

iDoctor Updates (January 3rd to Feb 18th 2019)

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Currently recommended “stable” builds

- IBM internal:
 - Latest client is 1343 (Feb 18th)
 - Latest "stable" client is 1340 (Jan 3rd)
- IBM external:
 - Latest client is 1340 (Jan 3rd)
 - Latest "stable/announced" client is 1340 (Jan 3rd)

Feb 2019 (1343) – Job Watcher – Collections folder added

- In JW added a Collections folder under the Job Watcher folder that is used to display all collections found on the system matching the library filter set. Note that this option can take a long time to run in some situations and should be used with caution.
- This provides the following capabilities:
 - Graphing multiple collections from multiple libraries at once.
 - Searching collections from multiple libraries at once.
 - Using the Report Generator option from collections in multiple libraries.

Feb 2019 (1343) – Job Watcher – Interval Details – Objects waited on

- In the JW Interval Details -> Objects waited on interface the arrows to move through the intervals did not work properly (they were reversed) and have been fixed.

Record Quick View Call stack Object waited on Wait buckets Physical I/Os Logical I/Os Transactions IFS SQL Other statistics Query

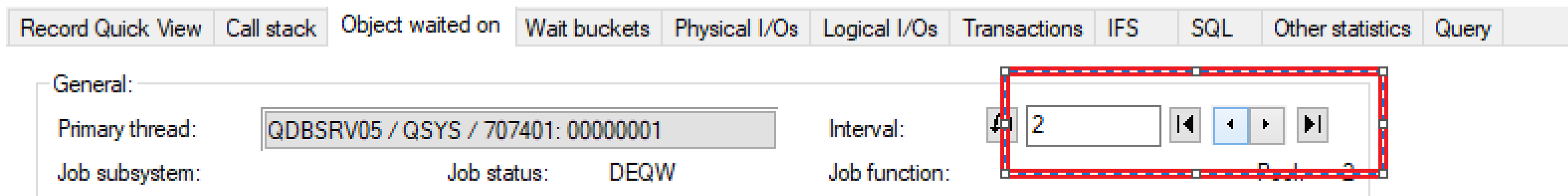
General:

Primary thread: QDBSRV05 / QSYS / 707401: 00000001

Job subsystem: Job status: DEQW

Interval: 2

Job function: P, J, 2

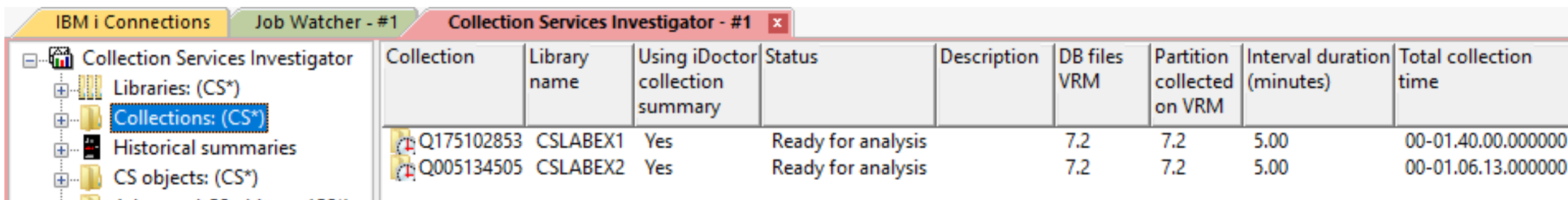


Feb 2019 (1343) – CSI – Collection Search updates

- In CSI, made the following updates to the Collection Search interface:
 1. Changed the prompt where it lists collections to include the library and collection name for each individual collection and removed the library name from the panel.
 2. From the Collections folder you can now search multiple collections from multiple libraries. Previously this would fail.
 3. The interfaces will now remember the user's preferences on this screen: (Starts with, include system tasks, etc)

Feb 2019 (1342) – CSI – Collections folder added

- In CSI added a Collections folder under the Collection Services Investigator folder that is used to display all collections found on the system matching the library filter set. Note that this option can take a long time to run in some situations and should be used with caution.
- This provides the following capabilities:
 - Graphing multiple collections from multiple libraries at once.
 - Searching collections from multiple libraries at once.
 - Using the Report Generator option from collections in multiple libraries.



The screenshot shows the 'Collection Services Investigator' window with a tree view on the left and a data table on the right. The tree view includes 'Libraries: (CS*)', 'Collections: (CS*)' (highlighted), 'Historical summaries', and 'CS objects: (CS*)'. The table below lists two collections with their respective library names, iDoctor status, and various metrics.

Collection	Library name	Using iDoctor collection summary	Status	Description	DB files VRM	Partition collected on VRM	Interval duration (minutes)	Total collection time
Q175102853	CSLABEX1	Yes	Ready for analysis		7.2	7.2	5.00	00-01.40.00.000000
Q005134505	CSLABEX2	Yes	Ready for analysis		7.2	7.2	5.00	00-01.06.13.000000

Feb 2019 (1342) – Report Generator updates (1/5)

- On Preferences -> Report Generator tab added an option "Run report N times" with possible values of 1 to 9999. This is intended for service use to debug possible SQL issues. Default value is 1.

Display	Clipboard	File	PEX	Scheduling	Confirm	SQL	Data Viewer
Misc.	Send to IBM	PCOMM	Power	Tips	MDI Tabs	Report Generator	

Report directory:

Include the current time in the iDoctorReport*.html file name

Pages to capture (per report): Debug mode

Run report N times: Multiple collections graphed individually

Feb 2019 (1342) – Report Generator updates (2/5)

- On Preferences -> Report Generator tab added an option "Multiple collections graphed individually". Default value is unchecked. If this option is checked then rather than combining multiple collections that have been selected before using this option into a single graph, each collection will open each report specified individually.

Display	Clipboard	File	PEX	Scheduling	Confirm	SQL	Data Viewer
Misc.	Send to IBM	PCOMM	Power	Tips	MDI Tabs	Report Generator	

Report directory:

Include the current time in the iDoctorReport*.html file name

Pages to capture (per report): Debug mode

Run report N times: Multiple collections graphed individually

Feb 2019 (1342) – Report Generator updates (3/5)

- The report generator window now includes a text box at the top that is used to filter the available reports shown. This search is currently case-sensitive and based on the graph description.

iDoctor Report Generator: Collection Services Investigator, 720

This function allows you to automatically build the desired reports and send screenshots of the output and an HTML report to the desired folder. Click the Configure... button to set your display and output preferences if desired.

Available reports:

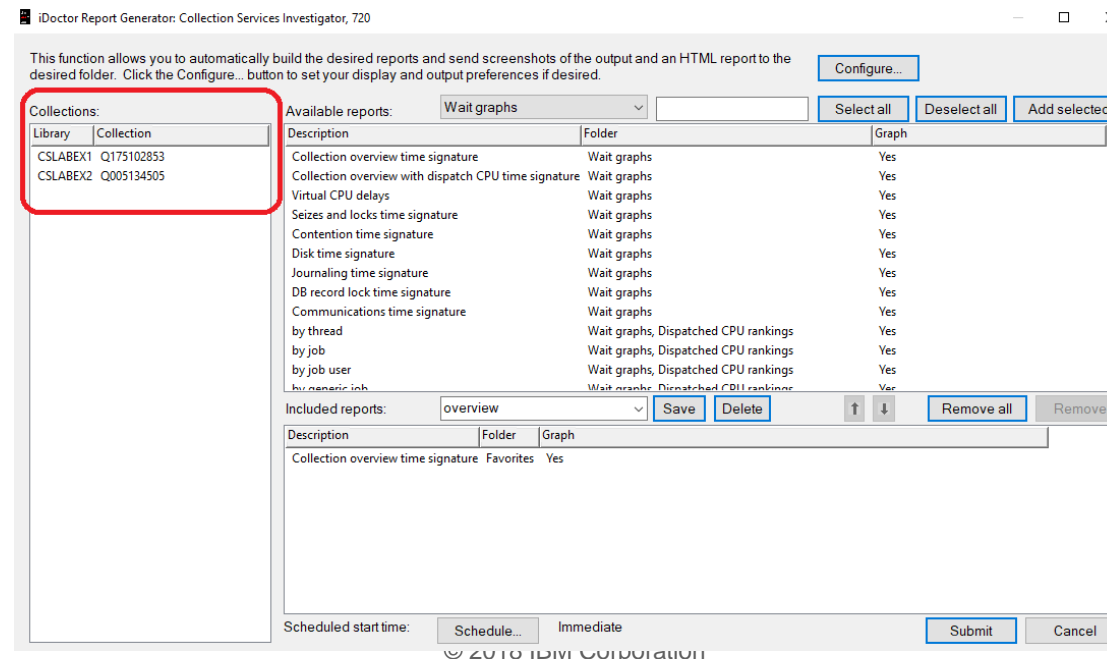
Description	Folder	Graph
Collection overview time signature	Wait graphs	Yes
Collection overview with dispatch CPU time signature	Wait graphs	Yes
Seizes and locks time signature	Wait graphs	Yes
Contention time signature	Wait graphs	Yes
Disk time signature	Wait graphs	Yes
Journaling time signature	Wait graphs	Yes
DB record lock time signature	Wait graphs	Yes
Communications time signature	Wait graphs	Yes

Included reports:

Description	Folder	Graph
Collection overview time signature	Favorites	Yes

Feb 2019 (1342) – Report Generator updates (4/5)

- The report generator window now includes a list of collections that have been selected on the left side of the window so it is more clear which collections will be included in the report generated.
- It also now supports including collections from multiple libraries.



Feb 2019 (1342) – Report Generator updates (5/5)

- In CSI, the generate reports interface did not handle displaying system information and collection information for collections listed in the new Collections folder correctly and has been fixed.

Feb 2019 (1342) – CSI – Memory pool graph colors fixed

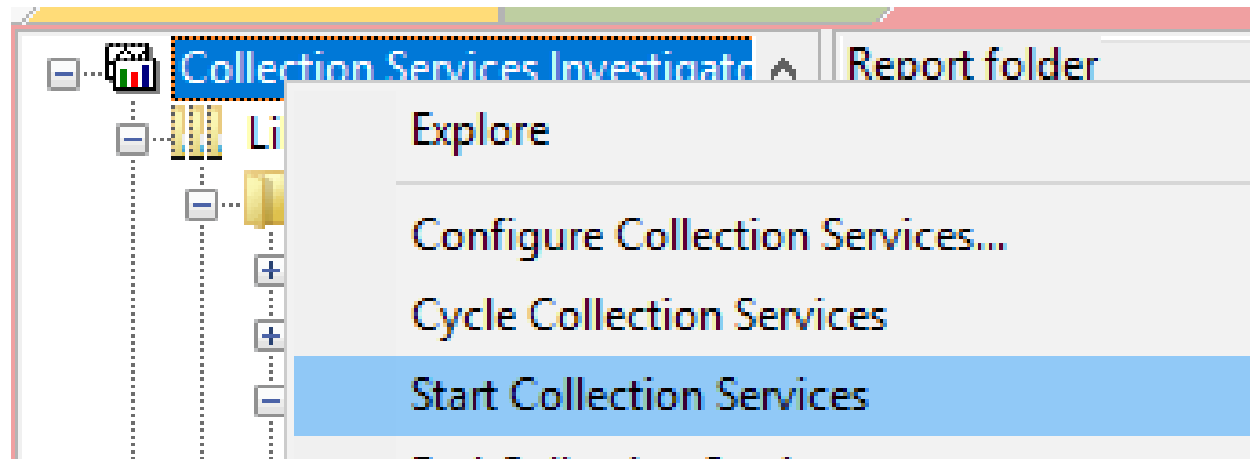
- In CSI, the memory pool graphs used undesirable colors in some situations (pool #3 or #21-23) which has been fixed.

This was due to the wait bucket colors were being used instead of the colors defined for the memory pool fields and some wait bucket colors were undefined/reserved.



Jan 2019 (1341) – CSI – Start Collection Services broken

- In CSI, the menu option to Start Collection Services from the Collection Services Investigator component did not work and has been fixed.



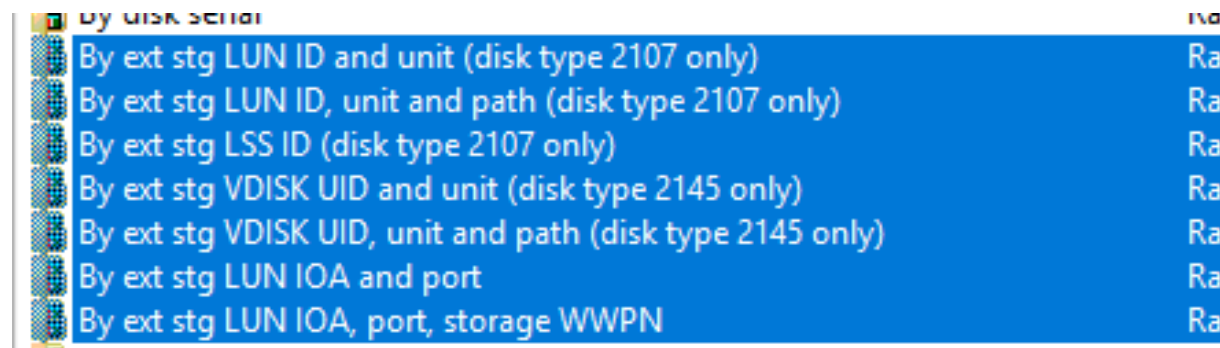


Jan 2019 (1341) – CSI – Historical summary – job counts fixed

- In CSI in the historical summary analysis, the Job counts summary table produced timestamp records that could not be joined properly to the other files in the analysis causing the Job counts graphs to be inaccurate.

Jan 2019 (1341) – CSI disk graphs missing read/write response times

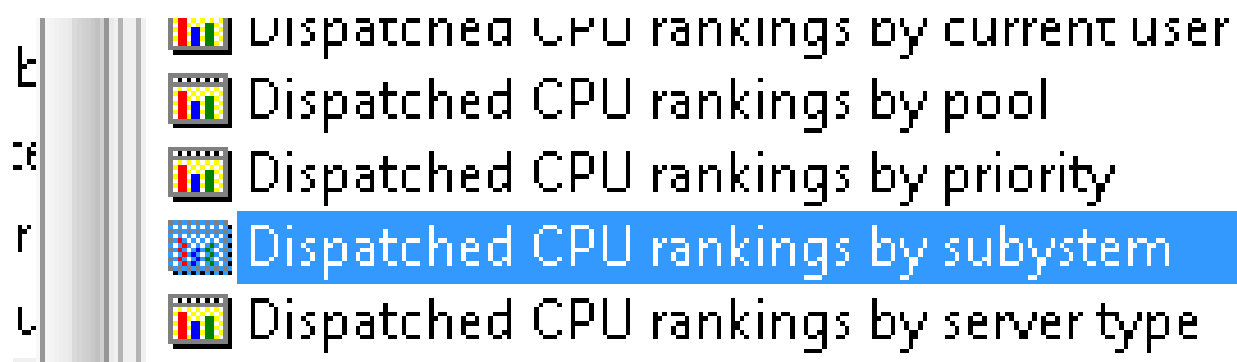
- In CSI, the several disk graphs subfolders did not include read avg response time and write avg response times broken out separately on the secondary Y-axis which has now been updated.



- Note:** Since this requires the 7.1 version of QAPMDISKRB to exist, these sub folders will no longer appear at the 6.1 IBM i release.

Jan 2019 (1341) – Subsystem misspelled

- In CSI and Job Watcher the word "subsystem" was misspelled in several graphs names and has been fixed.



Jan 2019 (1341) – CSI – System graphs updates (1/8)

- Renamed CSI graphs in the System graphs folder for consistency reasons since they show the same fields on the 2nd Y-axis.
- Old names:
 - LPAR CPU time with entitlement consumed from HMC perspective
 - LPAR VCPU delays with HMC CPU utilization by partition
- New names:
 - **LPAR CPU time with HMC CPU utilization**
 - **LPAR VCPU delays with HMC CPU utilization**

Jan 2019 (1341) – CSI – System graphs updates (2/8)

- In CSI under System graphs -> Rankings, the **CPU entitled time** graph now includes both HMC and LPAR CPU utilization on the secondary Y-axis.



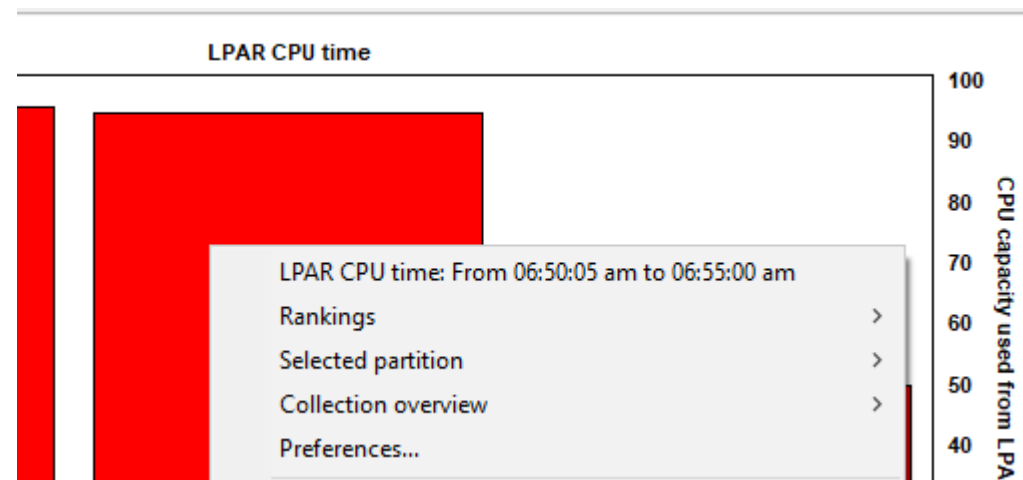
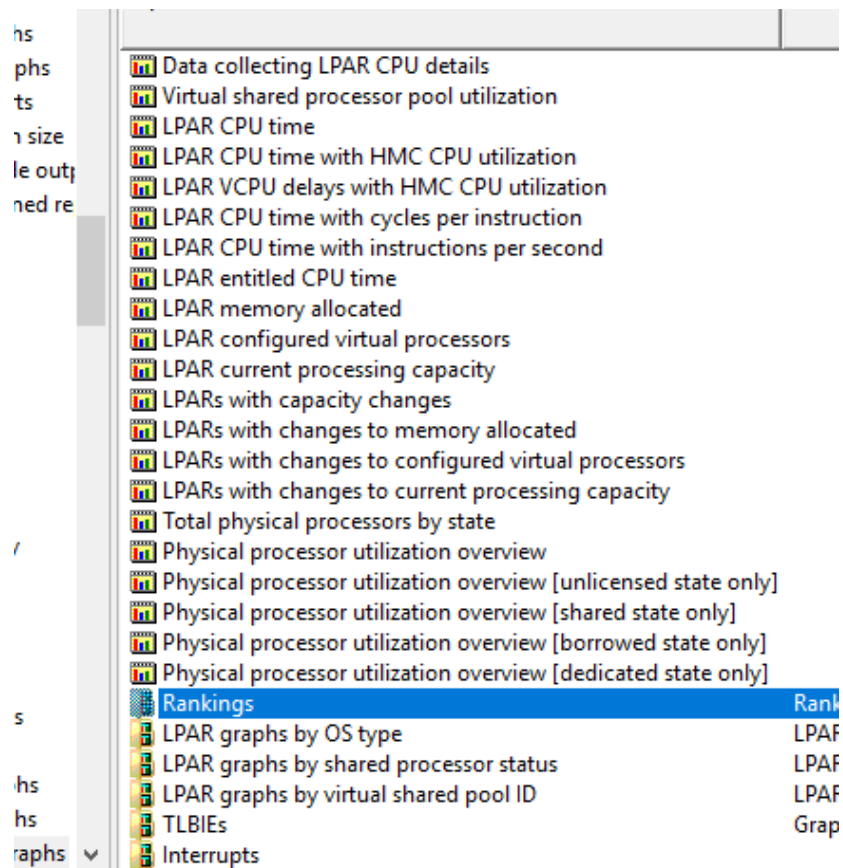
Jan 2019 (1341) – CSI – System graphs updates (3/8)

- In the Rankings subfolder the following graphs were removed:
 - LPAR donated processor time
 - LPAR dedicated processor utilization

- 7. The Rankings -> CPU entitled time graph now includes both HMC and LPAR CPU utilization on the secondary Y-axis.

Jan 2019 (1341) – CSI – System graphs updates (4/8)

- In CSI, the System graphs -> Rankings subfolder has moved to the top of the list in order for the default drill downs by LPAR or processor (from the overview graphs) to work properly again.

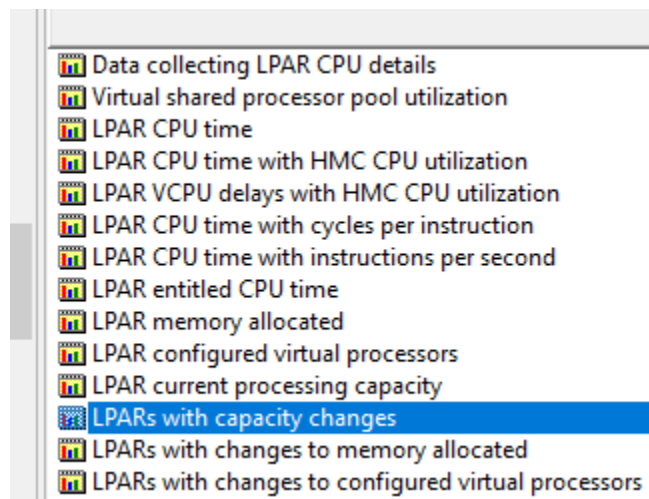


Jan 2019 (1341) – CSI – System graphs updates (5/8)

- In the **LPAR graphs by OS type** sub folder the following graphs did not show any data:
 - LPAR CPU time by OS type
 - LPAR CPU time with cycles per instruction by OS type
 - LPAR CPU time with instructions per second by OS type
- In the **LPAR graphs by shared processor** or **LPAR graphs by virtual shared pool ID** sub folders the same graphs described above also did not show any data.

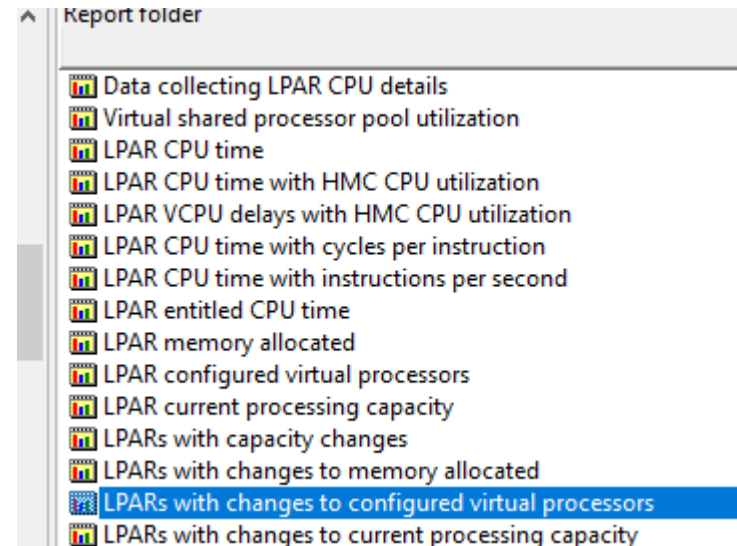
Jan 2019 (1341) – CSI – System graphs updates (6/8)

- The **LPARs with capacity changes** graph has been updated so the SQL accurately computes now the number of configuration changes per LPAR. It will also now include the configuration values in the graph flyover (MIN/MAX values for each setting.) This graph will also now show all LPARs regarding of capacity changes found but will sort the results showing the LPAR with the most changes first.



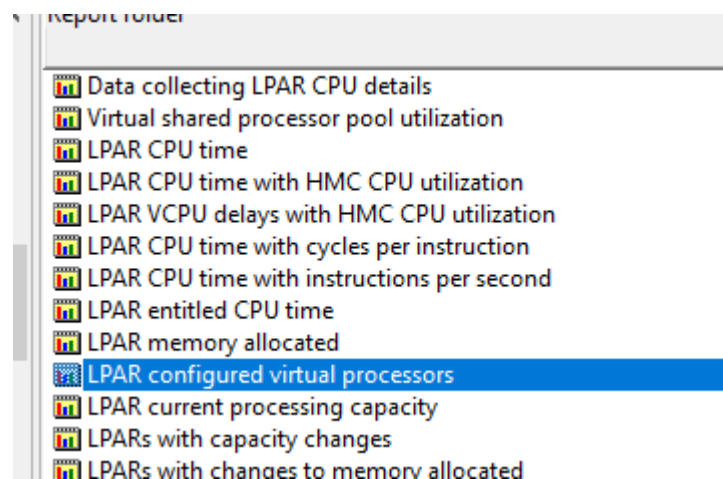
Jan 2019 (1341) – CSI – System graphs updates (7/8)

- In CSI in the System graphs folder, the graph **LPARs with changes to current virtual processors** has been renamed to **LPARs with changes to configured virtual processors**.



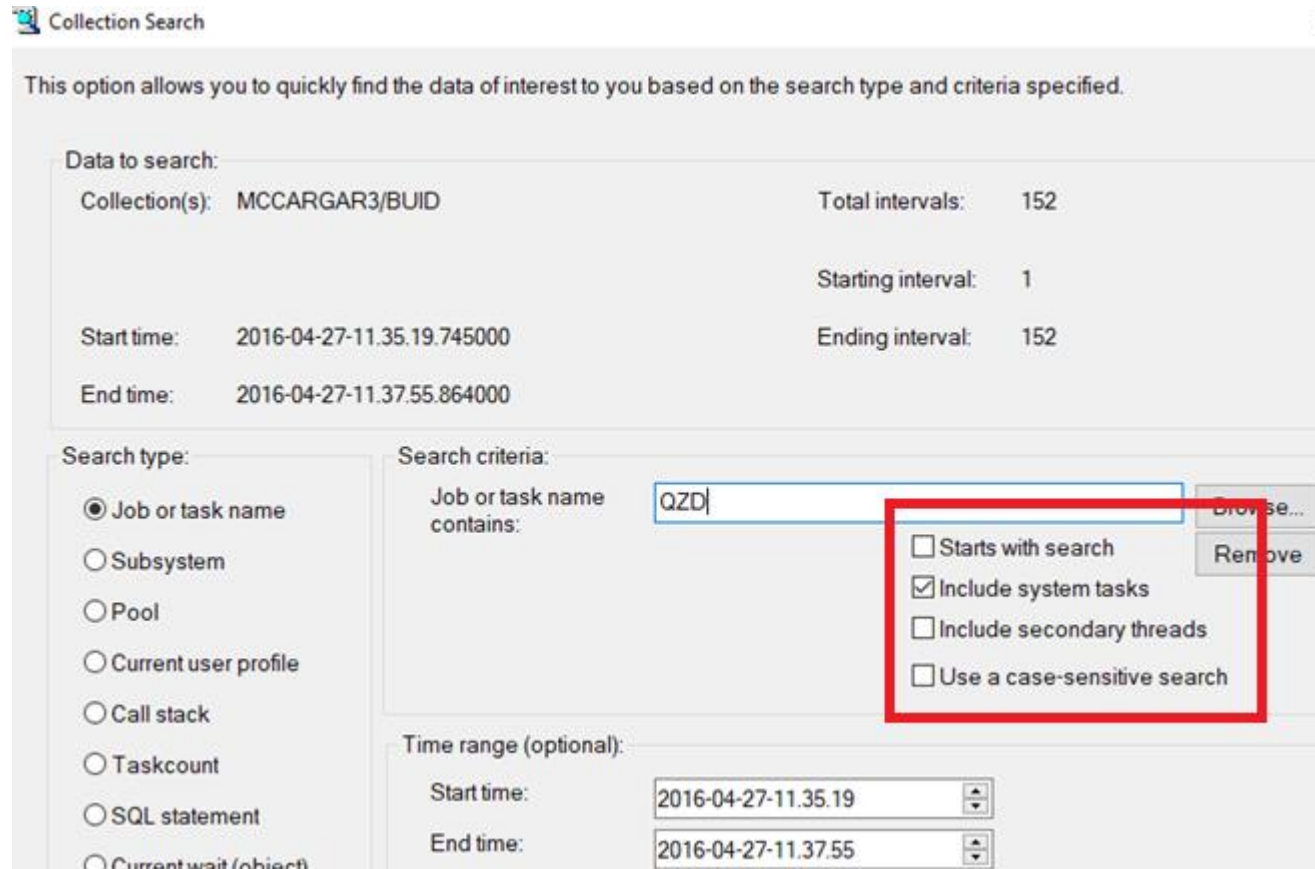
Jan 2019 (1341) – CSI – System graphs updates (8/8)

- In CSI in the System graphs folder, the graph **LPAR current virtual processors** has been renamed to **LPAR configured virtual processors**.



Jan 2019 (1341) – Job Watcher search update

- In JW, the checkbox options made on the Collection Search window are now remembered the next time it is opened.



Collection Search

This option allows you to quickly find the data of interest to you based on the search type and criteria specified.

Data to search:

Collection(s):	MCCARGAR3/BUID	Total intervals:	152
Start time:	2016-04-27-11.35.19.745000	Starting interval:	1
End time:	2016-04-27-11.37.55.864000	Ending interval:	152

Search type:

- Job or task name
- Subsystem
- Pool
- Current user profile
- Call stack
- Taskcount
- SQL statement
- Current wait (object)

Search criteria:

Job or task name contains:

Starts with search

Include system tasks

Include secondary threads

Use a case-sensitive search

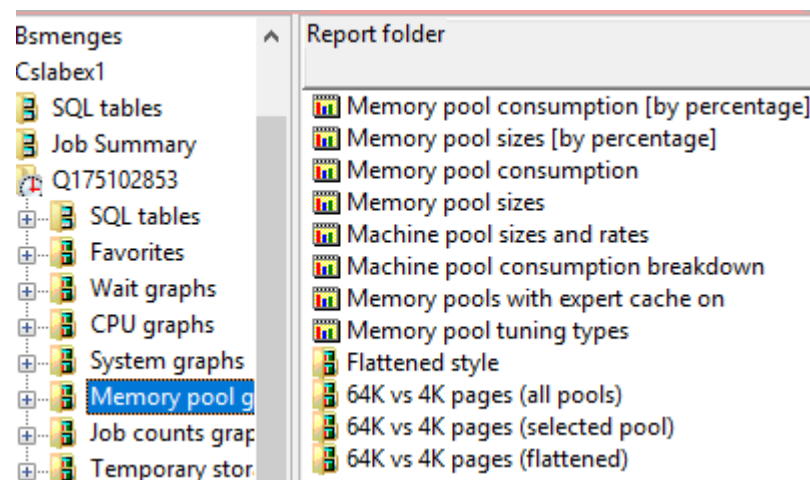
Time range (optional):

Start time:

End time:

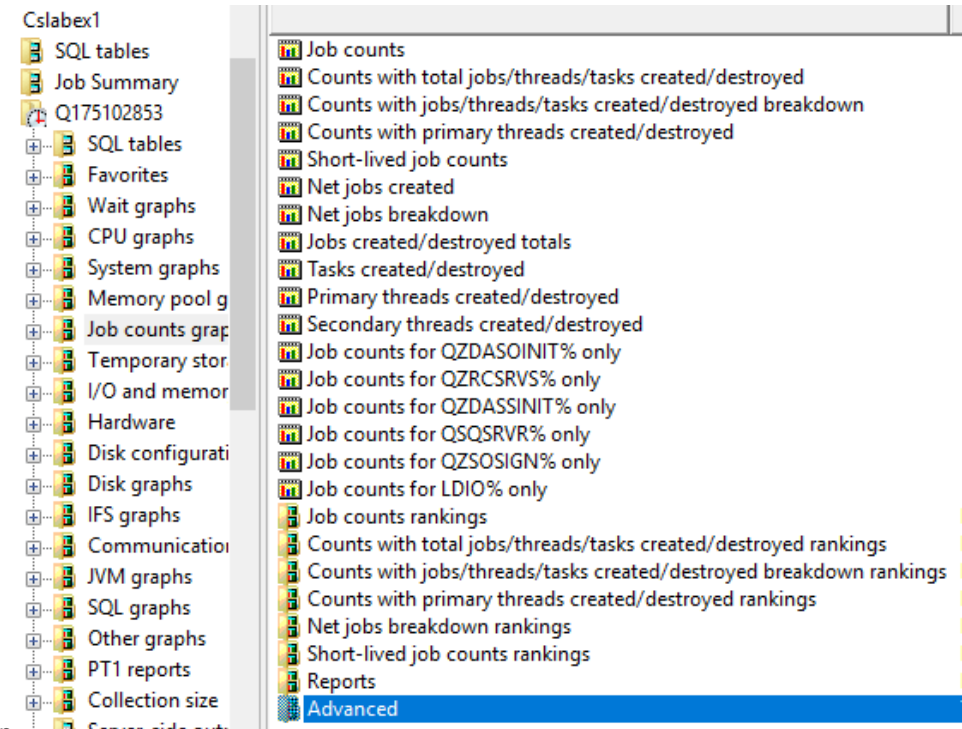
Jan 2019 (1341) – CSI – Memory pool graph updates

- In CSI in the memory pool graphs folder made the following updates:
 - Removed the graph Page fault rates (this is basically a duplicate of Memory pool sizes graph)
 - Removed the graph State transition rates



Jan 2019 (1341) – CSI - Job counts graphs updates (1/2)

- In CSI, in the Job counts graphs folder the following graphs contained incorrect results in some situations and have been fixed:
 - Counts with total jobs/threads/tasks created/destroyed
 - Counts with jobs/threads/tasks created/destroyed breakdown
 - Counts with primary threads created/destroyed
 - Short-lived job counts





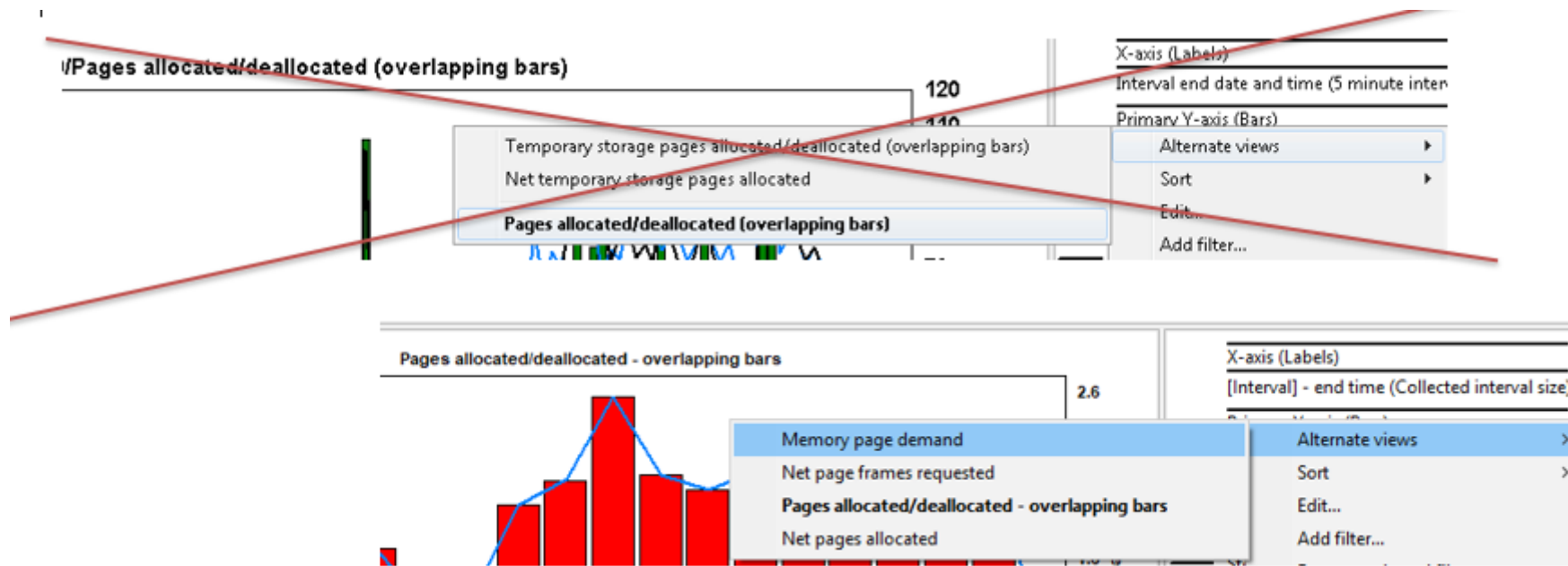
Jan 2019 (1341) – CSI - Job counts graphs updates (2/2)

- The graph Counts with jobs (primary threads) created/destroyed has been renamed to Counts with primary threads created/destroyed

This avoids a problem with the alternate view menu.

Jan 2019 (1341) – CSI overlapping bars graph description change

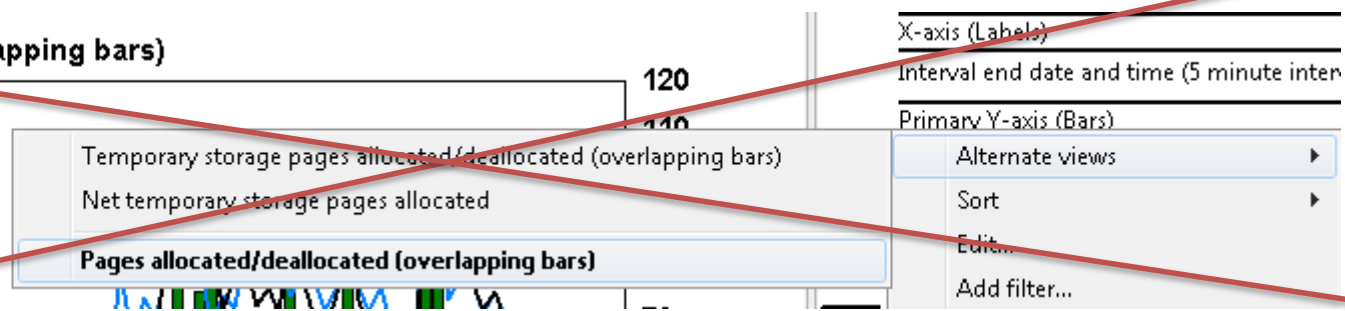
- In CSI, renamed the graphs that show "(overlapping bars)" in the graph description to "-overlapping bars". This avoid an issue in the alternate views menu with creating the option there incorrectly based on the parentheses found in the graph name.



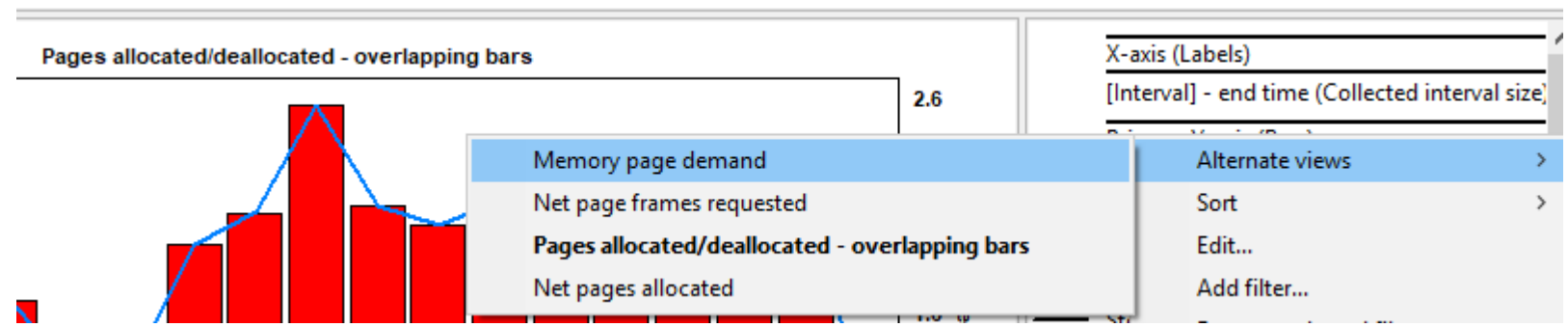
Jan 2019 (1341) – Alternate views no longer includes “Favorites”

- The alternate view menu will no longer show graphs from the "Favorites" folder to avoid having them appear in unexpected ordering and/or avoids having them appear twice.

~~/Pages allocated/deallocated (overlapping bars)~~



Pages allocated/deallocated - overlapping bars





Jan 2019 (1341) – CSI – I/O and memory page demand updates (1/5)

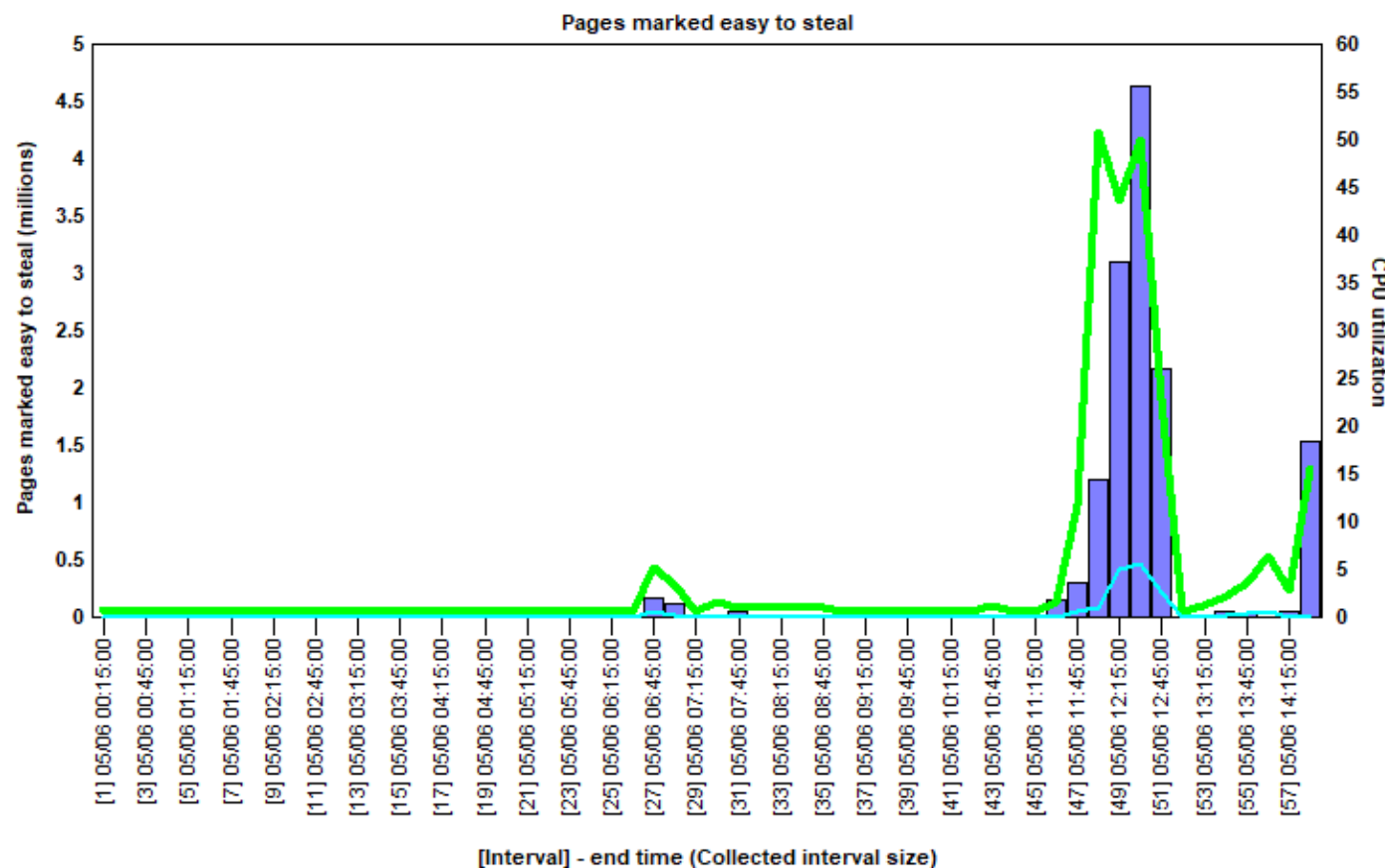
- In the I/O and memory page graphs folder these ranking graphs were renamed to the following in order to match the graph names within:
 - Net page frames rankings -> Net page frames requested rankings
 - Pages allocated rankings -> Pages allocated/deallocated rankings
 - Cumulative pages allocated rankings -> Cumulative pages allocated/deallocated rankings

Jan 2019 (1341) – CSI – I/O and memory page demand updates (2/5)

- In the I/O and memory page graphs folder the SQL for graphs that show pages allocated or deallocated (or temporary pages) were updated so that they all use the new (per interval) fields in QAPMJOBMI at IBM i 7.3.
 - **Note:** Be aware that in some situations this may cause data accuracy issues due to possible issues with the raw data. (especially for DBL3* system tasks)

Jan 2019 (1341) – CSI – I/O and memory page demand updates (3/5)

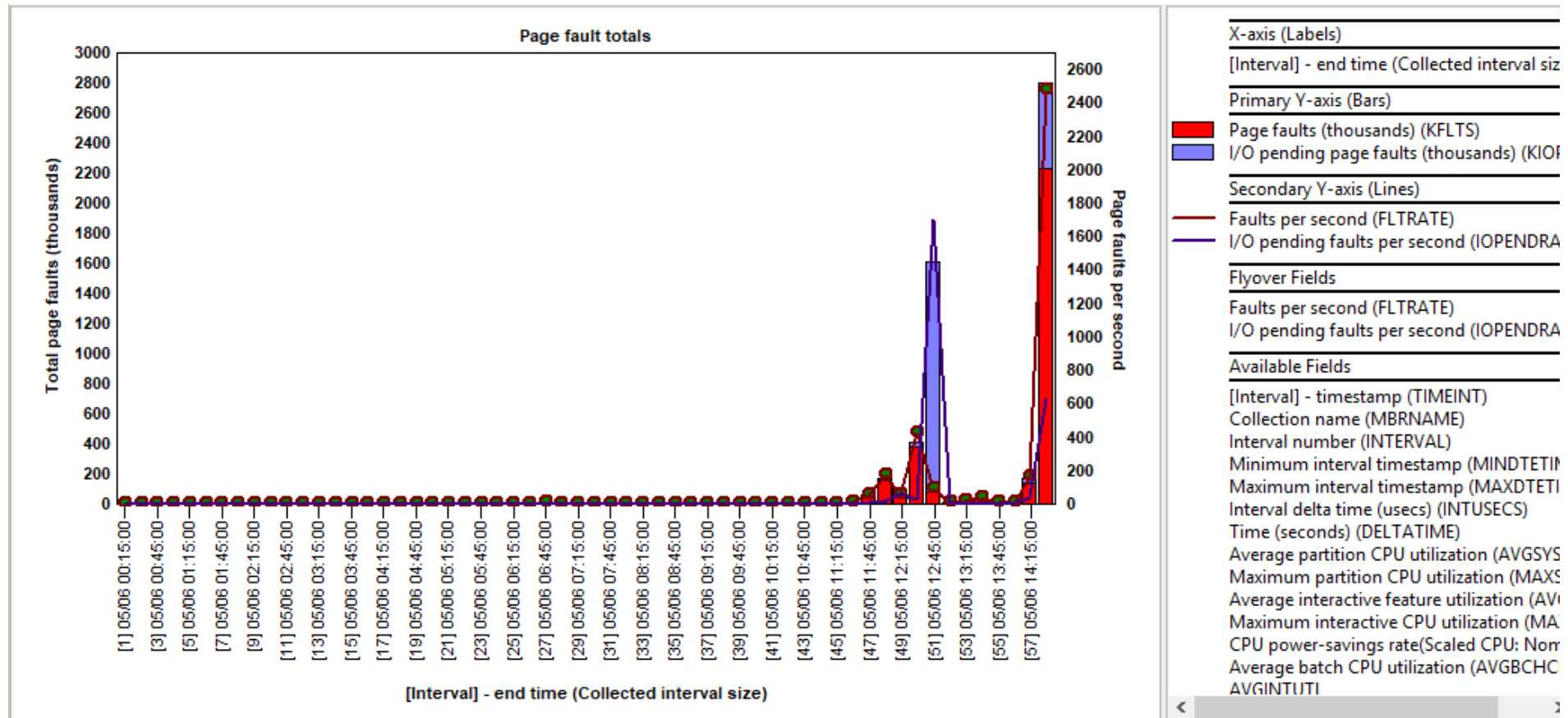
- In the I/O and memory page graphs folder the Pages marked easy to steal graphs now show the value shown in millions.



X-axis (Labels)	
[Interval]	- end time (Collected interval size)
Primary Y-axis (Bars)	
Pages marked easy to steal (millions) (MJ)	
Secondary Y-axis (Lines)	
Average partition CPU utilization (AVGSY)	
SQL CPU utilization (PCTSQLCPU)	
Flyover Fields	
SQL elapsed (clock) time (seconds) (SQLT)	
SQL physical disk I/Os percent of total (P)	
Available Fields	
[Interval]	- timestamp (TIMEINT)
Collection name (MBRNAME)	
Interval number (INTERVAL)	
Minimum interval timestamp (MINDTET)	
Maximum interval timestamp (MAXDTET)	
Interval delta time (usecs) (INTUSECS)	
Time (seconds) (DELTATIME)	
Maximum partition CPU utilization (MAX)	
Average interactive feature utilization (AV)	
Maximum interactive CPU utilization (MA)	
Total active threads/tasks (TOTACT)	
Dispatched CPU (seconds) (TIME01)	
CPU queuing (seconds) (TIME02)	
CPU power-savings rate (Scaled CPU: Nor	
SQL SCAI FDCPU	

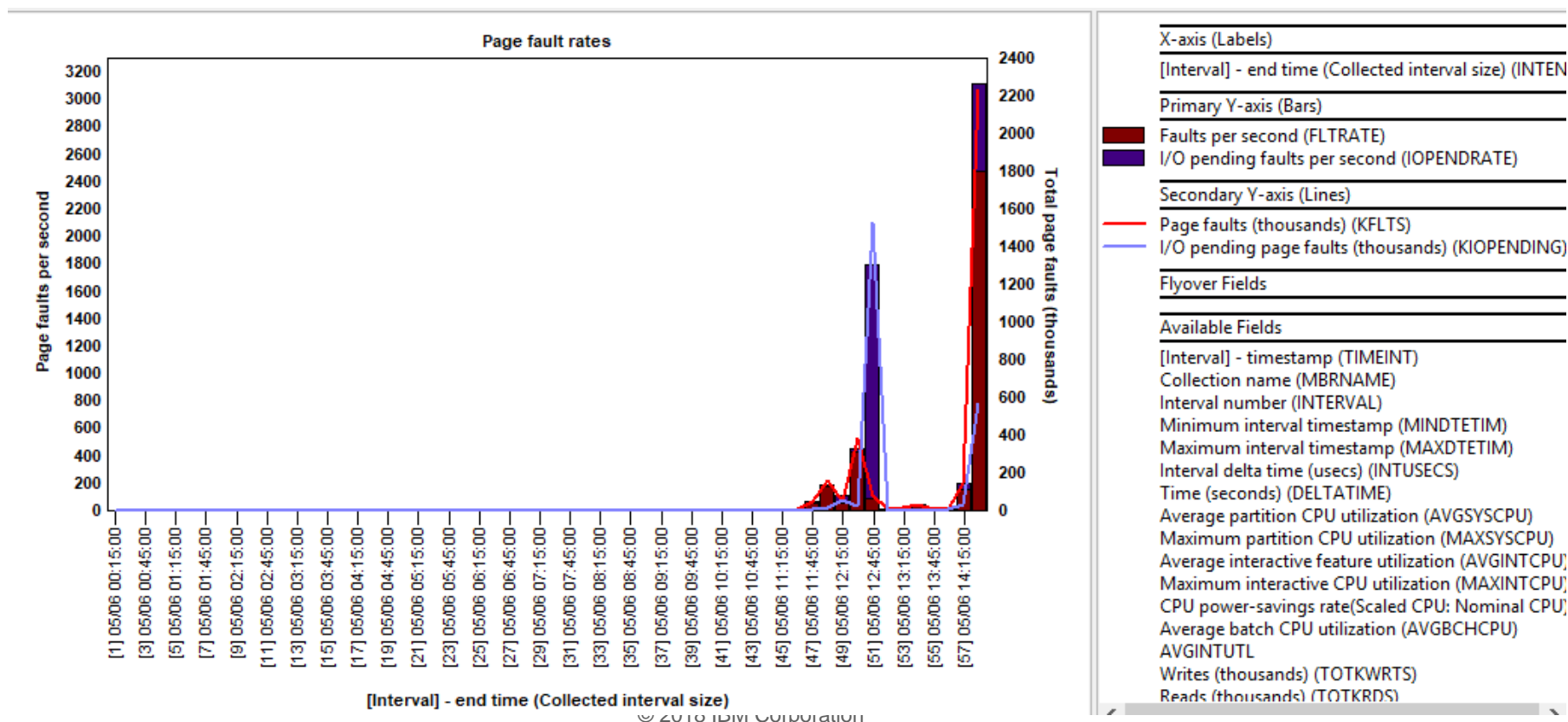
Jan 2019 (1341) – CSI – I/O and memory page demand updates (4/5)

- In CSI, in the I/O and memory page graph folder added Page fault totals and Page fault rates (overview) graphs. These graphs already existed at the rankings and selection over time levels.



Jan 2019 (1341) – CSI – I/O and memory page demand updates (5/5)

- In CSI, in the I/O and memory page graph folder changed the color for the IOPENDRATE (IO pending faults per second) column so it is a little darker now to better distinguish it on the graphs that display it.



Jan 2019 (1341) – Disk Watcher Trace Summary analysis doesn't work

- Depending on DB/SQL PTF levels on IBM i 7.2 or 7.3 the Disk Watcher trace summary analysis may fail to run. This was due to changes with the syntax checking involving use of SQL reserved words within the stored procedure.

IBM i Connections			Idoc720: Disk Watcher - #1		Remote SQL Statement Status		
Time	System	Status	SQL Statement				
02/18/19 12:22:13	Idoc720	[IBM][System i Access ODBC Driver][DB2 for i5/OS]SQL0199 - Keyword ALL not expected. Valid tokens:)	FETCH LIMIT ORDER UNION EXCEPT OFFSET.State: 42000 RC: -199				CALL QIDRGUI/QIDRDWSUM1 ('QDWDATA',

- On a related note these PTFs will reverse some of these restrictions on SQL reserved word usage: At 7.2 install PTF SI68819 at 7.3 install PTF SI68818

Dec 2018 (1340) – CSI – temporary storage overview updates

- In CSI in the 1st 3 temp storage overview graphs remove the total temp storage used from the Y2 and replace this with 2 values:
- - 1) percentage of temp storage used vs total space on the system ASP.
 - 2) percentage of temp storage used vs available space (in the system ASP)

This effects these graphs:

IBM i temporary storage overview

IBM i DB/non-DB temporary storage overview

Job temporary storage allocations

Dec 2018 (1340) – CSI – temporary storage cumulative graphs broken

- In CSI at 7.2 only in the temporary storage folder the following graphs weren't working and have been fixed:

Cumulative temporary storage pages allocated/deallocated (overlapping bars)

Cumulative net temporary storage pages allocated