IBM Navigator for i Performance Tasks

Latest and Greatest

Dawn May – dmmay@us.ibm.com
@DawnMayiCan

2016
IBM Systems Technical Events

ibm.com/training/systems

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IBM Navigator for i

- IBM Navigator for i is the Web console for managing IBM i
- Has much of the function as System i Navigator
  - but with a browser user interface
- Simply point your browser to http://systemname:2001
Updates to the Performance Data Investigator - PTFs

- Major enhancements have been made to Navigator for i and the Performance Data Investigator

- IBM i 7.3!
  - HTTP Server group PTF SF99722
  - Java group PTF SF99725
  - Database group PTF SF99723
  - Performance Tools group PTF SF99703

- For 7.2 - install the latest level of:
  - HTTP Server group PTF SF99713
  - Java group PTF SF99716
  - Database group PTF SF99702
  - Performance Tools group PTF SF99714

- For 7.1 - install the latest level of:
  - HTTP Server group PTF SF99368
  - Java group PTF SF99572
  - Database group PTF SF99701
  - Performance Tools group PTF SF99145

June 2016 Service Pack is the latest…. with the next update coming late this year
Java 64-bit Requirement

- Admin2 server was updated to use JDK 64bit in the December 2015 DG1 group (HTTP server for i)

- Java SE 6 or 7 64-bit must be installed in order for Admin2 server to function properly

- Product install requirements: https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/IBM%20i%20Technology%20Updates/page/Product%20Install%20Requirements
Browser Support

• Supported Browsers for the latest Navigator enhancements:
  - Internet Explorer 9
  - FireFox 20 or newer
  - Google Chrome 25 or higher

• Unexpected results may be browser related

  Example problems are….
  - Hung charts
  - Empty tables

• Clear your browser cache after installing the PTFs
• Review your browser security settings

• For details see browser tips
Tips for Best Performance for Navigator (and the Performance tasks)

• Good system tuning practices are essential
  • CPU
  • Memory
  • Disk

• PDI makes extensive use of SQL to gather data for charts and tables
• Navigator tasks run in the ADMIN2 job in the QHTTPSvr subsystem

• Ensure no bad DNS entries on the system

• Use Application Runtime Expert to validate your environment
  • Network health checker can be run from QShell:
    /QIBM/ProdData/OS/OSGi/templates/bin/areVerify.sh -network

• Use the Web Performance Advisor to validate your Web Performance
Performance Tasks

- “Performance” is a major function in Navigator
  - Investigate Data
  - Manage Collections
  - And much more!
HELLO
my name is
Investigate Data
Enhanced Left Frame Navigation

PDI Perspectives Tree

IBM® Navigator for i

- Performance
  - Investigate Data
    - Investigate Data Search
    - Health Indicators
    - Monitor
    - Collection Services
    - Database
    - Job Watcher
    - Disk Watcher
    - Performance Explorer
    - Batch Model
  - Manage Collections
    - Configure Collection Services

Welcome Database Locks Overview

Investigate Data - Performance Data Investigator

Selection
Name
Database Locks Overview

Description
This chart shows the database record lock contention time for all contributing jobs and tasks over time for the selected collection.

View List
Database Locks Overview

Collection
Collection Name
Collection
Library
QPFRDATA
Most Recent
Q141132820 (*CSFILE) - May 21, 2013 1:28:20 PM
Q141164450 (*CSFILE) - May 21, 2013 4:44:50 PM
Q142000003 (*CSFILE) - May 22, 2013 12:00:03 AM
Q143000002 (*CSFILE) - May 23, 2013 12:00:02 AM

Display
Search

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Packaging: Performance Tools Licensed Program Product

- IBM i for Collection Services, Health Indicators, Monitors and Graph History

- Performance Tools Licensed Program Product
  - 5761PT1 for 6.1
  - 5770PT1 for 7.1, 7.2, and 7.3

- **Performance Tools - Manager Feature**
  - Disk Watcher, Performance Explorer, Database, Batch Model

- **Performance Tools - Agent Feature**

- **Performance Tools - Job Watcher**
Packaging - Performance Tools Licensed Program Product

IBM Performance Tools – Manager feature

IBM Performance Tools – Job Watcher feature

Included with the base operating system

IBM Performance Tools – Manager feature and latest PTFs
Packaging: Performance Tools Licensed Program Product

7.2 and 7.3

Included with the base operating system

IBM Performance Tools – Manager feature

IBM Performance Tools – Job Watcher feature
Prerequisites: Authorizing Users to PDI

- Users need to be authorized to use the investigate data and collection manager performance tasks
- Include users on the QPMCCDATA and QPMCCFCN authorization lists
- *Can be done via GUI or green screen*

**Edit Authorization List**

Object . . . . . . : QPMCCDATA  Owner . . . . . . : QSYS
Library . . . . : QSYS  Primary group . . . : *NONE

Type changes to current authorities, press Enter.

<table>
<thead>
<tr>
<th>User</th>
<th>Authority</th>
<th>Mgt</th>
</tr>
</thead>
<tbody>
<tr>
<td>*PUBLIC</td>
<td>*EXCLUDE</td>
<td></td>
</tr>
<tr>
<td>QSYS</td>
<td>*ALL</td>
<td>X</td>
</tr>
<tr>
<td>PDI01</td>
<td>*USE</td>
<td></td>
</tr>
<tr>
<td>PDI02</td>
<td>*USE</td>
<td></td>
</tr>
<tr>
<td>PDI03</td>
<td>*USE</td>
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<tr>
<td>PDI04</td>
<td>*USE</td>
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<td>PDI05</td>
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<td>*USE</td>
<td></td>
</tr>
<tr>
<td>PDI07</td>
<td>*USE</td>
<td></td>
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<tr>
<td>PDI08</td>
<td>*USE</td>
<td></td>
</tr>
<tr>
<td>PDI09</td>
<td>*USE</td>
<td></td>
</tr>
</tbody>
</table>
Content Packages

• 7.1
  • Health Indicators
  • Database (with PTFs)
  • Job Watcher
  • Disk Watcher
  • Performance Explorer

• New in 7.2
  • Monitor
  • Batch Model

• New in 7.3
  • Graph History
Prerequisites - Authorizing Users to the Performance Tasks

- Users need to be **authorized** to use the investigate data and collection manager performance tasks
  

- Include users on the QPMCCDATA and QPMCCFCN authorization lists
  - Can be done via GUI or green screen
### Prerequisites - Authorizing Users to the Performance Tasks

#### Edit Authorization List

<table>
<thead>
<tr>
<th>Object</th>
<th>Owner</th>
<th>Library</th>
<th>Primary group</th>
</tr>
</thead>
<tbody>
<tr>
<td>QPMCCDATA</td>
<td>QSYS</td>
<td>QSYS</td>
<td>*NONE</td>
</tr>
</tbody>
</table>

Type changes to current authorities, press Enter.

<table>
<thead>
<tr>
<th>User</th>
<th>Authority</th>
<th>Mgt</th>
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</thead>
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<tr>
<td>QSYS</td>
<td>*ALL</td>
<td>X</td>
</tr>
<tr>
<td>PDI01</td>
<td>*USE</td>
<td></td>
</tr>
<tr>
<td>PDI02</td>
<td>*USE</td>
<td></td>
</tr>
<tr>
<td>PDI03</td>
<td>*USE</td>
<td></td>
</tr>
<tr>
<td>PDI04</td>
<td>*USE</td>
<td></td>
</tr>
<tr>
<td>PDI05</td>
<td>*USE</td>
<td></td>
</tr>
<tr>
<td>PDI06</td>
<td>*USE</td>
<td></td>
</tr>
<tr>
<td>PDI07</td>
<td>*USE</td>
<td></td>
</tr>
<tr>
<td>PDI08</td>
<td>*USE</td>
<td></td>
</tr>
<tr>
<td>PDI09</td>
<td>*USE</td>
<td></td>
</tr>
</tbody>
</table>

More...
You can now customize the performance tasks available to users in the Navigator GUI.
Investigate Data

Investigate Data - Performance Data Investigator

Perspectives

- Health Indicators
- Monitor
- Collection Services
- Database
- Job Watcher
- Disk Watcher
- Performance Explorer
- Batch Model

Selection

Name
- CPU Utilization and Waits Overview

Description
This chart shows CPU utilization and some categories of the more interesting waits for all contributing jobs and tasks over time for the selected collections. Use this chart to select a time frame for further detailed investigation.

View List
- CPU Utilization and Waits Overview
Resource Utilization Overview

Summary for general overall health:
- CPU Utilization
- Disk Utilization
- Disk Busy
- 5250 Transactions
- I/Os per Second
- Page Faults
Investigate Data Search

- **Investigate Data Search**
  - Replaces the old search (aka “metric finder”)

- Searches in the:
  - Content package and perspective names
  - View
  - Description
  - Metrics
  - SQL

  - Search without metrics and SQL for faster results
  - Add metrics and SQL for more detail searches
Investigate Data Search

Type at least 3 non-empty characters

Search In:
- Package Name
- Description
- Metrics
- SQL
- View

Show Columns:
- Metrics
- SQL

Table:

<table>
<thead>
<tr>
<th>Package Name</th>
<th>Perspective</th>
<th>Description</th>
<th>View</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collection Services</td>
<td>Storage Allocation/Dealocati...</td>
<td>This chart shows allocation and deallocation of the temporary and permanent storage, net frames requested by thread or task. Use this chart to select a thread or task for viewing its storage statistics over time.</td>
<td>Storage Allocation/Dealocation by Thread or Task</td>
</tr>
<tr>
<td>Collection Services</td>
<td>Storage Allocation/Dealocati...</td>
<td>This chart shows allocation and deallocation of the temporary and permanent storage for all contributors over time for the selected collections. Use this chart to select a time frame for further detailed investigation.</td>
<td>Storage Allocation/Dealocation Overview</td>
</tr>
<tr>
<td>Monitor</td>
<td>Disk Storage Utilization (Average)</td>
<td>Charts show the disk storage utilization (average) metric of the performance data monitored, as well as the metric breakdown details by ASP.</td>
<td>Disk Storage Utilization (Average)</td>
</tr>
</tbody>
</table>
Metric Finder

Metric Finder

Metric

Metric Name:

Primary Affinity Domain ID
SMAPP Evaluations Serviced
SMAPP Index Build Time Estimations
SMT Hardware Threads:
SQL Cursor Count
SQL Cursor Reuse
STRPFRMON Trace Type:
Samples Taken
SaveDocument URLs Received
Scaled CPU Microseconds

Collection

Collection Name:

Scaled CPU Time

Perspective

Select | Perspective
--- | ---
Collection Services --> CPU --> CPU Utilization Overview
Collection Services --> CPU --> CPU Utilization by Generic Job or Task
Collection Services --> CPU --> CPU Utilization by Job Current User Profile
Collection Services --> CPU --> CPU Utilization by Job User Profile
Collection Services --> CPU --> CPU Utilization by Job or Task
Collection Services --> CPU --> CPU Utilization by Pool
Collection Services --> CPU --> CPU Utilization by Server Type
Collection Services --> CPU --> CPU Utilization by Subsystem
Collection Services --> CPU --> CPU Utilization by Thread or Task
Collection Services --> CPU --> CPU Utilization by Thread or Task

Collection

Collection Library | Collection Name
--- | ---
QPFORDATA | Most Recent

Display | List | Options | Refresh Perspectives | Close
Options

Investigate Data - Performance Data Investigator

Options

- Use patterns
  - Use patterns where applicable in charts.

- Show charts
  - Whenever possible, show charts instead of tables.

- Enable design mode
  - Enable advanced features allowing design and development of new content.

- Show help
  - Show help messages for many tasks.

- Show SQL error messages
  - Show SQL error messages to user.

- Set table size
  - Specify the number of visible rows and columns shown for tables.

Default library

- Use Collection Services configured library
- Use last visited library
- Use library:

System Monitor

- Show thresholds
  - Show thresholds in system monitor charts.

7.2
Option – Show SQL Error Messages

"Show SQL error messages" -
Modify SQL window will provide error message to help solve SQL errors.
Show SQL Error Messages

Modify SQL window
Easier to see SQL errors
Design Mode

Once you “Enable Design Mode” additional options become available to create and edit your own charts and tables.

[Diagram of Performance Data Investigator with options for perspectives and collection configuration]

Health Indicators
Health Indicators

System Resource Health Indicators

Database Health Indicators were introduced with 7.2
CPU Health Indicators
### Define Health Indicators

#### System Resources Health Indicators

<table>
<thead>
<tr>
<th>Available Indicators</th>
<th>Selected Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Empty]</td>
<td>Memory Pools</td>
</tr>
<tr>
<td></td>
<td>Disk</td>
</tr>
<tr>
<td></td>
<td>5250 OLTP Response Time</td>
</tr>
<tr>
<td></td>
<td>Database</td>
</tr>
</tbody>
</table>

#### Current Threshold Values

- **CPU Queuing Percent**
  - Warning: 10
  - Action: 20

- **Average Disk Percent Busy**, **Average Disk Response Time**, **Average Disk Space Percent Used**
  - Warning: 20
  - Action: 30
Define Health Indicators

**Available Indicators**

- System Resources Health Indicators
- CPU
- Disk

**Selected Indicators**

- Faults Per Second
- Page Faults Pending Per Second

**Current Threshold Values**

- Warning: 4000
- Action: 5000

---

**Available Indicators**

- System Resources Health Indicators
- CPU
- Disk
- Memory Pools

**Selected Indicators**

- 5250 OLTP Response Time

**Current Threshold Values**

- Warning: 800
- Action: 1000

---

**Available Indicators**

- System Resources Health Indicators
- CPU
- Disk
- Memory Pools

**Selected Indicators**

- SQL Full Opens Rate
- Plans Built/Rebuilt Rate
- Native Full Opens Rate
- Physical Database I/O Rate
- Plans Removed from Cache Rate

**Current Threshold Values**

- Warning: 200
- Action: 500

---

**7.2 screen captures**
Performance Data Reports


“Executive” Reports

- Create a group of printed or online graphs of performance perspectives
- Generate a PDF or zip file containing the requested graphs for the collection
- Use for weekly reports

Start with Report Definitions
Performance Data Report Definitions

Report Definitions allow you to view existing definitions. Add Definition to create your customized report.
Report Definitions

Performance Data Report Definitions - Etc3t1.rchland.ibm.com

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Indicators</td>
<td>A predefined performance</td>
</tr>
<tr>
<td>System Overview</td>
<td>A predefined performance</td>
</tr>
<tr>
<td>Resource Consumption</td>
<td>A predefined performance</td>
</tr>
</tbody>
</table>

Create Performance Data Report

- Report definition: System Overview
- Output type: PDF
- Collection: Most Recent
- Library: QPFRDATA
- Type: Collection Services File Based Collection
Create your own Report Definition

1. Add Performance Data Report Definition
2. Specify Name and Description
3. Select Perspectives and Collection Services
4. Customize Report Definition and Cover Page

IBM Systems Technical Events | ibm.com/training/events
Create Performance Data Report
Feb 28, 2013 10:03:43 AM

**Performance data report definition:**
 Demo Report

**Report title:**
 Example Report based upon COMMON performance collection

**Perspectives included in report:**
 CPU Utilization and Waits Overview
 Page Faults Overview
 Synchronous Disk I/O Overview

**Library/Collection used for report:**
 Common/Cs228229nd
7.2 and later System Monitors

Predictive Performance Management

Tuesday – 15:00-16:00
Thursday – 8:45-9:45
7.2 System Monitors

- System Monitors were introduced with Navigator in 7.2
- Similar to Management Central System Monitors
- System Monitor data comes from Collection Services
- You can view System Monitor data with the Performance Data Investigator
Monitors with IBM Navigator for i

Select what you want to monitor
Set monitoring intervals
Set thresholds
Define actions taken when a threshold is reached
Manage event logs

List of system monitors on the system
Create New System Monitor

Set Monitor General Information

- Name: DawnMay
- Description: Example System Monitor
Visualize Monitor Data

- Visualize Monitor Data
  - Added with 7.3, going back to 7.2 soon
Investigate Data - Monitor

- Investigate Monitor Data via the Performance Data Investigator
- This interface allows you to view monitor data without having set up a system monitor
7.2 and later

Batch Model
Batch Model

- Batch performance is important for many customers

- "What can I do to my system in order to meet my overnight batch runtime requirements?"
  - (also known as the Batch Window)

- A sizing tool
  - based on Collection Services performance data
  - predicts batch workload run times, resources used, and duration of the "batch window"
Batch Model

- Performance
  - Investigate Data
  - Manage Collections
    - Configure Collection Services
- Graph History
- All Tasks
  - Active Jobs
  - Disk Status
  - Investigate Data Search
  - Investigate Data
  - Manage Collections
  - Performance Management for Power Systems
  - System Status
- Collections
- Performance Data Reports
- Collectors
- Graph History

- Sizing
  - Batch Model
    - Analyze Batch Model
    - Batch Models
    - Calibrate Batch Model
    - Change Batch Model Calibration
    - Change Batch Model
    - Create Batch Model
    - Merge Batch Model
    - Reset Batch Model

- Investigate Data - Performance Data Investigator

- Perspectives
  - Health Indicators
  - Monitor
  - Collection Services
  - Database
  - Job Watcher
  - Disk Watcher
  - Performance Explorer

- Collection
  - Measured/Modeled Resource Utilization Overview
  - Measured/Modeled Workload Timeline Overview
PTFs for POWER8 Hardware Support

PTFs are needed for POWER8 hardware support

- SI54715
- SI54462

- You must restart the HTTP Server after these PTFs are applied for them to take effect

  - ENDTCPsvR  SERVER (*HTTP) HTTPSVR (*ADMIN)
  - STRTCPsvR  SERVER (*HTTP) HTTPSVR (*ADMIN)
Batch Model - Change Batch Model

• Change Batch Model
  • Model the workload
    o Growth
    o Processor
    o Storage
    o Other workload changes
# Batch Model - Change Batch Model – Growth

<table>
<thead>
<tr>
<th>General</th>
<th>BMDEMO/Q095130713</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Batch model:</strong></td>
<td>Q095130713</td>
</tr>
<tr>
<td><strong>Library:</strong></td>
<td>BMDEMO</td>
</tr>
<tr>
<td><strong>Start date and time:</strong></td>
<td>12/31/69 11:59:59 PM</td>
</tr>
<tr>
<td><strong>End date and time:</strong></td>
<td>12/31/69 11:59:59 PM</td>
</tr>
<tr>
<td><strong>Workload growth rate(%)</strong>:</td>
<td>0</td>
</tr>
</tbody>
</table>

**Workload growth rate(%)**

- 5% increase
- 5% decrease

**Increase or decrease growth rate of work done by all jobs**
### Batch Model - Change Batch Model – Processor

<table>
<thead>
<tr>
<th>Change Batch Model - BMDEMO/Q095130713</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
</tr>
<tr>
<td><strong>Processor</strong></td>
</tr>
<tr>
<td><strong>Storage</strong></td>
</tr>
<tr>
<td><strong>Workloads</strong></td>
</tr>
</tbody>
</table>

#### Original Processor Information
- **Model/Feature/Frequency/Cores:** 570-9117-MMA 7388 5000 2-16
- **Partitioning type:** Partition dedicated processors
- **Number of virtual processors:** 2
- **Processing units:** 2.0
- **SMT enabled:** Automatic
- **Maximum number of SMT hardware threads:** 0

#### Model Processor Information
- **Model/Feature/Frequency/Cores:** 570-9117-MMA 7388 5000 2-16
- **Partitioning type:** Partition dedicated processors
- **Number of virtual processors:** 2
- **Processing units:** 2
- **SMT enabled:** Automatic
- **Maximum number of SMT hardware threads:** 0
### Batch Model - Change Batch Model – Storage

Add, Change, or Delete Disk Configurations

<table>
<thead>
<tr>
<th>Disk Attachment Family Name</th>
<th>Storage Type</th>
<th>Disk Speed (RPM) or Generation</th>
<th>Number of Disks</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOA Feature #5705</td>
<td>HDD</td>
<td>7200</td>
<td>2</td>
</tr>
<tr>
<td>Dual POWER6 Cached DAS</td>
<td>SSD</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

**Model Storage Configuration**

<table>
<thead>
<tr>
<th>Select</th>
<th>Disk Attachment Family Name</th>
<th>Storage Type</th>
<th>Disk Speed (RPM) or Generation</th>
<th>Number of Disks</th>
</tr>
</thead>
<tbody>
<tr>
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<td>IOA Feature #5705</td>
<td>HDD</td>
<td>7200</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Dual POWER6 Cached DAS</td>
<td>SSD</td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

**Add Storage**

- **Disk attachment family name:** IOA Feature #5705
- **Storage type:** HDD
- **Disk speed (RPM):** 7200
- **Number of disks:** 2

**Change Storage**

- **Disk attachment family name:** Dual POWER6 Cached DAS
- **Storage type:** SSD
- **Disk Generation:** 3
- **Number of disks:** 1
**Batch Model - Change Batch Model – Workloads**

Copy, Change, Delete, or Move Workloads

![Change Batch Model - Workloads](image)

<table>
<thead>
<tr>
<th>Select</th>
<th>Job Name</th>
<th>Job User</th>
<th>Job Number</th>
<th>Thread ID</th>
<th>Job Type</th>
<th>Job Priority</th>
<th>Growth Rate</th>
<th>Start Time</th>
<th>End Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PCOMBDA001</td>
<td>OPRTEMPE</td>
<td>006809</td>
<td>00000005</td>
<td>Batch</td>
<td>25</td>
<td>0%</td>
<td>4/5/11 1:22:38 PM</td>
<td>4/5/11 5:16:25 PM</td>
</tr>
<tr>
<td></td>
<td>PCOMCUD001</td>
<td>OPRTEMPE</td>
<td>006817</td>
<td>00000002</td>
<td>Batch</td>
<td>52</td>
<td>0%</td>
<td>4/5/11 2:00:23 PM</td>
<td>4/5/11 2:11:36 PM</td>
</tr>
<tr>
<td></td>
<td>PCOMFTD001</td>
<td>OPRTEMPE</td>
<td>006819</td>
<td>00000003</td>
<td>Batch</td>
<td>52</td>
<td>0%</td>
<td>4/5/11 2:11:49 PM</td>
<td>4/5/11 2:14:29 PM</td>
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<tr>
<td></td>
<td>PCOMMTMD001</td>
<td>OPRTEMPE</td>
<td>006824</td>
<td>00000004</td>
<td>Batch</td>
<td>52</td>
<td>0%</td>
<td>4/5/11 2:14:19 PM</td>
<td>4/5/11 2:16:05 PM</td>
</tr>
<tr>
<td></td>
<td>PTFM5223</td>
<td>OPRTEMPE</td>
<td>006831</td>
<td>00000006</td>
<td>Batch</td>
<td>50</td>
<td>0%</td>
<td>4/5/11 2:16:02 PM</td>
<td>4/5/11 2:16:12 PM</td>
</tr>
<tr>
<td></td>
<td>PTA011OM02</td>
<td>OPRTEMPE</td>
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<td>00000007</td>
<td>Batch</td>
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<td>0%</td>
<td>4/5/11 1:31:57 PM</td>
<td>4/5/11 1:34:51 PM</td>
</tr>
<tr>
<td></td>
<td>PTA011OM01</td>
<td>OPRTEMPE</td>
<td>006833</td>
<td>00000004</td>
<td>Batch</td>
<td>50</td>
<td>0%</td>
<td>4/5/11 1:31:57 PM</td>
<td>4/5/11 1:34:40 PM</td>
</tr>
<tr>
<td></td>
<td>PFTOS000</td>
<td>OPRTEMPE</td>
<td>006847</td>
<td>00000005</td>
<td>Batch</td>
<td>50</td>
<td>0%</td>
<td>4/5/11 4:20:08 PM</td>
<td>4/5/11 4:23:37 PM</td>
</tr>
<tr>
<td></td>
<td>PCOPYTA001</td>
<td>OPRTEMPE</td>
<td>006850</td>
<td>00000003</td>
<td>Batch</td>
<td>52</td>
<td>0%</td>
<td>4/5/11 4:28:47 PM</td>
<td>4/5/11 4:28:01 PM</td>
</tr>
<tr>
<td></td>
<td>PCOMTAP001</td>
<td>OPRTEMPE</td>
<td>006861</td>
<td>00000002</td>
<td>Batch</td>
<td>52</td>
<td>0%</td>
<td>4/5/11 4:28:52 PM</td>
<td>4/5/11 4:34:20 PM</td>
</tr>
<tr>
<td></td>
<td>PCOMTAD001</td>
<td>OPRTEMPE</td>
<td>006862</td>
<td>00000002</td>
<td>Batch</td>
<td>52</td>
<td>0%</td>
<td>4/5/11 4:28:32 PM</td>
<td>4/5/11 4:30:24 PM</td>
</tr>
<tr>
<td></td>
<td>PCOMTAM001</td>
<td>OPRTEMPE</td>
<td>006863</td>
<td>00000002</td>
<td>Batch</td>
<td>52</td>
<td>0%</td>
<td>4/5/11 4:28:32 PM</td>
<td>4/5/11 4:30:47 PM</td>
</tr>
</tbody>
</table>

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## Batch Model - Change Batch Model – Workloads

### Change Workload

<table>
<thead>
<tr>
<th>Job name:</th>
<th>PCDM5C4001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job user:</td>
<td>ORTEMP</td>
</tr>
<tr>
<td>Job number:</td>
<td>006810</td>
</tr>
<tr>
<td>Thread ID:</td>
<td>00000005</td>
</tr>
<tr>
<td>Job type:</td>
<td>Batch</td>
</tr>
<tr>
<td>Previous workload:</td>
<td>None</td>
</tr>
<tr>
<td>Job priority:</td>
<td>25</td>
</tr>
<tr>
<td>Growth rate(%):</td>
<td>0</td>
</tr>
<tr>
<td>Exceptional wait time (microseconds):</td>
<td>3586000000</td>
</tr>
</tbody>
</table>

End time: 4/5/11 5:16:25 PM

### Workload Details

<table>
<thead>
<tr>
<th>Priority</th>
<th>Start Time</th>
<th>End Time</th>
<th>CPU Time (Microseconds)</th>
<th>Synchronous Disk Reads</th>
</tr>
</thead>
</table>

### Change Workload Details

<table>
<thead>
<tr>
<th>Priority</th>
<th>CPU time (microseconds)</th>
<th>Synchronous disk reads</th>
<th>Synchronous disk writes</th>
<th>Asynchronous disk reads</th>
<th>Asynchronous disk writes</th>
<th>Interactive transactions</th>
<th>Page faults</th>
<th>Start time</th>
<th>End time</th>
</tr>
</thead>
</table>

### Can change
- Priority
- Growth rate
- Start time
- CPU time
- Reads/writes
- IO waits
- Transactions
- Page faults

IBM Systems Technical Events | [ibm.com/training/events](ibm.com/training/events)
Batch Model - *Workload Timeline Overview*

Compare Measured vs Modeled Workload Timelines
Batch Model - Resource Utilization Overview

Compare the Measured vs Modeled Resource Utilization
Batch Model with Prior Release Collections

• You can restore Collection Services data from 6.1 or 7.1 onto a 7.2 partition

• … and use batch model with that prior release data

• Support for data from 5.4 is also available
  o PTF SI55981

• Batch Model Support for 5.4 and 6.1 Collections
  https://www.ibm.com/developerworks/community/wikis/home?lang=en#/wiki/IBM i Technology Updates/page/Batch Model support for 5.4 and 6.1 collections
Performance Tasks and Work Management
Investigate Data for an Active Job

Active jobs – what’s happening *right now*

Job wait data
Collection Services job data

*How did I get here?*
Integration with System Status

System Status - etc3t2.rchland.ibm.com

**Last refresh:** 3/6/15 9:50:28 AM

**Jobs**
- Total: 3,315
- Active: 214

**Addresses used**
- Permanent: 0.007 %
- Temporary: 0.013 %

**Total disk space:** 95.44 GB

**System disk pool**
- Capacity: 95.44 GB
- Usage: 93.706 %

**System Resources Health Indicators**

**System Status - etc3t2.rchland.ibm.com**

**Last refresh:** 3/6/15 9:50:28 AM

**General**

**Jobs**
- Total memory: 8,119.00 MB

**Memory**
- Active Memory Pools
- Memory Pools Health Indicators

**System Status - etc3t2.rchland.ibm.com**

**Last refresh:** 3/6/15 9:50:28 AM

**General**

**Jobs**
- CPU usage (elapsed): 0.0 %
- Type of processors: Shared - uncapped
- Processing power: 0.50 processing units
- Virtual processors: 1
- Interactive performance: 0 %
- Shared processor pool usage (elapsed): 0.0 %
- Uncapped CPU capacity pool usage (elapsed): 0.0 %

**Memory**
- Disk Health Indicators

**Disk Space**
- Temporary storage used
  - Current: 7,335 MB
  - Maximum since last system restart: 7,528 MB

**Addresses**

**Disk Status**

**Temporary Storage Details**

**Storage System Values**

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Integration with Disk Status

Disk Status - Z1

Refresh Elapsed time: 00:00:00

Actions
- Investigate Disk Data
- Start Disk Watcher

No filter applied

Unit
Size (MB) % Used % Busy
1 60 794 75.7 0
2 704 0 0
3 80 0 0
4 0 0 0

Reset Statistics
Columns...

Disk Overview by Disk Unit

Collection
- Name(s): Q967000002
- Library: QPRDDATA
- Type: Collection Services File Based Collection
- File level: 36

Time
- Start: Mar 8, 2013 12:00:02 AM
- End: Ongoing

System
- Name: Z1433DP1
- Release: V7R1M0

Average Response Time

Graph showing average response time in milliseconds for different disk links.
Investigate Data

Database

Need latest PTF groups, including the database group

Must have the Performance Tools LPP, Manager feature installed

Available on IBM i 7.1 with additional enhancements on 7.2 and later

Investigate Database Performance the Navigator Way
Thursday – 15:00-16:00
Integration with Database

Launch Investigate Performance Data from database tasks (available on all releases)
Launch from System i Navigator client

7.1 examples
Database Perspectives

Database Package
- I/O Reads and Writes
- Physical Database I/O - Detailed
- Logical Database I/O – Detailed
- SQL Performance Data – Collection Services

Health Indicators Package
- Database Health Indicators

7.1 and later

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Investigate Data Examples

Dawn’s Favorite Collection Services Perspectives

*(PDI is for more than Performance)*

*New Perspectives*
Physical System Charts – Frame view of Utilization!

Collection Services has the ability to collect certain high-level cross-partition processor performance metrics for all logical partitions on the same single physical server regardless of operating system. This is available on Power 6 and above servers, with a minimum firmware level xx340_061. When this data is available, it can be viewed via several perspectives found under "Physical System".

HMC option – “Allow performance information collection” must be turned on for the IBM i partition to collect the data.
Logical Partitions Overview
Requires Power 6 and IBM i 6.1 or later

Graph showing CPU entitied time used and average partition CPU utilization over time.
Disk Response Time Charts

A very easy interface to see if you have slow disk operations
Java Perspectives

Find that job using a lot of heap…
Drilldown for one job -
Look at the heap and memory usage over time for one selected job.
Memory

- Memory perspectives are now available

- Similar information from what you get on WRKSYSSTS….

<table>
<thead>
<tr>
<th>System Pool</th>
<th>Reserve Size (M)</th>
<th>Max Active</th>
<th>-----DB-----</th>
<th>---Non-DB---</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>490.59</td>
<td>+++++</td>
<td>.0</td>
<td>.0</td>
</tr>
<tr>
<td>2</td>
<td>5344.71</td>
<td>149</td>
<td>.0</td>
<td>.0</td>
</tr>
<tr>
<td>3</td>
<td>2283.44</td>
<td>203</td>
<td>.0</td>
<td>12.3</td>
</tr>
<tr>
<td>4</td>
<td>.25</td>
<td>5</td>
<td>.0</td>
<td>29.0</td>
</tr>
</tbody>
</table>
In a graphical view!

Note the change in pool sizes. QPFRADJ is on.
Memory Perspectives – DB and non-DB Page Faults

3 views
Memory - Drilldown

Find the jobs that are faulting
Performance Data Investigator - *Storage Allocation Perspectives*

**7.2 and later**

Expand Collection Services

- **Storage Allocation**
  - Storage Allocation/Deallocation Overview
  - Storage Allocation/Deallocation by Thread or Task

- **Temporary Storage**
  - Temporary Storage Allocation Accounting
  - Temporary Storage Allocation/Deallocation Overview
  - Temporary Storage Allocation/Deallocation by Job or Task
  - Temporary Storage Allocation/Deallocation by Thread or Task
  - Temporary Storage Allocation/Deallocation by Generic Job or Task
  - Temporary Storage Allocation/Deallocation by Job User Profile
  - Temporary Storage Allocation/Deallocation by Job Current User Profile
  - Temporary Storage Allocation/Deallocation by Subsystem
  - Temporary Storage Allocation/Deallocation by Server Type

**Selection**

Name
Temporary Storage Allocation Accounting

Description
This chart shows the amount of temporary storage charged to active and ended jobs, the amount of user temporary storage, and the amount of temporary storage used for database and non-database operations by the IBM i operating system over time for the selected collections. Use this chart to select a time frame for further detailed investigation.

View List
Temporary Storage Allocation Accounting and SQL Statements
Temporary Storage Allocation Accounting and Disk Average Response
Temporary Storage Allocation / Deallocation Overview

Generally, allocations and deallocations following a similar pattern
From an overview perspective, drill down to more detail
Temporary Storage Allocation by Job or Task

Generally, allocations and deallocations following a similar pattern

<table>
<thead>
<tr>
<th>Full Name</th>
<th>Temporary Storage Allocation (Megabytes)</th>
<th>Temporary Storage Deallocation (Megabytes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>QDBSRV05/QSYS/091067</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>QDBSRV04/QSYS/091066</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>Q1ACPST/QBRMS/091196</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>CRTPRDTA/QSYS/099104</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>QUMEPRVAGT/QSECOFR/091459</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>QZDASOINIT/QUSER/098329</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>QZDASOINIT/QUSER/095186</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>QDBFSTCCOL/QSYS/091087</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>QZDASOINIT/QUSER/099166</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>QZDASOINIT/QUSER/098328</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>QYPSPFRCOL/QSYS/091160</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>QUMECIMOM/QSECOFR/091190</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>QUMEPRVAGT/QSECOFR/095188</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
<tr>
<td>QUMEPRVAGT/QSECOFR/091430</td>
<td><img src="image" alt="Temporary Storage Allocation Bar" /></td>
<td><img src="image" alt="Temporary Storage Deallocation Bar" /></td>
</tr>
</tbody>
</table>
Temporary Storage Allocation by Job Current User Profile
Storage Allocation Perspectives

7.2 and earlier

Selection
Name
Storage Allocation/Deallocation Overview
Description
This chart shows allocation and deallocation of the temporary and permanent storage for all contributors over time for the selected collections. Use this chart to select a time frame for further detailed investigation.

--- Select Action ---

Storage Allocation/Deallocation Overview

Date - Time

Megabytes

Storage Allocation (Megabytes)

Storage Deallocation (Megabytes)
Storage Allocation by Thread or Task

Selection
Name
Storage Allocation/Deallocation by Thread or Task

Description
This chart shows allocation and deallocation of the temporary and permanent storage, net frames requested by thread or task. Use this chart to select a thread or task for viewing its storage statistics over time.

Storage Allocation/Deallocation by Thread or Task Sorted by Allocation

--- Select Action ---

Storage Allocation/Deallocation by Thread or Task Sorted by Allocation

```
BEIJINGA/QTMHTTP/351432 - 00000029
BEIJINGA/QTMHTTP/351452 - 00000032
QZDASOINIT/QUSER/436389 - 0000000F
QRWTSRVR/QUSER/436662 - 001A3AB7
QRWTSRVR/QUSER/436570 - 00000050
QRWTSRVR/QUSER/436570 - 00000051
QRWTSRVR/QUSER/436570 - 0000004F
QRWTSRVR/QUSER/436570 - 00000052
QRWTSRVR/QUSER/436662 - 001A3AB9
```

Net Storage Requested (Megabytes)
Timeline Perspective

The timeline bars on the chart represent the elapsed time of threads or tasks

- Dispatched CPU Time
- CPU Queuing Time
- Other Waits Time
Select a job for drilldown …

You can see when the threads for that job ran

*Tip:* you can select more than one job for your drilldown selection
Change Context

CPU Utilization by Job or Task

--- Select Action ---

CPU Utilization for Jobs or Tasks
CPU Utilization by Thread or Task
Export
Modify SQL
Size next upgrade

Change Context

Show as table
Table Actions

QBRMSYNC/QBRMS/338021
QRTSRVR/QUSER/436569
QRTSRVR/QUSER/436661
QRTSRVR/QUSER/436570
QZDASOINIT/QUSER/436749

CPU Utilization (Percent)

Full Name

QRTSRVR/QUSER/436569
QRTSRVR/QUSER/436570
QRTSRVR/QUSER/436569
QRTSRVR/QUSER/436551
QRTSRVR/QUSER/436492
QRTSRVR/QUSER/436487
QRTSRVR/QUSER/436658
QRTSRVR/QUSER/436698
QRTSRVR/QUSER/436672
QRTSRVR/QUSER/436487
QRTSRVR/QUSER/436666
Perspective → Save As

When a table or chart is modified, you can save that table or chart for your own custom perspective using “Save As...”
Display Collection Services Database Files
.... QAPMCONF

Navigation:
Collection Services → Collection Services Database Files → QAPMCONF

IBM Systems Technical Events | ibm.com/training/events
QAPMCONF … a closer look….

<table>
<thead>
<tr>
<th>QAPMCONF Panel View</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Library Name:</td>
<td>QPFRDATA</td>
</tr>
<tr>
<td>Member Name:</td>
<td>Q258000002</td>
</tr>
<tr>
<td>Start Time:</td>
<td>Sep 15, 2014 12:00:02 AM</td>
</tr>
<tr>
<td>Model Number:</td>
<td>FHB</td>
</tr>
<tr>
<td>System Type:</td>
<td>9119</td>
</tr>
<tr>
<td>Partition Memory (KB):</td>
<td>1048576000</td>
</tr>
<tr>
<td>Comm Data Collected:</td>
<td>Y</td>
</tr>
<tr>
<td>Machine Serial Number:</td>
<td>02-88C55</td>
</tr>
</tbody>
</table>

| Virtual Processors: | 32 |
| Installed Processors: | 128 |

| Partition Count: | 109 |
| Processor Folding Support: | Yes |
| Partition ID: | 89 |
| Primary Partition ID: | 0 |
| Processor Units: | 32.00 |
| System Version: | 7 |
| System Release: | 2.0 |
| System Name: | LP89UT27 |
Graphing Multiple Collections

- If your collection library has 5 or fewer collections, an **All** option is available to display all the collections in one graph.

  - It will take longer to display the graph.
    - Multiple collections means larger queries!

- **Hint:** when the graph appears, you need to use the “full zoom out” tool to display all the data.
Graphing Multiple Collections

This example shows five days of (uninteresting) Collection Services data

*Do you know what ran each day at midnight?*
A More Interesting Example

4 days of more interesting performance data. Observe the pattern...
Display Charts in Separate Window

It’s useful to compare two graphs side-by-side
Two Different Charts from Two Different Days
Export - *.png, *.jpeg, *.csv, *.txt
Modify SQL – customize the queries

```
SELECT
  QSY.INTNUM,
  QSY.CSDTETIM AS CSDTETIM,
  MAX(PCTSYSCPU) AS PCTSYSCPU,
  SUM(TIME01) * .000001 AS WB01,
  SUM(TIME02) * .000001 AS WB02,
  SUM(TIME05 + TIME06 + TIME07 + TIME08 + TIME09 + TIME10) * .000001 AS WB050607080910,
  SUM(TIME11) * .000001 AS WB11,
  SUM(TIME14 + TIME15 + TIME19 + TIME32) * .000001 AS WB14151932,
  SUM(TIME16 + TIME17) * .000001 AS WB1617,
  SUM(TIME18) * .000001 AS WB18,
  100 AS PCT100,
  DTETIM AS DTETIM,
  DTECEN AS DTECEN
FROM
  (SELECT
       DTECEN || DTETIM AS CSDTETIM,
       DOUBLE(JWTM01) AS TIME01,
       DOUBLE(JWTM02) AS TIME02,
       ...
       FROM ...
   ) AS temp
```
Size Next Upgrade
Send data directly to the IBM Workload Estimator

Using the **Performance Data Investigator**

you can send measured data from **Collection Services**

and input it to the **IBM Systems Workload Estimator (WLE)**

Intended for a one-time sizing activity
PDI COMMON2/CS228229ND

PDI Workload Definition

Note: The partition information specified above reflects the target partition, in the same manner as the other workload definitions within the Estimator. Please ensure that the target partition is what is desired (name, type, OS level); this can be changed by clicking on the partition name.

The data below is a summary of the data passed to the Estimator from PDI. Please see the help text for more best practices for using PDI data in a WLE sizing.

Model: i570-9406-MMA
Feature: 5462
Clock Speed: 4700 MHz

1. Total CPU Utilization 68.04
2. Processor cores activated 16
3. Assigned Processor Cores 4
4. Memory (MB) 30404.7

5. Disk Configuration

<table>
<thead>
<tr>
<th>Group Name</th>
<th>Storage Used(GB)</th>
<th>Read Ops</th>
<th>Read IOSize (bytes)</th>
<th>Write Ops</th>
<th>Write IOSize (bytes)</th>
<th>Attachment</th>
<th>Protection</th>
<th>Type</th>
<th>Disk unit type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>88</td>
<td>366</td>
<td>14,896.0</td>
<td>325</td>
<td>4,843.0</td>
<td>External Storage</td>
<td>No Protection</td>
<td>15,000 RPM</td>
<td>2107</td>
</tr>
<tr>
<td>Group 2</td>
<td>2,474</td>
<td>4,950</td>
<td>15,046.0</td>
<td>4,537</td>
<td>4,792.0</td>
<td>External Storage</td>
<td>RAID-5</td>
<td>15,000 RPM</td>
<td>2107</td>
</tr>
</tbody>
</table>
Do you know why WLE didn’t recommend a POWER8 system?

*The operating system this came from is on 6.1.*
Considerations for Viewing Prior Release Performance data

- Performance data from earlier releases can be viewed with the Performance Data Investigator at the latest release
  - **Note:** Not all graphs and charts will be available after conversion due to changes in data content and format

- If prior release data has not been converted, you may get errors when trying to display charts

- Use the Convert Performance Collection (CVTPFRCOL) command
  - Supports Collection Services, Job Watcher, Disk Watcher, and Performance Explorer data
    - Data from 6.1 can be converted and viewed with PDI on 7.1 or 7.2
    - Data from 7.1 can be converted and viewed with PDI on 7.2
Considerations for Viewing Prior Release Performance data

• Convert the performance data to the current release format (commands)
  • For Collection Services data
    □ The preferred approach is to save the Management Collection object to a save file
      • SAVOBJ OBJ(MYMGTCOL) LIB(MYLIB) DEV(*SAVF) SAVF(MYLIB/MYSAVF)
      • FTP the save file to the 7.1 or 7.2 partition
      • Use the Restore Performance Collection command (RSTPFRCOL) to restore the
        *CSMGTCOL collection
      • Use the Create Performance Data (CRTPFRDTA) command to get the data into database
        files
        • Create Performance Data will create the data at the current release format
      • Note: the library in which the performance data is restored into needs to be at the current
        release level
  • For Job Watcher, Disk Watcher, or Performance Explorer collections
    □ Save the performance data using the Save Performance Collection (SAVPFRCOL) command
    □ FTP the save file to the 7.1 or 7.2 partition
    □ Use the Restore Performance Collection (RSTPFRCOL) command to restore the data on the
      7.1 or 7.2 partition.
    □ Use the Convert Performance Collection (CVTPFRCOL) command to convert the prior release
      database files to the current release.
Considerations for Viewing Prior Release Performance data

• Convert the performance data to the current release format via the GUI

• The steps are similar to the prior slide:
  – Save the performance collection
  – FTP the save file to the desired partition
  – Restore the collection via the Collection Manager
  – Convert the collection to the current release format
Manage Collections

- The Manage Collections task allows you to see and manage all of your performance data from one central location.
- Various tasks can be launched from the Manage Collections task, including the Performance Data Investigator.
Manage Collections

• If you restore performance data without using the Restore Performance Collection interface, collections may not display in the Manage Collections view.

• The “Rebuild Collection Table” option will rebuild the meta-data used for the Manage Collections task and then your performance data should be visible.
Collection Services … Status

Collectors
- Disk Watcher
- Job Watcher
- Collection Services
  - Active Collection Services Collections
  - Collection Services Collections
  - Collection Services Status
  - Configure Collection Services
  - Cycle Collection Services
  - Start Collection Services
  - Stop Collection Services

Collection Services Status
- Status: Started
- Library: QPFRDATA
- Collection object: Q261000002
- Collection profile: Standard plus protocol
- Started: Sep 18, 2014 12:00:02 AM
- Cycle time: 00:00:00
- Default collection interval: 00:05:00

OK
Navigator Favorites

- Throughout Navigator, can save favorites
- Including favorite Performance Data Investigator perspectives
- Action drop-down or a “Save as Favorite” button
Favorites

Save As Favorite

Specify the name to appear in the Favorites list in the left navigation area.

*Favorite name: Logical Partitions Overview

Category:
- None
- New
- Existing PDI Favorites

[OK] [Cancel]

Saved by user
How do I learn about all the *new* stuff??

- Technology Refreshes
- *Add function* PTFs
- New release

and there’s all that *old* stuff too…
IBM Knowledge Center

IBM i 7.2 and 7.3 Documentation

Performance is a major topic

Navigator is under Connecting to your system
IBM i developerWorks

- IBM i developerWorks is the web site to go to find out about
  - Latest function delivered via Technology Refreshes
  - Enhancements delivered via PTFs

IBM i Performance FAQ - a MUST read!


IBM i on Power - Performance FAQ

October 3, 2016
www.ibm.com/power/i
References
IBM i Performance on developerWorks

- developerWorks
  http://www.ibm.com/developerworks/ibmi/

- Performance Tools

- Forum

- IBM i Performance Data Investigator

- IBM i Performance Data Investigator – Edit Perspectives

- IBM i Wait Accounting

- How to use the Batch Model performance tool
IBM i Web Sites with Performance Information

• IBM i Knowledge Center
  http://www.ibm.com/support/knowledgecenter/ssw_ibm_i/welcome

• IBM i Performance Management
  http://www-03.ibm.com/systems/power/software/i/management/#tab2

• Performance Management for Power Systems
  http://www-03.ibm.com/systems/power/support/pm/index.html

• IBM Workload Estimator
  http://www.ibm.com/systems/support/tools/estimator

• iDoctor
  http://www-912.ibm.com/i_dir/idoclor.nsf

• Job Waits Whitepaper
You and i
http://www.ibmsystemsmag.com/Blogs/You-and-i/

i Can
http://www.ibmsystemsmag.com/Blogs/i-Can/

Mr. Modern-i-zation Rowe
https://www.systemideveloper.com/blogs/?q=blog/6

DB2 for i
http://db2fori.blogspot.com/
i Can
http://www.ibmsystemsmag.com/Blogs/i-Can/

For a simple list of all blogs on one page:

"i Can" Blog of Blogs


IBM i 7.3 System Monitor Enhancements
IBM i 7.3 Enhancement With Binder Language Export Source Workload Group Configuration with IBM i 7.3
IBM i 7.3 - Network Connection Auditing
IBM i Performance Frequently Asked Questions Revisited
IBM i 7.3 Enhancements for Display Job Log (DSPJOBLOG)
Route More Work to Subsystems by User Profile
Graph History: New in 7.3 IBM Navigator for i
Using ALLCHGRCV or ALLDTCRCV Control Group Entries to Save Journal Receivers
IBM i 7.3 - Qshell Jobs and the Inactive Job Time Out
IBM i 7.2 Improved Temporary Storage Tracking (Part 7)
IBM i 7.3 Adds Authority Collection Feature
IBM i Services for Function Usage Information
PowerHA for SMB
Visualizing Database Performance Data With the Performance Data Investigator
Collecting Database Performance Data With IBM i Performance Data Investigator
IBM i Configuration Defaults
Single Object Restore Performance Enhancement
Why You Should be Using Expert Cache
Leveraging SSDs and IASPs with BRMS Migration
SQL CPU Utilization
January 2016 IBM i Large User Group Meeting
IBM i Job Accounting and Prestart Server Jobs
Route Remote Command Requests to a Specific Subsystem
Copy Spooled Files to PDFs using the UIM Exit Point for WRKSPLF
IBM i Job Accounting and Prestart Jobs
IBM i Access Client Solutions and Performance FAQ Updates
Everything is Design: The Work of Paul Rand
What Happened to the PCRM?

• Performance Capabilities Reference Manual – “PCRM”

• Was THE reference manual for all things related to IBM i performance considerations
  • Content was carried forward but not always updated

• Beginning in 2014, the PCRM only covers CPW information
  • Updates for new hardware models and CPW ratings
  • Older versions are still available for download

• Use other sources for IBM i performance information:
  • The IBM i Performance FAQ
  • Knowledge Center
  • developerWorks
IBM i 7.1 Technical Overview with Technology Refresh Updates

http://www.redbooks.ibm.com/redpieces/abstracts/sg247858.html

Covers the 7.1 content through Technology Refresh 7

Chapter 6 – Performance Tools

Chapter 17, Section 6 – Performance in Navigator for i
Covers the 7.2 content through Technology Refresh 1

Section 2.8 – Performance

Section 8.6.7 – Job level SQL stats in Collection Services
YOUR OPINION MATTERS!

Submit **four or more** session evaluations by 5:30pm Wednesday to be eligible for drawings!

*Winners will be notified Thursday morning. Prizes must be picked up at registration desk, during operating hours, by the conclusion of the event.
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