

CA MICS® Resource Management Release 14.2 – Sprint Review 1

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Agenda

1 ENHANCEMENTS IN RELEASE 14.2 (DELIVERED / IN PROGRESS / UNDER CONSIDERATION)

2 SHOWCASE ENHANCEMENTS – HIGHLIGHTS AND BUSINESS VALUE INFO

3 OTHER PTF'S PUBLISHED SO FAR THIS RELEASE

4 UPDATES AND Q&A

Enhancements in Release 14.2

(Delivered / In Progress / Under Consideration)

Progress towards Release 14.2

IDM6617 - ADD DATA ELEMENT JESJOBNO - JES JOB NUMBER
(Published as **SO01158**)

Showcase

IMS6706 - Toleration Support for BMC Mainview for IMS v5.3
(Published as **SO01618**)

RMF7098 - Exploitation Support for the New z14 (HIS) Hardware Instrumentation Counters
(Published as **SO04091**)

Showcase

RMF7101 - Improved SMF Type 113 Record Processing, Diagnostics, and Maintenance
(Published as **SO04598**)

Showcase

VMC6755 – z/VM 7.1 Toleration Support
(Published as **SO05685**)

SMF7010 - Add metrics for Job Steps executed and Support for IBM APAR OA53355 for Address Spaces that make use of USER Common Key Storage
(Published as **SO06318**)

Showcase

TAP7147 – TS7700 release 4.1.2 & 4.2 Support, and New Compression Metrics
(Published as **SO06854**)

Showcase

MQS6686 - Support for MQ v9.1
(Published as **SO06941**)

RMF7097 and RMF7108 - Support for new or enhanced entities introduced with z/OS 2.3
(Published as **SO06614** and **SO06894**)

Showcase

VMC6751 - Support for 3390-A EAV DASD Volumes and Maintenance
(Published as **SO06057**)

DB26909 – New MICF SAS ODS Graphics Inquiries
(Published as **SO07222**)

DELIVERED

IN PROGRESS

UNDER CONSIDERATION

Progress towards Release 14.2

Support for new SAS maintenance release TS1M5
– 11 PTF's or Components need supporting
(Verified/Publishing tomorrow and next Week)

RMF7115 - Support for new or enhanced entities introduced with z/OS 2.3
(In DEV)

RMF7095 - SCM CF Enhancements and z/OS 2.3 related to SCM CF
(DEV Started/On Hold)

RMF7080 - New SAS ODS Inquiries for the RMF z13 & z14 CPCs & Correct display issues for existing RMF ODS Inquiries on the Web UI
(In QA)

MQS6688 - Enhanced Support for MQ v8.0 & v9.0
Add data elements for the following:
- Channel Initiator Statistics and Accounting
- Page Set Statistics (In DEV)

SNT6740 & ACT7307 - IBM Sterling Connect: Direct Support (formerly (NDM) Network Data Mover)
(Customer Verification)

Showcase

VCC6740, VCA6760 - z/OS 2.3 Support for VCC & VCA (Pervasive Encryption) fields + some minor additions & maintenance
(DEV Finalizing)

IMS6695 - Enhanced Support for IMS 14.1 ODBM Accounting Records
(In DEV)

CIC6840 - Support for CTS 5.5 and TMON 4.2 & maintenance
(In QA)

Showcase

IDM6618 - Add CICS UOWID and NETNAME for transaction activity that originated in CICS and called IDMS
(Customer Verification)

Showcase

WEB6260 - Support for Websphere Liberty SMF 120:
subtype 11 – z/OS req logging info on HTTP requests
subtype 12 – z/OS Java Batch Job SMF Logging Activity

DELIVERED

IN PROGRESS

UNDER CONSIDERATION

Showcase Enhancements

- Highlights and Business Value Info

Showcase 1 – RMF Component z14 Hardware Instrumentation Services: RMF7098 and RMF7101

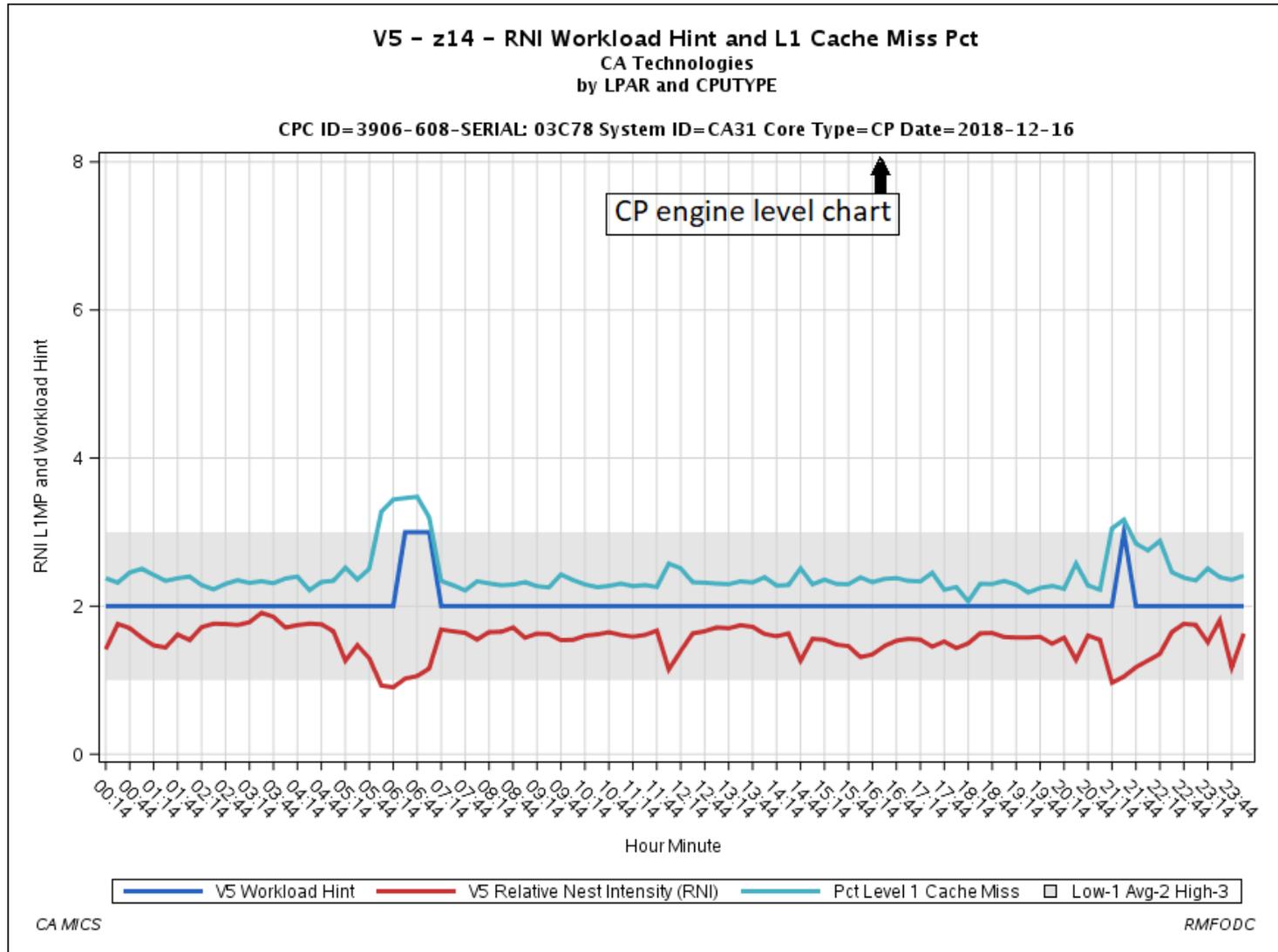
z14 Hardware Instrumentation SMF type 113 Record Support

- Each new IBM mainframe improves the caching architecture.
- The SMF type 113 records contain counter metrics that provide insight into:
 - Instruction execution (Supervisor / Problem State)
 - Cryptographic co-processor performance
 - Use and efficiency of the cache hierarchy (unique counters for each CPC)
 - “Penalty” cycles—machine cycles spent looking for data/instructions
 - Multithreading “density”
- MICS provides this information at three summarization levels:
 - HARCME file: Processor level: Two recs/interval for multithreaded zIIP core)
 - HARCMT file: Core type level: One record per core type (zIIP, CP) per interval
 - HARCML file: LPAR level: One record per interval per interval

The data in the HARCmX files is extremely useful for capacity/upgrade planning.

Important IBM metrics like “Relative Nest Intensity” are provided in these files.

Showcase 1 – RMF Component z14 Hardware Instrumentation Services: RMF7098 and RMF7101



Showcase 1 – RMF Component z14 Hardware Instrumentation Services: RMF7098 and RMF7101

RMF7098 provides support for z14 counters, and...

- Introduces a new RMF component RMFGENIN OPTION statement to manage the CPC unique data elements kept in the HARCME, HARCMT, and HARCML files:
- HARCME file: 567 data elements 107 “Global” 470 “CPC Specific”
- CPC Type “Unique” Data Elements from EXTENDED COUNTERS:

z10 CME1xxxx 53 Elements	z196 CME2xxxx 71 Elements	zEC12 CME3xxxx 88 Elements	z13 CME4xxxx 127 Elements	z14 CME5xxxx 121 Elements
---------------------------------------	--	---	--	--

- In any individual HARCME, HARCMT, or HARCML observation, only one set of extended counter elements is populated.
- New RMFGENIN OPTION allows you to easily turn off elements of no interest!!!

```
OPTION HIS(ALL)      default (as delivered, no changes to your database)
OPTION HIS(z13,z14)  turn off z10, z196, zEC12 unique elements
OPTION HIS(z13+)     same effect, will also keep “z15” when it arrives!
```

- Make use of this new HIS(***) OPTION keyword! Save space in all timespans.
- HIS statement explained with examples in RMF Guide, Chapter 7: Parameters

Showcase 1 – RMF Component z14 Hardware Instrumentation Services: RMF7098 and RMF7101

RMF7101 provides SMF type 113 processing improvements:

- Improved Documentation:
 - RMF Guide: Chapter 6 “Data Sources”
 - Better information about how to set up Counter Collection
- New CMEMASK, CMTMASK, and CMLMASK data element:

`HISMASK` is eight bytes in length, with each byte signifying the presence or absence of a particular Hardware Instrumentation Services (HIS) counter type encountered in the SMF type 113 record used to create the MICS file observation.

```

+-----Basic Counters - 'B' or '.'
| +-----Problem State Counters - 'P' or '.'
| | +-----CRYPTO Counters - 'C' or '.'
| | | +-----Extended Counters - 'E' or '.'
| | | | +-----z/OS Counters - 'Z' or '.'
| | | | | +--Multi-Thread Counters - 'M' or '.'
| | | | | | +----- Reserved - blank
| | | | | | | +----- Reserved - blank
| | | | | | | |
V V V V V V V V
+---+---+---+---+---+---+---+---+
| B | P | C | E | Z | M |   |   | <=== Value of HISMASK
+---+---+---+---+---+---+---+---+
    
```

Showcase 1 – RMF Component z14 Hardware Instrumentation Services: RMF7098 and RMF7101

RMF7101 provides SMF type 113 processing improvements:

- Improved Processing and Diagnostics:
 - SMF113 records from unknown CPC rejected during raw data processing
 - Old behavior deleted data after raw data processing, poor messaging
 - Improvements to MICSLOG messages related to deletion of 113-2 records when 113-1 record found.
 - Supersedes RMF7093—problem causing deletion of SMF type 113 records that contained Counter Type 5 – z/OS Counters
 - Improvements to MICSLOG messages generated by RMFCGEN
 - HIS OPTION statement impact clearly shown:

```
RMF00600I RMFCGEN OPTION statement validation beginning. Statement contents:
RMF00600I     OPTION HIS(z13+)
RMF00606I CPC Data Elements turned on for:    z13 z14
RMF00606I CPC Data Elements turned off for:   z10 z196 zEC12
RMF00601I RMFCGEN option validation successful.
```

Showcase 2 – z/OS 2.3 Enhancements: RMF7097 and RMF7108

RMF7097: z/OS 2.3, SuperPav, Synchronous I/O, and SMC-D

- SuperPav, IBM APAR OA49415
 - SuperPav – Extension to HyperPav, Alias Management Groups
 - Files:
 - HARDVA** - Device Activity File
 - SCPLCA** - Logical Channel/Control Unit Activity File
 - SCPLCU** - Logical Control Unit Activity File
 - Reports: **RMFLPE** - Post Processor I/O Queuing Activity Report
Alias Management Groups included in report
- zHyperLink, IBM APAR OA50755
 - zHyperLink is available for the z14 with the IBM DS8800 Storage Subsystem
 - Very fast, low latency, communication path between CPCs and I/O devices
 - Files:
 - HARDVA**: Device Activity File
 - HARPCI**: PCIe Function Activity
 - Reports:
 - RMFLPC**: Post Processor Device Activity Report
New Synchronous I/O Section
 - RMFLPW**: Post Processor PCIe Activity Report
New RoCE Activity Section
New Synchronous I/O Link Activity Section
New Synchronous I/O Link Activity CPC Section
New Synchronous I/O Link Activity Response Time
Distributions Section

Showcase 2 – z/OS 2.3 Enhancements: RMF7097 and RMF7108

PCI EXPRESS ACTIVITY

Page 003

z/OS
Release V2R3

System ID JAO
RMF Version 794

Start 08DEC17:09:59:00.00
End 08DEC17:10:30:00.00

Interval 0:31:00.00
Cycle 1.000 Seconds

PCIe RoCE ACTIVITY

Func ID	Physical Port 1	Network ID	Physical Port 2	Network ID	Read Tnsfr Rate	Write Tnsfr Rate	Packets Rec Rate	Packets Trn Rate
0032	PN1				0.000	0.000	0.000	0.000
0042	PN1				0.000	0.000	0.000	0.000

PCIe SYNCHRONOUS I/O LINK ACTIVITY SECTION

Func ID	Phys CHID	Port ID	Serial Number	Type-Model	Tot Req Rate	Pct Success	Read Tsfr Rate	Read Tsfr Ratio	Write Tsfr Rate	Write Tsfr Ratio	Time Busy Percent
1000	0138	1	000000HGY01	002107-986	0.00	.	0.00	.	0.00	.	0.00 %
1004	0144	1	000000HGY01	002107-986	0.00	.	0.00	.	0.00	.	0.00 %
1008	0188	1	000000HGY01	002107-986	0.00	.	0.00	.	0.00	.	0.00 %
2000	0188	2	000000XD261	002107-981	180.04	87.69 %	0.65	0.00	0.00	0.00	0.39 %
2004	01B8	2	000000XD261	002107-981	180.05	87.55 %	0.65	0.00	0.00	0.00	0.37 %

PCIe SYNCHRONOUS I/O LINK ACTIVITY CPC SECTION

Func ID	Phys CHID	Port ID	Serial Number	Type-Model	Tot Req Rate CPC	Pct CPC Success	Read Tsfr Rate CPC	Read Tsfr Ratio CPC	Write Tsfr Rate CPC	Write Tsfr Ratio CPC	Time Busy Pct CPC
1004	0144	1	000000HGY01	002107-986	0.00	.	0.000	.	0.000	.	0.00 %
1008	0188	1	000000HGY01	002107-986	0.00	.	0.000	.	0.000	.	0.00 %
2000	0188	2	000000XD261	002107-981	607.06	83.96 %	2.091	0.004	0.000	0.000	1.17 %
2004	01B8	2	000000XD261	002107-981	607.06	83.96 %	2.091	0.004	0.000	0.000	1.13 %

PCIe SYNCHRONOUS I/O LINK ACTIVITY RESPONSE TIME DISTRIBUTIONS

Func ID	Read I/O Response Time Distributions										Write I/O Response Time Distributions										
	Pct < 20	Pct < 30	Pct < 40	Pct < 50	Pct < 60	Pct < 70	Pct < 80	Pct < 90	Pct < 100	Pct > 100	Pct < 20	Pct < 30	Pct < 40	Pct < 50	Pct < 60	Pct < 70	Pct < 80	Pct < 90	Pct < 100	Pct > 100	
1000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	5.12	75.8	15.4	3.12	0.37	0.08	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	9.83	76.3	11.9	1.63	0.24	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Showcase 2 – z/OS 2.3 Enhancements: RMF7097 and RMF7108

RMF7097: z/OS 2.3, SuperPav, Synchronous I/O, and SMC-D (continued)

- SMC-D, IBM APAR OA49113
 - SMC-D: IBM Shared Memory Communications-Direct Memory Access
 - Internal Shared Memory (ISM) internal adapters, better LPAR-LPAR communication
 - Files: **HARPCA** - Physical Channel Activity File
HARPCI - PCIe Activity File
 - Reports: **RMFLPB**: Post Processor Channel Activity Report
New OSA Express Section OSD Channels and Port IDs
RMFLPW: Post Processor PCIe Activity Report
New Internal Shared Memory Section

Showcase 2 – z/OS 2.3 Enhancements: RMF7097 and RMF7108

RMF7108 - z/OS 2.3 Paging Activity and Crypto Express6S

Over recent releases of z/OS, the management of real memory became very complex. By z/OS 2.2, real memory was carved into many different pools supporting requests for different frame sizes and types.

With z/OS 2.3, the configuration of central storage was simplified. Requests for page frame sizes other than 2GB are managed from one storage pool, and requests for 2GB page frames from another.

- Impact of IBM Memory Management Simplification
 - Major updates to RMF type 71-1 Paging Activity Record
 - Many raw data fields are now ****reserved****
 - Other raw data fields re-used – different meaning
 - New metrics introduced
 - Files: **SCPPAG: Paging Activity File**
 - Reports: **RMFLPG: Post Processor Paging Activity Report**
Updated to use new and redefined metrics
- RMF7108 Product Change Text contains “Appendix B”
 - Helps you to understand all paging related changes

Showcase 2 – z/OS 2.3 Enhancements: RMF7097 and RMF7108

RMF7108 - z/OS 2.3 Paging Activity and Crypto Express6S (continued)

- Crypto Express6S
 - New PCIe Express card for the z14
 - Files:
 - `SCPPAG` - Paging Activity File
 - `HARCRP` - Crypto CCA Coprocessor Activity File
 - `HARCRA` - Crypto Accelerator Activity File
 - `HARCRK` - Crypto PKCS11 Coprocessor Activity File

Showcase 3 – SMF7010: Userkey APAR OA53355 Support, Enhancements, and Maintenance

- IBM Direction: Allocating, obtaining, and changing common areas of virtual storage, such that the storage is in user key (8-15) will not be supported after z/OS 2.3
- IBM APAR OA53355
 - Adds new bit flags to SMF type 30 address space records that identify program steps that will not run after z/OS 2.3
- SMF7010
 - New step and job level flags that allow you to identify programs that need to be “retired” or updated prior to zNext (post z/OS 2.3 release)

Step level files:

```
-----  
PGMUKENB - Step UserKey Audit Enabled  
PGMUKCAD - Step UserKey CADS Attempt  
PGMUKCSA - Step UserKey CSA Storage Attempt  
PGMUKESQ - Step UserKey ESQA Change Attempt
```

Job level files:

```
-----  
JOBUKENB - Job UserKey Audit Enabled  
JOBUKCAD - Job UserKey CADS Attempt  
JOBUKCSA - Job UserKey CSA Storage Attempt  
JOBUKESQ - Job UserKey ESQA Change Attempt
```

Showcase 3 – SMF7010: Userkey APAR OA53355 Support, Enhancements, and Maintenance

- SMF7010 (continued)
 - New step and job level data elements for “steps executed”.

```
Step level files:
-----
PGMCOUNT - Program Steps Encountered
PGMFLUSH - Step Flushes
*new* PGMSTEPX - Program Steps Executed

Job level files:
-----
JOBFLUSH - Job Flushes
JOBSTEPS - Number of Steps
*new* JOBSTEPX - Number of Steps Executed
```

- At job level, useful for determining “averages”. Dividing by JOBSTEPX provides averages without including steps that flushed.
- Supersedes SMF7002
 - Fix for ABEND that could occur when parsing SMF type 90 subtype 36 “SET CON” record

Showcase 4 & 5 - CICS & IDMS

CIC6840 - Support for IBM CTS 5.5, TMON v4.2, and Maintenance

CICS 5.5 added six new elements to the growing DFHWEB* areas for WEB connection socket activity and elapsed time metrics.

ASG TMON 4.2 is supported. There were no new metrics added with the data source, so the only change required was a release check.

IDM6617 and IDM6618 – Customer Request Satisfied

JESJOBNO added to enable cross reference with the BATPGM/BATJOB files for additional performance of batch jobs which accessed IDMS.

CICS Unit-of-work ID and NETNAME added to enable cross reference with CICS transactions that accessed IDMS resources.

Showcase 6 & 7 - TAP & SNT

TAP7147 - Support for TS7700 V4.1.2 / V4.2, and Maintenance

v4.1.2 added sets of new elements to report on the number of bytes compressed (read/write) per the compression method employed. (FICON, LZ4, and ZSTD)

SNT6747 - IBM Connect:Direct for z/OS (NDM) Support

Support is added for the SMF IBM Sterling Connect:Direct SMF 230, subtype CT Copy record. A new file CDZCCT - CDZ Data Transfer, is added enabling users to track resources used by this product in transferring files from one system to another. This change is accompanied with an Accounting COREQ ACT7307, for charging CP and zIIP CPU time.

Technical Currency PTF's for new Releases

IMS6706 - Toleration Support for BMC Mainview for IMS v5.3
(Published as **SO01618**)

VMC6755 - z/VM 7.1 Toleration Support
(Published as **SO05685**)

MQS6686 - Support for MQ v9.1
(Published as **SO06941**)

TAP7147 - TS7700 release 4.1.2 and 4.2 Support
(Published as **SO06854**)

CIC6840 - Support for CTS 5.5 and TMON 4.2 & maintenance
(In Verification but available as a Test PTF if required)

Other PTF's Published so far this release

Other PTF's Published so far this release

CIC6833 **Hyper** - Avoid U0999 ABEND, CSRCE SRV Expand Failure, RC16 - **SO04011**

IMS6708 **Hyper** - Correct Loop in IMSLDR20 and Maintenance - **SO06188**

TAP7148 **Hyper** - Correction of HSM Preference Groups Read-up - **SO05783**

SMF7002 **Hyper** - Prevent U0999 STOPOVER ABEND Processing SMF Type 90 - **SO05905**

DB26908 - DB2 Continuous Delivery APAR Support - **SO05602**

RMF7092 - Prevent U0999 ABEND in DAY020 CPCID STARTTS - **SO03971**

RMF7093 - Prevent RMF00104W SMF Type 113 Record Deletes - **SO04406**

VMC6744 - Correct MICE Inquiry VMXPX3 - **SO03841**

VMC6753 - Recognize and Count New VM Monitor Records - **SO05253**

VMT6703 - Consolidated maintenance - **SO05252**

Updates and Q&A

- SAS Hotfix (B6Q033) is required before applying TS1M5 MICS PTF's

Hotfix # **S1436327** is available through <http://ftp.sas.com/techsup/download/hotfix/HF2/B6Q.html#B6Q033>

Installation steps: <http://ftp.sas.com/techsup/download/hotfix/HF2/B/B6Q/B6Q033/xx/mvs/B6Q033os.html>

Install files: <ftp.sas.com/techsup/download/hotfix/HF2/B/B6Q/B6Q033/xx/mvs/B6Q033os.zip>

SAS Problem Note **62507** <http://support.sas.com/kb/62/507.html>

- Product UPGRAD's or Compatibility Matrix URL

<https://support.ca.com/us/product-content/status/compatibility-matrix/ca-mics-resource-management-compatibility-matrix.html>

- MICS Release Comparison URL

<https://docops.ca.com/display/MICSRM140CD/Release+Comparison>

NEW

- MICS 14.2 Customer Validation (BETA) is scheduled for:

- April 15th – May 24th (6 weeks)

- MICS 14.2 Release GA is scheduled for:

- End of June 2019



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