IBM iDoctor for i VIOS Investigator

Brad Menges
bsmenges@us.ibm.com

Ron McCargar
mcargar@us.ibm.com

Shane Smith
shanes1@us.ibm.com

Agenda

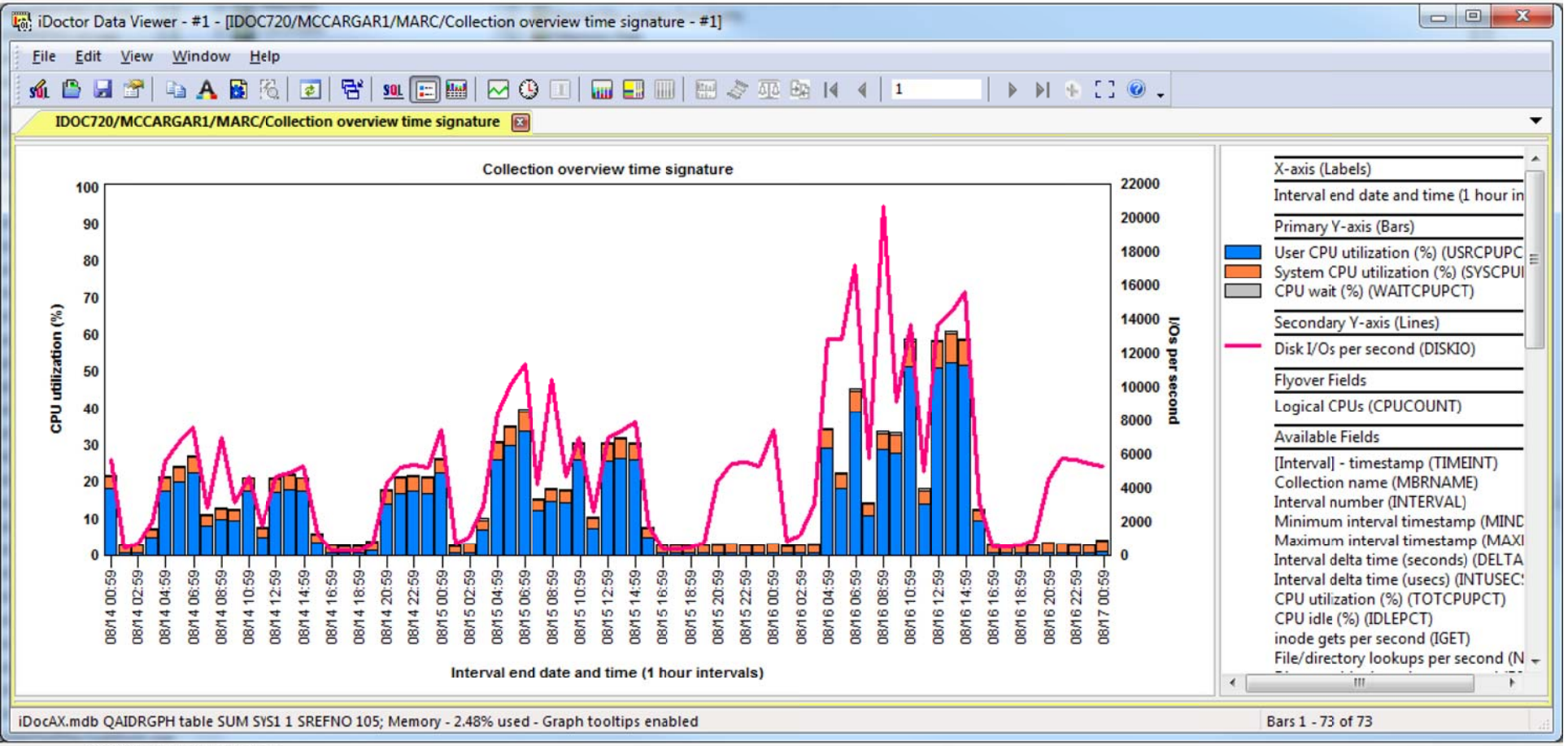
- What is IBM iDoctor for i ?
- What is VIOS Investigator ?
- Power Connections vs. IBM i Connections vs. launching separately
- Viewing configuration data and working with file systems
- Power Collection Wizard (VIOS Advisor, NMON, NPIV and SEA)

Agenda

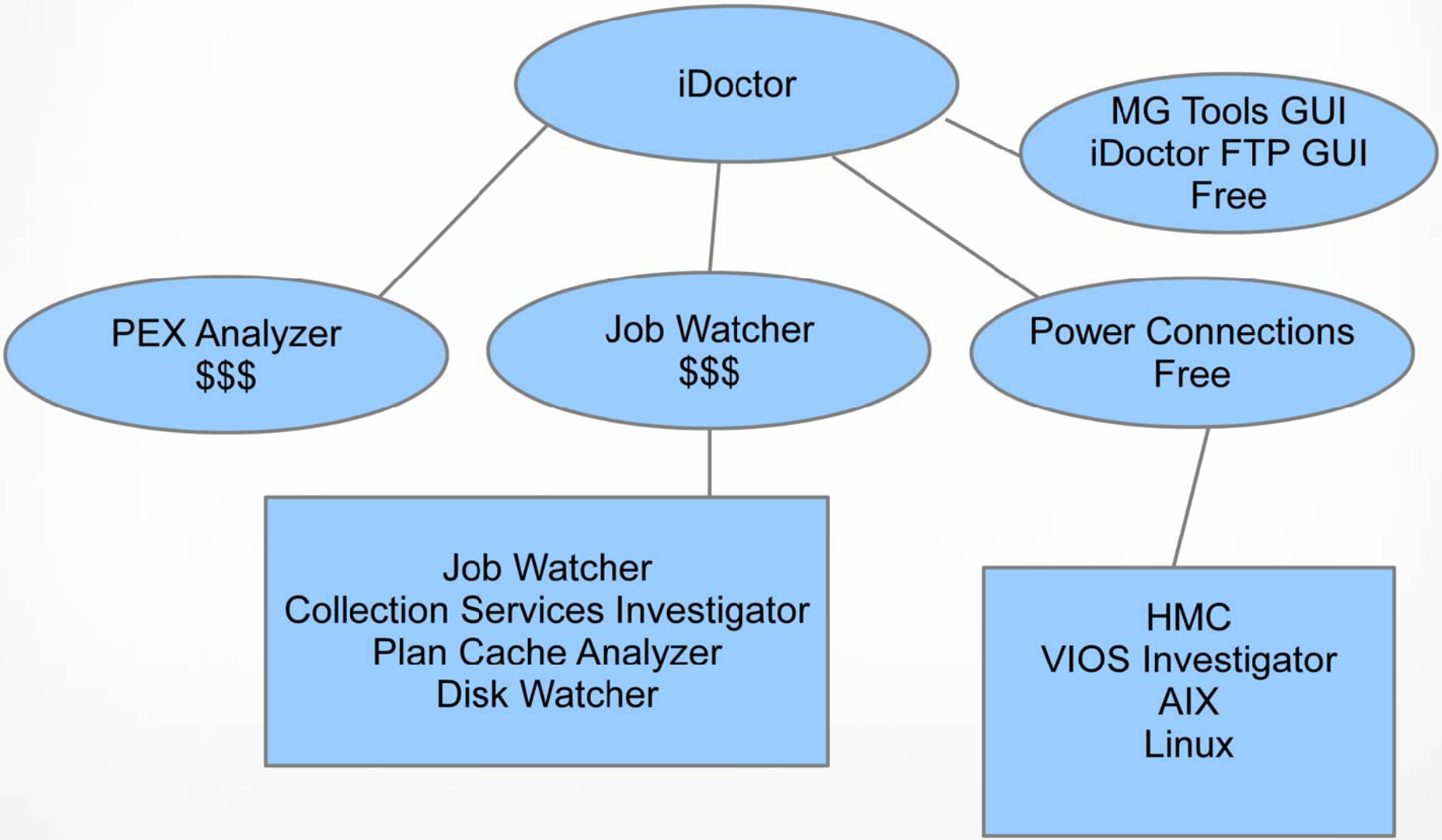
- Importing NMON, NPIV, SEA data
- Continuous Collection / Monitors
- NMON Graphs
- NPIV Graphs
- SEA Graphs
- PerfPMR
- Videos
  - https://www.youtube.com/user/IBMiDoctorForIBMi

What is IBM iDoctor for i?

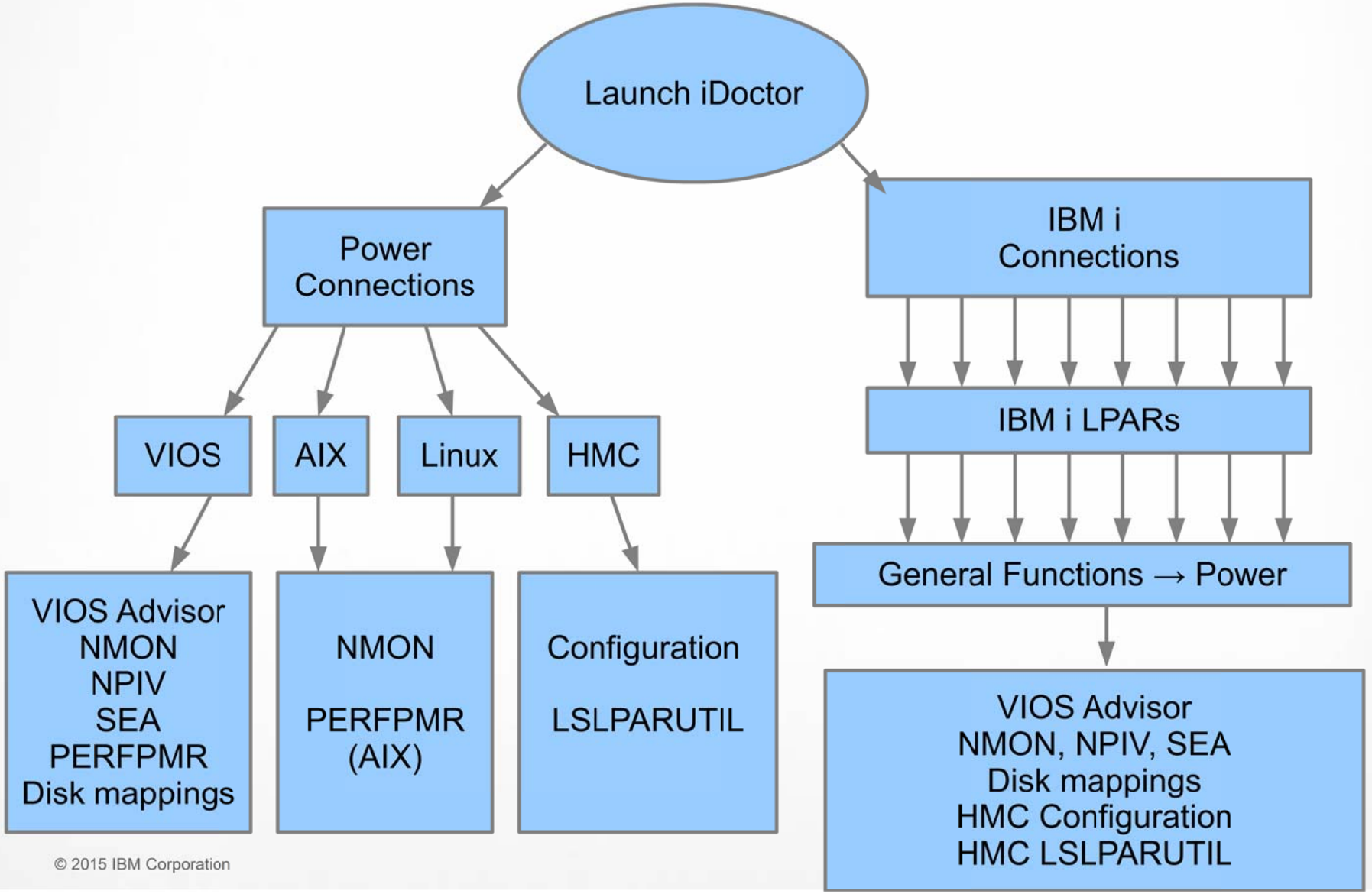
- Performance analysis tool developed by the IBM i Global Support Center.
- Used by IBM Support, Lab Services, Development, and our clients.



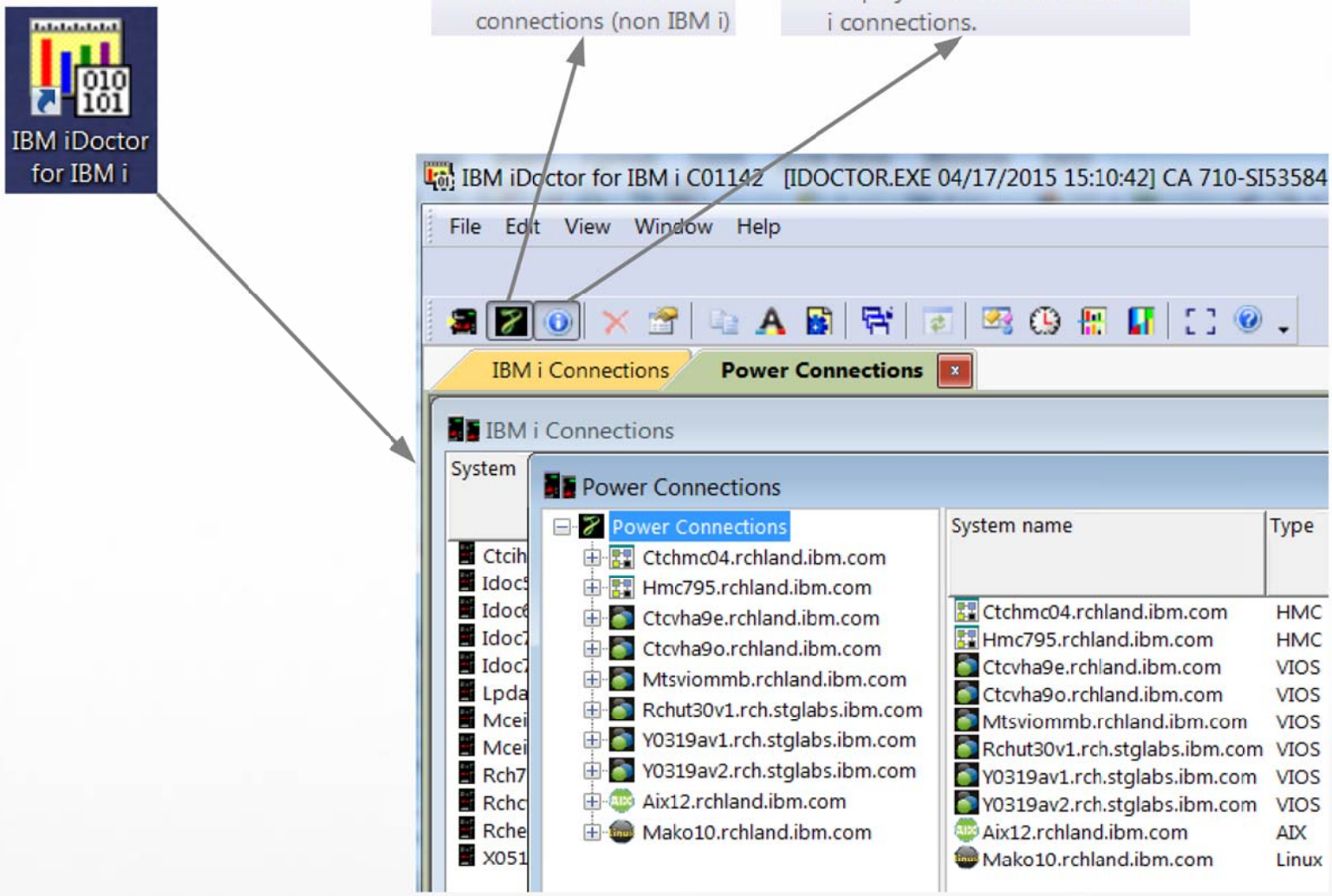
Components of iDoctor



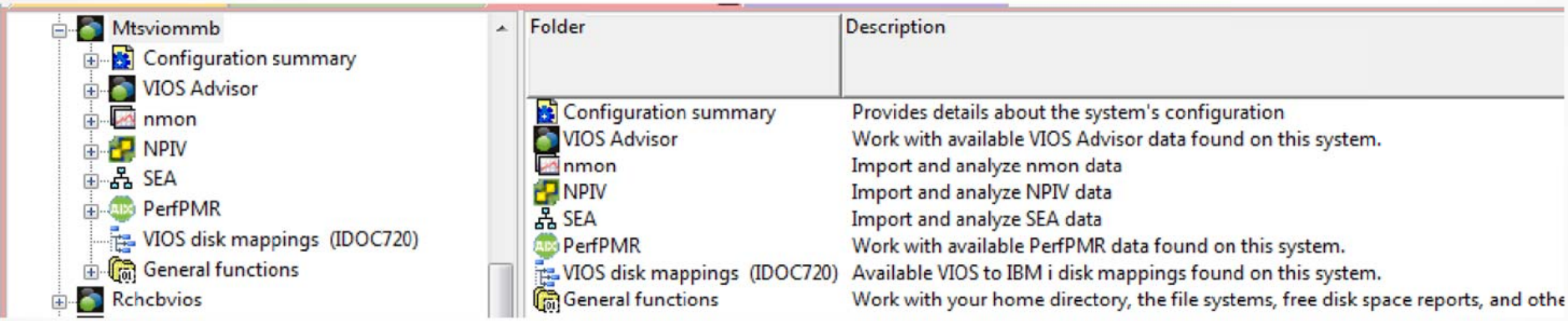
VIOS Investigator integrated into iDoctor



Launching iDoctor

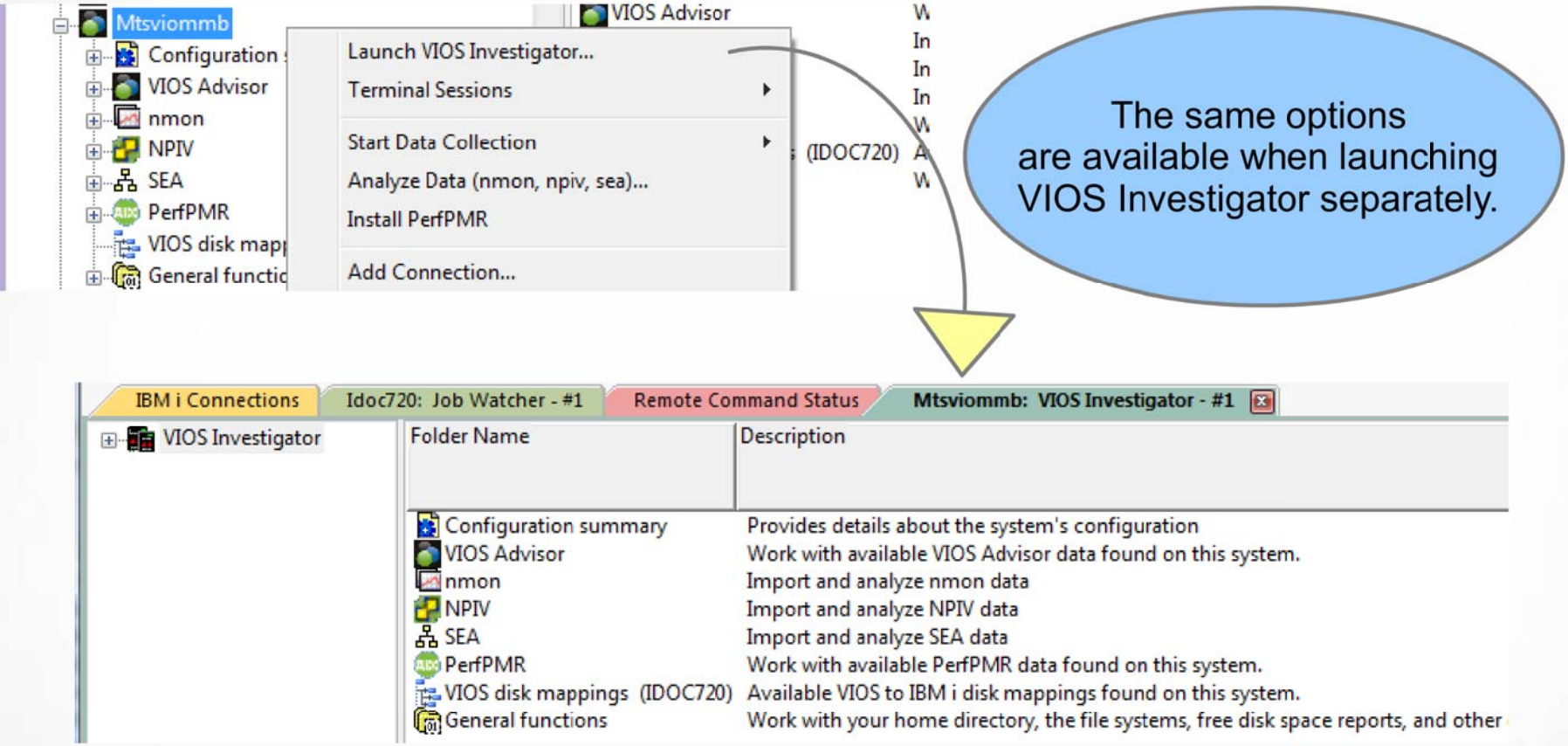


Options when launching via Power Connections

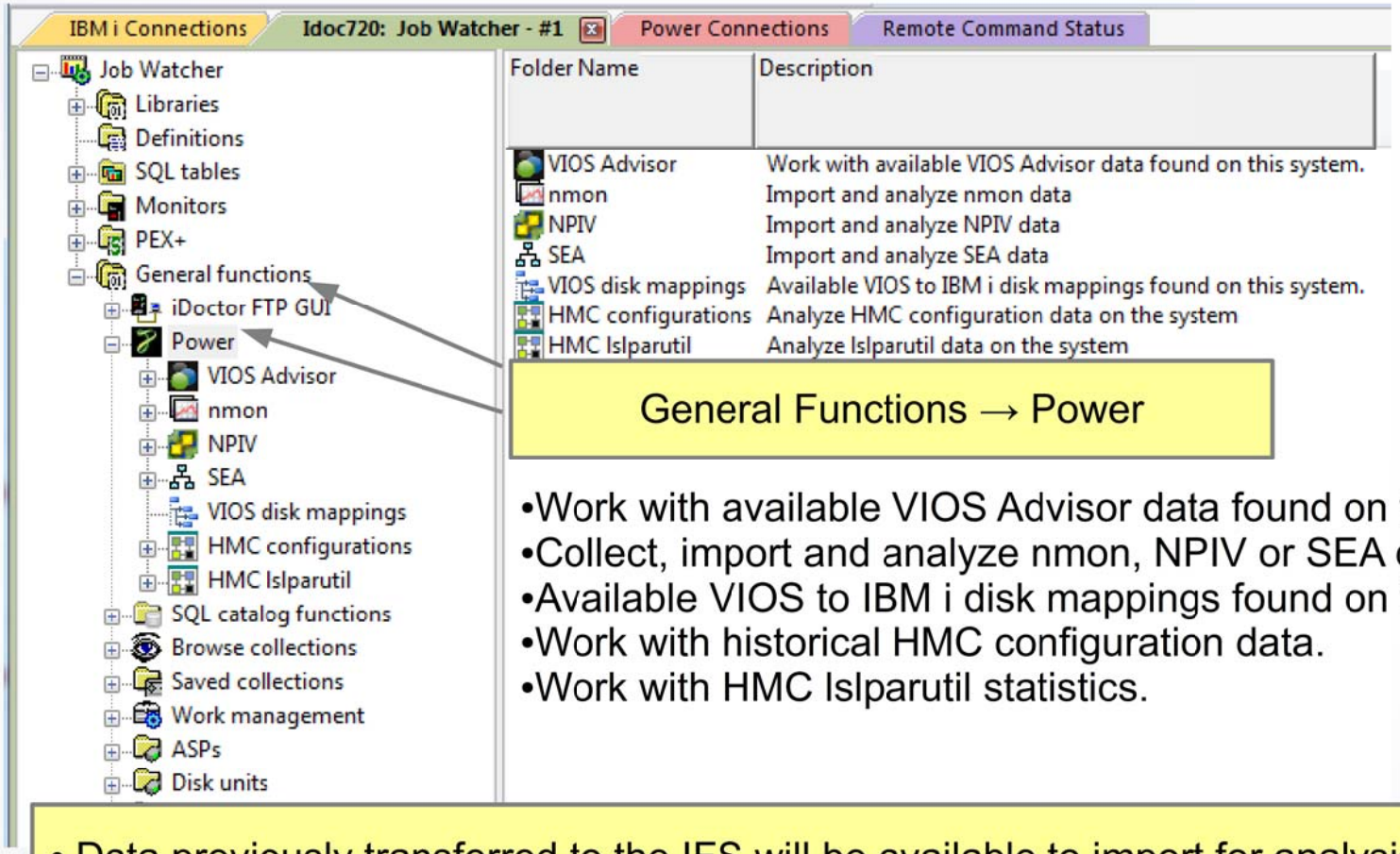


- Provides details about the system's configuration.
- Collect or work with available VIOS Advisor data found on the system.
- Collect, import and analyze nmon, NPIV or SEA data.
- Install, start or work with available PerfPMR data.
- Available VIOS to IBM i disk mappings found in the IBM i analysis DB.
- Work with your home directory, the file systems, free space disk reports, and other general purpose functions for Power systems.

Launching VIOS Investigator into a separate tab



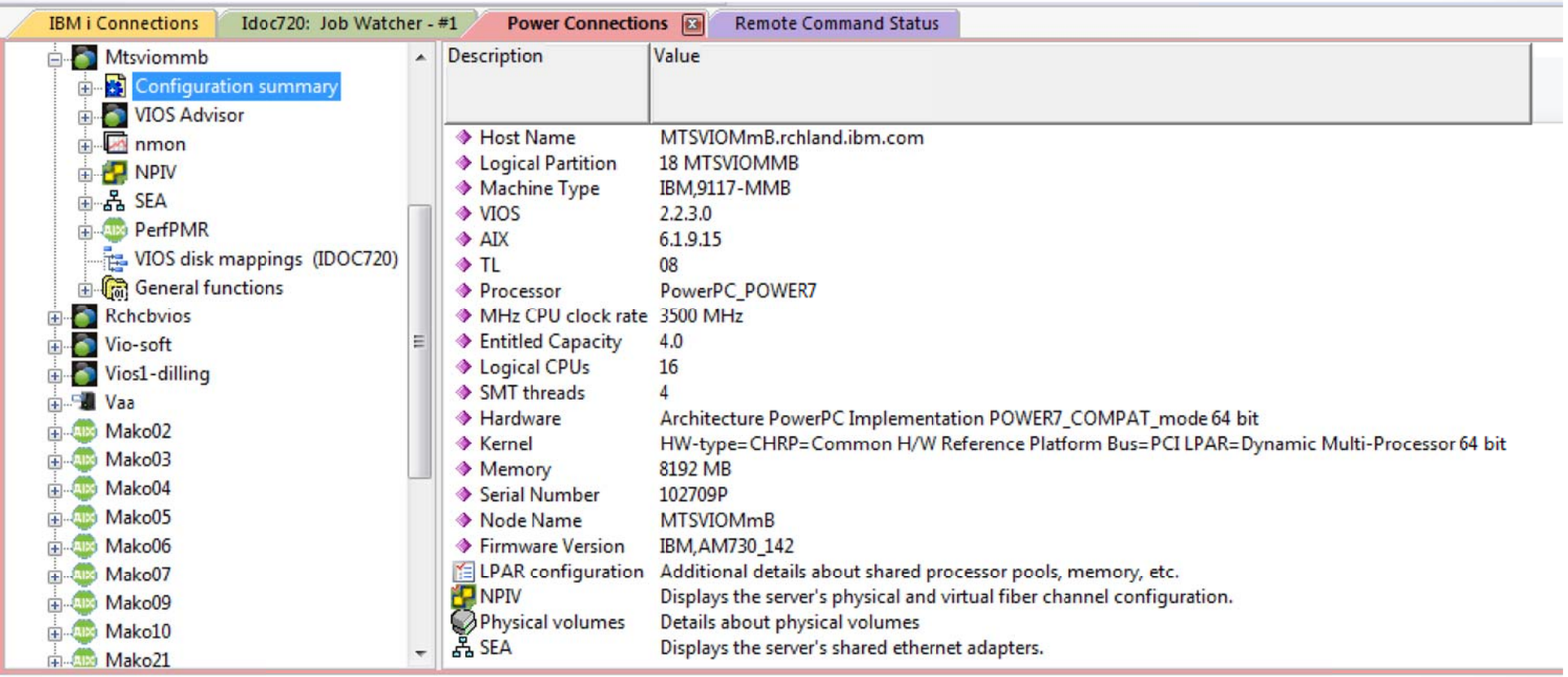
Options when launching via IBM i Connections (JW,CS,PA,etc..) General functions folder



- Work with available VIOS Advisor data found on this system.
- Collect, import and analyze nmon, NPIV or SEA data.
- Available VIOS to IBM i disk mappings found on this system.
- Work with historical HMC configuration data.
- Work with HMC lslparutil statistics.

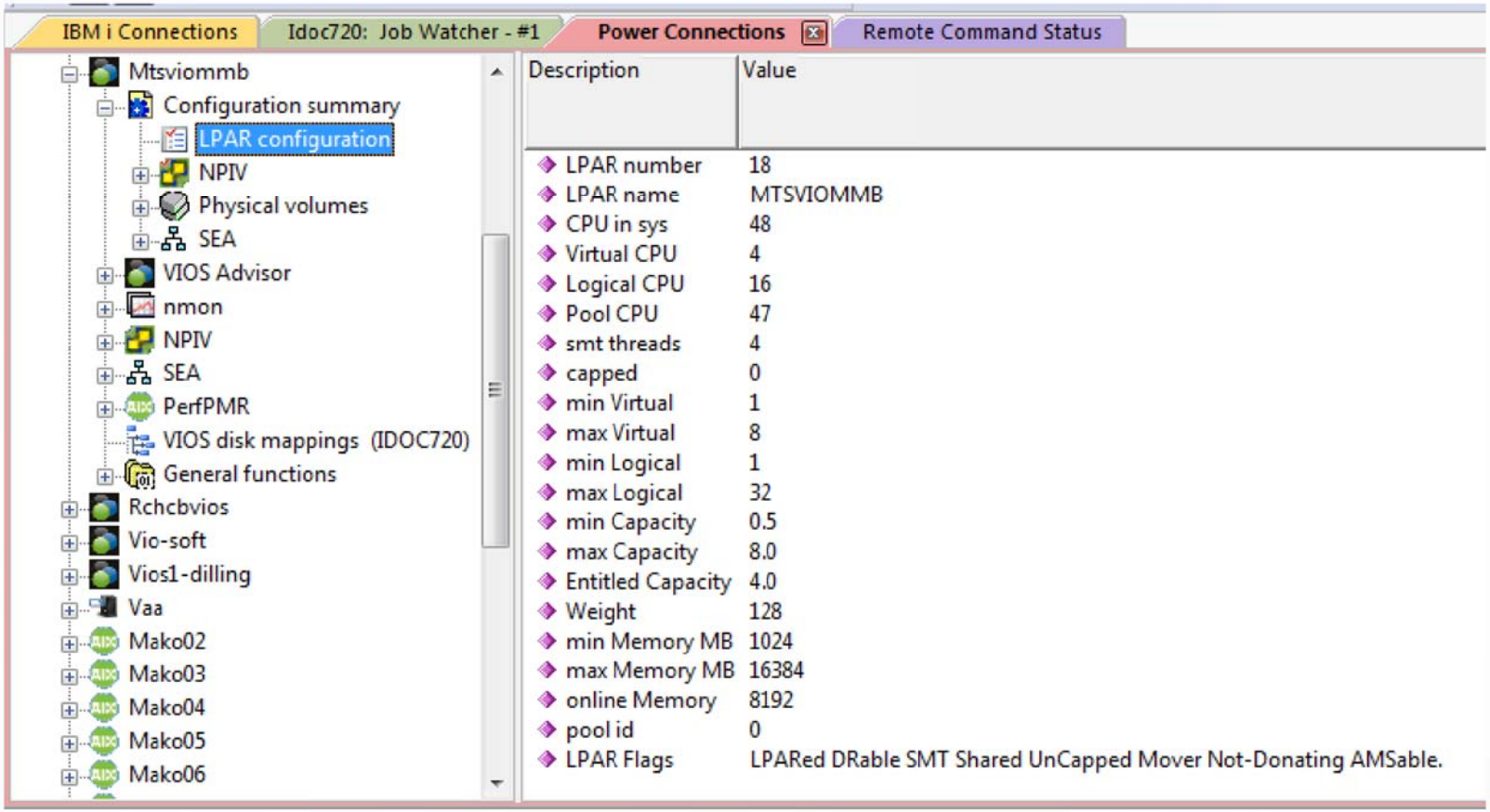
- Data previously transferred to the IFS will be available to import for analysis.

Power Connections → Configuration Summary



General information about the Power platform.

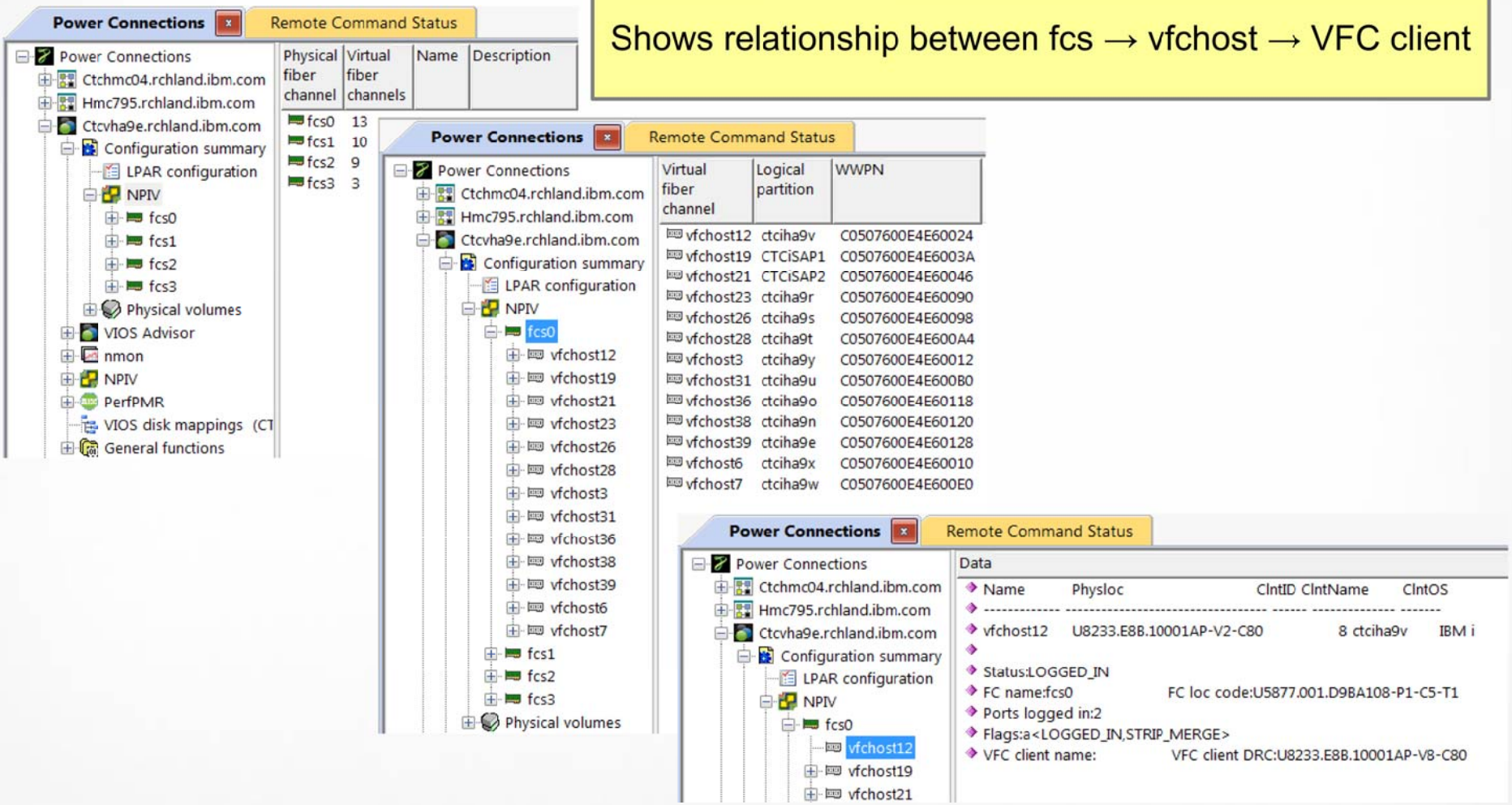
Configuration Summary → LPAR configuration



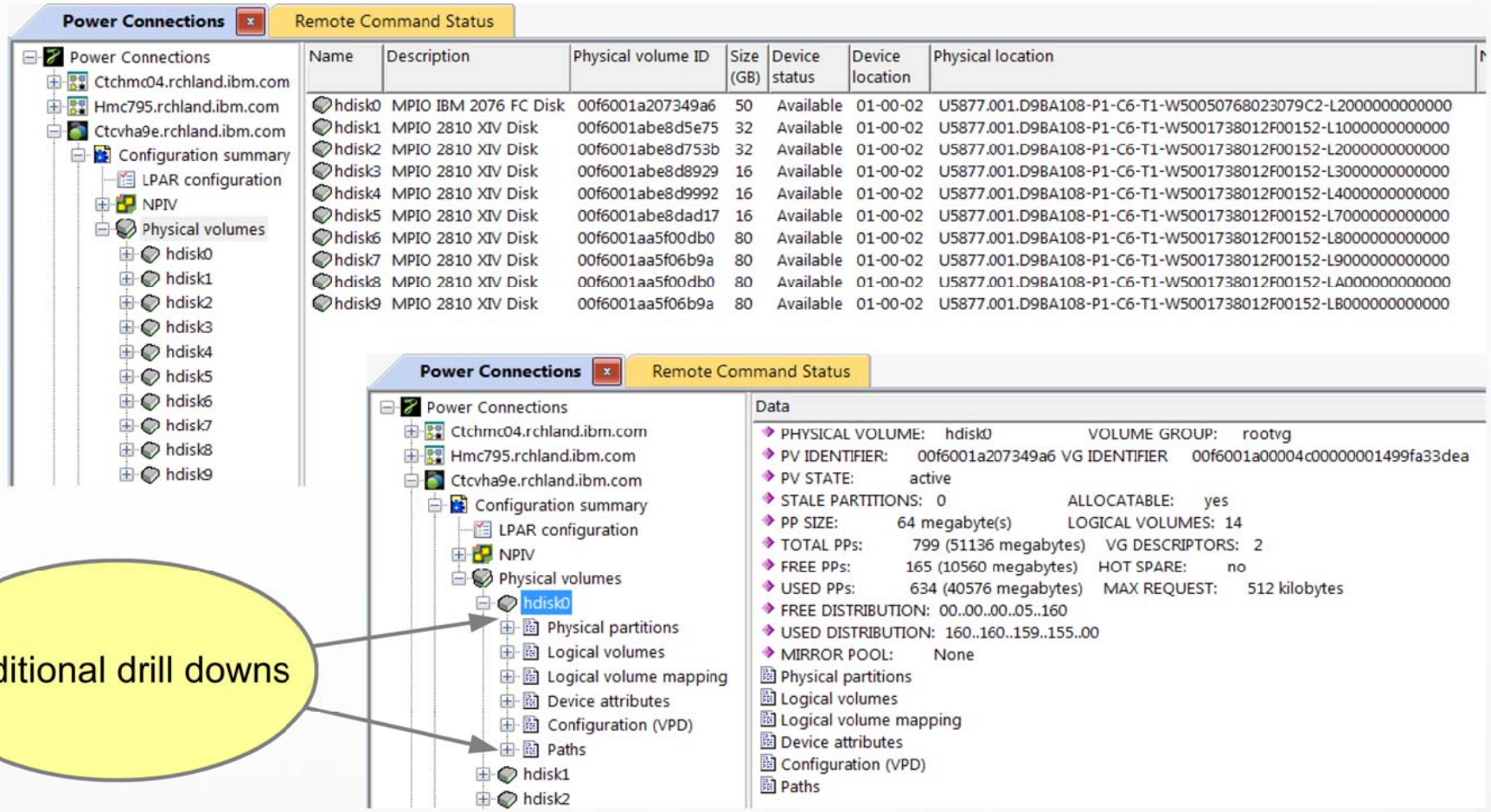
General information about the VIOS partition.

Configuration summary → NPIV

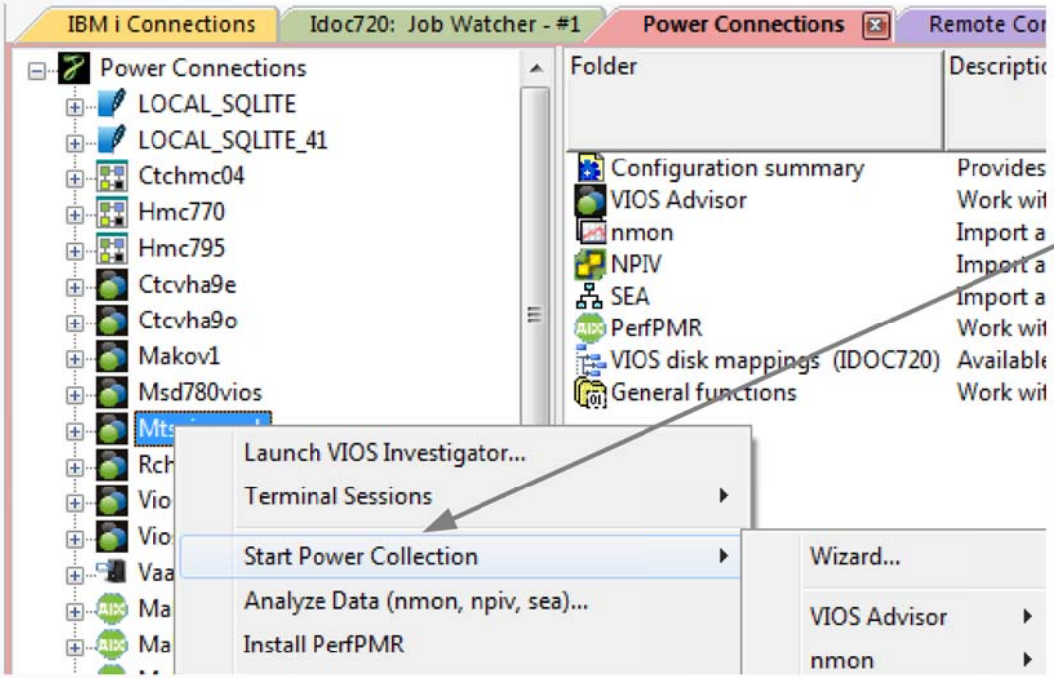
Shows relationship between fcs → vfchost → VFC client



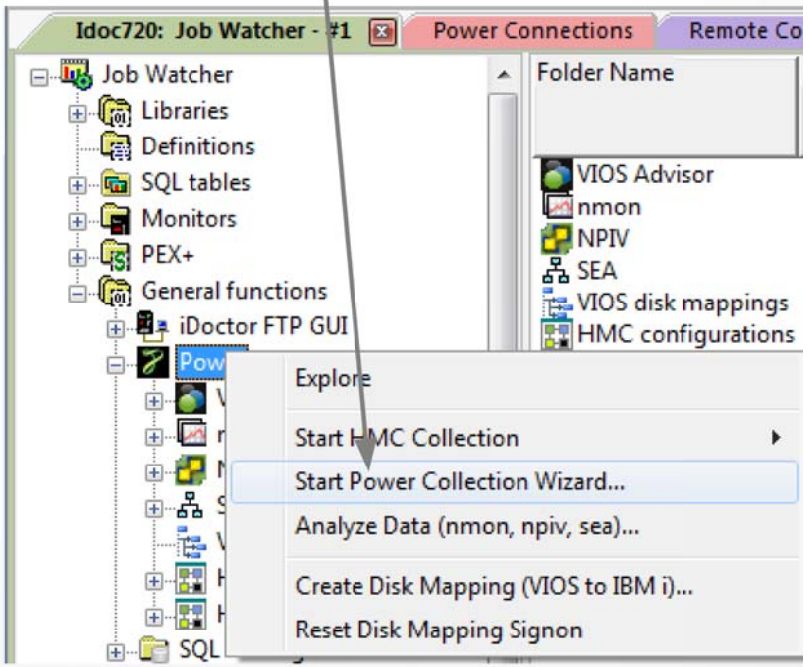
Configuration summary → Physical volumes



Power Collection Wizard

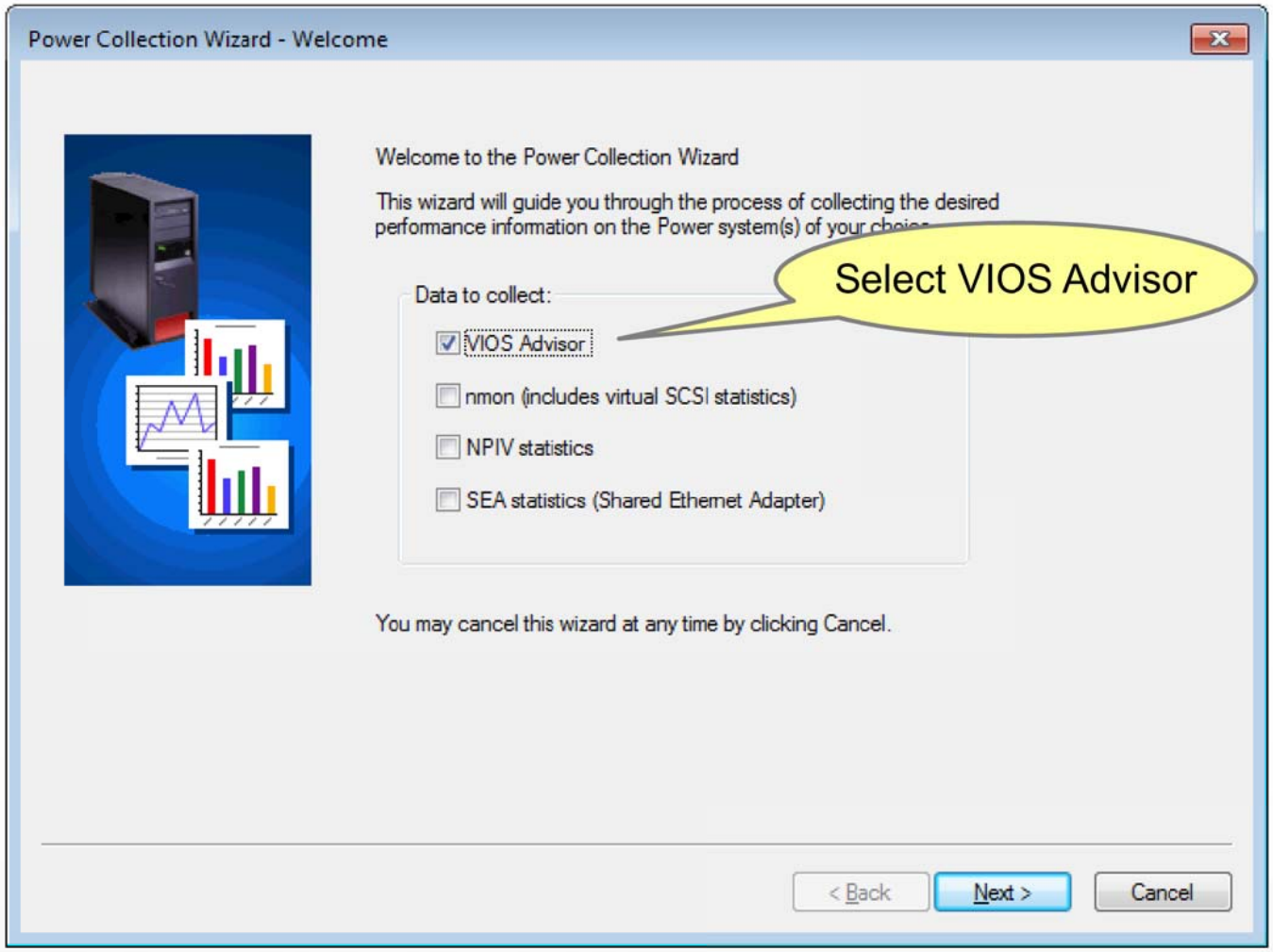


Available under Power or IBM i Connections.

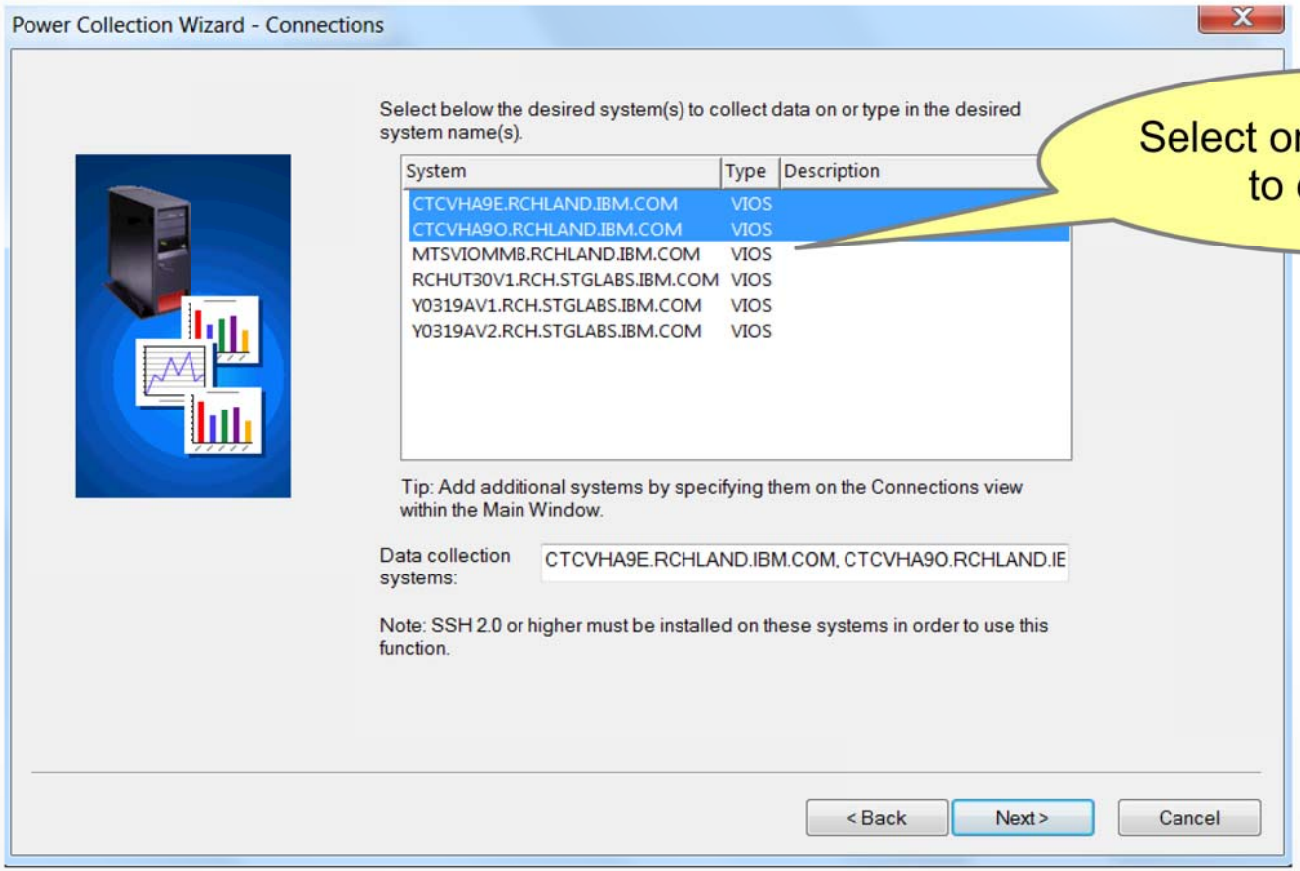


Allows collection of VIOS Advisor, NMON, NPIV and/or SEA data across one or multiple partitions.

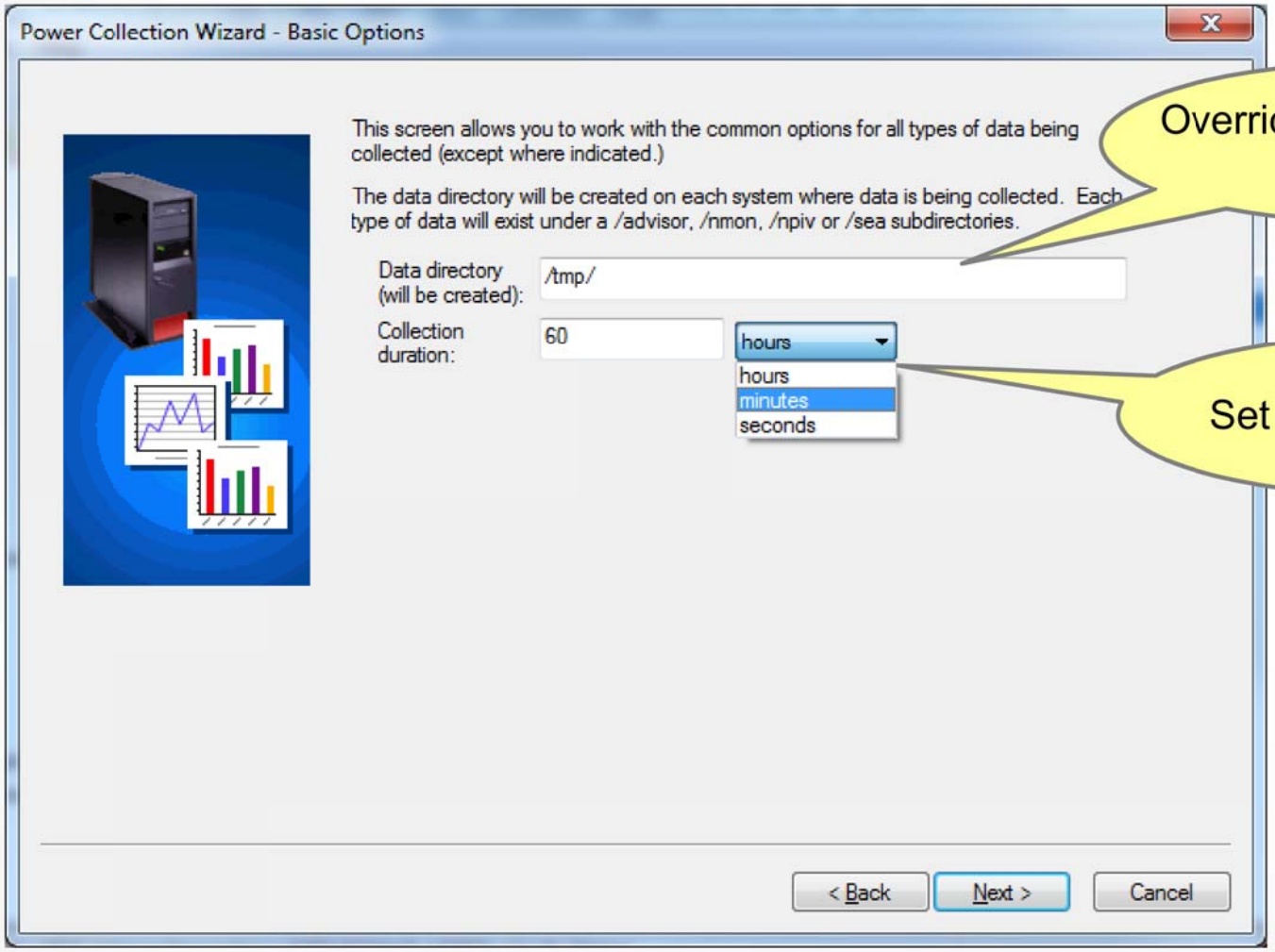
Power Collection Wizard: Welcome → VIOS Advisor



Power Collection Wizard: Connections → VIOS Advisor



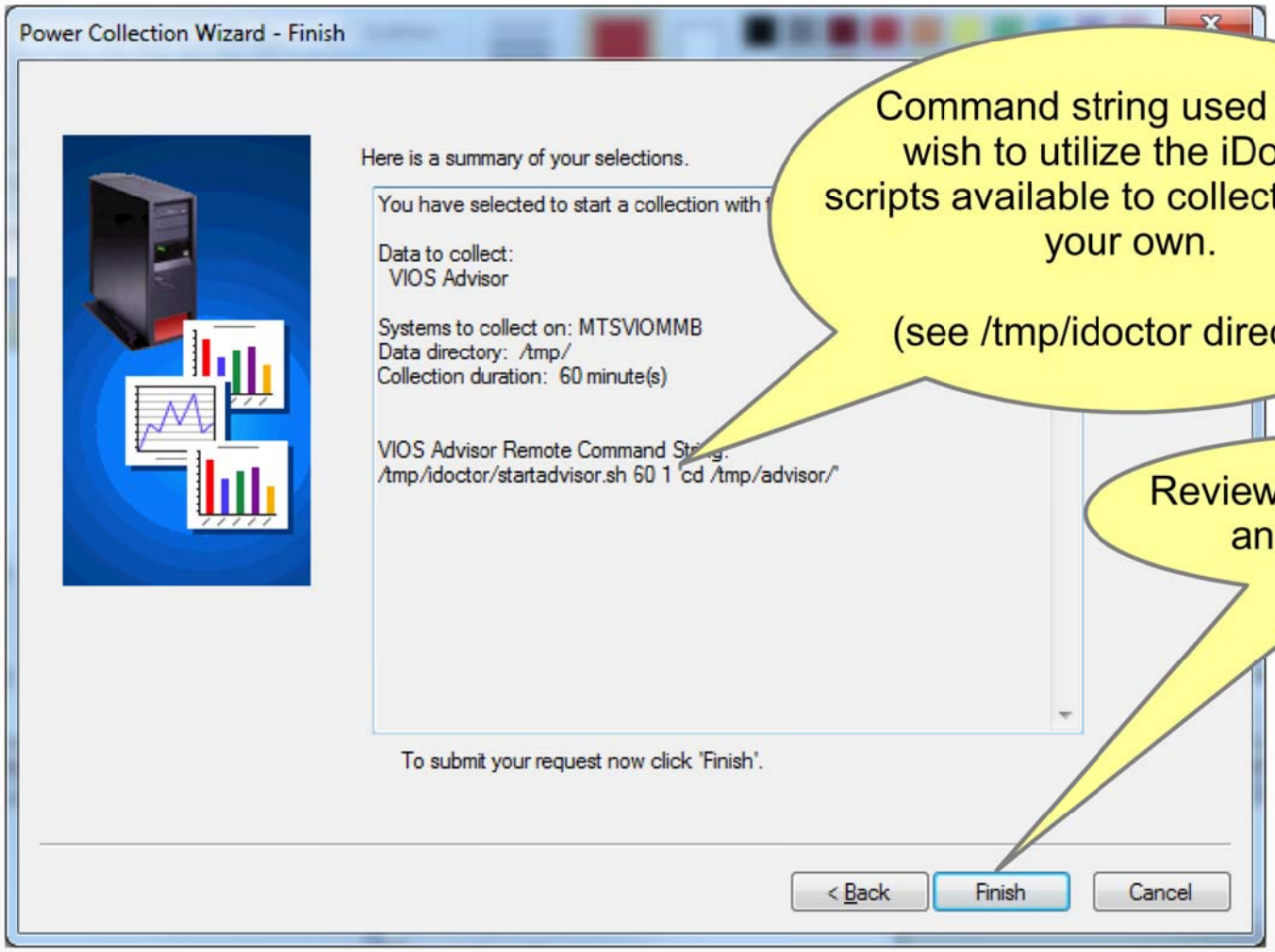
Power Collection Wizard: Basic Options → VIOS Advisor



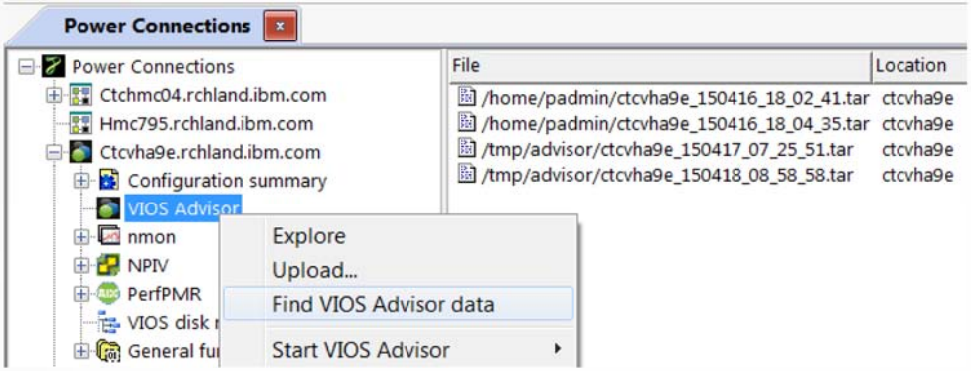
Override default directory if desired

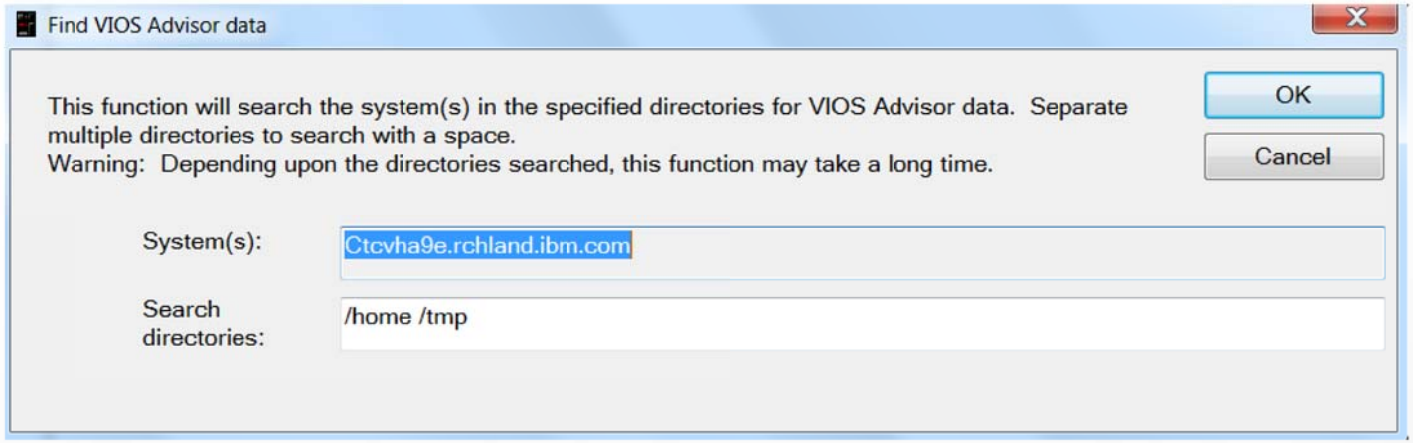
Set collection duration

Power Collection Wizard: Finish → VIOS Advisor

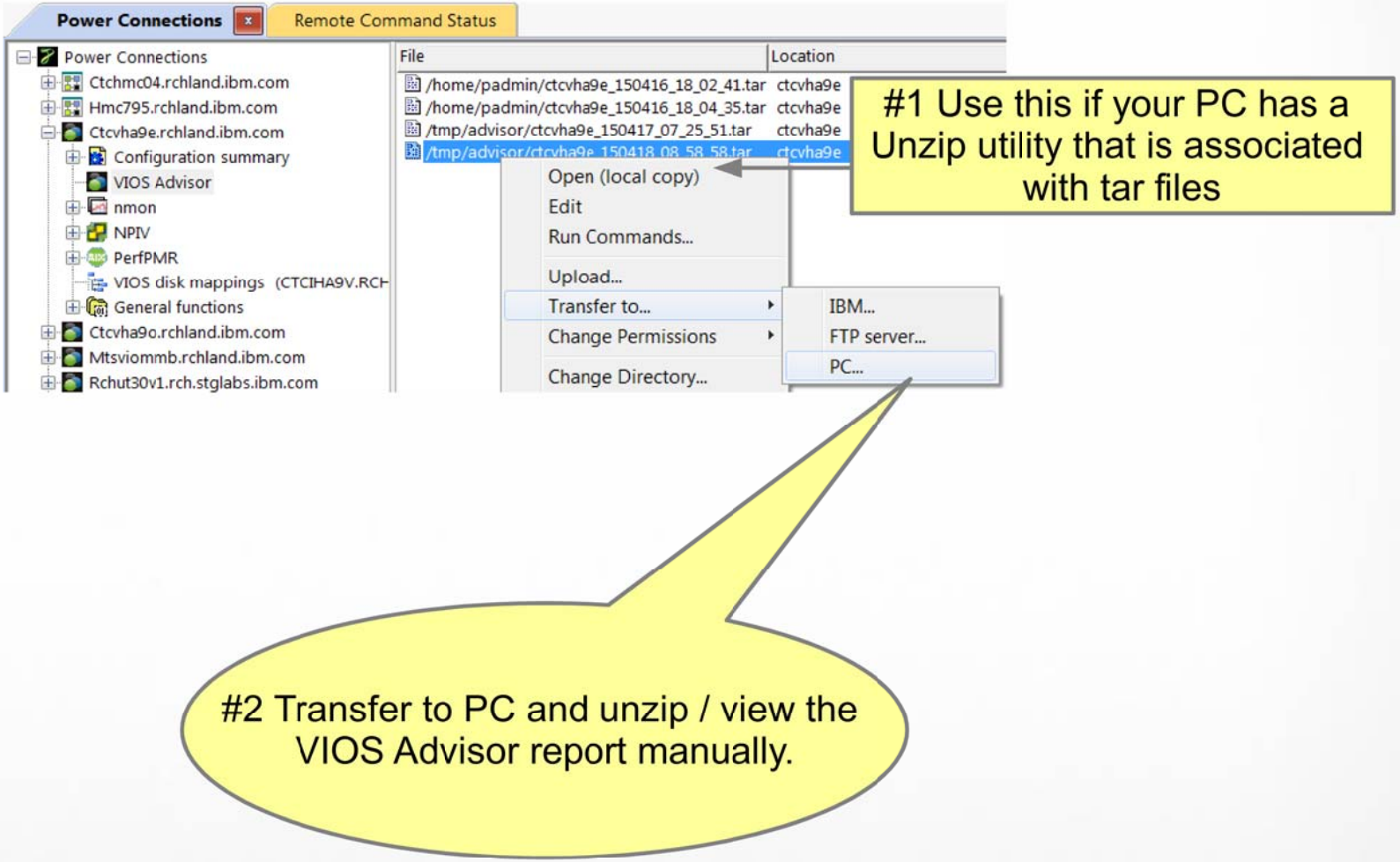


Use 'Find VIOS Advisor data' to refresh collections

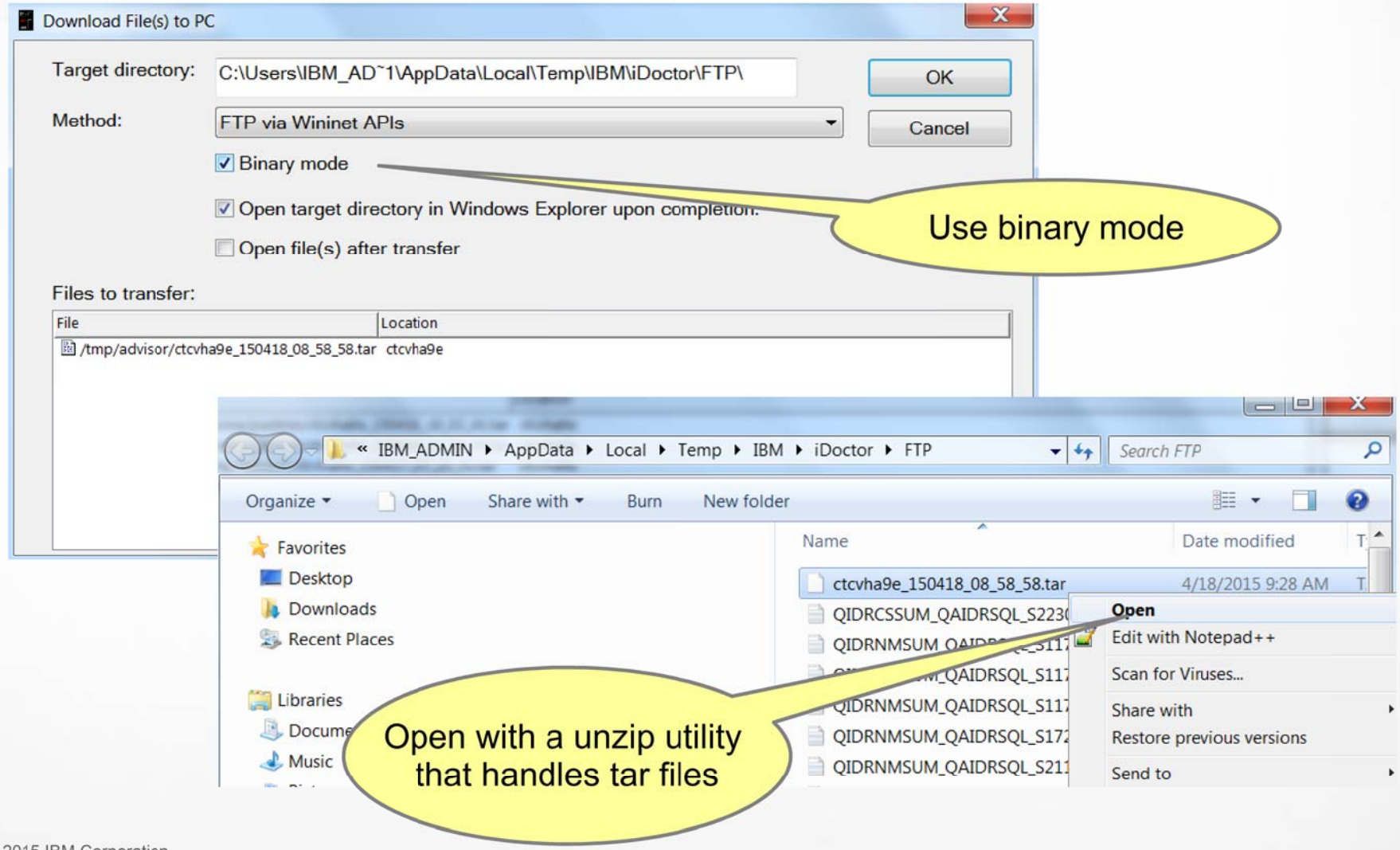




VIOS Advisor: Two ways to view results

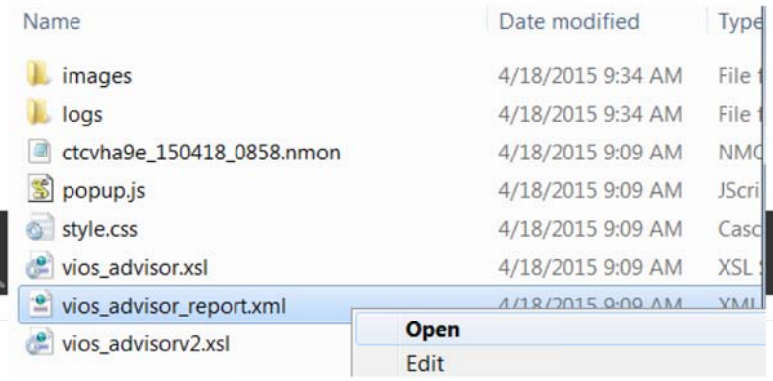


VIOS Advisor: Method #2 Download to PC and unzip the tar file



VIOS Performance Advisor report

Open the vios_advisor_report.xml file



VIOS Performance Advisor IBM.

VIOS Performance Recording Summary
Hostname : ctcvha9e
PartitionID: 2
IBM Systems Workload Estimator *(VIOS Sizings)*

Monitoring
Start Time: 04/18/2015 08:58 AM
Stop Time: 04/18/2015 09:09 AM
Duration: 10 min

Advisory Report Learn More

System - Configuration

Name	Value
Processor Family	Architecture PowerPC Implementation POWER7_COMPAT_mode 64 bit
Server Model	IBM 8233-E8B
Server Frequency	3550.0 MHz
Server - Online CPUs	2.0 cores
Server - Maximum Supported CPUs	2.0 cores
VIOS Level	2.2.3.3
VIOS Advisor Release	0.1

VIOS - I/O Activity

Name	Value
Disk I/O Activity	Average : 500 @ 22.00 KB Peak: 627 @ 29KB
Network I/O Activity	[Average Send: 2 @ 0.2 MBps , Average Receieve: 15 @ 0.9MBps] [Peak Send: 3 @ 0.3 MBps , Peak Receive: 18 @ 1.2MBps]

VIOS - Processor *Risk/Impact 1=lowest 5=highest*

Name	Measured Value	Suggested Value	First Observed	Last Observed	Risk	Impact
CPU Capacity	0.5 ent		04/18/2015 08:58 AM			
CPU consumption	Average:6.3% (cores:0.1) High:94.0% (cores:0.5)		04/18/2015 08:58 AM	04/18/2015 09:09 AM		
Processing Mode	Shared CPU, (UnCapped)		04/18/2015 08:58 AM			
Variable Capacity Weight	128	129-255	04/18/2015 08:58 AM		1	5
Virtual Processors	2		04/18/2015 08:58 AM			
SMT Mode	SMT4		04/18/2015 08:58 AM			

Scroll through and view the report in a web browser

Network I/O Activity		Send: 3 @ 0.3 MBps , Peak Receive: 18 @ 1.2MBps]

VIOS - Disk Adapters

Risk/Impact 1=lowest 5=highest

	Name	Measured Value	Suggested Value	First Observed	Last Observed	Risk	Impact
	FC Adapter Count	4		04/18/2015 08:58 AM			
	FC I/O Operations per second	500 @ 21 KB		04/18/2015 08:58 AM	04/18/2015 09:09 AM		
	FC Idle Port : (fcs1)			04/18/2015 08:58 AM	04/18/2015 09:09 AM	4	4
	FC Idle Port : (fcs2)			04/18/2015 08:58 AM	04/18/2015 09:09 AM	4	4
	FC Idle Port : (fcs3)			04/18/2015 08:58 AM	04/18/2015 09:09 AM	4	4
	FC Adapter Utilization	optimal					
	NPIV Client Utilization - fcs2	High: 0.13 % Average: 0.01 %		04/18/2015 08:58 AM	04/18/2015 09:09 AM		
	NPIV Client Utilization - fcs1	High: 0.83 % Average: 0.05 %		04/18/2015 08:58 AM	04/18/2015 09:09 AM		
	NPIV Client Utilization - fcs0	High: 1.59 % Average: 0.09 %		04/18/2015 08:58 AM	04/18/2015 09:09 AM		
	NPIV Client Utilization - fcs3	High: 1.61 % Average: 0.09 %		04/18/2015 08:58 AM	04/18/2015 09:09 AM		
	FC I/O Operations Blocked	optimal		04/18/2015 08:58 AM	04/18/2015 09:09 AM		
	FC Port Speeds	running at full speed		04/18/2015 08:58 AM	04/18/2015 09:09 AM		

VIOS - Disk Drives

Risk/Impact 1=lowest 5=highest

	Name	Measured Value	Suggested Value	First Observed	Last Observed	Risk	Impact
	Physical Drive Count	10		04/18/2015 08:58 AM			
	I/O Operations Blocked	pass		04/18/2015 08:58 AM	04/18/2015 09:09 AM		
	Long I/O Latency	pass		04/18/2015 08:58 AM	04/18/2015 09:09 AM		

System - Shared Processing Pool

Risk/Impact 1=lowest 5=highest

	Name	Measured Value	Suggested Value	First Observed	Last Observed	Risk	Impact
	Shared Pool Monitoring	enabled		04/18/2015 08:58 AM			
	Shared Processor Pool Capacity	14.0 ent.		04/18/2015 08:58 AM			
	Free CPU Capacity	average_free:13.6 ent. lowest_free:13.0 ent.					

VIOS - Memory

Risk/Impact 1=lowest 5=highest

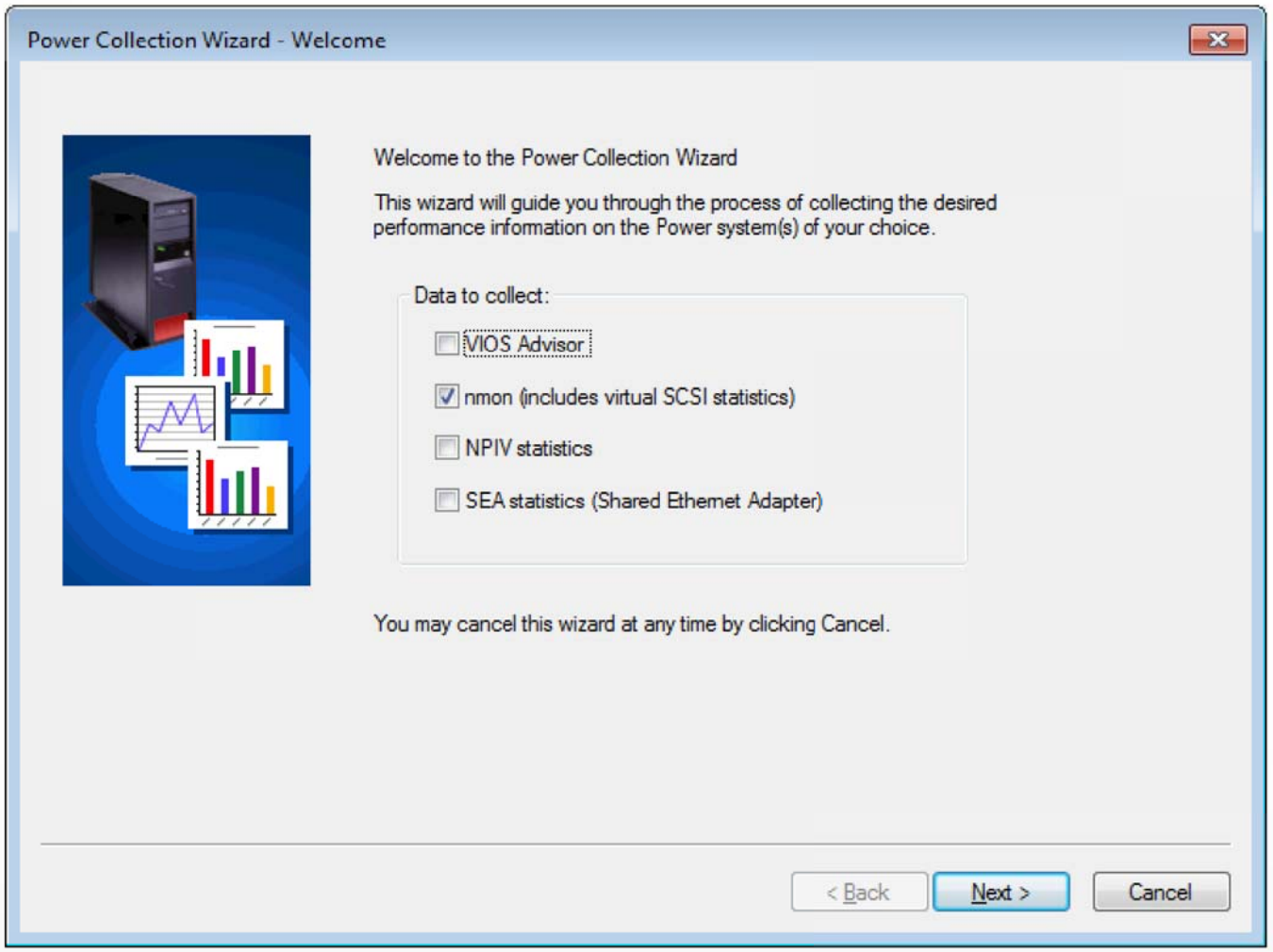
	Name	Measured Value	Suggested Value	First Observed	Last Observed	Risk	Impact
	Real Memory	4.000 GB		04/18/2015 08:58 AM			
	Available Memory	1.633 GB		04/18/2015 08:58 AM			
	Paging Rate	0.0 MBps Paging Rate		04/18/2015 08:58 AM	04/18/2015 09:09 AM		
	Paging Space Size	1.500 GB		04/18/2015 08:58 AM	04/18/2015 09:09 AM		
	Free Paging Space	1.487 GB free		04/18/2015 08:58 AM			
	Pinned Memory	1.452 GB pinned		04/18/2015 08:58 AM			

VIOS - Shared Ethernet Adapters

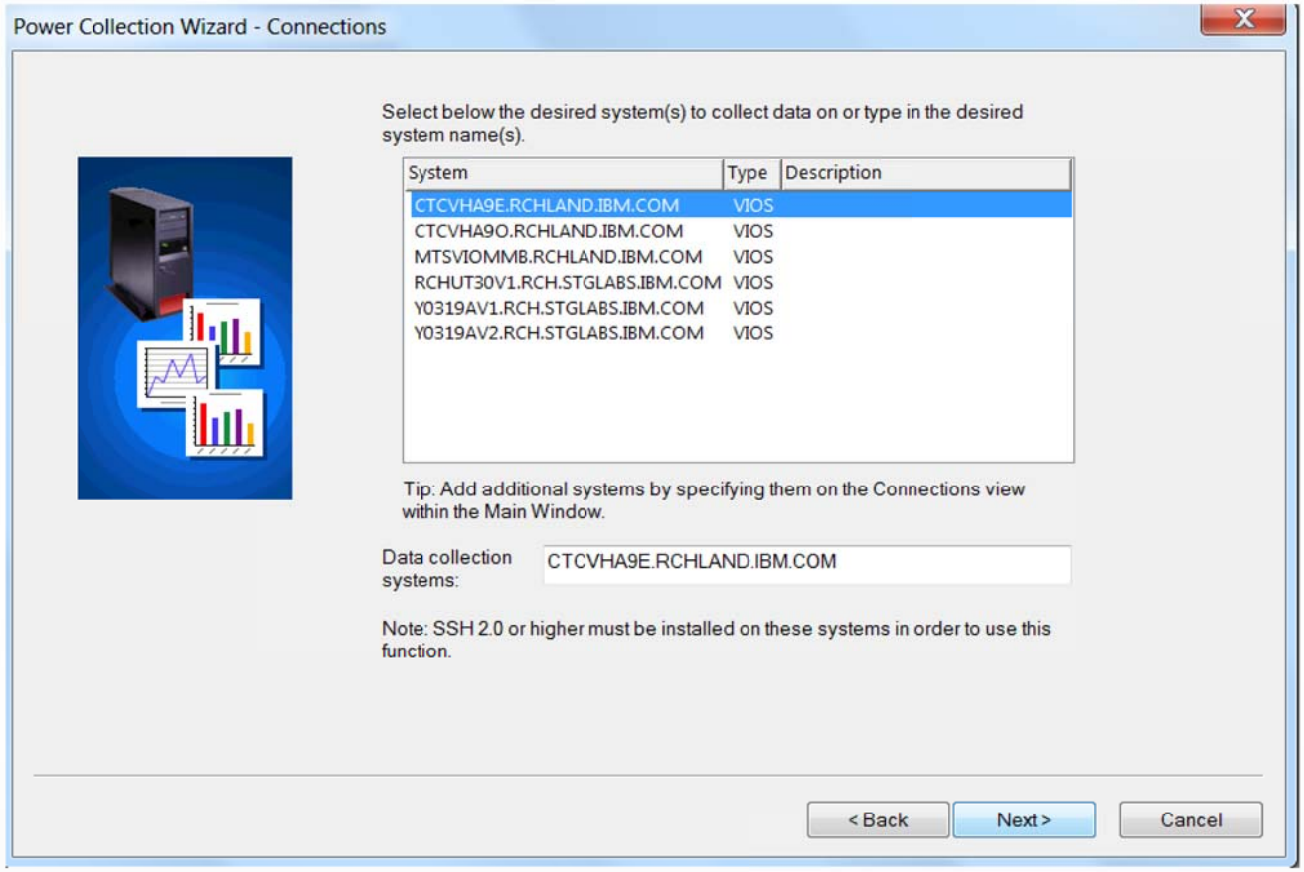
Risk/Impact 1=lowest 5=highest

	Name	Measured Value	Suggested Value	First Observed	Last Observed	Risk	Impact
	SEA Adapter Count	1		04/18/2015 08:58 AM			
	SEA (ent4)	Mapping: Physical : (ent0),Virtual : (ent2,ent3)		04/18/2015 08:58 AM			
	SEA (ent4) Utilization	High: 17.39 % Average : 0.43 %		04/18/2015 08:58 AM	04/18/2015 09:09 AM		

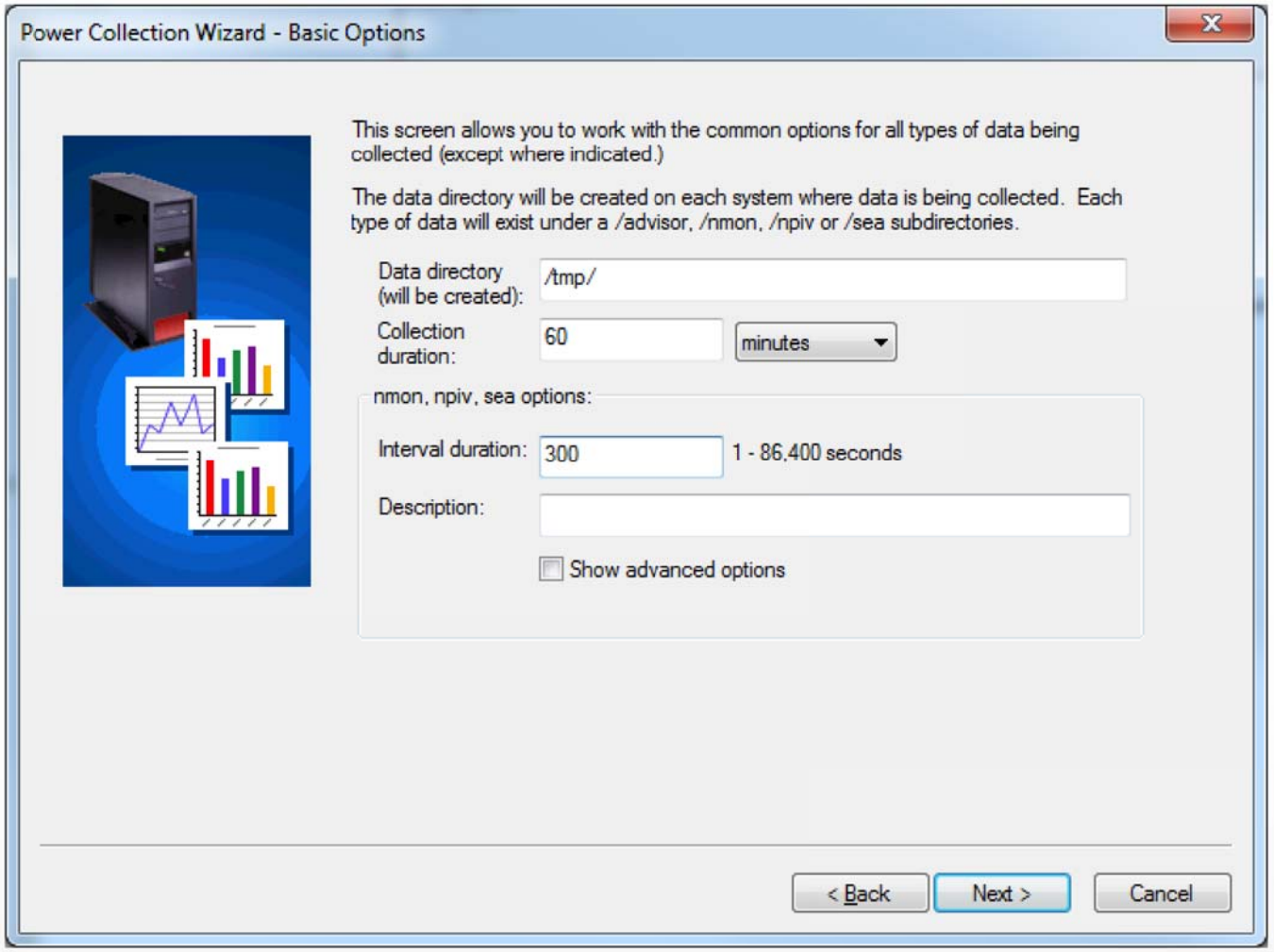
Power Collection Wizard: Welcome → nmon



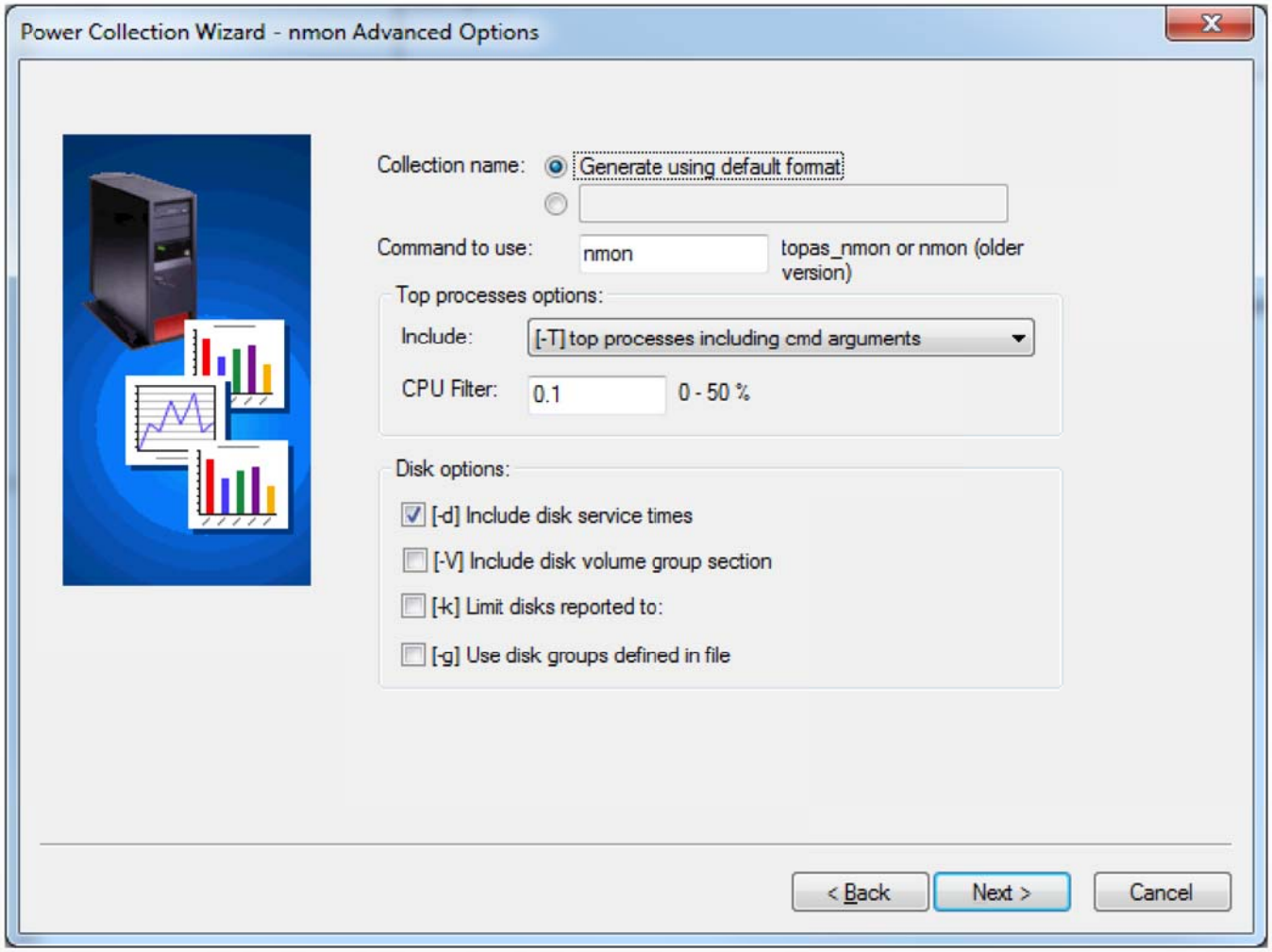
Power Collection Wizard: Connections → nmon



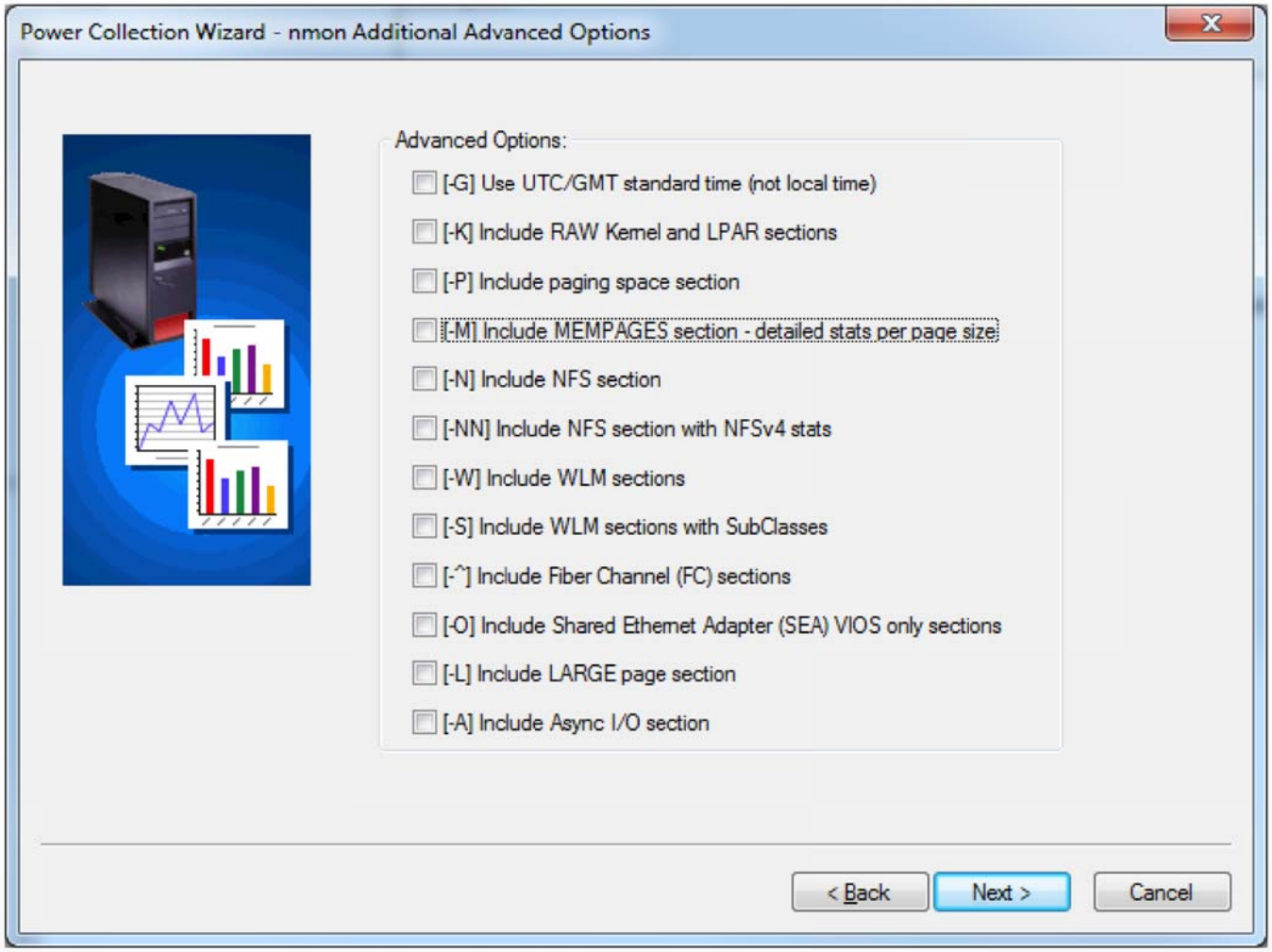
Power Collection Wizard: Basic Options → nmon



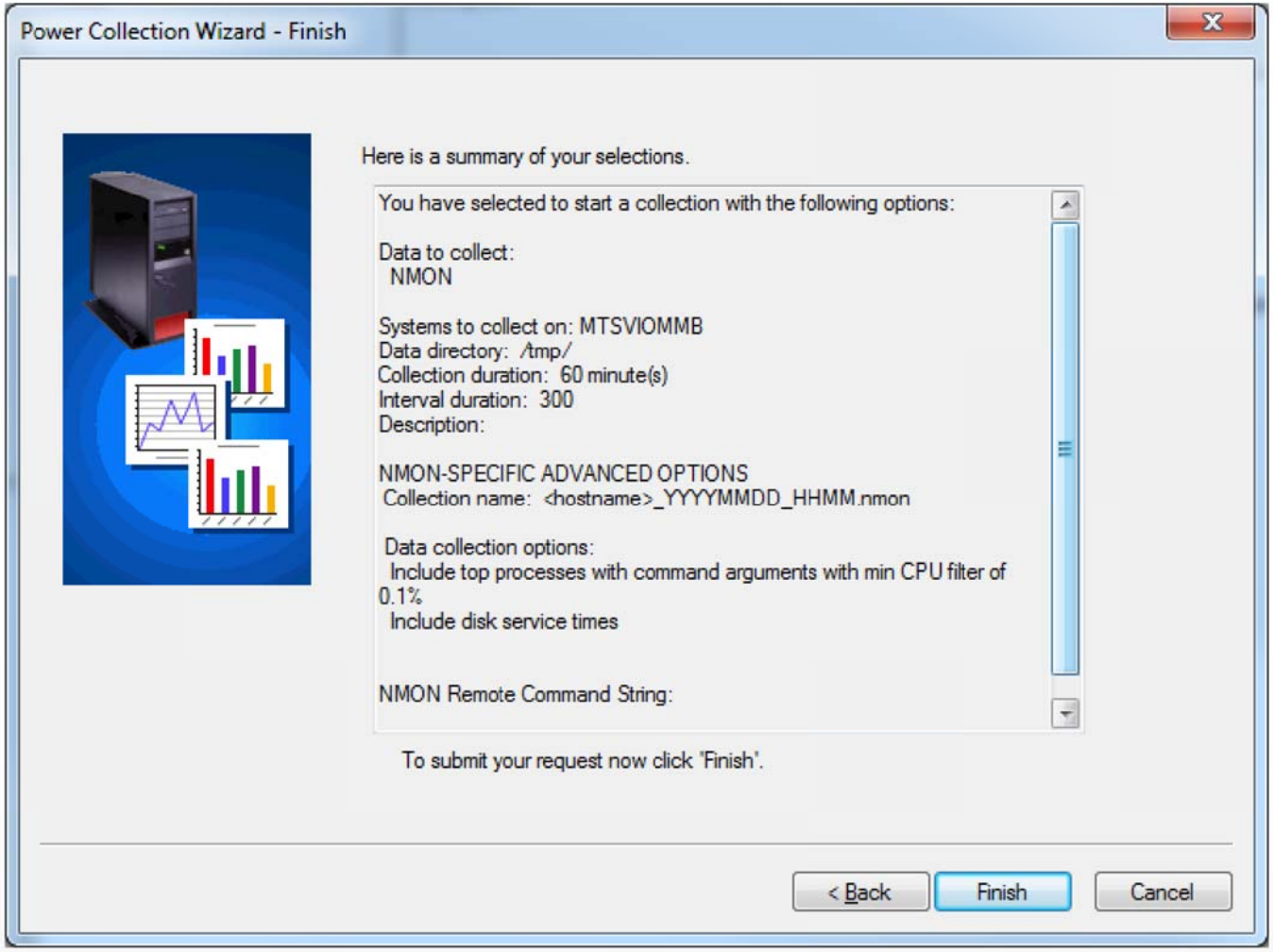
Power Collection Wizard: nmon Advanced Options



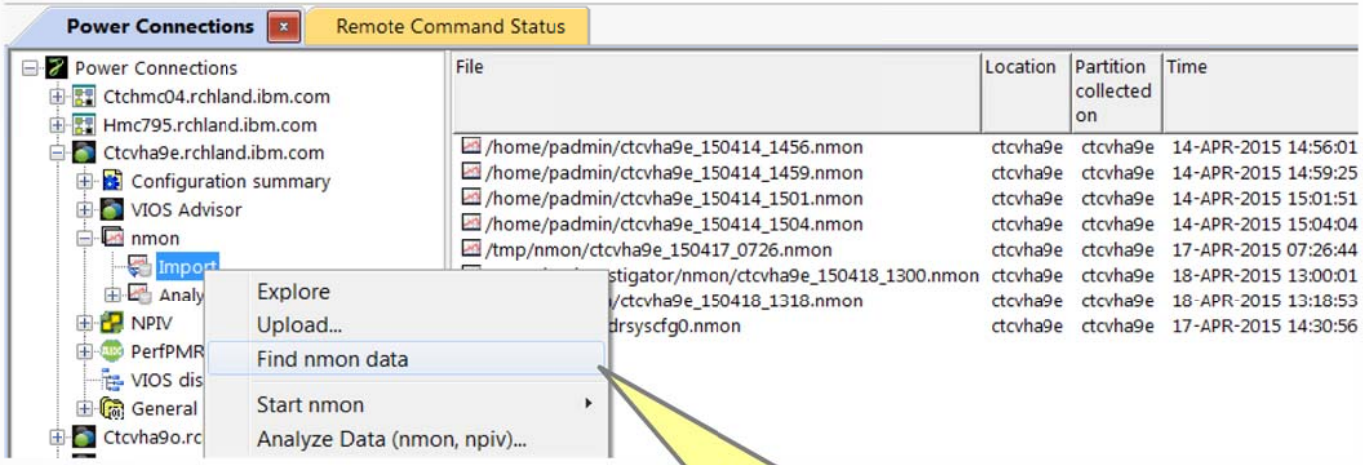
Power Collection Wizard: nmon Additional Advanced Options



Power Collection Wizard: Finish → nmon

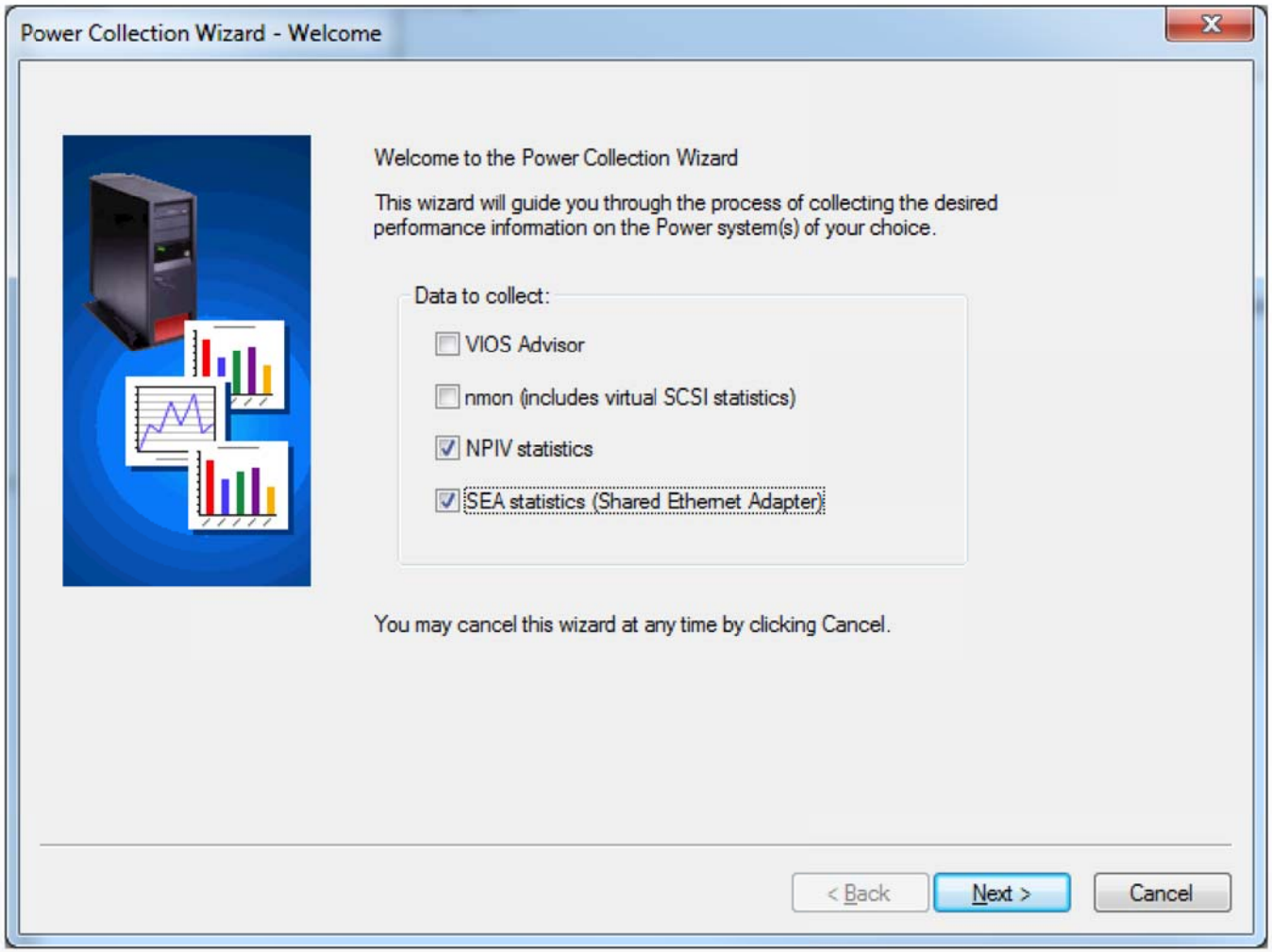


Find nmon data

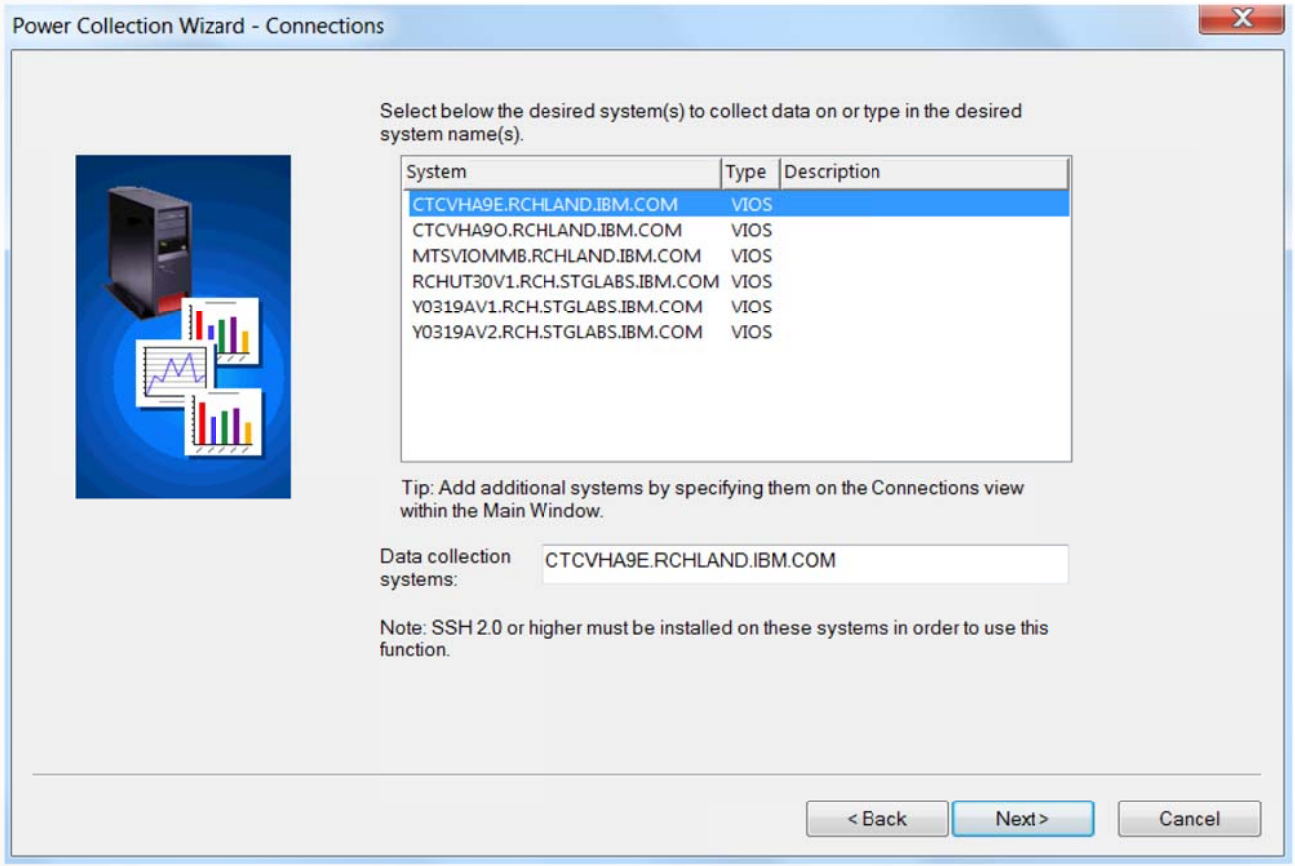


Use 'Find nmon data' or F5 to refresh if find was done previously

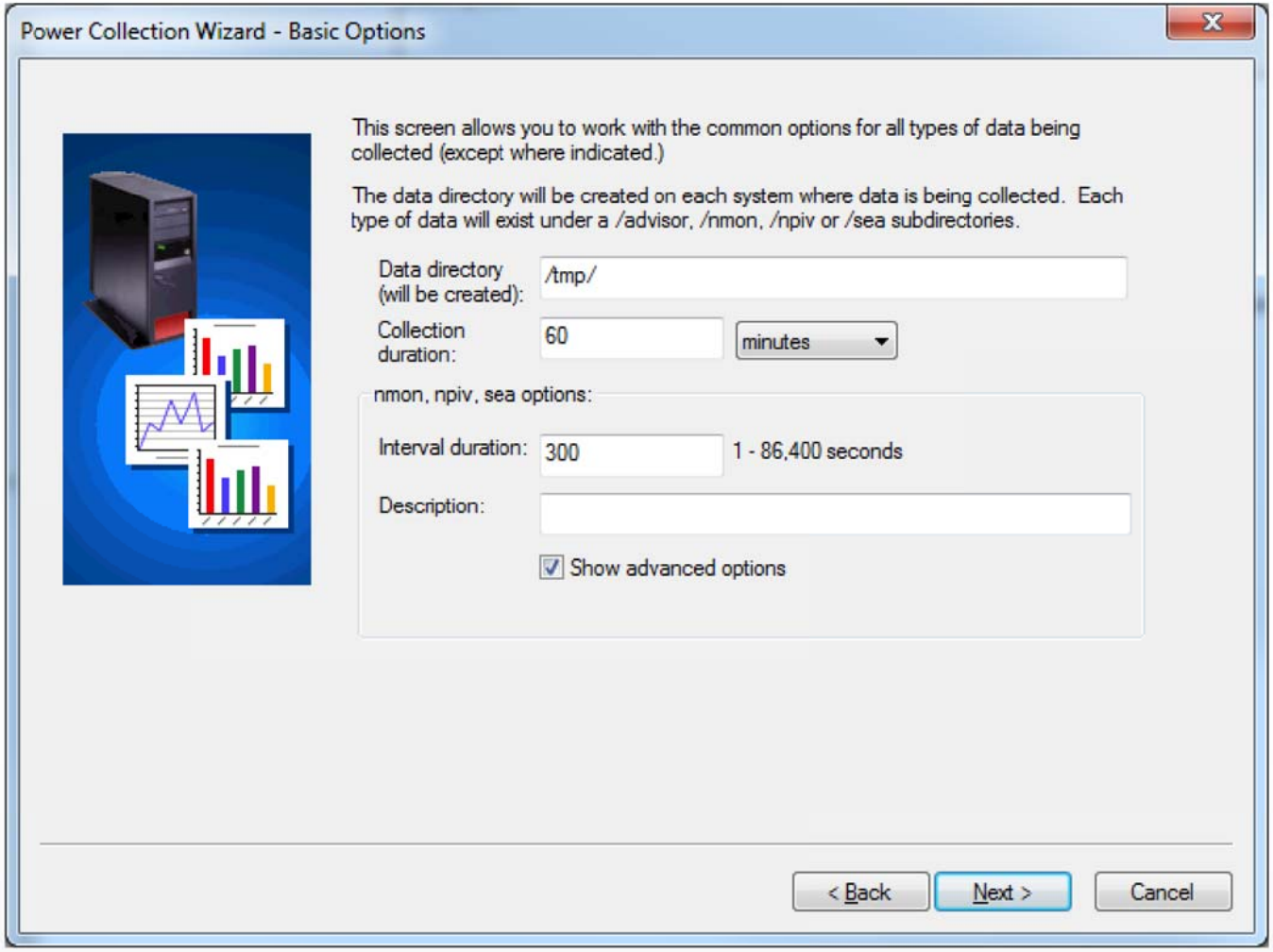
Power Collection Wizard: Welcome → NPIV and/or SEA



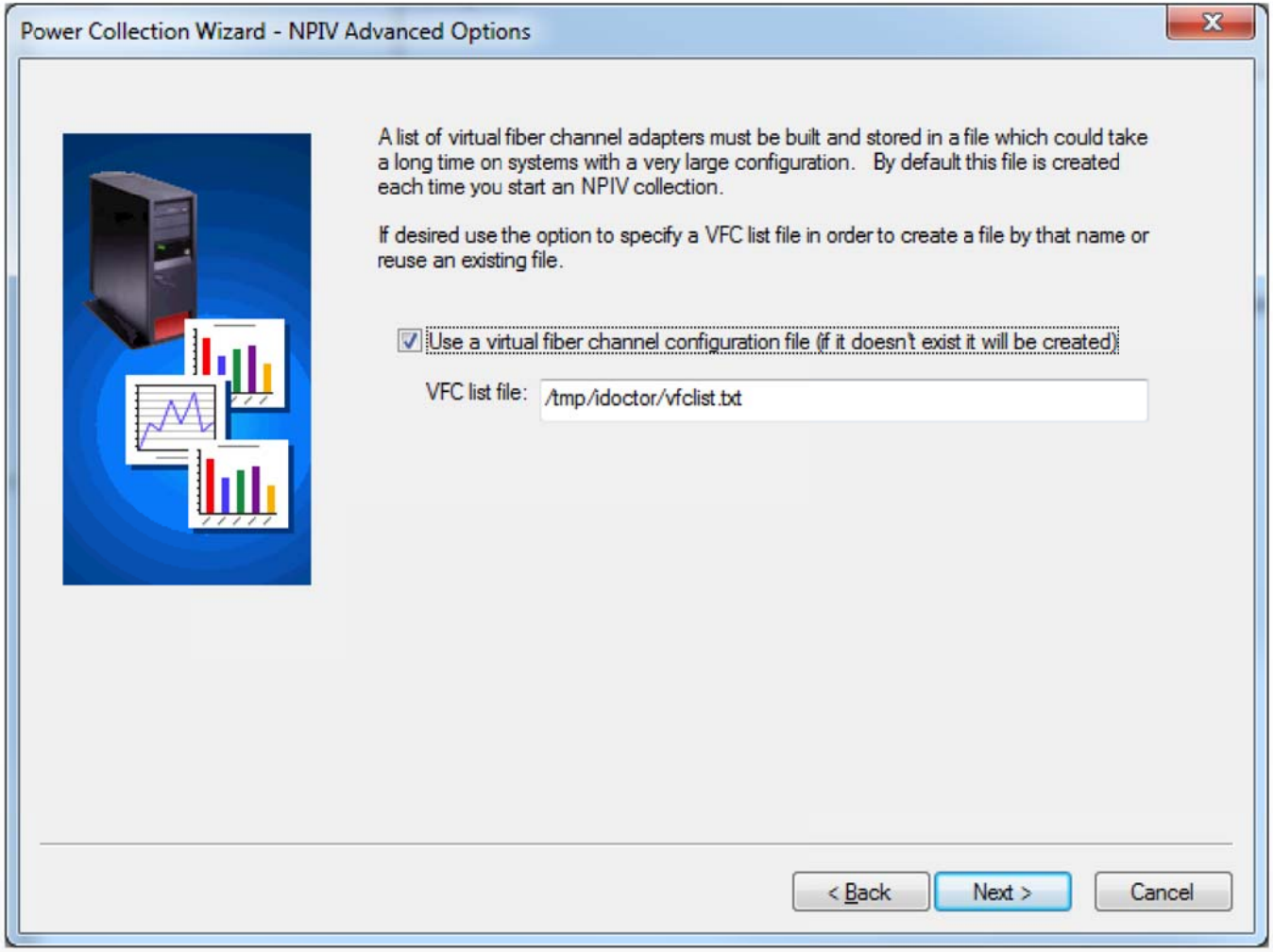
Power Collection Wizard: Connections → NPIV/SEA



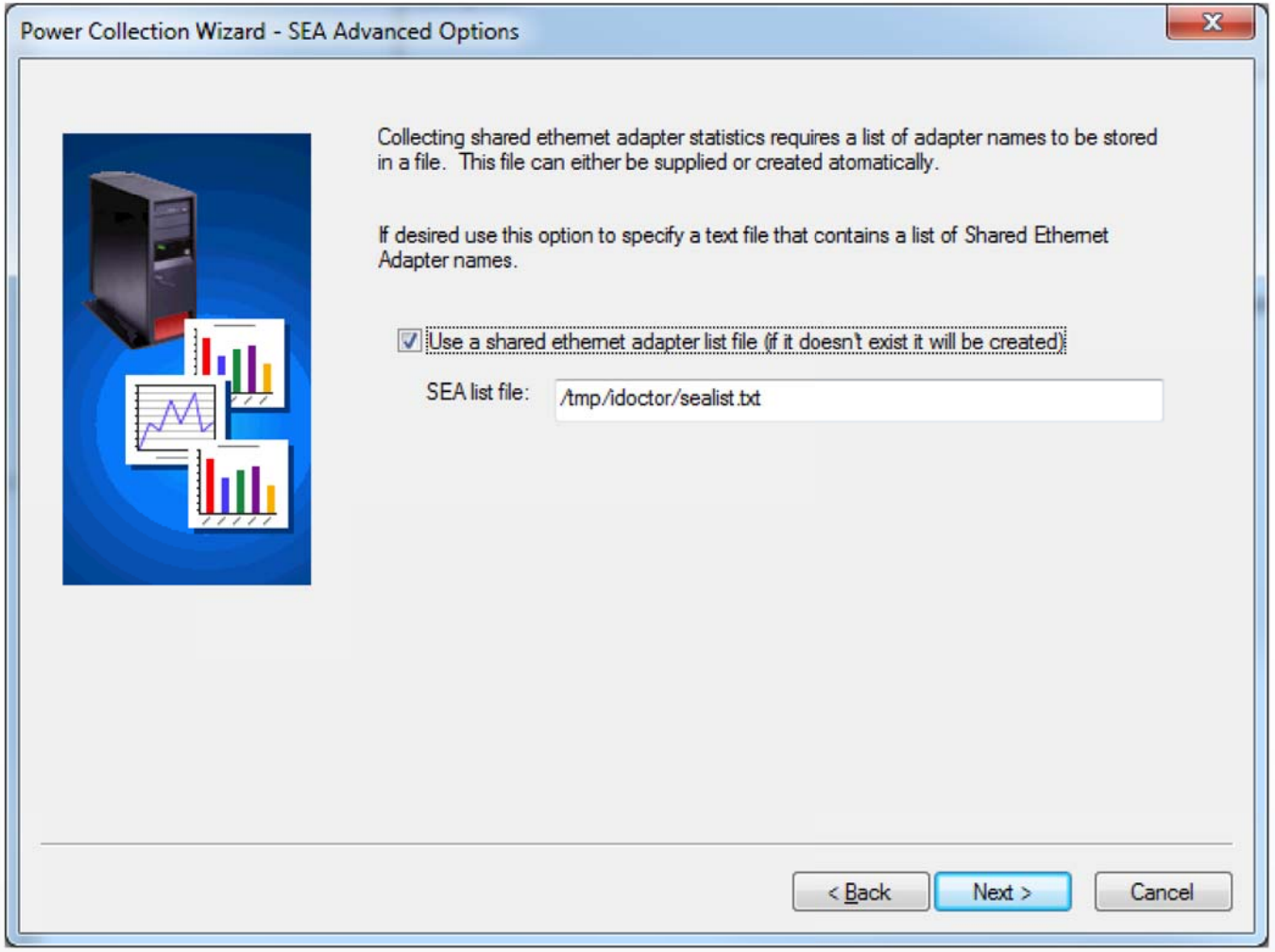
Power Collection Wizard: Basic Options → NPIV/SEA



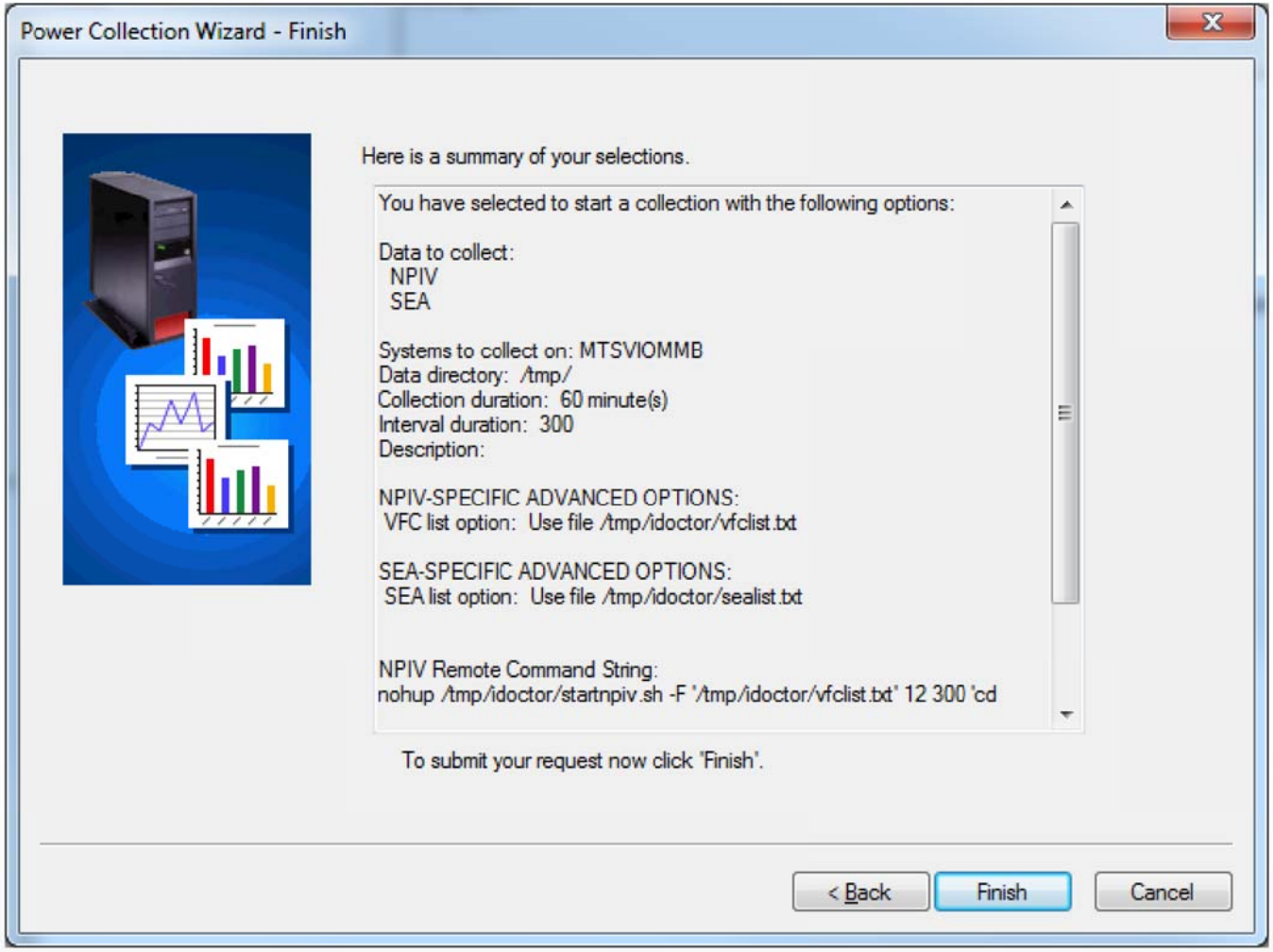
Power Collection Wizard: NPIV Advanced Options



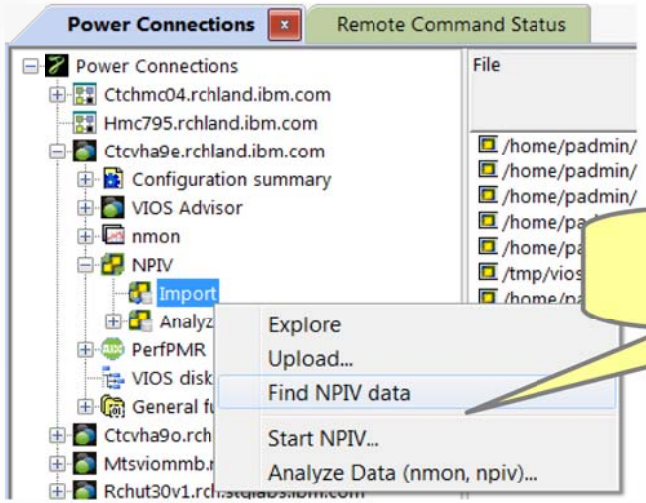
Power Collection Wizard: SEA Advanced Options



Power Collection Wizard: Finish → NPIV/SEA



Find NPIV data...

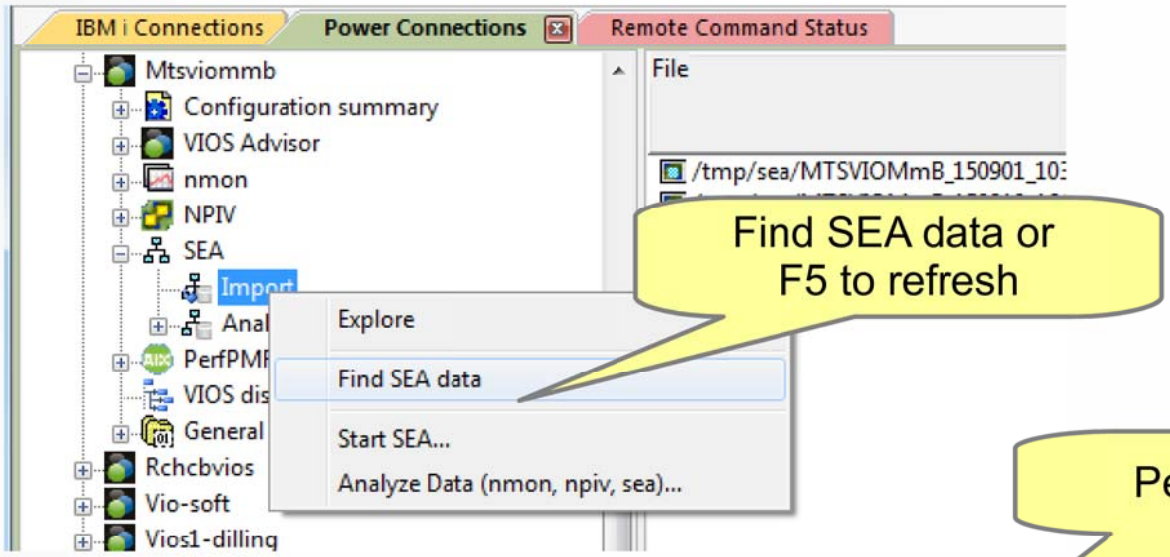


Find NPIV data or F5 to refresh

Percent Complete

File	Percent complete	Location	Partition collected on	Time	Snapsho...	Interval duration (seconds)
/home/padmin/fc_npiv.2015-04-14-14.56.35.000000.npiv	100.00	ctcvha9e	ctcvha9e	2015-04-14-14.56.35.000000	12	5
/home/padmin/fc_npiv.2015-04-14-15.01.51.000000.npiv	100.00	ctcvha9e	ctcvha9e	2015-04-14-15.01.51.000000	300	1
/home/padmin/fc_npiv.2015-04-14-15.04.33.000000.npiv	100.00	ctcvha9e	ctcvha9e	2015-04-14-15.04.33.000000	5	60
/home/padmin/fc_npiv.2015-04-14-15.08.33.000000.npiv	100.00	ctcvha9e	ctcvha9e	2015-04-14-15.08.33.000000	5	60
/home/padmin/fc_npiv.2015-04-14-15.22.13.000000.npiv	100.00	ctcvha9e	ctcvha9e	2015-04-14-15.22.13.000000	5	60
/tmp/vios_investigator/npiv/fc_npiv.2015-04-18-17.00.00.000000.npiv	23.08	ctcvha9e	ctcvha9e	2015-04-18-17.00.00.000000	13	300
/home/padmin/fc_npiv.2015-04-18-17.12.32.000000.npiv	8.33	ctcvha9e	ctcvha9e	2015-04-18-17.12.32.000000	12	300

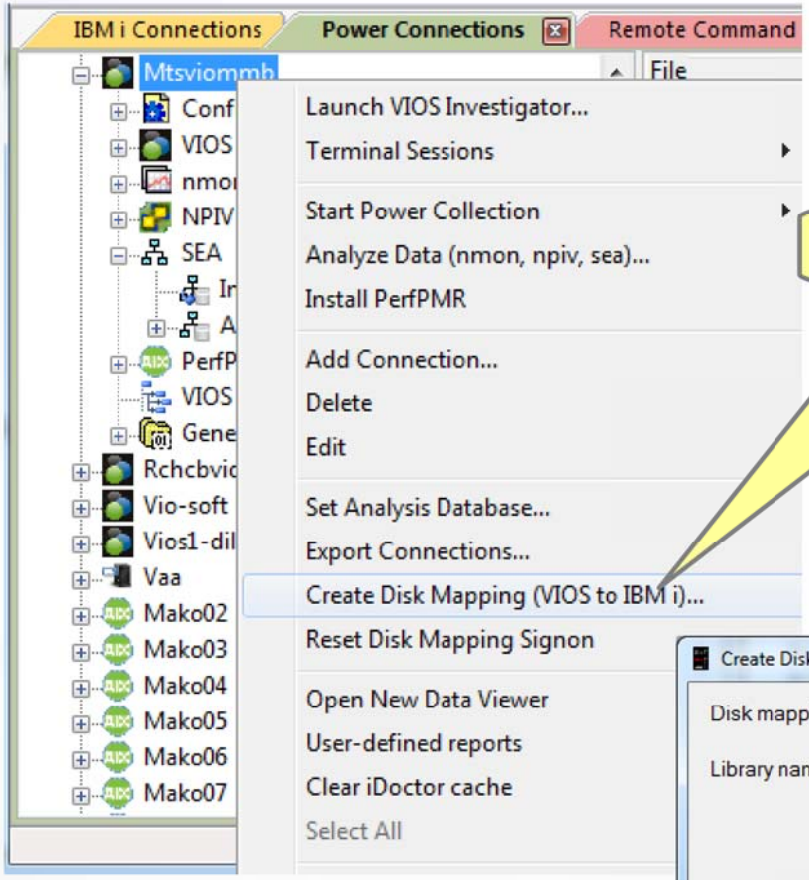
Find SEA data...



Percent Complete

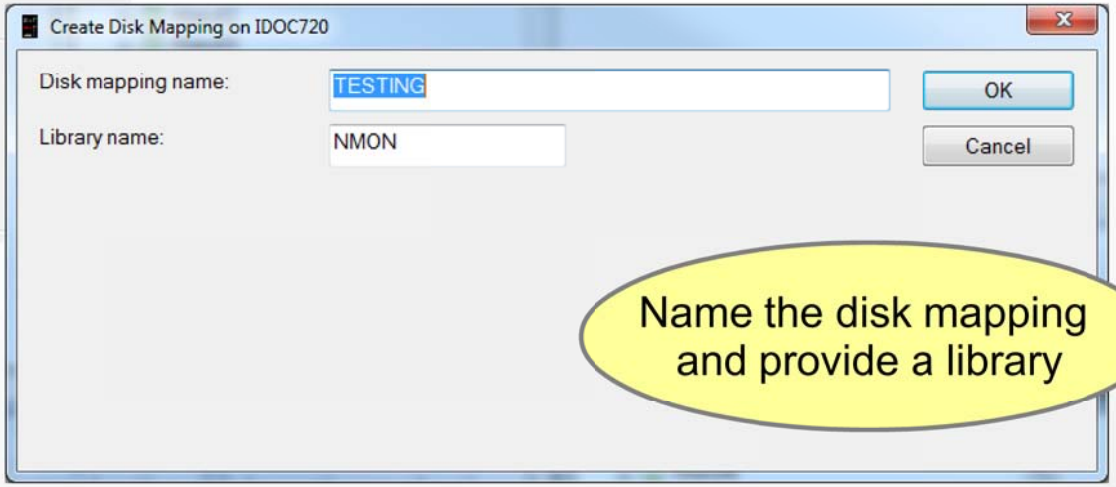
File	Percent complete	Location	Partition collected on	Time	Snapshots	Interval duration (seconds)
/tmp/sea/MTSVIOMmB_150901_103427.sea	100.00	MTSVIOMmB	MTSVIOMmB	2015-09-01-15.34.27.000000	5	1
/tmp/sea/MTSVIOMmB_150910_164549.sea	100.00	MTSVIOMmB	MTSVIOMmB	2015-09-10-21.45.49.000000	720	5
/tmp/sea/MTSVIOMmB_150911_123437.sea	100.00	MTSVIOMmB	MTSVIOMmB	2015-09-11-17.34.37.000000	720	5
/tmp/sea/MTSVIOMmB_150911_160732.sea	0.36	MTSVIOMmB	MTSVIOMmB	2015-09-11-21.07.32.000000	3600	1

Create Disk Mapping (VIOS to IBMi)…



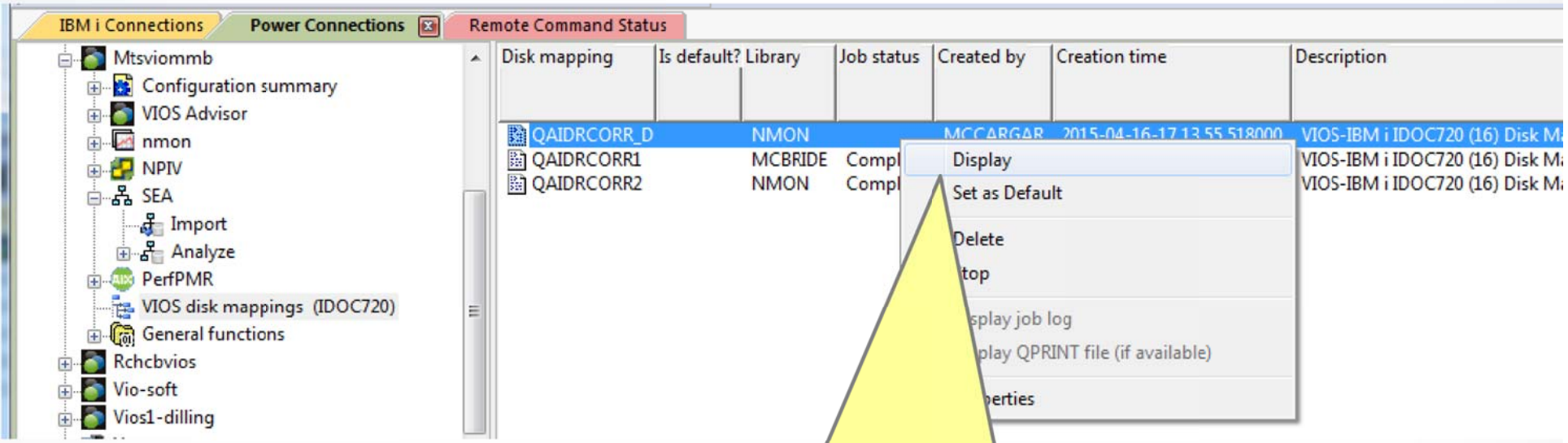
Select Create Disk mapping

The first time you will be prompted for HMC credentials



Name the disk mapping and provide a library

Display Disk Mapping



Select Disk Mapping to display (or double-click to open)

VIOS to IBMi Disk Mapping

System Name	System Serial Number	Partition Name	Partition ID	Device resource Name	ASP number	Disk unit type	Disk unit model	Serial number	Disk unit number	RAID type	Disk protection type	Card Position	VIOS Partition Name	VIOS LPar Id	VIOS Slot	Unit Controller Address	Virtual SCSI Server Adaptor
CTCHA9	10001AP	CTCIHA9V	8	DMP001	1	2107	0A82	50-EEB02B8	1		0	80	etcvha9e	2	80	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP002	1	2107	0A02	50-EEB12B8	3	5	2	80	etcvha9e	2	80	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP003	1	2107	0A02	50-EEB[illegible]8	5	5	2	80	etcvha9e	2	80	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP004	1	2107	0A02	50-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]a9e	2	80	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP005	1	2107	0A82	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]a9e	1	81	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP006	1	2107	0A02	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]a9e	1	81	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP007	1	2107	0A02	50-[illegible]8	5	5	2	81	etcvha9e	1	81	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP008	1	2107	0A02	50-EEB32[illegible]8	7	5	2	81	etcvha9e	1	81	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP040	201	6B22	0050	98-KDD4UWW	4013		0	85	etcvha9e	1	85	1	vhost3
CTCHA9	10001AP	CTCIHA9V	8	DMP041	201	6B22	0050	YP-DGGV76X	4015		0	85	etcvha9e	1	85	2	vhost3
CTCHA9	10001AP	CTCIHA9V	8	DMP042	201	6B22	0050	Z9-ZGNLEUX	4014		0	85	etcvha9e	1	85	3	vhost3
CTCHA9	10001AP	CTCIHA9V	8	DD007	0	6B22	0050	MZ-HEK5EMT	0		0	85	etcvha9e	1	85	4	vhost3
CTCHA9	10001AP	CTCIHA9V	8	DD008	0	6B22	0050	6P-[illegible]7	0		0	85	etcvha9e	1	85	5	vhost3
CTCHA9	10001AP	CTCIHA9V	8	DD009	0	6B22	0050	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]a9e	1	85	6	vhost3
CTCHA9	10001AP	CTCIHA9V	8	DD010	205	6B22	0050	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]a9e	1	85	7	vhost3
CTCHA9	10001AP	CTCIHA9V	8	DD003	205	6B22	0050	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]a9e	1	85	-1	vhost3
CTCHA9	10001AP	CTCIHA9V	8	DD004	0	6B22	0050	6P-JB9[illegible]7	0		0	85	etcvha9e	1	85	-1	vhost3
CTCHA9	10001AP	CTCIHA9V	8	DD005	0	6B22	0050	MZ-HEK5EMT	0		0	85	etcvha9e	1	85	-1	vhost3
CTCHA9	10001AP	CTCIHA9V	8	DD006	0	6B22	0050	RD-9QKP2TG	0		0	85	etcvha9e	1	85	-1	vhost3
CTCHA9	10001AP	CTCIHA9V	8	DMP015	181	2107	0A01	50-8A002B8	4012	5	2	88	etcvha9e	2	88	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP017	181	2107	0A01	50-8A012B8	4009	5	2	88	etcvha9e	2	88	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP019	181	2107	0A01	50-8B002B8	4010	5	2	88	etcvha9e	2	88	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP021	181	2107	0A01	50-8B012B8	4011	5	2	88	etcvha9e	2	88	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP016	181	2107	0A01	50-8A002B8	4012	5	2	89	etcvha9e	1	89	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP018	181	2107	0A01	50-8A012B8	4009	5	2	89	etcvha9e	1	89	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP020	181	2107	0A01	50-8B002B8	4010	5	2	89	etcvha9e	1	89	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP022	181	2107	0A01	50-8B012B8	4011	5	2	89	etcvha9e	1	89	0	
CTCHA9	10001AP	CTCIHA9V	8	DMP037	201	6B22	0050	98-KDD4UWW	4013		0	84	etcvha9e	2	84	1	vhost6
CTCHA9	10001AP	CTCIHA9V	8	DMP038	201	6B22	0050	YP-DGGV76X	4015		0	84	etcvha9e	2	84	2	vhost6
CTCHA9	10001AP	CTCIHA9V	8	DMP039	201	6B22	0050	Z9-ZGNLEUX	4014		0	84	etcvha9e	2	84	3	vhost6
CTCHA9	10001AP	CTCIHA9V	8	DD001	203	6B22	0050	SP-XRF7WY5	4037		0	84	etcvha9e	2	84	4	vhost6
CTCHA9	10001AP	CTCIHA9V	8	DD002	204	6B22	0050	DU-7TRGJ2S	4038		0	84	etcvha9e	2	84	5	vhost6

NPIV

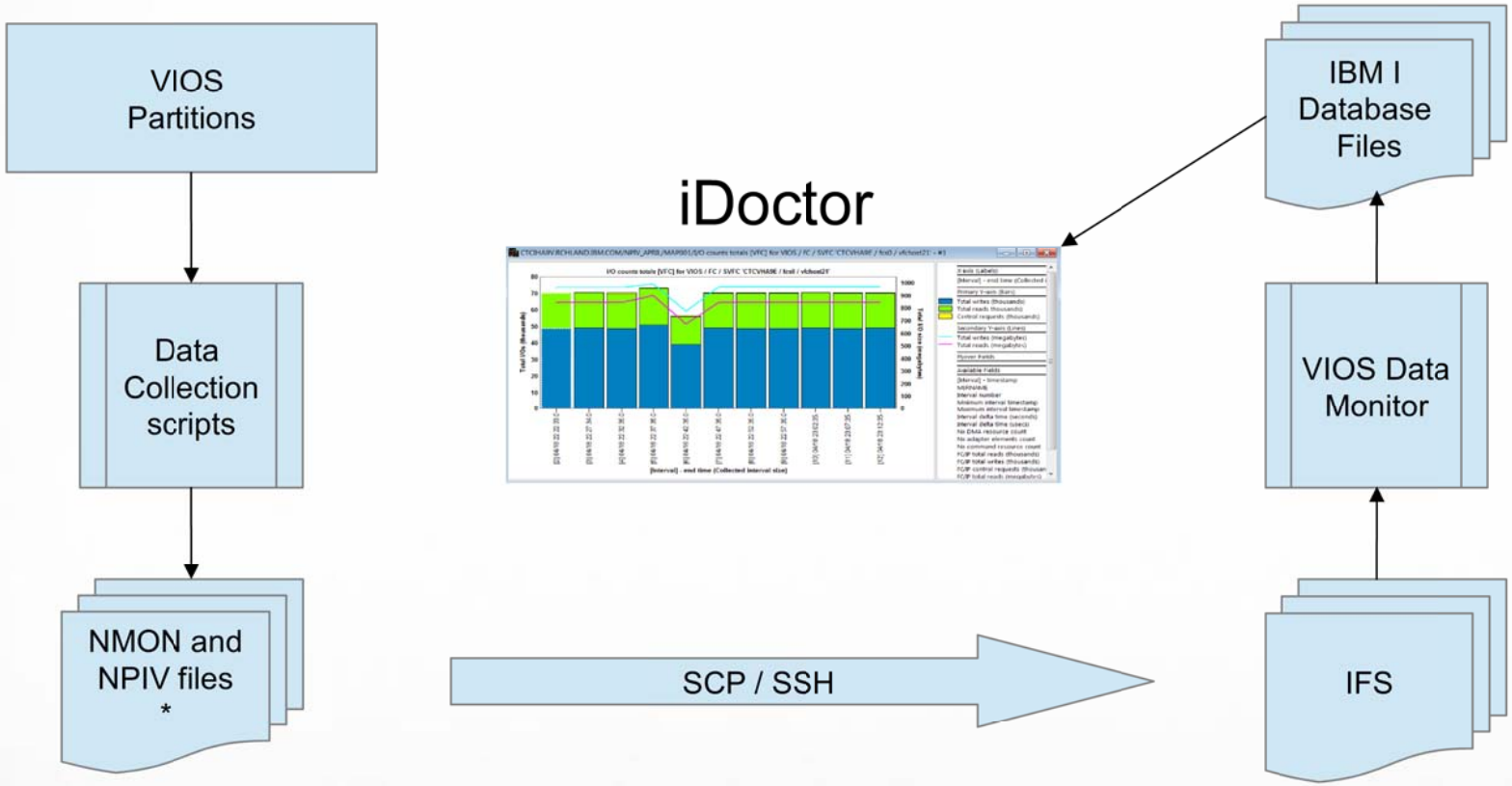
VSCSI

VIOS to IBMi Disk Mapping

Device resource Name		Virtual Targe...	Virtual Target Backing Device	Harddisk Node Name	Harddisk Logical Unit Identifier	Unique Id	Client VFC Name	Server VFC Name	VFC WWPN	VFC Status	FC Name
DMP001	⟺						DC01	vfchost9	c0507600e4e60024	Active	fcs0
DMP002							DC01	vfchost9	c0507600e4e60024	Active	fcs0
DMP003							DC01	vfchost9	c0507600e4e60024	Active	fcs0
DMP004							DC01	vfchost9	c0507600e4e60024	Active	fcs0
DMP005	⟺						DC02	vfchost5	c0507600e4e60026	Active	fcs0
DMP006							DC02	vfchost5	c0507600e4e60026	Active	fcs0
DMP007							DC02	vfchost5	c0507600e4e60026	Active	fcs0
DMP008							DC02	vfchost5	c0507600e4e60026	Active	fcs0
DMP040		ha9v_ha7k1	hdisk6	5005>	0008000000>	33213>					
DMP041	⟺	ha9v_ha7k2	hdisk11	5005>	0009000000>	33213>					
DMP042		ha9v_ha7k3	hdisk12	5005>	000B000000>	33213>					
DD007		vtscsi18	hdisk34	5005>	0019000000>	33213>					
DD008		vtscsi19	hdisk35	5005>	001A000000>	33213>					
DD009		vtscsi20	hdisk36	5005>	001B000000>	33213>					
DD010	⟺	vtscsi21	hdisk37	5005>	001C000000>	33213>					
DD003		HSCL2970 >									
DD004		HSCL2970 >									
DD005		HSCL2970 >									
DD006		HSCL2970 >									
DMP015	⟺						DC13	vfchost10	c0507600e4e60052	Active	fcs2
DMP017							DC13	vfchost10	c0507600e4e60052	Active	fcs2
DMP019							DC13	vfchost10	c0507600e4e60052	Active	fcs2
DMP021							DC13	vfchost10	c0507600e4e60052	Active	fcs2
DMP016							DC14	vfchost17	c0507600e4e60054	Active	fcs2
DMP018	⟺						DC14	vfchost17	c0507600e4e60054	Active	fcs2
DMP020							DC14	vfchost17	c0507600e4e60054	Active	fcs2
DMP022							DC14	vfchost17	c0507600e4e60054	Active	fcs2
DMP037		ha9v_ha7k	hdisk12	5005>	0008000000>	33213>					
DMP038		ha9v_ha7k2	hdisk13	5005>	0009000000>	33213>					
DMP039	⟺	ha9v_ha7k3	hdisk14	5005>	000B000000>	33213>					
DD001		vtscsi25	hdisk35	5005>	0018000000>	33213>					
DD002		vtscsi26	hdisk41	5005>	001E000000>	33213>					

VIOS Monitor

VIOS Monitor



* SEA files not currently supported

VIOS Partition Setup

- Install iDoctor data collection and scp scripts
- Create entrees in the cron scheduler for NMON and NPIV Data Collection
- Create entrees in the cron scheduler for SCP of NMON and NPIV files
- See iDoctor VIOS Monitor setup document for details
  - http://public.dhe.ibm.com/services/us/igsc/idoctor/idoctormonitor.pdf

IBMi Setup

- Configure monitor with source IFS directories and target IBMi libraries
  - Run the QIDRGUI/ADDMONDIR command once per VIOS / data type
  - Source directory
  - Target library
  - IFS retention period
  - Database file retention period
  - Run the QIDRGUI/STRDIRMON command to start the monitor
  - Additional setup instructions to be provided when the monitor is complete
  - ENDDIRMON and CHGMONDIR or RMVMONDIR
  - Additional GUI automation planned for future release.

- Example adding entry to monitor directory for NMON and NPIV files from VIOS1

```
                    Add NMON/NPIV Monitored Dir (ADDMONDIR)

Type choices, press Enter.

Directory to monitor . . . . . '/home/myuser/vios1'
                                                                    *NMON, *NPIV, *ALL
File types to monitor . . . . . *all           *NMON, *NPIV, *ALL
Prefix of IFS files . . . . . vios1          Character value
Target library . . . . . vios1perf     Character value
Target prefix . . . . . vios1          Character value
Days to retain IFS files . . . . 2             0-9999
Days to retain DB files . . . . 30            0-9999
Map files . . . . . _
```

- Example adding entry to monitor directory for NMON files only from VIOS1

```
                 Add NMON/NPIV Monitored Dir (ADDMONDIR)

Type choices, press Enter.

Directory to monitor . . . . . .   '/home/myuser/vios1'

File types to monitor  . . . . .   *nmon          *NMON, *NPIV, *ALL
Prefix of IFS files  . . . . . .   vios1          Character value
Target library . . . . . . . . .   vios1nmon      Character value
Target prefix  . . . . . . . . .   vios1          Character value
Days to retain IFS files . . . .   2              0-9999
Days to retain DB files  . . . .   30             0-9999
Map files  . . . . . . . . . . .
```

- Example adding entry to monitor directory for NPIV files only from VIOS1

```
                    Add NMON/NPIV Monitored Dir (ADDMONDIR)

 Type choices, press Enter.

 Directory to monitor . . . . . .   '/home/myuser/vios1'






 File types to monitor  . . . . .   *npiv         *NMON, *NPIV, *ALL
 Prefix of IFS files  . . . . . .   vios1         Character value
 Target library . . . . . . . . .   vios1npiv     Character value
 Target prefix  . . . . . . . . .   vios1         Character value
 Days to retain IFS files . . . .   2             0-9999
 Days to retain DB files  . . . .   30            0-9999
 Map files  . . . . . . . . . . .
```

- Starting the directory monitor job.

```
                    Start the NMON/NPIV monitor (STRDIRMON)

Type choices, press Enter.

User for submitted job . . . . .   *CURRENT     *CURRENT, USER
```

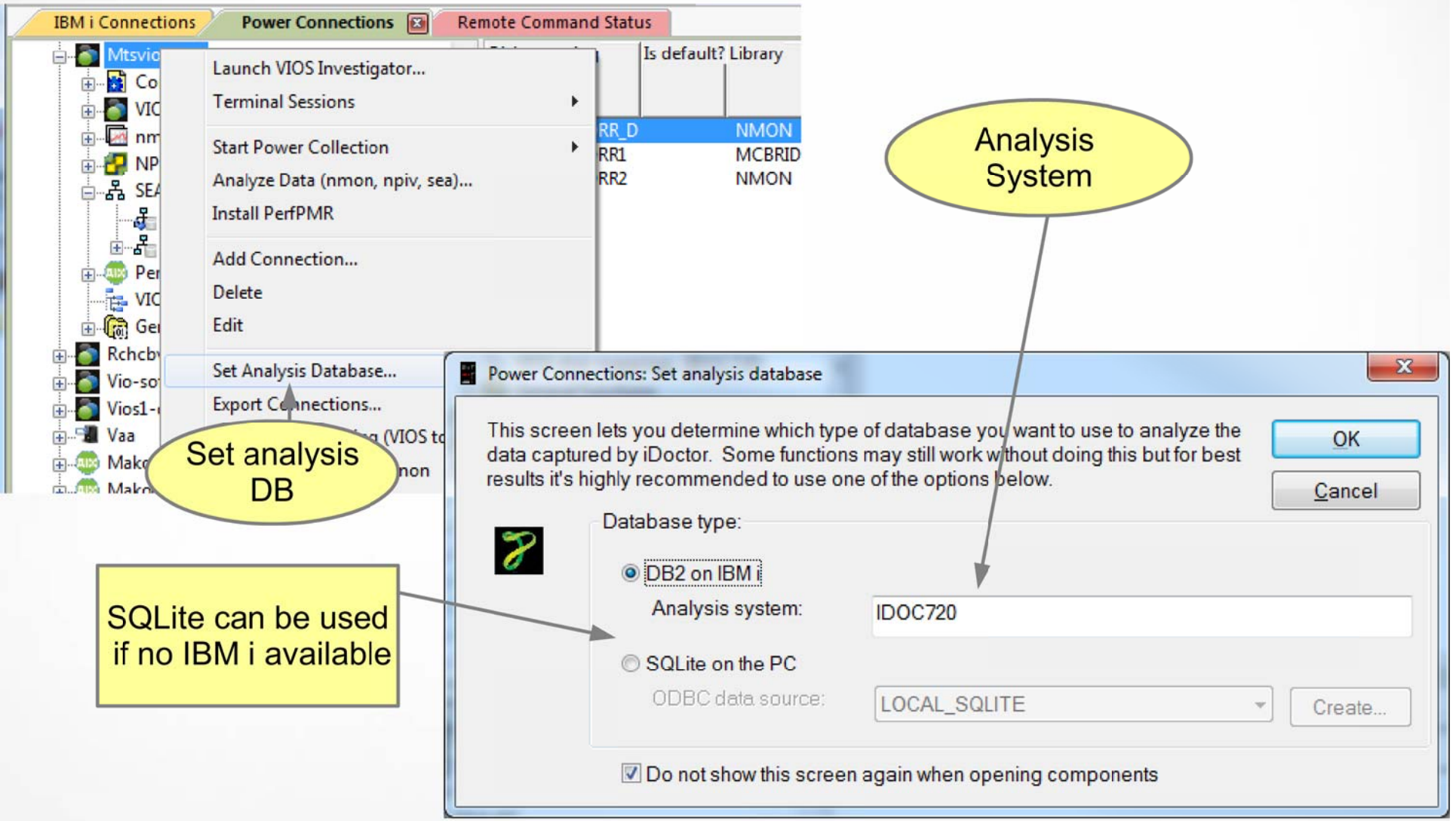
- QIDRDIRMON – Directory Monitor Job.
- Monitor list created from ADDMONDIR command.

```
                          Work with Submitted Jobs                    LPDAC710
                                                          06/23/15  19:55:16
Submitted from . . . . . . . . . :    *JOB

Type options, press Enter.
  2=Change    3=Hold    4=End    5=Work with    6=Release    7=Display message
  8=Work with spooled files


Opt  Job          User        Type      -----Status-----  Function
 _   QIDRDIRMON   BSMENGES    BATCH     ACTIVE            DLY-60
```

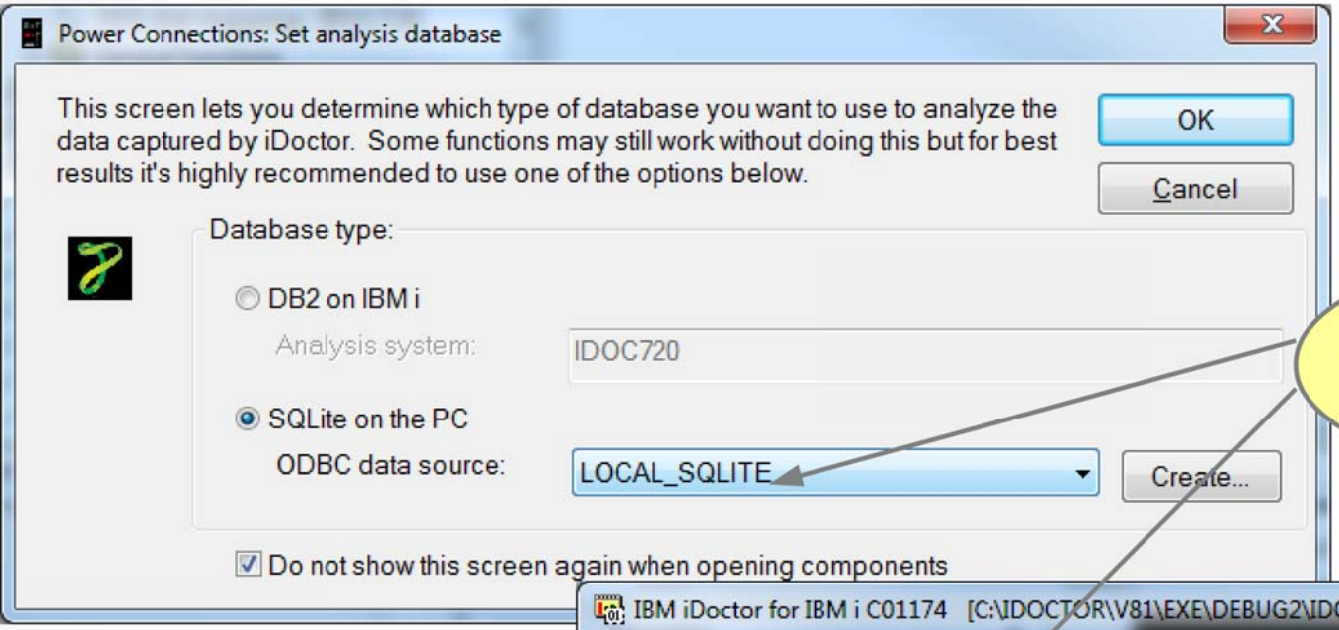
- Ending the directory monitor job.

```
                    End the NMON/NPIV monitor (ENDDIRMON)

Type choices, press Enter.

Ending option  . . . . . .   *DELAY      *DELAY, *IMMED
```

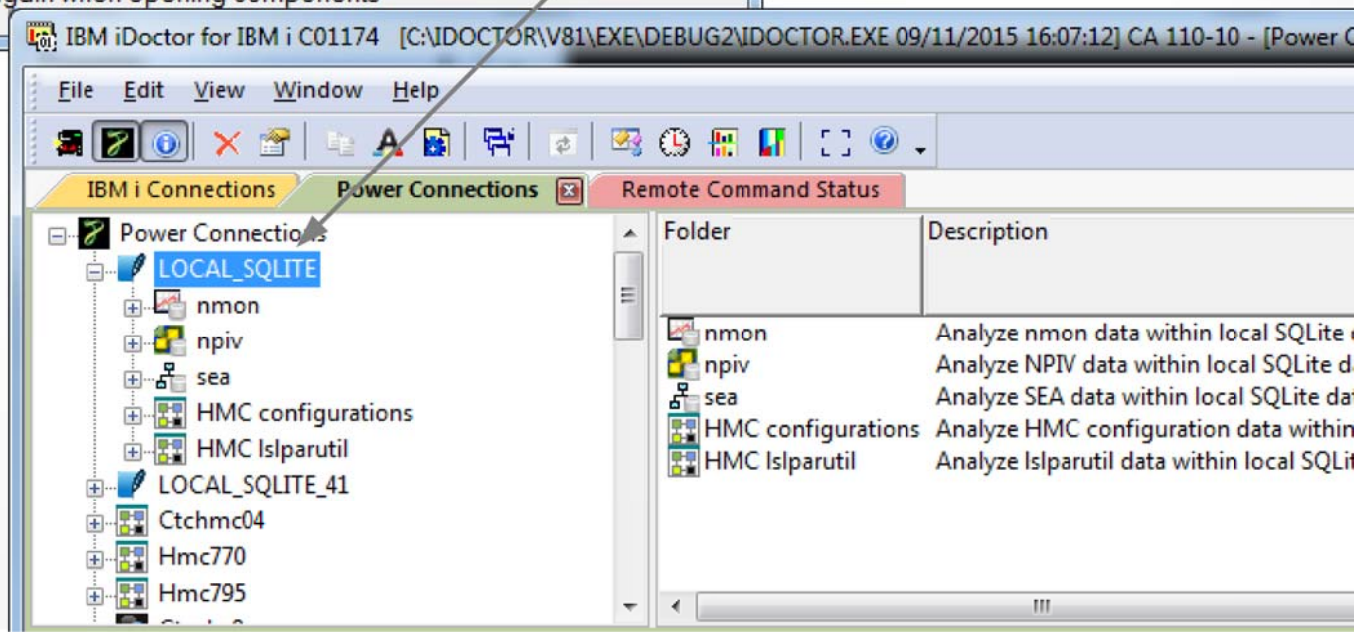
Set Analysis Database (nmon, NPIV, SEA or HMC data)



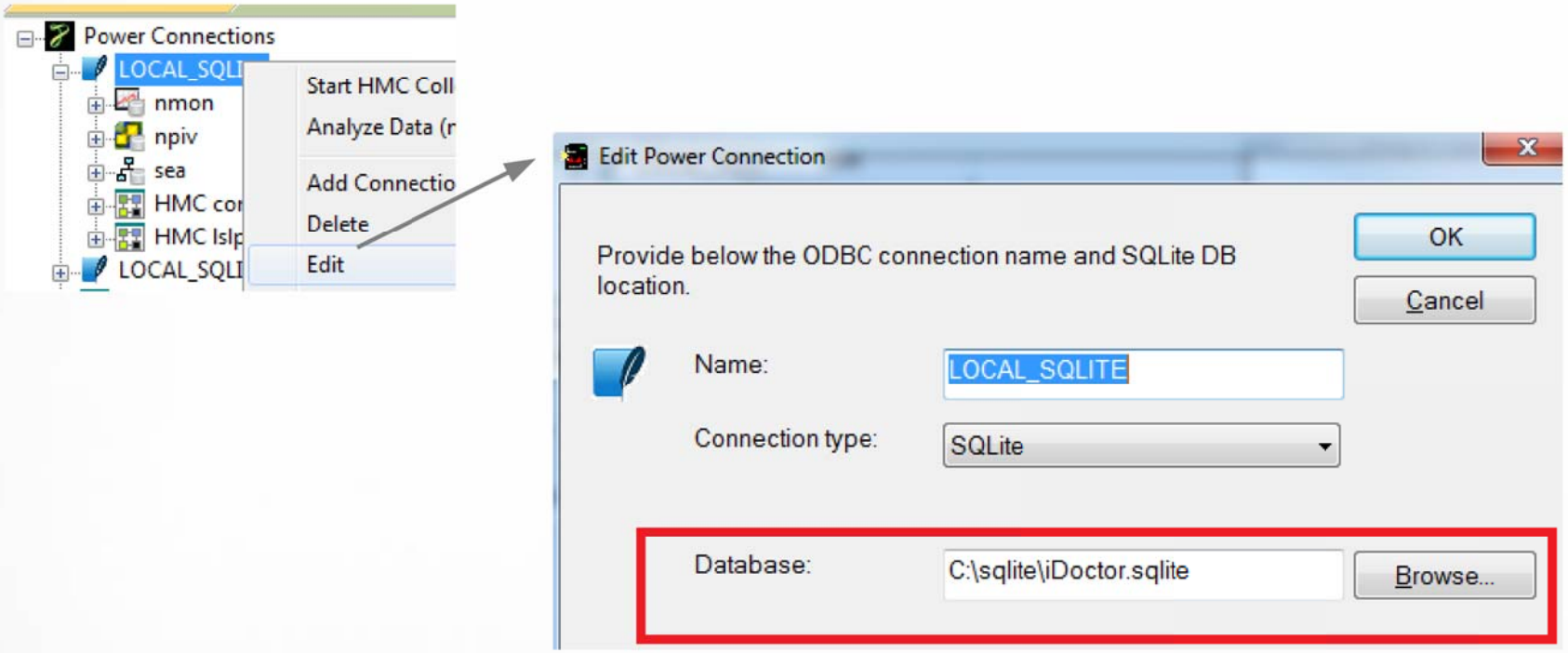
Working with SQLite iDoctor data



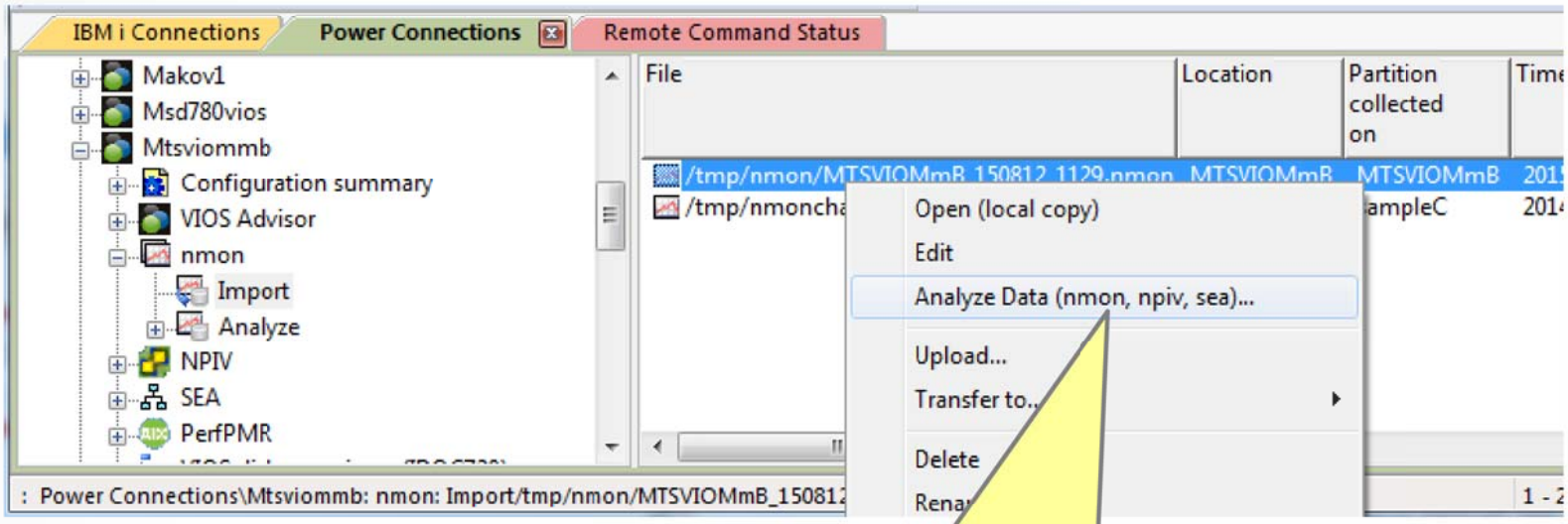
ODBC data source visible under Power Connections



Edit the ODBC connection to see where the file is located

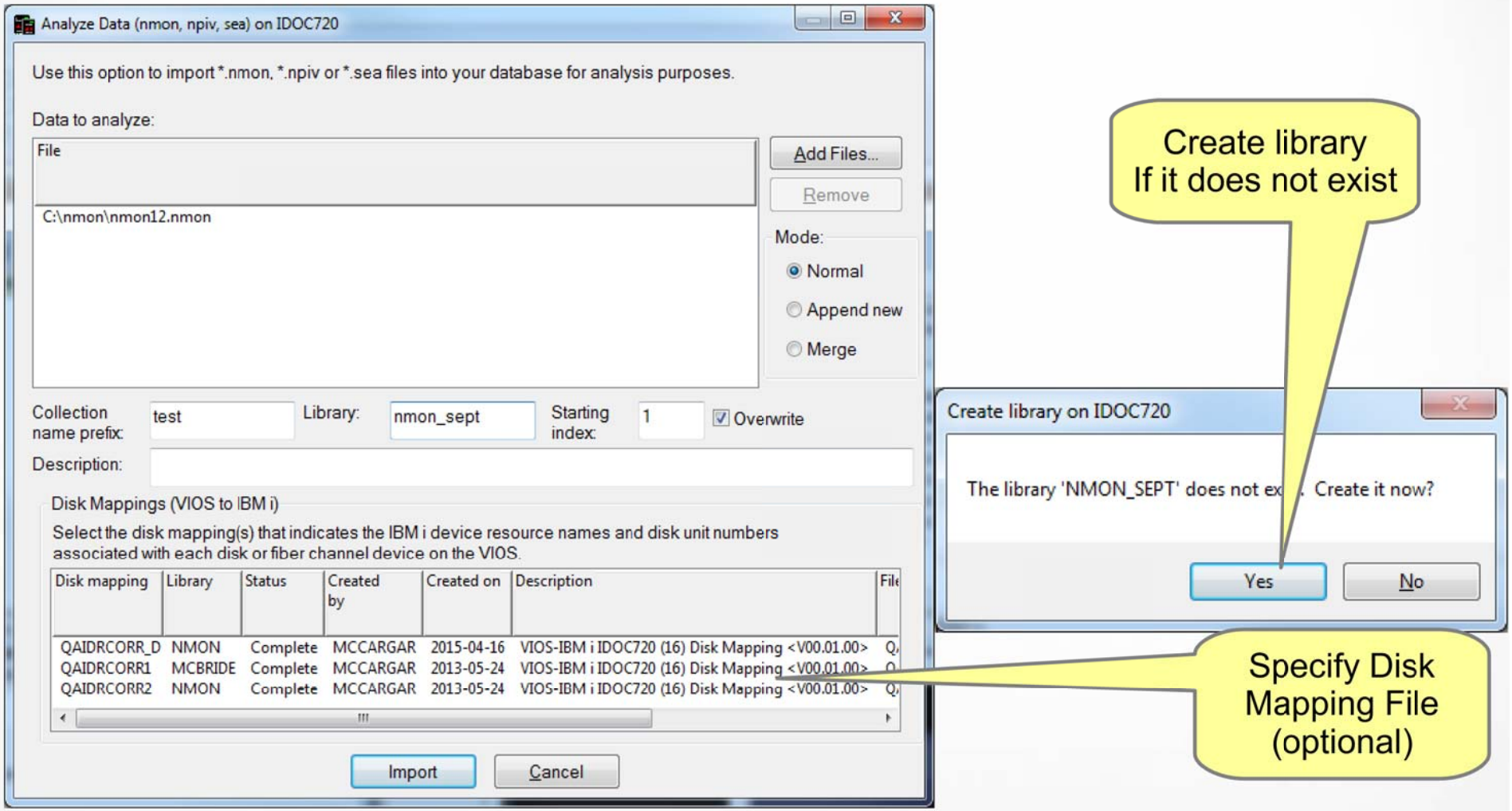


Importing nmon data for analysis

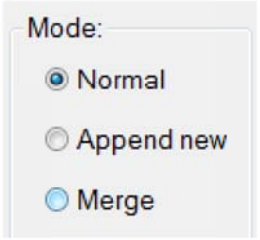


Right click and select Analyze Data

Analyze Data screen



Analyze Data modes



- Normal
  - Creates 1 collection per file
- Append new
  - Use this mode to update an existing collection with the newest data from the same original file.
  - (i.e. If active collection is running and you want to add the latest data.)
- Merge
  - Allows you to combine many files of the same type into a single collection. Can be used to analyze larger time periods, multiple LPARs at once, etc.
  - **Note:** Multiple LPAR graphs are not yet implemented.

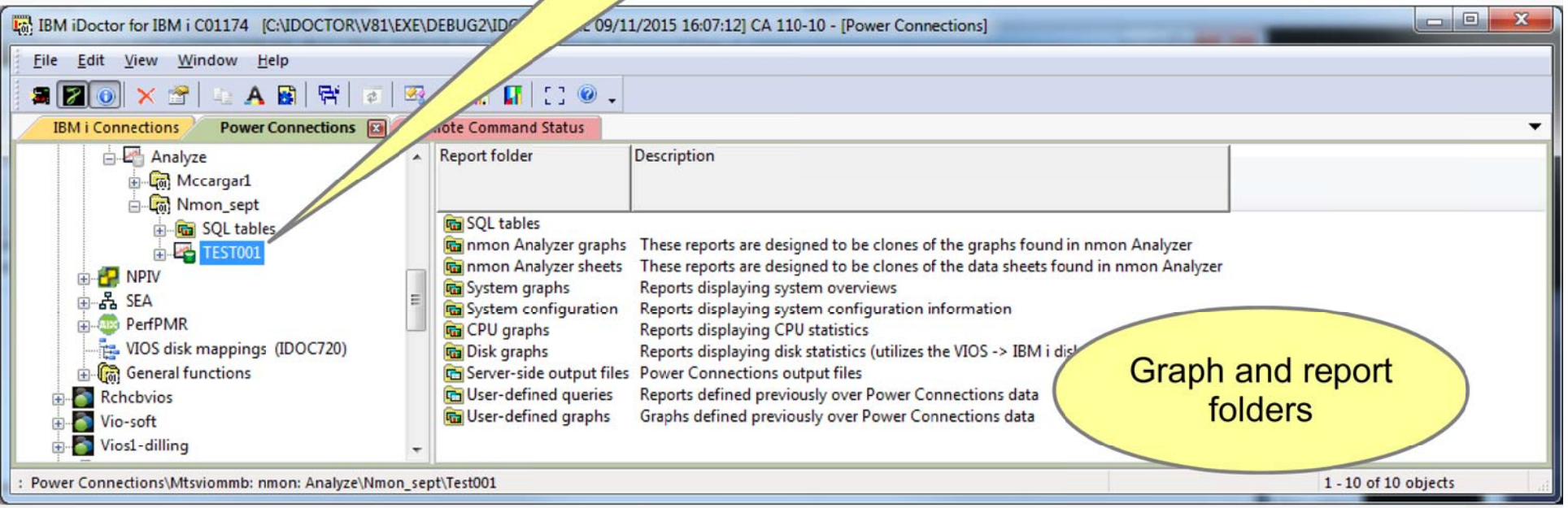
Available nmon graphs and reports

IBM i Connections | Power Connections | Remote Command Status

Time	System	Status	Command
✓ 09/11/15 16:55:37	Idoc720	File sent successfully (.81 seconds)	put C:\nmon\nmon12.nmon /tmp/nmon12.nmon
✓ 09/11/15 16:55:37	Idoc720	Analysis completed successfully (4.04 seconds)	QSYS/RUNSQL SQL('Call qidrgui/QIDRNMCDB2 (''NMON_SEPT'', ''TEST001'', 0, ''/tmp/nmon12.nmon'', '''', ''

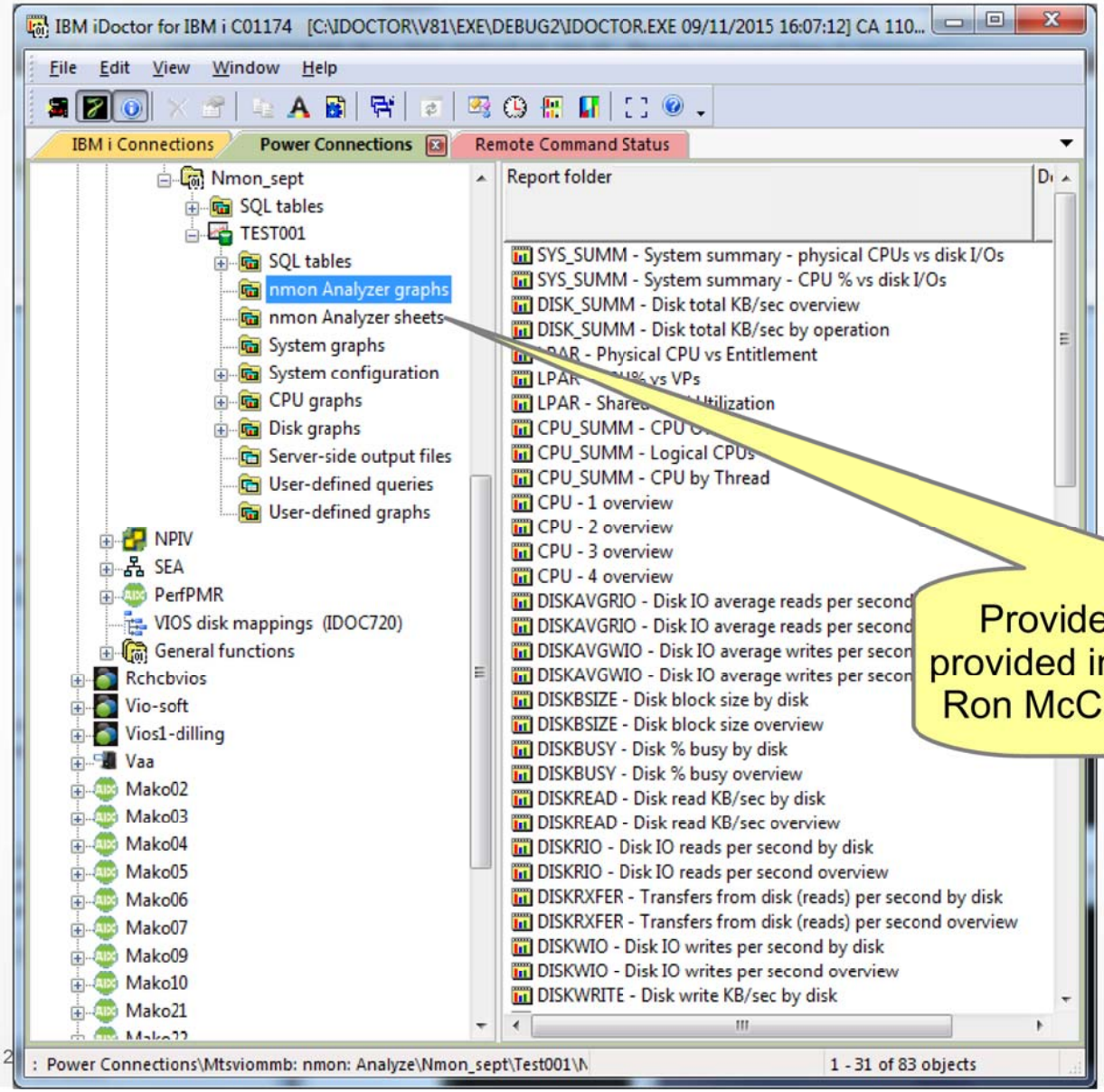
Check remote command Status window for progress

Expand library and Collection

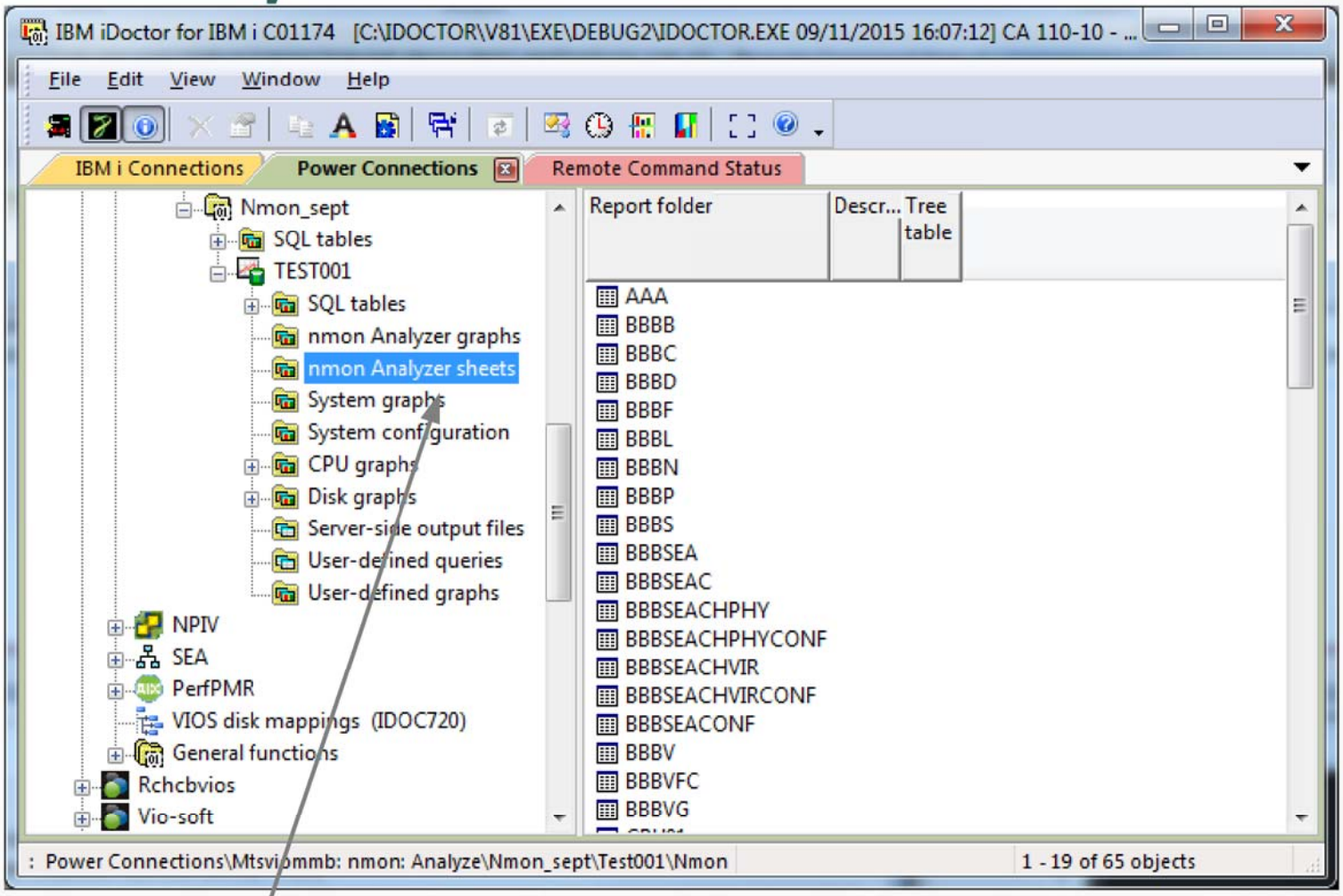


Graph and report folders

nmon → nmon Analyzer graphs

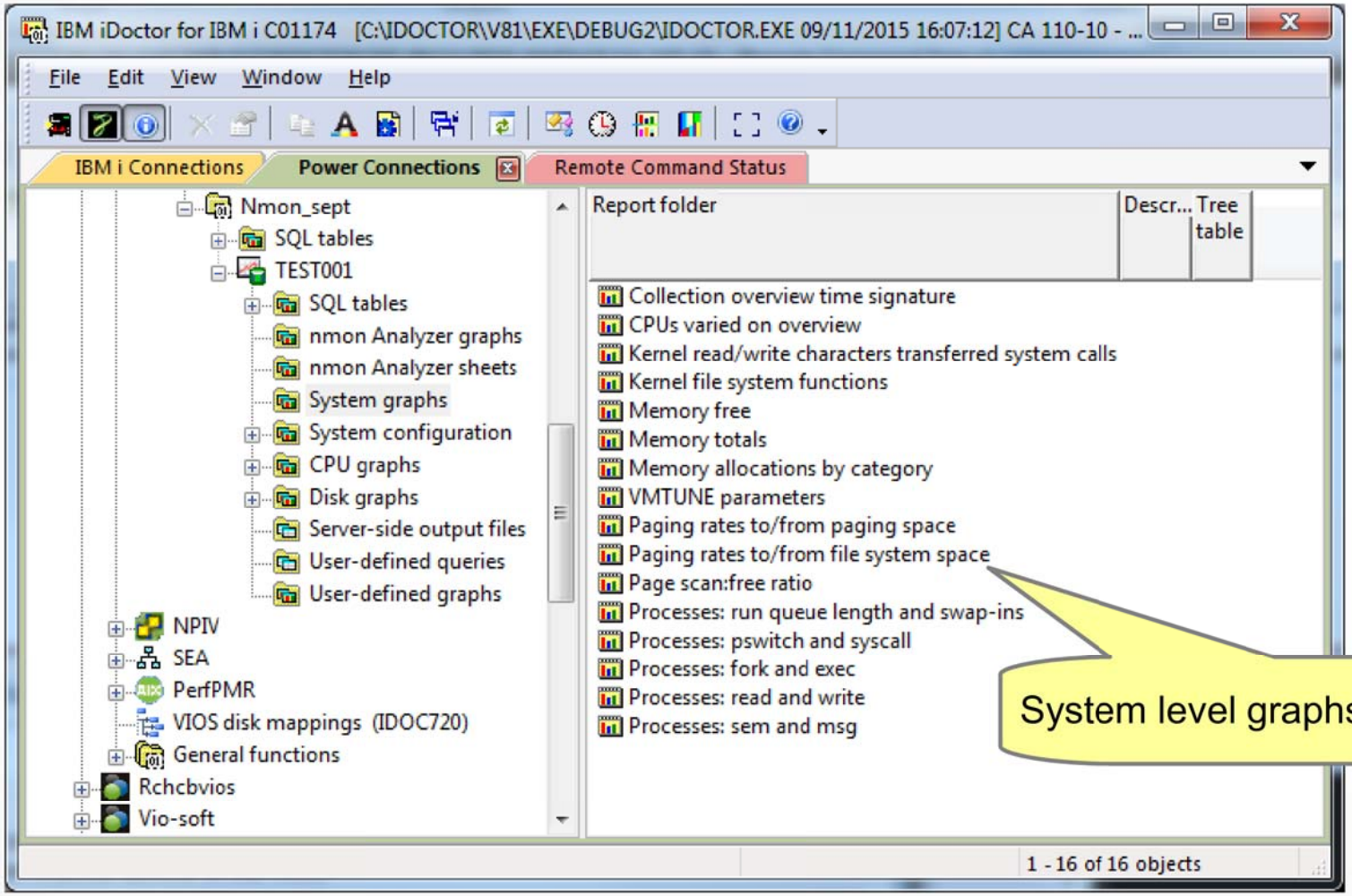


nmon → nmon Analyzer sheets



Similar look and feel as NMON Analyzer spreadsheets

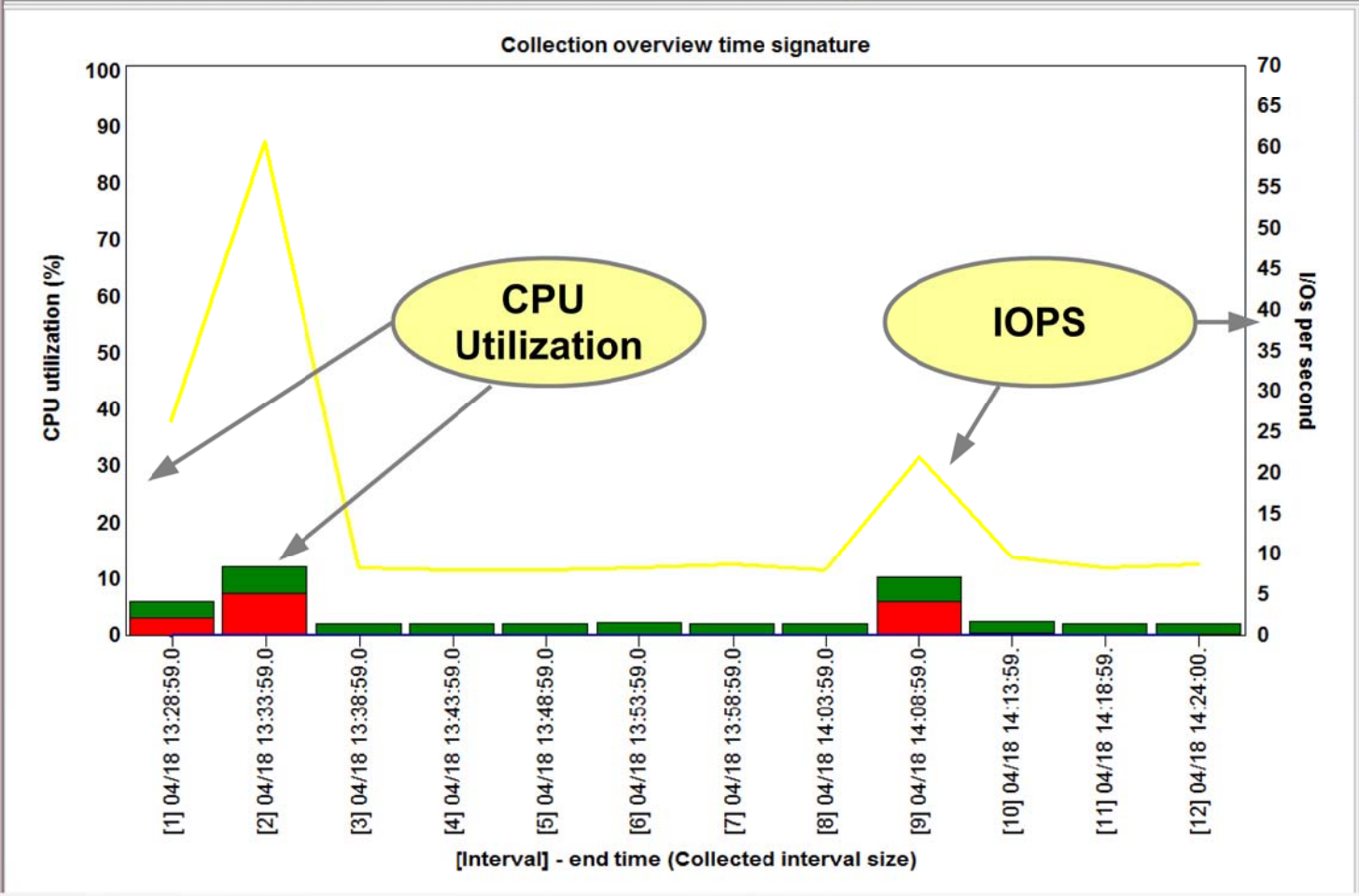
nmon → System Graphs



System level graphs from nmon data

nmon → System Graphs → Collection overview time signature

CTCIHA9V.RCHLAND.IBM.COM/NMON_APRIL/TEST01001/Collection overview time signature - #1



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

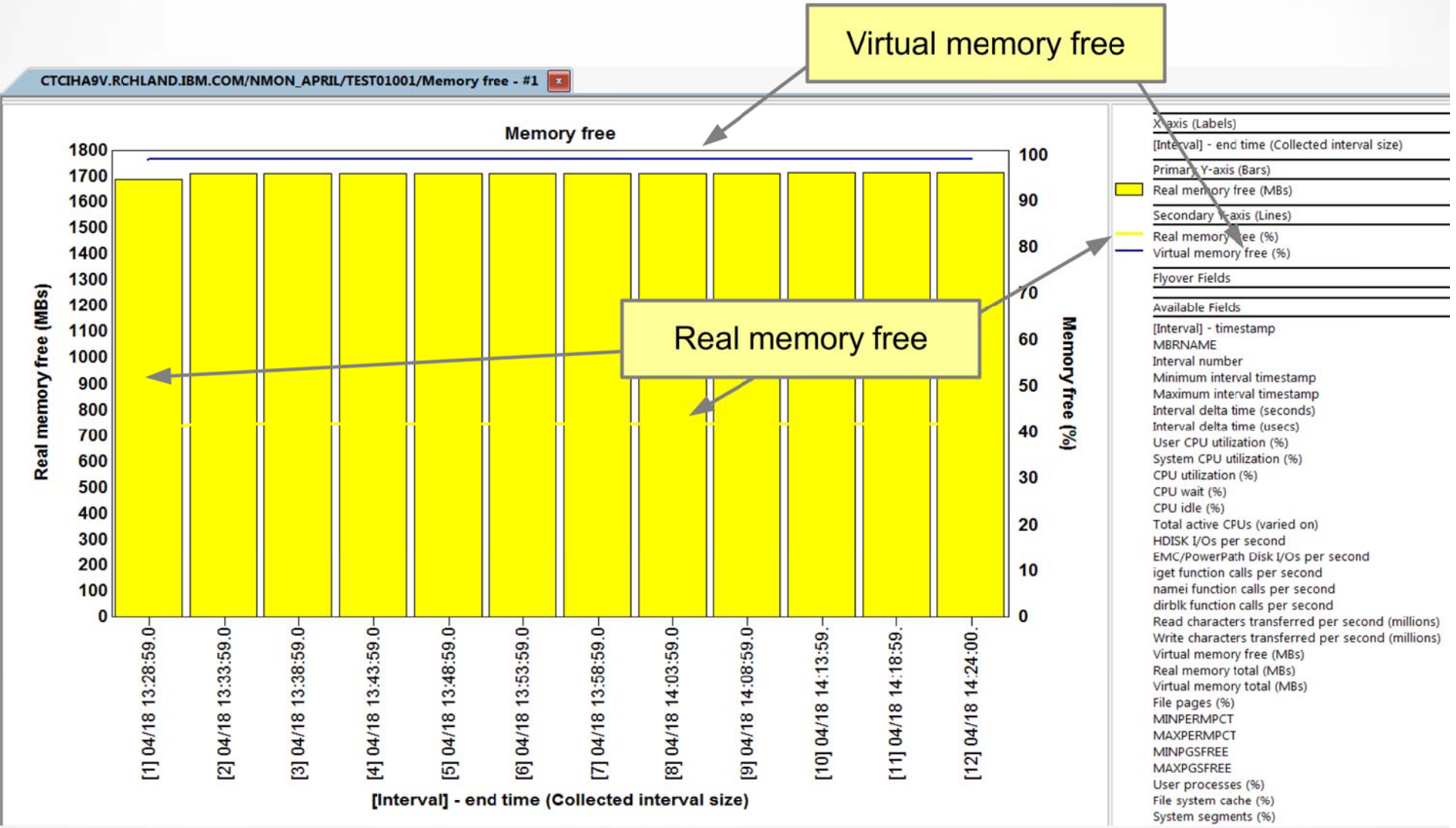
Primary Y-axis (Bars)
User CPU utilization (%)
System CPU utilization (%)

Secondary Y-axis (Lines)
HDISK I/Os per second
EMC/PowerPath Disk I/Os per second

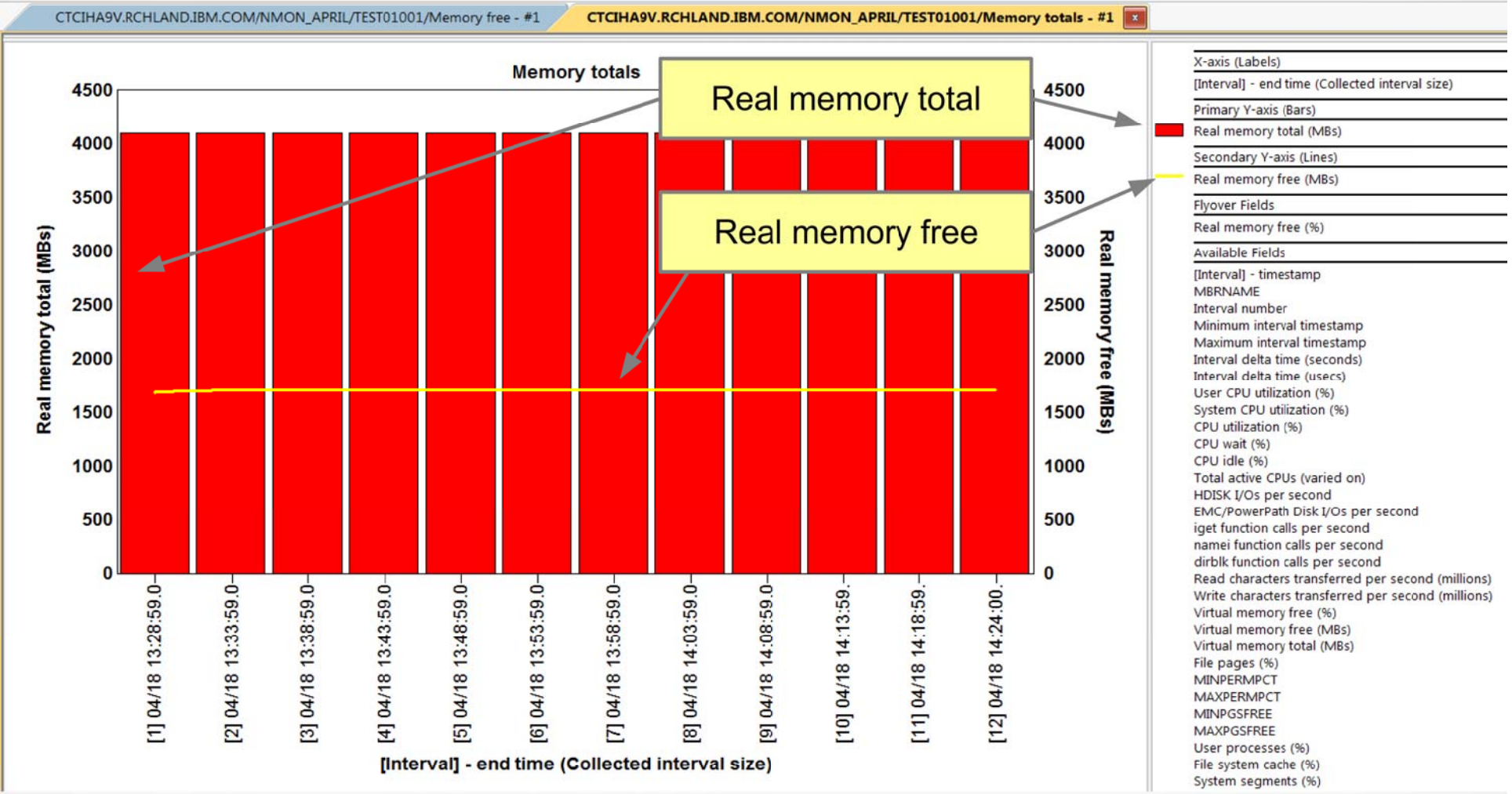
Flyover Fields
Total active CPUs (varied on)

Available Fields
[Interval] - timestamp
MBRNAME
Interval number
Minimum interval timestamp
Maximum interval timestamp
Interval delta time (seconds)
Interval delta time (usecs)
CPU utilization (%)
CPU wait (%)
CPU idle (%)
iget function calls per second
namei function calls per second
dirblk function calls per second
Read characters transferred per second (millions)
Write characters transferred per second (millions)
Real memory free (%)
Virtual memory free (%)
Real memory free (MBs)
Virtual memory free (MBs)
Real memory total (MBs)
Virtual memory total (MBs)
File pages (%)
MINPERMPCT
MAXPERMPCT
MINPGSFREE
MAXPGSFREE
User processes (%)
File system cache (%)
System segments (%)

nmon → System Graphs → Memory free

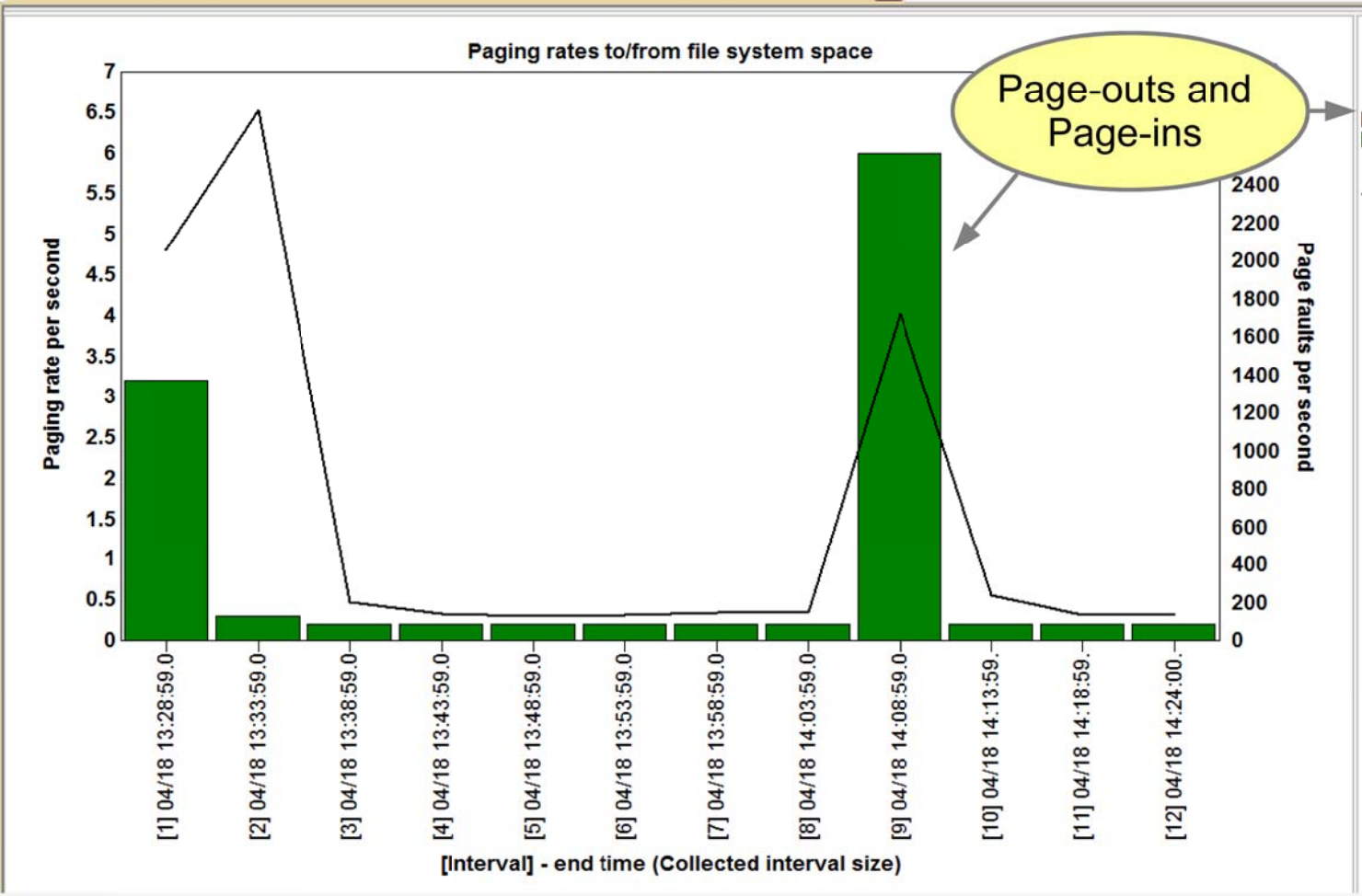


nmon → System Graphs → Memory totals



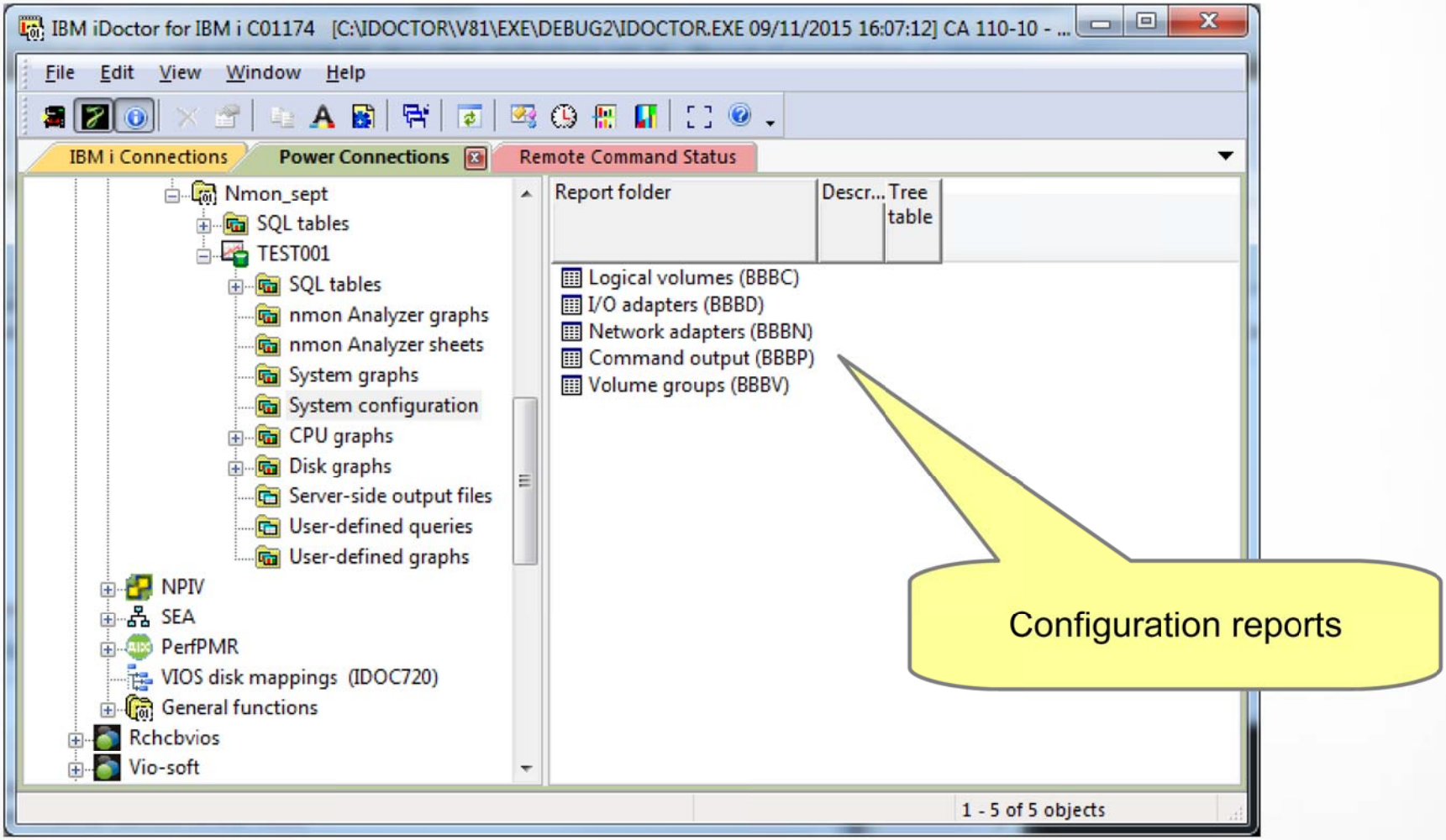
nmon → System Graphs → Paging rates to/from file system space

CTCIHA9V.RCHLAND.IBM.COM/NMON_APRIL/TEST01001/Paging rates to/from file system space - #1

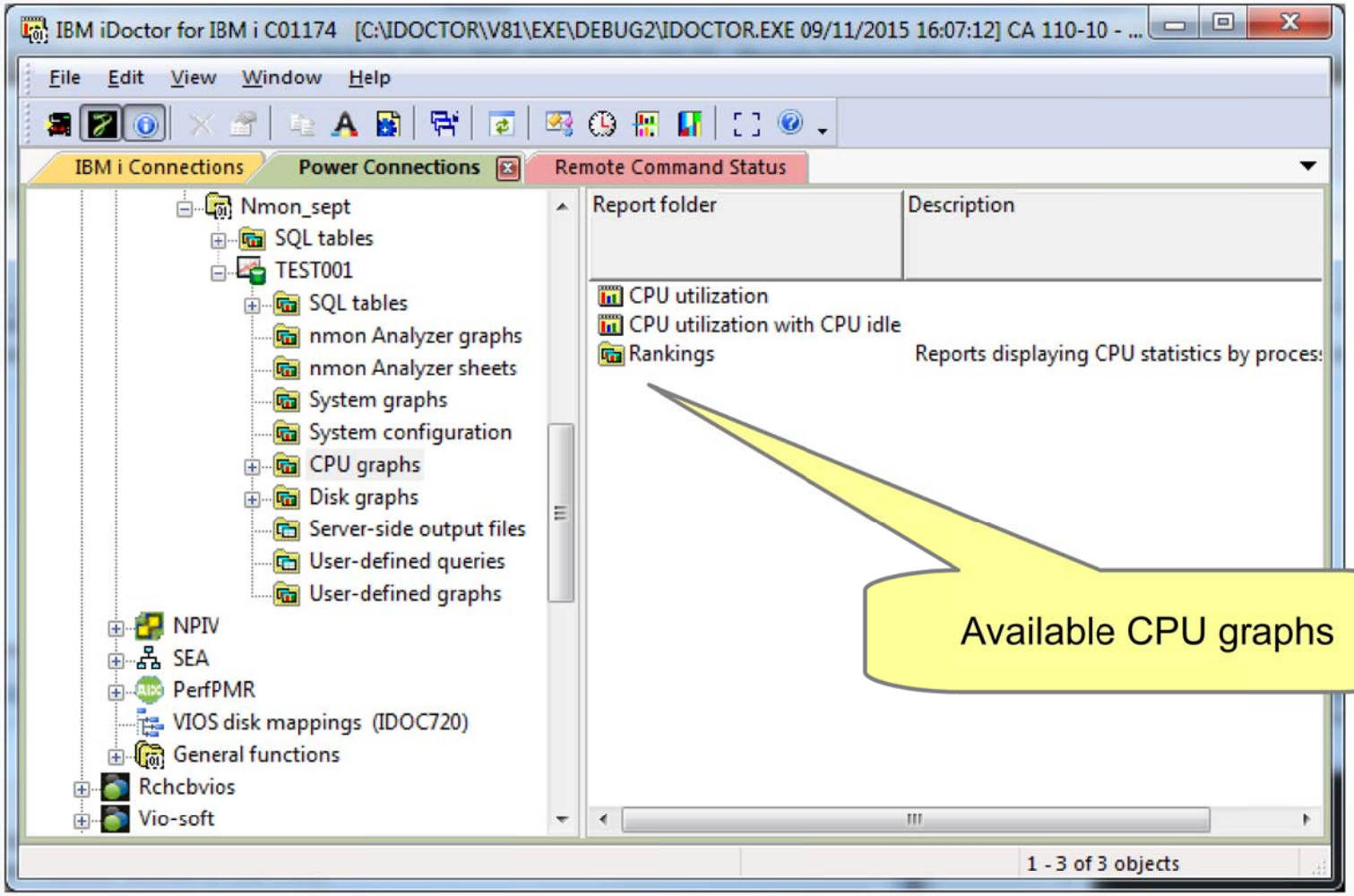


X-axis (Labels)
[Interval] - end time (Collected interval size)
Primary Y-axis (Bars)
Page-ins from file system space per second
Page-outs to file system space per second
Secondary Y-axis (Lines)
Page faults per second
Flyover Fields
Available Fields
[Interval] - timestamp
MBRNAME
Interval number
Minimum interval timestamp
Maximum interval timestamp
Interval delta time (seconds)
Interval delta time (usecs)
User CPU utilization (%)
System CPU utilization (%)
CPU utilization (%)
CPU wait (%)
CPU idle (%)
Total active CPUs (varied on)
HDISK I/Os per second
EMC/PowerPath Disk I/Os per second
iget function calls per second
namei function calls per second
dirblk function calls per second
Read characters transferred per second (millions)
Write characters transferred per second (millions)
Real memory free (%)
Virtual memory free (%)
Real memory free (MBs)
Virtual memory free (MBs)
Real memory total (MBs)
Virtual memory total (MBs)
File pages (%)
MINPERMPCT
MAXPERMPCT
MINPGSFREE
MAXPGSFREE

nmon → System Configuration Folder



nmon → CPU Graphs



nmon → nmon Analyzer Sheets

Ctciha9v.rchland.ibm.com/NMON_APRIL/TEST01001/AAA - #1

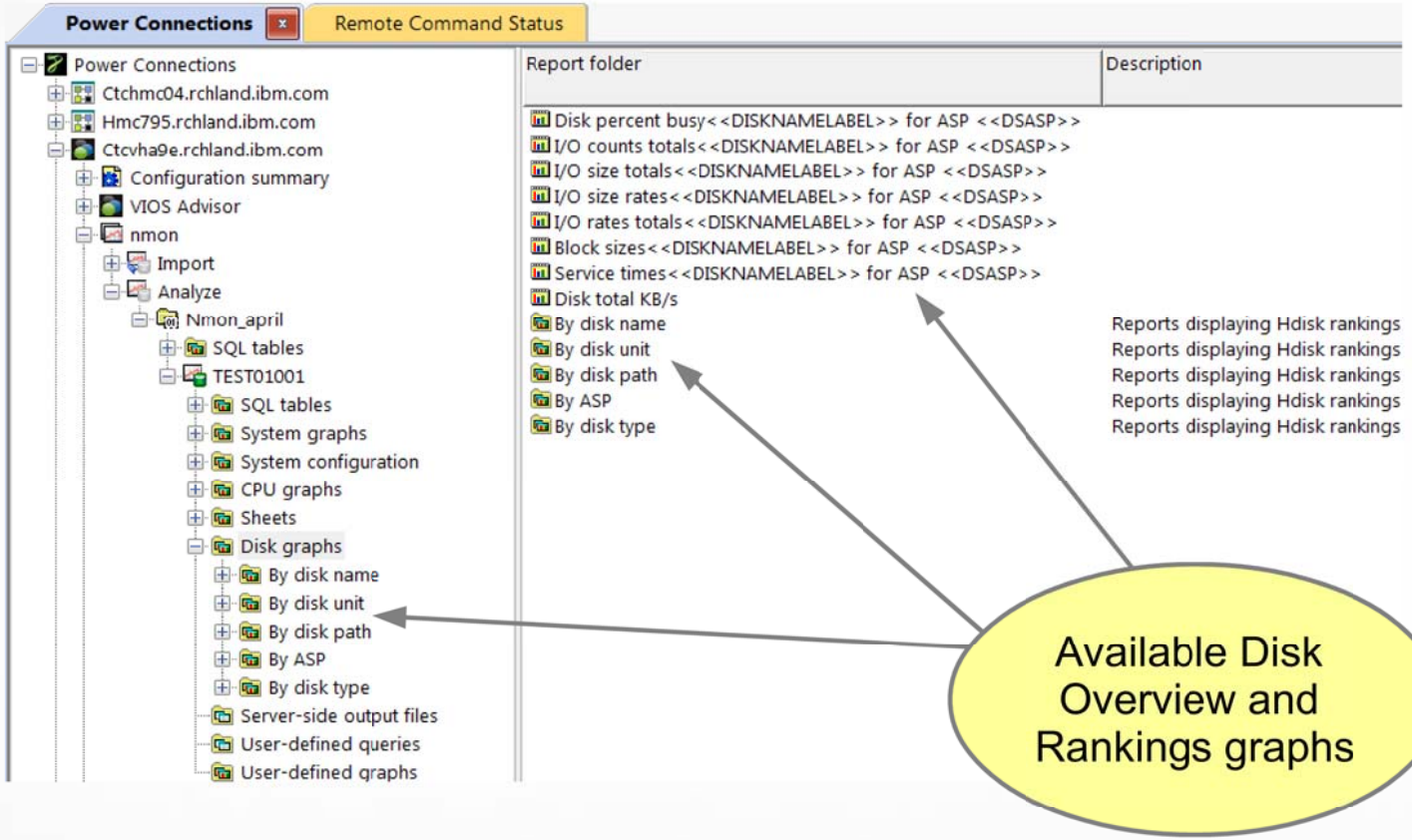
DESC	VALUE1	VALUE2	VALUE3
AIX	6.1.9.15		
build	AIX		
command	/usr/bin/topas_nmon -f -s 300 -c 12 -t -I 0.1 -d -youtput_dir=/home/padmin/ctcvha9e -ystart_time=13:18:52	Apr18	2015
cpus	8	8	
date	18-APR-2015		
disks_per_line	150		
hardware	Architecture PowerPC Implementation POWER7_COMPAT_mode 64 bit		
host	ctcvha9e		
interval	300		
kernel	HW-type=CHRP=Common H/W Reference Platform Bus=PCI LPAR=Dynamic Multi-Processor 64 bit		
LPARNumberName	2	ctcvha9e	
MachineType	IBM	8233-E8B	
NodeName	ctcvha9e		
progname	topas_nmon		
runname	ctcvha9e		
SerialNumber	10001AP		
snapshots	12		
SubprocessorMode Unknown			
time	13:18:53		
timestampsize	0		
TL	08		
user	padmin		
version	TOPAS-NMON		
VIOS	2.2.3.3		

Sheet Examples

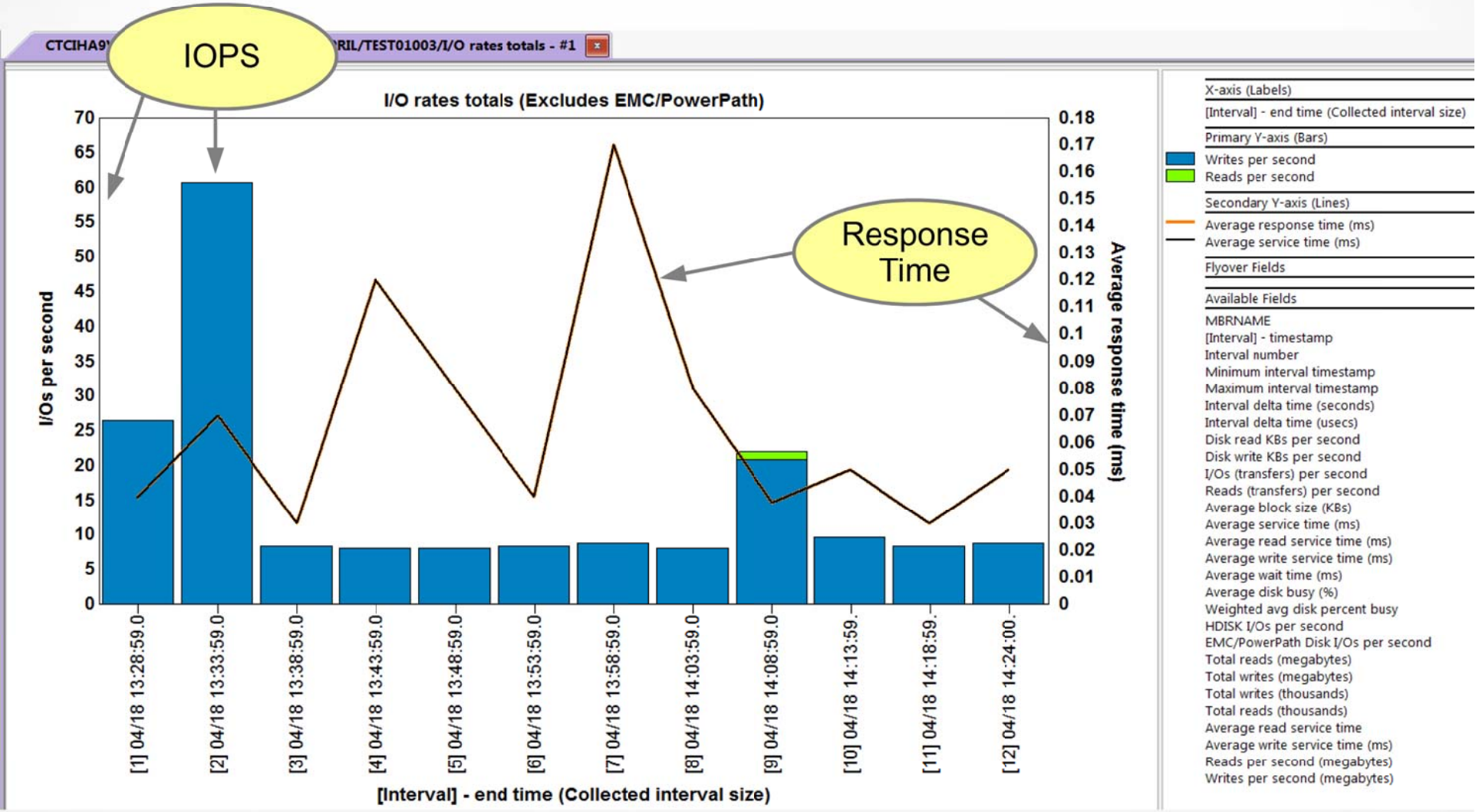
Ctciha9v.rchland.ibm.com/NMON_APRIL/TEST01001/CPU_ALL - #1

INTSTRTIME	User CPU utilization (%)	System CPU utilization (%)	CPU wait (%)	CPU idle (%)	CPU utilization (%)	Logical CPUs
13:23:59	3.1000	2.9000	0	94	6	
13:28:59	7.5000	4.8000	0	87.7000	12.3000	
13:33:59	.3000	1.7000	0	97.9000	2	
13:38:59	.2000	1.8000	0	98	2	
13:43:59	.2000	1.8000	0	98	2	
13:48:59	.2000	2	0	97.8000	2.2000	
13:53:59	.2000	1.8000	0	97.9000	2	
13:58:59	.2000	1.8000	0	98	2	
14:03:59	6.1000	4.2000	0	89.7000	10.3000	
14:08:59	.4000	2	0	97.6000	2.4000	
14:13:59	.2000	1.8000	0	98	2	
14:19:00	.2000	1.8000	0	98	2	

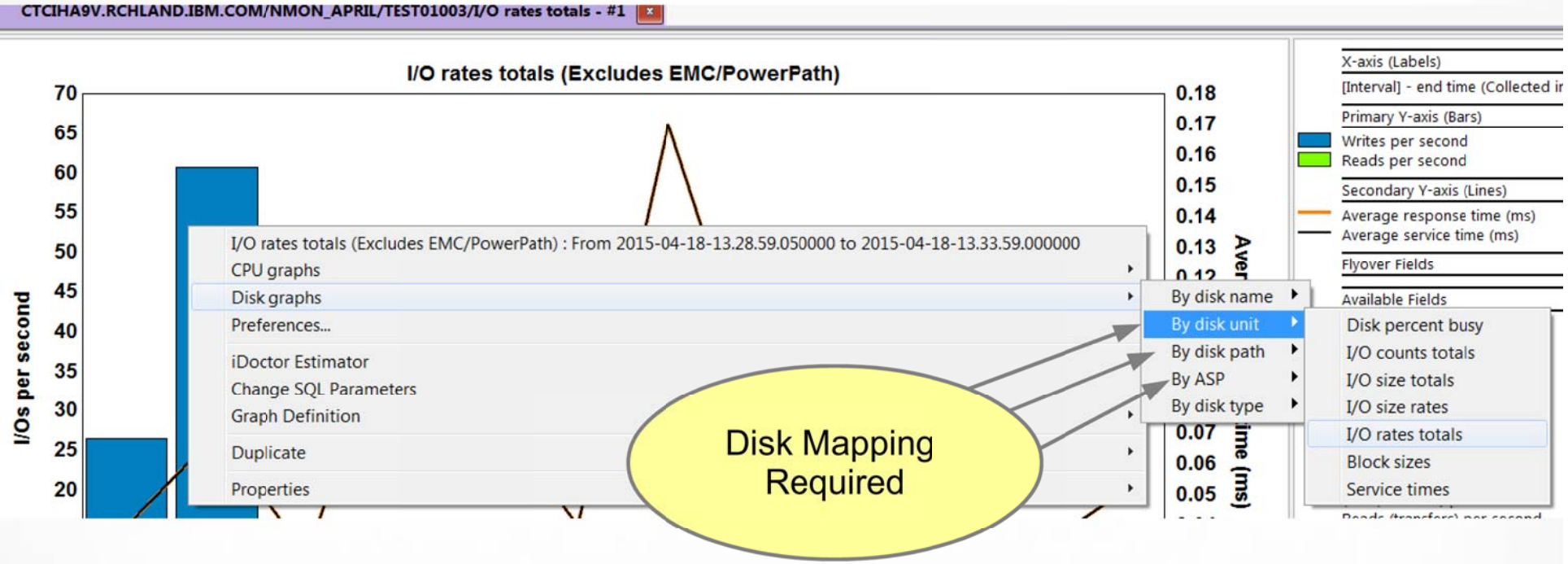
nmon → Disk Graphs



nmon → I/O Rates Totals

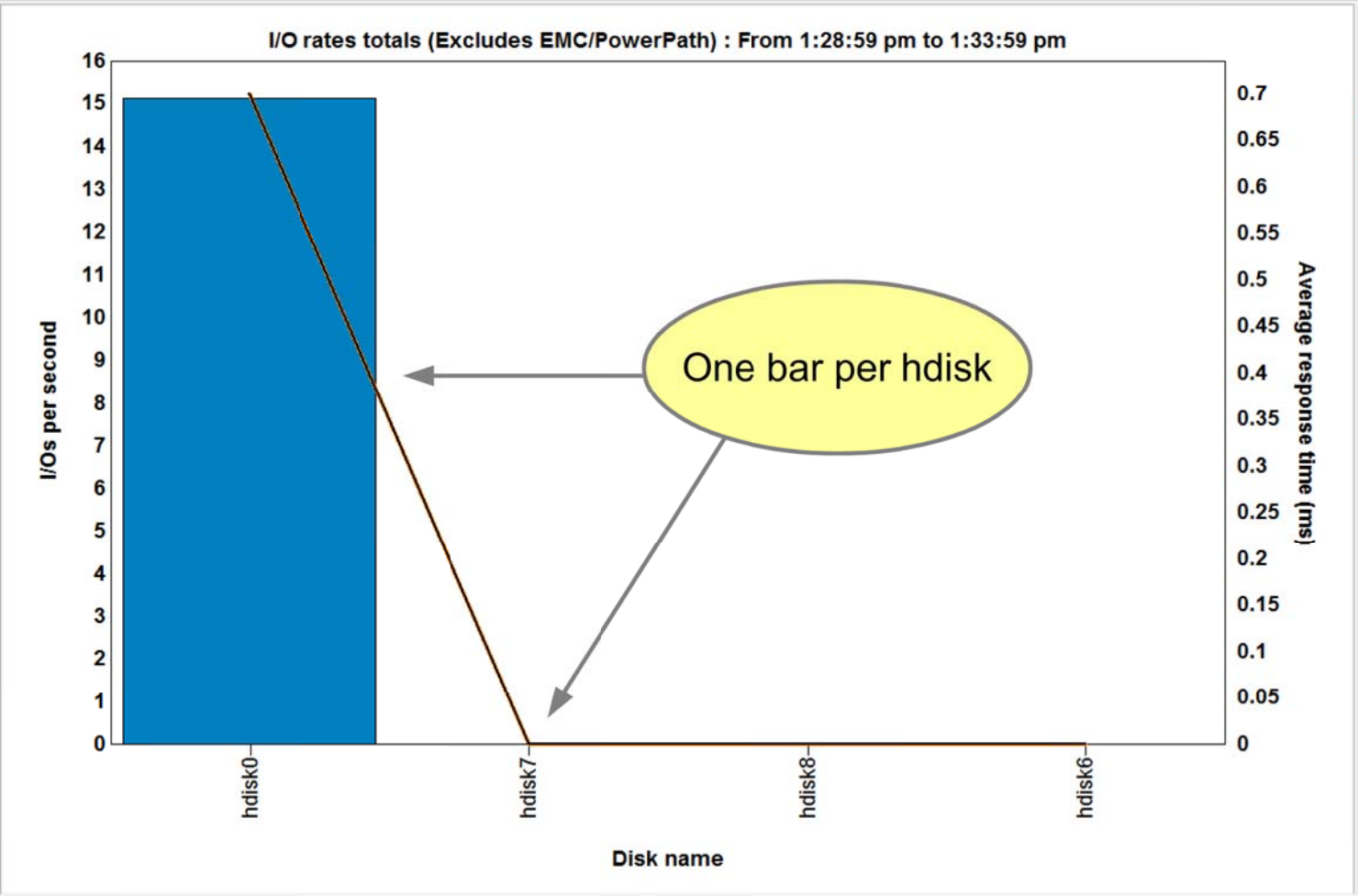


nmon → Drill Downs Available



nmon → I/O Rates totals by disk name

CTCIHA9V.RCHLAND.IBM.COM/NMON_APRIL/TEST01003/I/O rates totals (Excludes EMC/PowerPath) : From 1:28:59 pm to 1:33:59 pm - #1



X-axis (Labels)
Disk name

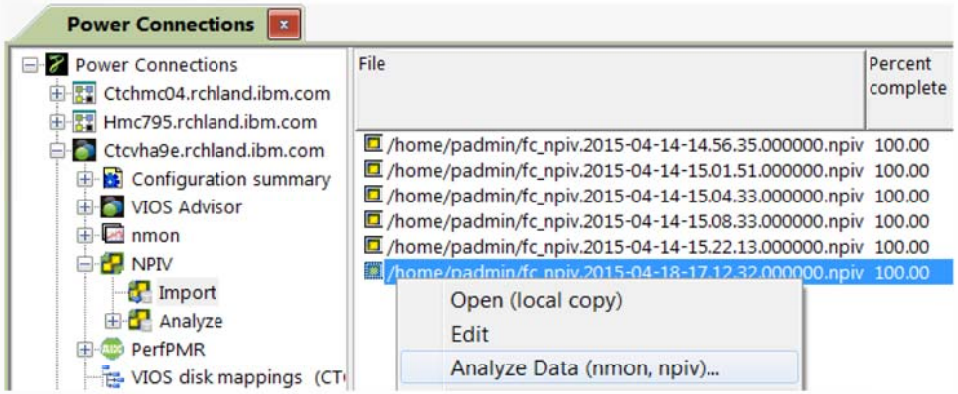
Primary Y-axis (Bars)
Writes per second

Secondary Y-axis (Lines)
Average response time (ms)
Average service time (ms)

Flyover Fields

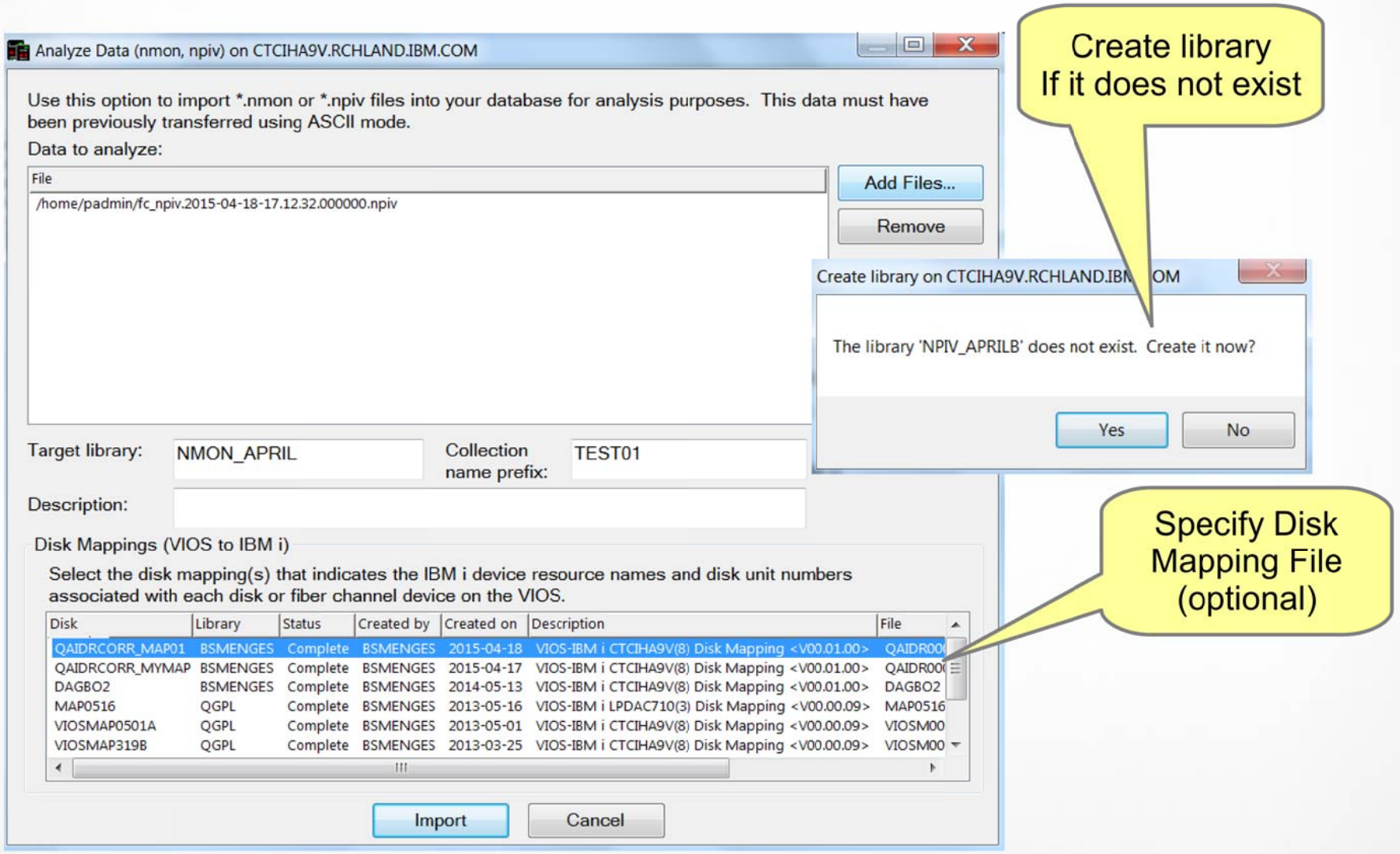
Available Fields
OBJVALUE
OBJNAME
DSKGRPTYPE
Average disk read KBs per second
Maximum disk read KBs per second
Weighted average disk read KBs per second
Average disk write KBs per second
Maximum disk write KBs per second
Weighted average disk write KBs per second
Average disk transfers per second
Maximum disk transfers per second
Weighted average disk transfers per second
Average disk block size KBs per second
Maximum disk block size (KBs)
Weighted average disk block size per second
Average disk busy (%)
Maximum disk busy (%)
Weighted avg disk percent busy
DISKRW
TOTMB
Total writes (megabytes)
Total reads (megabytes)
TOTRATE
Reads per second
Total writes (thousands)
Total reads (thousands)
Average read service time
Average write service time (ms)
TOTMBPERSEC
Reads per second (megabytes)
Writes per second (megabytes)

Importing NPIV data for analysis

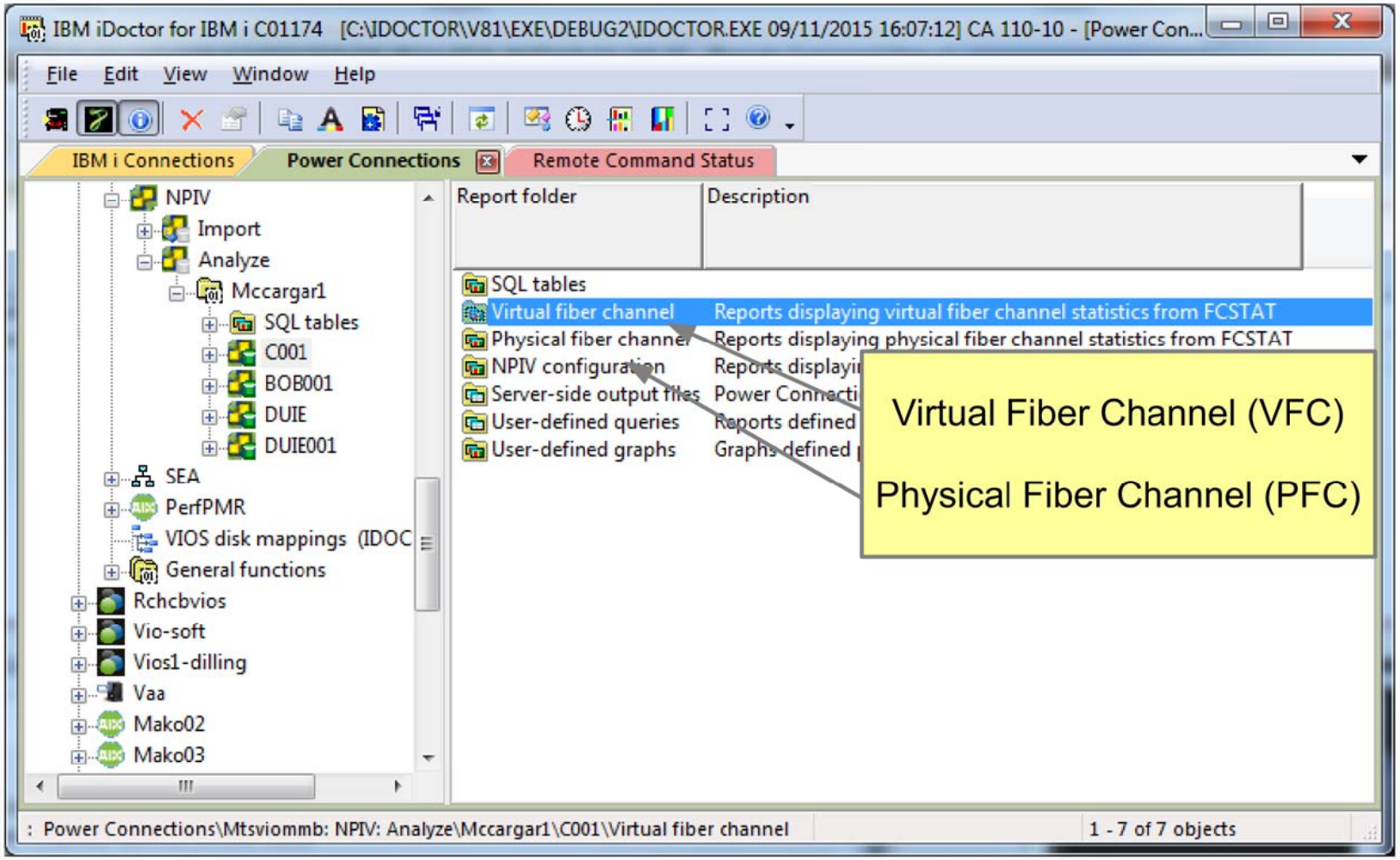


Select one or more collections for analysis

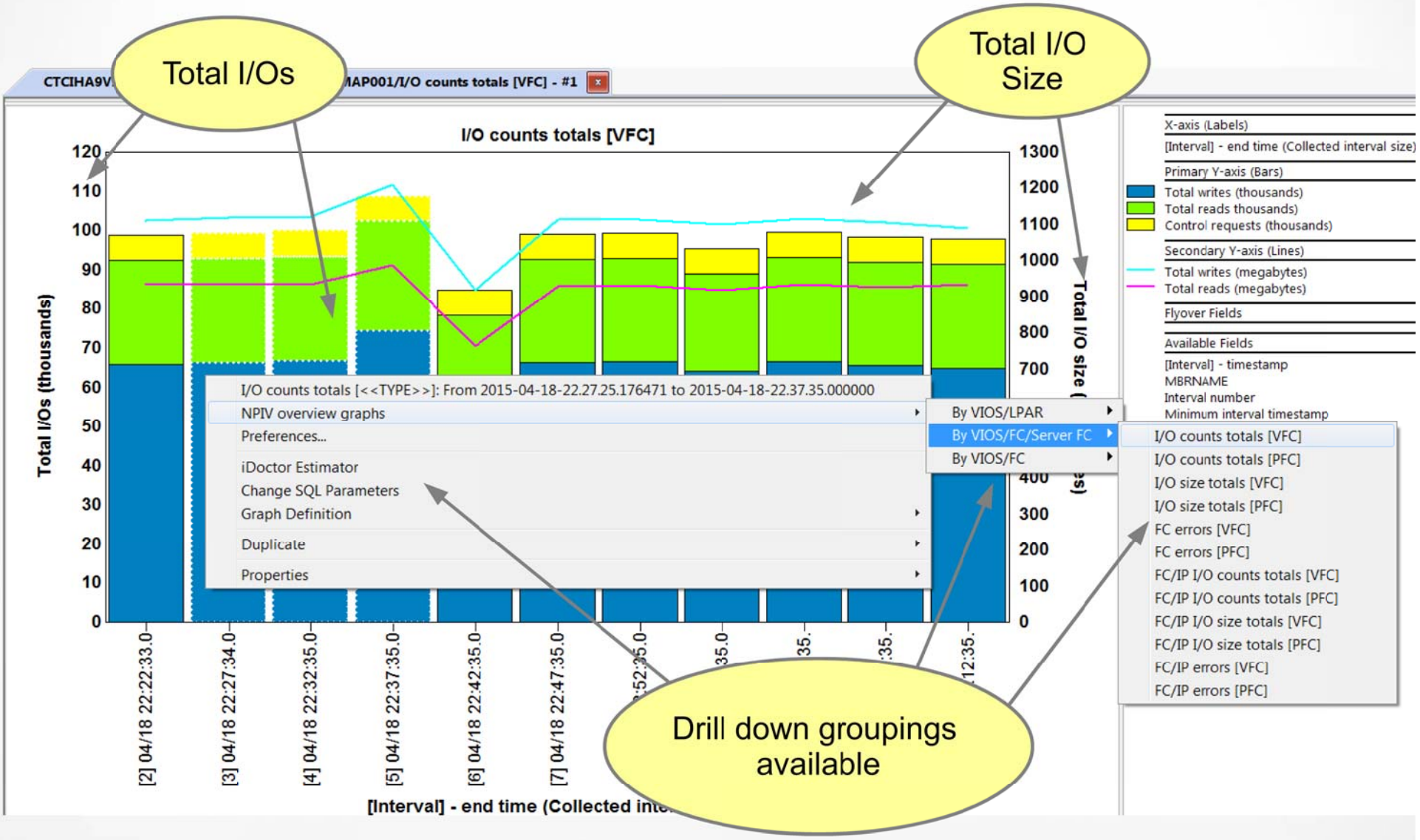
Analyze NPIV data



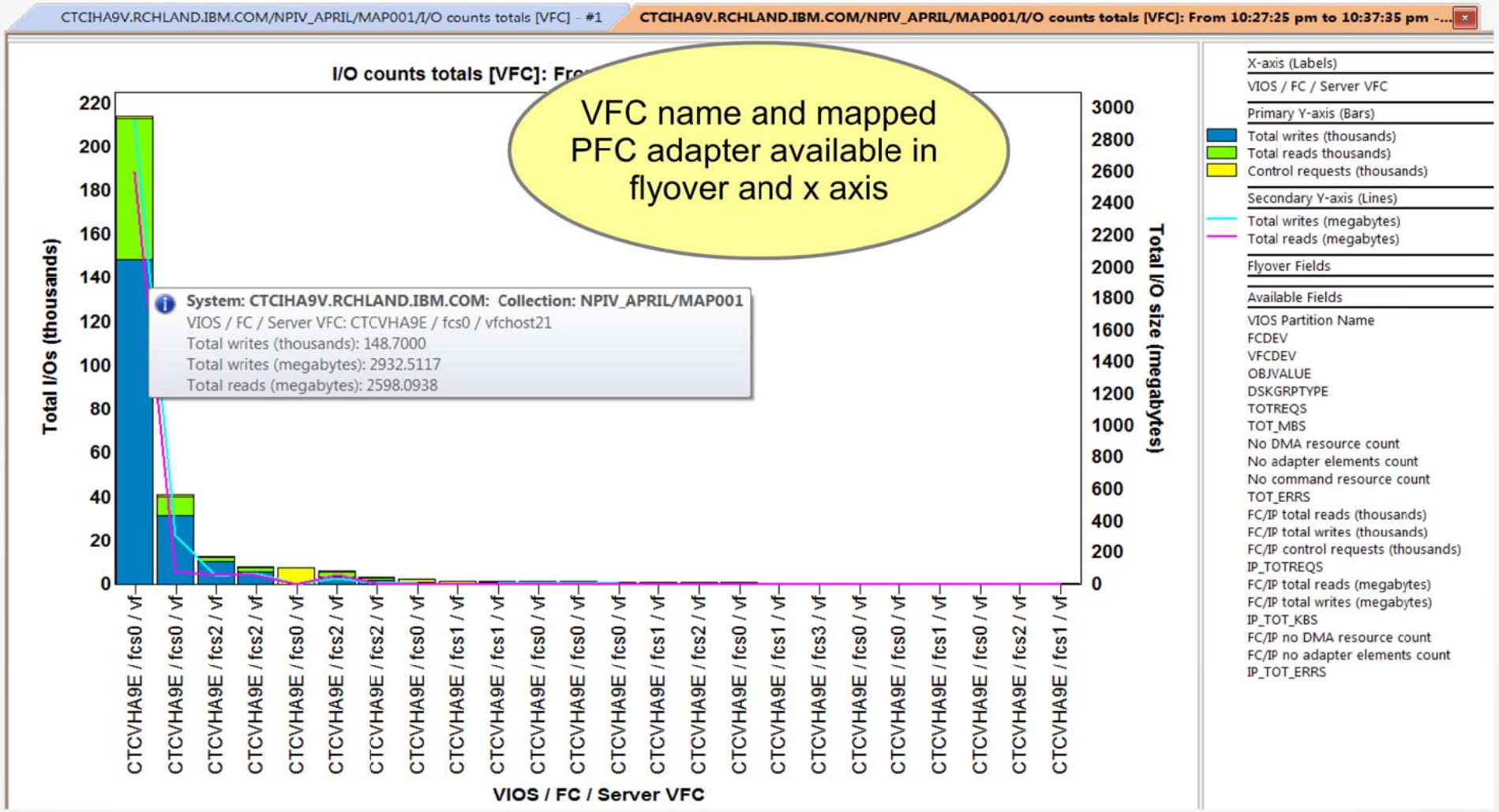
NPIV → Overview Graphs



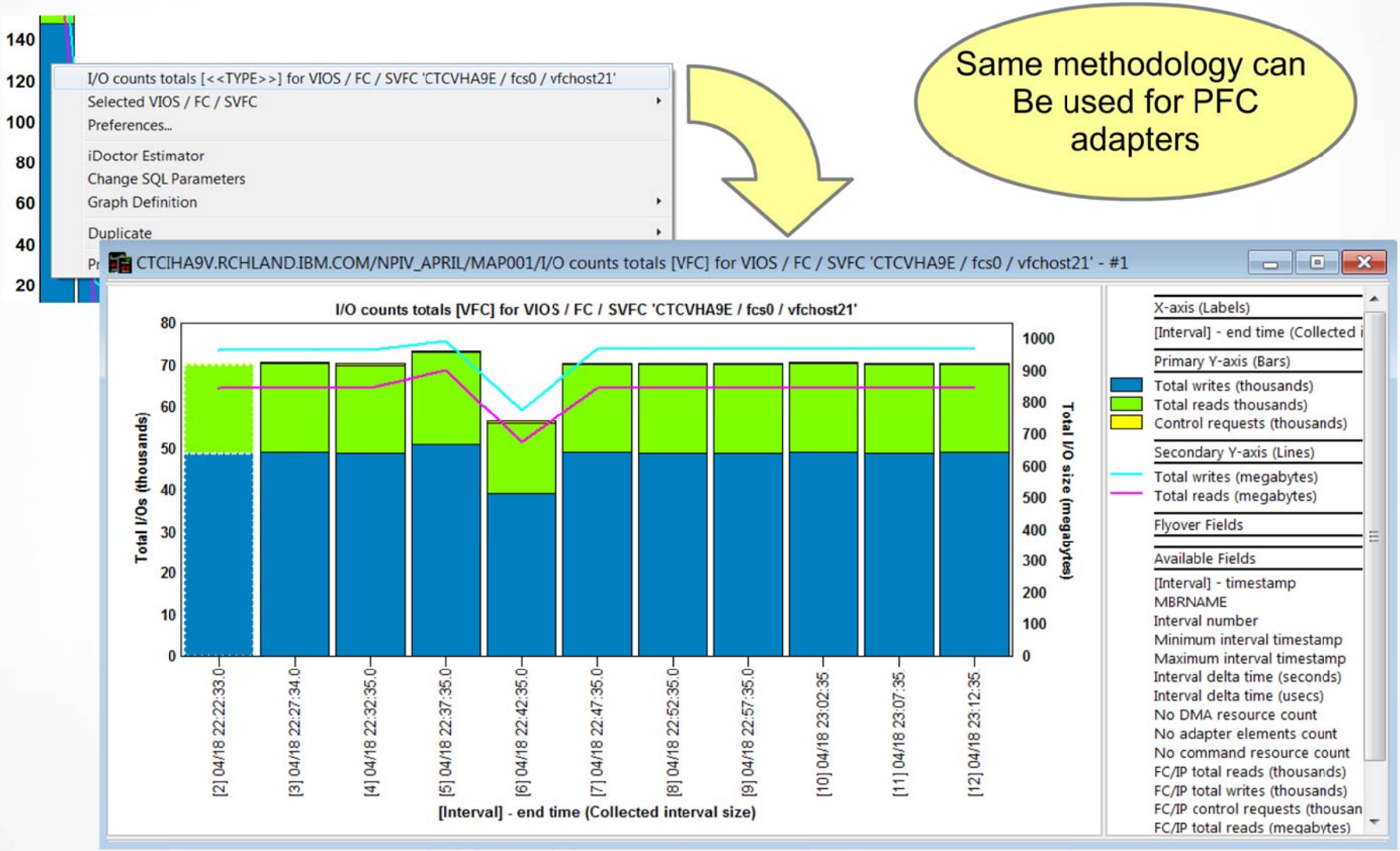
NPIV → VFC I/O Counts



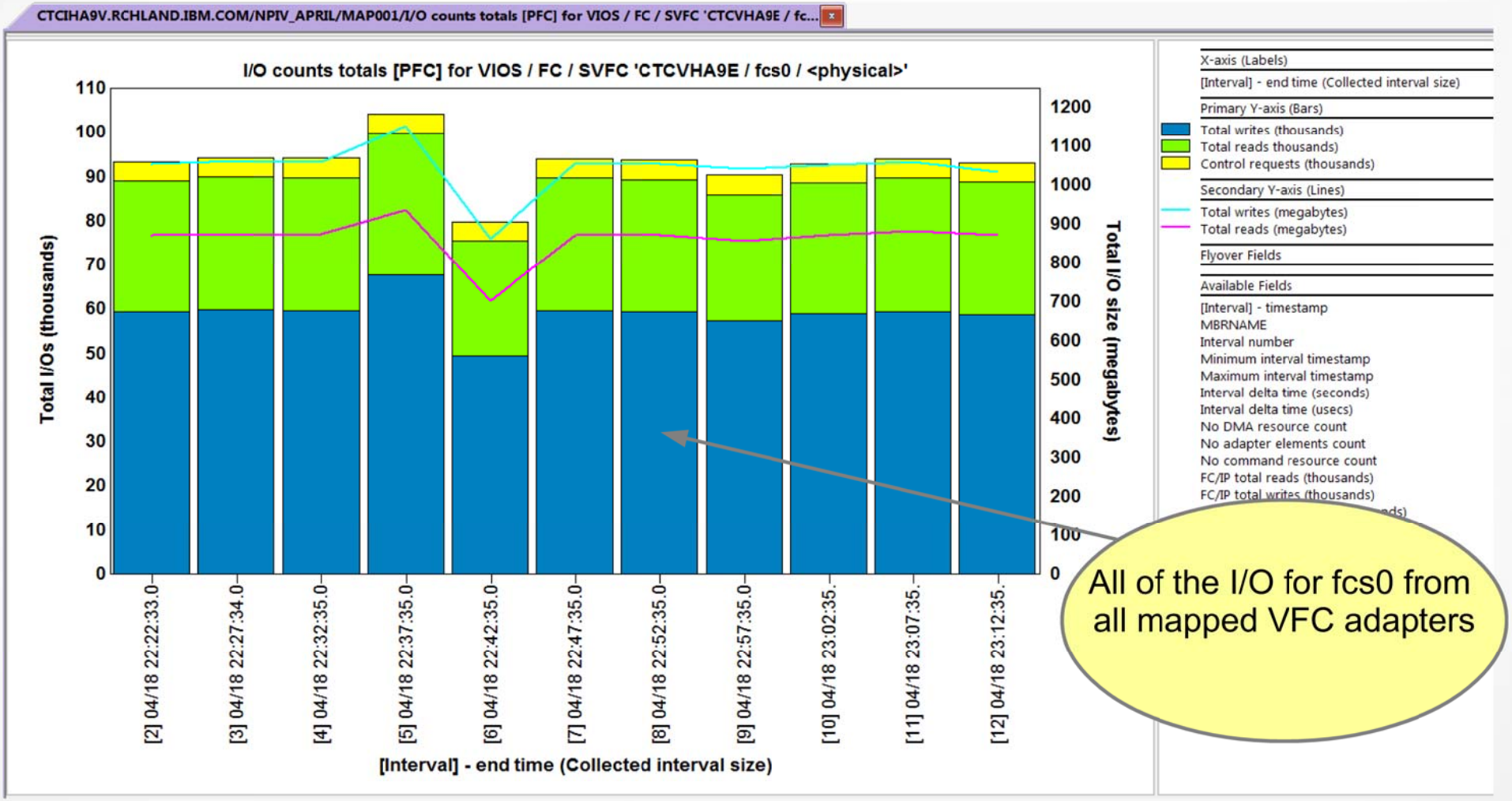
NPIV → I/O Counts by VFC



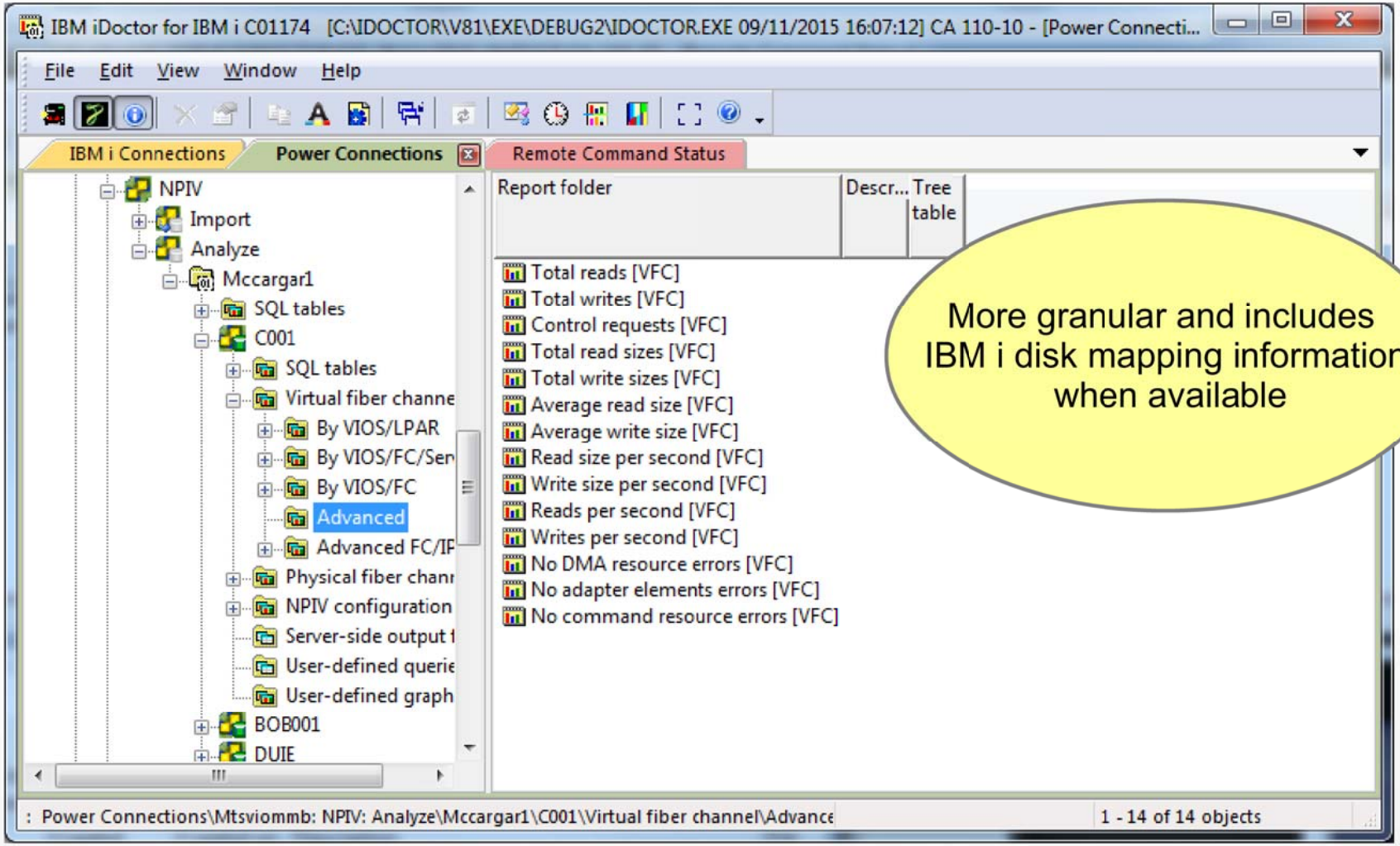
NPIV → I/O Rates totals by VFC adapter



NPIV → I/O counts totals for fcs0

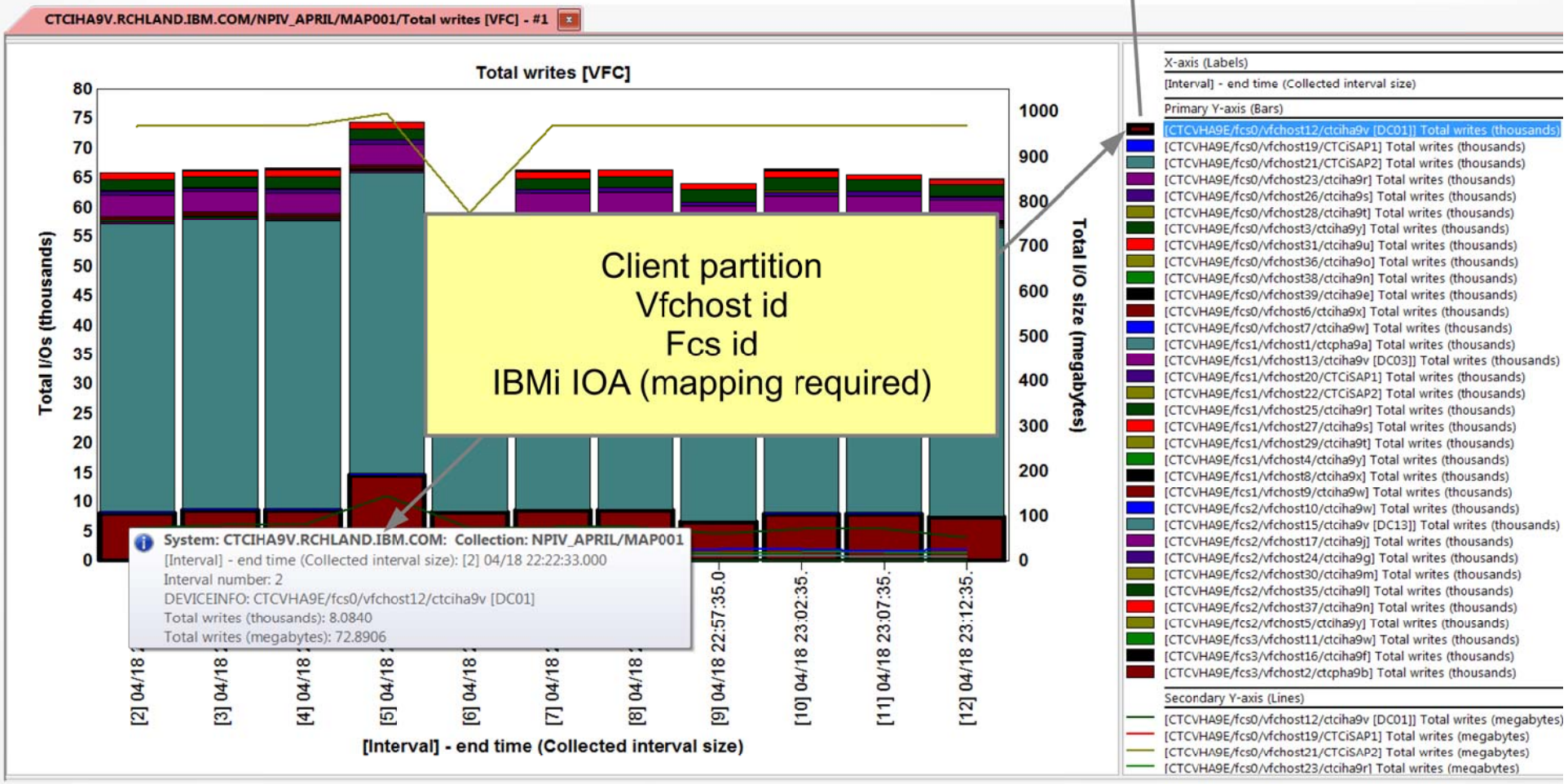


NPIV → Advanced Graphs

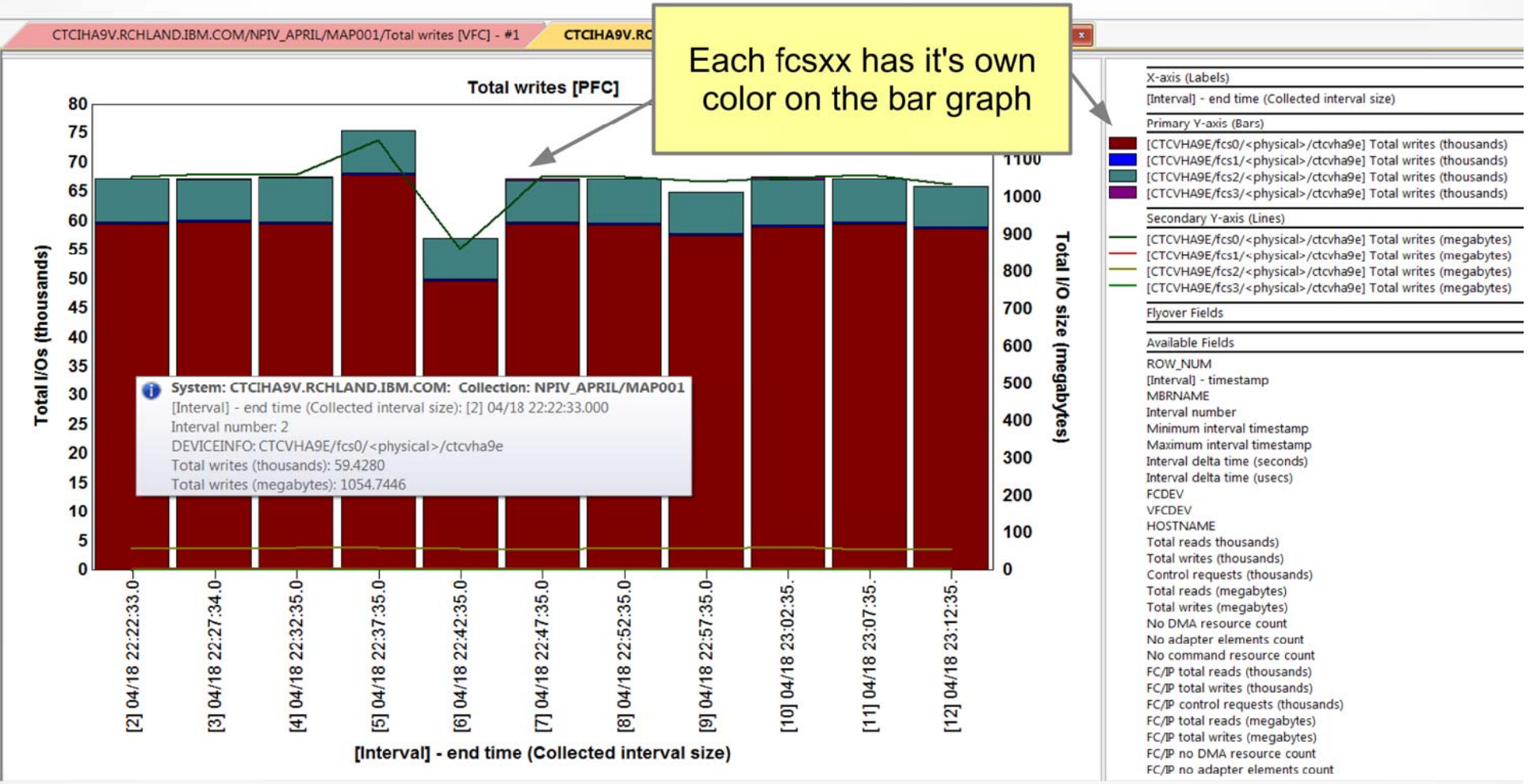


NPIV → Total VFC writes

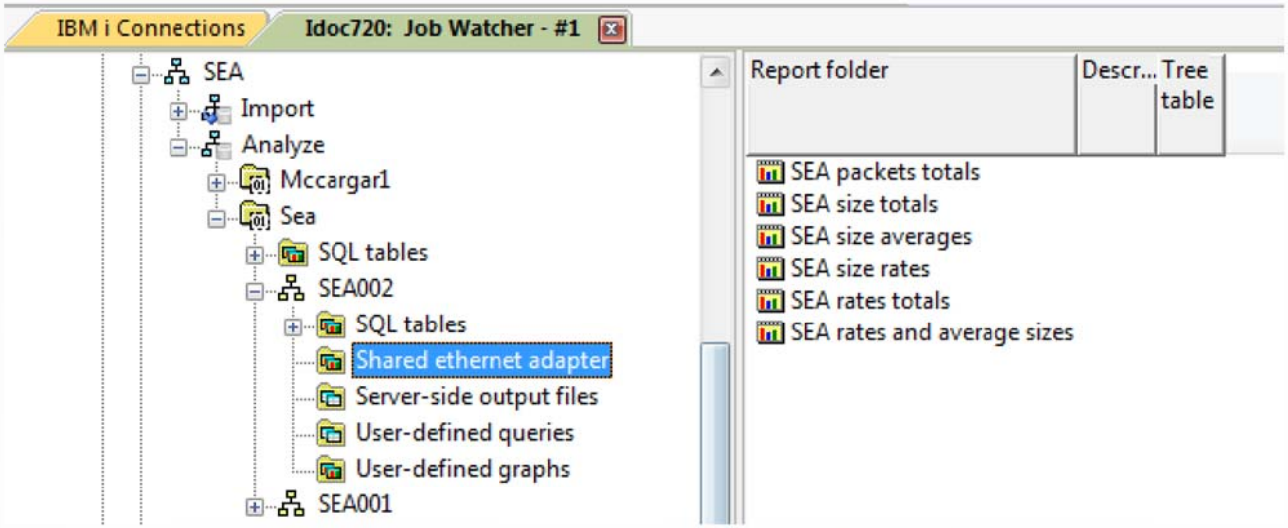
[CTCVHA9E/fcs0/vfchost12/ctciha9v [DC01]] Total writes (thousands)
[CTCVHA9E/fcs0/vfchost19/CTCiSAP1] Total writes (thousands)
[CTCVHA9E/fcs0/vfchost21/CTCiSAP2] Total writes (thousands)



NPIV → Total PFC writes

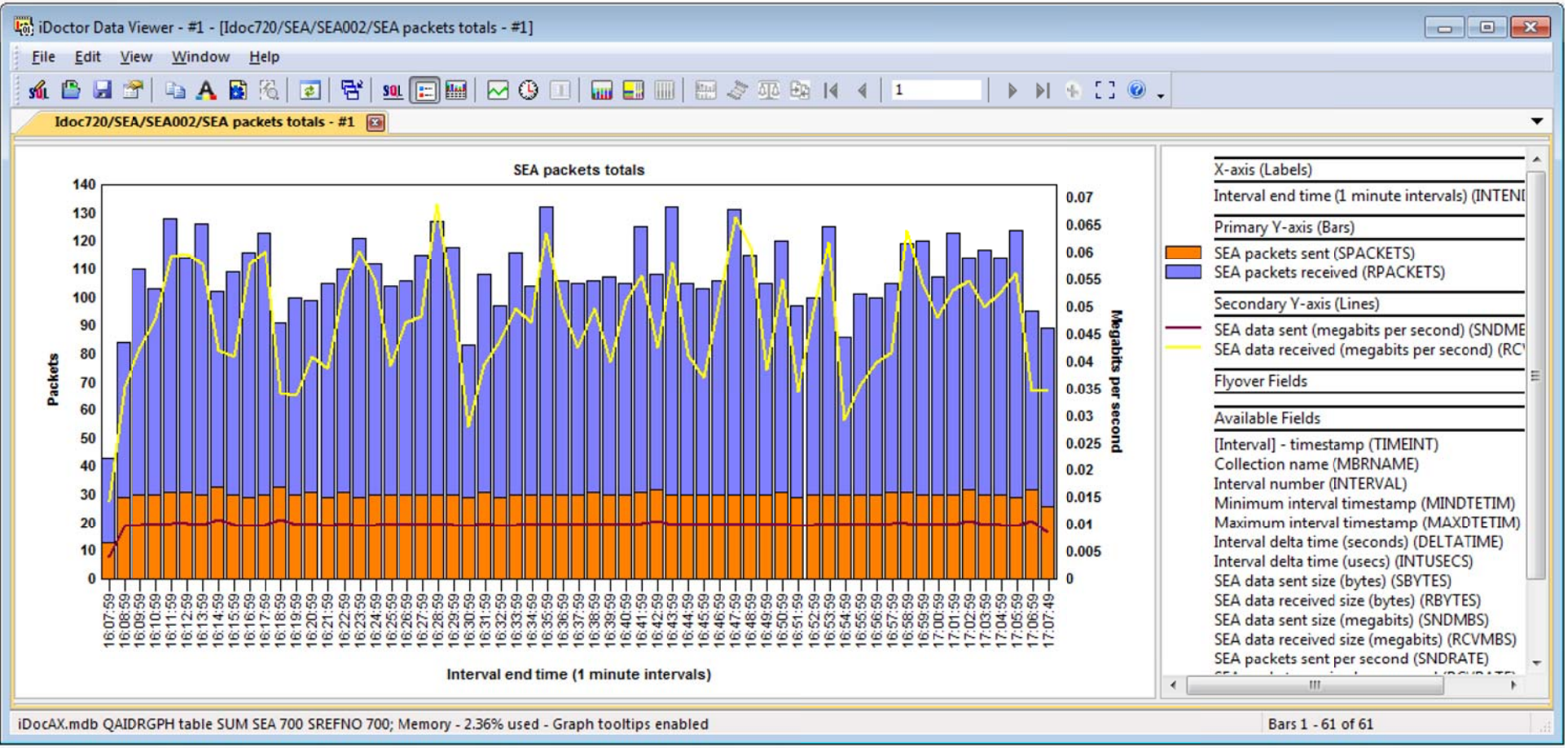


SEA → Shared Ethernet Adapter graphs

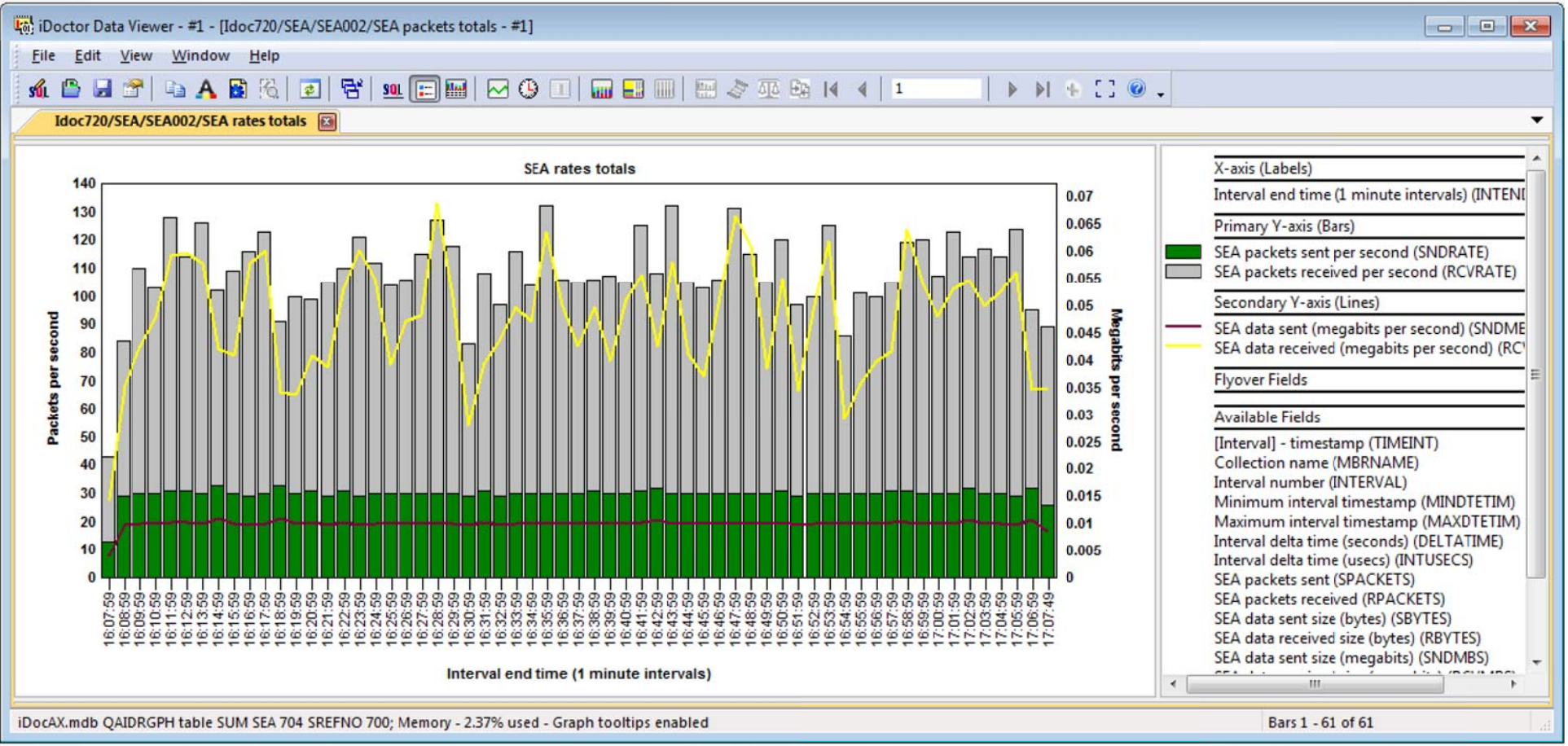


Additional graphs to rank the adapters and show individual adapters over time will be added soon.

SEA → SEA packets totals

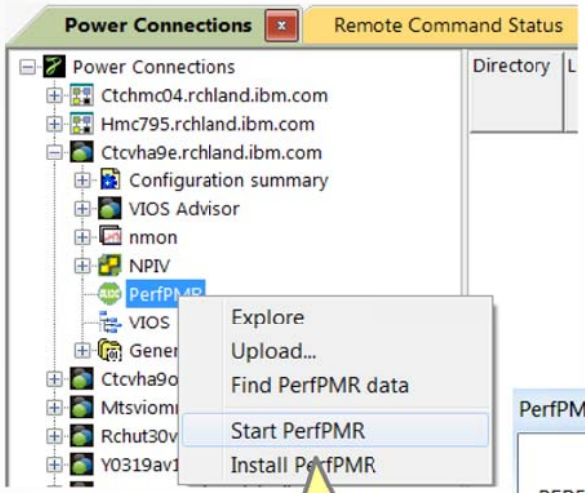


SEA → SEA rates totals

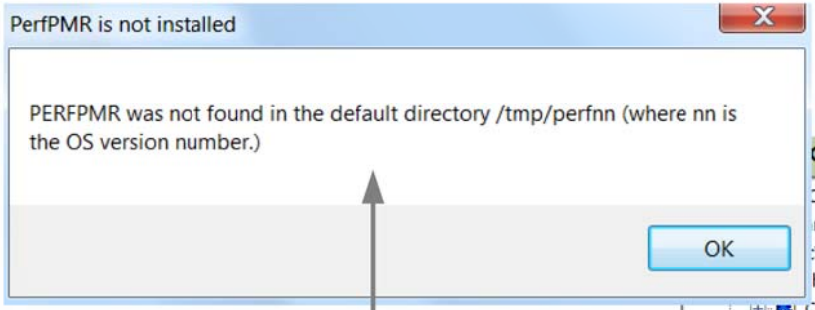


Collecting PerfPMR – When requested by service

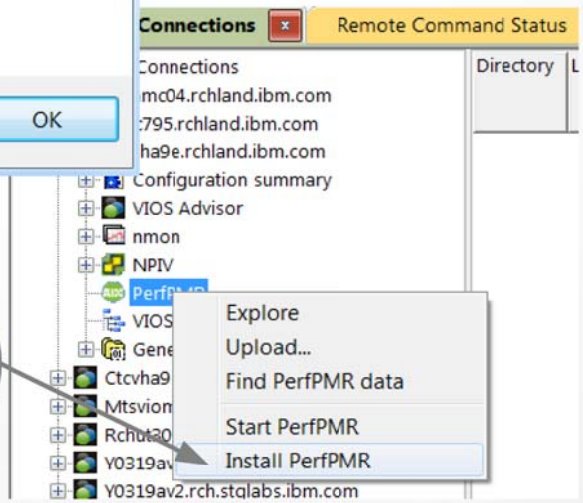
PerfPMR is a set of scripts provided by AIX / VIOS Support. Automated installation and collection of the data is available using iDoctor.



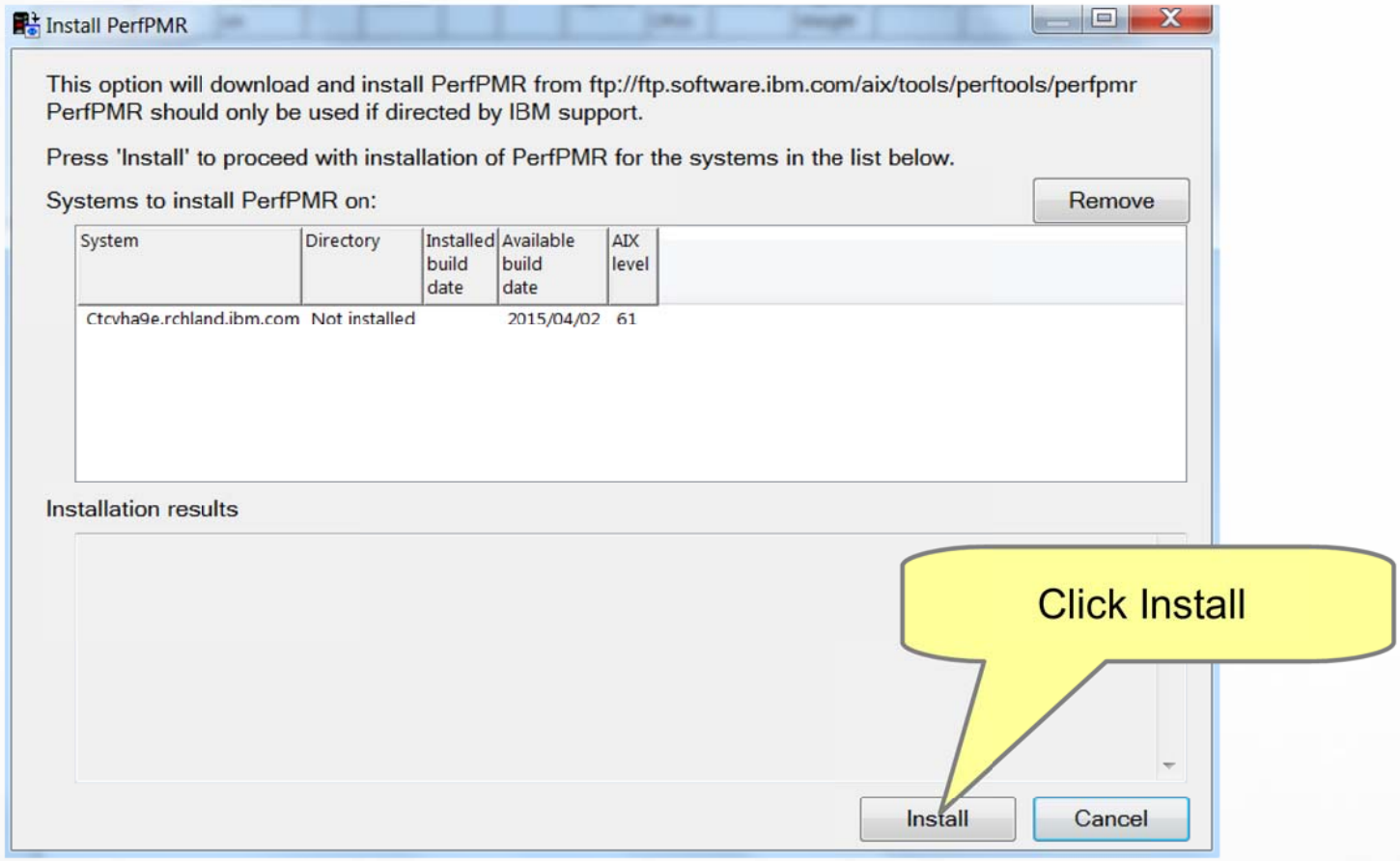
Start PerfPMR



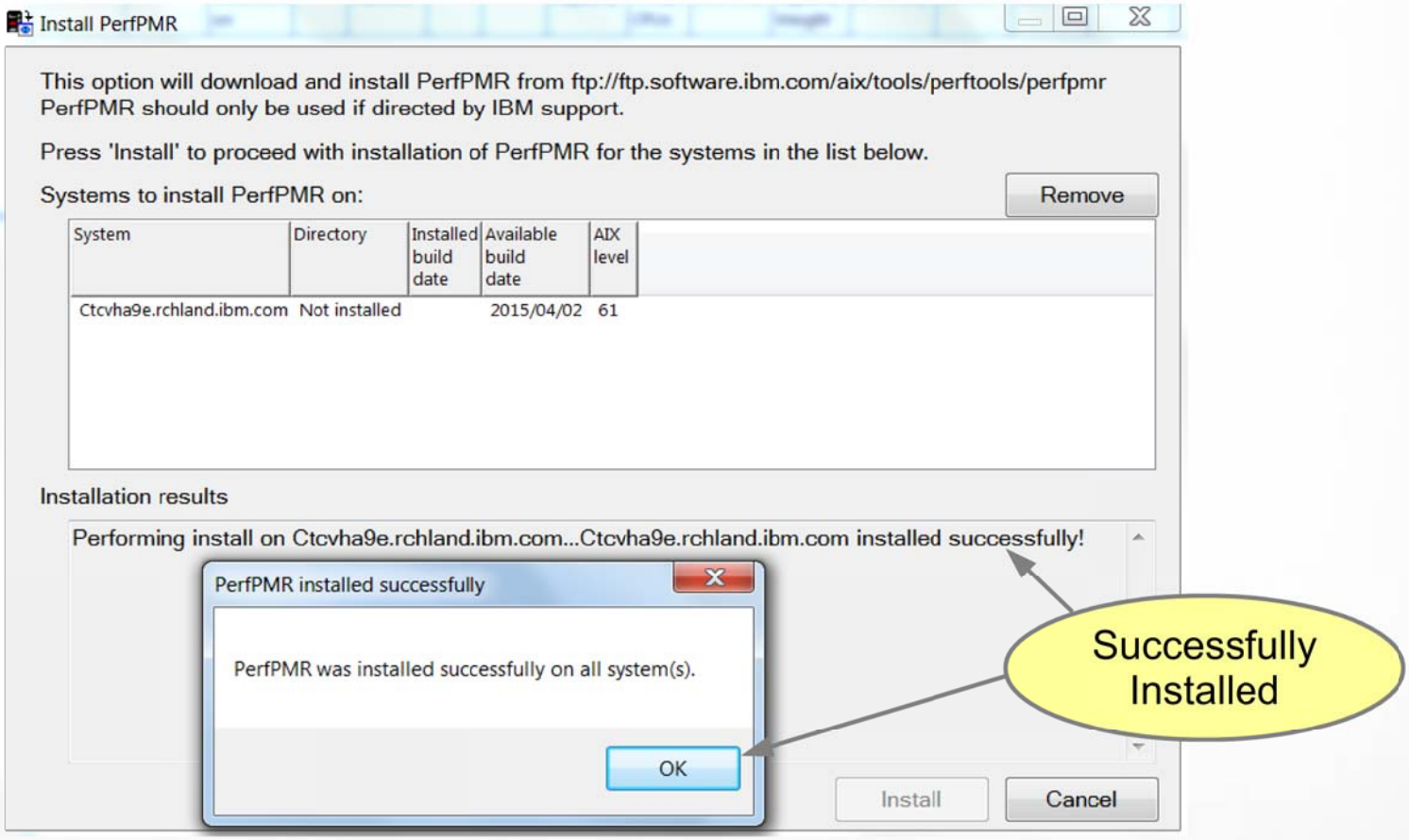
If PerfPMR is not found then use the install option.



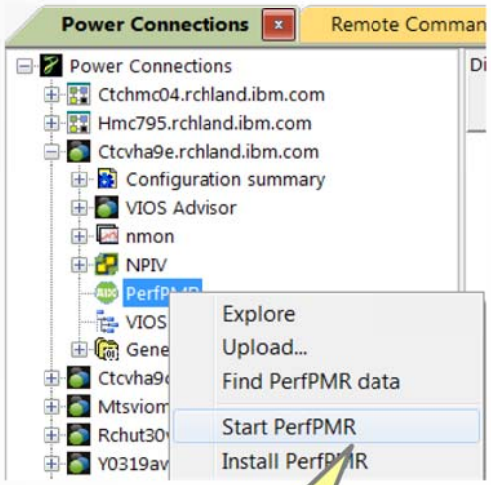
Install PerfPMR



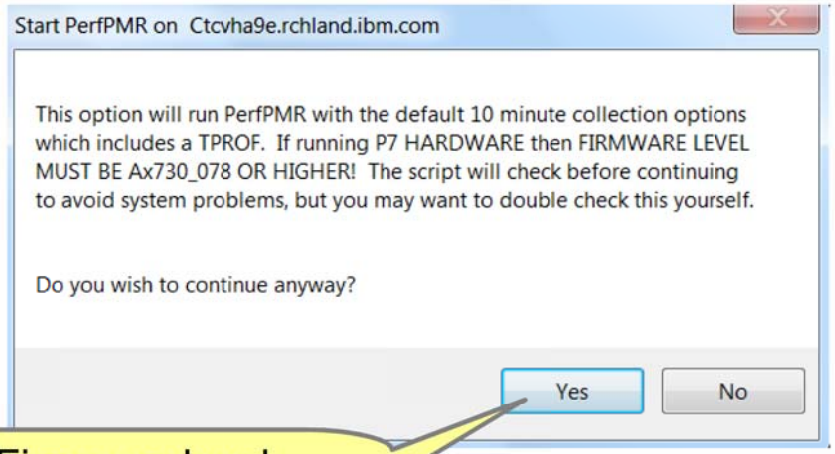
Install PerfPMR



Starting PerfPMR

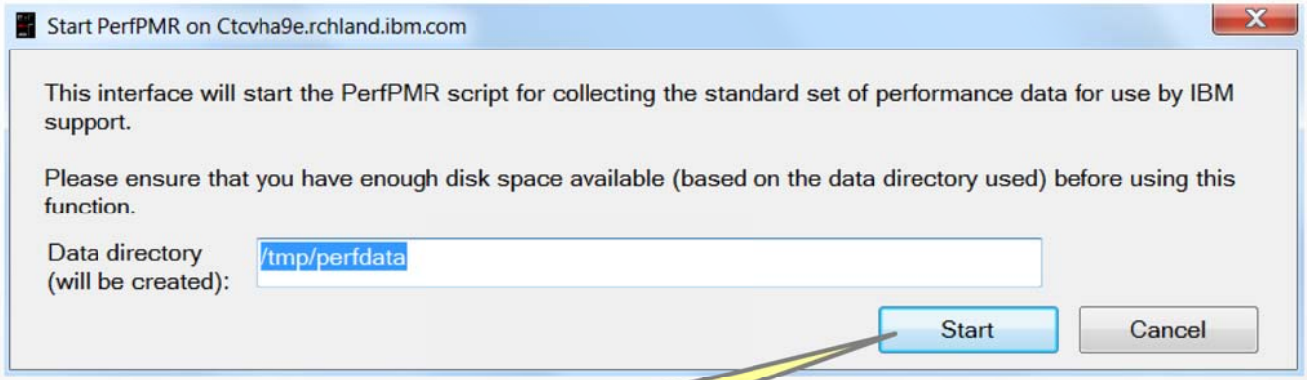


Click start



Firmware level warning message

Will collect data for approximately 10 minutes



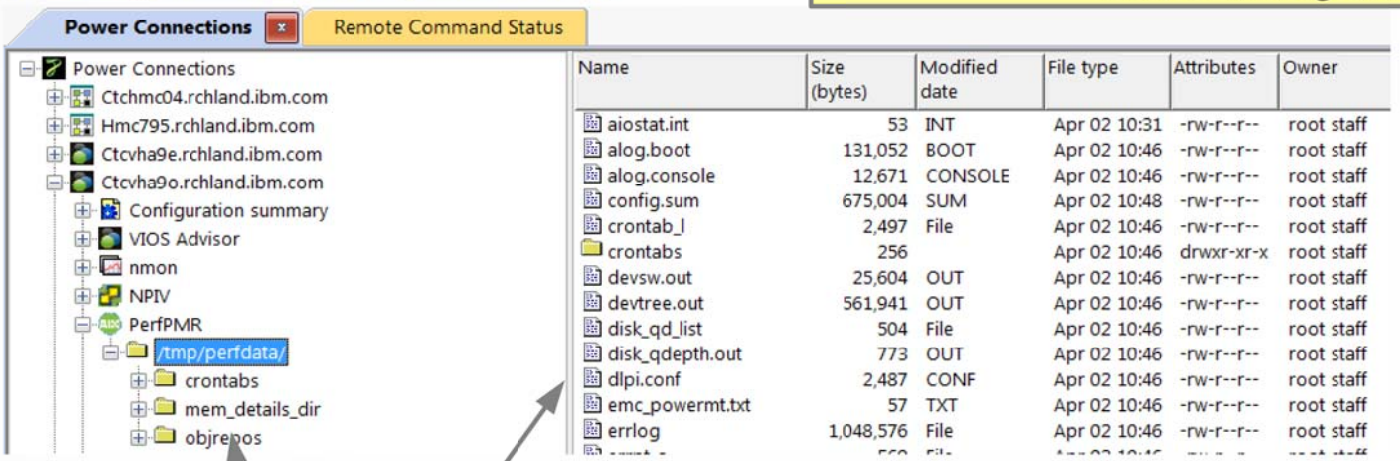
Click start

Sending data to IBM

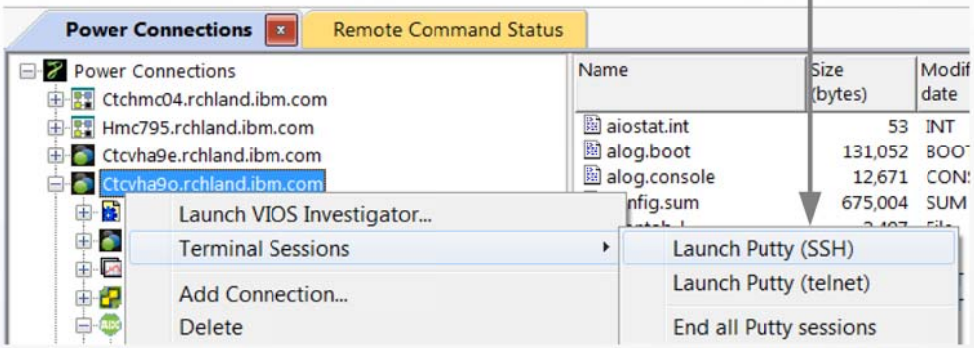
Reporting a performance problem

Sending data to IBM (section IV)

Launch a terminal session and follow the instructions for reporting the problem and sending data.



Use Find PerfPMR option if no data is available in the directory



Videos

https://www.youtube.com/user/IBMiDoctorForIBMi

Additional Information

IBM iDoctor for i: https://www-912.ibm.com/i_dir/idoctor.nsf

QMGTOOLS: http://www-01.ibm.com/support/docview.wss?uid=nas8N1011297

Possible Future Enhancements...

- Monitors for continuous NMON, NPIV and SEA data collection
- PerfPMR transfer to IBM option
- Scaled down iDoctor web interface compatible with mobile devices, Linux, Mac, etc.
- Java based data analysis engine for cross platform statistics (IBMi, Linux, AIX)
- Other ideas ? Email to idoctor@us.ibm.com

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Revised September 26, 2006

Special notices (cont.)

Revised December 2, 2010

Notes on performance estimates

- rPerf for AIX

- rPerf (Relative Performance) is an estimate of commercial processing performance relative to other IBM UNIX systems. It is derived from an IBM analytical model which uses characteristics from IBM internal workloads, TPC and SPEC benchmarks. The rPerf model is not intended to represent any specific public benchmark results and should not be reasonably used in that way. The model simulates some of the system operations such as CPU, cache and memory. However, the model does not simulate disk or network I/O operations.

- rPerf estimates are calculated based on systems with the latest levels of AIX and other pertinent software at the time of system announcement. Actual performance will vary based on application and configuration specifics. The IBM eServer pSeries 640 is the baseline reference system and has a value of 1.0. Although rPerf may be used to approximate relative IBM UNIX commercial processing performance, actual system performance may vary and is dependent upon many factors including system hardware configuration and software design and configuration. Note that the rPerf methodology used for the POWER6 systems is identical to that used for the POWER5 systems. Variations in incremental system performance may be observed in commercial workloads due to changes in the underlying system architecture.

- All performance estimates are provided "AS IS" and no warranties or guarantees are expressed or implied by IBM. Buyers should consult other sources of information, including system benchmarks, and application sizing guides to evaluate the performance of a system they are considering buying. For additional information about rPerf, contact your local IBM office or IBM authorized reseller.

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- CPW for IBM i

- Commercial Processing Workload (CPW) is a relative measure of performance of processors running the IBM i operating system. Performance in customer environments may vary. The value is based on maximum configurations. More performance information is available in the Performance Capabilities Reference at: www.ibm.com/systems/i/solutions/perfmgmt/resource.html

Revised April 2, 2007