

## iDoctor Updates (August 10<sup>th</sup> 2018 to present)

Ron McCargar iDoctor development IBM i Global Support Center





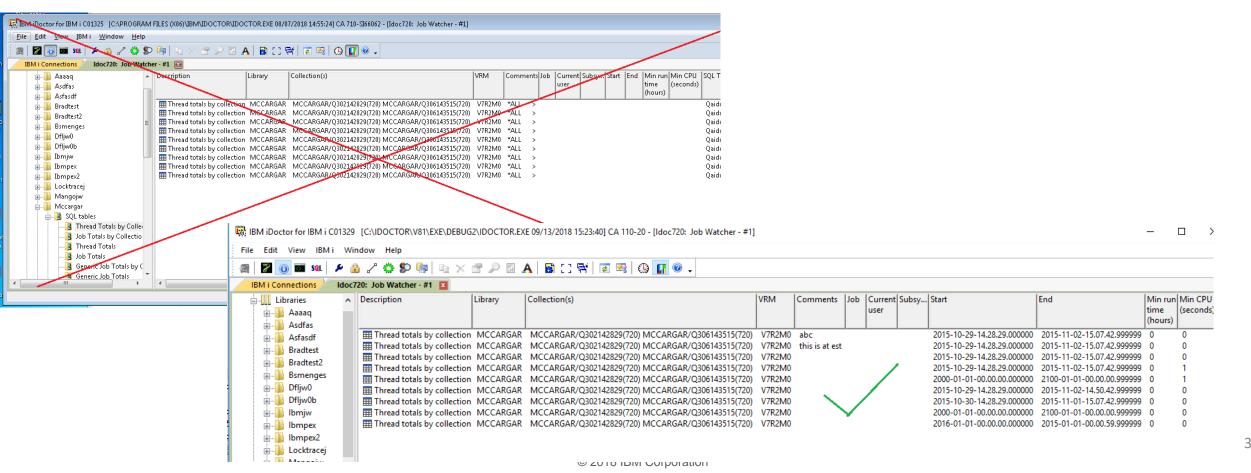
#### Currently recommended "stable" builds

- IBM internal:
  - Latest client is 1330 (Sept 18th)
  - Latest "stable" client is 1328 (Sept 5th)
- IBM external:
  - Latest client is 1330 (Sept 18th on ftp site only)
  - Latest "stable/announced" client is 1325 (Aug 7th)



## Sept 2018 (1330) – JW/CSI – Job Summary folders

• The parsing of the parameters into the Job, Subsystem, comments, etc. columns was not working when viewing Job Summary SQL tables and has been fixed.





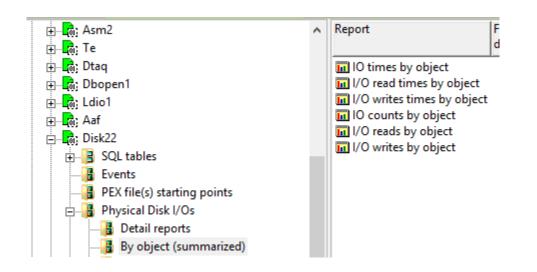
## Sept 2018 (1330) – CSI – CPU utilization for <XYZ> graphs

 Fixed the SQL statement for the CSI drill down graphs CPU utilization for <XYZ>. When graphing multiple collections the results were incorrect.



## Sept 2018 (1330) – PEX PDIO By objects (summarized) folder back

• By request, the By object (summarized) folder is back and the 6 graphs within it.





## Sept 2018 (1330) – PEX PDIO sort option fixed

 In Preferences -> PEX the Sort PDIO ranking graphs option was broken and has been updated to add several new options (or type in your own choice will work too.)

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		iort PDIO tim	es rankir	ig graphs by	1/O reads	time instead o	f total I/O tin	ne	
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#### Sept 2018 (1329) – JW – Call stack – Program details option

 In JW the call stack window now has an option called "Program details" in the drop down list that lets you see many additional details about the programs found in the call stack.
Note: This will only work if the "Retrieve program/module details" analysis has been ran on at least one collection in the library.

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#### Sept 2018 (1329) – JW – Retrieve program/module details analysis

 In JW renamed the analysis "Retrieve program/module information" to "Retrieve program/module details". This was done to provide consistency with the new "Program details" option on the JW call stack.

Current or last v	vait: (342/QMo	(342/QMo) Other mi queue wait					
Object waited o	n: QUSRS)	QUSRSYS//QTCPWRK/REQUEST/QUEUE/NAME					
Holding job or t	ask: None det	None detected this interval					
SQL client job:	SQL client job: None detected this interval						
Call stack conter	s: Program	Details 💌	Stact frames: 22				
Call Progra level model	m Program	Module	Procedure				
器 001 LIC 몲 002 LIC			qutde_block_trace vLongWaitReceive_15	iQuTreeQue			



#### Sept 2018 (1329) – JW – New call stack reports options

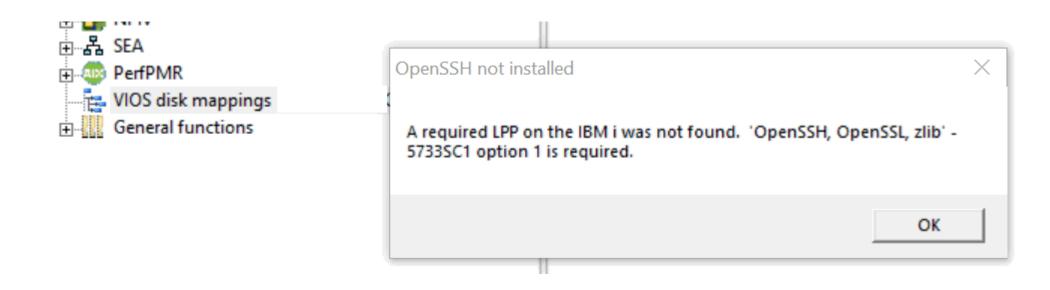
- When drilling down from a call stack on a single entry, added two new options:
  - Program details
  - Module details

**Note:** This provides additional information about the program or module selected in the call stack.



## Sept 2018 (1329) – Power Connections – Create Disk Mapping Check

 When running the Create Disk Mapping function the check for OpenSSH has changed so it should now work with any version installed on the IBM i. Previously it would fail if the version of OpenSSH installed did not match the version of IBM i.





# Sept 2018 (1329) – Power Connections – Create Disk Mapping Authentication Failure

 Fixed a timeout issue with the SSH connection used by MkAuthKeys.jar. This is part of the Create Disk Mapping function and would cause the user to think their user/password was incorrect when this wasn't true. The log provided clues to the true reason for the failure.

java.net.SocketTimeoutException: Read timed out java.net.SocketTimeoutException: Read timed out at java.net.SocketInputStream.socketRead0(Native Method) at java.net.SocketInputStream.socketRead(Unknown Source) at java.net.SocketInputStream.read(Unknown Source) at java.net.SocketInputStream.read(Unknown Source) at trans.Transport.readPacket(Transport.java:290) at trans.Transport.read(Transport.java:154) at trans.Transport.read(Transport.java:134) at ssh.Connection.authenticateUser(Connection.java:606) at ssh.Connection.



## Sept 2018 (1328) – CSI – Firmware truncated in Collection properties

 In CSI the firmware level in the System tab was truncated to 7 characters when it should have been 9.

翡 IBM iDoctor for IBM i C01325 [C:\PROGRAM FIL	ES (X86)\IBM\IDOCTOR\IDOCTOR.EXE 08/0	7/2018 14:55:24] CA 710-SI66062 - [CSI Co			
File Edit View IBM i Window Help					
🔄 🛃 💽 🖬 💷 / 🌶 😭 🖉 🌞 💭 🖟 IBM i Connections 🛛 Idoc730: Collection Serv	ices Investigator - #1 CSI Collection 'QPF				
General System Pools Disk units Wait Bucket	s Situations				
System information at the time of collection:	$\sim$				
Description	Value				
System name	IDOC730				
Version	V7RSM0				
Type Model	8231 E2B	IBM i Connections Idoc730: Colle	ection Services Investigator - #1	CSI Collection 'QPFRDATA/Q24	42180002' Properties - Idoc73
Serial number Firmware	06-6437R AL730_1	General System Pools Disk units W	ait Buckets Situations		
Allow perf collection for other LPARs Processor feature code	0 539F	System information at the time of collection			
Processor feature	8359	Description	Value		
		System name	IDOC730		
		Version	V7R3M0		
		Туре	8231		
		Model Serial number	E2B 06-6437R		

Allow perf collection for other LPARs

irmware

AL730\_157

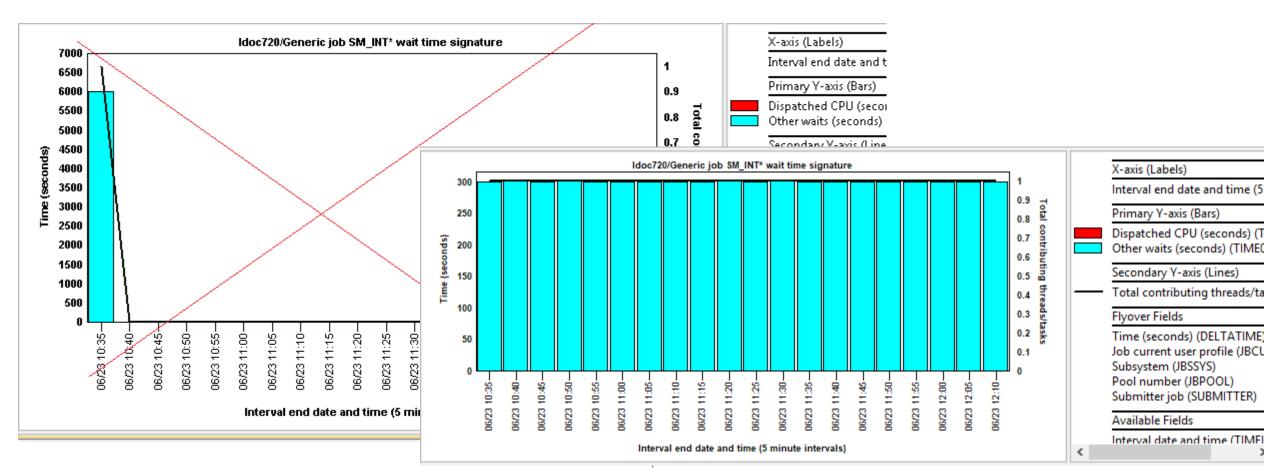
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COOP



## August 2018 (1327) – CSI – Generic job X wait time signature bad data

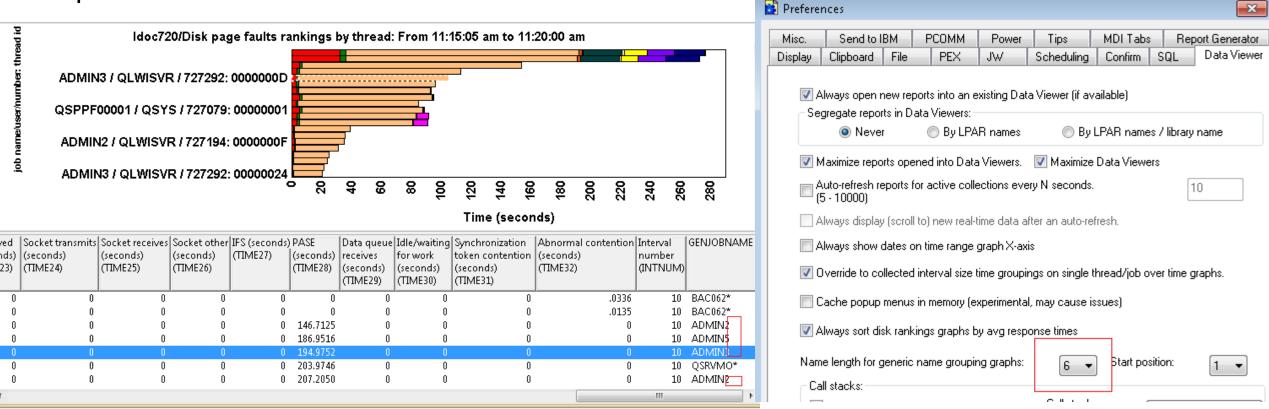
 In CSI the wait bucket times for the graph Generic job <XYZ> wait time signature were being calculated incorrectly for periods where the jobs were idle and has been fixed.





#### August 2018 (1327) – CSI – Generic job drill downs broken

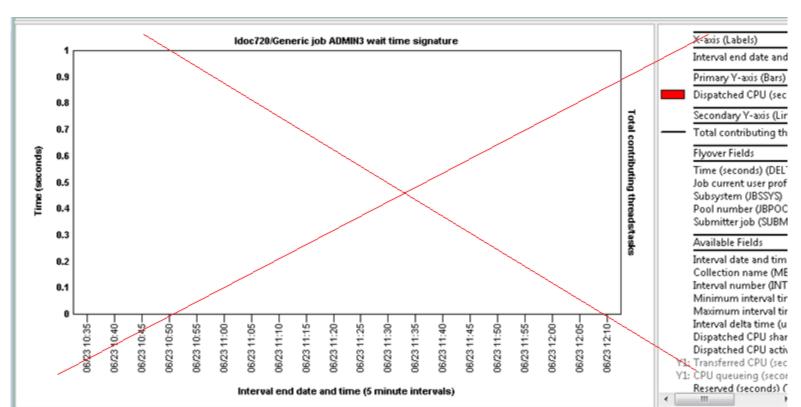
 The Generic job drill down graphs would fail to produce any data (in some cases) because the previous SQL statement value for field GENJOBNAME did not contain a '\*' at the end of the name if the job name length was the same as the generic job name length preference on the Data Viewer tab.





## August 2018 (1327) – CSI – Generic job drill downs broken (page 2)

 The Generic job drill down graphs would fail to produce any data (in some cases) because the previous SQL statement value for field GENJOBNAME did not contain a '\*' at the end of the name if the job name length was the same as the generic job name length preference on the Data Viewer tab.





## August 2018 (1327) – CSI – Underlines in job names breaking drill downs

 In CSI the generic job for selected thread drill down graphs would return incorrect data if the generic job name selected contains underlines (such as SM\_IN)

This fix causes the underlines to be treated correctly which have special meaning in SQL LIKE statements



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#### August 2018 (1327) – CSI – Collection Search underline support

• If the search value contains an underline '\_', the search results for job, subsystem or current user did not handle it correctly. More results would be returned than desired.

Search criteria:				Search criteria	9.						
Job or task name contains:	SM_	•	Browse	Job or task starts with:	(name	SM_				~	Browse
			Remove				[	✓ Starts v	vith search		Remove
	$\checkmark$	Include system tasks					[	🗹 Include	system tas	sks	
Idoc720/CSI ABEX1/01	175102853/Job or task name sear	rh - #1 🛐									
	175102055,500 of task name scar										
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name (OBJNAME) (MBRNAME)		grouping		Collection	iDoctor	far	Doctor	Interval	Interval		
	/	(OBJVALUE)			grouping		rouping	number	date		
Q175102853 AM-ANSMG	P	000000000000000000000000000000000000000		(MBRNAME)		1-	alue	(INTNU	time		
-	/ BSMENGES / 729238: 0000004B				(OBJNAME)	((	OBJVALUE)		(DTETIM)		
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	BSMENGES / 729238: 0000004B										
Q175102853 BAC0622AA,	/ BSMENGES/ 729238: 0000004B	00000000000Et									
-	/ BSMENGES / 729239: 0000002A										
-	/ BSMENGES / 729239: 0000002A										
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#### August 2018 (1327) – JW – Collection Search underline support

Search type:

 If the search value contains an underline '\_', the search results for job, subsystem, current user, call stack (pgm, module, procedure), sql statement, wait object name or J9 call stack procedure did not handle it correctly. More results would be returned than desired.

Job or task name N						Browse										
							or task name	contair		<u></u>		Starts w	/ith search	Remo		
⊖ Subsystem							Include	system tasks	<u></u>							
	I						ı	1								
Idoc72	0/BSMENGES	/RUN1/Collection overview t	ime signati	ure Ido	c720/BSMENGES/RUN1/Job c	or task name	search - #1 🛛									
~	name	Job name/user/number: thread ID	Interval number (INTNU	number	Time of day at ending snapshot start	(TRESERV	Task count (uniquely identifies a task/thread)	interval time	at ending	Microsecs since IPL at ending snapshot end		Process initial thread task count	Job/task name			Currei user profile
		(JTTHREAD)			(STARTOD)		(TASKCOUNT)	(TDEUSECS)	(STARTUSECS)	(ENDUSECS)	(THREADI	· · · · · ·	(TDEJOBNAME)	(П	HRDSTATUS	(CURF
BSMENGES	RUN1	SMASPFSCLEAN_001: 852	2,481	2,481	2012-11-12-01.18.12.382000		852	1,034,709	1,709,974,083,397	1,709,974,088,356		0	SMASPFSCLEAN 001 SMAS	PFSCLEAN	001	

Search criteria:



## August 2018 (1327) – CSI/JW – Collection Search "Starts with" option

• Added a "Starts with search" checkbox (default is checked) that indicates if the search value should apply to the beginning of data being searched or contained anywhere.

强 Collection Search - Idoc720

Collection Search - Idoc720			>	data of interest to you	u based on the search type	and criteria specified.	
This option allows you to quick	ly find the data of interest to you	I based on the search type	and criteria specified.			Tablisharda	00
Data to search:						Total intervals:	20
Collection(s): Q17510	2853	Total intervals:	20			Starting interval:	1
Library: CSLAB	EX1	Starting interval:	1		00.00000	Ending interval:	20
Start time: 2016-06	-23-10.35.00.000000	Ending interval:	20		00.00000		
End time: 2016-06	-23-12.10.00.000000				arch criteria:		
Search type:	Search criteria:				Job or task name contains:	SM_	Starts with search
Job or task name	Job or task name starts with:	SM_	~	Browse		L	_ Starts with search
⊖Subsystem			✓ Starts with search	Remove			
			Include system tasks				
			Include secondary threads	s			
○ Current user profile			Use a case-sensitive sea	rch			19
O Current wait							20



#### August 2018 (1327) – CSI/JW – Collection Search Browse update

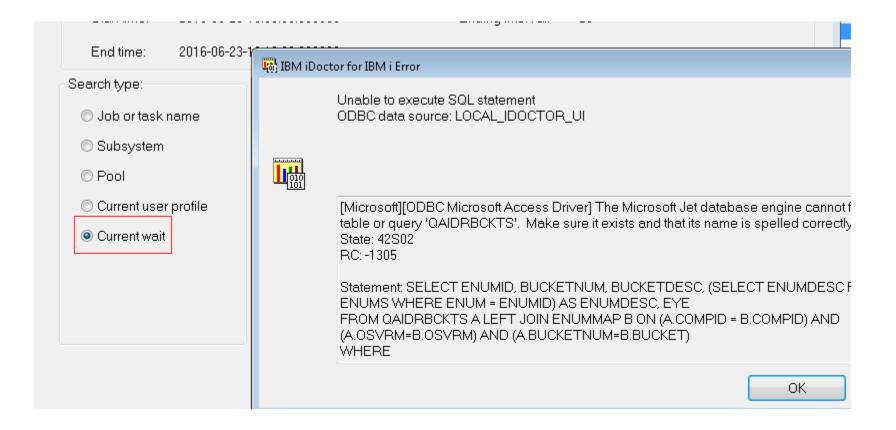
 The browse function will now use the value entered in the textbox (if any) next to it as a filter to reduce the results shown. The new "Starts with" (or contains) option also now applies to the browse window.

353	Total intervals:	20
a	Starting interval:	Srowse Collection Search Values - Idoc720
3-10.35.00.000000	Ending interval:	Below are the possible values matching your selection. So the desired value to search on from the list below.
3-12.10.00.000000		Job name
Search criteria: Job or task name starts with:	SM	SM_INTERFACE_SRC SMASMTASK ASM SMASPAGENTTASK SMASPFSCLEAN_001 SMASPTASK SMBALANCETASK SMBCONNMONITORNB SMBCONNMONITORTP SMBCONNWORKER SMBMESSAGE
Time range (optional):	_	SMBSCAVENGER SMBSERVERMAIN SMBTIMER
Start time:	2016-06-23-10.35.00	SMBWORKER SMCECVPDUPDATETS
End time:	2016-06-23-12.10.00	SMCFGUPDATER



## August 2018 (1327) – CSI/JW – Collection Search updates

• The option to browse using search type "Current wait" (i.e. enum) did not work at all.





## August 2018 (1327) – JW – Collection Search SQL statement option

• Added an option to do a case-sensitive search (or not) on the SQL statement.

Search type:	Search criteria:			
◯ Job or task name	SQL statement starts with:	where mydata = 'hiya'		✓ Browse
⊖Subsystem			Starts with search	<u>R</u> emove
OPool				
○ Current user profile			Use a case-sensitive	search
◯ Call stack				
◯ Taskcount	Time range (optional):			
SQL statement	Start time:	2012-11-12-00.28.16	* *	
O Current wait (object)	End time:	2012-11-12-01.28.15	▲ ▼	



## August 2018 (1327) – Display job log error

• Improved the error handling when using the Display job log option and it fails to find the required program Istjbl.exe. It will now clearly state the reason for the error.

IBM i Conne	ections Idoc720: Job W	/atcher - #1 💦 🖡	Remote SQL Statement Status  🔟				
Time		SQL Statement					
🖁 09/05/18 12:0	06:36 Idoc720 Running	CALL QIDRGUI/0	QIDRJWSUM1 ('AAAAQ', 'BUID', '', '', '', '', '', '', '', '', '',	000			
			IBM iDoctor for IBM i 📃				
				IBM i Connections	Idoc720: Job Watcher - #	1 Remote SQL Statement Status	
			Inchiste displaying las		tem Status		SQL Statement
			Unable to display job log	☑ 09/05/18 13:28:27 Id	oc720 09/05/18 13:28:4	م الم الم الم الم الم الم الم الم الم ال	
			ОК			Display job log comm	nand failed for QZDASOINIT/QUSER/435583
						<b>.</b>	
						> lstjbl.exe /SYSTEM	IDOC720 /JOB 435583/QUSER/QZDASOINIT
						Istjbl.exe not found!	



## August 2018 (1327) – Installation secure FTP support broken

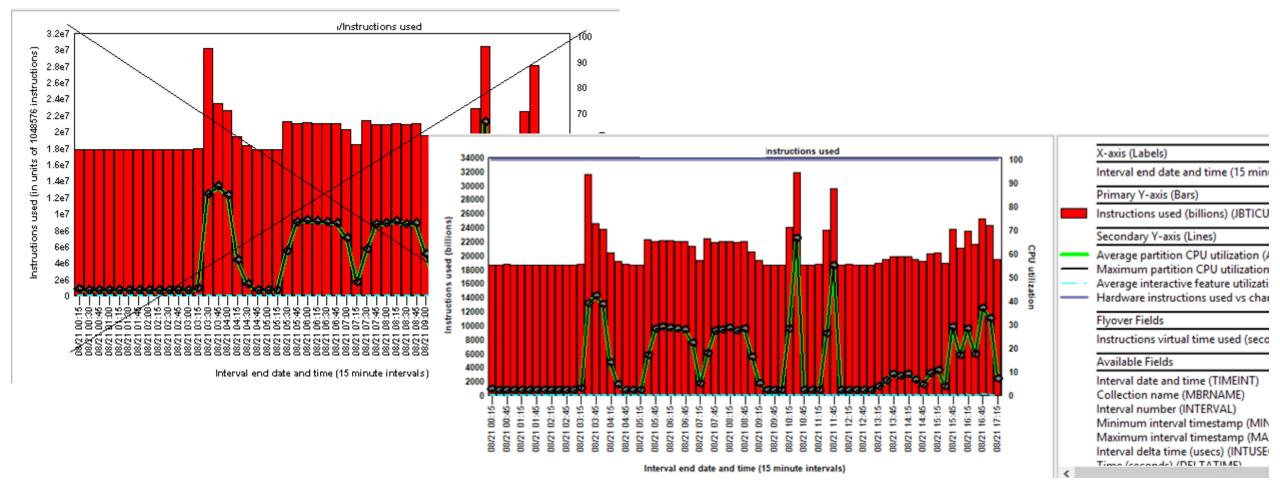
 In the installer, the support to FTP securely ("Use SSL" option) was broken and has been fixed. Also fixed a potential issue when doing the FTP connection test, it may try to use the wrong directory and cause a failure.

FTP connection failed!	IBM iDoctor for IBM i
Unable to verify the FTP connection to the server Yo may need to use a different port or SSL mode depending on ho the system you are connecting to and your network are configured. If you are connecting to this system over a VPN connection, you should try unchecking the 'Use Passive' checkbo	Unable to send file C:\windows\system32\FTPTEST.savf to remote path /QSYS.LIB/QTEMP.LIB/FTPTEST.savf rc 2 The system cannot find the file specified.
0	ОК



## August 2018 (1327) – CSI - CPU Graphs -> P8 or higher update

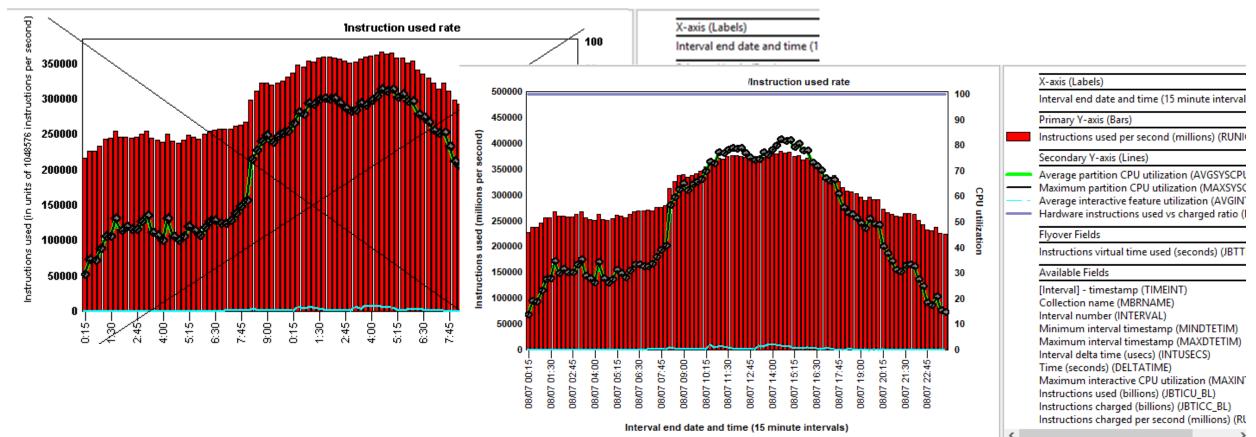
 Most of the instruction counts are now shown in billions instead of "in units of 1048576 instructions" to improve usability.





## August 2018 (1327) – CSI - CPU Graphs -> P8 or higher update

 The instruction rates are now shown in millions per second instead of "in units of 1048576 instructions per second" to improve usability.

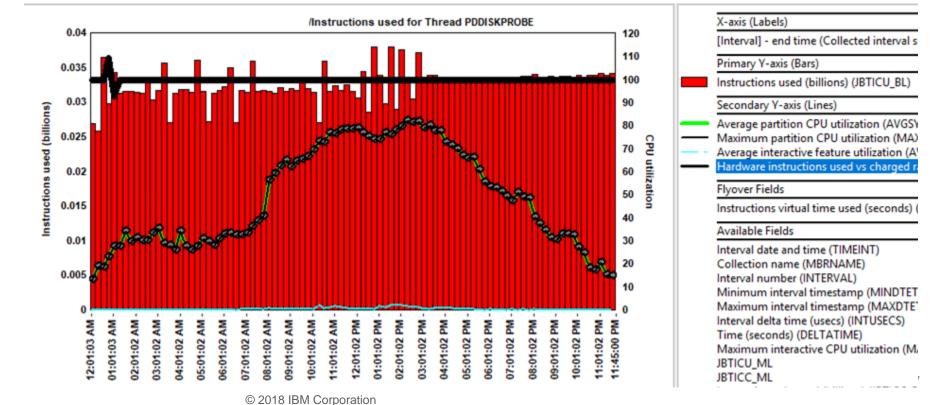




## August 2018 (1327) – CPU Graphs -> P8 or higher used vs charged ratio

 These graphs on the Y2 now include a percent of instructions used vs charged (same value for both is at 100%): Instructions used

Instructions used Instructions charged Instruction used rate Instruction charged rate





## August 2018 (1327) – CSI - CPU Graphs drill down removed

 In CSI the drill down graph Selected Threads/Job/etc -> CPU graphs -> Hardware instructions per second has been removed as it was a duplicate graph with Instructions used rates.

 Instruction used rate for Thread 'QP0ZS	:=\ <u>;</u> ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	
Selected Threads		Wait graphs
Selected Threads flattened	Hardware instructions per second	CPU graphs
Rankings filtered by selected Thread	Instructions used	I/O and memor
Collection overview	Instructions charged	JVM graphs
Preferences	Instruction used rate	IFS graphs
Run Collection Summary Launch Workload Estimator	Instruction charged rate Instructions virtual time used	Communicatior Other graphs



#### August 2018 (1327) – CSI - Incorrect idle wait calculations

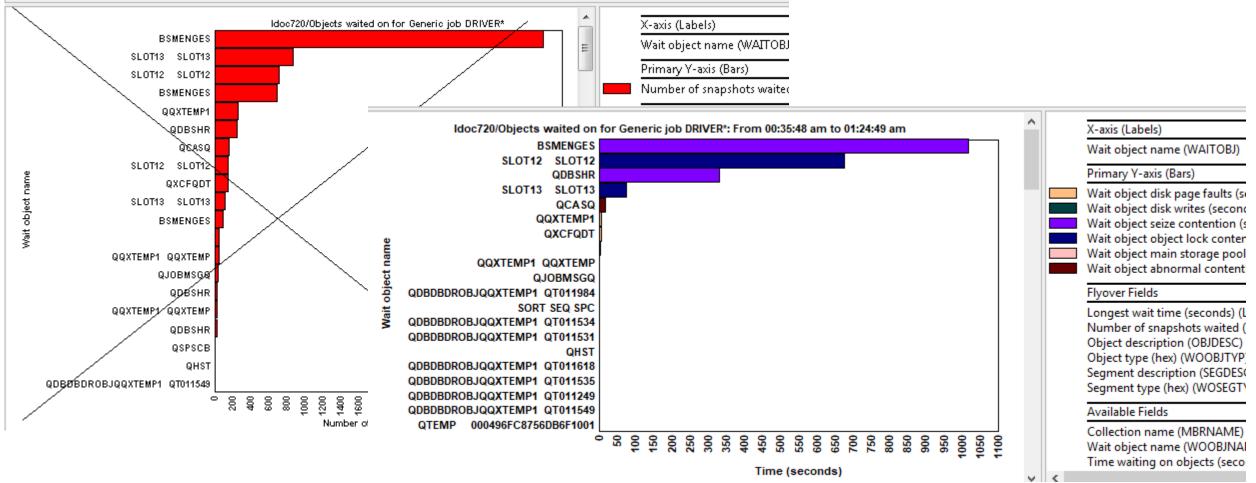
- In CSI, for unsummarized collections, the <OBJTYPE> wait time signature for <XYZ> wait bucket graph calculated the idle waits incorrectly in the SQL statement <u>for all groupings</u> <u>above thread</u>. (job, generic job, etc)
- The SQL was incorrectly trying to compare a generic job name to the TDE ID as a filter...

FROM QTEMP/QAPMSYSTEM QSY LEFT OUTER JOIN QTEMP/QAPMJOBWTG QWT ON QSY.INTNUM = QWT.INTNUM WHERE CHAR(HEX(JWTDE)) IN ('DEFAUL\*')



## August 2018 (1327) – JW -> Waits -> Objects waited on drill downs

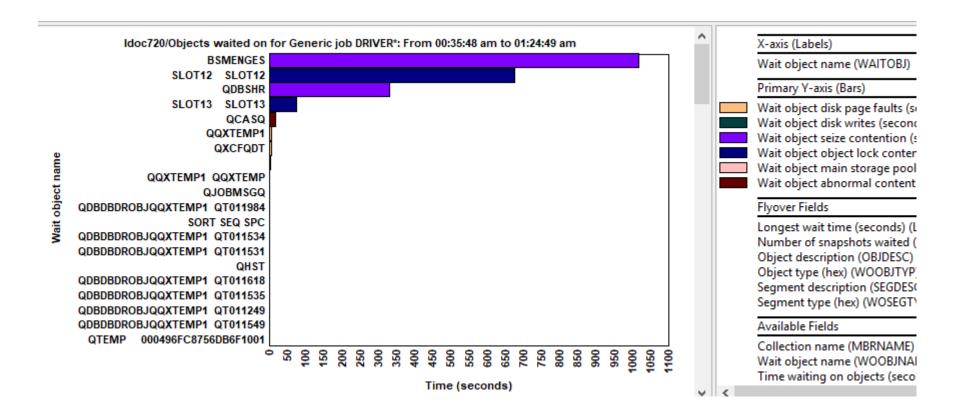
• These graphs will now show the "interesting" wait bucket times associated with each wait object instead of showing the number of intervals each wait object was found in the data.





## August 2018 (1327) – JW -> Waits -> Objects waited on drill downs

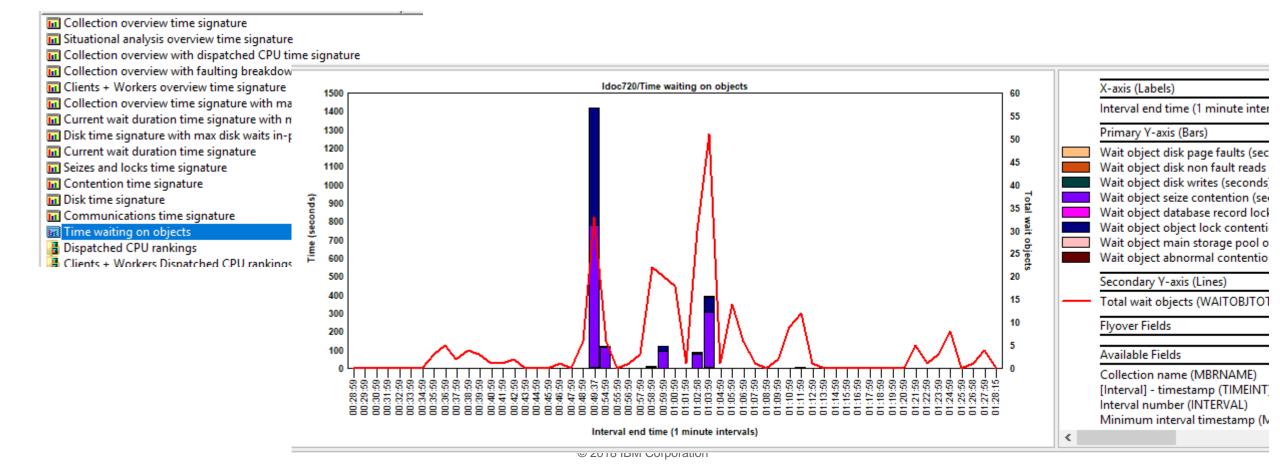
• These graphs previously did not support multiple collections but do now.





## August 2018 (1327) – JW -> Time waiting on objects

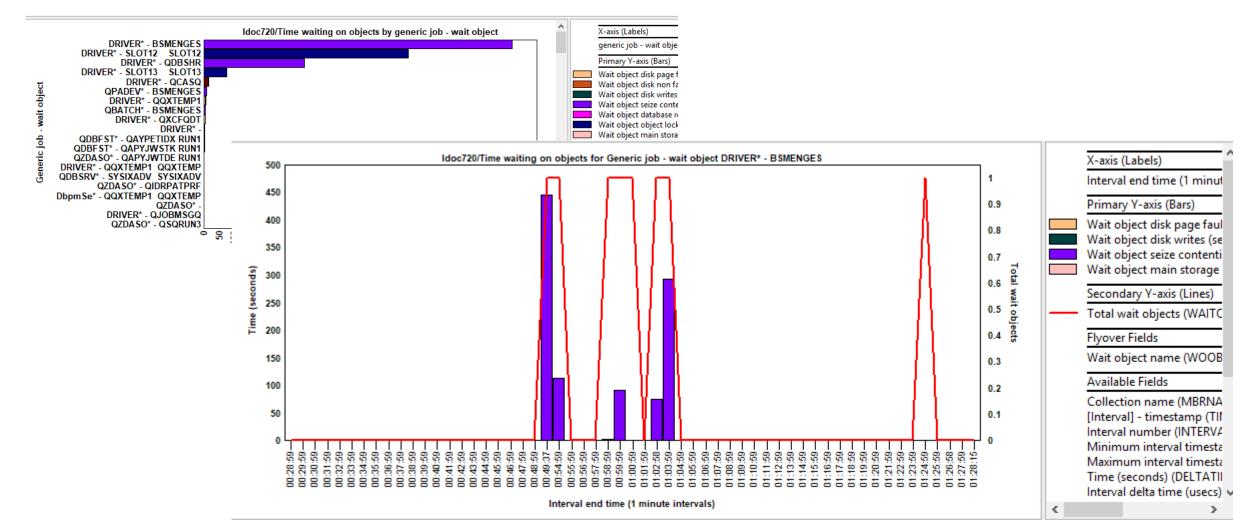
 These graphs add up "interesting" current wait durations while a wait object was found and provides analysis capability of the waits associated with the wait objects.





## August 2018 (1327) – JW -> Time waiting on objects

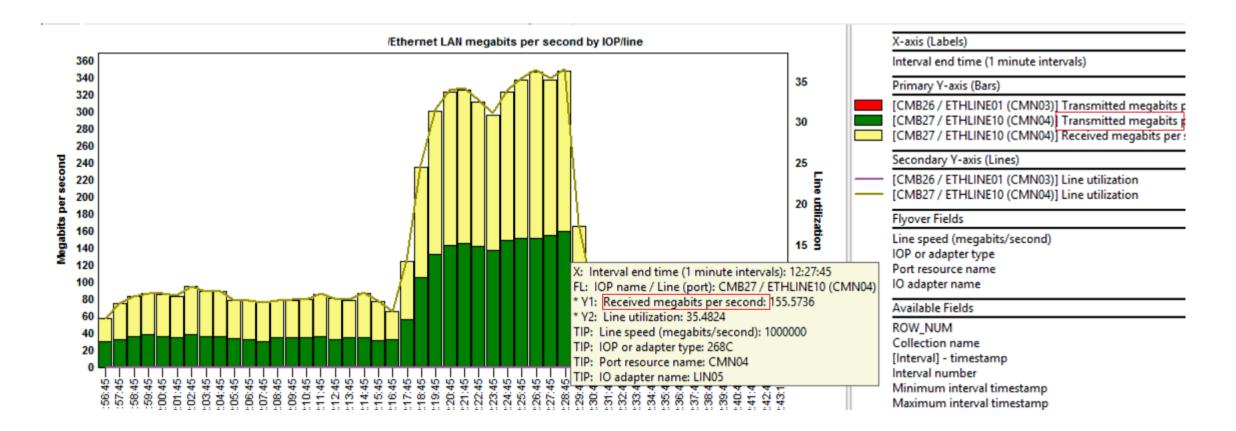
• Generic job - wait object job grouping example.





## August 2018 (1327) – Fixed bad flyover descriptions in flattened graphs

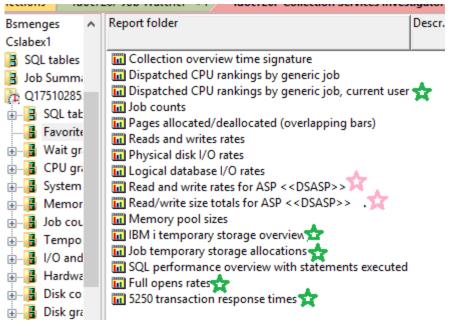
• In some flattened graphs, the Y1 flyover description was incorrect and has been fixed.





## August 2018 (1327) – CSI – Favorites folder updates

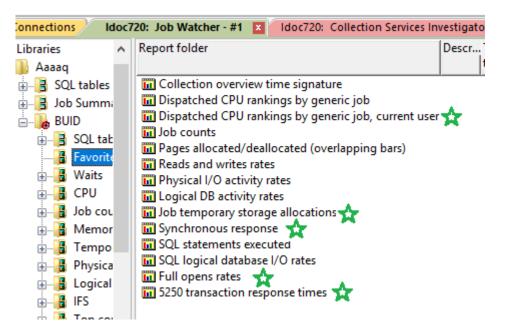
- The latest CSI Favorites folder contents are shown below.
  - New graphs = green star, changed graphs = pink star.
  - Removed the following graphs:
    - Dispatched CPU rankings by thread
    - Job temporary storage allocations by thread





## August 2018 (1327) – JW – Favorites folder updates

- The latest JW Favorites folder contents are shown below.
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    - Dispatched CPU rankings by thread
    - Job temporary storage allocations by thread





## August 2018 (1327) – CSI – Active virtual processors graph

- The values shown can now exceed 32 virtual processors.
  - Data now comes from QAPMSYSVP instead of QAPMSYSCPU which allows this.
  - Simplified the field descriptions shown to be: Total virtual processors (TOTVPS) Active virtual processors (ACTVPS)



## August 2018 (1327) – JW – Generic job for the selected thread drill down

- Renamed the drill down to "Generic job for selected <<OBJTYPE>>" i.e. thread/user/etc since this option is available from more types of rankings than just thread rankings.
- The rates graphs showed inaccurate rate values if the interval selection was greater than the collected interval size.
- The Generic job X\* memory page demand graph did not work.



#### August 2018 (1326) – Power Connections issues fixed

- Fixed bugs in many spots related to the connection settings for Power systems (VIOS, HMC, etc) getting confused / saved in the location for IBM i connections instead.
  - FTP transfers may fail, because the wrong connection settings were being used.
  - This also effected functions that show data (open file), transfer files, or the edit option.

IBM i Connection	ns Power Connections	Remote Command Status 🛛 IBM iDod	tor for IBM i - Prope
Time	System	Status	Command
08/16/18 09:38:59		Complete (.48 seconds)	cat /tmp/idoctor
08/16/18 09:39:09		Complete (.22 seconds)	cat /tmp/idoctor
V 08/16/18 09:39:10		08/16/18 09:39:13: Completed successfully >	rm /tmp/idoctor/
08/16/18 09:39:10		08/16/18 09:39:30: Completed successfully >	print "/tmp/idoct
108/16/18 09:39:10		Error: An FTP connection is not available. >	get /tmp/idoctor
08/16/18 09:40:23		Complete (.45 seconds)	ioscli ioslevel
V 08/16/18 09:40:23		Complete (.48 seconds)	cat /tmp/idoctor
08/16/18 09:40:24		Complete (.66 seconds)	print "oslevel"   o



#### August 2018 (1326) – Power Connections find window

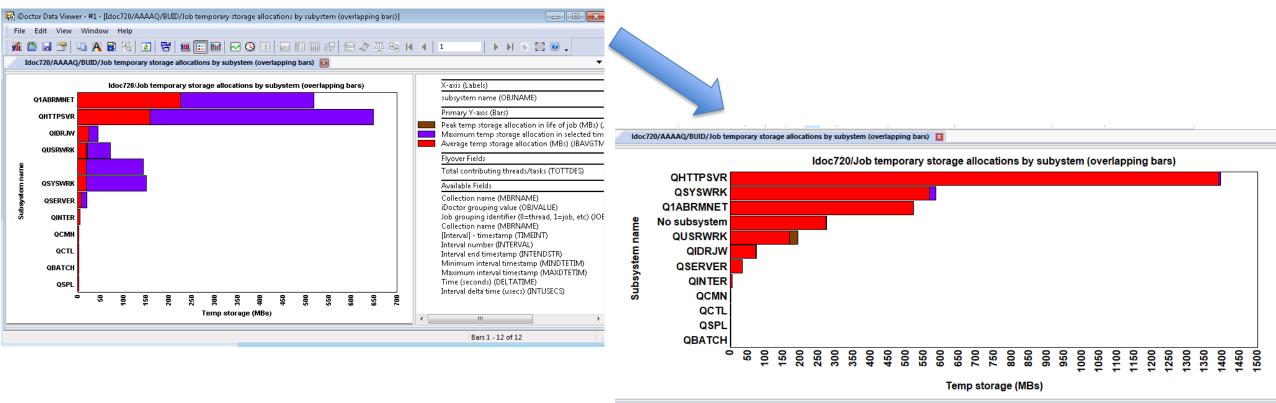
- In the find window, the preference for the search directories can now be saved for each type of data (nmon, npiv, etc.) Previously all types of data shared the same value.
- Also the text on the window that refers to multiple system(s) when doing a find has been removed as this support no longer exists.

🖆 Find nmon data	1		×
This function will search the system in the specified directories for nmon data. Separate multiple directories to search with a space.   Ca     Warning: Depending upon the directories searched, this function may take a long time.   Ca			
System	n:	Ebvios	
Search directo		/home /tmp	



#### August 2018 (1326) – JW temp storage graphs inaccurate

 In Job Watcher, the Temporary storage - job temporary storage ranking graphs and selection over time were inaccurate and have been fixed. The values given were considerably smaller than they should have been in some situations.

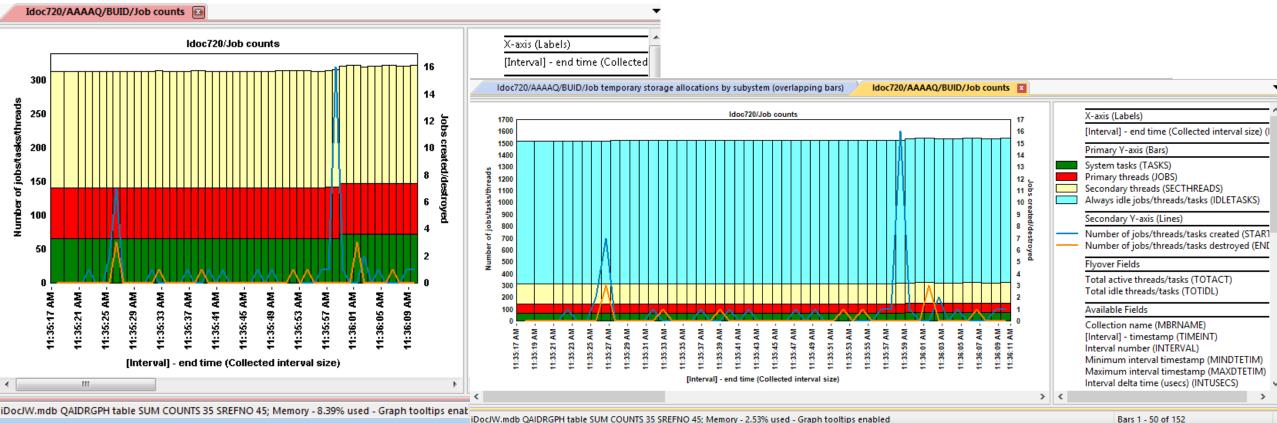


DocIW mdb OAIDRGPH table SLIM TMPRK 1105 AITID 7 SRFENO 24: Memory - 1 78% used - Granh tooltins enabled



#### August 2018 (1326) – JW Job counts missing "always idle work"

The Job Watcher job counts graphs were inaccurate as they did not include jobs/threads that never used CPU during the collection. Because they never used CPU we do not know if they are jobs, threads or tasks.

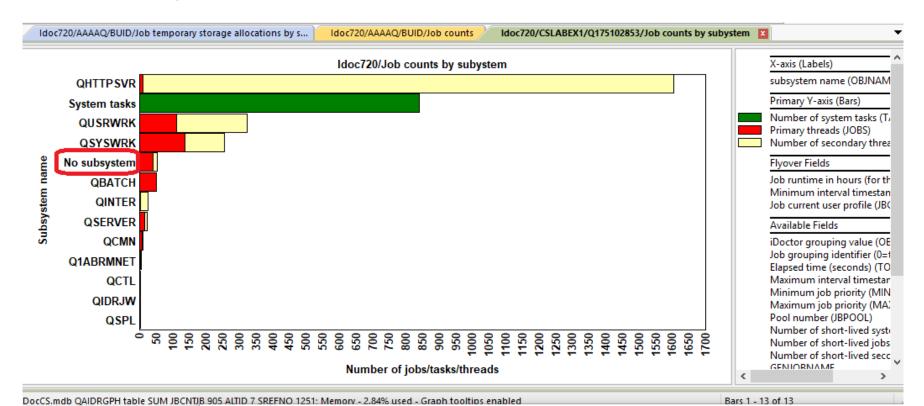


iDocJW.mdb QAIDRGPH table SUM COUNTS 35 SREFNO 45; Memory - 2,53% used - Graph tooltips enabled



#### August 2018 (1326) – CSI ranking graphs – "No subsystem"

 In CSI fixed a problem in some of the ranking graphs where you may see "All system tasks" appear in the results when ranking by subsystem. This was really just data (not necessarily system tasks) where no subsystem was assigned to the job. This has been renamed to "No subsystem".



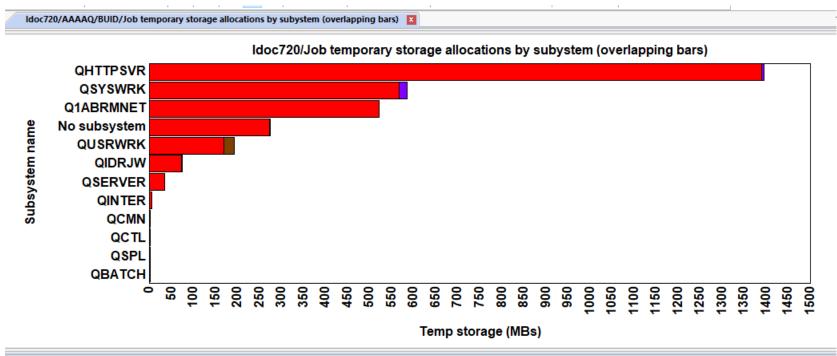


## August 2018 (1326) – JW ranking graphs – "No subsystem", "No user"...

In JW in ranking graphs if no value is found applicable for the current grouping (i.e. subsystem, current user, etc) then instead of seeing blank you will now see text such as "No subsystem". This provides the ability to drill down further on this entry where previously this was not possible.

Bars 1 - 12 of 12

- For example you could drill down to see the jobs within the "No subsystem" grouping.



DocIW mdb OAIDRGPH table SLIM TMPRK 1105 AITID 7 SREENO 24: Memory - 1 78% used - Graph tooltins enabled