



Navigator for i

Tim Rowe (timmr@us.ibm.com)
IBM i Business Architect Systems Management

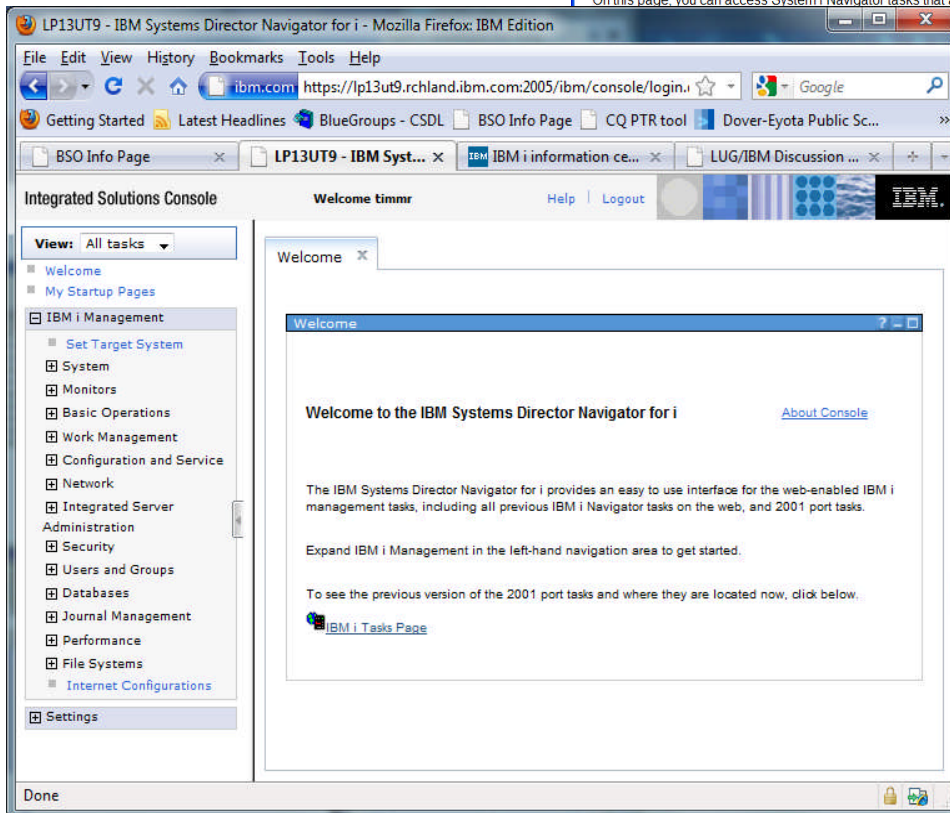
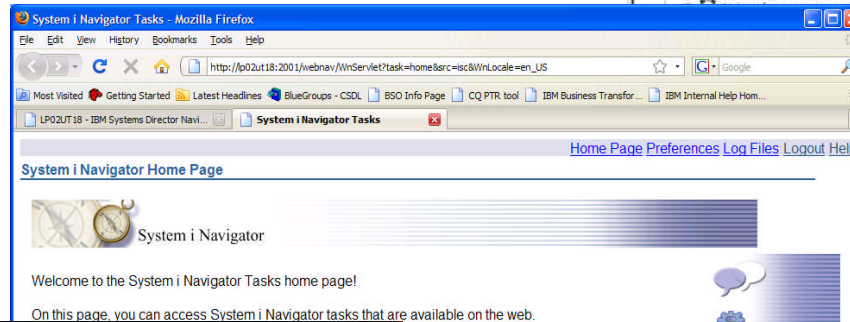
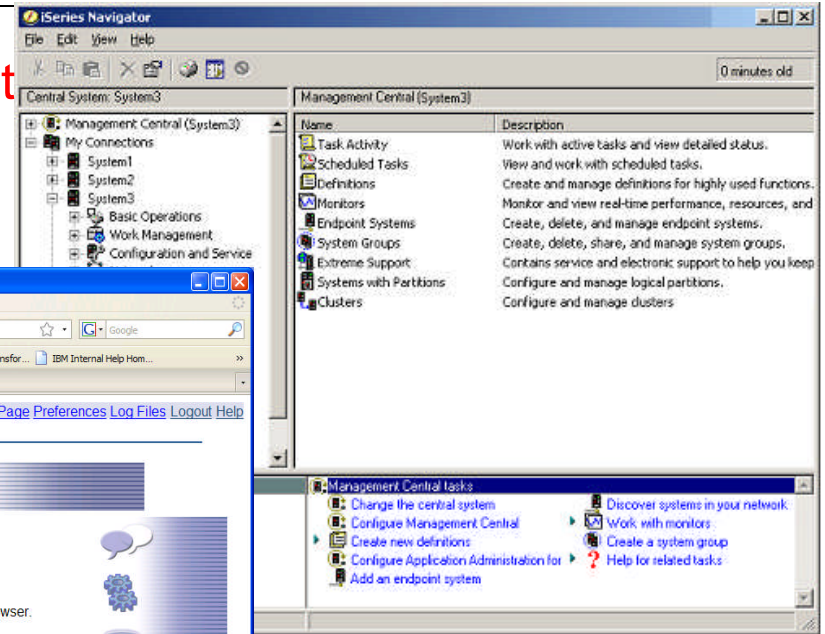
- **IBM Navigator for i Overview**
- **IBM Navigator for i Details**
- **IBM i Access Client Solutions Introduction**
- **IBM i Access Client Solutions Details**





Navigator

Old – PC Client



Old – Web GUI

New – Rich Web GUI



IBM Navigator for i

New!!! Delivered Jan 2013

The screenshot shows the IBM Navigator for i web interface in a Firefox browser window. The browser address bar shows the URL: `https://lp13ut9:2005/ibm/console/login.do?action=secure`. The page title is "IBM® Navigator for i" and the user is logged in as "timmr".

The left sidebar contains a navigation tree with the following items:

- Welcome
- IBM i Management
 - Target Systems and Groups
 - System
 - Monitors
 - Basic Operations
 - Work Management
 - Active Jobs
 - Server Jobs
 - Active Job Queues
 - Output Queues
 - Active Subsystems
 - Qbatch
 - Qcmn
 - Qctl
 - Qhttpsvr
 - Qinter
 - Qserver
 - Qspl
 - Qsyswrk
 - Qusrwrk
 - Active Memory Pools
 - All Tasks
- Configuration and Service
- Network
- Integrated Server Administration
- Security
- Users and Groups
- Database
- Journal Management

The main content area displays the "Active Jobs - Lp13ut9" window. It shows a table of active jobs with the following columns: Job Name, Detailed Status, and Current User. The table contains 8 rows of data:

Job Name	Detailed Status	Current User
Qbatch	Waiting for dequeue	Qsys
Qcmn	Waiting for dequeue	Qsys
Qacsotp	Waiting for request	Quser
Qlzpssrv	Waiting for request	Quser
Qnmapingd	Waiting for request	Quser
Qnmarexecd	Waiting for request	Quser
Qnpservr	Waiting for request	Quser

The interface also includes a "Filter" input field, a "No filter applied" message, and a pagination bar at the bottom showing "1 - 100 of 186 items" and "100" items displayed.



IBM Navigator for i – History

- V5R3
 - Initial “web enablement” of System i Navigator functions. Used AUIML servlet runtime. Approx 100 tasks available via URLs.
- V5R4
 - Continued web enablement. Up to approx 300 tasks now available as servlets.
- V6R1
 - ISC console now available on IBM i.
 - **IBM Systems Director Navigator for i.**
 - “Systems Director” was included in name to show “growth path” to IBM Systems Director.
 - Internal name was “Level 1 Console” since this out-of-the-box application was available to only manage one IBM i system.
 - Navigator web portlets were also included in base IBM Systems Director application.
- V7R1
 - Continued making more functions available in web console.
 - Single source – All changes reflected back to V6R1
- **V7R2**
 - Many new features & improved usability and performance



What we are hearing from our customers

- **Want an easier way to keep their management interface up to date – NO windows install**
 - Linux, Mac, iPad (Web based)

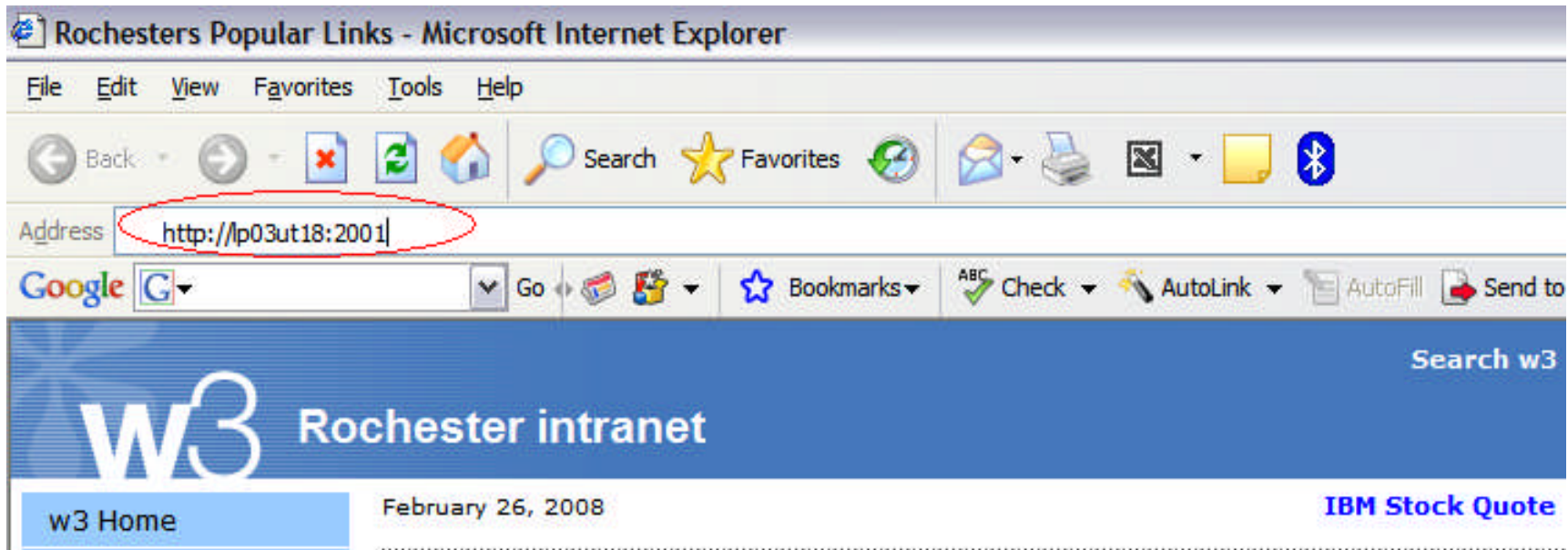
- **Want the Web interface to be usable**
 - Performance
 - Usability
 - Missing function
 - Where is my DB function I use?
 - Need the important monitoring function from MC
 - Additional browser support ie Safari and Chrome

- **What are we doing to fix this?**
 - Removed a number of the 'limitations' we were stuck with before
 - Team focused on enhancing the infrastructure so that we can fix the issue



How does it work ?

- Enter the following URL into a browser
 - `http://systemName:2001`



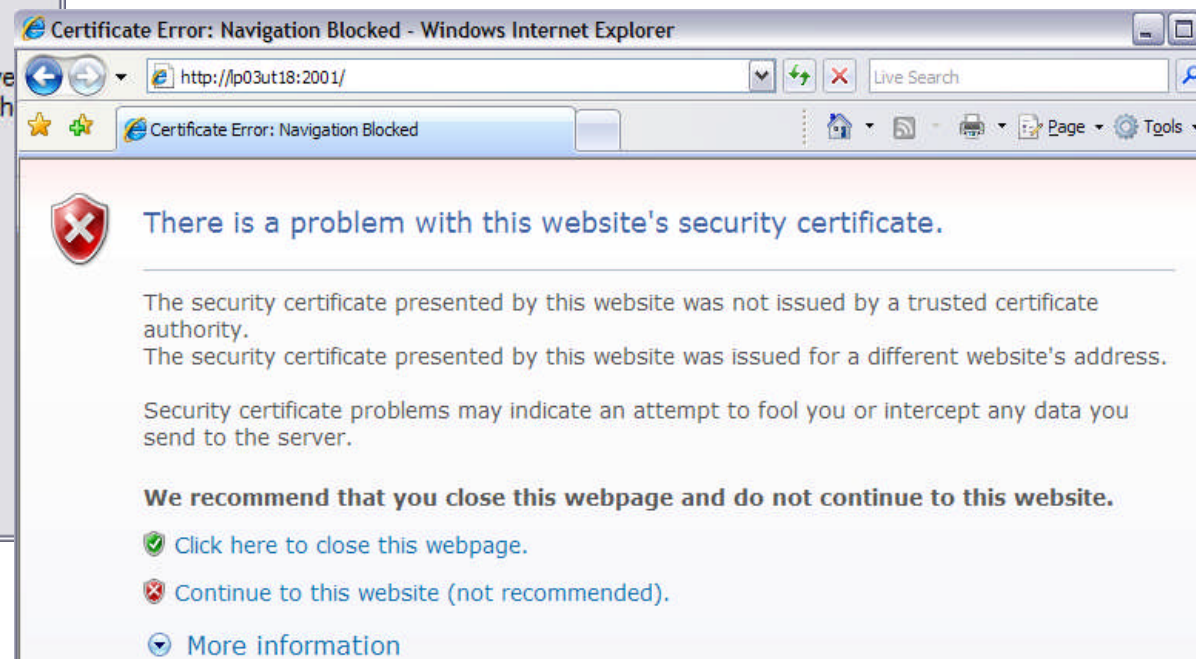
Supports the following browsers:

- Microsoft® Internet Explorer, 8.0 or later
- Mozilla Firefox, 1.0 or later



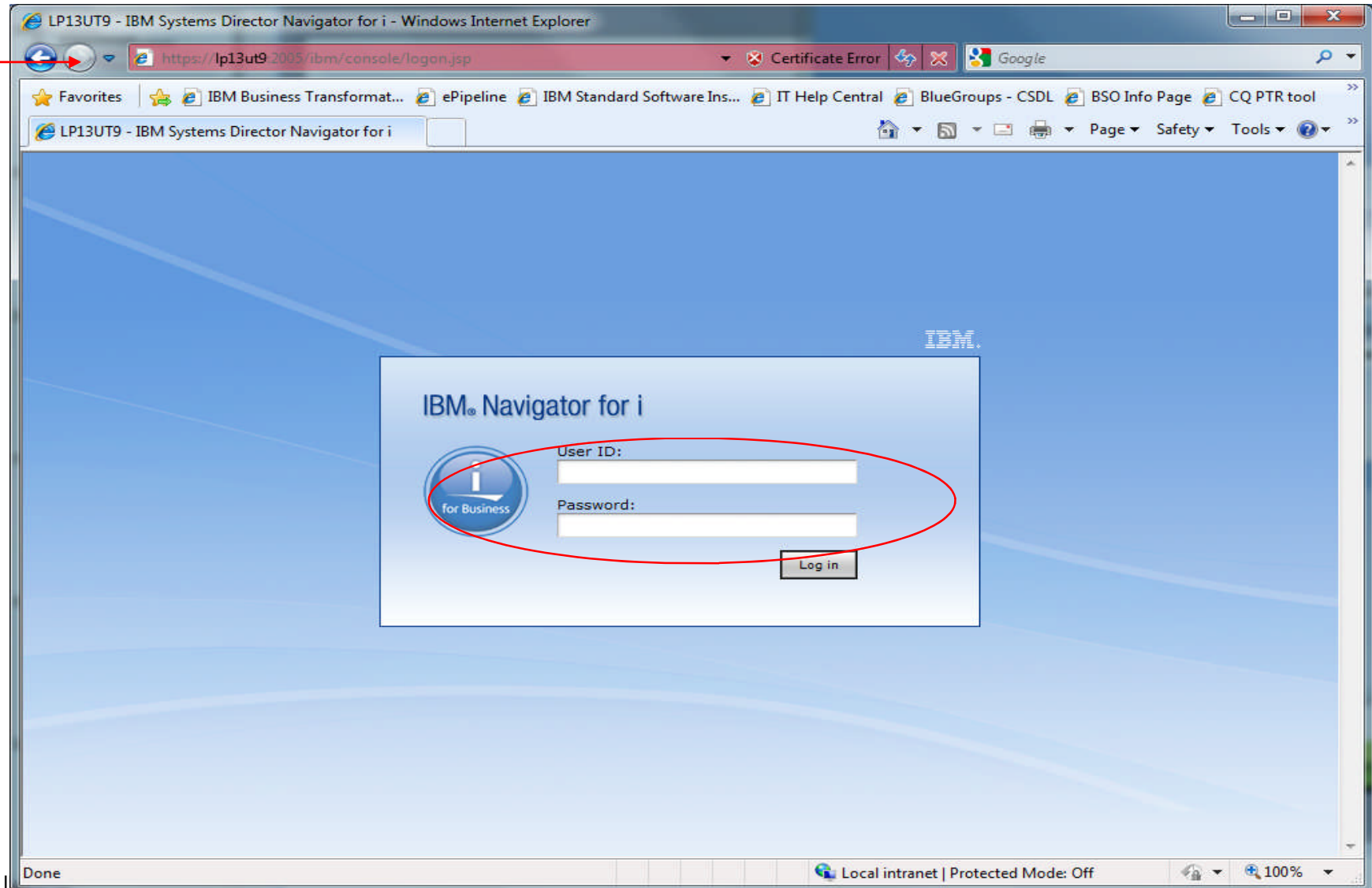
How does it work ?

- **Accept the certificate warnings**
 - Consoles runs on SSL



How does it work ?

- URL will be re-routed to secure path
- Enter your IBM i user ID and password for this system



IBM i 7.2 Enhancements

- ▶ Usability
- ▶ Software management
 - ← PTF, PTF Group, IBM i Products
- ▶ Performance Data Investigator
- ▶ Monitoring
 - ← System and File Monitors
- ▶ Batch Modeler
- ▶ Security
- ▶ Network
- ▶ Omnifind
- ▶ Disk & Partition Management
- ▶ Many More....

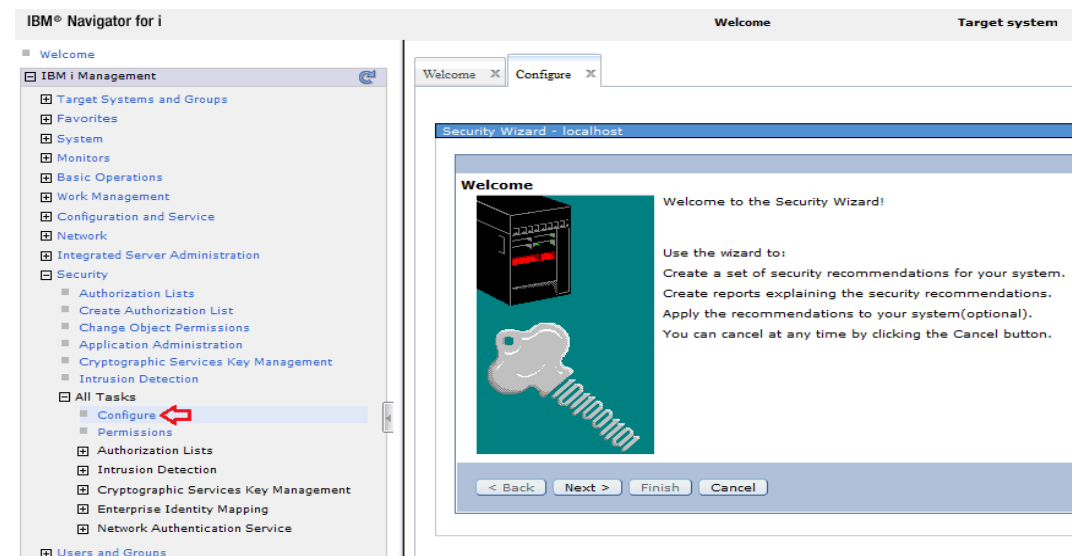


DEMO!!!!



7.2 Enhancements - New Security Features

- ▶ Enterprise Identity Manager Enablement
- ▶ Support Kerberos, for single sign on (SSO)
- ▶ Support Internet Key Exchange (IKEv2) for VPN
- ▶ Support Transport Layer Security (TLS) version 1.2
- ▶ Security Wizard - Configure system security settings from a high level view.
 - ◀ Examine current security policy
 - ◀ Save user report so user can configure current system at a later date
 - ◀ Print a report that includes the recommended system value settings for user system with the implications of such settings



7.2 Enhancements - New Network Features

- ▶ Support DNS Security
- ▶ Support IPv6
- ▶ VLAN ID support for Interface/Route/PPP Profile configuration
- ▶ Dead Gateway & VIPA support
- ▶ ISC DHCP Server configuration support
- ▶ New SMTP Server Type support

Welcome x TCP/IP Attributes x

TCP/IP Attributes - Localhost

General	ICMP error message burst limit:	<input type="text" value="10"/>	messages (1 - 255)
Transports	ICMP error message send rate:	<input type="text" value="10"/>	packets/second (1- 255)
IPv4	IP hop limit:	<input type="text" value="64"/>	hops (1 - 255)
IPv6	<input checked="" type="checkbox"/> Use load sharing across routes on the same physical interface for duplicate routes		
	Temporary address valid lifetime:	<input type="text" value="7"/>	days (0.1 - 30)
	Temporary address preferred lifetime:	<input type="text" value="1"/>	days (0.1 - 30)
	Temporary address excluded prefix:		
	Select IPv6 prefix	Prefix length	<input type="button" value="Add"/>
	None		<input type="button" value="Remove"/>

Page 1 of 1 Rows Total: 0 Selected: 0



7.2 Enhancements - OmniFind Support

- ▶ Search for different types of documents that are stored in either a database column or in a supported IBM i object ...
- ▶ www.ibm.com/developerworks/ibmi/techupdates/db2/omf

The screenshot displays the IBM i Management console interface. On the left, a navigation pane shows the 'OmniFind' section expanded, including options for 'Collection List', 'Create Collection', and 'Search'. The main window is titled 'OmniFind Text Search Result' and contains the following elements:

- Search criteria:**
 - Collection: TING (with a 'Change Collection' button)
 - Language: English(United States) (with a dropdown arrow and a 'Use synonym dictionary' checkbox)
 - Search text: Hi
 - Buttons: 'Refresh Search Results' and 'Collection actions' (with a dropdown arrow)
- Search Results Table:**

Object name	Library	Object type	Attribute	Modify time	Score
No filter applied					
/home/guoli/webnavisc.wab		Stream file	Data	2013-03-19 01:31:14	0.0090

A context menu is visible over the search result, offering 'Open' and 'Display object information' options.



7.2 Enhancements - PTF Compare and Update

- ▶ Compare PTFs and PTF groups on different systems
- ▶ Send and install PTFs/PTF groups to multiple systems
- ▶ Multi-system PTF comparison

The screenshot displays the 'Compare And Update Wizard' interface. The main window shows a table of 'Target Systems and Groups' with columns for 'PTFs Missing' and 'PTFs Extra'. Below this, a 'Compare results' window shows a table of PTFs with columns for 'PTF', 'Product', 'Release', 'Type', and 'Save File'. A context menu is open over the list, showing options like 'Load', 'Apply', 'Remove', 'Clean up', 'Send...', 'Send and Install...', and 'Properties'.

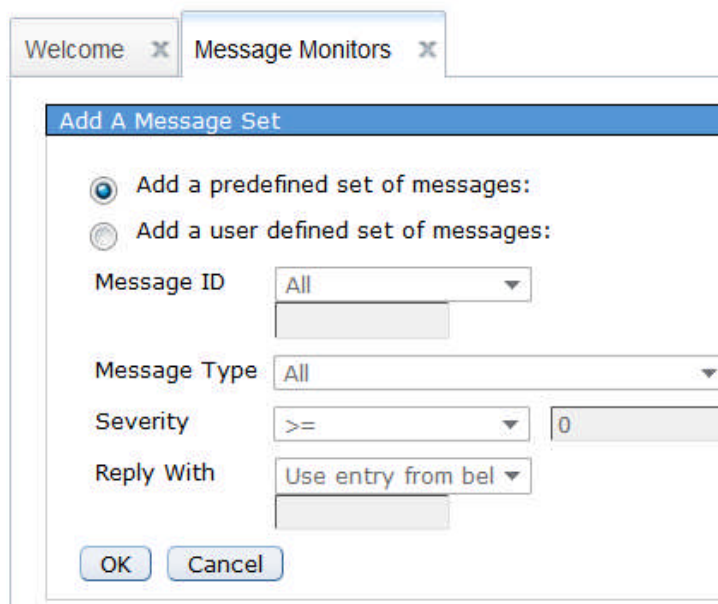
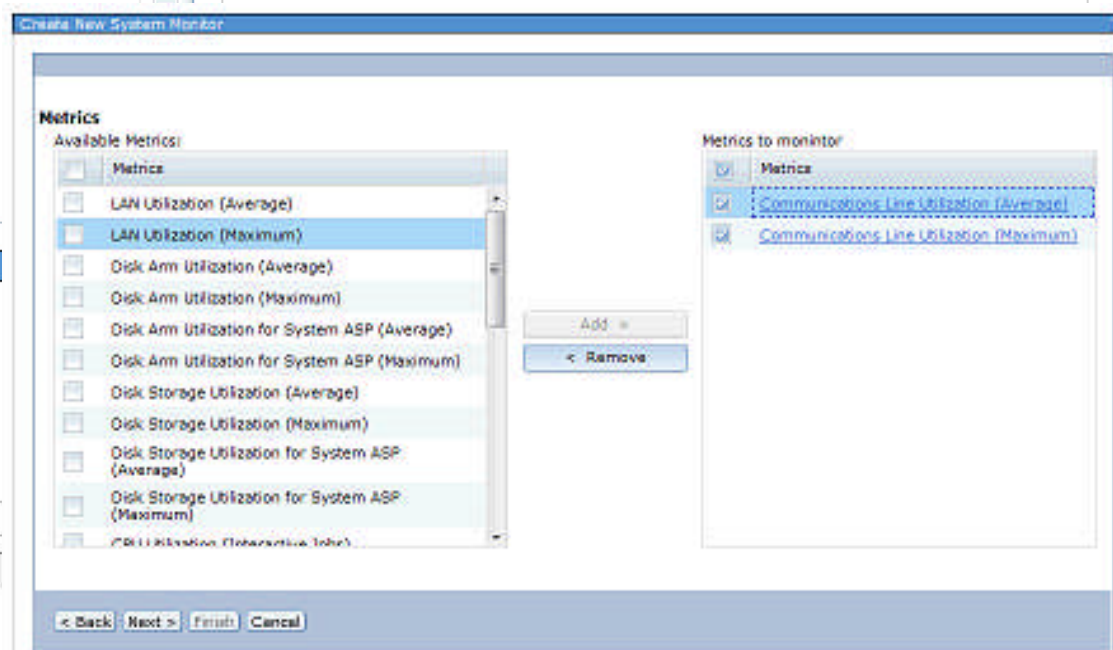
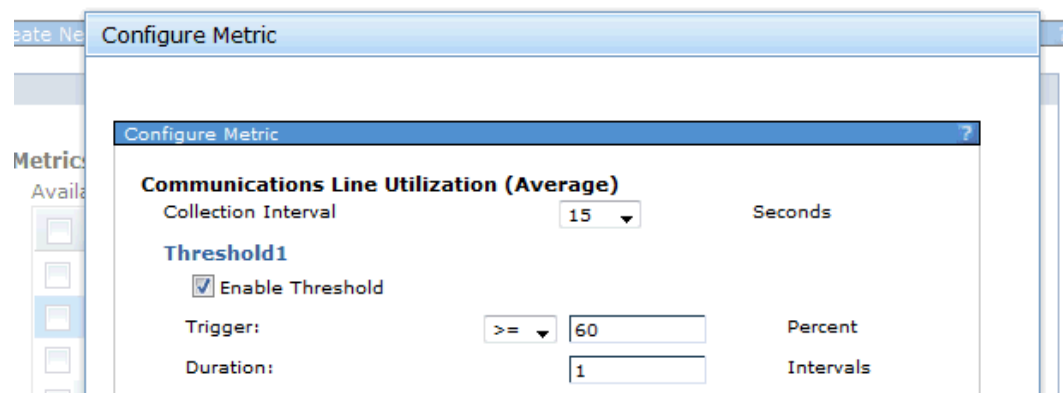
Target Systems and Groups	PTFs Missing	PTFs Extra	Description
9.123.96.182	13	0	

PTF Group	PTF	Product	Release	Type	Save File
<input type="checkbox"/>	L231291	5770SS1	V7R2M0	Missing	No
<input type="checkbox"/>	L231299	5770SS1	V7R2M0	Missing	No
<input checked="" type="checkbox"/>	L231307	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231309	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231324	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231370	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231371	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231372	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231373	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231374	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231375	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231376	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231377	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231378	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231379	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231380	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231381	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231382	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231383	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231384	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231385	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231386	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231387	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231388	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231389	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231390	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231391	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231392	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231393	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231394	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231395	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231396	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231397	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231398	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231399	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231400	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231401	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231402	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231403	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231404	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L231405	5770SS1	V7R2M0	Missing	Yes
<input checked="" type="checkbox"/>	L281406	5770SS1	V7R2M0	Missing	Yes
<input checked="" type="checkbox"/>	L281428	5770SS1	V7R2M0	Missing	Yes
<input checked="" type="checkbox"/>	L281434	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L281440	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	L281460	5770SS1	V7R2M0	Missing	Yes
<input type="checkbox"/>	R28280	5770SS1	V7R2M0	Missing	Yes



7.2 Enhancements - Monitors

- ▶ System Monitor
 - ← Monitoring IBM i matrix
 - ← Custom event action (commands)
- ▶ Message Monitor



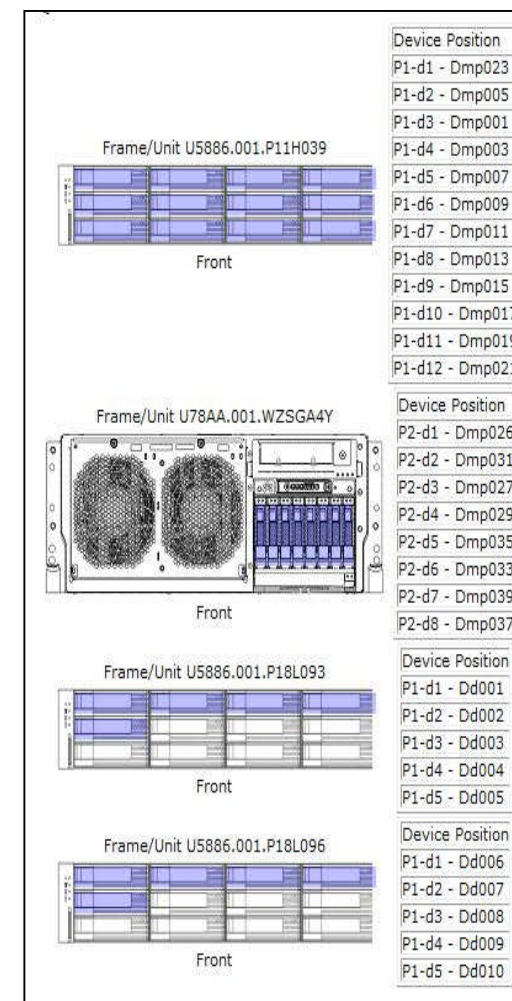
7.2 Enhancements – Disk Management and Partition Management

▶ Disk Management

- ← Understand your disk placement.
- ← Manage physical disk drives, select hot spares, enable remote load source mirroring, add units, manage tapes, and more.
- ← Concurrent remove of disk units in ASP or varied on IASP.
- ← Remove SST password restrictions when accessing disk management function on web.
- ← Trace and balance disk pools.
- ← RAID 10 support on device parity.
- ← End allocation on disk units.

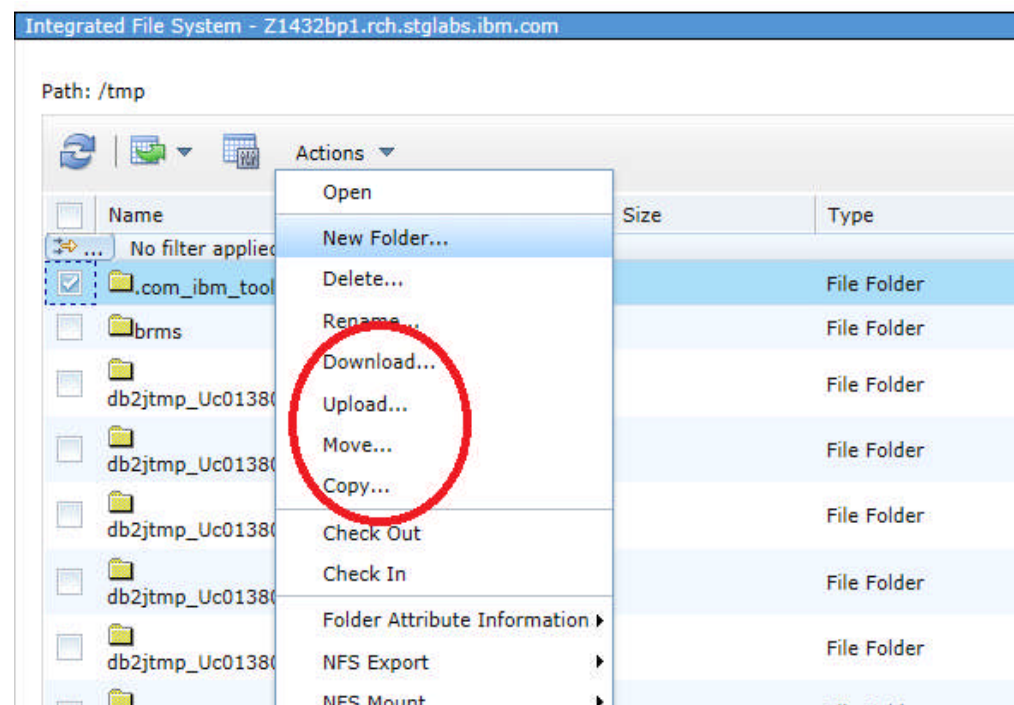
▶ Partition Management

- ← Provide graphical interface of Virtual Partition Management functions
- ← Allow users to create and manage Linux or IBM i partitions.
- ← Allocate memory, processor, virtual SCSI device, virtual disk, virtual Ethernet resources in one single wizard.



7.2 Enhancements - More Feature Updates

- ▶ Printer Output
 - ← Improvements of Exporting Spooled Files as PDF
 - ← Automatic and Silent Printing Support
- ▶ IFS management
 - ← Upload/download file
 - ← Copy/move/edit file
- ▶ DB2
 - ← View table Content
 - ← Journal Entry Viewer
- ▶ Set Target System Updates
 - ← Multiple System Group support
- ▶ Internet Configurations
 - ← Porting from LWI to liberty



7.2 Enhancements – Performance

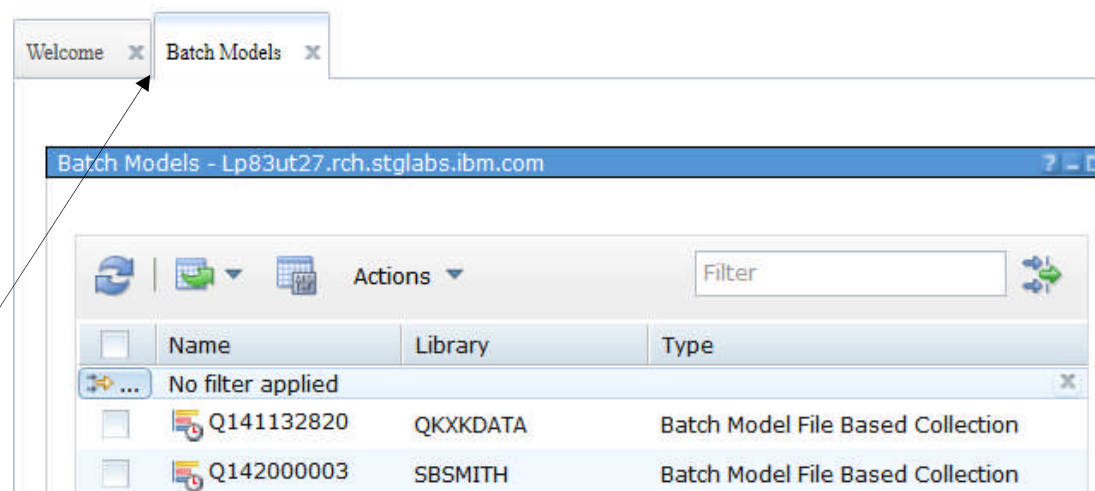
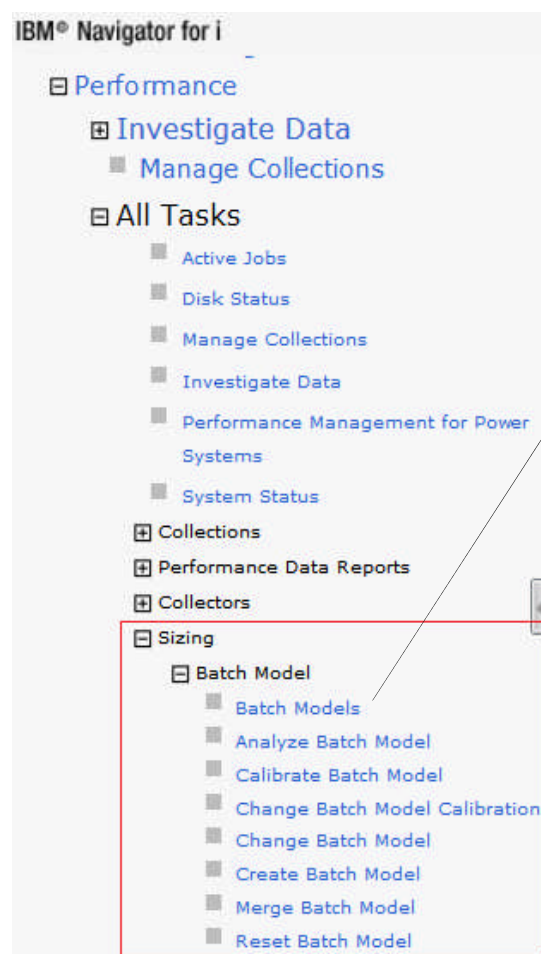
- ▶ **Performance Report**
Support to generate a report which include a group of performance graphs or tables.
- ▶ **Batch Model***
A tool to help analyze and predict batch job performance on the IBM i.
- ▶ **System Monitor***
Collection Services can be configured to collect system monitor data (real time data).
- ▶ **More Performance Perspectives***
Database perspectives, System Monitor perspective, Batch Model perspectives...
- ▶ **Initial Display**
Customize display range for the chart and table.
- ▶ **System Information**
Add a system information section to show more system information for a perspective .
- ▶ **Show SQL error messages**
Show additional SQL error messages for perspective when met problem.

* Detailed information please refer to another PPT CS & PDI 7-2 June 2013



Batch Model

New function under Performance task

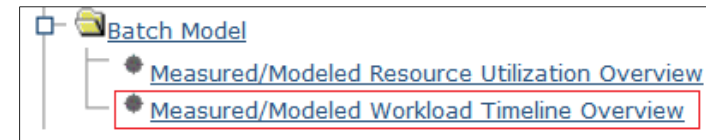


- Analyze Batch Model
- Calibrate Batch Model
- Change Batch Model Calibration
- Change Batch Model
- Create Batch Model
- Merge Batch Model
- Reset Batch Model



Batch Model

▶ Measured/Modeled Workload Timeline Overview

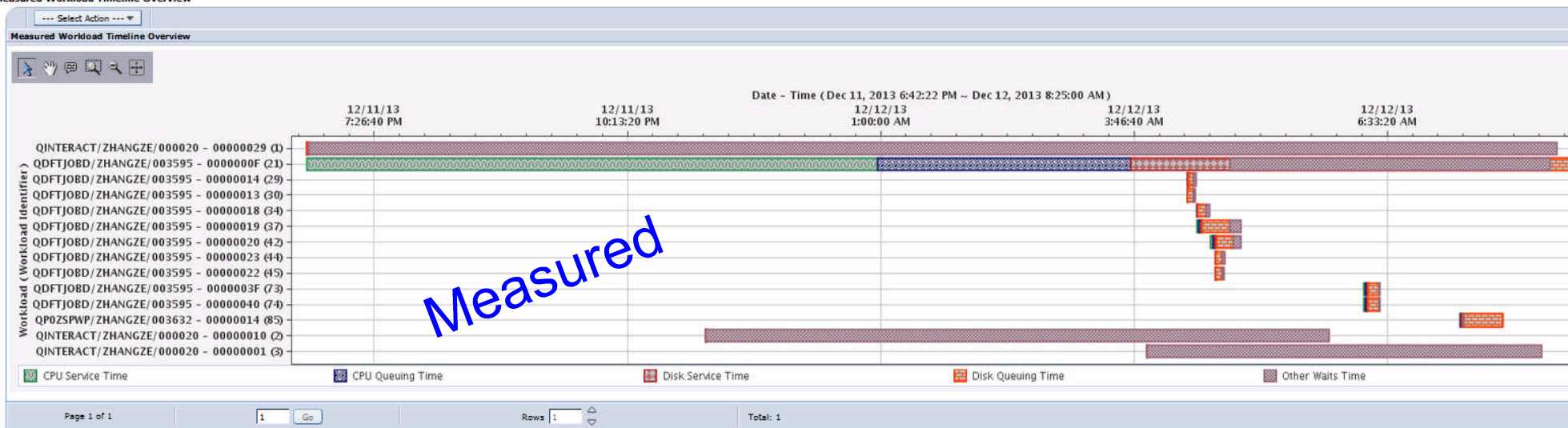


This chart shows the sequence that each workload runs and provides a clear picture of the time window for both the measured and modeled workloads.

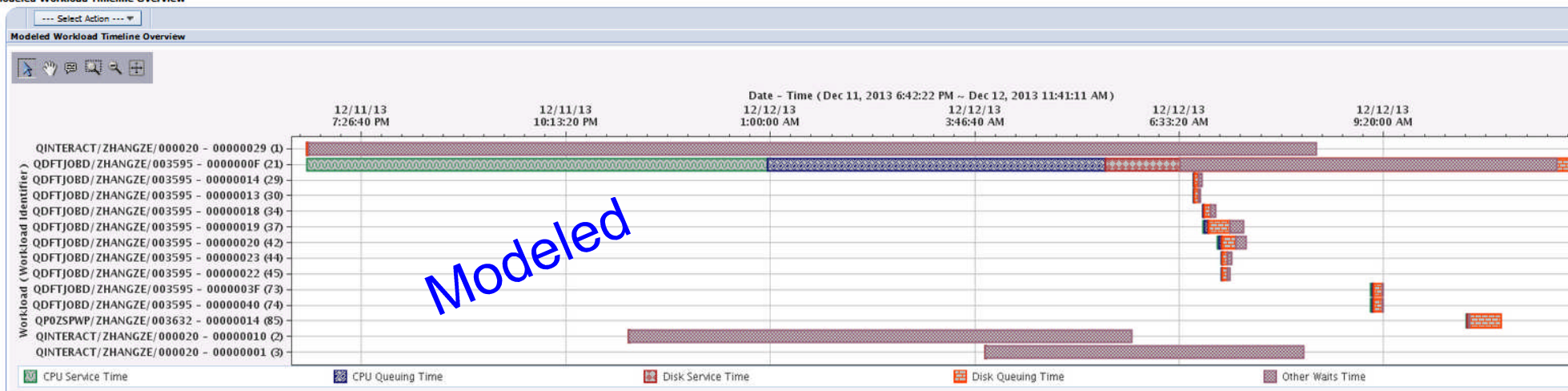


Measured vs Modeled Workload Timeline Overview

Measured Workload Timeline Overview



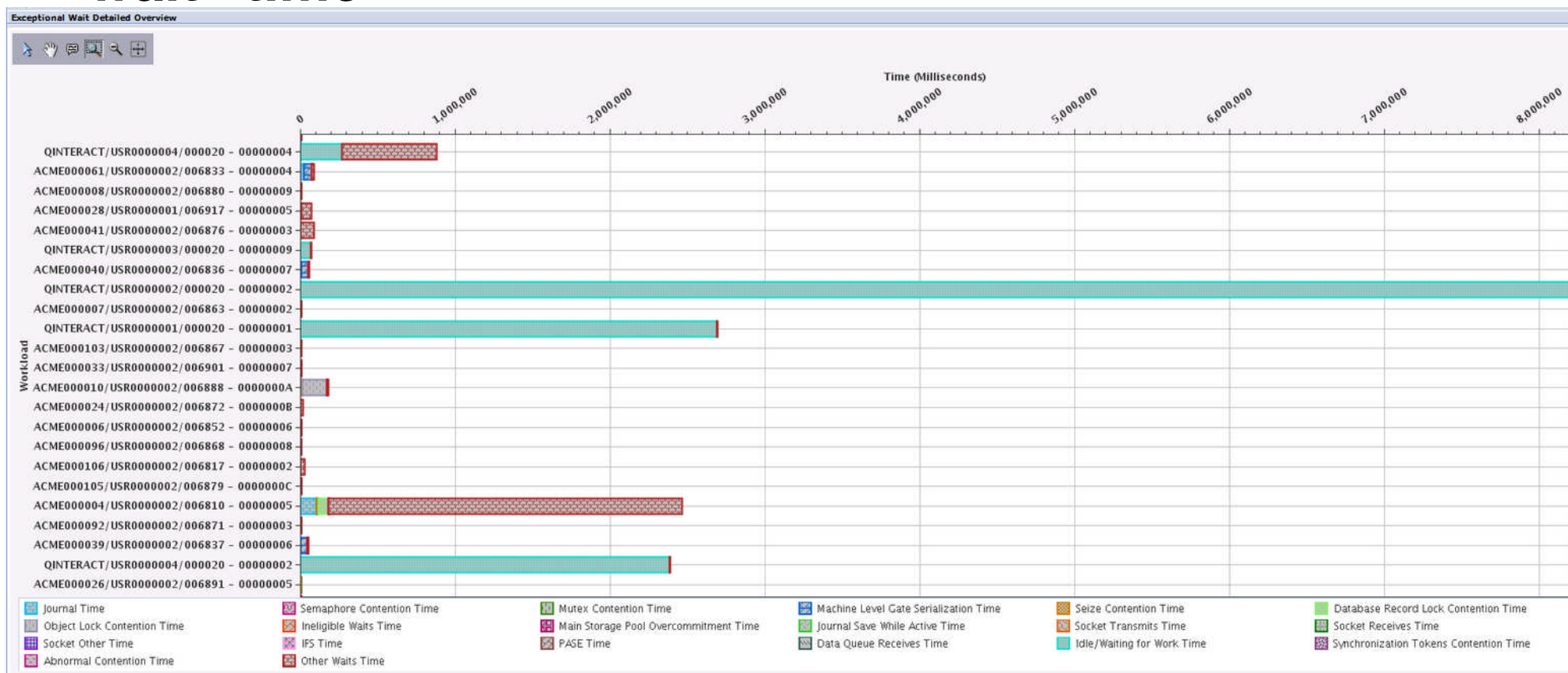
Modeled Workload Timeline Overview



Batch Model

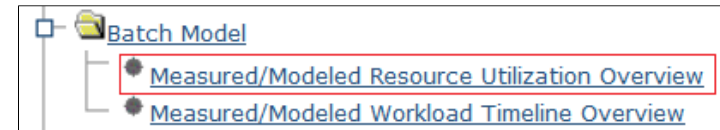
Exceptional Wait Detailed Overview

Investigate the waits that make up the “exceptional wait” time



Batch Model

▶ Measured/Modeled Resource Utilization Overview



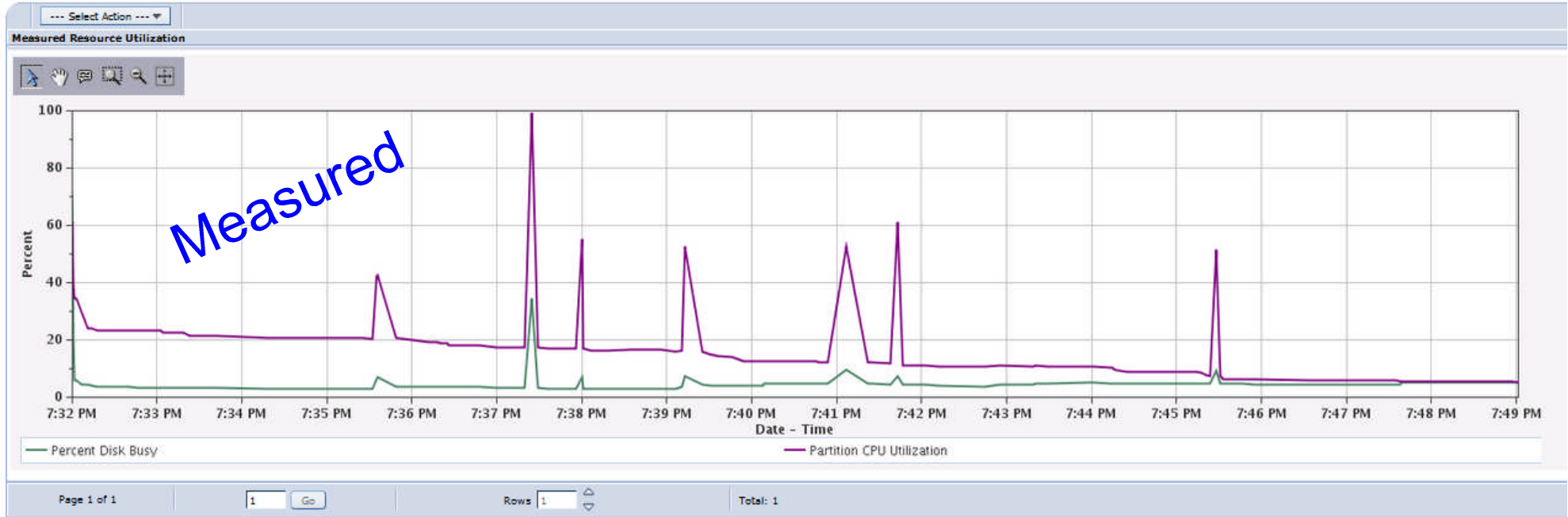
This chart shows the resource utilization percentage of the measured and modeled batch window.



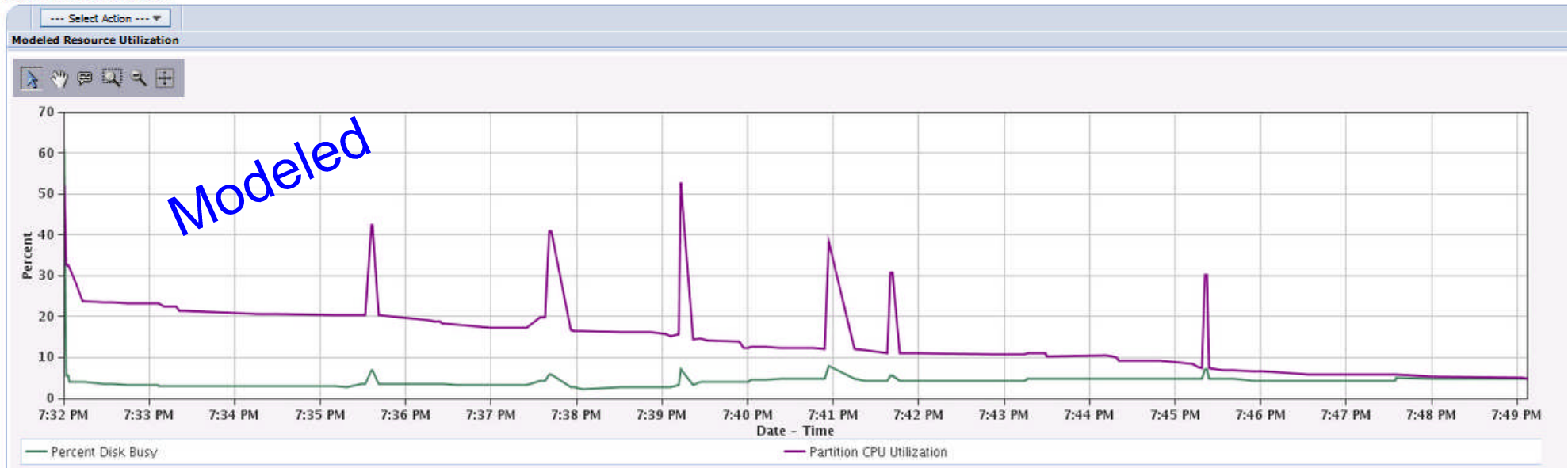
Measured vs Modeled Resource Utilization Overview



Measured Resource Utilization



Modeled Resource Utilization



PDI Search Function

- ▶ Search specific to PDI perspectives— helps you find the charts and metrics you need

Performance

- Investigate Data
 - Investigate Data Search
 - Health Indicators
 - Monitor
 - Collection Services
 - Database
 - Job Watcher
 - Disk Watcher
 - Performance Explorer
 - Batch Model
 - PACKAGE01
- Manage Collections
- All Tasks

Investigate Data Search

sql cursor Case Sensitive Whole Words Only

Found 4 results for 'sql cursor'

Search In:

Package Name Description Metrics

Perspective View SQL

Show Columns:

Metrics

SQL

Package Name	Perspective	Description	View
Database	SQL Cursor and Native DB Opens by Generic Job	This chart shows the number of SQL full opens, SQL pseudo opens, Native database (non-SQL) full opens as rates per second grouped by the first 6 characters of the job name and ranked by the largest group	SQL Cursor and Native DB Opens by Generic Job
Database	SQL Cursor and Native DB Opens by Job Current User Profile	pseudo opens, Native database (non-SQL) full opens as rates per second grouped by the job current user profile and ranked by the largest group contributors. Use this chart to select a time frame for further detailed investigation.	SQL Cursor and Native DB Opens by Job Current User Profile
Database	SQL Cursor and Native DB Opens by Job	This chart shows the number of SQL full opens, SQL pseudo opens, Native database (non-SQL) full opens as rates per second grouped by job and ranked by the largest contributors. Use this chart to select a time frame for further detailed investigation.	SQL Cursor and Native DB Opens by Job
Database	SQL Cursor and Native DB Opens Overview	This chart shows the number of SQL full opens, SQL pseudo opens, Native database (non-SQL) full opens as rates per second that occurred over time for the selected collection or collections. Use this chart to select a time frame for further detailed investigation.	SQL Cursor and Native DB Opens Overview

Database --> SQL Cursor and Native DB Opens --> SQL Cursor and Native DB Opens by Generic Job



Investigate Data Search

Investigate Data Search

CPU Utilization by job Case Sensitive Whole Words Only

Found 8 results for 'CPU Utilization by job'

Search In: Package Name Description Metrics Perspective View SQL

Show Columns: Metrics SQL

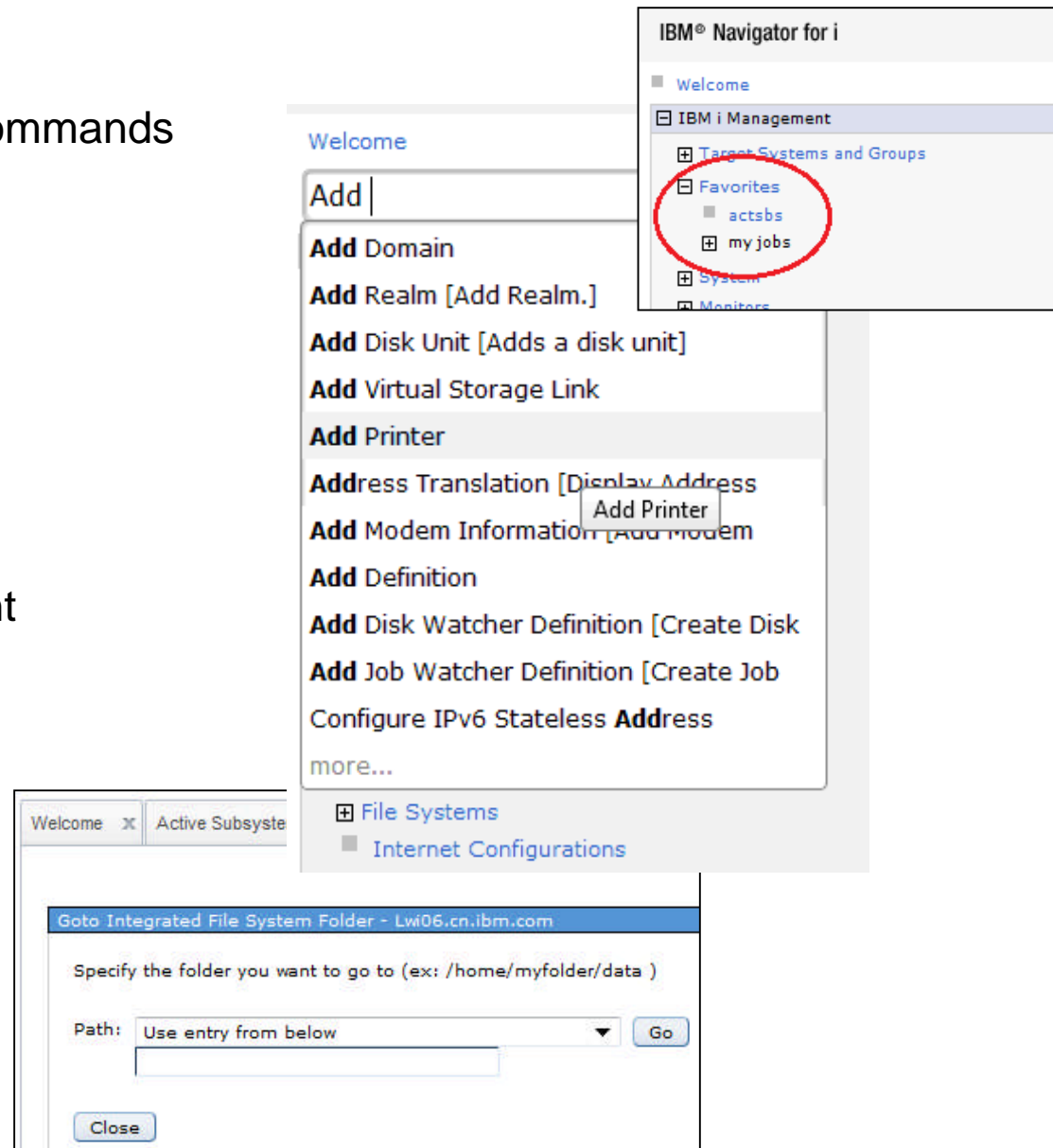
Package Name	Perspective	Description	View	Metrics
Collection Services	CPU Utilization by Job Current User Profile	Charts that show CPU Usage grouped by job current user profile and ranked by the largest contributors. Use this chart to select contributing groups for further	CPU Utilization	[Current User, CPU Utilization, CPU Time, Scaled CPU Utilization, Scaled CPU Time, Workload Group Delay Time]
Collection Services	CPU Utilization by Job User Profile	profile and ranked by the largest contributors. Use this chart to select contributing groups for further detailed investigation.	CPU Utilization	[Job User, CPU Utilization, CPU Time, Scaled CPU Utilization, Scaled CPU Time, Workload Group Delay Time]
Collection Services	CPU Utilization by Job or Task	Charts that show CPU usage by job or task and ranked by the largest contributors. Use this chart to select contributors for further detailed investigation.	CPU Utilization	[Name, Job User, Job Number, CPU Utilization, CPU Time, Scaled CPU Utilization, Scaled CPU Time, Workload Group Delay Time, Job Type, Job Subtype, Minimum Job Priority, Maximum Job Priority, Submitter Job Name, Submitter Job User, Submitter Job Number, Full Name, Short Lifespan Entry Count, Thread Name]
Job Watcher	CPU Utilization by Job Current User Profile	This chart shows CPU Usage grouped by job current user profile and ranked by the largest contributors. Use this chart to select contributing groups for further detailed investigation. This data is based on the elapsed job time.	CPU Utilization by Job Current User Profile	[Job Current User Profile, CPU Utilization, CPU Time]
Job Watcher	CPU Utilization by Job or Task	This chart shows CPU usage by job or task and ranked by the largest contributors. Use this chart to select contributors for further detailed investigation. This data is based on the elapsed job time.	CPU Utilization by Job or Task	[Job Name, Job User Profile, Job Number, CPU Utilization, CPU Time, Maximum Job Pool, Minimum Job Priority, Maximum Job Priority, Maximum Job Current User Profile, Maximum Subsystem, Full Name]

- ▶ Searches in the package and perspective name, view, description, metrics and SQL
- ▶ Search without metrics and SQL for faster results
- ▶ Add metrics and SQL for more detail



L1C 7.2 Enhancements - Usability Enhancements

- ▶ Search tasks by keywords and CL commands
- ▶ Bookmark your favorite tasks
- ▶ Go to deep IFS path directly
- ▶ Navigation performance improvement
- ▶ Simplified Tab-based management



IBM Navigator for i - Reenergized

■ Independent Tabs

- Switch back and forth quickly
- Open tab in a new window

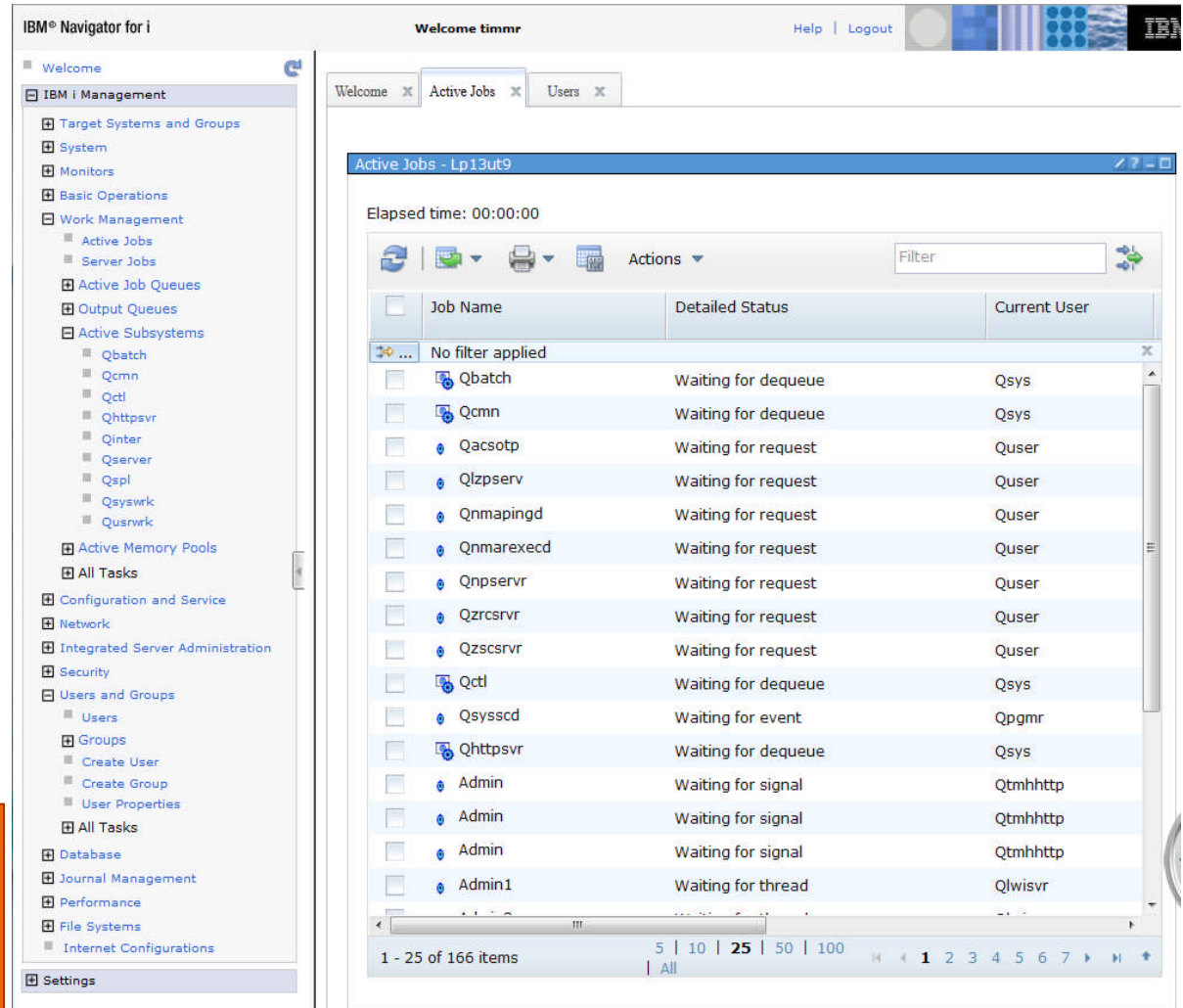
■ Dynamic Navigation

- Navigation how it should be
- Open containers quickly

■ Modern Tables

- Search & filter large data
- Function you expect

Significant upgrade from previous
Web based interface.
Performance and Usability
Comparable to Client Navigator



The screenshot displays the IBM Navigator for i web interface. On the left is a navigation tree under 'IBM i Management' with categories like 'Target Systems and Groups', 'System', 'Monitors', 'Basic Operations', 'Work Management', 'Active Memory Pools', 'All Tasks', 'Configuration and Service', 'Network', 'Integrated Server Administration', 'Security', 'Users and Groups', 'Groups', 'Database', 'Journal Management', 'Performance', 'File Systems', and 'Internet Configurations'. The main area shows a 'Welcome timmr' header with 'Help | Logout' and a tabbed interface with 'Welcome', 'Active Jobs', and 'Users' tabs. The 'Active Jobs' tab is active, showing a table of jobs with columns for 'Job Name', 'Detailed Status', and 'Current User'. The table lists various system jobs like Qbatch, Qcmn, Qactl, Qhttpsvr, etc., with their current status (e.g., 'Waiting for dequeue', 'Waiting for request'). A filter box and a 'Filter' button are visible above the table. The bottom of the table shows '1 - 25 of 166 items' and a pagination control.

Job Name	Detailed Status	Current User
Qbatch	Waiting for dequeue	Qsys
Qcmn	Waiting for dequeue	Qsys
Qacsotp	Waiting for request	Quser
Qlzpssrv	Waiting for request	Quser
Qnmapingd	Waiting for request	Quser
Qnmarexecd	Waiting for request	Quser
Qnpservr	Waiting for request	Quser
Qzrcsrvr	Waiting for request	Quser
Qzscsrvr	Waiting for request	Quser
Qctl	Waiting for dequeue	Qsys
Qsyssscd	Waiting for event	Qpgmr
Qhttpsvr	Waiting for dequeue	Qsys
Admin	Waiting for signal	Qtmhhttp
Admin	Waiting for signal	Qtmhhttp
Admin	Waiting for signal	Qtmhhttp
Admin1	Waiting for thread	Qlwisvr



IBM i Navigator for i – Dynamic Navigation

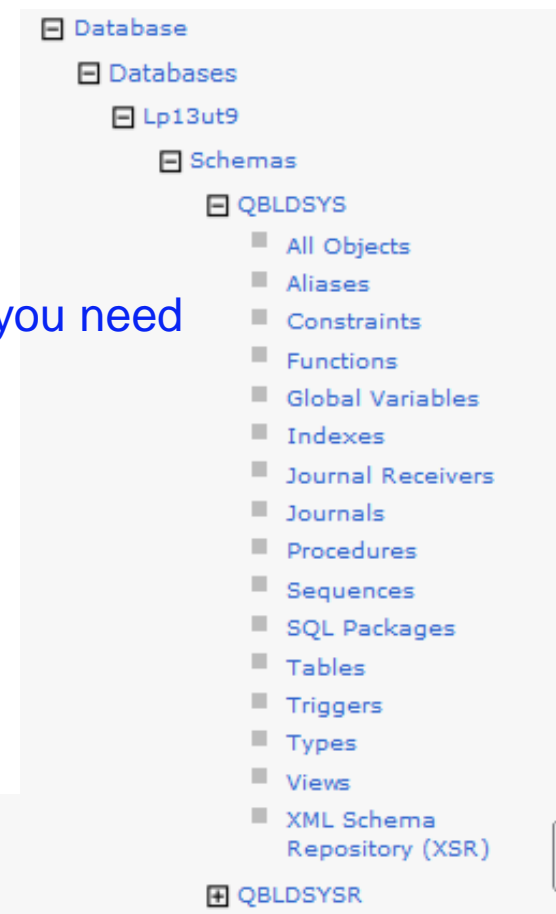
- Navigate to the function you want
- Open containers so find dynamic content
- Refresh dynamic contents

Work with Active Subsystem

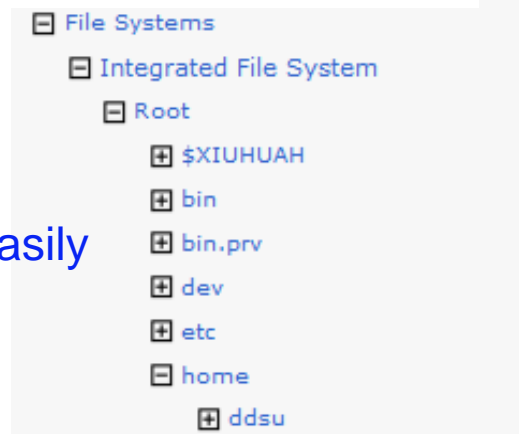
‘Refresh’ a group



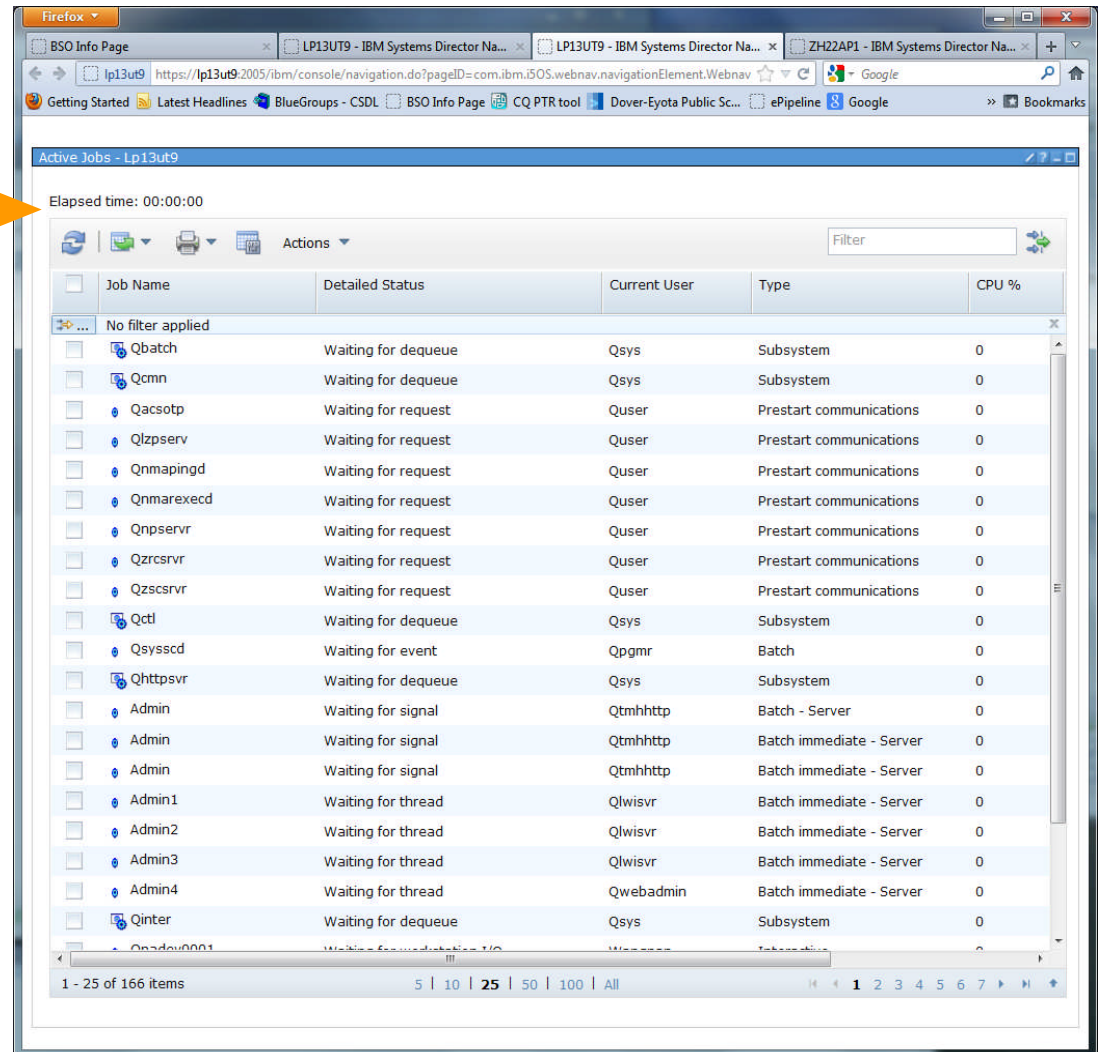
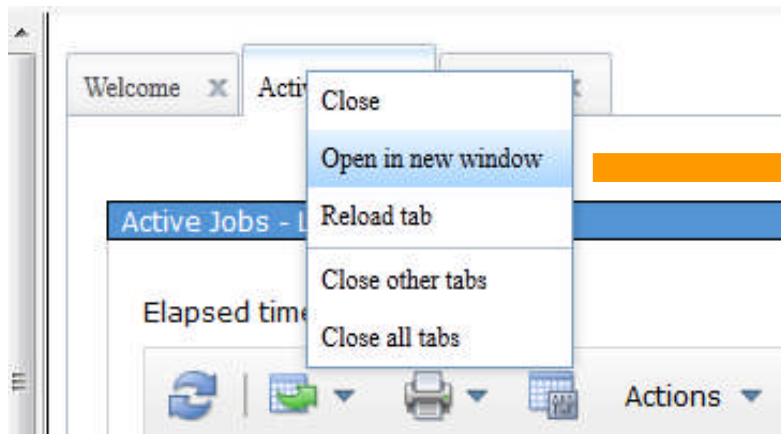
Access the function you need for Database



Navigate IFS quickly & easily



IBM Navigator for i – Independent Tabs



- Switch back and forth between tabs with no server refresh
- Open a tab in a new window



IBM Navigator for i – Modern Tables

Click column to sort

Right Click on any row to see list of functions

Active Jobs - Lp13ut9

Elapsed time: 00:00:00

Filter

Job Name	Detailed Status	Current User	Type
No filter applied			
<input type="checkbox"/> Qbatch	Waiting for dequeue	Qsys	Subsystem
<input type="checkbox"/> Qcmn	Waiting for dequeue	Qsys	Subsystem
<input checked="" type="checkbox"/> Qacsotp	Waiting for request	Quser	Prestart communications
<input type="checkbox"/> Qlzpssrv	Waiting for request	Quser	
<input type="checkbox"/> Qnmaping	Waiting for request	Quser	
<input type="checkbox"/> Qnmarex	Waiting for request	Quser	
<input type="checkbox"/> Qnpservr	Waiting for request	Quser	
<input type="checkbox"/> Qzrcsrvr	Waiting for request	Quser	Prestart communications
<input type="checkbox"/> Qzscsrvr	Waiting for request	Quser	Prestart communications
<input type="checkbox"/> Qctl	Waiting for dequeue	Qsys	Subsystem
<input type="checkbox"/> Qsysscd	Waiting for event	Qpgmr	Batch
<input type="checkbox"/> Qhttpsvr	Waiting for dequeue	Qsys	Subsystem
<input type="checkbox"/> Admin	Waiting for signal	Qtmhhttp	Batch - Server
<input type="checkbox"/> Admin	Waiting for signal	Qtmhhttp	Batch immediate - Serve
<input type="checkbox"/> Admin	Waiting for signal	Qtmhhttp	Batch immediate - Serve
<input type="checkbox"/> Admin1	Waiting for thread	Qlwisvr	Batch immediate - Serve
<input type="checkbox"/> Admin2	Waiting for thread	Qlwisvr	Batch immediate - Serve

1 - 25 of 166 items 5 | 10 | 25 | 50 | 100 | All 1 2 3 4 5 6 7

Fast Filtering – Rethink how you find data in a table

Hover on any row to see details

Select how many entries to show

Fast path to the page you want to see



IBM i Navigator for i – User ID Management on Signon

The screenshot shows the IBM Navigator for i Signon interface. At the top right is the IBM logo. The main heading is "IBM® Navigator for i". Below the heading are two error messages, each preceded by a red asterisk icon: "Login failed. Check the user ID and password and try again." and "Password is expired.". To the left of the form is a circular icon with an 'i' and the text "For Business". The form contains the following fields: "User ID:" with the value "timmr", "Password:" with four black dots, "New password", and "New password (to verify)". A "Log in" button is located at the bottom left of the form area.

Update expired passwords from the Navigator Signon



Set Target System

- Set Target System
 - Specify the remote system you want to work with.
 - Supports system at IBM i 5.4, IBM i 6.1 & IBM i 7.1

Current system being managed!!!

- Specify System Name
- User ID
- Password
- Click OK
- *Close / Restart Open tabs

IBM® Navigator for i

Welcome timmr Target system: lp03ut18 Help | Logout

View: All tasks

- Welcome
- My Startup Pages
- IBM i Management
 - Set Target System
 - System
 - Basic Operations
 - Work Management
 - Configuration and Service
 - Network
 - Integrated Server Administration
 - Security
 - Users and Groups
 - Databases
 - Journal Management
 - Performance
 - File Systems
 - Internet Configurations
- Settings

Set Target ... X

Set Target System

Target system: lp03ut18
Release: v7r1m0

Your target system can be the local system where you are running IBM Systems Director Navigator, or a different system to manage.

Manage local system
 Manage another system

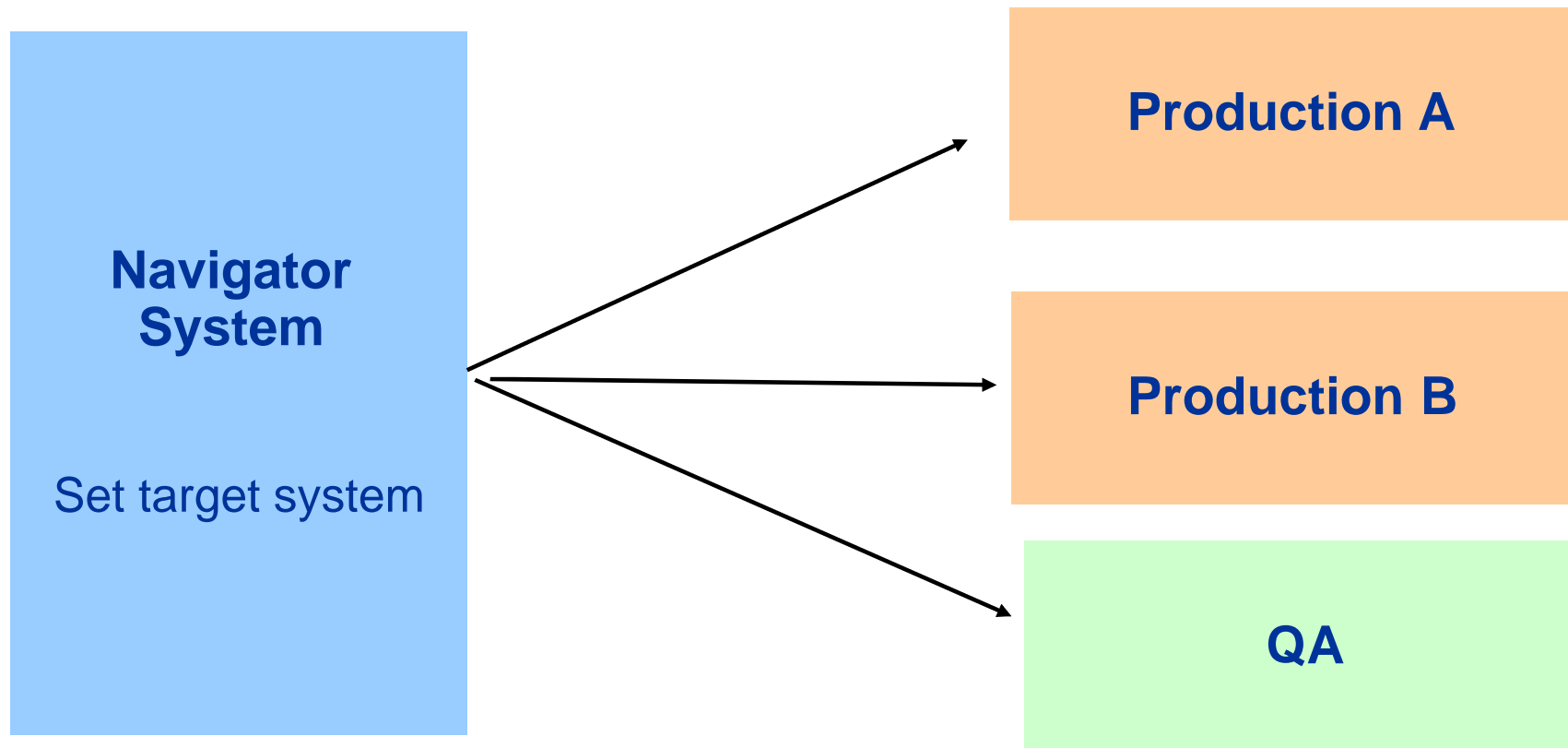
*System name: lp02ut18
* User ID: timmr
* Password:

OK Cancel



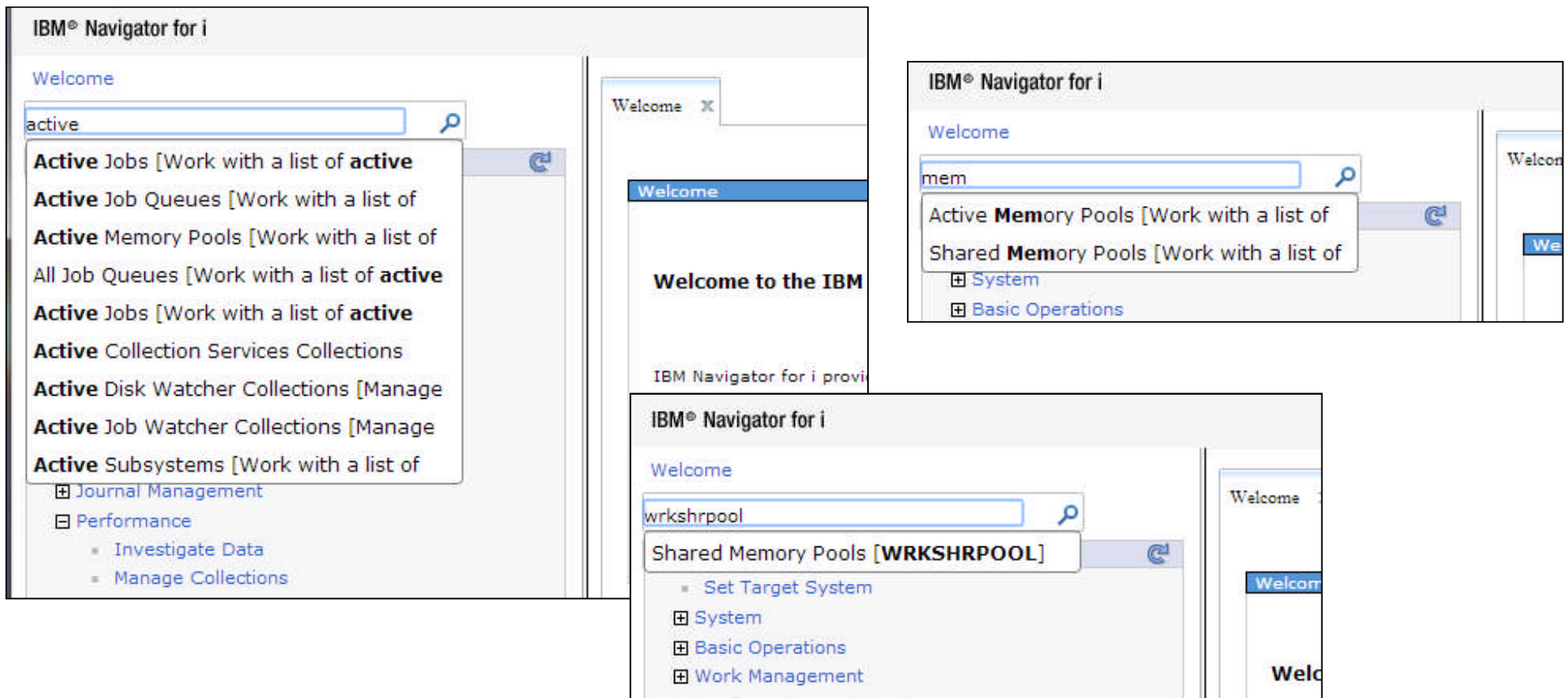
Why Set Target System ?

- Allows for a client server relationship
- Run Navigator on one system, manage any other system in your network
- Means you DON'T need to run navigator on your production machine

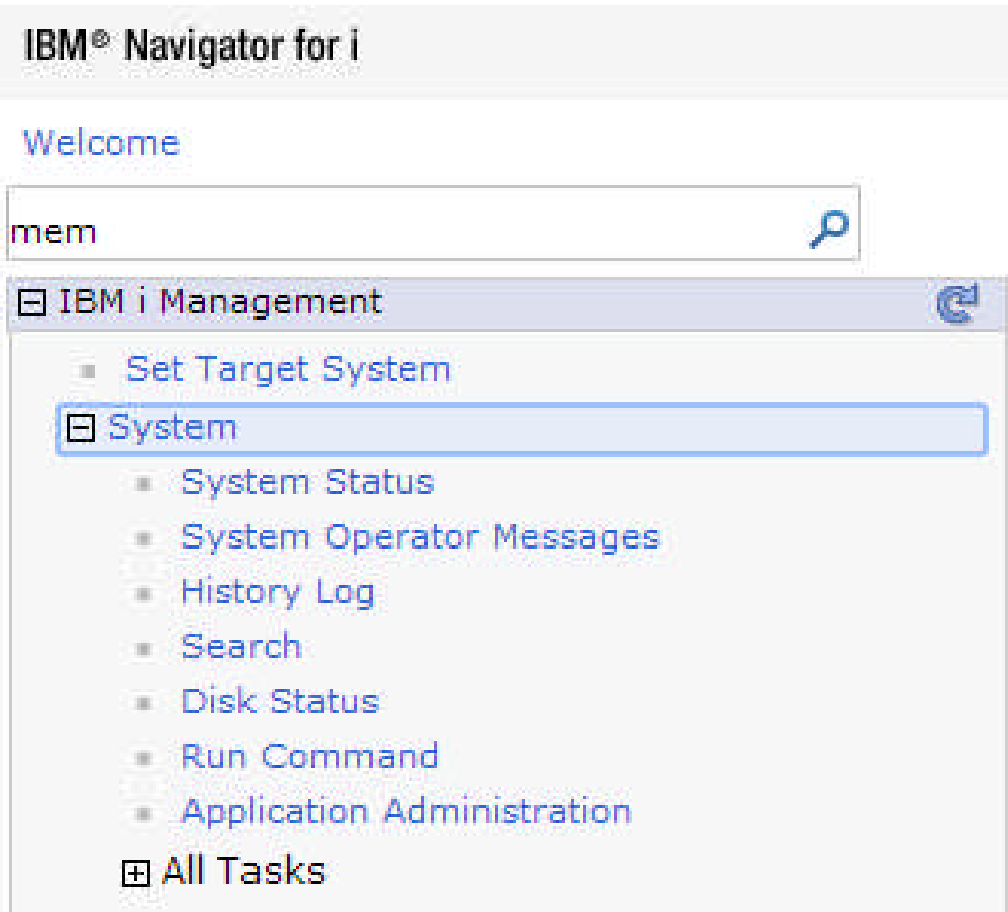


Find screen with CL Command name

- Find screen with key word OR CL Command name where we can



System tab



- **System status**
- **Operator Messages**
- **History Log**
- **Disk Status**
- **5250 Emulator**
- **Application Admin**



5250 Emulator

IBM® Navigator for i

Welcome tkl Target system: rchvik.es.rch.stglabs.ibm.com Help | Logout

- Welcome
- IBM i Management
 - Target Systems and Groups
 - System
 - System Status
 - System Operator Messages
 - History Log
 - Search
 - Disk Status
 - Run Command
 - Emulation
 - 5250
 - Application Administration
 - All Tasks
- Monitors
- Basic Operations
- Work Management
- Configuration and Service
- Network
- Integrated Server Administration
- Security
- Users and Groups
- Database
- Journal Management
- Performance
- File Systems
 - Internet Configurations
 - Backup, Recovery and Media Services

5250 Emulation

F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12
 F13 F14 F15 F16 F17 F18 F19 F20 F21 F22 F23 F24

Sign On

System : RCHVIKES
 Subsystem : QINTER
 Display : QPADEV0001

User : tkl
 Password : ●●●●●●●●
 Program/procedure :
 Menu :
 Current library :

Basic 5250 Emulator

(C) COPYRIGHT IBM CORP. 1980, 2013.

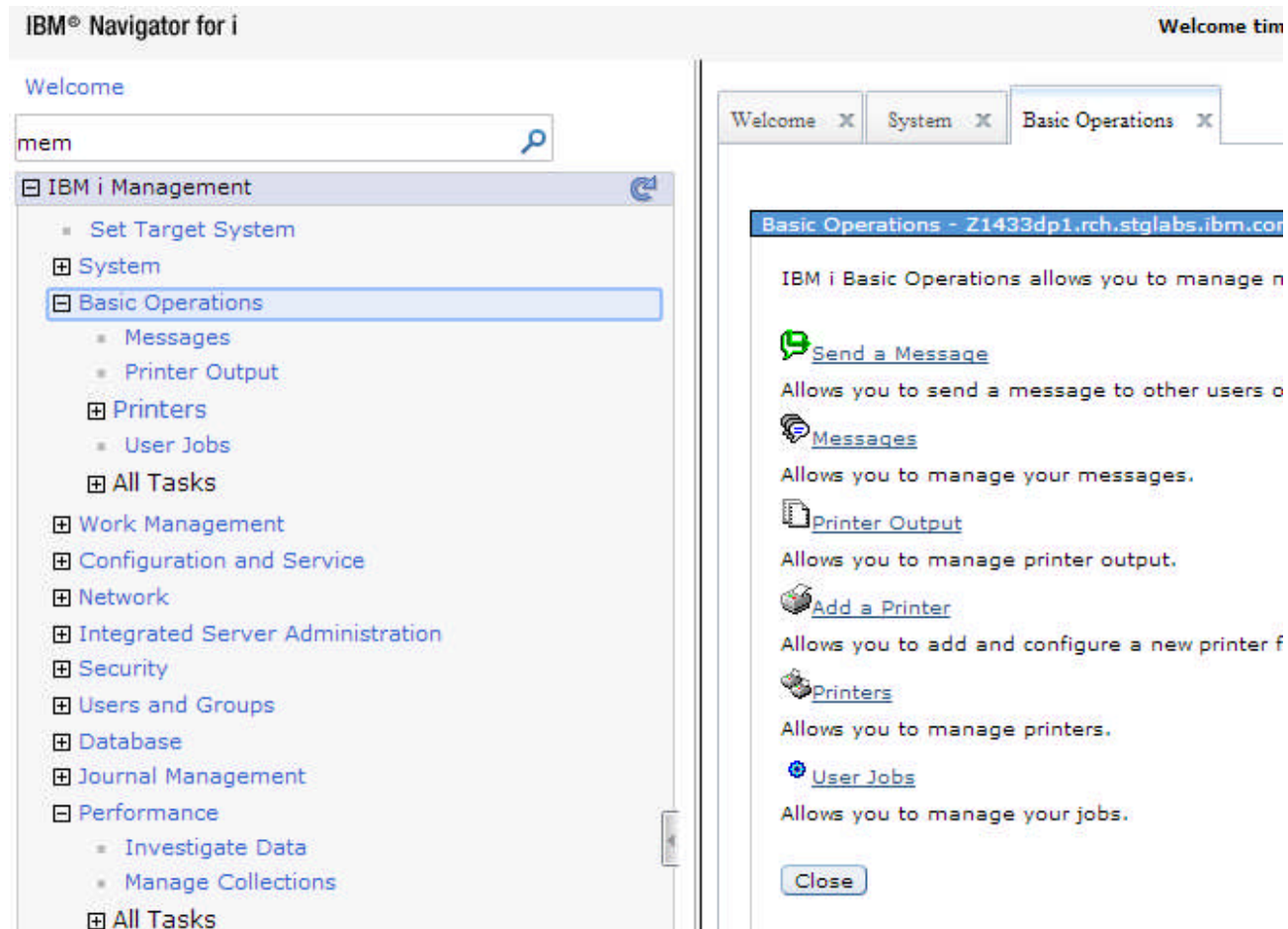
37 6, 53

Keyboard function keys Keyboard focus

Enter Attention Refresh Screen Page Up



Basic Operations



The screenshot shows the IBM Navigator for i interface. On the left is a navigation tree with the following structure:

- IBM i Management
 - Set Target System
 - System
 - Basic Operations**
 - Messages
 - Printer Output
 - Printers
 - User Jobs
 - All Tasks
 - Work Management
 - Configuration and Service
 - Network
 - Integrated Server Administration
 - Security
 - Users and Groups
 - Database
 - Journal Management
 - Performance
 - Investigate Data
 - Manage Collections
 - All Tasks

The main content area on the right displays the 'Basic Operations' page for the system 'Z1433dp1.rch.stglabs.ibm.com'. It includes a 'Close' button and the following sections:

- Send a Message**: Allows you to send a message to other users on the system.
- Messages**: Allows you to manage your messages.
- Printer Output**: Allows you to manage printer output.
- Add a Printer**: Allows you to add and configure a new printer for the system.
- Printers**: Allows you to manage printers.
- User Jobs**: Allows you to manage your jobs.

Your stuff

- Messages
- Printer output
- User Jobs



Work Management

The screenshot displays the IBM Navigator for i interface. On the left, a navigation pane shows a tree structure under 'Work Management', with 'Active Subsystems' selected. The right pane, titled 'Work Management - Z1433dp1.rch.stglabs.ibm.com', lists several management options with brief descriptions:

- Active Jobs**: Allows you to work with all jobs that are currently active.
- Server Jobs**: Allows you to manage server jobs that are currently active.
- Active Job Queues**: Allows you to manage the job queues that are currently active.
- Output Queues**: Allows you to manage output queues.
- Active Subsystems**: Allows you to manage the subsystems that are currently active.
- Active Memory Pools**: Allows you to manage the memory pools that are currently active.
- Advanced Job Scheduler**: Allows you to manage scheduled jobs on the IBM i.

• Active Jobs

• Active Subsystem

• Active Job Queues

• Output Queues

• Active Memory Pools



Welcome Pages – Databases

The screenshot shows the IBM Navigator for i console interface. The browser window title is "IBM® Navigator for i" and the URL is "https://lp13ut9:2005/ibm/console/login.do?action=secure". The left sidebar contains a navigation tree with categories like Security, Users and Groups, Database, and Database Maintenance. The "Database" category is expanded, showing "Databases" and "Lp13ut9". Under "Lp13ut9", the "SYSTOOLS" folder is selected, listing various database objects like QBLDSYS, QBLDSYSR, QDEVELOP, QGPL, SYSTOOLS, All Objects, Aliases, Constraints, Functions, Global Variables, Indexes, Journal Receivers, Journals, Procedures, Sequences, SQL Packages, Tables, Triggers, Types, Views, XML Schema Repository (XSR), Database, Database Navigator, and Maps.

The main content area displays the "Databases - Lp13ut9" welcome page. It includes a "Welcome" tab and a "Database" tab. The page content is as follows:

IBM i Databases allows you to manage your databases.

Current database: Lp13ut9 Current schema: Qusrsys

- Databases**
Displays a list of the databases on the system from which you can perform all database tasks.
- All Objects**
Allows you to work with all database objects for a specific database and schema.
- Tables**
Allows you to work with the database tables for a specific database and schema.
- Views**
Allows you to work with database views for a specific database and schema.
- Indexes**
Allows you to work with database indexes for a specific database and schema.
- Performance Monitors**
Allows you to monitor the performance of a specific database.
- Health Center**
Allows you to monitor the current health of a specific database.

At the bottom of the page, there are two buttons: "Set Database / Schema to Use with Database Tasks" and "Close".

javascript:parent.openTabView('https://lp13u...424cd284:-7ec0&.pa=true', 'Health Center');



Database tab - Basics

Work with database

Database Indexes

The screenshot displays the IBM Data Studio interface for a database named 'Lp03ut18'. On the left, a tree view shows the database structure with a context menu open over 'Lp03ut18', listing options like 'Open', 'Change Query Attributes', 'Health Center', 'Index Advisor', 'SQL Plan Cache', 'New', and 'Properties'. The 'Health Center' option is highlighted. In the center, the 'Indexes - Lp03ut18' window is open, showing a table of indexes with columns for 'Name' and 'Type'. A context menu is open over the 'QASZRAIRI' index, with 'Reset Usage Counts...' selected. On the right, the 'Database Health Center' window is visible, showing an 'Overview' tab with 'Environmental Limits', 'Activity', 'Size Limits', and 'Design Limits'. The 'Settings for analysis' section shows the schema as 'All names' and a list of database objects including Schemas, Tables, Views, Indexes, Constraints, Triggers, Aliases, Procedures, Functions, and SQL Miscellaneous. The interface includes various toolbars and navigation buttons like 'Refresh', 'Hide tree', and 'Close'.

Database Health Center



Configuration and Service

The screenshot shows the IBM Navigator for i interface. On the left is a navigation tree with 'Configuration and Service' selected. The main pane displays a 'Configuration and Service - Z1433dp1.rch.stglabs.it' window with a list of options: System Values, Time Management, Disk Units, Disk Pools, Add Disk Unit, and New Disk Pool. Each option has a brief description of its function.

IBM® Navigator for i Welcome timmr

Welcome

mem

IBM i Management

- Set Target System
- System
- Basic Operations
 - Messages
 - Printer Output
- Printers
 - User Jobs
- All Tasks
- Work Management
- Configuration and Service**
 - System Values
 - Time Management
 - Disk Units
 - Disk Pools
- Software
- All Tasks
- Network
- Integrated Server Administration
- Security
- Users and Groups

Configuration and Service - Z1433dp1.rch.stglabs.it

IBM i Configuration and Service allows you to perform the following tasks:

- System Values**
Allows you to change the system values that determine system behavior.
- Time Management**
Allows you to manage time on your system.
- Disk Units**
Allows you to manage disk units on your system.
- Disk Pools**
Allows you to manage disk pools on your system.
- Add Disk Unit**
Allows you to add a disk unit to your system.
- New Disk Pool**
Allows you to create a disk pool on your system.

Close

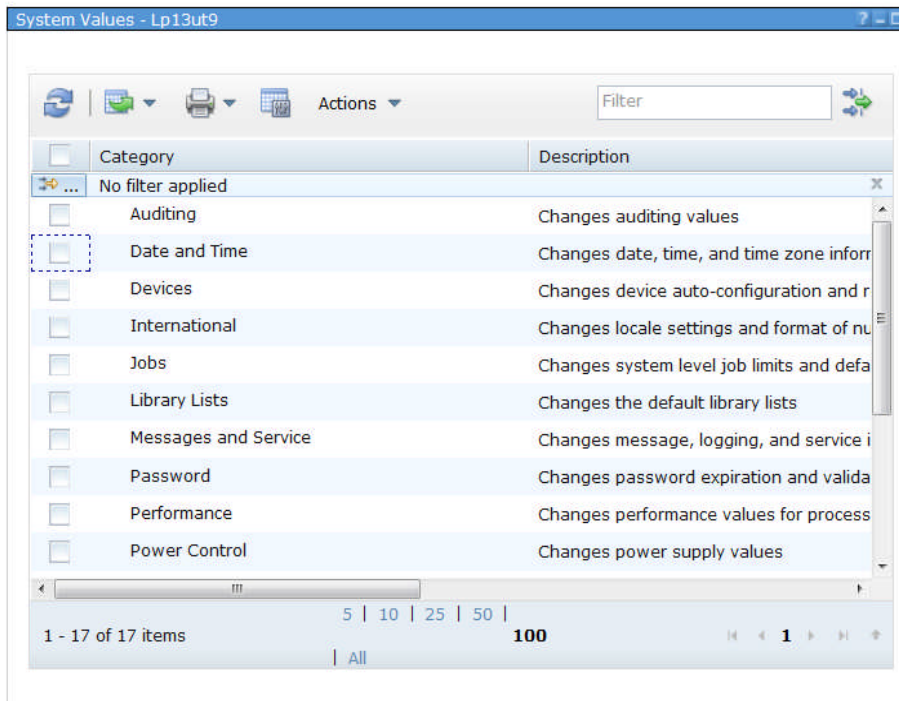
- System values

- Disk Management



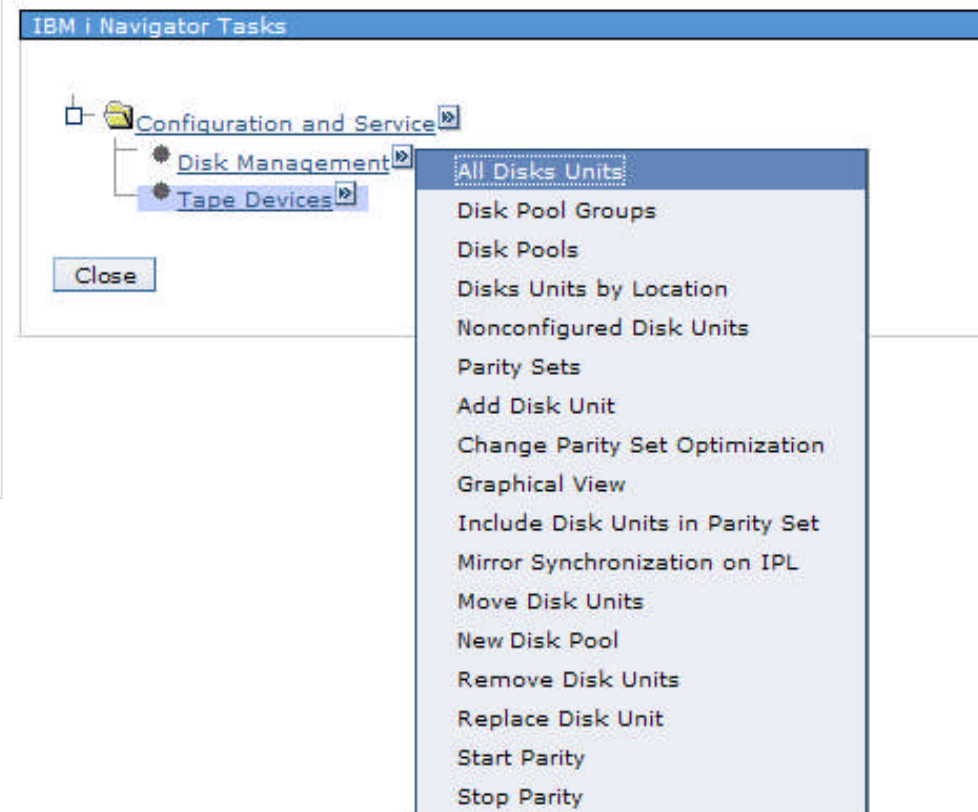
Configuration and Service tab – Basic functions

System Values



Disk Management GUI

*Disk Management GUI requires 'SST' user to be signed on



Configuration and Service tab – Disk Management Graphical view

All Disks Units - Ctcv71.rchland.ibm.com

Refresh

Select	Disk Unit	Status	Cap	Reserved	% Busy	Protection	
<input type="checkbox"/>	Dd001	Active - load source	120	1.0 MB	1%	RAID 5	
<input type="checkbox"/>	Dd002	Active	103	1.0 MB	1%	RAID 5	
<input type="checkbox"/>	Dd003	Active	120	1.0 MB	1%	RAID 5	
<input type="checkbox"/>	Dd004	Active	120	1.0 MB	1%	RAID 5	
<input type="checkbox"/>	Dd005	Active	120.6 GB	109.8 GB	1.0 MB	1%	RAID 5
<input type="checkbox"/>	Dd006	Active	120.6 GB	109.8 GB			
<input type="checkbox"/>	Dd007	Active	120.6 GB	109.8 GB			
<input type="checkbox"/>	Dd008	Active	120.6 GB	109.8 GB			
<input type="checkbox"/>	Dd009	Active	103.4 GB	94.1 GB			
<input type="checkbox"/>	Dd010	Active	103.4 GB	94.1 GB			
<input type="checkbox"/>	Dd011	Active	120.6 GB	109.8 GB			
<input type="checkbox"/>	Dd012	Active	103.4 GB	94.1 GB			

--- Select Action --- Go

- Add Disk Unit...
- Select Hot Spares...
- Graphical View...
- Columns...
- Show find toolbar
- Table Actions

Disk Units Graphical View

View by: All Disk Units Go

Select	Disk Unit	Status	Capacity
<input type="checkbox"/>	Dd001	Active - load source	120.6 GB
<input type="checkbox"/>	Dd002	Active	103.4 GB
<input type="checkbox"/>	Dd003	Active	120.6 GB
<input type="checkbox"/>	Dd004	Active	120.6 GB
<input type="checkbox"/>	Dd005	Active	120.6 GB
<input type="checkbox"/>	Dd006	Active	120.6 GB

Page 1 of 2

Close Print Preview Refresh

Show all frames/units Show device positions

Panel

Frame/Unit U5787.001.DQD0AP3

Back



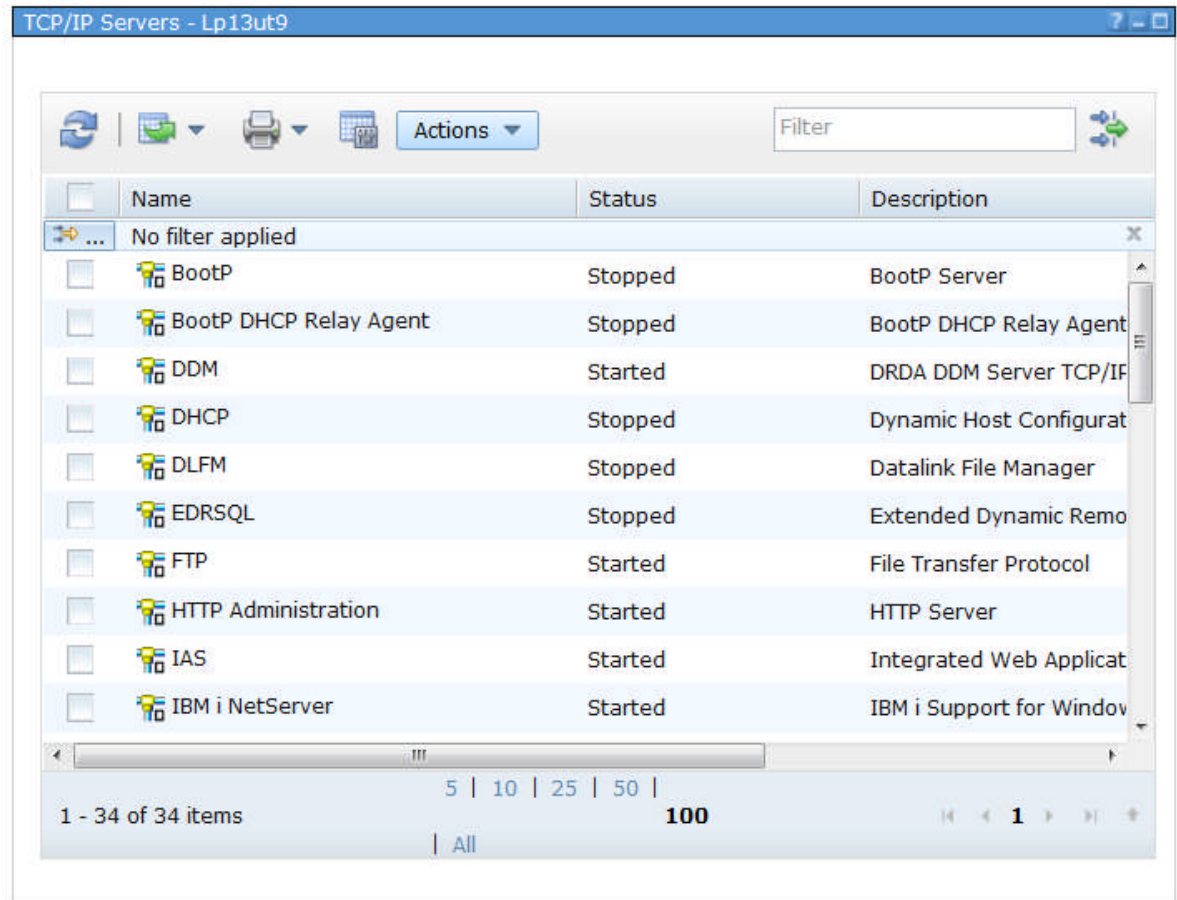
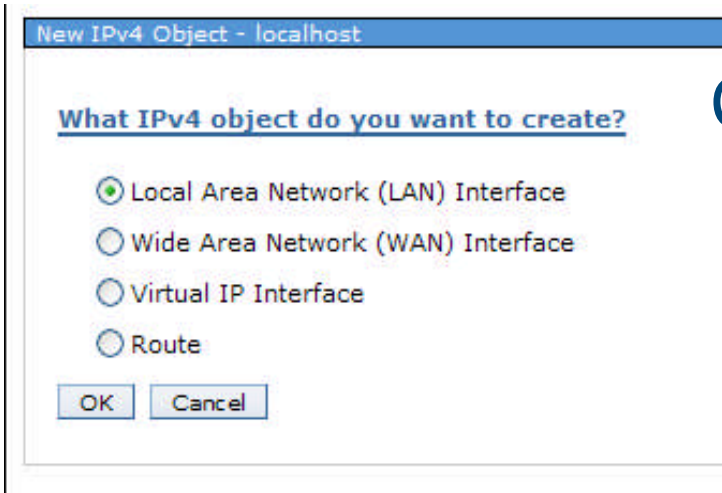
Welcome Pages - Network

The screenshot shows a Firefox browser window with three tabs: 'BSO Info Page', 'LP13UT9 - IBM Systems Director Navi...', and 'ZH22DP1 - IBM Navigator for i'. The address bar shows the URL 'https://lp13ut9:2005/ibm/console/login.do?action=secure'. The browser's bookmark bar contains several items including 'Getting Started', 'Latest Headlines', 'BlueGroups - CSDL', 'BSO Info Page', 'CQ PTR tool', 'Dover-Eyota Public Sc...', 'ePipeline', and 'Google'. The main content area displays the 'IBM Navigator for i' interface. The top navigation bar includes 'Welcome timmr', 'Help', and 'Logout'. A left-hand navigation pane shows a tree view under 'IBM i Management' with categories like 'Target Systems and Groups', 'System', 'Monitors', 'Basic Operations', 'Work Management', 'Configuration and Service', and 'Network'. The 'Network' category is expanded, showing sub-items such as 'TCP/IP Configuration', 'IPv4', 'IPv6', 'Lines', 'Servers', 'Remote Access Servers', 'IP Policies', 'Enterprise Identity Mapping', and 'All Tasks'. The 'Servers' sub-item is selected and highlighted. The main content area has three tabs: 'Welcome', 'Configuration and Service', and 'Network'. The 'Network' tab is active, displaying a window titled 'Network - Lp13ut9'. This window contains the following text: 'IBM i Network Management allows you to manage TCP/IP and internet support.' Below this are several links with icons and descriptions: 'Create IPv4 Object' (Allows you to create IP version 4 objects.), 'Create IPv6 Object' (Allows you to create IP version 6 objects.), 'Lines' (Allows you to manage and configure physical lines.), 'TCP/IP Servers' (Allows you to manage and configure TCP/IP servers.), 'DNS Servers' (Allows you to manage and configure Domain Name System (DNS) servers.), 'IBM Tivoli Directory Server Web Administration Tool' (Allows you to administer the Tivoli Directory Server for i.), and 'Enterprise Identity Mapping' (Allows you to manage multiple user registries across your enterprise.). A 'Close' button is located at the bottom of the window. At the bottom left of the browser window, a JavaScript console message reads 'javascript:expandCollapse('13');'.



Network tab – Basic functions

Create IPV4 & IPV6 interfaces



Manage TCP Servers



Welcome Pages – Users and Groups

The screenshot shows a Firefox browser window with three tabs: 'BSO Info Page', 'LP13UT9 - IBM Systems Director Navi...', and 'ZH22DP1 - IBM Navigator for i'. The address bar shows the URL: `https://lp13ut9.2005/ibm/console/login.do?action=secure`. The browser's bookmark bar includes 'Getting Started', 'Latest Headlines', 'BlueGroups - CSDL', 'BSO Info Page', 'CQ PTR tool', 'Dover-Eyota Public Sc...', 'ePipeline', and 'Google'. The main content area displays the 'IBM® Navigator for i' interface. At the top, it says 'Welcome timmr' with 'Help' and 'Logout' links. A left-hand navigation pane is expanded to 'IBM i Management', with 'Users and Groups' selected. The 'Users and Groups' page content includes:

- Users and Groups - Lp13ut9**
- IBM i User Management allows you to manage your users and groups.
- Users**: Allows you to manage the users on your server. You can also view the list of user objects for the user.
- Users not in a Group**: Allows you to manage any existing users that are not currently in a group.
- Create User**: Allows you to create a new user.
- Change User**: Allows you to change the properties of an existing user.
- Groups**: Allows you to manage any existing groups or create new ones.
- Create Group**: Allows you to create a new group.
-

The left navigation pane lists the following items under 'IBM i Management': Target Systems and Groups, System, Monitors, Basic Operations, Work Management, Configuration and Service, Network, Integrated Server Administration, Security, Users and Groups (expanded), All Tasks, Database, Journal Management, Performance, File Systems, Internet Configurations, Cluster Resource Services, and Settings.



Users and Groups tab - Basics

Create and Manage User Profiles

Users - Lp13ut9

Name	Description	Privilege Class
No filter applied		
Antonk	Anton K (AUIML Development)	Security officer
Atclark		Security officer
Bestgen	Rob Bestgen	Security officer
Bobp	Bob Padzieski	Security officer
Db2xml	5722DE1 - XML EXTENDER	User
Ddsu	DONG Dong Su	Security officer
Dfl		Security officer
Dhqb	PW changed with CHGSYSSEC on 12/10/01	Security officer
Dvttest1	Meng MS Su/China/IBM	Security administrator
Dvttest2		User

1 - 100 of 127 items | All 100

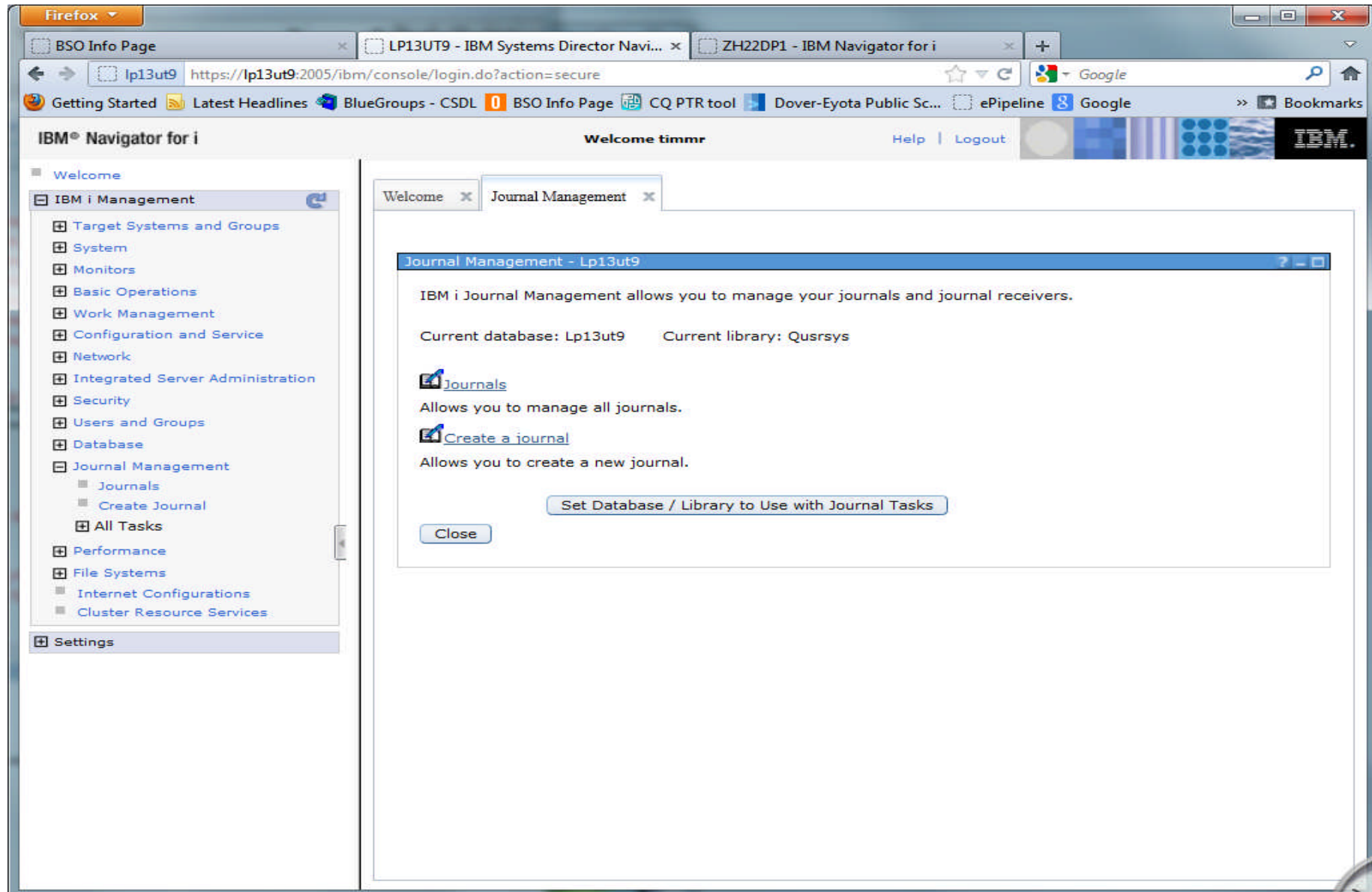
Groups - Lp13ut9

Name	Description	Privilege Class
No filter applied		
Qdesusr		User
Qrdars400	ONDEMAND USER PROFILE	Programmer
Testgroup		User
Test1234	asdasdasdsadasdasdasd	User
Tlkgroup		User

Create and Manage Group Profiles



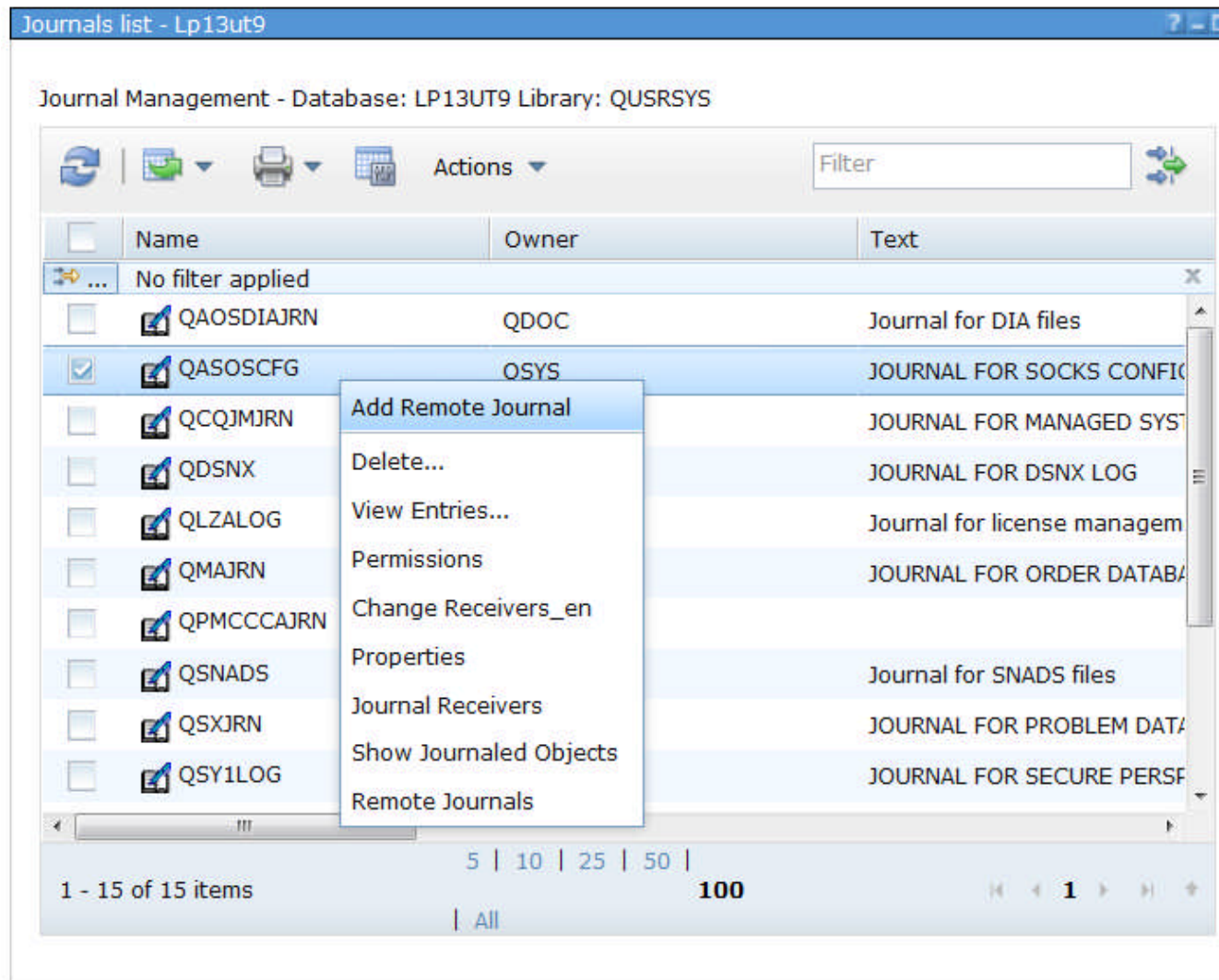
Welcome Pages – Journal Management



Journal Management tab – Basics

***Significant enhancements for 7.1 – Now we have complete solution for Journal Management!!

- Add Remote Journal
- Delete
- Permissions
- Change Receivers
- Properties
- Journal Receivers
- Show Journal Objects
- Remote Journals

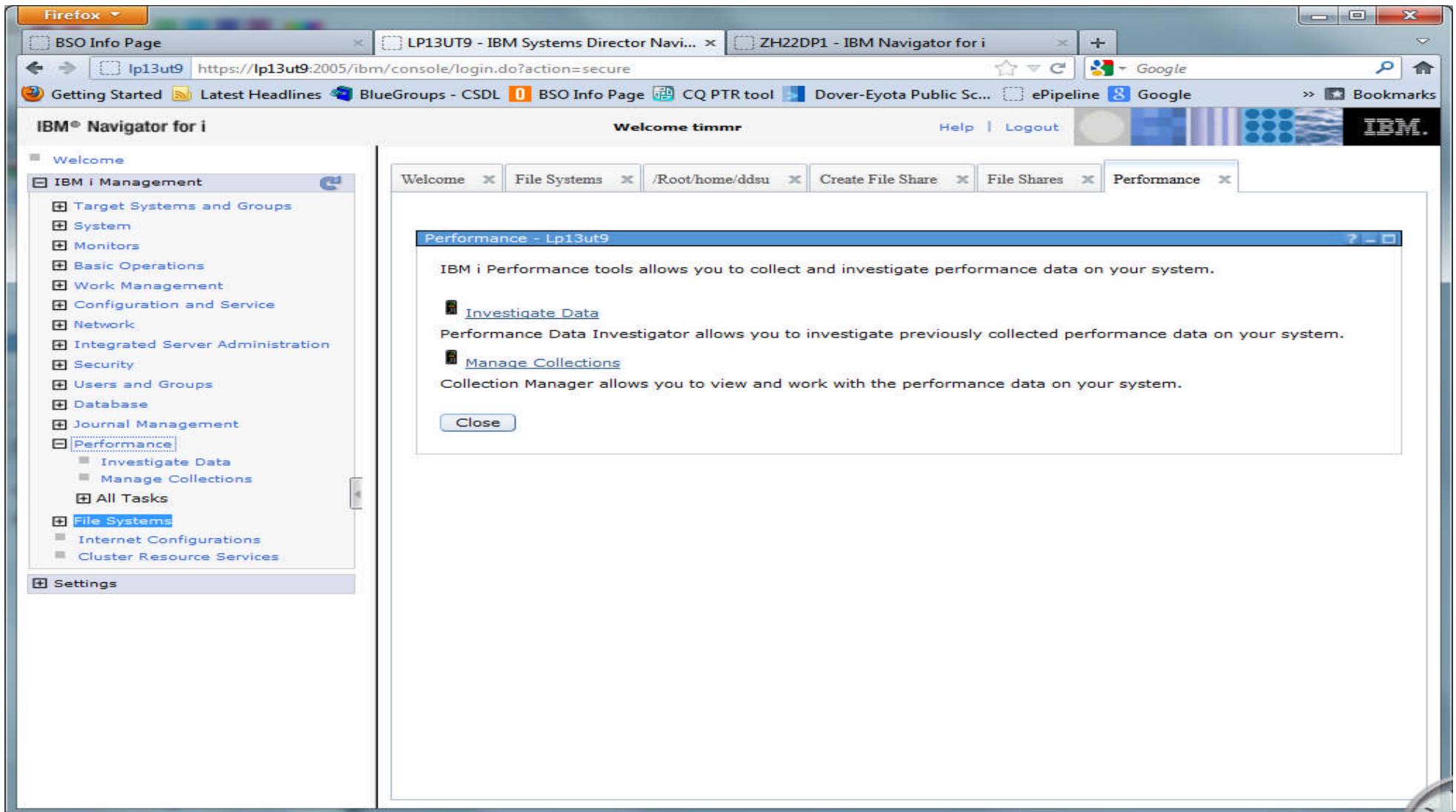


The screenshot shows the 'Journals list - Lp13ut9' window. The title bar indicates the database is LP13UT9 and the library is QUSRSYS. The interface includes a toolbar with icons for refresh, save, print, and a grid icon, along with an 'Actions' dropdown and a 'Filter' input field. The main area displays a table of journals with columns for Name, Owner, and Text. The journal 'QASOSCFG' is selected, and a context menu is open over it, listing actions such as 'Add Remote Journal', 'Delete...', 'View Entries...', 'Permissions', 'Change Receivers_en', 'Properties', 'Journal Receivers', 'Show Journalized Objects', and 'Remote Journals'. The status bar at the bottom shows '1 - 15 of 15 items' and a page number '1'.

Name	Owner	Text
QAOSDIAJRN	QDOC	Journal for DIA files
QASOSCFG	OSYS	JOURNAL FOR SOCKS CONFIG
QCQJMJRN		JOURNAL FOR MANAGED SYS
QDSNX		JOURNAL FOR DSNX LOG
QLZALOG		Journal for license managem
QMAJRN		JOURNAL FOR ORDER DATABA
QPMCCCAJRN		
QSNADS		Journal for SNADS files
QSXJRN		JOURNAL FOR PROBLEM DATA
QSY1LOG		JOURNAL FOR SECURE PERSE



Welcome Pages - Performance



Performance Tasks

- “Performance” is a major function within this Web console

- Investigate Data
“Performance Data Investigator”

- Collections

Performance(1) x

Performance -

IBM i Performance tools allows you to collect and investigate performance data on your system.

- [Investigate Data](#)
Allows you to investigate previously collected performance data on your system.
- [Collections](#)
Allows you to manage the performance data of your system.

Show All Performance Tasks

Close

- All Performance Tasks
 - Active Jobs
 - Disk Status
 - System Status
 - Define, start, stop and manage performance data collectors

Performance(1) x

IBM i Navigator Tasks

- Performance
 - Collections
 - 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

Close



Investigate Data

Folders (content packages) contain Perspectives (views) and are a logical grouping of related charts/tables that benefit from being rendered side-by-side for reference or context.

The screenshot shows the 'Perspectives' section with a list of folders: Performance Explorer, Disk Watcher, Job Watcher, Health Indicators, Collection Services, and SQL Performance Data. Below this is the 'Collection' section with a 'Collection Library' dropdown set to 'QPFRRDATA' and a 'Collection Name' field set to 'Most Recent'. At the bottom are buttons for 'Display', 'Search', 'Options', and 'Close'.

IBM Performance Tools (option 3)
Job Watcher feature

Health Indicators (based off of Collection Services data) – a great way to assess overall health of your system

NEW – SQL Performance Data!!



Health Indicators

Investigate Data - Performance Data Investigator

Perspectives

- [Performance Explorer](#)
- [Disk Watcher](#)
- [Job Watcher](#)
- [Health Indicators](#)
- [Collection Services](#)
- [SQL Performance Data](#)

Collection

Collection Library: Collection Name:

Selection

System Resources Health Indicators

Perspective Edit View History

Collection **Time** **System**

Name(s): CS228229ND Start: Feb 28, 2008 12:00:02 AM Name:
 Library: COMMON End: Feb 29, 2008 12:00:00 AM Release: V6R1M0
 Type: Collection Services File Based Collection



Collection Services

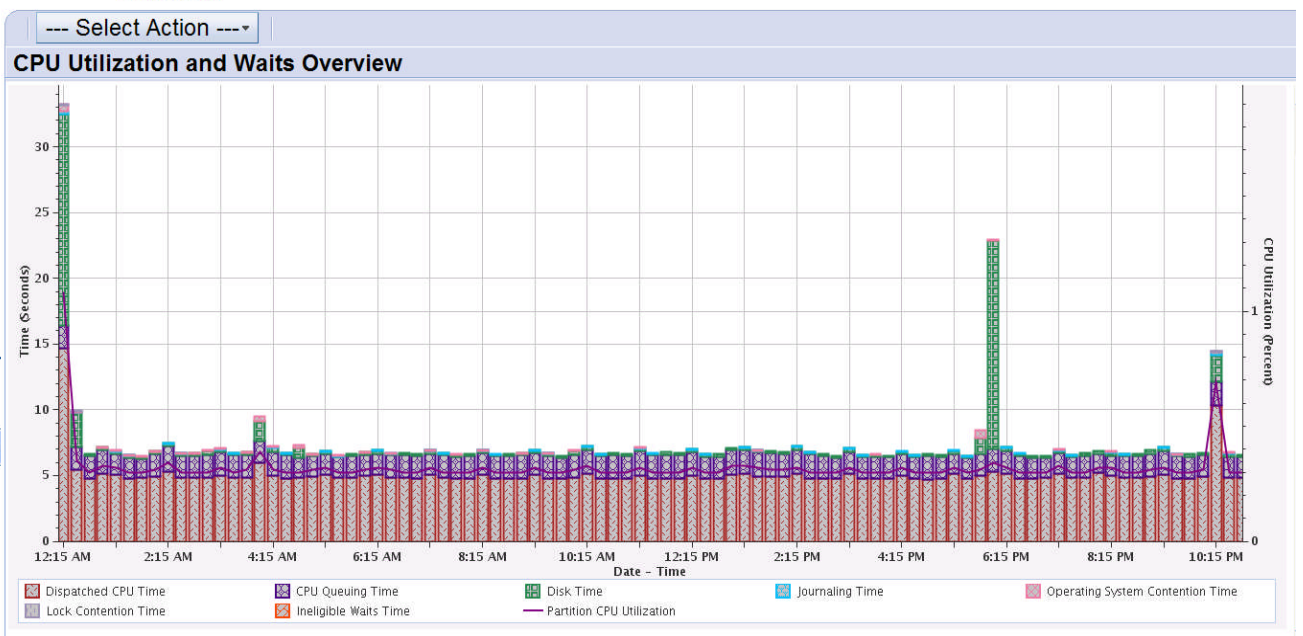
■ CPU Utilization and Waits Overview

- Collection Services
 - CPU Utilization and Waits Overview
 - CPU Utilization by Thread or Task
 - Resource Utilization Overview
 - Job Statistics Overviews
 - Waits
 - CPU
 - Disk
 - Physical Disk I/O
 - Synchronous Disk I/O
 - Page Faults
 - Logical Database I/O
 - Virtual I/O
 - Communications
 - 5250 Display Transactions
 - Physical System
 - Java
 - Collection Services Database Files

Collection

Collection Library: Collection Name:

Name(s): Q168000002 Start: Jun 16, 2012 12:00:02 AM Name: ISZ1LP13
 Library: QPFRDATA End: Jun 17, 2012 12:00:00 AM Release: V7R1M0
 Type: Collection Services File Based Collection

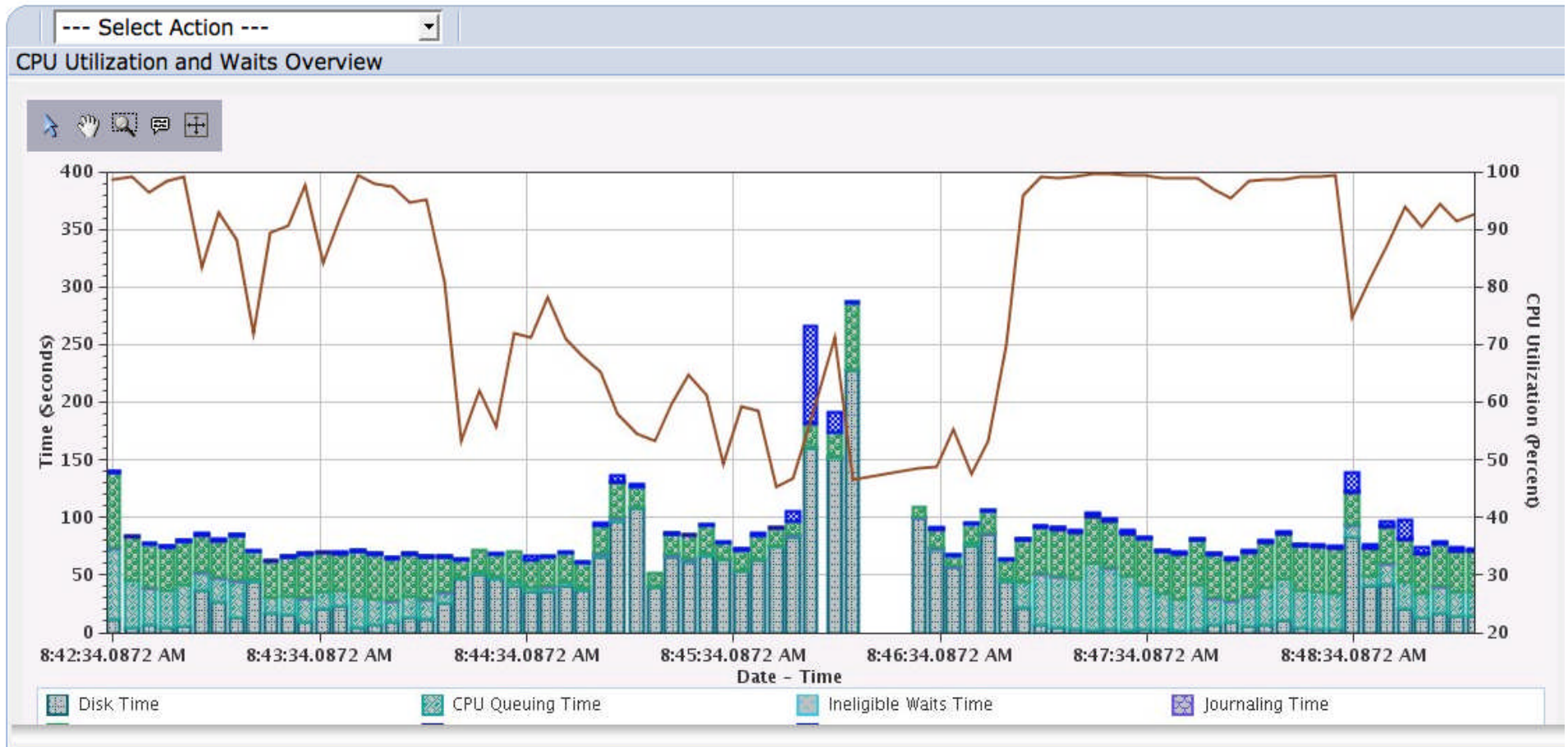


Job Watcher - CPU Utilization and Waits Overview

Investigate Data

Perspectives > CPU Utilization and Waits Overview

CPU Utilization and Waits Overview



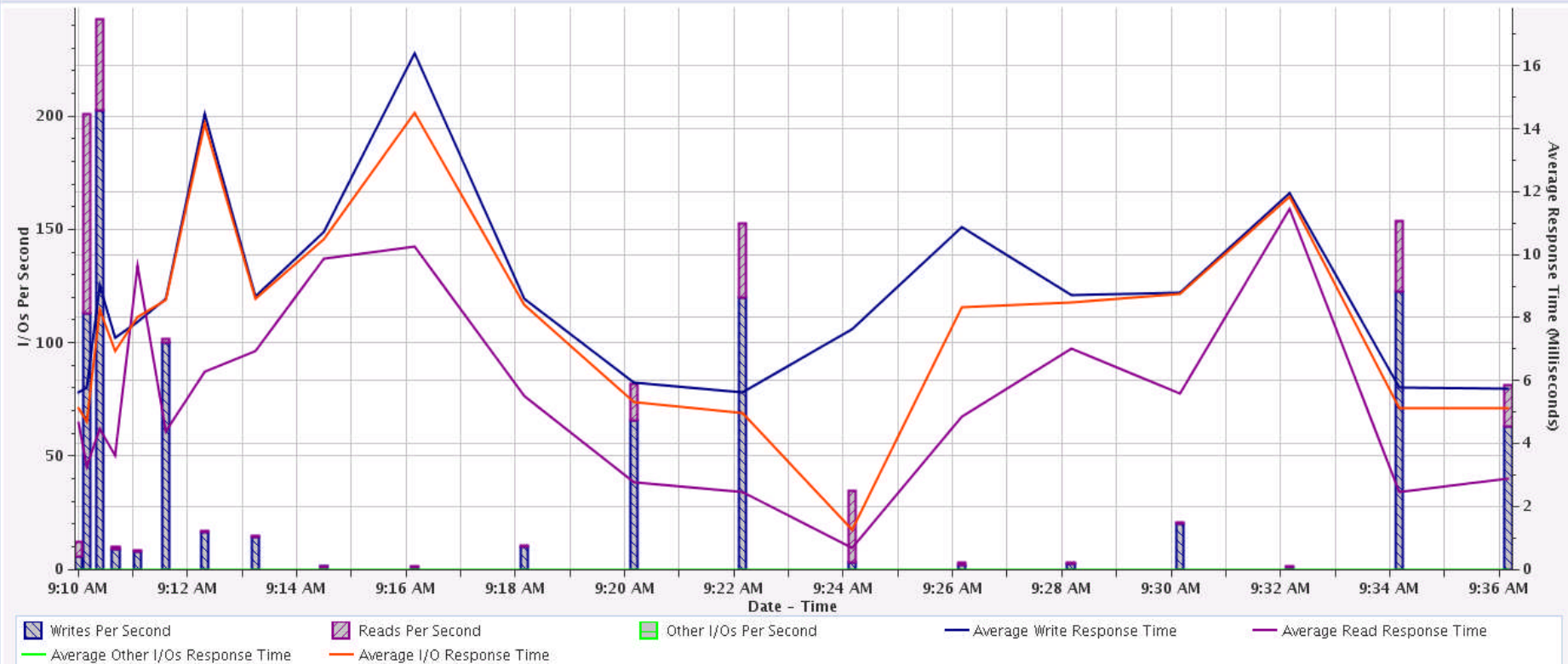
Disk Watcher – Disk Statistical Overview

Collection Time System

Name(s): Q228091044 Start: Aug 16, 2010 9:10:47 AM Name: ISZ1LP11
 Library: QPFRDATA End: Aug 16, 2010 9:37:10 AM Release: V6R1M0
 Type: Disk Watcher File Based Collection

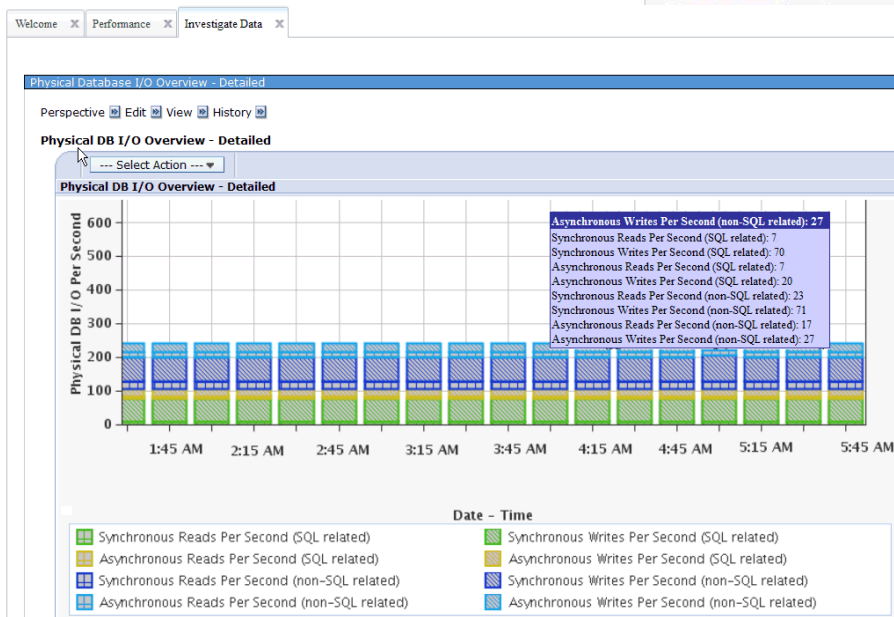
--- Select Action ---

Disk Statistical Overview



Performance Data Investigator – New Database Perspective

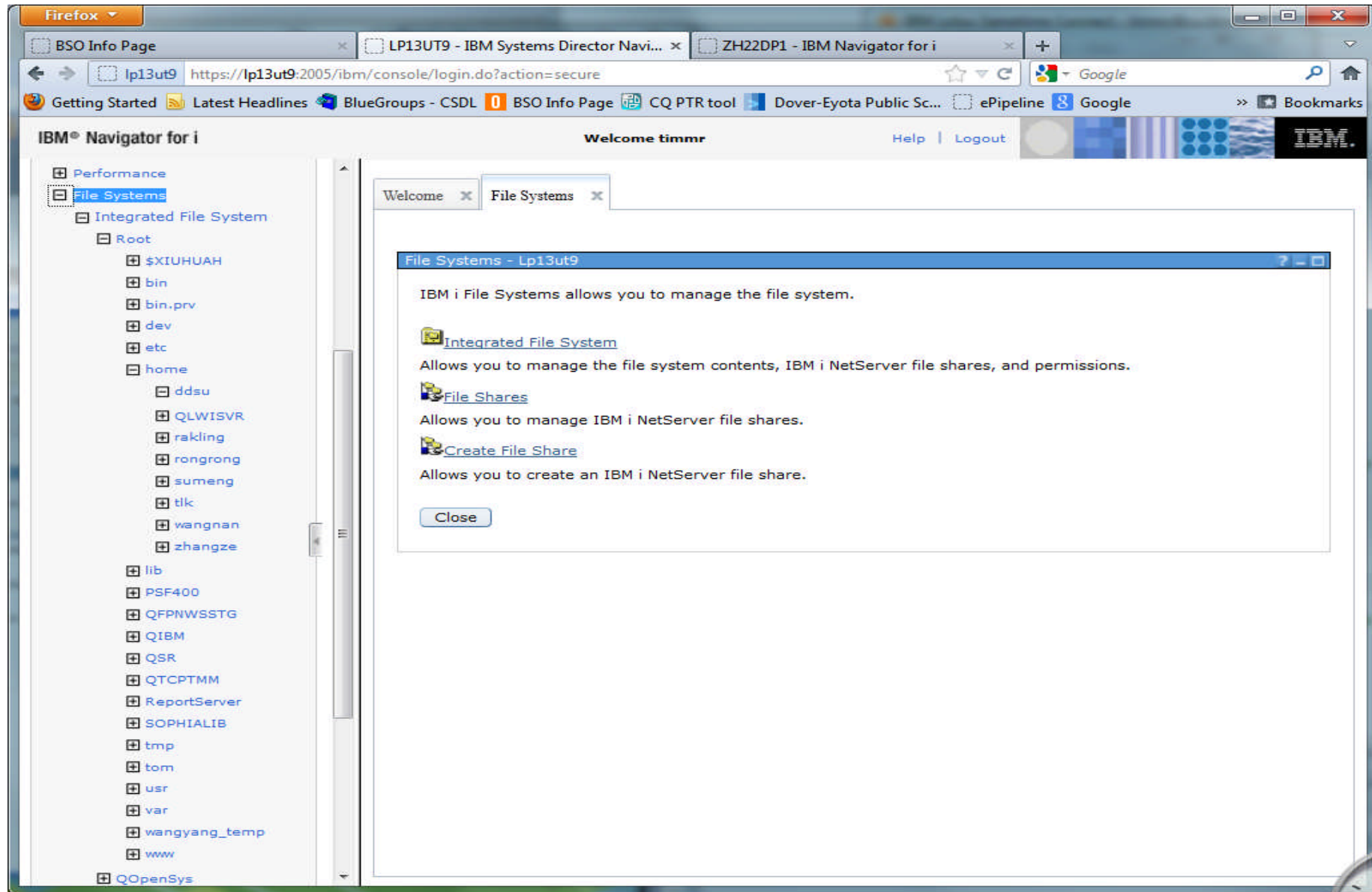
- Robust graphical interface enabled by Collection Services support.
- New breakdown makes it easier to notice “what changed”?



New!!!



Welcome Pages – File Systems



Integrated File System

The screenshot displays the IBM Navigator for i interface. On the left, the 'File Systems' tree is expanded to 'Integrated File System', where 'Goto Integrated File System Folder' is circled in red. A blue arrow points from this menu item to a dialog box titled 'Goto Integrated File System Folder - Z1433ap1.rch.stglabs.ibm.com'. The dialog box contains a 'Path:' label, a dropdown menu with 'Use entry from below', a text input field containing '/home/QLWISVR/.java', and 'Go' and 'Close' buttons. Below this, another window titled 'Edit - /home/1.txt' is shown, containing a 'simple text Editor' with a blank text area and 'Save', 'Save As...', and 'Close' buttons at the bottom.

Fast path to a directory

Simple Text Editor

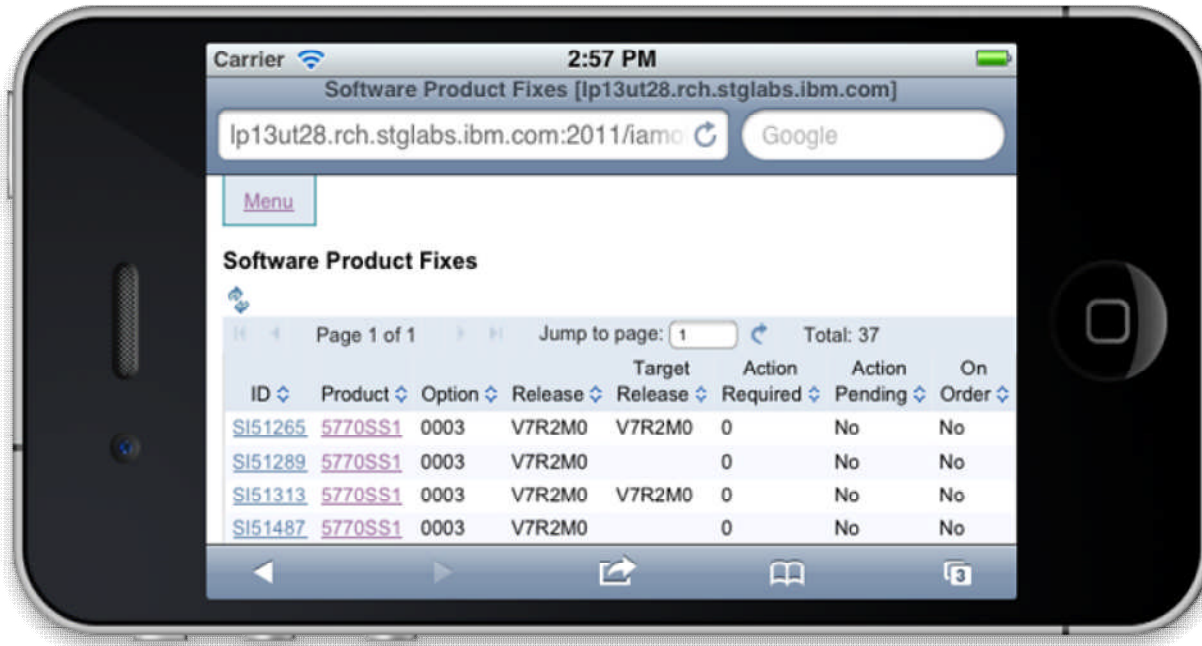


Access your IBM i – Mobile

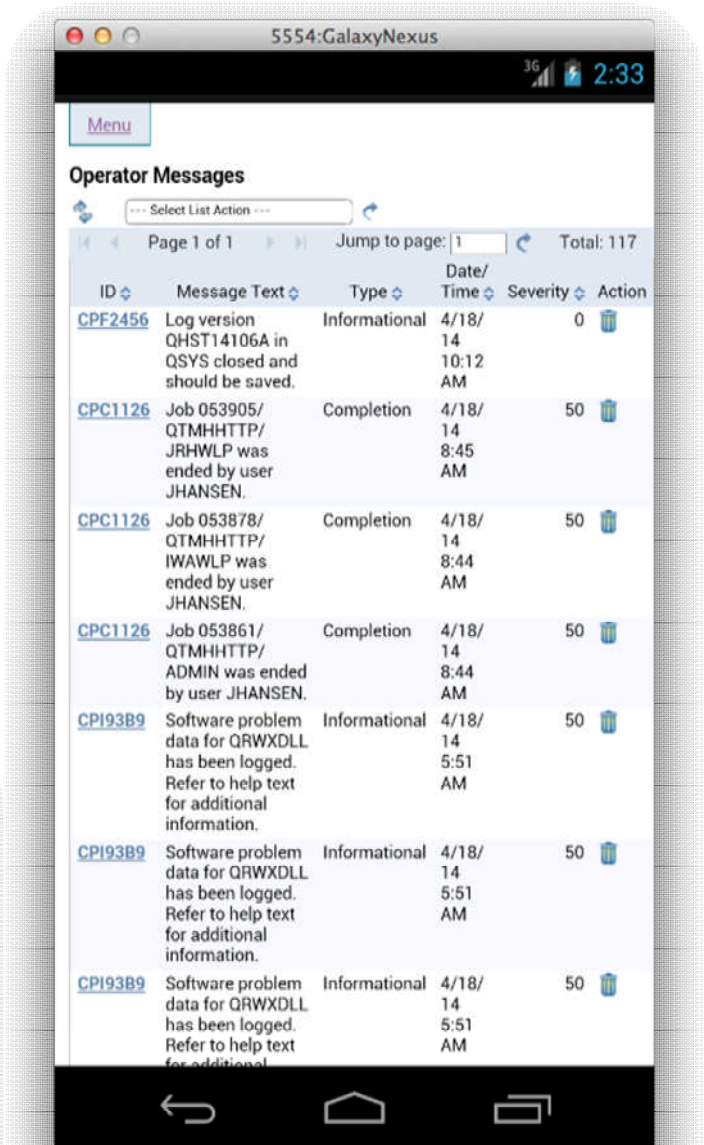


- We have been hearing the need for an IBM i OS management and usage tool that is optimized for a mobile device environment.
 - The IBM Navigator for i interface is optimized for full screen desktop web browsers
 - IBM i Access for Web is also optimized for full screen desktop browsers and has lacked some key management views
 - The last reduced screen footprint solution that IBM i OS had was IBM i Access for Wireless, or Management Central Pervasive
- On April 28th, 2014, IBM announced the Technology Preview of the IBM i Mobile Access solution to begin addressing the need in this environment.

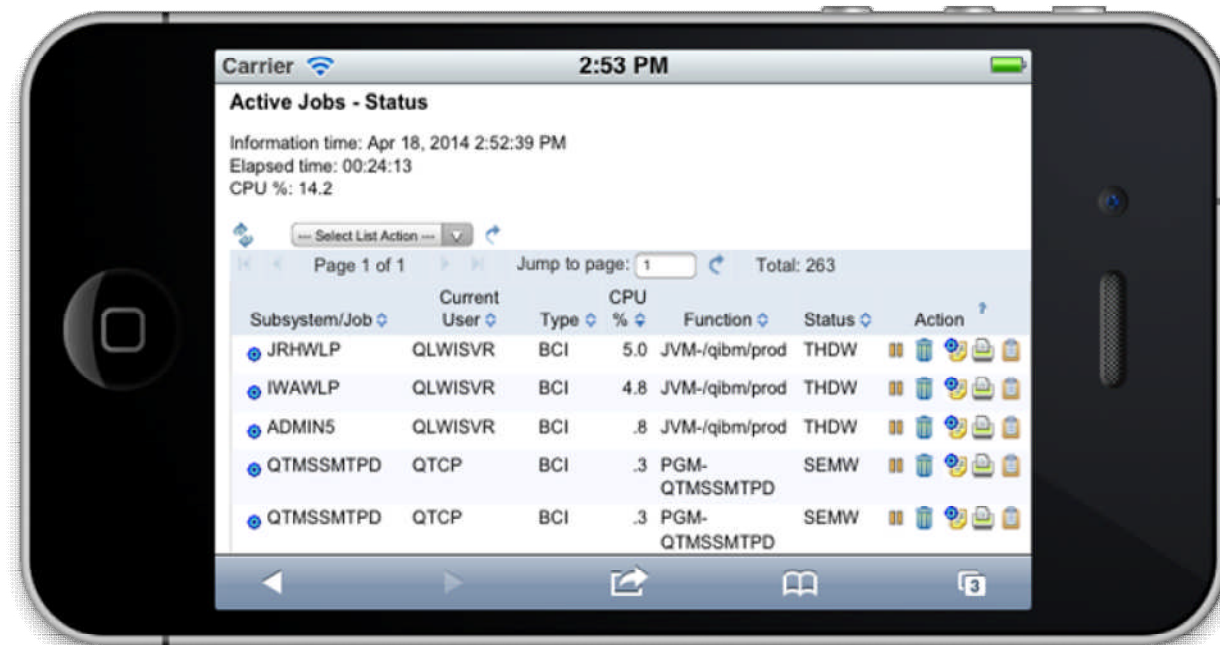




iPhone 4



Galaxy Nexus



- This IBM i Mobile Access Solution is a web browser based solution that has been optimized for reduced screen footprint environments.
- Easy to deploy and get running
- Simple URL to connect to
- Robust IBM i OS system interaction
 - System Management Views
 - Printing, Database, IFS, Commands, Messages
 - 5250 Interface
- Highly Customizable
 - What the user has access to can be simply set based on IBM i OS User or Group Profile



How do I get it ?

- **IBM i 6.1 & IBM i 7.1 at the same level of support**

- Latest IBM i HTTP PTF Group level

- IBM i 6.1
 - Group PTF SF99115
- IBM i 7.1
 - Group PTF SF99368

- Latest IBM i Java PTF Group

- IBM i 6.1
 - Group PTF SF99562
- IBM i 7.1
 - Group PTF SF99572



Special notices

This document was developed for IBM offerings in the United States as of the date of publication. IBM may not make these offerings available in other countries, and the information is subject to change without notice. Consult your local IBM business contact for information on the IBM offerings available in your area.

Information in this document concerning non-IBM products was obtained from the suppliers of these products or other public sources. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. Send license inquires, in writing, to IBM Director of Licensing, IBM Corporation, New Castle Drive, Armonk, NY 10504-1785 USA.

All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

The information contained in this document has not been submitted to any formal IBM test and is provided "AS IS" with no warranties or guarantees either expressed or implied.

All examples cited or described in this document are presented as illustrations of the manner in which some IBM products can be used and the results that may be achieved. Actual environmental costs and performance characteristics will vary depending on individual client configurations and conditions.

IBM Global Financing offerings are provided through IBM Credit Corporation in the United States and other IBM subsidiaries and divisions worldwide to qualified commercial and government clients. Rates are based on a client's credit rating, financing terms, offering type, equipment type and options, and may vary by country. Other restrictions may apply. Rates and offerings are subject to change, extension or withdrawal without notice.

IBM is not responsible for printing errors in this document that result in pricing or information inaccuracies.

All prices shown are IBM's United States suggested list prices and are subject to change without notice; reseller prices may vary.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.

Any performance data contained in this document was determined in a controlled environment. Actual results may vary significantly and are dependent on many factors including system hardware configuration and software design and configuration. Some measurements quoted in this document may have been made on development-level systems. There is no guarantee these measurements will be the same on generally-available systems. Some measurements quoted in this document may have been estimated through extrapolation. Users of this document should verify the applicable data for their specific environment.

Revised September 26, 2006



Special notices (cont.)

IBM, the IBM logo, ibm.com AIX, AIX (logo), AIX 5L, AIX 6 (logo), AS/400, BladeCenter, Blue Gene, ClusterProven, DB2, ESCON, i5/OS, i5/OS (logo), IBM Business Partner (logo), IntelliStation, LoadLeveler, Lotus, Lotus Notes, Notes, Operating System/400, OS/400, PartnerLink, PartnerWorld, PowerPC, pSeries, Rational, RISC System/6000, RS/6000, THINK, Tivoli, Tivoli (logo), Tivoli Management Environment, WebSphere, xSeries, z/OS, zSeries, Active Memory, Balanced Warehouse, CacheFlow, Cool Blue, IBM Systems Director VMControl, pureScale, TurboCore, Chiphopper, Cloudscape, DB2 Universal Database, DS4000, DS6000, DS8000, EnergyScale, Enterprise Workload Manager, General Parallel File System, , GPFS, HACMP, HACMP/6000, HASM, IBM Systems Director Active Energy Manager, iSeries, Micro-Partitioning, POWER, PowerExecutive, PowerVM, PowerVM (logo), PowerHA, Power Architecture, Power Everywhere, Power Family, POWER Hypervisor, Power Systems, Power Systems (logo), Power Systems Software, Power Systems Software (logo), POWER2, POWER3, POWER4, POWER4+, POWER5, POWER5+, POWER6, POWER6+, POWER7, System i, System p, System p5, System Storage, System z, TME 10, Workload Partitions Manager and X-Architecture are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol (® or ™), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries.

A full list of U.S. trademarks owned by IBM may be found at: <http://www.ibm.com/legal/copytrade.shtml>.

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

AltiVec is a trademark of Freescale Semiconductor, Inc.

AMD Opteron is a trademark of Advanced Micro Devices, Inc.

InfiniBand, InfiniBand Trade Association and the InfiniBand design marks are trademarks and/or service marks of the InfiniBand Trade Association.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency which is now part of the Office of Government Commerce.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Linear Tape-Open, LTO, the LTO Logo, Ultrium, and the Ultrium logo are trademarks of HP, IBM Corp. and Quantum in the U.S. and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries or both.

Microsoft, Windows and the Windows logo are registered trademarks of Microsoft Corporation in the United States, other countries or both.

NetBench is a registered trademark of Ziff Davis Media in the United States, other countries or both.

SPECint, SPECfp, SPECjbb, SPECweb, SPECjAppServer, SPEC OMP, SPECviewperf, SPECcapc, SPECchpc, SPECjvm, SPECmail, SPECimap and SPECsfs are trademarks of the Standard Performance Evaluation Corp (SPEC).

The Power Architecture and Power.org wordmarks and the Power and Power.org logos and related marks are trademarks and service marks licensed by Power.org.

TPC-C and TPC-H are trademarks of the Transaction Performance Processing Council (TPPC).

UNIX is a registered trademark of The Open Group in the United States, other countries or both.

Other company, product and service names may be trademarks or service marks of others.

Revised December 2, 2010

