All rights reserved."

ROOT CAUSE / DEFINITIVE TEST:

The root cause is a leak in the area of application's shared memory. When there is no more memory to process new requests, the application hangs. To confirm that system is impacted by this defect, execute - as root - the following commands:

1. `cd /opt/Motorola/pdr/bin`
2. `./omsmonitor`
3. press "m" to switch to modules overview



```
OMSMONITOR V02.05      *** MEMORY HANDLES ***      16:04:42.729215

Max. Global Memory : 31457280 Bytes
Number of chunks   : 122880
High freescan start: 122879      Current: 122876
# free before curr : 56104      # after: 0
Allocs for contig  : 547152198
... # failed       : 966330      Wrapped: 1937609
Avg # of probes    : 7.8         Curr: 28973.0
In use             : 17094656 Bytes (max: 17094656)
Free               : 14362624 Bytes (min: 14362624)
Max nbr of blocks  : 161017
Nbr in use         : 50292

PID  PROCESS      HANDLES  (TAGS)  TOTAL SIZE
----  -
8872  dbserver        1         1        112
12728 flm_mod         1         0         12
12726 zch_mod      50268      16688    7676480
0 (system) 22         0         5632

Type: <q: quit><p: processes><h: busy handlers>
```

The picture above shows sample output generated by the tool when the defect is present in the PDG application. In red, there are highlighted measurements crucial for verification of its presence.

In the impacted systems the number of handles displayed for `zch_mod` module will be growing between checks. Recommended interval between subsequent checks is around a day or two.

In general, the PDG should be considered unstable when the *In use* to *Free* memory ratio is 50% or higher and the reported number of handles for `zch_mod` is 4-digit (or higher)

WORKAROUNDS AND CORRECTIVE ACTIONS:

Reinstall or upgrade IVD PDG application from the officially released media.

To prevent uncontrolled crash:

Periodically force a switchover of active and standby PDG (in DSR systems). In non-DSR systems, reset PDG

After the crash:

In non-DSR systems: Reset PDG that failed. Please refer to "Note" regarding how to safely reboot PDG

In DSR systems: Reset PDG that reported the alarm. Please refer to "Note" regarding how to safely reboot PDG. Check if standby took over as a result of reset of active device

NOTE:

In order to avoid database corruption, please follow the steps below to perform PDG reset

1. using VmWare console, login to the box as root
2. `admin_menu`
3. choose numbers associated with following options: *Application Administration -> Manage Application Status -> Disable Application* (the option shuts down PDG application)
4. when completed, go back to the main screen and choose numbers associated with following options: *OS Administration -> Reboot*

RESOLUTIONS AND REPAIR PROCEDURES:

Reinstall or upgrade IVD PDG application from the officially released media

Upgrade to the appropriate version as listed in the "**PARTS REQUIRED (HARDWARE/SOFTWARE):**" section below, based on the model.

To obtain software:

- 1) Initiate a software request case through Motorola Solution, Inc. System Support Center (SSC) at 1-800-221-7144 (1-302-444-9800)
- 2) Await confirmation email from Motorola Solutions Software Factory with instructions
- 3) Complete the Motorola Solutions Software Factory Software Order Form:
 - a) Reference **MTN-0038-21-NA** in the 'Reason for Software/Hardware Change' section of the software order form.
 - b) List the part number (**KC #** as listed under "**PARTS REQUIRED (HARDWARE/SOFTWARE):**" below) in the 'Part # or Version #' section of the software order form.
- 4) Email completed Software Order Form to MSSF for processing

PARTS REQUIRED (HARDWARE/SOFTWARE):

Release 7.17.x: IVDPDG-Astro-07.17.01.87-12 - KC222V001000170200

Release 7.18: IVDPDG-Astro-07.18.00.07-10 - KC222V001000180300

Release 2019.2: IVDPDG-Astro-19.14.00.00-21 - KC222V001000190400

Release 2020.1/2021.1: IVDPDG-Astro-20.14.00.00-31 - KC222V001000200400

ADDITIONAL INFORMATION:

N/A

REFERENCE THE FOLLOWING DOCUMENTS/PROCESSES FOR INSTALLATION PROCEDURES:

To manually reinstall PDG, please refer to Packet Data Gateways Feature Guide, chapter "Recovering the Packet Data Gateway".

Note: The document does not cover installation with ESU launchpad

To manually upgrade PDG, please refer to Packet Data Gateways Feature Guide, chapter "Upgrading Linux-Based Virtual Machines".

Note: The document does not cover ESU automated upgrade

WHEN TO APPLY RESOLUTION:

After reboot ___
After (re)installation ___
After upgrade ___
After power cycle ___
After database restoration ___
After failure ___
On FRU replacement ___
During maintenance ___
Immediately ___
As instructed _X_
Information only ___

LABOR ALLOWANCE:

This is an informational bulletin. No labor warranty is implied, intended or authorized for U.S. Domestic Partners/Customers. Other regions should follow their own standard procedures.

For assistance with this bulletin please contact your MSI Technical support center

https://www.motorolasolutions.com/en_us/support.html



Motorola Solutions Software Factory

Software Order Form

Phone Number: (800) 221-7144

SECTION 1: General Information

NOTE: PRICE QUOTES GIVEN BY UOST ARE VALID FOR ONLY 90 DAYS

Date _____
System ID _____
System Name _____
Customer
Name _____

Case Number _____
Site ID _____
Site Name _____

Form
Completed by _____
Organization _____
Phone
Number _____
Pager
Number _____
Fax Number _____

Field Contact
Organization _____
Phone Number _____
Pager Number _____
Fax Number _____

SECTION 2: Order Information

Product Type: _____

Serial Number _____

Reason for Software / Hardware Change:
Downgrade? If so, list current and target releases.

Software / Hardware Description:

Part # or Version #

Quantity

Date Required

SECTION 3: Shipping / Billing Information

Ship To:

Email:

Attn:

Phone:

Customer Billing

P.O. #:

CUST #:

TAG #:

Bill To:

Attn:

Phone:

Internal Billing

PROJECT #:

FSB #:

DEPT #:

APC #:

Software Order Form

Motorola Solutions Software Factory

Phone Number: (800) 221-7144

- ° This form has been sent to you because you have requested an order from the *Motorola Solutions Software Factory Team*.
- ° Please fill out the order form and email back to the *Motorola Solutions Software Factory Team*
- ° If desired, please provide your email address on the order form and we will provide a tracking number when your order ships for your convenience.
- ° Orders will normally be processed in 3-5 business days once all information has been received.
- ° If additional space is required for software information, please use the optional addendum on page 3 below in addition to the original order form. This form is for use with large orders with multiple part numbers.

NOTE:

- 1) If this is SSA CUSTOMER please order via Motorola factory order.
- 2) Limited Liability is Implied to the maximum of order amount.
- 3) Price quotes provided by SCHSWF are valid for 90 days

Thank you and have a good day!

Supplemental Order Information Addendum

(Optional)

Software Description

Part# or Version #

Quantity:

Software Description

Part# or Version #

Quantity:

Software Description

Part# or Version #

Quantity:

Software Description

Part# or Version #

Quantity:

Software Description

Part# or Version #

Quantity:
