

iDoctor Updates (April – July 2018)

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Agenda

- Overview
- Cover the latest GUI updates and enhancements for this period
- Questions?



Overview

- iDoctor is a suite of **dynamic** performance tools offered by the Global Support Center.
- We cover all areas of performance but historically focused more on low-level details.
- Started in V4R5 with the PEX GUI plug-in for Operations Navigator it now consists of 8 external and 2 IBM internal components.



Dynamic on demand

- iDoctor was originally created to help IBM support solve performance problems.
- Working on unique customer problems requires a high-level of flexibility and ability to add or change functions quickly and easily.
- Feedback from iDoctor users continues to help shape the enhancements added on an ongoing basis.



July 2018 (1323) – Primary keys removed from JW Job Summary

- A user was experiencing check constraint errors on the tables built by this analysis, so removed these keys for now in order to resolve and investigate further.
- CPF502F occurred on the SQL insert of data on the 1st table.



July 2018 (1322) – VIOS columns flipped in directories

• When connected to a VIOS using Power Connections and looking at directories, the File type and Modified date column data were flipped around.

IBM i C01320 [C:\PROGR4	AM FILES (X86) \IBM \IDOCTOR \I	росто	R.EXE 06/2	9/2018 16:22:5	[2] CA 710-SI6	6062 - [
v IBM i Window Help						
🛾 sal 🔎 🍰 🧷 🔅 🖇	👂 🕼 🔤 🗙 🖀 🔎 🖬	A	🖬 10 🖷	• 💿 🗠	() 🚺 📀	•
ions Power Connectior	15 📧					
	Name	Size (bytes)	Modified date	File type	A tributes	Owner
.oslevel.data		256		Jul 03 15:29	c wxr-xr-x	root st
advisor	🔤 cvha9e_idrsyscfg0.nmon	37	NMON	Jul 03 14:56	Laxnaxnax	rootst
to s	🚾 cvha9e_150417_0726.nmon	35	NMON	Jul 03 14:56	1 axnaxnax	root st
in diagSEgenSr	🚾 cvha9e_171025_1900.nmon		NMON	Jul 03 14:56	Iaxnaxnax	root st
	🔤 cvha9e_171025_2000.nmon	60	NMON	Jul 03 14:56	Iaxnaxnax	root st
🕀 🛄 errmbatch	💹 cvha9e_171025_2100.nmon	60	NMON	Jul 03 14:56	Iaxnaxnax	root st
🗄 🛄 ibmsupt	💹 cvha9e_171025_2200.nmon	60	NMON	Jul 03 14:56	Iaxnaxnax	root st
📄 🧰 idoctor	🔤 cvha9e_171025_2300.nmon	60	NMON	Jul 03 14:56	Iaxnaxnax	root st
÷	🔤 cvha9e_171026_0000.nmon	60	NMON	Jul 03 14:56	Iaxnaxnax	root st
🛓 💼 .ssh	🛛 🏧 cvha9e_171026_0100.nmon	60	NMON	Jul 03 14:56	Iaxnaxnax	root st
🖃 🗀 repositor	🔤 cvha9e_171026_0200.nmon		NMON	Jul 03 14:56	Iaxnaxnax	root st
	🛛 🔤 cvha9e_171026_0300.nmon	60	NMON	Jul 03 14:56	Iaxnaxnax	root st
in advis	🛛 🔤 cvha9e_171026_0400.nmon		NMON	Jul 03 14:56	Iaxnaxnax	root st
	🛛 🔤 cvha9e_171026_0500.nmon	60	NMON	Jul 03 14:56	Iaxnaxnax	root st
i nmoi	🔤 cvha9e_171026_0600.nmon	60	NMON	Jul 03 14:56	Iaxnaxnax	root st
🕀 🛄 npiv	🔤 cvha9e_171026_0700.nmon	60	NMON	Jul 03 14:56	Iaxnaxnax	root st
🕀 🧰 perfp 🗉	🔤 cvha9e_171026_0800.nmon	60	NMON	Jul 03 14:56	Iaxnaxnax	root st
🚠 💼 sea	🔤 cvha9e_171026_0900.nmon	60	NMON	Jul 03 14:56	Iaxnaxnax	root st
🛓 💼 iostat	🔤 cvha9e_171026_1000.nmon	60	10.1011	Jul 03 11.56		root st
	🗔 cubala 171076 1100 pmon	60	NMON	lol 03 14:56	Inannannan	root st

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July 2018 (1322) – VIOS symbolic links were incorrect

 When listing files on a VIOS that are symbolic links, the symbolic link path was incorrect. It was missing the 1st and last characters. This caused the inability to open files (using the Open local file option.)

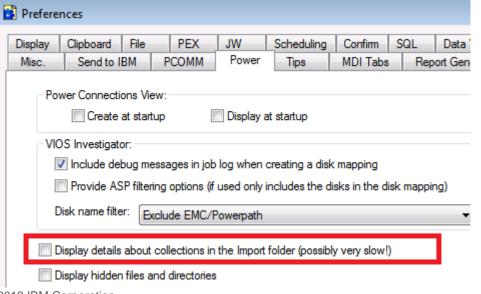
[C:\PRO	[C:\PROGRAM FILES (X86)\IBM\IDOCTOR\IDOCTOR.EXE 06/29/2018 16:22:52] CA 710-SI66062 - [Power Connections]												
ndow	Help)											
) 2 🔅 🞾 🐂 🖄 📯 🕾 🔎 🗟 🗛 📓 00 🐄 🛛 🐼 🚱 🚺 🎱 🗸													
er Conne	ectio	ns 📧											
		Name	Size	Modified	File type	Attributes	Owner	Symbolic link					
n_ibm_t	χ		(bytes)	date									
evel.data	а 🛔		256		Jul 03 15:29	drwxr-xr-x	root staff						
isor		🔤 cvha9e_idrsyscfq0.nmon	37	NMON	Jul 03 14:56	Invxnvxnvx	root staff	tmp/idoctor/Ctcvha9e_idrsyscfg0.nmo					
		🛛 🗠 cvha9e_150417_0726.nmon	35	NMON	Jul 03 14:56	Inaxnaxnax	root staff	anp/mnon/cccvhabc_150411_0120mmo					



July 2018 (1322) – Power – Display details preference changed

In Preferences -> Power, renamed the preference
 "Display details about collections in the Import folder while connected to the IFS (very slow)" to
 "Display details about collections in the Import folder (possibly very slow!)"

This option applies to nmon, npiv, sea import folders when connected to a VIOS or when connected to an IBM i. If there are thousands of files to list then this option can mean the difference between seeing results in a few seconds vs a few minutes!





July 2018 (1321) – CSI workload capping delay rankings SQL error

- In CSI fixed an SQL error on TL.JBPOOL column in the graph "Workload capping delay rankings for <XYZ> by thread"
- Work around is replace TL.JBPOOL with JBPOOL in the SQL statement.

Q178000102/Workload capping delay for < <sw gname="">> by job: From 08:50:05 am to 08:55:00 am - #1</sw>	X-axis (Labels) job name/user/
QUERY FAILED! UNABLE TO EXECUTE THE FOLLOWING SQL STATEMENT(S): > SELECT CASE WHEN TRIM(STRIP(CHAR(OBJNAME), t, X'00')) = "THEN 'System tasks' Else OBJNAME END AS O	Primary Y-axis (
[SQL0205] Column JBPOOL not in table QAIDRCSTL_Q178000102 in PMR37084AA.	Flyover Fields
Cause: A column with the name JBPOOL does not exist in table or view QAIDRCSTL_Q178000102 in schema Recovery: Do one of the following and try the request again: Make certain that the column names, table names, and any qualifiers are specified correctly. A column specified in a join USING clause cannot be qualified in the statement If the column is not qualified, the column JBPOOL is no longer in table QAIDRCSTL_Q178000102. It was originally found in table QAIDRCSTL_Q178000102, but it no longer exists. If the column is now available in a different table and is referenced by this statement, a precompile may be necessary If more than one table is referenced in a SQL statement, the column name should be qualified If this is a	Workload cappi Job runtime in H Minimum inten Job current usei Total contributi
CREATE TABLE statement and column JBPOOL is specified in a partitioning key or constraint for the table being created, add a column definition for column JBPOOL or remove it from the constraint or partitioning key For a recursive common table expression, the SET sequence column name and the USING column name cannot be referenced in the full-elect that defines the common table expression.	Available Fields



June 2018 (1320) – CSI workload capping delay rankings prompt

- If drilling down in CSI from the Collection Overview to "Workload capping delay rankings for <XYZ> by thread" the user will be prompted for the value of <<SWGNAME>>.
- Added the following text on the Change SQL Parameters window (that this is the):
 - "Workload capping group name from file QAPMSYSWLC"



June 2018 (1320) – Configure Collection Services cycle time

• Fixed some bugs when using the Configure Collection Services window. The cycle time could not be edited without an error message "The parameter is incorrect" being shown.

Also the cycle time when loaded from the saved value on the system into the interface was not being shown correctly.



June 2018 (1320) – Select analysis system window text change

 Changed the message text when selecting an analysis DB (IBM i) on the System Selection window that appears on a PC when first using Power Connections (since "Power Doctor" is really "Power Connections" now)

BM iDoctor for IBM i C01320 [C:\PROG	RAM FILES (X86)\IBM\IDOCTOR\IDOCTOR.EXE 06/29/2018	:40] CA 710-SI66062 - [Remote Command Statu	
File Edit View IBM i Window	System Selection		
IBM i Connections Power Conne IBM i Connections Power Conne Time System Status Image: Object of the state of th	Power Doctor provides additional analysis functions an IBM i as your analysis DB. If you wish to use thes system below: Available systems: System OS name VRM		
	Idoc720 V7R2 BM iDoctor for IBM	01320 CA 710-SI66062 - [Power Connections]	
	File Edit View	i Window	
		Available systems: System OS name VRM Idoc720 V7R2	13



June 2018 (1320) – Connection fails when using SSH due to no Java

- If connecting to a non-IBM i system (HMC/VIOS/etc) using SSH but Java is not installed or could not be found in the user's path, improved the error message shown to make the resolution more clear.
- Also the user's password is no longer returned in the error message window.

IBM iDo

	💕 Unable to	run the SSH script on hmc795		
ctor for IBM i		Unable to run the SSH script on hmc795		
Unable to run the SSH script using command javaw -jar "C:\Program Files (x86)\IBM\iDoctor\SSHConsole.jar" hmc795 mccargar 'L" "C:\Users\123456~1\AppData\Local\Temp\IBM\iDoctor\SSHConnectio nTest.txt"		Unable to run the SSH script using command javaw -jar "C:\Program Files (x86)\IBM\iDoc		•
"C:\Users\123456~1\AppData\Local\Temp\IBM\iDoctor\SSHConnectio nTest.out"		\SSHConsole.jar" hmc795 mccargar <password> "C:\Users\123456789\AppData\Local\T \iDoctor\SSHConnectionTest.txt" "C:\Users\123456789\AppData\Local\Temp\IBM\iDocto \SSHConnectionTest.out"</password>		
rc 2 The system cannot find the file specified.		A java runtime environment was not detected, java.exe and javaw.exe needs to be execu from a command prompt. Install Java from the appropriate location.	ıtable	Ш
		IBMers see this document for more information on how to install Java: https://w3.ibm.com/help/#/article/java_install		
		Customers can install Java from: http://java.com		
		rc 2		-



June 2018 (1320) – PEX Col Wizard – events option hidden if scheduling

- In the PEX Collection Wizard in the Basic Options screen the "Maximum events to collect" option is now hidden if a scheduled collection start time is set.
- Note: This option does not apply to scheduled PEX collections.

PEX Collection Wizard - Options -	Idoc720	and the second		
	Collection Options: Definition type: Definition: Collection name: Library: Description:	PEX-Analyzer-sup *ASM Start in standby (s hhhhhhh QPADATA	▼ <u>D</u> etails	
	Duration:	5	1 - 1440 minutes	
	Maximum data to collect:	4	1 - 250 GB	
	Maximum events		Leave blank for no max	
		Include PMCO ev	rents	N
	CPU interval sample:	200	0.1 - 200.0 ms	
	Advanced options:	Configure		
	Scheduled start time:	Con <u>fig</u> ure	Immediate	
				© 2018 IBM Corporatio

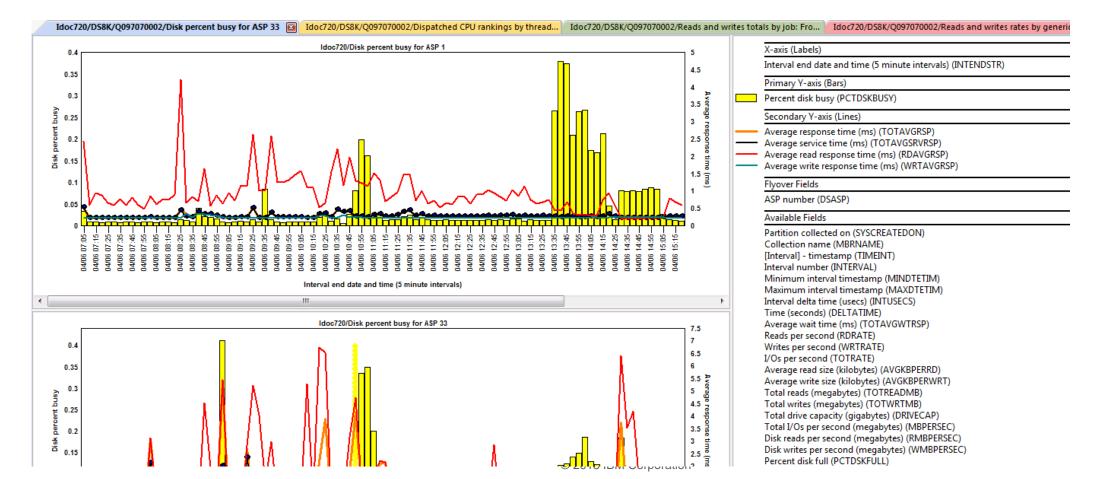
Collection Wizard - Options	Idoc720	DOCTOR NO.	AND DESCRIPTION OF					
	Collection Options: Definition type: Definition: Collection name: Library:	 PEX-Analyzer-supplied <u>User-defined</u> <u>ASM</u> <u>Details</u> Start in standby (suspended) mode <u>hhhhhhh</u> <u>Start a PEX+</u> "super collection" QPADATA 						
	Description: Duration: Maximum data	5	1 - 1440 minutes 1 - 250 GB					
	to collect: CPU interval sample:	Include PMCO ev	vents 0.1 - 200.0 ms					
	Advanced options: Scheduled start time:	<u>C</u> onfigure Configure	07/04/18 at 15:43	1				



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June 2018 (1320) – GUI crash if drilling down from comparison graphs

• The iDoctor GUI will crash if you produce a comparison graph (i.e. such as a CSI Disk graphs comparison of ASP 1 vs ASP 33) then trying to drill down from there into another graph.





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June 2018 (1320) – Job Watcher objects waited on reports

• In Job Watcher under the Wait graphs -> Objects waited on folder made the following updates:

The folder will now appear even if the collection summary analysis has NOT be ran.

IBM i Connections Idoc720: Collecti	F	emote Comman Idoc720: PEX-An Idoc720: Job 📧 Remo	te SQL Stat
🛓 📑 Job Summary	*	Report folder	Description
🕀 🛺 BUID			
🕢 🛺 AAAFD		Collection overview time signature	
🕀 🛺 Q118113517		Collection overview with dispatch CPU time signature	
🚊 🗒 🗛 🗛 🗛		Collection overview time signature with max waits in-progress	
🗄 📑 SQL tables		Current wait duration time signature with max waits in-progres	S
🕀 🔒 Favorites		Disk time signature with max disk waits in-progress Seizes and locks time signature	
🕀 🔒 Waits	E	Contention time signature	
🕀 🔒 CPU		Disk time signature	
🕀 🔒 Memory		Journaling time signature	
🕀 🔒 Physical disk I/Os		Communications time signature	
🕀 🔒 Logical DB		Dispatched CPU rankings	Ranks jobs
		Objects waited on	Reports dis



June 2018 (1320) – Job Watcher objects waited on reports

 In Job Watcher under the Wait graphs -> Objects waited on folder (or Detail reports -> Objects waited on) made the following updates:

The reports that show "all waits of interest" will now show "Total waits" in the 1st column instead of incorrectly labeling these as "Total page faults".

100072	MOCTA /MCCARGAR3/AA3/Objects waited on for all waits of interest - #1 📧														
Total waits (TOTWAI	ime [ms]	Maximum wait time (ms) (MAXWAITMS)		Wait object name (WOOBJNAM)	type description	Wait object segment type description (WOSEGTYPD)	Bucket number (BUCKETNU	Description (BUCKETDESC)							
1447	32.8400	14.9240	6.5680			LIC HEAP (MWS) AREA DATA	5	Disk page faults							
621	.4740	.4740	.4740	QC2IO	SERVICE PROGRAM	BASE MI SYSTEM OBJECT	5	Disk page faults							
447	2.8080	2.8080	2.8080	QCZPXLC	PROGRAM	BASE MI SYSTEM OBJECT	5	Disk page faults							
148	.1160	.1160	.1160	QIDRJWCRTA	PROGRAM	SECONDARY ASSOCIATED SPACE	5	Disk page faults							
63	2,051,604,579,915.>	2,249,844,517.0>	2,104,209,825.5>			LIC HEAP (MWS) AREA DATA	12	Semaphore contention							
45	.1600	.1600	.1600	QYPEADDP	PROGRAM	BASE MI SYSTEM OBJECT	5	Disk page faults							
12	.4890	.4890	.4890	QAPZPTF QAPZPTF	DB2 ACCESS PATH	MACHINE INDEX RADIX4 SECONDARY	5	Disk page faults							
2	6.1610	6.1610	6.1610	QSQSCHEM	PROGRAM	BASE MI SYSTEM OBJECT	6	Disk non-fault reads							
0	3.6520	3.6520	3.6520			LIC HEAP (MWS) AREA DATA	14	Machine level gate serialization							
0	0	0	0				11	Journaling							



June 2018 (1320) – Job Watcher objects waited on reports

In Job Watcher under the Wait graphs -> Objects waited on folder (or Detail reports -> Objects • waited on) made the following updates:

The reports that showed total page faults in the 1st column reported incorrect results. The value before was the total records in the QAPYJWTDE file matching the current selection.

1	Idoc720/M	CCARGAR3/A	AA3/Collectio	on overview time signat	ure Idoc720/MC	CARGAR3	/AA3/Objects	waited on due t	o t				
Total page faults	time	t Maximum wait time (ms)	Average wait time (ms)	Wait object name	Wait object type description	Wait obj segment descripti	: type						
	32.8400 2.8080 .4890 .4740 .1600 .1160	2.8080 .4890 .4740 .1600	2.8080 .4890 .4740 .1600	QCZPXLC QAPZPTF QAPZPTF QC2IO QYPEADDP QIDRJWCRTA	PROGRAM DB2 ACCESS PATH SERVICE PROGRAM PROGRAM PROGRAM	BASE M MACHI BASE M	I SYSTEM OBJ	ECT DX4 SECONDAR ECT		due to page faulting - ‡	¥1 👪		
I	.1100	.1100	.1100	QIDNWCKIA		page faults		wait time (ms)	Average wait time (ms) (AVGWAIT	Wait object name (WOOBJNAM)	Wait object type description (WOOBJTYPD)	Wait object segment type description (WOSEGTYPD)	
						1445 621 447 148 45	32.8400 .4740 2.8080 .1160 .1600	14.9240 .4740 2.8080 .1160 .1600	6.5680 .4740 2.8080 .1160 .1600	QC2IO QCZPXLC QIDRJWCRTA QYPEADDP	SERVICE PROGRAM PROGRAM PROGRAM PROGRAM	LIC HEAP (MWS) AREA DATA BASE MI SYSTEM OBJECT BASE MI SYSTEM OBJECT SECONDARY ASSOCIATED SPACE BASE MI SYSTEM OBJECT	
						12	.4890	.4890	.4890	QAPZPTF QAPZPTF	DB2 ACCESS PATH	MACHINE INDEX RADIX4 SECONDARY)



June 2018 (1320) – Job Summary analysis broken at 6.1

• In CSI/JW the Job Summary analysis did not work on release 6.1 and has been fixed.



June 2018 (1320) – PEX Definition Wizard – Add Jobs updates

• The subsystem field is no longer case sensitive.

PEX Definitio	on Wizard - Add	Jobs							
Please indi	cate the jobs	you wish to a	dd to you	r PEX definiti	on:				
Job Inform	ation:								
Name:	*ALL		User:	*ALL		Numb	er: *ALL		Add
Subsys	tem: qinter		Thread IDs:					characters ea	
Current user filte									Refresh
Active jobs	matching job	information:					ResetS	tatistics	Add Selected
Subsystem	Job Name	User	Number	CPU utilizatior (%)	CPU time total (ms)	e Status	Function	Current User	Entered System (
QINTER	QINTER	QSYS	361480	0		-		QSYS	2018-06-08-19.1
O QINTER	QPADEV0001 QPADEV0003	MCCARGAR MCCARGAR		0	-		CMD-WRKJOB CMD-WRKJOBQ	MCCARGAR MCCARGAR	2018-06-26-15.4 2018-06-28-10.3
QINTER	QPADEV0003 QPADEV0002	ADAMB	380873	0			MNU-PERFORM		2018-06-28-10.5



June 2018 (1320) – PEX Definition Wizard – Add Jobs updates

• The list will now show "No rows found" if no results were found when during a search.

PEX Definiti	on Wiza	rd - Ad	d Jobs											- • ×	
Please ind	icate th	e jobs	you wi	sh to a	dd to yo	our PEX d	efinitior	1:							
Job Information:															
Name:		*ALL			User:	*ALL			Number: *ALL					Add	
Subsys	stem:	baba			Thread IDs:								3 characters each 000000010000002, etc)		
Current user filt														Refresh	
Active jobs	match	ing job	inform	ation:							Res	et Statisti	cs	Add Selected	
Subsystem	Job Name		Num	CPU u (%)	tilization	CPU time total (ms)	Status	Function	Current User	Entere Systen On					
							No row:	s found.							



June 2018 (1320) – CSI HTTP graph fixes

- In CSI under the Communication graphs -> HTTP (Apache) folder, made the following updates:
 - 1. The rates were calculated incorrectly in some cases.
 - 2. Fixed a potential divide by zero error in the SQL statements.
 - 3. The Y2 axis is now always labeled from 0 to 100%. In some cases no line was drawn at all if all values were zero.

4. Instead of hiding time intervals where no HTTP requests were sent/received these blank intervals will now be shown. This behavior is consistent with the rest of the time-based graphs in CSI.



Idoc720/MCCARGAR/MCCARGAR/Q302142829/Thread totals by collection - #1 🔯

- In Job Watcher made the following fixes and improvements to the menu options that show up under the Job Summary analysis reports:
 - The "Selected Thread" option appeared twice (as "Selected Thread" and "Selected thread").

Collection	Library	Collection description	Duration	Elapsed	Start of job	End of job	Start of thre	ad End of
name	name		ofjob	seconds	included	included	included	include
			in hours		1-Yes, 0-No	1-Yes, 0-No	1-Yes, 0-No	1-Yes,
Q302142829	MCCARGAR	10 second intervals, Call stacks	; 1.000	3,610	0	0		0
Q302142829	MCCARGAR	10 second intervals, Call stacks	; 0	10	0	0		0
Q302142829	MCCARGAR	10 second intervals, Call stacks	.017	117	0	0		0
Q302142829	MCCARGAR	10 second intervals, Call stacks	; 1.000	3,610	0	0		0
Q302142829	MCCARGAR	10 second intervals, Call stacks	; .983	3,550	0	0		0
Q302142829	MCCARGAR	10 second intervals, Call stacks	: 1.000	3,600	0	0		0
Q302142829	MCCARGAR	10 second intervals, Call stacks	; .933	3,389	0	0		0
Q302142829	MCCARGAR	10 second intervals, Call stacks	; 1.000	3,610	0	0		0
Q302142829	MCCARGAR	10 second intervals, Call stacks	; 1.000	3,000	0			0
Q302142829	MCCARGAR	10 second intervals, Call stacks	; 1.000	3, <mark>4</mark> 10	0	0		0
Q302142829	MCCARGAR	10 second intervals, Call stacks	: .033		Selected T	hreads		•
Q302142829	MCCARGAR	10 second intervals, Call stacks	.267					
Q302142829	MCCARGAR	10 second intervals, Call stacks	; 1.000	3,	Selected th	hread		•
Q302142829	MCCARGAR	10 second intervals, Call stacks	; 1.000	3,6	Rankings f	filtered by sel	lected Thread	•
					_	-		

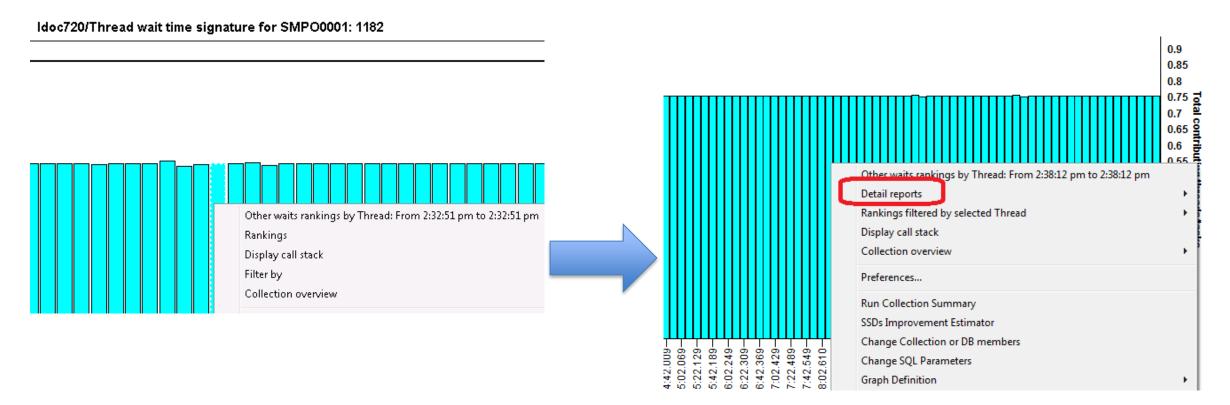


• A 2nd "Rankings" folder appeared in the list but was redundant with the other options (Rankings filtered by selected thread and Collection overview) and has been removed. It also contained non ranking graphs so was unintuitive the way it was.

3,01U	U U U		 				
	Selected Threads	×	0	Ő	2015-10->	2015-10->	DD-TIM
3,6	Selected thread	×	Selec	ted Threa	ds		•
3,6 5 :	Rankings filtered by selected Thread	•	Rank	ings filtere	ed by selected	d Thread	×
2,1	Narikings		Job S	iummary r	ankings filter	red by All jobs	•
3,6	Collection overview	×	Colle	ection over	view		×.
3,6 7 1	Filter by	•	Filter	by			×.
~,° > .							



• After drilling down to the Thread signature for a specific job/thread, the "Detail reports" drill down menu option did not appear like it should have, but has been fixed.





y ti

June 2018 (1319) – JW Job Summary drill down menu fixes

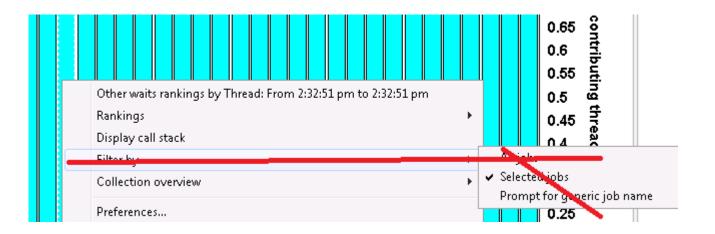
 Moved the menu options that are specific to the Job Summary analysis (SQL results over the job summary sql tables instead of the collection data) from "Rankings -> Wait graph rankings <type>" menu to "Job Summary rankings filtered by <type>".

- Also renamed these graphs so they match the current naming convention for the wait bucket ranking graphs. (Example: from "Thread signatures ranked by Dispatched CPU" to "Dispatched CPU

SÚL 📄 🕯	d 🗂 📑 🗛	🛯 🙋 🖄 🔛 🖉		M 89 F			्य पाप		ks 📂					
		ACCARGAR/Q302142829/Thread				Idoc720/MCCA		Thread signatures ranked by Dispatched CPU	ks	Job Summary rankings	filtered by All jobs	w	/ait graphs	Dispatched CPU rankings by t
		-						Thread signatures ranked by Dispatched CPU with dispatch CPU	ks	Collection overview	•	0	ther graphs	Dispatched CPU with dispatch
	1 1 1	Collection description	Durat of job		Start of job included	End of job included	Start (incluc	Thread signatures ranked by CPU queueing	ks	Filter by	•]	0	0 2015-10	CPU queueing rankings by thr
name	name		in hou			1-Yes, 0-No		Thread signatures ranked by Disk page faults	ks	Record Quick View		ŏ	0 2015-10	Disk page faults rankings by th
Q30214282	9 MCCARGAR	10 second intervals, Call stack	s 1.0	00 3,610) () 0		Thread signatures ranked by Disk non fault reads	ks	Necola Quick new		0	0 2015-10	Disk non fault reads rankings l
		10 second intervals, Call stack		0 10) () 0		Thread signatures ranked by Disk space usage contention	ks	Сору		0	0 2015-10	Disk space usage contention r
		10 second intervals, Call stack 10 second intervals. Call stack		17 117 00 3,610) O) A		Thread signatures ranked by Disk op-start contention	iks iks	Find		0	0 2015-10 0 2015-10	Disk op-start contention ranki
		10 second intervals, Call stack		83 3,550) Ö		Thread signatures ranked by Disk writes	ks	Save	+	Ő	0 2015-10	Disk writes rankings by thread
Q3021 Q3021	Selected Threa	ads 🕨	1.0	00 3,600 33 3,389) 0		Thread signatures ranked by Disk other	ks	Set Font		0	0 2015-10	Disk other rankings by thread
Q3021 Q3021	Selected threa	d 🕨	1.0	55 5,509 00 3,610) U) 0		Thread signatures ranked by Journal	ks	Preferences		0	0 2015-10 0 2015-10	Journal rankings by thread
Q3021	Rankings filter	red by selected Thread 💦 🕨	1.0	00 3,610) () 0		Thread signatures ranked by Machine level gate serialization	ks			Ő	0 2015-10	Machine level gate serializatio
Q3021 Q3021	Rankings	•	F	avorites			•	Thread signatures ranked by Seize contention	ks	Graph Definition		0	0 2015-10	-
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Q3021	Graph Definition	un 🕨	L	and graphs	s rankings (se	iceccu jobs)	ľ.	0 0 2015-10-29-14.29.51.172004 2015-10-> DD 0 0 2015-10-29-14.29.51.172671 2015-10-> DD	allon					-, -, -, -, -, -, -, -, -, -, -, -, -, -



- In some of the drill down graphs from Job Summary analysis the "Filter by" (All jobs, selected job, prompt for generic job) option appeared in the menu where it did not work and should not have appeared.
 - This feature is only intended to apply to the initial SQL table reports in the analysis.
 - It is linked to the Job Summary rankings filtered by <type> option ONLY.





 Support to drill down from one of the generic job totals SQL tables was NOT implemented properly (user would get SQL errors). Added by generic job options.

/Generic job totals by collection - #1 📧 Ide	oc720/MCCA	RGAR/Q302142829/CPU cons	sumed - #1 Ido	c720/MCCAF	RGAR/Q302142829/Job	signatures r	anked by Dis	patched CPU -	#1										
Collection description Dur		ed Start of job End of job ids included included	5 Start timestamp		End timestamp		J time	Job CPU microsecond		us Synchronou non databas									
	hours	1-Yes, 0-No 1-Yes, 0-N	10				croseconus)		reads	reads	writes	ະ 11 							
RGAR 10 second intervals, Call stacks :	1.000 3.6	511 0	0 2015-10-29-14.2	8.30.228847	2015-10-29-15.28.41.		171,901	103,85)	0	0	0							
RGAR 10 second intervals, Call stacks, J9		elected Generic jobs	•		2015-11-02-15.07.42.		95,978	53,96		0	0	0							
	1.00 S	elected thread	+		2015-10-29-15.28.41. 2015-11-02-15.07.42.		634,214	641,483		0	7	0							
RGAR 10 second intervals, Call stacks, J9 RGAR 10 second intervals, Call stacks	.53 1.001 R	ankings filtered by selected	Generic job		2015-11-02-15.07.42.		1,118,436 146,376	1,121,465 147,22		0	4 6	0							
RGAR 10 second intervals, Call stacks, J9		lankings			orites		210,510	2,010,61		Õ	3	ů							
	1.00	Collection overview		Wait			09	251,08		0 1	4	0							
RGAR 10 second intervals, Call stacks, J9	.35.						· 90	1,106,95		0	7	0							
RGAR 10 second intervals, Call stacks : RGAR 10 second intervals, Call stacks, J9	1.001 Fi .531	ilter by	•	CPU			71 58	893,63: 1,507,54			0 3	0							
		lecord Quick View			mory		67	527,54			3	ů							
RGAR 10 second intervals, Call stacks, J9	.53:			Phy	/sical disk I/Os		▶ 39	682,69		0	2	0							
RGAR 10 second intervals, Call stacks		Сору		Logi	ical DB		▶ 52	I)	0	6	0							
		ind		IFS			• .97 66)	0	0	0							-
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RGAR 10 second intervals, Call stacks, J9	.55.	references			it graphs rankings (Sele		-	by job		- · ·	hed CPU		ME)	(ENDTIME)	(microsed				
RGAR 10 second intervals, Call stacks RGAR 10 second intervals, Call stacks 19	.751 G	iraph Definition	۱.	Oth	er graphs rankings (Sel			by collectio	n, job I	Dispate	hed CPU w	vith disp			(DELTACI	PU)	(DELTAPRCPU)	reads	-
SUAR THISPEOND INTERVAIS CAUSTACKS IN	.10			70.530069	7011-11-02-11.01.41.	RUNTI	•	(JOB	START)	(JOBEND)	T.							(SYNDBRD)) =
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		ARGAR	10 second int	tervals, (Call stacks	1.00	03,	611	0		0 2015	5-10-2	29-14.28.29.986493	2015-10->	6	34,214	641,483		(
		ARGAR	10 second int	tervals.	Call stacks, J9	.53	3 1.	945	0		0 2015	5-11-0	02-14.35.16.227095	2015-11->	1.1	18,436	1,121,465		(
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		ARGAR			•				ő				29-14.28.29.986959			49,709			
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		ARGAR	Job Sum	mary ra	nkings filtered	by Selec	ted jobs		Wa	it graphs)		by generic job		•	Dispa	atched CPU ranl	cings by gen	neric job
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June 2018 (1319) – JW Job Summary analysis

- The value shown in the Job Summary graph drilldowns for Contributing collections (MBRCOUNT) was wrong in some cases depending on which SQL table you started from.
- All SQL tables now contain a MBRCOUNT column.



June 2018 (1319) – CSI Job Summary analysis

- Made updates / fixes to CSI Job Summary analysis so the drill down options are consistent with these recent updates to JW Job Summary.
- Added support for new columns JBHSQLSTMT, JBTICC, JBTICU, JBTTMBU and JBPICC to be included in the job summary results in CSI at 7.2 and higher.



June 2018 (1319) – Dispatched CPU waiting vs sharing

 In wait bucket graphs, renamed the column: "Dispatched CPU sharing/waiting" to "Dispatched CPU sharing"

In tables, renamed the column "Dispatched CPU waiting" to "Dispatched CPU sharing"

 Note: I was not aware "Dispatched CPU waiting" still existed in iDoctor (I thought we had renamed this years ago), but it still remained in table views and there was a CPS about this topic.



OK

June 2018 (1319) – IBM i connection error message window change

 When connecting to an IBM i and there is a connection failure changed the window shown from a message box to a window that allows copy and paste of the information shown.

Also improved the contents of the messages shown for some of the most common errors.

Connection attempt to idoc720 failed	L	Jnable to connect to system 'idoc720'
Unable to connect to system 'idoc720'	_	
The server certificate is not trusted. This usually occurs when you have not downloaded the certificate authority for the server certificate. Use the Digital Certificate Manager to obtain the certificate authority and use the PC IBM Key Management utility to place the certificate authority in your local key database. See CWBCO1050 for additional information. RC 25414	F	The server certificate for the SSL connection is not trusted. Please read these instructions in order to configure your environment properly: http://www-01.ibm.com/support/docview.wss?uid=nas8N1021962 RC: 25414
ОК		



June 2018 (1318) – Table search now includes # of columns

• The table search function will now include the (number of) columns in the results shown.

🔄 IBM i	iDoctor for IBM i	C01318 [C:\IDOCTOR\V8	81\EXE\DEBUG2\IDOCTOR.EXE	6/25/2018 11:10	:28] CA 1	10-14 - [IDOC720: iDoc	tor FTP G	UI Library	: MCCARGAR Collectio							
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Libr	rary name:	MCCAR	GAR	File/table name: Q/	AIDR*												
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May 2018 (1317) – CSI disk graph labels for bucket mappings

 In CSI, in the disk graphs at 7.1+, the collection's QAPMCONF response times given in fields G1-GA are now used to provide the labels shown on any of the graphs that show disk response time buckets.

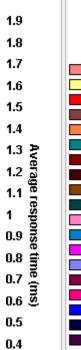
Note: The default graphs do not use the B1-B5 mapping at all (because the categorized fields in QAPMDISK do not break down reads vs writes and the ones in QAPMDISKRB do)

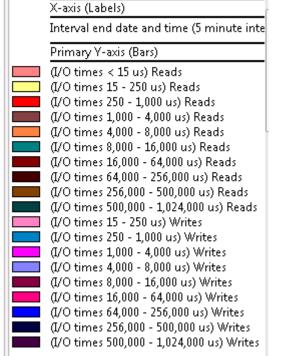
Instead the default graphs use a combination of buckets from the advanced mapping to determine the "simplified" bucket mappings shown in the default disk graphs. For example Bucket 1 = advanced buckets 1-3 (< 1 ms) Bucket 2 = advanced buckets 4-6 (> 1-16 ms) Bucket 3 = advanced bucket 7 (> 16-64 ms) Bucket 4 = advanced bucket 8 (> 64-256 ms) Bucket 5 = advanced bucket 9 + 10 (> 256 -1024ms) Bucket 6 = advanced bucket 11(> 1024 ms)

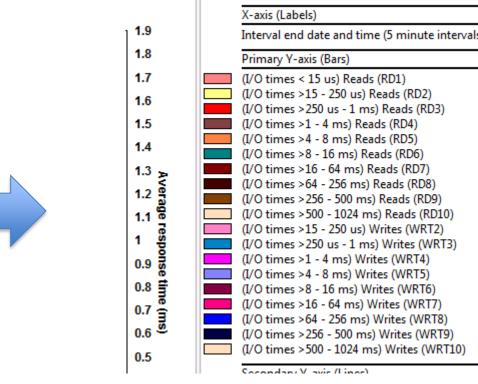


May 2018 (1317) – CSI disk graph labels for bucket mappings

- The primary difference you will notice in the advanced graphs legend, the metrics are no longer all in microseconds.
- In the default graphs there is no noticeable change.



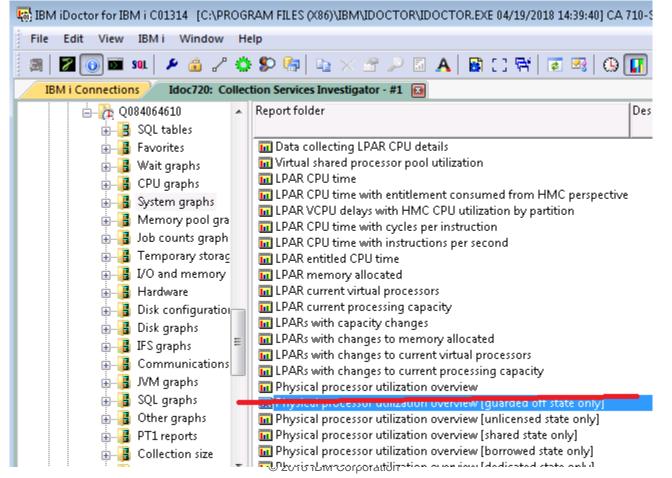






May 2018 (1317) – CSI system graph updates

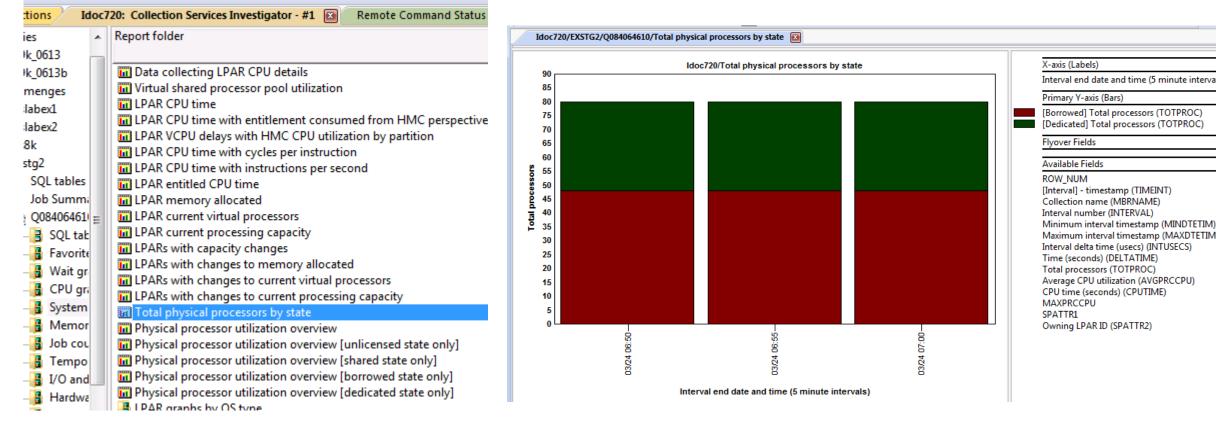
• In CSI under the System graphs folder the graph "Physical processor utilization overview [guarded off state only]" has been removed since it would never return any data.





May 2018 (1317) – CSI system graph updates

 In CSI under the System graphs folder added a new graph "Total physical processors by state" that simply breaks down the total processors for each state occurring over time.



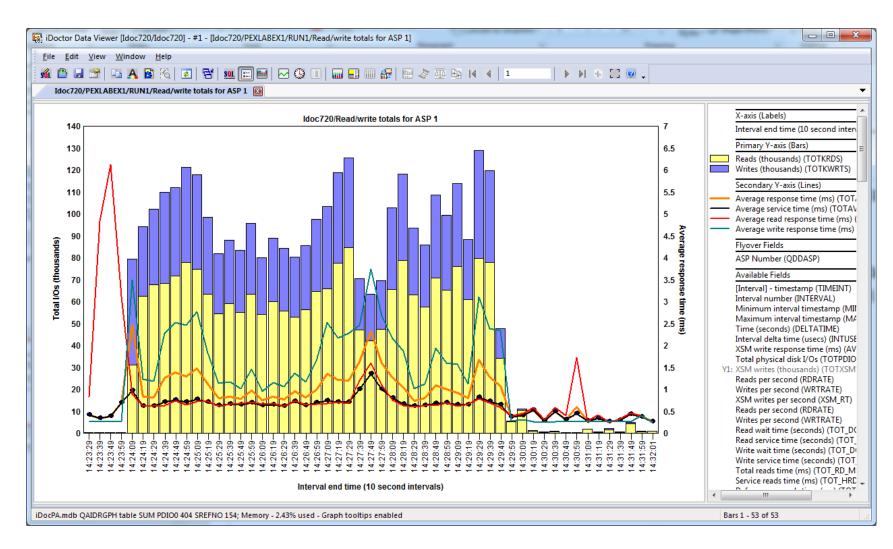


May 2018 (1316) – PEX Physical Disk I/O graphs redesigned

- We (Brad/Kristie and Ron) decided to make these graphs look and feel much more like CSI disk graphs.
 - We corrected inconsistencies with the graph names, column names, colors, etc.
 - Drill down mechanism looks more consistent as well.
- You can now define your own response time buckets (advanced or default/basic) if you want to.
 - This could be useful if working with newer hardware with very small response times.
 - Existing mapping used in CS at 7.1-7.3 is becoming obsolete. (> 1 second response times useless?!)
 - SQL statements all changed so response time bucket mapping is no longer "hard coded."



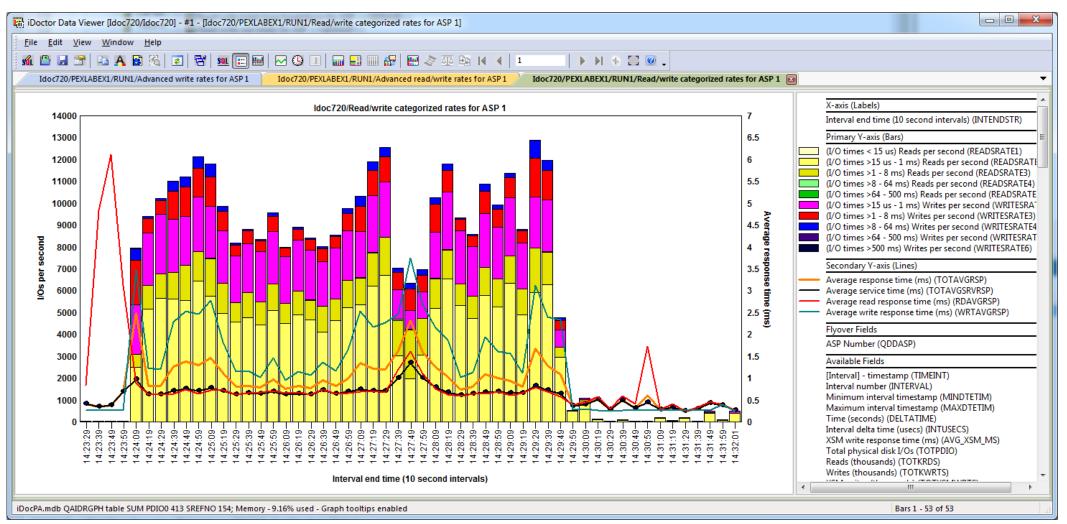
May 2018 (1316) – PEX Physical Disk I/O graph example





May 2018 (1316) – PEX Physical Disk I/O example

• 6 read buckets, 6 write buckets

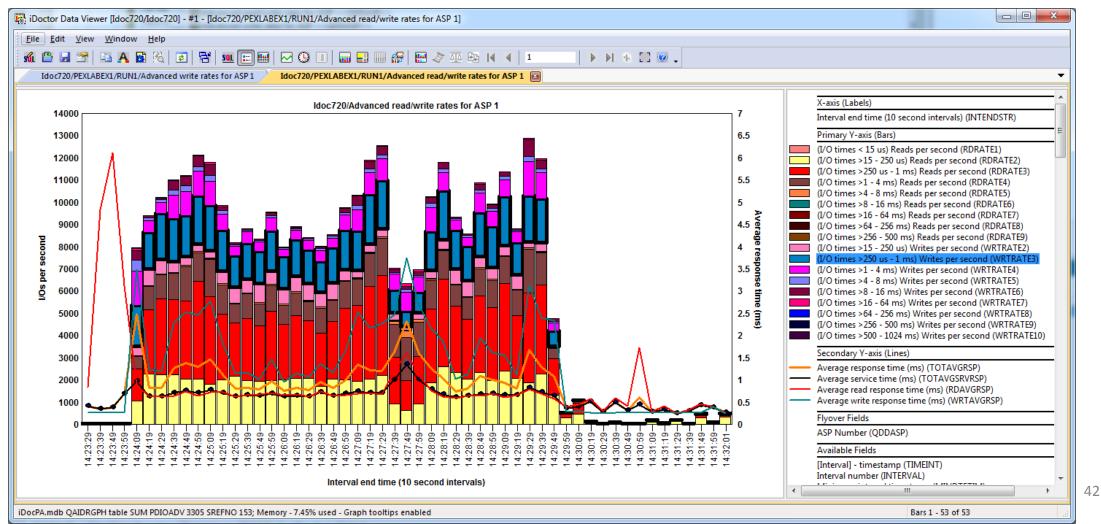


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May 2018 (1316) – PEX Physical Disk I/O advanced example

• 11 read buckets, 11 write buckets





May 2018 (1315) – Disk response time mapping changes (default)

- The disk response time default mapping used in Collection Services is changing in the next IBM i release (7.4). These are identified in file QAPMCONF and cannot be changed.
- QAPMDISK response time fields are not used, these will likely be removed at 7.4 (set to reserved.)
- Changes necessary since disks are getting faster!

Bucket	7.1-7.3 mapping	7.4 mapping	
1	0 to <= 1 ms	0 to <= 8 us	
2	> 1 to 16 ms	> 8 to 64 us	
3	> 16 to 64 ms	> 64 to 256 us	
4	> 64 to 255 ms	> 256 us to 1 ms	
5	> 256 to 1024 ms	> 1 to 16 ms	
6	> 1024 ms	> 16 ms	

Note: The 7.4 mapping is subject to change but will apply to CS at 7.4 or optionally in PEX/DW at 7.1+ if using the iDoctor mapping V740. IBM Confidential



May 2018 (1315) – Disk response time mapping changes (advanced)

• The advanced mapping applies to file QAPMDISKRB (in CS) or used by iDoctor in PEX or DW.

Bucket	7.1-7.3 mapping	7.4 mapping		
1	0 to <= 15 us	0 to <= 8 us		
2	> 15 to 250 us	> 8 to 16 us		
3	> 250 us to 1 ms	> 16 to 64 us		
4	> 1 to 4 ms	> 64 to 128 us		
5	> 4 to 8 ms	> 128 to 256 us		
6	> 8 to 16 ms	> 256 to 512 us		
7	> 16 to 64 ms	> 512 us to 1 ms		
8	> 64 to 256 ms	> 1 to 8 ms		
9	> 256 to 500 ms	> 8 to 16 ms		
10	> 500 to 1024 ms	> 16 to 64 ms		
11	> 1024 ms	> 64 ms		

Note: The 7.4 mapping is subject to change but will apply to CS at 7.4 or optionally in PEX/DW at 7.1+ if using the iDoctor mapping V740. IBM Confidential



May 2018 (1315) – Disk response time mapping file

- iDoctor has added a file QUSRSYS/QAIDRDBKT to keep track of these disk response time mappings.
- This applies to PEX currently only to allow you to choose the mapping to use when analyzing data.
- This could apply to Disk Watcher as well, but will NOT apply in Collection Services.
 - No mechanism exists to change the mapping in CS.
- Run the PEX analysis "Rebuild the disk response times mapping" to create this file (if desired.)
 - Otherwise iDoctor will create it when needed.



May 2018 (1315) – PEX Physical Disk I/O analysis prompt

- When running PEX PDIO you will be prompted for the disk response time mapping to use.
- You can use an existing iDoctor defined mapping or create a new one.

Run Physical Disk I/Os Analysis	X
	specify the default parameters to use when building orts will be available under the Physical disk I/O
Disk response time mapp	ing: DFT • New Edit
	e mapping identifies the disk response time bucket RSYS/QAIDRDBKT. These values are based on found in QAPMCONF.
Time range (optional):	
Start time:	2016-04-14-11.46.45
End time:	2016-04-14-11.51.45
	OK Cancel



May 2018 (1315) – Disk response time mapping example 1

• For example these boundaries results in the following **<u>default</u>** 6 bucket graph mapping:

Create/Edit Disk Reponse Time Mapping								
The disk response time mapping identifies the disk response time bucket mapping to use in QUSRSYS/QAIDRDBKT. These values are based on the same G* thresholds found in QAPMCONF.								
Disk response time mapping: V740								
	Default graph boundaries: Boundary 1 is G1 Boundary 2 is G3 Boundary 3 is G5 Boundary 4 is G7 Boundary 5 is G9							
Advanced graph boundaries (microseconds):								
G1:	8	G2:	16	G3:	64	G4:	128	
G5 :	256	G6 :	512	G7 :	1000	G8 :	8000	
G9 :	16000	GA:	64000					
OK Cancel								

1: 0 to <= 8 microseconds
2: > 8 to 64 microseconds
3: > 64 to 256 microseconds
4: > 256 microseconds to 1 millisecond
5: > 1 millisecond to 16 milliseconds
6: > 16 milliseconds

Note: The 7.4 mapping is subject to change but will apply to CS at 7.4 or optionally in PEX/DW at 7.1+ if using the iDoctor mapping V740. IBM Confidential



May 2018 (1315) – Disk response time mapping example 2

• Or these for the **<u>advanced</u>** 11 bucket graph mapping:

Create/Edit Di	isk Reponse Time Ma	pping					×	J
The disk response time mapping identifies the disk response time bucket mapping to use in QUSRSYS/QAIDRDBKT. These values are based on the same G* thresholds found in QAPMCONF.								
Disk response time mapping: V740								
Defau	lt graph boundarie	s:						
Bour	ndary 1 is G1 Bou	indary 2	is G3 Boundary	y 3 is G	5 Boundary	4 is G7 B	oundary 5 is G9	
Advanced graph boundaries (microseconds):								
G1:	8	G2:	16	G3:	64	G4:	128	
G5 :	256	G6 :	512	G7 :	1000	G8:	8000	
G9 :	16000	GA:	64000					
OK Cancel								

- 1: 0 to <= 8 microseconds
- 2: > 8 to 16 microseconds
- 3: > 16 to 64 microseconds
- 4: > 64 microseconds to 128 microseconds
- 5: > 128 microseconds to 256 microseconds
- 6: > 256 microseconds to 512 microseconds
- 7: > 512 microseconds to 1 millisecond
- 8: > 1 millisecond to 8 milliseconds
- 9: > 8 milliseconds to 16 milliseconds
- 10: > 16 milliseconds to 64 milliseconds

11: > 64 milliseconds

Note: The 7.4 mapping is subject to change but will apply to CS at 7.4 or optionally in PEX/DW at 7.1+ if using the iDoctor mapping V740. IBM Confidential

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April 2018 (1314) – Create Indexes analysis added in CSI/JW

- Note: These were already added externally in client 1314, but leaving here for reference.
- To speed up some of the graphs you can now run the Create indexes analysis.
 - Run the Collection Summary analysis first before using this.
 - It does NOT run automatically as a "default" analysis.
- Do NOT use this on actively running collections.
- It primarily speeds up the SQL for several flavors of rankings graphs.
- You can delete these indexes under the SQL Tables -> Create Indexes folder (right-click -> Delete... menu)