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Performance Toolkit for VM – Product Update

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VM Performance Toolkit for VM

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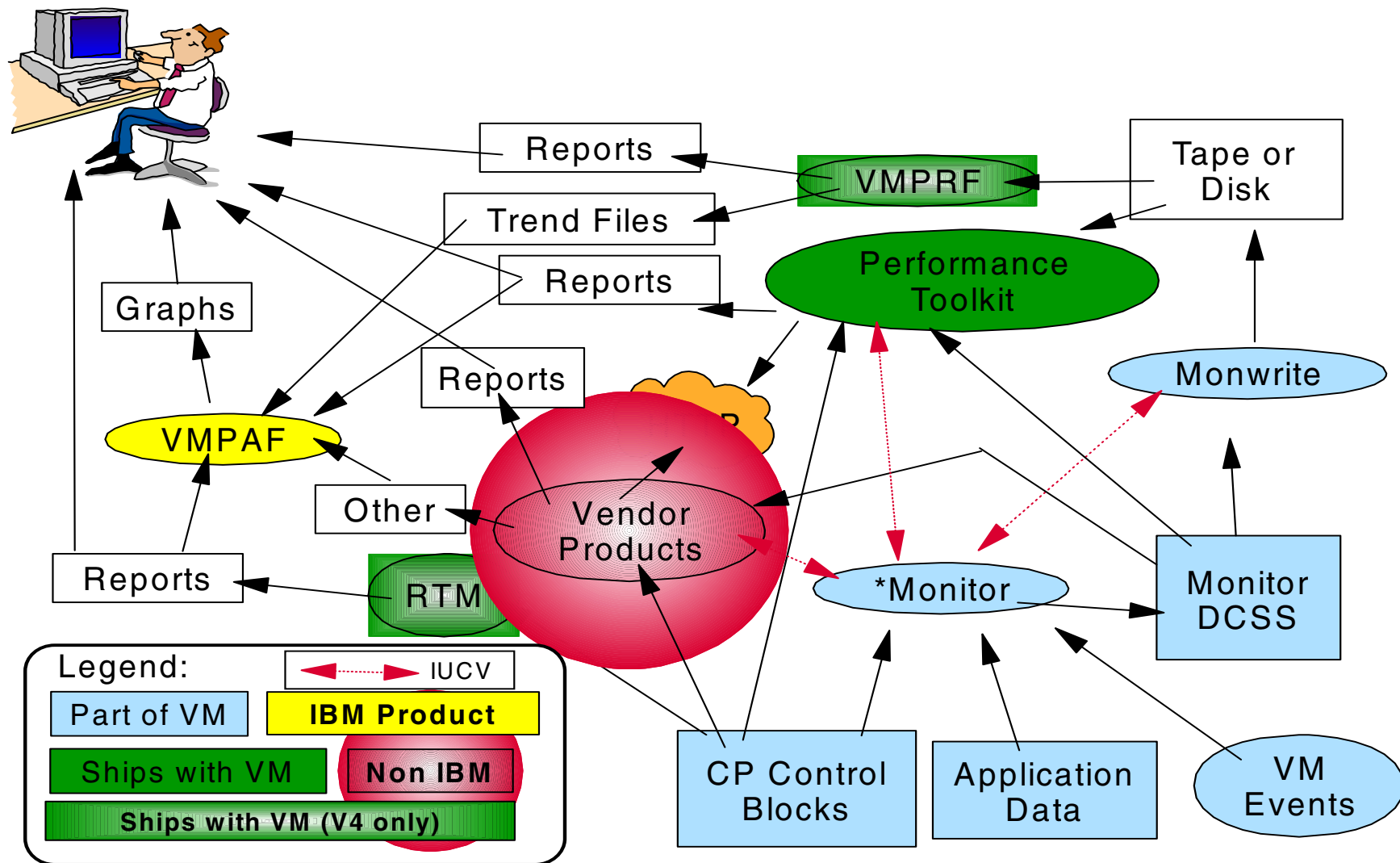
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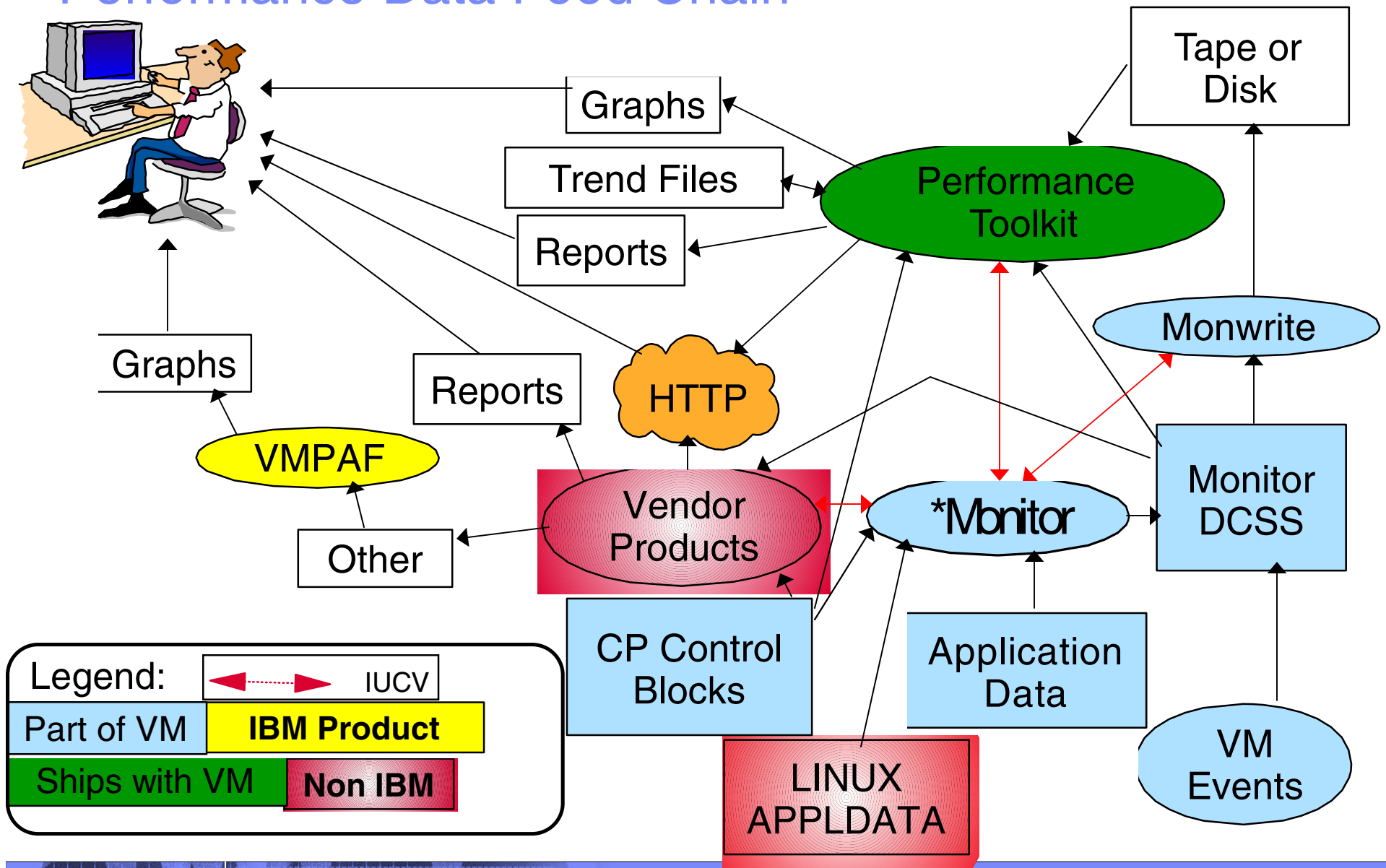
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Performance Data Food Chain



Performance Data Food Chain



VM Performance Product Strategy

- Performance Toolkit is bread and butter monitoring product
 - ▶ Introduced in z/VM 4.4.0
 - ▶ Enhanced in z/VM 5.1.0
 - ▶ Enhanced in z/VM 5.2.0
 - ▶ Supports monitor data of all supported VM releases
- Last release for VMPRF and RTM are z/VM 4.4.0
 - ▶ No support for z/VM 5.1.0
- Watch for future synergy with Tivoli Omegamon products
- Vendor Activity continues to enrich the offerings and capabilities

Performance Toolkit Naming Conventions

- FCON = Full Screen Operator Console
 - ▶ FCON/XA, FCON/ESA are previous names for Toolkit
- FCX = 3 letter module prefix
 - ▶ Used in messages, displays, etc.
- Performance Toolkit for VM = full name
- PERFKIT = module that invokes it
- PERFSVM = default userid where Performance Toolkit runs

New for z/VM 5.1.0

- Support for new z/VM Monitor Data and Features
 - ▶ SCSI Report
- New Batch Processing
 - ▶ Post process Monwrite format data
 - ▶ Use existing VMPRF control files for migration
 - Recommend converting to standard batch files
- Support for new Linux Appldata
- Additional Interim Reports

New for z/VM 5.2.0

- Support for new z/VM Monitor Data and Features
 - ▶ System Execution Space Reports
 - ▶ New/Changed Paging Reports
 - ▶ QEBSM Reports
- New Central Data Collection Processing
 - ▶ “Pull” from other FL520 PERFKIT’s
 - ▶ “Push” from other FL510 PERFKIT’s

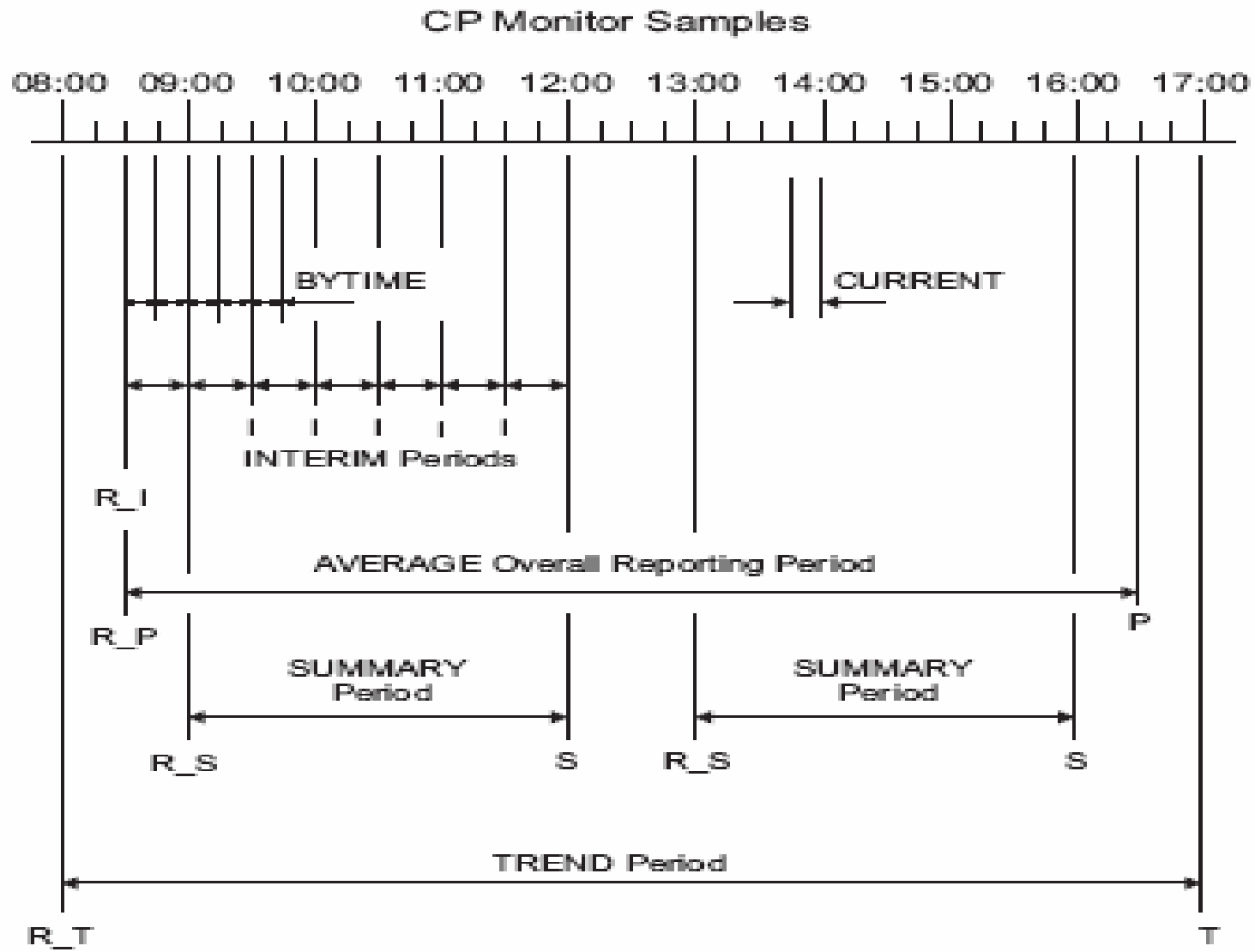
Usages

- Realtime Monitor
 - ▶ Allows viewing of current status of the system
 - ▶ Scheduled report generation
 - ▶ Recording for historical records
- MONSCAN
 - ▶ View Monwrite Data as if you were looking at live system
- BATCH or VMPRF
 - ▶ Post processing of Monwrite data
- Re-display of historical records
- Systems Operations

Time Periods

- Most data based off of monitor data
 - ▶ Sample Interval – default of 1 minute
 - ▶ Sample Rate – default of 2 seconds high frequency sampling rate
 - ▶ Controlled by **CP MONITOR** command
- Toolkit Related time frames
 - ▶ CURRENT – most recent monitor interval
 - ▶ AVERAGE – average overall reporting period
 - ▶ BYTIME – data rows for each monitor interval or as set
 - ▶ INTERIM – multiple reports for each interim period as set
 - ▶ SUMMARY – summary period for historic recording
 - ▶ TREND – large granularity for historic recording
 - ▶ Controlled by Performance Toolkit **FC MONCOLL RESET** command

Time Periods Picture



Time Periods Example

- CP MONITOR SAMPLE INTERVAL 5 MIN
- CP MONITOR SAMPLE RATE 1 SEC
- FC MONCOLL RESET 08:30R_P 16:30P
- FC MONCOLL RESET 09:00R_S 12:00S 13:00R_S 16:00S (MERGE
- FC MONCOLL RESET 08:00R_T 17:00T (MERGE
- FC MONCOLL RESET 08:30R_I 09:00I 09:30I 10:00I ... (MERGE
 - ▶ Or use FC SETTING INTERIM 30
- FC SETTING BYTIME 15
- Results:
 - ▶ Reports automatically generated at 16:30 covering 8:30-16:30 along with Interim reports of 30 minute periods.
 - ▶ Two Summary files created spanning 9:00-12:00 and also 13:00-16:00
 - ▶ Trend file appended to with data spanning 8:00-17:00

BATCH and VMPRF modes

- Allows post processing raw monitor data.
- VMPRF mode provided for migration
 - ▶ Uses existing VMPRF files as input
 - ▶ Creates Performance Toolkit reports, summary, and trend files.
 - ▶ Also creates a file that defines the Reports as you would define them in Performance Toolkit

BATCH option

PERFKIT BATCH master_file_id DISK monitor_file_id

- Master_file_id points to input and output files
 - ▶ INPUT
 - SETTINGS: Various settings
 - REPORTS: selection of reports to generate
 - SUMREC: selection of summary records to generate
 - TRENDREC: selection of trend records to generate
 - ▶ OUTPUT
 - LISTING: report listing
 - LOG: log of batch executions
 - RUNFILE: batch processing info from current run
 - SUMMARY: summary file
 - TREND: trend file
- Monitor_file_id is MONWRITE generated file

PERFKIT MASTER File for Batch Mode

* INPUT FILES

REPORTS PERFKIT REPORTS *

SETTINGS PERFKIT SETTINGS *

*SUMREC PERFKIT SUMREC *

*TRENDREC PERFKIT TRENDREC *

* OUTPUT FILES

LISTING PERFKIT LISTING B

LOG PERFKIT LOG B

RUNFILE PERFKIT RUNFILE B

SUMMARY PERFKIT SUMMARY B

TREND PERFKIT TREND B

PERFKIT SETTINGS File for Batch Mode

- * Perfkit Settings File
- * Limit reduction to Noon to 15:45
FC MONCOLL RESET 12:00r_p 15:45p
- * Interim reports generated for every 15 minute period
FC SET INTERIM 15 MINUTES
- * The log-like reports show a row for every minute
FC SET BYTIME 1 MINUTES
- * Detailed reports (logs) for these users and devices
FC BENCHMRK USER BITNER

PERFKIT REPORTS File for Batch Mode

*** Performance Toolkit for VM Report Selection File ***

CPU

PROCSUM

DSPACESH

*** INTERIM DSPACESH**

DEVICE

DEVICE (SORT I/O

INTERIM DEVICE (SORT I/O

DEVICE CPOWN

*** Benchmark reports**

UPAGELOG BITNER

USERLOG BITNER

VMPRF option

PERFKIT VMPRF master_file_id DISK monitor_file_id

- Creates Performance Toolkit reports, summary, and trend files.
- Also creates FCXEQUIV file that is a Performance Toolkit reports definition file.
- Use FCXEQUIV and RUNFILE to fine tune new files.
- Migrate to BATCH mode
 - ▶ More function
 - ▶ No future extensions to VMPRF mode
- VMPRF reports not strictly supported:
 - ▶ MDISK_SEEK_BY_CONFIG
 - ▶ MDISK_SEEK_BY_ACTIVITY
 - ▶ DASD_SEEK_BY_DISCTIME_D6

Setting Up Web Browser

- On VM TCP/IP virtual machine reserve port for Toolkit (PROFILE TCPIP)

PORT

81 TCP PERFSVM NOAUTOLOG;

- On PERFSVM virtual machine
 - ▶ Select user authentication - change Toolkit Profile (FCON \$PROFILE)
 - Standard VM user id password
 - FC MONCOLL WEBSERV ON TCPIP TCPIP **81** IDTEST CP
 - RACF or other ESM authentication
 - FC MONCOLL WEBSERV ON TCPIP TCPIP **81** IDTEST RACF
 - FCONRMT PASSFILE authentication
 - FC MONCOLL WEBSERV ON TCPIP TCPIP **81** IDTEST FILE
 - No Web authentication
 - FC MONCOLL WEBSERV ON TCPIP TCPIP **81** IDTEST OFF
 - Add SSL with “SSL” keyword
 - FC MONCOLL WEBSERV ON SSL TCPIP TCPIP **81** IDTEST RACF

Changed Reports for FL520 – PAGELOG (FCX143)

1FCX143 Run 2005/08/08 14:04:32										PAGELOG										Page 1			
										Total Paging Activity, by Time													
From 2005/08/08 00:04:00										GDLVM7													
To 2005/08/08 13:59:02										CPU 2084-332 SN 2069A													
For 50102 Secs 13:55:02										This is a performance report for system XYZ										z/VM V.5.2.0 SLU 0000			
<----- Expanded Storage ----->										<-Real Stor->		<----- Paging to DASD ----->										<Page Table>	
Fast-										Est. Page DPA Est.		<-Single Reads-->										<Management>	
Interval	Paging	PGIN	Path	PGOUT	Total	Life	Migr	Pagable	Page	Reads	Write	Total	Shrd	Guest	Systm	Total	Reads	Writes					
End Time	Blocks	/s	%	/s	/s	sec	/s	Frames	Life	/s	/s	/s	/s	/s	/s	/s	/s	/s					
>>Mean>>	478182	3.3	86.6	10.0	13.3	47689	3.7	1523298	114k	5.1	3.3	8.4	7.7	.5	6.0	6.5	.0	572.3					
02:24:00	521303	.1	100.0	.0	.1	....	.0	1526275	2336k	.0	.7	.7	4.5	.0	2.4	2.4	4.9	.1					
02:29:00	521303	.1	100.0	.0	.1	....	.0	1526307	2775k	.2	.6	.7	6.3	.0	4.7	4.7	4.9	.1					
02:34:00	521303	.1	100.0	.0	.1	....	.0	1526286	5324k	.0	.3	.3	6.7	.0	5.2	5.2	4.9	.1					
02:39:00	521303	.1	100.0	.0	.1	....	.0	1526295	8978k	.0	.2	.2	2.6	.0	1.2	1.3	4.9	.1					
02:44:00	521303	.2	100.0	.0	.2	....	.0	1526281	5145k	.0	.3	.3	4.2	.0	2.8	2.8	4.9	.1					
02:49:00	521303	.3	100.0	.0	.3	....	.0	1526273	11M	.0	.1	.1	2.6	.0	1.3	1.3	4.9	.1					
02:54:00	521303	.1	100.0	.0	.1	....	.0	1526300	5517k	.0	.3	.3	2.2	.0	.7	.7	4.9	.1					
02:59:00	521303	.1	100.0	.0	.1	....	.0	1526300	11M	.0	.1	.1	2.4	.0	1.1	1.1	4.9	.1					
03:04:00	521303	.2	96.4	.0	.2	....	.0	1526241	1536k	.3	1.0	1.3	8.0	.1	4.3	4.5	4.9	.1					
03:09:00	521303	.1	100.0	.0	.1	....	.0	1526256	12M	.0	.1	.2	2.6	.0	1.3	1.3	4.9	.1					
03:14:00	521303	.1	100.0	.0	.1	....	.0	1526190	1379k	.0	1.1	1.1	7.9	.0	5.6	5.6	4.9	.1					
03:19:00	521303	.1	100.0	.0	.1	....	.0	1526263	6188k	.0	.2	.3	3.3	.0	1.8	1.8	4.9	.1					
03:24:00	521303	.1	100.0	.0	.1	....	.0	1526268	5946k	.1	.3	.4	2.1	.0	.6	.6	4.9	.1					
03:29:00	521303	.1	100.0	.0	.1	....	.0	1526223	13M	.0	.1	.1	2.3	.0	1.0	1.0	4.9	.1					
03:34:00	521303	.1	100.0	.0	.1	....	.0	1526267	5203k	.0	.3	.3	2.9	.0	1.4	1.4	4.9	.1					
03:39:00	521303	.1	100.0	.0	.1	....	.0	1526244	13M	.0	.1	.1	2.3	.0	1.0	1.0	4.9	.1					
03:44:00	521303	.2	100.0	.0	.2	....	.0	1526248	5517k	.0	.3	.3	2.1	.0	.6	.6	4.9	.1					
03:49:00	521303	.1	100.0	.0	.1	....	.0	1526206	12M	.0	.1	.1	3.4	.0	2.1	2.1	4.9	.1					
03:54:00	521303	.1	100.0	.0	.1	....	.0	1526217	1199k	.0	1.3	1.3	8.3	.0	5.8	5.8	4.9	.1					
03:59:00	521303	.1	100.0	.0	.1	....	.0	1526224	12M	.0	.1	.1	2.3	.0	1.0	1.0	4.9	.1					

New Reports for FL520 – STORLOG (FCX253)

1FCX253 Run 2005/08/08 13:59:01 STORLOG Page 1
 Storage Utilization Log, by Time
 From 2005/08/08 00:04:00 GDLVM7
 To 2005/08/08 13:54:02 CPU 2084-332 SN 2069A
 For 49802 Secs 13:50:02 This is a performance report for system XYZ z/VM V.5.2.0 SLU 0000

```

<----- Storage Utilization (Page Frames) ----->
<----- DPA -----> Stor <----- Locked ----->
Interval <--Pageable--> Nonpgb Util Save Track <-LOCK REAL-> <-SXS Alias-> Diag Re- Resid
End Time <2GB >2GB <2GB % Areas Cache <2GB >2GB Total LOCK X'98' served Shared
>>Mean>> 505699 1017618 18588 26 135 16553 0 0 9 126 919 18224 726443
02:19:00 508608 1017624 15679 14 129 75061 0 0 9 117 919 18202 377119
02:24:00 508600 1017675 15687 16 129 75061 0 0 9 115 919 18202 377470
02:29:00 508596 1017711 15691 13 129 75097 0 0 9 113 919 18202 377824
02:34:00 508594 1017692 15693 15 129 75097 0 0 9 117 919 18202 378175
02:39:00 508588 1017707 15699 15 129 75097 0 0 9 118 919 18202 378526
02:44:00 508580 1017701 15707 15 129 75097 0 0 9 115 919 18202 378877
02:49:00 508572 1017701 15715 14 129 75097 0 0 9 116 919 18207 379228
02:54:00 508567 1017733 15720 14 129 75097 0 0 9 111 919 18207 379579
02:59:00 508563 1017737 15724 14 129 75109 0 0 9 111 919 18207 379930
03:04:00 508560 1017681 15727 16 129 75109 0 0 9 114 919 18207 380710
03:09:00 508553 1017703 15734 16 129 75109 0 0 9 117 919 18207 381061
03:14:00 508551 1017639 15736 15 129 75109 0 0 9 114 919 18207 381412
03:19:00 508541 1017722 15746 15 129 75109 0 0 9 112 919 18203 381763
03:24:00 508540 1017728 15747 14 129 75109 0 0 9 112 919 18203 382114
03:29:00 508538 1017685 15749 14 129 75109 0 0 9 117 919 18203 382465
03:34:00 508537 1017730 15750 15 129 75109 0 0 9 114 919 18203 382819
03:39:00 508532 1017712 15755 15 129 75109 0 0 9 114 919 18203 383170
03:44:00 508528 1017720 15759 20 129 75109 0 0 9 117 919 18203 383521

```


New Reports for FL520 – AVAILLOG (FCX254)

1FCX254 Run 2005/08/08 13:58:48				AVAILLOG												Page 1			
				Available List Management, by Time															
From 2005/08/08 00:04:00																GDLVM7			
To 2005/08/08 13:54:02																CPU 2084-332 SN 2069A			
For 49802 Secs 13:50:02				This is a performance report for system XYZ												z/VM V.5.2.0 SLU 0000			

<----- Available List Management ----->																				
<---- Thresholds ----->					<----- Page Frames ----->					<-Times-->		<----- Replenishment ----->						Perct		
Interval	<---Low---		<---High---		<Available>	<Obtains/s>		<Returns/s>		<-Empty-->		<---Scan1---		<---Scan2---		<-Em-Scan-->		Scan	Emerg	
End Time	<2GB	>2GB	<2GB	>2GB	<2GB	>2GB	<2GB	>2GB	<2GB	>2GB	<2GB	>2GB	Compl	Pages	Compl	Pages	Compl	Pages	Fail	Scan
>>Mean>>	0	186	240	426	418k	21492	10.2	193.7	4.4	40.3	0	96	1923	518k	5	6	0	0	0	0
02:19:00	0	169	240	409	434k	73304	.3	65.4	.1	10.1	0	0	0	0	0	0	0	0	0	..
02:24:00	0	169	240	409	434k	73024	.2	76.8	.1	31.9	0	0	0	0	0	0	0	0	0	..
02:29:00	0	169	240	409	434k	72190	.2	64.5	.1	11.8	0	0	0	0	0	0	0	0	0	..
02:34:00	0	169	240	409	434k	74133	.4	97.2	.3	34.6	0	0	0	0	0	0	0	0	0	..
02:39:00	0	169	240	409	434k	74187	.2	46.2	.1	12.1	0	0	0	0	0	0	0	0	0	..
02:44:00	0	169	240	409	434k	74134	.2	52.5	.1	12.6	0	0	0	0	0	0	0	0	0	..
02:49:00	0	169	240	409	434k	74037	.2	53.4	.1	9.8	0	0	0	0	0	0	0	0	0	..
02:54:00	0	169	240	409	434k	73570	.3	93.7	.2	19.1	0	0	0	0	0	0	0	0	0	..
02:59:00	0	169	240	409	434k	73106	.2	76.5	.1	9.5	0	0	0	0	0	0	0	0	0	..
03:04:00	0	169	240	409	434k	76499	16.8	179.7	11.2	53.6	0	0	0	0	0	0	0	0	0	..
03:09:00	0	169	240	409	434k	76305	.5	83.8	.3	26.5	0	0	0	0	0	0	0	0	0	..
03:14:00	0	169	240	409	434k	73894	.1	64.0	.0	13.1	0	0	0	0	0	0	0	0	0	..
03:19:00	0	169	240	409	434k	71776	.4	71.3	.1	9.5	0	0	0	0	0	0	0	0	0	..
03:24:00	0	169	240	409	434k	72707	.1	62.6	.1	9.6	0	0	0	0	0	0	0	0	0	..
03:29:00	0	169	240	409	434k	73188	.1	61.6	.1	10.5	0	0	0	0	0	0	0	0	0	..
03:34:00	0	169	240	409	434k	73631	.1	51.0	.0	8.1	0	0	0	0	0	0	0	0	0	..
03:39:00	0	169	240	409	434k	72823	.2	46.4	.1	9.1	0	0	0	0	0	0	0	0	0	..
03:44:00	0	169	240	409	434k	73852	.3	91.0	.2	30.7	0	0	0	0	0	0	0	0	0	..
03:49:00	0	169	240	409	434k	73323	.2	41.1	.1	9.2	0	0	0	0	0	0	0	0	0	..
03:54:00	0	169	240	409	434k	72243	.5	91.8	.3	41.4	0	0	0	0	0	0	0	0	0	..

New Reports for FL520 – QEBSM (FCX255)

1FCX255 Run 2005/08/08 14:48:26		QEBSM		Page 1	
		QEBSM Device Activity			
From 2005/05/04 14:43:32				GDLTPRF1	
To 2005/05/04 14:44:32				CPU 2084-324 SN 96F5A	
For 60 Secs 00:01:00		This is a performance report for system XYZ		z/VM V.5.2.0 SLU 0000	

Device	<-- SQBS -->	<-- EQBS -->	<---- SIGA Instr ----->	<-QIOBK/QSD-->	<Pin Probl>	FOBLK					
Number	SCompl	SPartl	ECompl	EPartl	SIGA-wt	SIGA-rt	SIGA-lt	General Output	Pin	UnPin	Exh/s
>>All<<	.000	.000	.000	.000	.000	.000	.000	.000 .000	.000	.000	.000
800A	.000	.000	.000	.000	.000	.000	.000	.000 .000	.000	.000	.000
CE02	.000	.000	.000	.000	.000	.000	.000	.000 .000	.000	.000	.000

New Reports for FL520 – QEBSMLOG (FCX256)

```

1FCX256  Run 2005/08/08 14:54:12      QEBSMLOG CE02                      Page    1
                                           QEBSM Device Activity Log

From 2005/05/04 14:37:32
To   2005/05/04 14:44:32
For  (Not applicable)                This is a performance report for system XYZ

                                           GDLTPRF1
                                           CPU 2084-324   SN 96F5A
                                           z/VM   V.5.2.0 SLU 0000
  
```

QEBSM Activity Log for Device CE02

Interval	<----- Executed/s by z/VM ----->							<-QIOBK/QSD-->	<Pin Probl>		FOBLK	
End Time	<-- SQBS -->	<-- EQBS -->	<---- SIGA Instr ----->			<Lock Fails/s>	<-Rate/s-->		Resrce			
	SCompl	SPartl	ECompl	EPartl	SIGA-wt	SIGA-rt	SIGA-lt	General	Output	Pin	UnPin	Exh/s
>>Mean>>	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
14:38:32	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
14:39:32	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
14:40:32	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
14:41:32	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
14:42:32	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
14:43:32	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
14:44:32	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

New Reports for FL520 – UQDIO (FCX257)

```

1FCX257  Run 2005/08/08 13:35:09          UQDIO          Page    1
                                     User QDIO Activity Information

From 2005/08/08 13:29:02                      GDLVM7
To    2005/08/08 13:34:02                      CPU 2084-332   SN 2069A
For    300 Secs 00:05:00                      This is a performance report for system XYZ
                                     z/VM    V.5.2.0 SLU 0000

```

```

-----
      .      .      .      .      .      .
      <Guest Instruct>      Alert  <- Adapter Interruptions/s ->
      <-Intercepts/s->  Interrupts  <Delivered to Guest>  Stacked  Nr of
Userid      TVS      SVS      /sec  ViaTPI      InSIE      ByCP  Users
>System<      .0      .0      2.8      .0      2.8      .0      4
LNKREGR      .0      .0      .0      .0      .0      .0
SEL01        .0      .0      .0      .0      .0      .0
TCPIP        .0      .0      11.0     .0      11.1     .0
TCPIP310     .0      .0      .0      .0      .0      .0

```

New Reports for FL520 – UQDIOLOG (FCX258)

1FCX258 Run 2005/08/08 13:55:52			UQDIOLOG LNXREGR			Page 1	
			User QDIO Activity Log				
From 2005/08/08 00:04:00						GDLVM7	
To 2005/08/08 13:54:02						CPU 2084-332 SN 2069A	
For (Not applicable)			This is a performance report for system XYZ			z/VM V.5.2.0 SLU 0000	
QDIO Activity Log for User LNXREGR							

New Reports for FL520 – DEMNDLOG (FCX259)

1FCX259	Run 2005/08/08 13:34:40	DEMNDLOG	Page 1
		Demand Scan Details, by Time	
From 2005/08/08 00:04:00			GDLVM7
To 2005/08/08 13:34:02			CPU 2084-332 SN 2069A
For 48602 Secs 13:30:02	This is a performance report for system XYZ		z/VM V.5.2.0 SLU 0000

<----- Demand Scan Pass 1 -----> <----- Demand Scan Pass 2 -----> <----- Emergency Scan ----->																																			
<-- Ended After -->						<--- Page Frames --->						<-Ended After->						<--- Page Frames --->						<-Ended After->						<-Page Frames-->					
Interval	Lng	Drm	NSS	Eli	Dsp	Long	Dor-	NSS	Eli	Dsp	Lng	Drm	Eli	Dsp	Long	Dor-	NSS	Eli	Dsp	Drm	NSS	Eli	Dsp	Dor-	NSS	Eli	Dsp	Scan							
End Time	Drm	ant	Shr	Lst	Lst	Dorm	mant	Shr	Lst	Lst	Drm	ant	Lst	Lst	Dorm	mant	Shr	Lst	Lst	ant	Shr	Lst	Lst	mant	Shr	Lst	Lst	Failed							
>>Mean>>	480	0	484	0	841	56k	0	0M	0	0M	5	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0							
01:59:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
02:04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
02:09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
02:14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
02:19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
02:24:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
02:29:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
02:34:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
02:39:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
02:44:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
02:49:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
02:54:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
02:59:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
03:04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
03:09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
03:14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							

New Reports for FL520 – STORMENU (FCX260)

```
1FCX260  Run 2005/08/08 13:34:15      STORMENU                      Page    1
                                     Storage and Paging Logs Selection Menu

From (Not applicable)                      GDLVM7
To   (Not applicable)                     CPU 2084-332   SN 2069A
For  (Not applicable)                     This is a performance report for system XYZ
                                     z/VM   V.5.2.0 SLU 0000
```

General Storage/Paging

S Log Name	Description
_ AVAILLOG	Available list management log
_ DEMNDLOG	Demand scan details log
_ PAGELOG	Paging activity log
_ STORLOG	Storage utilization log

System Execution Space

S Log Name	Description
_ SXSAVAIL	SXS page queues management log
_ SXSDEFER	SXS deferred tasks management log
_ SXSPAGE	SXS page management log
_ SXSUTIL	SXS storage utilization log

New Reports for FL520 – SXSAVAIL (FCX261)

1FCX261 Run 2005/08/08 11:58:19										SXSAVAIL										Page 1	
										System Execution Space Page Queues Management											
From 2005/08/08 00:04:00										GDLVM7											
To 2005/08/08 11:54:02										CPU 2084-332 SN 2069A											
For 42602 Secs 11:50:02										This is a performance report for system XYZ										z/VM V.5.2.0 SLU 0000	
<-- Backed <2GB Page Queue --><-- Backed >2GB Page Queue --><----- Unbacked Page Queue ----->																					
Interval	Avail	<-Pages/s--><Preferred>				Avail	<-Pages/s--><Preferred>				Avail	<-Pages/s--><Preferred>				<---- Replenishment ---->					
End Time	Pages	Taken	Return	Used	Empty	Pages	Taken	Return	Used	Empty	Pages	Taken	Return	Used	Empty	Thres	Att/s	Stolen	Min	Pgs	
>>Mean>>	19	1.817	1.817	1.811	.001	15	54.12	54.12	54.12	.015	480531	49.79	49.52	49.75	.000	128	.000	128	...		
00:19:02	21	2.580	2.590	2.577	.010	29	10.77	10.78	10.77	.000	484143	47.48	50.59	47.45	.000	128	.000	128	...		
00:24:02	21	.543	.543	.540	.000	26	1.320	1.307	1.320	.000	484321	16.81	17.40	16.79	.000	128	.000	128	...		
00:29:02	24	.600	.600	.587	.000	27	2.133	2.140	2.133	.000	484298	22.95	22.88	22.94	.000	128	.000	128	...		
00:34:02	22	.457	.460	.450	.000	27	1.257	1.253	1.257	.000	484530	20.28	21.04	20.26	.000	128	.000	128	...		
00:39:02	20	.393	.383	.387	.000	27	1.033	1.033	1.033	.000	484467	14.08	13.87	14.06	.000	128	.000	128	...		
00:44:00	27	.634	.654	.631	.000	24	1.453	1.446	1.453	.000	484022	30.31	28.82	30.29	.000	128	.000	128	...		
00:49:00	26	.290	.283	.277	.000	26	.793	.797	.793	.000	484404	30.71	31.99	30.70	.000	128	.000	128	...		
00:54:00	18	.467	.450	.463	.000	30	.583	.600	.583	.000	484454	20.45	20.60	20.42	.000	128	.000	128	...		
00:59:00	15	.290	.280	.287	.000	29	.737	.730	.737	.000	484429	12.60	12.51	12.57	.000	128	.000	128	...		
01:04:00	29	.403	.437	.400	.000	32	1.877	1.887	1.877	.000	484592	80.82	81.38	80.80	.000	128	.000	128	...		
01:09:00	23	1.623	1.613	1.617	.043	29	39.20	39.19	39.20	.000	484527	38.64	38.42	38.58	.000	128	.000	128	...		
01:14:00	22	.293	.293	.290	.000	31	.507	.510	.507	.000	484584	11.86	12.05	11.84	.000	128	.000	128	...		
01:19:00	18	.497	.483	.493	.000	30	1.257	1.253	1.257	.000	484547	16.74	16.62	16.72	.000	128	.000	128	...		
01:24:00	23	.250	.267	.247	.000	30	.460	.460	.460	.000	484570	17.90	17.98	17.88	.000	128	.000	128	...		
01:29:00	12	.310	.273	.307	.000	32	.917	.923	.917	.000	484580	20.24	20.28	20.22	.000	128	.000	128	...		
01:34:00	0	.740	.707	.740	.007	27	1.477	1.460	1.477	.000	484558	30.83	30.74	30.79	.000	128	.000	128	...		
01:39:00	20	.373	.433	.370	.000	22	2.143	2.127	2.143	.000	484401	18.63	18.11	18.60	.000	128	.000	128	...		
01:44:00	26	.310	.327	.307	.000	22	.487	.487	.487	.000	484505	17.08	17.43	17.06	.000	128	.000	128	...		
01:49:00	24	.417	.413	.413	.000	21	1.070	1.067	1.070	.000	484333	15.40	14.83	15.38	.000	128	.000	128	...		
01:54:00	29	.263	.267	.253	.000	21	.493	.493	.493	.000	484262	15.39	15.17	15.37	.000	128	.000	128	...		

New Reports for FL520 – SXSPAGE (FCX262)

1FCX262 Run 2005/08/08 11:58:00				SXSPAGE				Page 1			
				System Execution Space Page Management							
From 2005/08/08 00:04:00								GDLVM7			
To 2005/08/08 11:54:02								CPU 2084-332 SN 2069A			
For 42602 Secs 11:50:02				This is a performance report for system XYZ				z/VM V.5.2.0 SLU 0000			

	<---- Page Requests/s ---->				<----- Page Returns/s ----->						<---- Aliases ---->			<PTE Invalidation>		
Interval	Free	Non-FS	<-Contiguous->		Free	Non-FS	<Contiguous->		<Queues of Pgs>		<-- Requests/sec -->			<-- Rates/sec ---->		
End Time	Stor	Single	Requests	Pages	Stor	Single	Returns	Pages	Returns	Pages	Create	Remove	Queue	Steal	CSP	IPTE
>>Mean>>	.203	55.94	.003	.025	.193	55.93	.003	.025	.110	.148	49.75	49.50	.000	.001	.000	49.52
00:19:02	.183	13.36	.003	.027	.177	13.34	.003	.027	.103	.170	47.45	50.59	.000	.003	.000	50.59
00:24:02	.153	1.857	.003	.027	.150	1.847	.003	.027	.113	.150	16.79	17.38	.000	.003	.000	17.40
00:29:02	.113	2.723	.003	.027	.123	2.737	.003	.027	.093	.123	22.94	22.86	.000	.000	.000	22.88
00:34:02	.093	1.707	.003	.027	.077	1.687	.003	.027	.077	.077	20.26	21.04	.000	.000	.000	21.04
00:39:02	.137	1.420	.003	.027	.137	1.417	.003	.027	.103	.137	14.06	13.84	.000	.000	.000	13.87
00:44:00	.114	2.087	.003	.027	.111	2.081	.003	.027	.087	.111	30.29	28.81	.000	.003	.000	28.82
00:49:00	.130	1.067	.003	.027	.123	1.060	.003	.027	.110	.123	30.70	31.98	.000	.000	.000	31.99
00:54:00	.173	1.050	.003	.027	.153	1.040	.003	.027	.107	.147	20.42	20.59	.000	.000	.000	20.60
00:59:00	.147	1.020	.003	.027	.143	1.010	.003	.027	.120	.143	12.57	12.49	.000	.000	.000	12.51
01:04:00	.130	2.277	.003	.027	.160	2.317	.003	.027	.110	.160	80.80	81.36	.000	.000	.000	81.38
01:09:00	.247	40.86	.003	.027	.210	40.82	.003	.027	.097	.210	38.58	38.37	.000	.000	.000	38.42
01:14:00	.123	.793	.003	.027	.127	.807	.003	.027	.097	.127	11.84	12.02	.000	.000	.000	12.05
01:19:00	.160	1.750	.003	.027	.150	1.733	.003	.027	.120	.150	16.72	16.59	.000	.000	.000	16.62
01:24:00	.107	.707	.003	.027	.107	.707	.003	.027	.090	.107	17.88	17.97	.000	.000	.000	17.98
01:29:00	.117	1.223	.003	.027	.063	1.187	.003	.027	.057	.063	20.22	20.26	.000	.003	.000	20.28
01:34:00	.200	2.223	.003	.027	.130	2.177	.003	.027	.093	.127	30.79	30.71	.000	.000	.000	30.74
01:39:00	.120	2.513	.003	.027	.167	2.533	.003	.027	.087	.167	18.60	18.11	.000	.000	.000	18.11
01:44:00	.103	.793	.003	.027	.120	.810	.003	.027	.103	.120	17.06	17.41	.000	.000	.000	17.43
01:49:00	.160	1.483	.003	.027	.133	1.453	.003	.027	.097	.133	15.38	14.83	.000	.000	.000	14.83

New Reports for FL520 – SXSDEFER (FCX263)

1FCX263 Run 2005/08/08 11:57:20

SXSDEFER

Page 1

System Execution Space Deferred Tasks Management

From 2005/08/08 00:04:00

GDLVM7

To 2005/08/08 11:54:02

CPU 2084-332 SN 2069A

For 42602 Secs 11:50:02

This is a performance report for system XYZ

z/VM V.5.2.0 SLU 0000

Interval	On a Page	<-Req. Deferred/s-> On a Frame	<-Non-Deferrable--> Requests Failed/s	<-Deferred--> Create Alias	<---- Deferred Page Requests ----> With Backing				<-Redrives/s-> Att- Ind.Task					
End Time	Any	<2GB	Alias	NoPage	NoFrame	Average	Rate/s	Total	Any	<2GB	Any	<2GB	emptys	Redrives
>>Mean>>	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
00:19:02	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
00:24:02	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
00:29:02	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
00:34:02	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
00:39:02	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
00:44:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
00:49:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
00:54:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
00:59:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
01:04:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
01:09:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
01:14:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
01:19:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
01:24:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
01:29:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
01:34:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
01:39:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
01:44:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
01:49:00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

New Reports for FL520 – SXSUTIL (FCX264)

1FCX264 Run 2005/08/08 11:43:00

SXSUTIL

Page 1

System Execution Space Utilization

From 2005/08/08 00:04:00

GDLVM7

To 2005/08/08 11:39:02

CPU 2084-332 SN 2069A

For 41702 Secs 11:35:02

This is a performance report for system XYZ

z/VM V.5.2.0 SLU 0000

```

<----- System Execution Space Utilization (Pages) ----->
      <----- Used ----->
      Avail-      <----- CP ----->      <----- Aliases ----->      Poten-
      <----- ID ----->      <---Locked--->      No- <Pages Backed>      tial Conti-
Interval  Total  able      ID      <---Locked--->      No- <Pages Backed>      Steal  guous
End Time  Pages Queues  Total Mapped  Free  Other  Total  Total CPLock  Owned  <2GB  >2GB  Queue  Pages
>>Mean>> 524287 480753 43534 3067 12441 5165 22862 125      0      0  9335  34234 22864 1669
00:04:00 524287 484591 39696 3067 10509 5167 20953 118      0      0  7385  32361 20955 1657
00:09:00 524287 484099 40188 3067 10502 5168 21451 117      0      0  7389  32858 21453 1657
00:14:02 524287 483257 41030 3067 10513 5170 22280 121      0      0  7407  33668 22282 1657
00:19:02 524287 484193 40094 3067 10515 5172 21340 113      0      0  7416  32728 21341 1657
00:24:02 524287 484368 39919 3067 10516 5174 21162 113      0      0  7416  32550 21163 1657
00:29:02 524287 484349 39938 3067 10513 5173 21185 115      0      0  7416  32573 21187 1657
00:34:02 524287 484579 39708 3067 10518 5174 20949 119      0      0  7420  32337 20951 1657
00:39:02 524287 484514 39773 3067 10518 5175 21013 116      0      0  7419  32401 21015 1657
00:44:00 524287 484073 40214 3067 10519 5176 21452 116      0      0  7425  32840 21453 1657
00:49:00 524287 484456 39831 3067 10521 5176 21067 110      0      0  7428  32455 21069 1657
00:54:00 524287 484502 39785 3067 10527 5173 21018 115      0      0  7427  32406 21020 1657

```

Miscellaneous Hints

- Do not use 370 Accomodation
 - ▶ While RTM required this, it will result in problems with Performance Toolkit
- If you are going to have Performance Toolkit store data in SFS, you need to ensure SFS is first in autolog sequence
- User classes in Batch Mode are defined in SETTINGS file via FC UCLASS command, not via UCLASS file.
- Service ships accumulated. Most recent fix gets you all fixes.

References

- General information
 - ▶ <http://www.vm.ibm.com/related/perfkit/>
- Performance Toolkit Book
 - ▶ <http://publibz.boulder.ibm.com/epubs/pdf/hcs17a00.pdf>
- Comparison to VMPRF
 - ▶ <http://www.vm.ibm.com/related/perfkit/pkitprf.html>
- Comparison to RTM
 - ▶ <http://www.vm.ibm.com/related/perfkit/pkitrtm.html>
- Redbook:
 - ▶ <http://www.redbooks.ibm.com/abstracts/sg246059.html>
- Whitepaper: What's new in Performance Toolkit for VM in z/VM V5.1
 - ▶ <http://www.vm.ibm.com/library/gm130637.pdf>