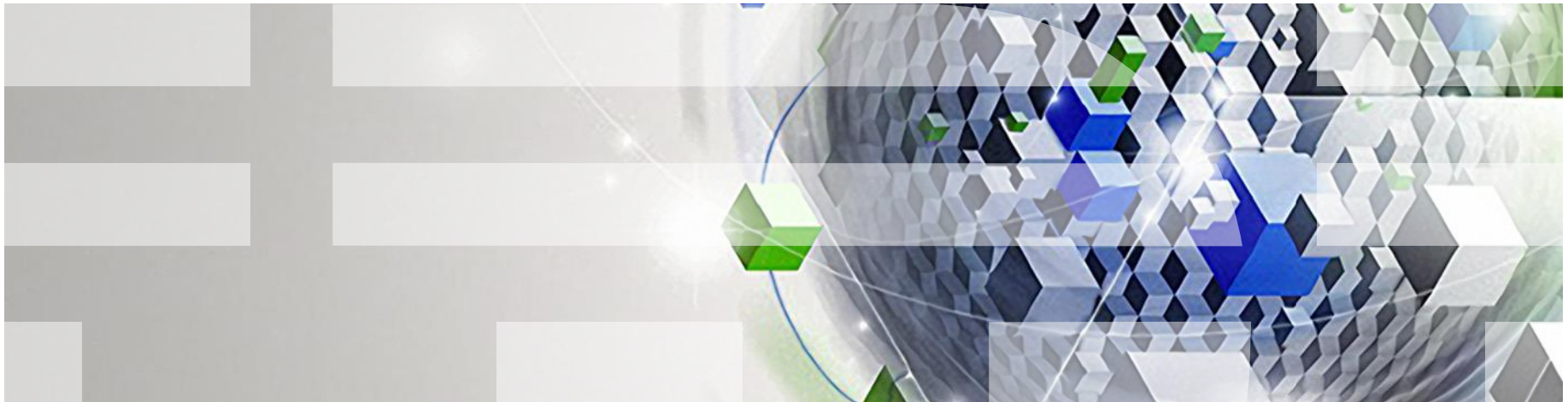


IBM iDoctor for i Overview

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IBM iDoctor for i

*Tools developed and
used by service for
performance investigation*

Job Watcher Disk Watcher PEX Analyzer
Collection Services Investigator Power Connections

iDoctor for i - Introduction

Overview

- iDoctor is suite of dynamic tools developed by the IBM i Global Support Center for performance analysis on i.
- Frequently used by IBM, along with customers and consultants to help solve complex performance issues quickly.
- The tools are used to monitor overall system health at a high level but also feature more advanced drill-down capabilities.
- Some tools are free, and others require a license key.
- **Note:** iDoctor is NOT an IBM product (LPP) and is sold only via IBM Lab Services Statements of Work (SOWs).

<https://www-03.ibm.com/systems/campaignmail/services/labservices/iDoctor/requestform.html>

iDoctor for i - Introduction

Goals

- **Broaden the user base for Performance Investigation**
 - enable Operators, Programmers, IS Management
 - as well as Performance Specialists, Consultants
- **Simplify and automate processes**
- **Provide quick, immediate access to collected data**
- **Reduce the dependency on PEX traces**

iDoctor for i - Introduction

Licensing

- Customers can buy a Job Watcher and/or PEX Analyzer license through IBM Lab Services SOWs
 - Terms are usually 1-3 years.
 - Discounts apply to multiple systems, years and when renewing.
 - 45-day trials (or longer if needed)

- iDoctor Website and E-mail:

<https://www.ibm.com/it-infrastructure/services/lab-services/idoctor>

idoctor@us.ibm.com for questions

- License, Trial and/or education requests:

<https://www-03.ibm.com/systems/campaignmail/services/labservices/iDoctor/requestform.html>

iDoctor for i - Introduction

Licensed Functions

Functions	Component	License
<u>High-level</u> system, job, memory pools, disk monitoring	Collection Services Investigator	JW
<u>Medium-level</u> system, job monitoring	Job Watcher (JW)	JW
<u>Low-level</u> system, job tracing, stats, profiling	PEX Analyzer (PA)	PA
Disk stats and tracing	Disk Watcher Collection Services Investigator PEX Analyzer	JW or PA
Plan cache	Plan Cache Analyzer	JW

iDoctor for i - Introduction

Free Functions

Function	Component
VIOS monitoring (nmon/npiv) HMC information	Power Connections
IFS browsing Library and object browsing File transfers DB2 for i reports (table statistics, index advisor, etc) ASP, Disk Units views	iDoctor FTP GUI
WRKACTJOB interface (with graphs) WRKOBJ, WRKOBJLCK, WRKLNK, WRKUSRPRF SQL editor Table search	iDoctor GUI

iDoctor for i - Introduction

iDoctor vs. Performance Tools LPP (Performance Data Investigator)

iDoctor

Windows Client
Fee/Free
Frequent updates
More analysis options

Performance Tools

Web Browser
Fee/Free
Less frequent updates
Fewer analysis options

- Different approaches applied to summarization and analysis techniques
- **Note:** PDI (PT1) Job Watcher is not a prerequisite in order to use iDoctor Job Watcher.

iDoctor for i – The iDoctor GUI

Overview

- Windows client offers flexibility and functionality not in web version
- All components offer a similar user experience
- Supported on IBM i 7.1+
- Key requirement:
 - IBM i Access Client Solutions AND Windows Application Package.

iDoctor for i – The iDoctor GUI

Key Features

- Wait bucket analysis
- Monitors
- Graph compare mode
- WRKACTJOB graphs
- Filters
- SQL Editor
- Time range toggling
- Dynamic graph legend
- Situational Analysis

iDoctor for i – The iDoctor GUI

Monitors

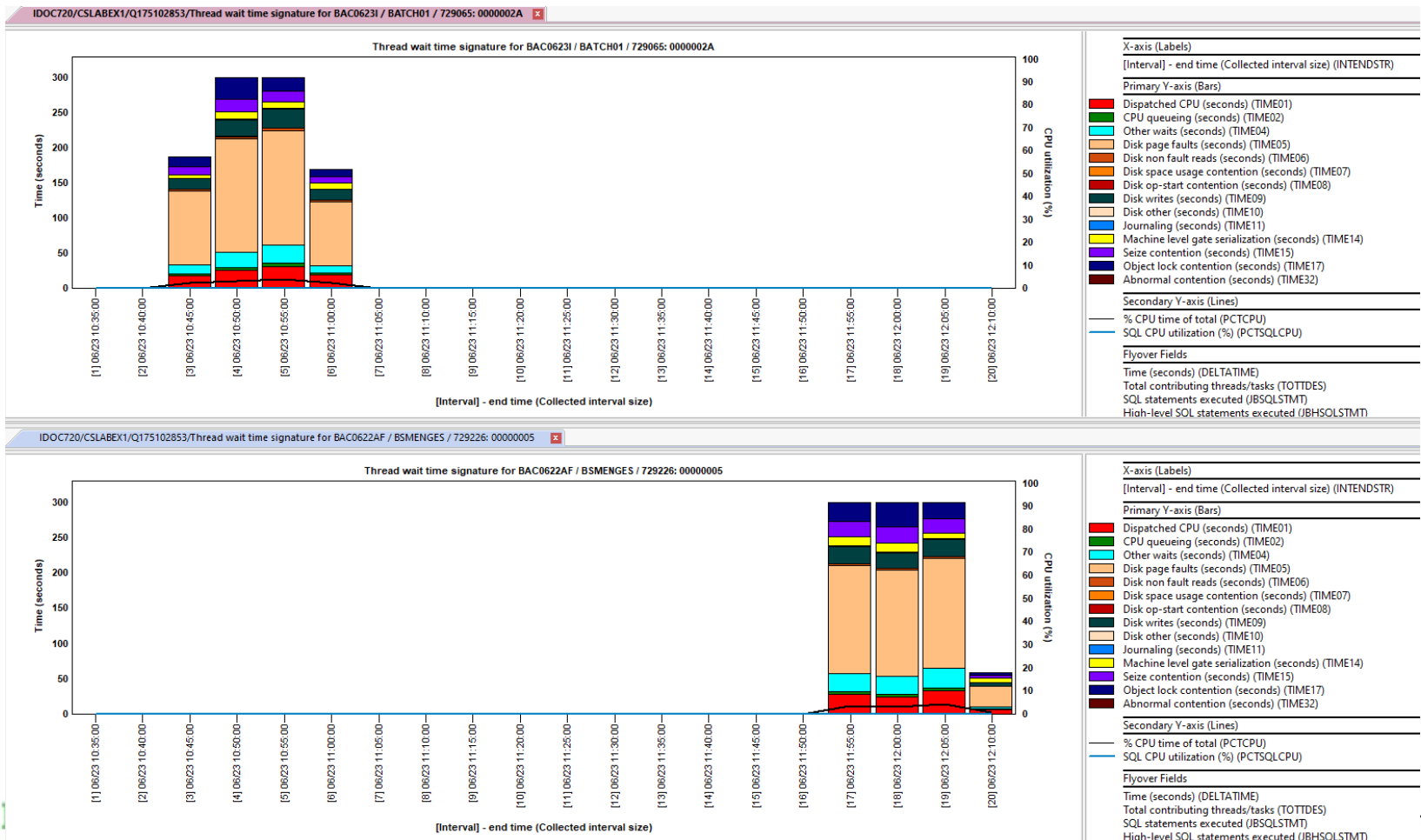
- Allows 24x7 collection of Job Watcher, PEX Analyzer or Disk Watcher data.
- Retain only the desired amount of historical data.
- When a problem occurs you will have the data you need to start your analysis.

<ul style="list-style-type: none"> Collection Services Invest Libraries Historical summaries CS objects Advanced CS objects SQL tables Monitors General functions 	Monitor name	Library name	Collection type	Status	Last active collection	Partitions count	Start time	Co du (m)
	ABC	MCCARGAR1	Job Watcher	Ended	ABC012		2020-12-02-12.06.29.619886	
	AAAAA	JWDFN	Job Watcher	Ended	AAAAA025		2020-03-31-09.23.47.789255	

iDoctor for i – The iDoctor GUI

Graph compare mode

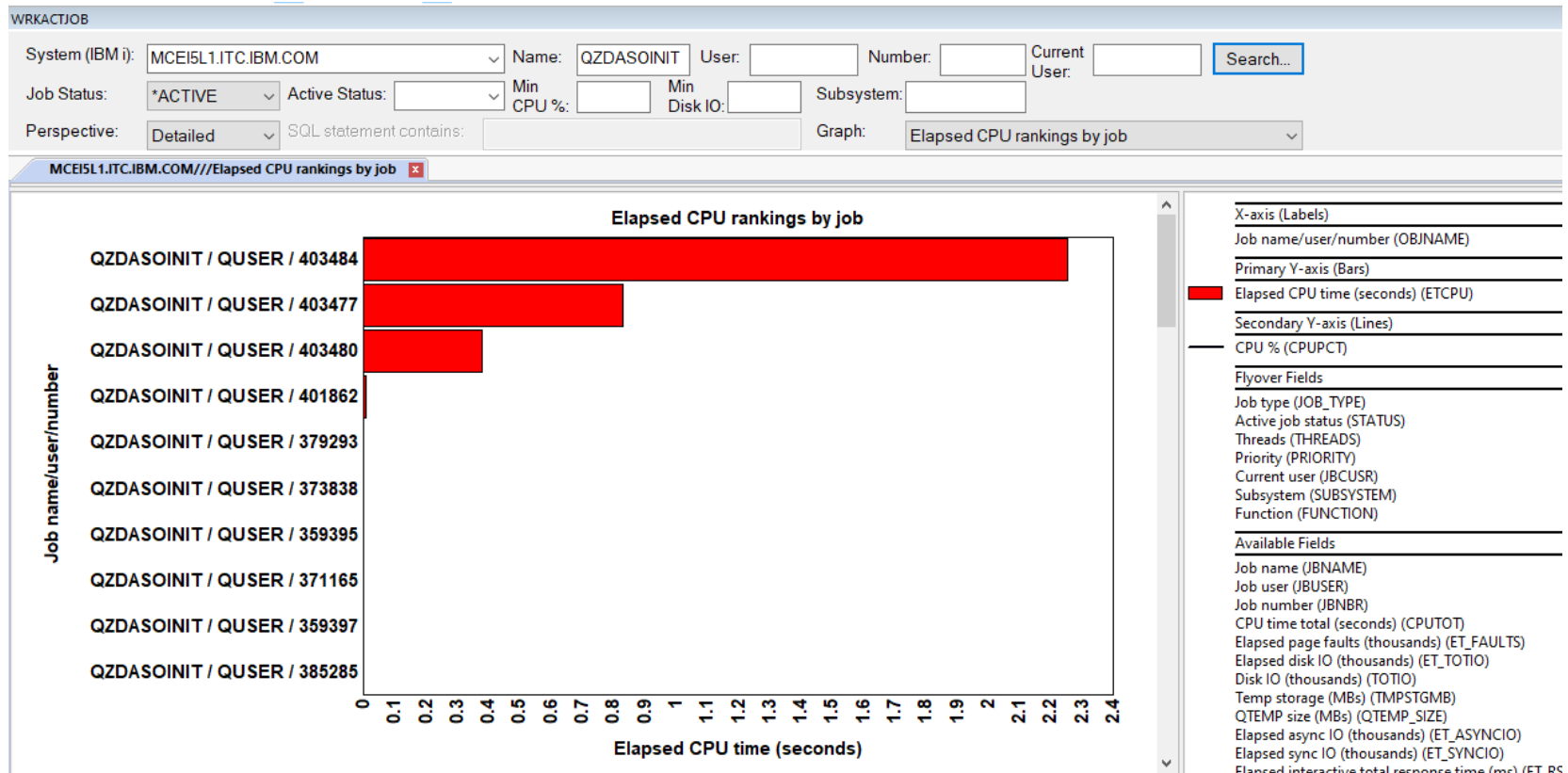
- Compare ASPs, disk units, jobs and more



iDoctor for i – The iDoctor GUI

WRKACTJOB graphs

- Graph CPU, IOs, temp storage and more with auto refresh capability.



iDoctor for i – The iDoctor GUI

Table Filters

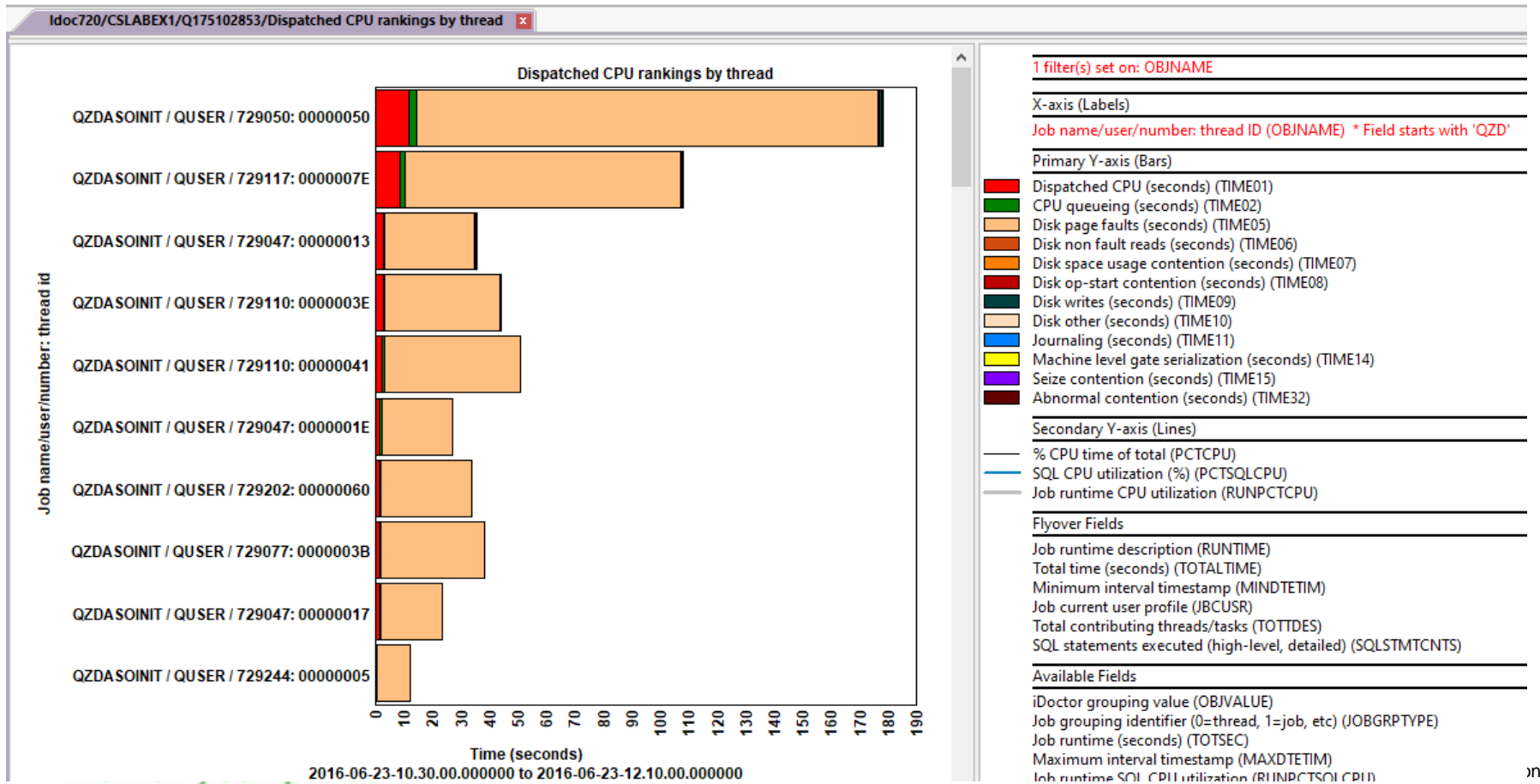
- Add filters easily to tables and avoid writing SQL

Idoc720/CSLABEX1/Q175102853 - #1		
Program library (PGMLIB)	Program name (PGMNAM) * Field starts with 'Q'	Program description (PGMDSC)
QSYS	QACCLOSE	ICFAPPC Close
QSYS	QACDEVSL	APPC device selection function
QSYS	QACEFEVH	ICFAPPC Expedited Flow Event Handler
QSYS	QACERP1	ICFAPPC AP Error Handler
QSYS	QACERP2	ICFAPPC FM Error Handler
QSYS	QACFMH7	ICFAPPC FMH7 handler
QSYS	QACGET	ICFAPPC Get
QSYS	QACINASP	ICFAPPC Initialize PUT associated space
QSYS	QACIOCMP	ICFAPPC REQIO completion handler
QSYS	QACNFEVH	ICFAPPC Normal Flow Event Handler
QSYS	QACOPEN	ICFAPPC Open File
QSYS	QACPSR	ICFAPPC Program Start Request mainline
QSYS	QACPSRIO	ICFAPPC PSR REQIO completion handler
QSYS	QACPUT	ICFAPPC Put
QSYS	QACRSD	ICFAPPC Send Response

iDoctor for i – The iDoctor GUI

Graph Filters

- Add filters easily to graphs and avoid writing SQL



iDoctor for i – The iDoctor GUI

SQL Editor

- Customize iDoctor reports or write your own using SQL.

iDoctor Data Viewer - #1 - [Idoc720/CSLABEX1/Q175102853 - #1]

File Edit View Window Help

Idoc720/CSLABEX1/Q175102853 - #1

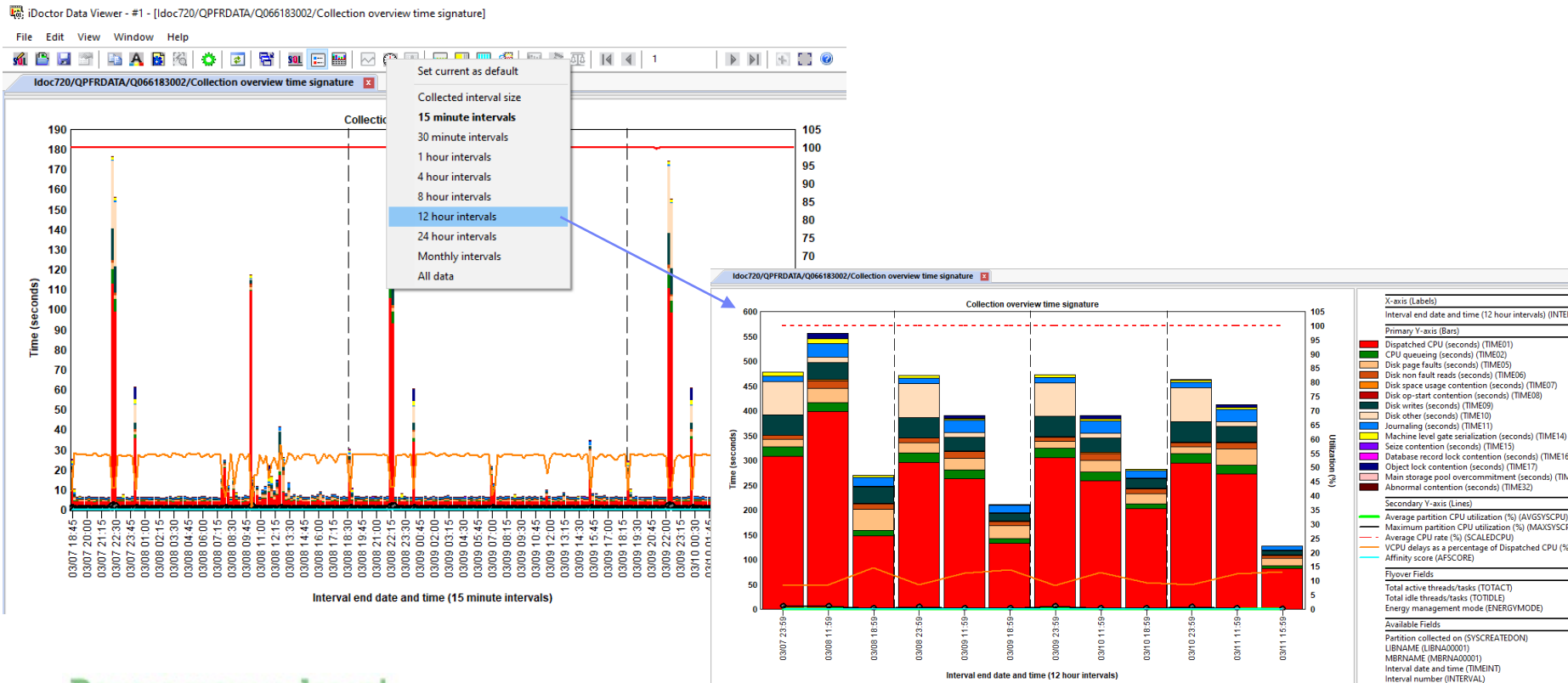
```
SELECT * FROM QIDRGUI/QAPGMDESCS
where PGMNAM LIKE 'Q%'
ORDER BY PGMNAM
```

Program library (PGMLIB)	Program name (PGMNAM)	Program description (PGMDSC)
QSYS	QACCLOSE	ICFAPPC Close
QSYS	QACDEVSL	APPC device selection function
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QSYS	QACERP1	ICFAPPC AP Error Handler
QSYS	QACERP2	ICFAPPC FM Error Handler
QSYS	QACFMH7	ICFAPPC FMH7 handler
QSYS	QACGET	ICFAPPC Get
QSYS	QACINASP	ICFAPPC Initialize PUT associated space

iDoctor for i – The iDoctor GUI

Time range toggling

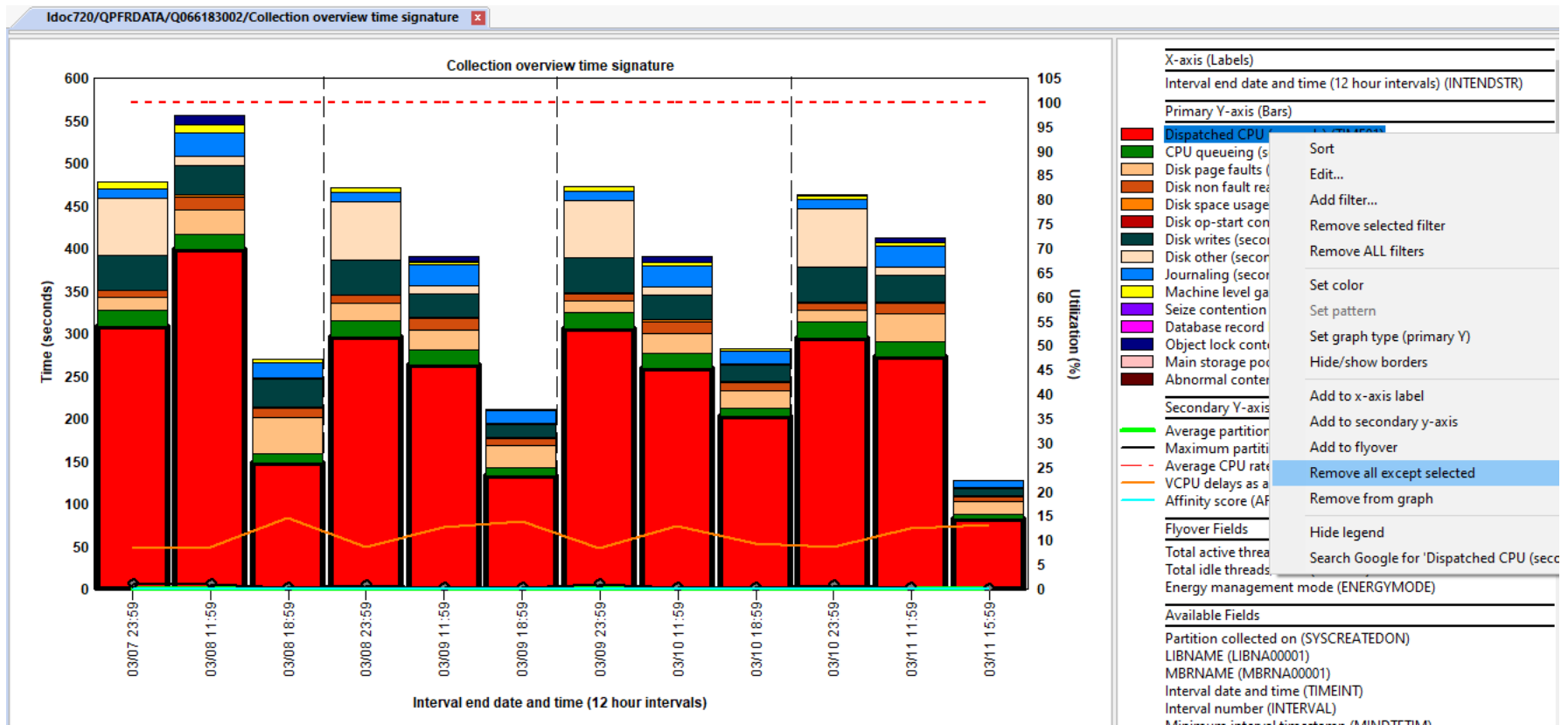
- Get the big picture by rerunning a report using larger time intervals



iDoctor for i – The iDoctor GUI

Dynamic graph legend

- Quickly change a graph to best suit your needs using menu options or even drag and drop.



iDoctor for i – The iDoctor GUI

Situational Analysis

- Identifies any potential problem jobs found in the collection.
- Built on the vast knowledge of IBM performance experts and past experiences.
- Included with Collection Services Investigator, Job Watcher and Disk Watcher
- Different background colors/flyovers on the overview graphs indicate potential problems.

iDoctor for i – The iDoctor GUI

Situational Analysis Example

iDoctor Data Viewer - #1 - [Idoc720/PEXLABEX1/JWMON002/Collection overview,time signature]

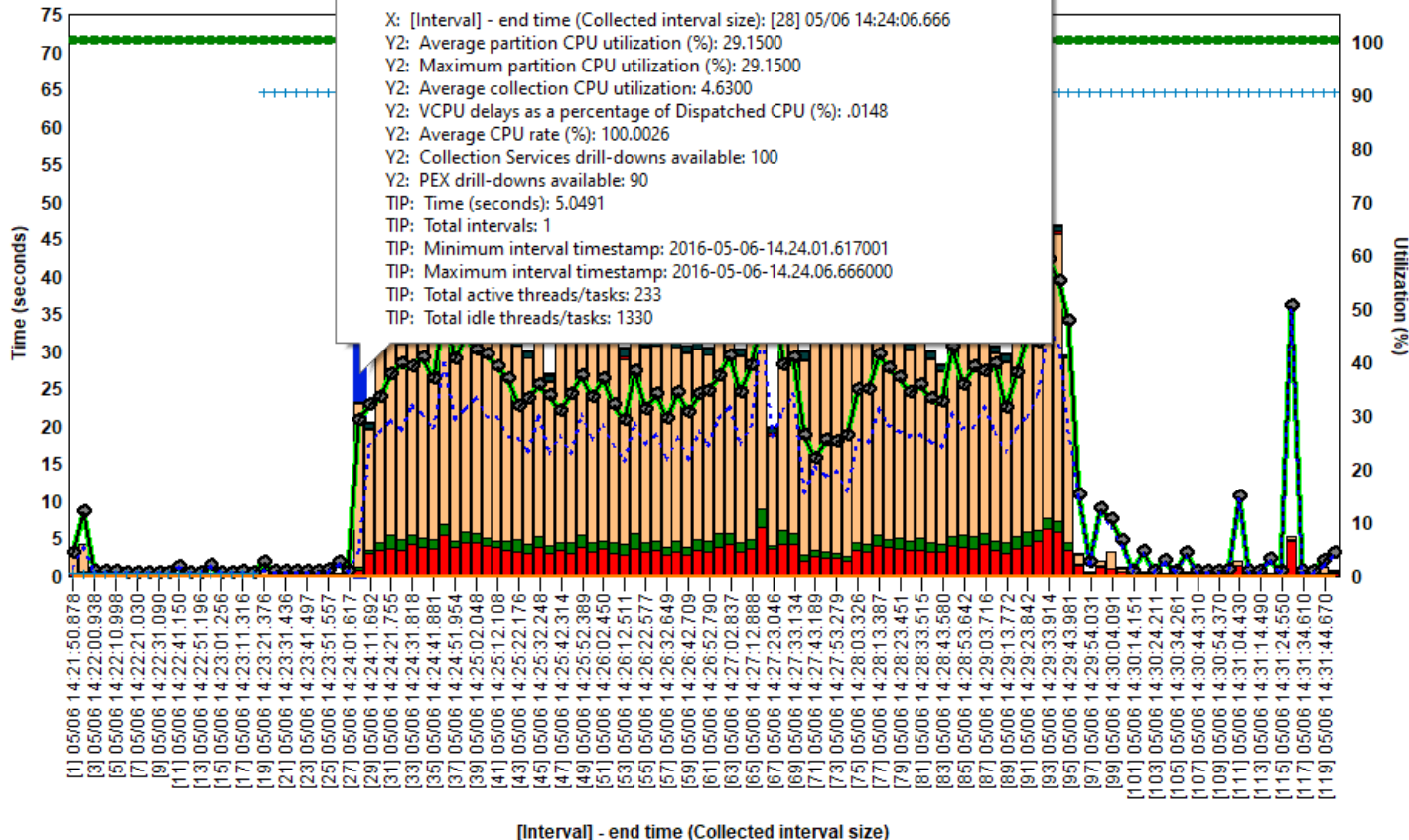
File Edit View Window Help



System: Idoc720: Collection(s): PEXLABEX1/JWMON002

Performance situation(s) detected: Interactive capacity check
 Problem: There is a potential issue with VET code interactive access not being checked. A firmware update was put out to enforce the interactive check, which has caused issues.
 Resolution: Check firmware levels and/or contact IBM support.

X: [Interval] - end time (Collected interval size): [28] 05/06 14:24:06.666
 Y2: Average partition CPU utilization (%): 29.1500
 Y2: Maximum partition CPU utilization (%): 29.1500
 Y2: Average collection CPU utilization: 4.6300
 Y2: VCPU delays as a percentage of Dispatched CPU (%): .0148
 Y2: Average CPU rate (%): 100.0026
 Y2: Collection Services drill-downs available: 100
 Y2: PEX drill-downs available: 90
 TIP: Time (seconds): 5.0491
 TIP: Total intervals: 1
 TIP: Minimum interval timestamp: 2016-05-06-14.24.01.617001
 TIP: Maximum interval timestamp: 2016-05-06-14.24.06.666000
 TIP: Total active threads/tasks: 233
 TIP: Total idle threads/tasks: 1330



Situations (Background)	
[Red]	All situations
[None]	None
[Purple]	(1) Potentially large number of locks
[Blue]	(1) Interactive capacity check

X-axis (Labels)	
[Interval] - end time (Collected interval size)	

Primary Y-axis (Bars)	
[Red]	Dispatched CPU (seconds) (TIME01)
[Green]	CPU queueing (seconds) (TIME02)
[Orange]	Disk page faults (seconds) (TIME05)
[Light Orange]	Disk non fault reads (seconds) (TIME06)
[Dark Orange]	Disk space usage contention (seconds) (TIME07)
[Dark Red]	Disk op-start contention (seconds) (TIME08)
[Dark Green]	Disk writes (seconds) (TIME09)
[Light Green]	Disk other (seconds) (TIME10)
[Blue]	Journaling (seconds) (TIME11)
[Yellow]	Machine level gate serialization (seconds) (TIME12)
[Purple]	Seize contention (seconds) (TIME15)
[Magenta]	Database record lock contention (seconds) (TIME16)
[Dark Blue]	Object lock contention (seconds) (TIME17)
[Brown]	Abnormal contention (seconds) (TIME32)

Secondary Y-axis (Lines)	
[Green Line]	Average partition CPU utilization (%) (AVG)
[Black Line]	Maximum partition CPU utilization (%) (MAX)
[Dotted Blue Line]	Average collection CPU utilization (AVGCOL)
[Dotted Purple Line]	VCPU delays as a percentage of Dispatched CPU (%) (VCPUD)
[Red Line]	Average CPU rate (%) (SCALEDCPU)
[Blue Line]	Collection Services drill-downs available (HASPA)
[Green Line]	PEX drill-downs available (HASPA)

Flyover Fields	
[Time (seconds)]	(DELTA)TIME
[Total intervals]	(INTERVALS)
[Minimum interval timestamp]	(MIND)TSTAMP