

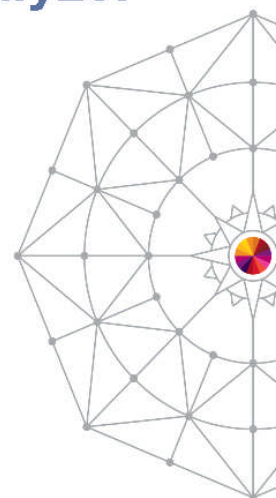


# System z Batch Network Analyzer (zBNA) Tool Hands-on Lab

John Burg  
Brad Snyder  
Valerie Spencer


IBM

August 7, 2014  
Session Number 15671



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## zBNA Lab Guide

The purpose of this zBNA Lab is to provide an exercise in running the zBNA tool; utilizing its functions to successfully complete a simple Batch analysis.

In this exercise you will complete the following tasks:

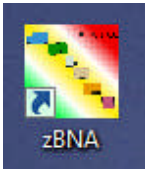
- 1) Explore the Main Screen  
Start zBNA and load in two data files
- 2) Filter Data
  - Use the job filtering capabilities (CPU time, Service classes, exclude jobs, key jobs and job masking) to select a subset of candidate Batch jobs
  - Save as zBNA File
  - Filter Top Program Pct
  - Load Step level records, and drill down into the Step details
- 3) Display a Graph and Create Reports  
Display the job subset created with the filters
- 4) Display SMF 42(6) DASD Dataset Analysis
  - Job/Dataset Report
  - Top 10 Dataset Report
- 5) Perform Alternate Processor Analysis  
Assess the impact of an alternate CPU technology
- 6) Explore zEDC Compression  
Identify data sets that will benefit from moving to zEDC cards
- 7) Save the final zBNA file



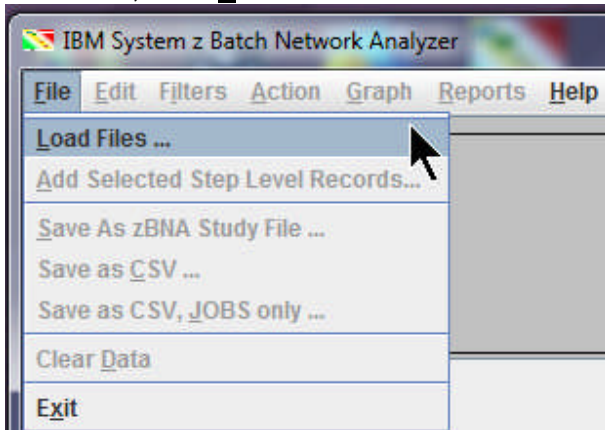
## zBNA Lab Guide

### Task 1 - Exploring the Main Screen

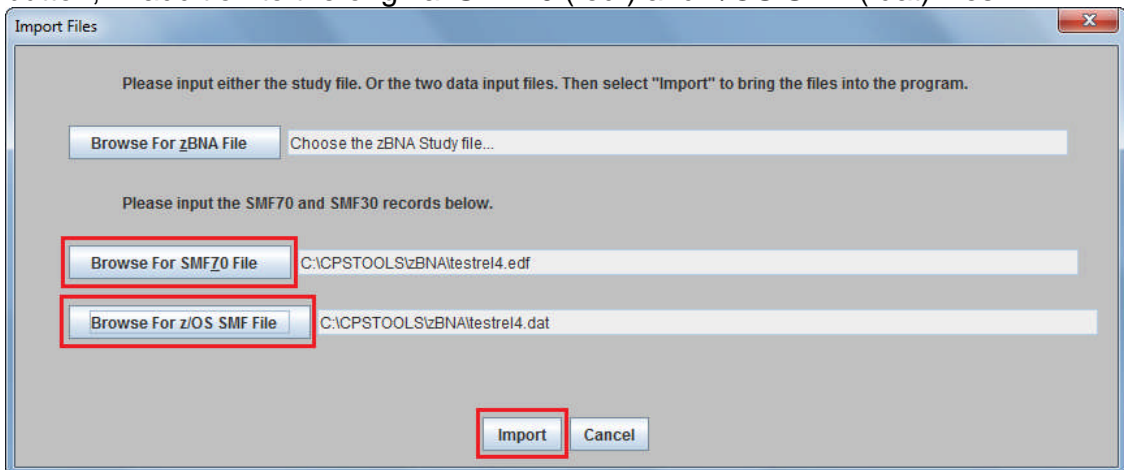
1. To start the System z Batch Network Analyzer (zBNA), first double-click the icon.



2. Click *File*, then Load Files ...



3. If this is your first time using the zBNA tool, select the SMF70 (.edf) and z/OS SMF (.dat) files by clicking the appropriate *Browse* buttons. Navigate to **C:\CPSTOOLS\zBNA**. Both files are required to be loaded together. Note that a previously saved study file (.zBNA) is required to use the *Browse For zBNA File* button, in addition to the original SMF70 (.edf) and z/OS SMF (.dat) files.



The SMF70 file name is **testrel4.edf** and **testrel4.dat** for the z/OS SMF one. Click **Import**.



## zBNA Lab Guide

- The zBNA tool will load the desired data in tabular format with job information displayed. At the bottom of the panel the messages indicate that **5147 jobs** have been loaded from **JOB end records (SMF 30 subtype 5)**.

IBM System z Batch Network Analyzer - TEST FILE

File Edit Filters Action Graph Reports Help

Applied Filters

Mainframe Information

Model: 2817-711  
 Partition Name: ONLM  
 SYSID: SYS1  
 Partition Logical Utilization: 93.7%  
 CPC Utilization: 93.7%

Key Batch	Job Name	Steps	Job Class	Acct Code	Service Cla.	Elapsed TI...	CPU Time	ZAAP Time	zIIP Time	CPU Intens...	EXCPs	Top Program	Top Pgm %	Condition ...
	M373Q3S	7	J	37397332	BATPRDDF	12.6m	204.8s	0.0s	0.3s	27.0%	193,926	IEFIIC	0.0%	0000
	M3DQLSD	3	J	3DQ3DQ32	BATPRDDF	30.1m	26.5s	0.0s	0.0s	1.5%	11,995	DSNECP10	3.0%	0000
	M0VPI03V	2	Y	0FD12032	SYSSTC	0.0s	0.0s	0.0s	0.0s	11.1%	9	IEFIIC	0.0%	0004
	M0D3TSE5	3	J	32092032	BATPRDDF	2.0s	0.1s	0.0s	0.0s	4.9%	824	IEFIIC	0.0%	0000
	M3SK891A	10	J	3SK9SK32	BATPRDDF	2.0s	0.1s	0.0s	0.0s	4.1%	800	IEFIIC	0.0%	0000
	M4E5HQ3A	5	J	4E595732	BATPRDDF	4.0s	0.4s	0.0s	0.0s	7.6%	3,554	IEFIIC	0.0%	0000
	DH03UXQ3	2	J	0PA0PA32	BATPRDDF	0.0s	0.0s	0.0s	0.0s	4.3%	10	IEFIIC	0.0%	0000
	M4E5HYP4	3	J	4E595732	BATPRDDF	8.0s	0.2s	0.0s	0.0s	1.9%	809	IEFIIC	0.0%	0000
	M0VPI03V	2	J	0FD12032	SYSSTC	0.0s	0.0s	0.0s	0.0s	33.3%	9	IEFIIC	0.0%	0004
	DH03UXQ4	2	J	0PA0PA32	BATPRDDF	0.0s	0.0s	0.0s	0.0s	2.4%	10	IEFIIC	0.0%	0000
	M3DLWDSA	7	J	3DL12032	BATPRDDF	1.0s	0.1s	0.0s	0.0s	8.1%	315	IEFIIC	0.0%	0000
	M0FDW57	7	J	0F493332	BATPRDDF	29.0s	1.6s	0.0s	0.0s	5.5%	5,882	IEFIIC	0.0%	0000
	M0D3FUL7	5	J	32092032	BATPRDDF	64.0s	2.8s	0.0s	0.0s	4.4%	65,048	IEFIIC	0.0%	0000
	M320MQ4	4	J	32092032	BATPRDDF	19.0s	4.4s	0.0s	0.2s	22.6%	12,363	IEFIIC	0.0%	0000
	M3E02AS	4	J	3E09E032	BATPRDDF	29.9m	34.3s	0.0s	0.0s	1.9%	3,079	IEFIIC	0.0%	0000
	M3577HS3	28	J	35795732	BATPRDDF	28.0s	1.7s	0.0s	0.0s	5.7%	7,217	IEFIIC	0.0%	0000
	M3577LS	4	J	35795732	BATPRDDF	4.0s	0.4s	0.0s	0.0s	9.1%	2,611	IEFIIC	0.0%	0000
	M320XT3	4	J	32092032	BATPRDDF	55.0s	1.2s	0.0s	0.0s	2.1%	2,630	IEFIIC	0.0%	0000
	Q823201A	6	A	6Y012042	BATTSTDF	0.0s	0.1s	0.0s	0.0s	9.4%	274	IEFIIC	0.0%	0000
	Q823201A	6	A	6Y012042	BATTSTDF	0.0s	0.1s	0.0s	0.0s	12.8%	272	IEFIIC	0.0%	0000
	M30DMDS	18	J	30D9K332	BATPRDDF	31.5m	28.1s	0.0s	0.0s	1.5%	3,228,140	IEFIIC	0.0%	0000
	M4FVHEG3	5	J	3FV3FV32	BATPRDDF	15.8m	56.8s	0.0s	0.0s	6.0%	162,815	IEFIIC	0.0%	0000
	M0WKUG5J	1	A	0GE0GE42	BATTSTDF	0.0s	0.0s	0.0s	0.0s	26.7%	145	IEFIIC	0.0%	0000
	M0WKUG5D	1	A	0GE0GE32	BATTSTDF	0.0s	0.1s	0.0s	0.0s	47.6%	171	IEFIIC	0.0%	0000
	Q823201A	6	A	6Y012042	BATTSTDF	0.0s	0.1s	0.0s	0.0s	11.8%	233	IEFIIC	0.0%	0000
	M4FVHFG	5	J	3FV3FV32	BATPRDDF	13.0s	0.4s	0.0s	0.0s	2.7%	1,724	IEFIIC	0.0%	0000
	M4E0YEDF	51	B	4E595732	BATCHHI	169.0s	30.6s	0.0s	0.0s	18.1%	62,829	IEFIIC	0.0%	0000
	M354B3S5	11	J	35495732	BATPRDDF	234.0s	45.5s	0.0s	0.0s	19.4%	77,722	IEFIIC	0.0%	0000
	M3B1FR3	15	J	3B13B132	BATPRDDF	9.0s	0.5s	0.0s	0.0s	5.3%	10,830	IEFIIC	0.0%	0000
	M3B1FR7	15	J	3B13B132	BATPRDDF	7.0s	0.5s	0.0s	0.0s	5.5%	10,785	IEFIIC	0.0%	0000

5147 Jobs

Only JOB end records (type 30 subtype 5) have been loaded.

- Individual jobs may be selected with a single click. Right-clicking the first job, **M373Q3S**, displays a menu. Select **Show Step Details** to display the Step details. However, at this point, zBNA will only display Job End record information (not Step Detail) because the SMF 30 subtype 4 data has not been loaded. Once filtering is completed later, the Step Detail records will be loaded.

IBM System z Batch Network Analyzer - TEST FILE

File Edit Filters Action Graph Reports Help

Applied Filters

Mainframe Information

Model: 2817-711  
 Partition Name: ONLM  
 SYSID: SYS1  
 Partition Logical Utilization: 93.7%  
 CPC Utilization: 93.7%

Key Batch	Job Name	Steps	Job Class	Acct Code	Service Cla.	Elapsed TI...	CPU Time	ZAAP Time	zIIP Time	CPU Intens...	EXCPs	Top Program	Top Pgm %	Condition ...
	M373Q3S	7	J	37397332	BATPRDDF	12.6m	204.8s	0.0s	0.3s	27.0%	193,926	IEFIIC	0.0%	0000
	M3DQLSD	3	J	3DQ3DQ32	BATPRDDF	30.1m	26.5s	0.0s	0.0s	1.5%	11,995	DSNECP10	3.0%	0000
	M0VPI03V	2	Y	0FD12032	SYSSTC	0.0s	0.0s	0.0s	0.0s	11.1%	9	IEFIIC	0.0%	0004
	M0D3TSE5	3	J	32092032	BATPRDDF	2.0s	0.1s	0.0s	0.0s	4.9%	824	IEFIIC	0.0%	0000
	M3SK891A	10	J	3SK9SK32	BATPRDDF	2.0s	0.1s	0.0s	0.0s	4.1%	800	IEFIIC	0.0%	0000
	M4E5HQ3A	5	J	4E595732	BATPRDDF	4.0s	0.4s	0.0s	0.0s	7.6%	3,554	IEFIIC	0.0%	0000
	DH03UXQ3	2	J	0PA0PA32	BATPRDDF	0.0s	0.0s	0.0s	0.0s	4.3%	10	IEFIIC	0.0%	0000
	M4E5HYP4	3	J	4E595732	BATPRDDF	8.0s	0.2s	0.0s	0.0s	1.9%	809	IEFIIC	0.0%	0000
	M0VPI03V	2	J	0FD12032	SYSSTC	0.0s	0.0s	0.0s	0.0s	33.3%	9	IEFIIC	0.0%	0004
	DH03UXQ4	2	J	0PA0PA32	BATPRDDF	0.0s	0.0s	0.0s	0.0s	2.4%	10	IEFIIC	0.0%	0000
	M3DLWDSA	7	J	3DL12032	BATPRDDF	1.0s	0.1s	0.0s	0.0s	8.1%	315	IEFIIC	0.0%	0000
	M0FDW57	7	J	0F493332	BATPRDDF	29.0s	1.6s	0.0s	0.0s	5.5%	5,882	IEFIIC	0.0%	0000
	M0D3FUL7	5	J	32092032	BATPRDDF	64.0s	2.8s	0.0s	0.0s	4.4%	65,048	IEFIIC	0.0%	0000
	M320MQ4	4	J	32092032	BATPRDDF	19.0s	4.4s	0.0s	0.2s	22.6%	12,363	IEFIIC	0.0%	0000
	M3E02AS	4	J	3E09E032	BATPRDDF	29.9m	34.3s	0.0s	0.0s	1.9%	3,079	IEFIIC	0.0%	0000
	M3577HS3	28	J	35795732	BATPRDDF	28.0s	1.7s	0.0s	0.0s	5.7%	7,217	IEFIIC	0.0%	0000
	M3577LS	4	J	35795732	BATPRDDF	4.0s	0.4s	0.0s	0.0s	9.1%	2,611	IEFIIC	0.0%	0000
	M320XT3	4	J	32092032	BATPRDDF	55.0s	1.2s	0.0s	0.0s	2.1%	2,630	IEFIIC	0.0%	0000
	Q823201A	6	A	6Y012042	BATTSTDF	0.0s	0.1s	0.0s	0.0s	9.4%	274	IEFIIC	0.0%	0000
	Q823201A	6	A	6Y012042	BATTSTDF	0.0s	0.1s	0.0s	0.0s	12.8%	272	IEFIIC	0.0%	0000
	M30DMDS	18	J	30D9K332	BATPRDDF	31.5m	28.1s	0.0s	0.0s	1.5%	3,228,140	IEFIIC	0.0%	0000
	M4FVHEG3	5	J	3FV3FV32	BATPRDDF	15.8m	56.8s	0.0s	0.0s	6.0%	162,815	IEFIIC	0.0%	0000
	M0WKUG5J	1	A	0GE0GE42	BATTSTDF	0.0s	0.0s	0.0s	0.0s	26.7%	145	IEFIIC	0.0%	0000
	M0WKUG5D	1	A	0GE0GE32	BATTSTDF	0.0s	0.1s	0.0s	0.0s	47.6%	171	IEFIIC	0.0%	0000
	Q823201A	6	A	6Y012042	BATTSTDF	0.0s	0.1s	0.0s	0.0s	11.8%	233	IEFIIC	0.0%	0000
	M4FVHFG	5	J	3FV3FV32	BATPRDDF	13.0s	0.4s	0.0s	0.0s	2.7%	1,724	IEFIIC	0.0%	0000
	M4E0YEDF	51	B	4E595732	BATCHHI	169.0s	30.6s	0.0s	0.0s	18.1%	62,829	IEFIIC	0.0%	0000
	M354B3S5	11	J	35495732	BATPRDDF	234.0s	45.5s	0.0s	0.0s	19.4%	77,722	IEFIIC	0.0%	0000
	M3B1FR3	15	J	3B13B132	BATPRDDF	9.0s	0.5s	0.0s	0.0s	5.3%	10,830	IEFIIC	0.0%	0000
	M3B1FR7	15	J	3B13B132	BATPRDDF	7.0s	0.5s	0.0s	0.0s	5.5%	10,785	IEFIIC	0.0%	0000

5147 Jobs

Only JOB end records (type 30 subtype 5) have been loaded.



## zBNA Lab Guide

6. The Job Information panel displays the specific job information at the top of the **Steps** table.

**Job Information**

Job Name: M373Q3S      Job Number: JOB30091      Number of Steps: 7      Key Batch: No

Start Date: Apr 25, 2013      Start Time: 12:17 AM      End Date: Apr 25, 2013      End Time: 12:29 AM

Job Class: J      Service Class: BATPRDDF      Account Code: 37397332      Condition Code: 0000

Top Pgm %: 0%      Top Program: IEFIC      Elapsed Time: 758.17 Seconds      CPU Intensity: 27.0%

**Steps**

Key Batch	Start Date	Start Time	End Date	End Time	Job Name	Step Name	Program Name	Step Number	Sub Type	Job Class	Acct Code	Servi
	4/25/13	0:17:04	4/25/13	0:29:42	M373Q3S			7 Total	Job	J	37397332	BA

Use the horizontal scroll bar to view all columns.

OK

**Note:** The job details will be displayed once you have performed **File, Add Selected Step Level Records** (performed after the **Filtering** process is complete) on the zBNA main panel.

In the **Step Number** column "**7 Total**" refers to the total number of steps in this job, **M373Q3S**. Also, notice that there is a scroll bar so that all of the various fields can be seen. Click **OK** to return to the main panel.

7. Jobs may be sorted by any parameter on the screen in both ascending and descending order, simply by clicking on the corresponding column header. Click the **CPU Time** column twice to sort from the largest to smallest values. Also note that the number of jobs in the screen, displayed in the bottom left-hand corner, is still currently **5147 jobs**.

IBM System z Batch Network Analyzer - TEST FILE

File Edit Filters Action Graph Reports Help

Applied Filters

Mainframe Information

Model: 2817-711

Partition Name: ONLIM

SYSD: SYS1

Partition Logical Utilization: 93.7%

CPC Utilization: 93.7%

Key Batch	Job Name	Steps	Job Class	Acct Code	Service Class	Elapsed Time	CPU Time	zAAP Time	zIIP Time	CPU Intensity	EXCPs	Top Program	Top Pgm %	Condition Code
M34DES3		6	J	34094432	BATPRDDF	3.3h	2.0h	0.0s	0.0s	61.5%	31,510	DSNECP10	92.0%	0000
M373BDS		21	J	37397332	BATPRDDF	6.3h	2.0h	0.0s	0.7s	31.7%	18,169,677	DSNECP10	46.0%	0000
M373VYS		3	J	37397332	BATCHH	3.7h	1.3h	0.0s	0.0s	34.8%	144,846	DSNECP10	34.0%	0000
M373Q4AA		4	J	37397332	BATPRDDF	2.6h	1.2h	0.0s	0.0s	40.8%	59,388	DSNECP10	83.0%	0000
M373DVF		9	J	37397332	BATPRDDF	4.9h	1.0h	0.0s	0.0s	20.6%	4,741	DSNECP10	41.0%	0000
M373XQ3		5	J	37397332	BATPRDDF	1.5h	56.6m	0.0s	0.0s	62.5%	6,101	DSNECP10	87.0%	0000
M3YFLJE		3	J	3YF3YF32	BATPRDDF	3.0h	48.2m	0.0s	0.0s	27.2%	4410	DSNECP10	21.0%	0000
M3H3C2VA		3	J	3H33H332	BATPRDDF	2.0h	45.9m	0.0s	0.0s	37.7%	21,905	DSNECP10	49.0%	0000
M373BLJ5		11	J	37397332	BATPRDDF	2.0h	39.0m	0.0s	0.4s	32.2%	14,821,030	SYNCSORT	9.0%	0000
M3YHK7SG		26	J	3YH3YH32	BATPRDDF	1.6h	38.9m	0.0s	0.0s	39.5%	596,359	DSNECP10	62.0%	0000
M34D7IS		3	J	34094432	BATPRDDF	1.5h	38.2m	0.0s	0.0s	43.5%	3,735,005	DSNECP10	21.0%	0000
M3YHK7SE		26	J	3YH3YH32	BATPRDDF	1.5h	36.8m	0.0s	0.0s	40.5%	874,505	DSNECP10	64.0%	0000
M373IAS		3	J	37397332	BATCHH	2.6h	34.2m	0.0s	0.0s	22.2%	67,910	DSNECP10	26.0%	0000
M373EC8		3	J	37597532	BATPRDDF	2.6h	34.1m	0.0s	0.0s	22.1%	2,160	DSNECP10	25.0%	0000
M3YHK7E3		26	J	3YH3YH32	BATPRDDF	1.5h	34.0m	0.0s	0.0s	36.7%	512,864	DSNECP10	62.0%	0000
M3YHK7SF		26	J	3YH3YH32	BATPRDDF	1.4h	33.3m	0.0s	0.0s	40.4%	731,964	DSNECP10	63.0%	0000
M3E0COS		3	J	3E09E032	BATPRDDF	2.2h	29.6m	0.0s	0.0s	21.9%	4,404	DSNECP10	26.0%	0000
M402G3L		17	J	40240332	BATPRDDF	54.2m	27.9m	0.0s	0.0s	51.5%	2,949,226	ENGEIE	4.0%	0000
M373F83		5	J	33793732	BATPRDDF	1.2h	26.6m	0.0s	0.0s	36.3%	2,434,989	DSNECP10	26.0%	0000
M34DU03		15	J	34094432	BATPRDDF	1.3h	23.9m	0.0s	0.0s	29.5%	21,548	DSNECP10	19.0%	0000
M373I2S		3	J	37397332	BATCHH	1.2h	22.8m	0.0s	0.0s	31.0%	43,231	DSNECP10	22.0%	0000
M373BFD		7	J	37397332	BATPRDDF	58.5m	22.1m	0.0s	0.0s	37.7%	865,814	DSNECP10	48.0%	0000
M3H3451A		9	J	3H33H332	BATPRDDF	59.4m	21.8m	0.0s	0.0s	36.6%	121,180	DSNECP10	23.0%	0000
M373IUS		14	J	37397332	BATCHH	55.3m	21.6m	0.0s	0.2s	39.1%	3,407,043	DSNECP10	24.0%	0000
M4E5F3SS		66	J	4E595732	BATPRDDF	5.6h	20.7m	0.0s	0.2s	6.2%	19,960,843	DSNECP10	17.0%	0000
M3E0KSN		4	J	3E09E032	BATPRDDF	20.3m	20.3m	0.0s	0.0s	26.5%	1,976,740	DSNECP10	8.0%	0000
M373FPV		9	J	37397332	BATCHH	2.2h	20.0m	0.0s	0.0s	15.2%	1,776,060	DSNECP10	17.0%	0000
M373CHS		5	J	37397332	BATPRDDF	1.3h	19.9m	0.0s	0.0s	25.3%	392,740	DSNECP10	19.0%	0000
M3E06SO		2	J	3E09E032	BATPRDDF	2.2h	19.6m	0.0s	0.0s	14.9%	344	DSNECP10	15.0%	0004
M3YH654		9	J	3YH3YH32	BATPRDDF	22.4m	19.2m	0.0s	0.0s	85.5%	130,150	IEFIC	0.0%	0000
M402HY4E		18	J	40240332	BATPRDDF	52.1m	19.1m	0.0s	0.0s	36.5%	4,283,857	IEFIC	0.0%	0000
M3E06SA		2	J	3E09E032	BATPRDDF	1.1h	18.2m	0.0s	0.0s	27.1%	340	DSNECP10	22.0%	0004
M3E06SN		2	J	3E09E032	BATPRDDF	1.2h	17.2m	0.0s	0.0s	23.7%	320	DSNECP10	13.0%	0004
M233332		10	J	23333332	BATPRDDF	1.1h	16.5m	0.0s	0.0s	28.2%	2,548,318	ENGEIE	22.0%	0000
M3E06SZ		2	J	3E09E032	BATPRDDF	52.0m	16.3m	0.0s	0.0s	31.3%	321	IEFIC	0.0%	0004

5147 Jobs

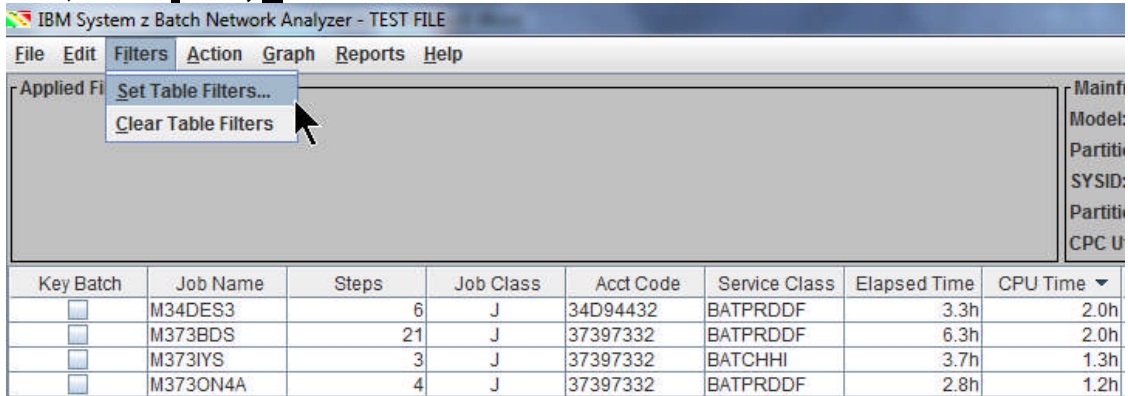
Only JOB end records (type 30 subtype 5) have been loaded.



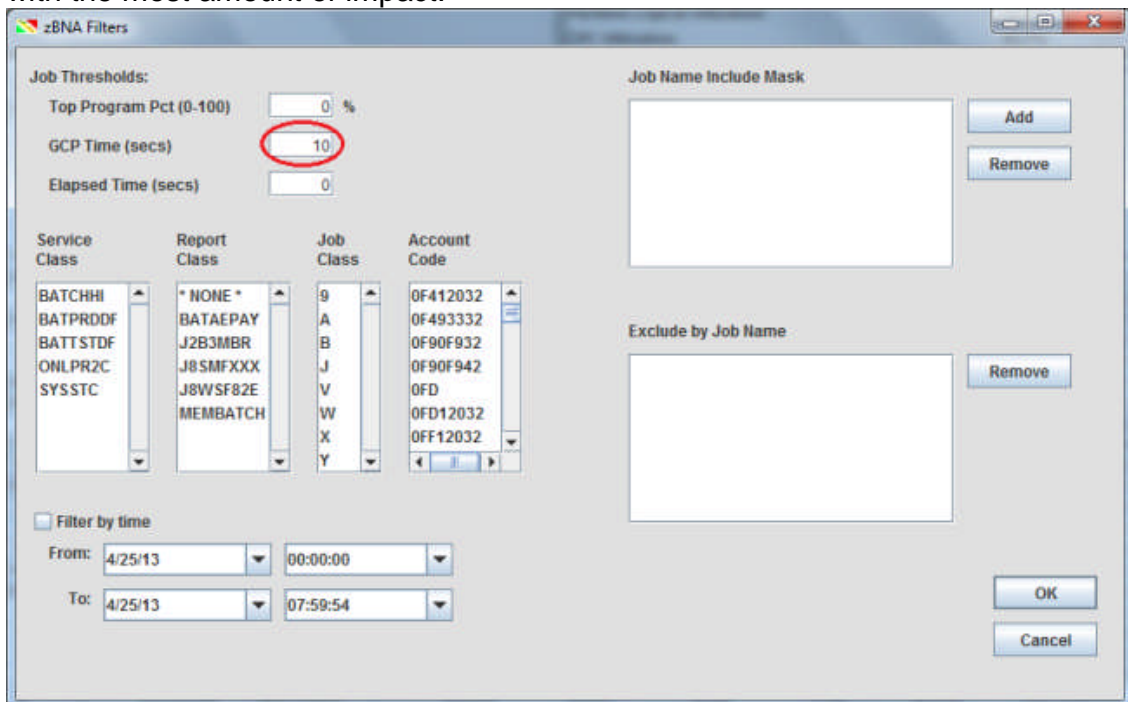
## zBNA Lab Guide

### Task 2 - Filtering Data

1. There can be data from hundreds or thousands of jobs. It is often necessary to filter the jobs based on some criteria to reduce the number to be more manageable for the analysis, and Filters can help reduce the number. To apply a filter, click **Filters, Set Table Filters...**



2. Start by setting the **GCP Time** to **10 seconds**, which will filter out jobs that took less than 10 seconds of CPU during the job's elapsed time. Clicking on another option or pressing Tab will allow the changes to take effect. The purpose of setting the filter is to remove a number of jobs that took an extremely small amount of CPU resource, so that the focus on the analysis can be on the jobs with the most amount of impact.





## zBNA Lab Guide

- Next, filter by the Service Class name. This allows one to filter on the WLM construct that is already aligned to business importance and classification. Multiple Service Classes may be selected by holding the Control key while clicking the desired service class names. Select **BATCHHI**, **BATPRDDF**, and **BATTSTDF**. Note that there are now **938** jobs in the table. To remove a selection, hold Control and click it again. Similarly, one can filter by Report Class, Job Class, or Account Code, if desired.

- Job names may also be filtered by clicking **Add**. Specific jobs can be named, or only parts of the name may be used, followed by an asterisk, which will match any number of characters. Please add **M4\*** and **M3\***, as separate entries, to the Job Name Mask. Click **OK** after keying in each Job Name Mask.



## zBNA Lab Guide

- As shown below, **M4\*** will find all jobs starting with M4, and **M3\*** will find all jobs starting with M3. Note that there are now **874** jobs on the main panel. Click **OK** to return to the main panel.

The screenshot shows the IBM System z Batch Network Analyzer interface. A dialog box titled "zBNA Filters" is open, allowing users to filter jobs. The "Job Name Include Mask" field contains "M3\*" and "M4\*", which are highlighted with a red box. The "Exclude by Job Name" field is empty. The "Filter by time" section shows a range from 4/25/13 00:00:00 to 07:59:54. The main panel shows a list of jobs with 874 jobs displayed.

- Even with a filtered list there may be jobs that should not be included. These can be excluded from the analysis. Select the line for job **M373DVF** and right-click; select **Exclude Data** to remove it from the table.

The screenshot shows the main panel of the IBM System z Batch Network Analyzer. A list of jobs is displayed, and the job M373DVF is selected. A context menu is open, showing options like "Show Step Details", "Exclude Data", and "Toggle Key Batch". The "Exclude Data" option is highlighted, indicating that the user is about to exclude this job from the analysis.



## zBNA Lab Guide

7. Note that returning to the zBNA Filters panel shows that job in the Exclude by Job Name list. There is one less job, now **873 Jobs**.

Click **OK**.

8. If there are key jobs that you would like to focus on, select those in the **Key Batch** column. These will **always** be included in the analysis regardless of the job filter definitions. Select the following jobs as key: **M373BJ5**, **M402GX3L**, and **M3E0IKSN**.



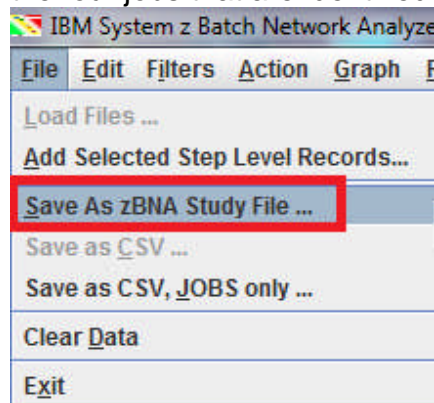
## zBNA Lab Guide

Now sort the **EXCPs** column in descending order to view the values from largest to smallest.

Key Batch	Job Name	Steps	Job Class	Acct Code	Service Class	Elapsed Time	CPU Time	zAAP Time	zIIP Time	CPU Intensity	EXCPs	Top Program	Top Pgm %	Condition Code
<input type="checkbox"/>	M3YHGEU	37	J	3YH3YH32	BATPRDDF	1.3h	317.8s	0.0s	0.0s	7.0%	11,814,609	IDCAMS	6.0%	0000
<input type="checkbox"/>	M3NE272G	12	J	3NEH7732	BATPRDDF	1.2h	352.7s	0.0s	1.1s	8.3%	11,170,071	SKTHRED	4.0%	0000
<input type="checkbox"/>	M320XIU	4	J	32092032	BATPRDDF	13.5m	265.5s	0.0s	0.0s	32.7%	8,738,460	IEFIC	0.0%	0000
<input type="checkbox"/>	M3205D3	7	J	32092032	BATPRDDF	29.3m	283.8s	0.0s	0.0s	16.2%	8,533,858	IEFIC	0.0%	0000
<input type="checkbox"/>	M3E0DK3	2	J	3E03E032	BATPRDDF	1.7h	112.9s	0.0s	0.0s	1.9%	8,532,779	PBLAH1	1.0%	0000
<input type="checkbox"/>	M3205D7	4	J	32092032	BATPRDDF	582.0s	286.4s	0.0s	0.0s	49.2%	8,202,131	IEFIC	0.0%	0000
<input type="checkbox"/>	M364PSS	9	J	36498432	BATPRDDF	1.8h	299.9s	0.0s	0.0s	4.6%	8,008,518	P142MP1	3.0%	0000
<input type="checkbox"/>	M320ZVB	4	J	32092032	BATPRDDF	27.8m	242.3s	0.0s	0.0s	14.5%	7,180,565	IEFIC	0.0%	0000
<input type="checkbox"/>	M320DYUD	4	J	32092032	BATPRDDF	51.9m	220.9s	0.0s	0.0s	7.1%	6,390,561	DSNUGSIT	2.0%	0000
<input type="checkbox"/>	M30DEYS	3	J	3009K332	BATPRDDF	50.1m	123.6s	0.0s	0.0s	4.1%	6,298,940	SKTHRED	2.0%	0000
<input type="checkbox"/>	M320PEH	10	J	32092032	BATPRDDF	22.8m	160.4s	0.0s	0.0s	11.7%	5,019,935	IEFIC	0.0%	0000
<input type="checkbox"/>	M320PEI	10	J	32092032	BATPRDDF	412.0s	147.1s	0.0s	0.0s	35.6%	4,648,950	IEFIC	0.0%	0000
<input type="checkbox"/>	M320PEK	10	J	32092032	BATPRDDF	22.1m	147.8s	0.0s	0.0s	11.2%	4,635,676	IEFIC	0.0%	0000
<input type="checkbox"/>	M3SK36A	11	J	3SK9SK32	BATPRDDF	33.8m	93.8s	0.0s	0.1s	4.6%	4,519,131	IEFIC	0.0%	0000
<input type="checkbox"/>	IM4E07APH	131	B	4E595732	BATCHHI	26.3m	121.9s	0.0s	0.0s	7.7%	4,479,181	IEFIC	0.0%	0000
<input type="checkbox"/>	M3SK96DA	12	J	3SK9SK32	BATPRDDF	42.9m	160.3s	0.0s	1.2s	6.2%	4,362,335	IEFIC	0.0%	0000
<input type="checkbox"/>	M3SK93DA	11	J	3SK9SK32	BATPRDDF	38.7m	348.9s	0.0s	0.1s	15.0%	4,327,934	IEFIC	0.0%	0000
<input type="checkbox"/>	IM402HY4E	18	J	40240232	BATPRDDF	52.1m	19.1m	0.0s	0.0s	36.5%	4,293,857	IEFIC	0.0%	0000
<input type="checkbox"/>	M320SD8	4	J	32092032	BATPRDDF	247.0s	141.1s	0.0s	0.0s	56.9%	3,890,301	IEFIC	0.0%	0000
<input type="checkbox"/>	M3SKGIDA	3	J	3SK9SK42	BATPRDDF	331.0s	133.8s	0.0s	0.0s	40.4%	3,813,883	IEFIC	0.0%	0000
<input type="checkbox"/>	M320XID	4	J	32092032	BATPRDDF	526.0s	122.9s	0.0s	0.0s	23.4%	3,787,837	IEFIC	0.0%	0000
<input type="checkbox"/>	IM402G4IL	8	J	40240232	BATPRDDF	34.1m	306.6s	0.0s	0.0s	15.0%	3,739,314	PORSW000	1.0%	0000
<input type="checkbox"/>	M34D7JS	3	J	34D94432	BATPRDDF	1.5h	38.2m	0.0s	0.0s	43.5%	3,735,605	DSNECP10	21.0%	0000
<input type="checkbox"/>	M30HF73	5	J	30H90H32	BATPRDDF	13.4m	57.3s	0.0s	0.0s	7.1%	3,688,037	IEFIC	0.0%	0000
<input type="checkbox"/>	IM4E07HZH	128	B	4E595732	BATCHHI	27.8m	114.5s	0.0s	0.2s	6.9%	3,499,688	IEFIC	0.0%	0000
<input type="checkbox"/>	M320DYUE	4	J	32092032	BATPRDDF	23.4m	115.3s	0.0s	0.0s	8.2%	3,415,051	IEFIC	0.0%	0000
<input type="checkbox"/>	M320DYUE	4	J	32092032	BATPRDDF	30.8m	115.7s	0.0s	0.0s	6.3%	3,413,820	IEFIC	0.0%	0000
<input type="checkbox"/>	M37JUS	14	J	37397332	BATCHHI	55.3m	21.8m	0.0s	0.2s	38.1%	3,407,043	DSNECP10	24.0%	0000
<input type="checkbox"/>	M320SV3	10	J	32092032	BATPRDDF	413.0s	109.1s	0.0s	0.0s	26.4%	3,339,847	IEFIC	0.0%	0000
<input type="checkbox"/>	M320MOD	7	J	32092032	BATPRDDF	22.6m	117.6s	0.0s	0.0s	8.7%	3,282,795	IEFIC	0.0%	0000
<input type="checkbox"/>	M355MQS	11	J	35595532	BATCHHI	10.6m	16.4s	0.0s	0.0s	2.6%	3,280,310	IEFIC	0.0%	0000
<input type="checkbox"/>	M30MDMS	18	J	3009K332	BATPRDDF	31.5m	28.1s	0.0s	0.0s	1.5%	3,228,140	IEFIC	0.0%	0000
<input type="checkbox"/>	M373B4	5	J	37397332	BATPRDDF	1.2h	533.1s	0.0s	0.0s	12.3%	3,220,253	SWMSORT	6.0%	00C1
<input checked="" type="checkbox"/>	M4E07B1H	132	B	4E595732	BATCHHI	16.5m	71.9s	0.0s	0.1s	7.2%	3,028,474	IEFIC	0.0%	0000
<input type="checkbox"/>	M3E0K8SN	7	J	3E09E032	BATPRDDF	26.9m	62.1s	0.0s	0.2s	3.8%	3,005,538	IEFIC	0.0%	0000

Let's find job **M4E07B1H**, which has **3,028,474 EXCPs**, in the table. You can either slowly scroll down the table to job **M4E07B1H** or use the **Edit, Find** (Ctrl+F) function (the search argument **must be** upper case). Click the **Key Batch** checkbox. Note that the other three *Key Batch* jobs are still selected, however, they just are not in this view since we performed the sort by EXCPs. **NOTE:** This technique of identifying jobs as *Key Batch* can be used to keep known jobs always in the analysis (e.g. critical path jobs, high importance, etc.) so that other filtering techniques do not inadvertently remove them. There is also the ability to separately report on these "Key" jobs.

At this point, let's stop and save the current filters that have been set along with the four jobs that are identified as key in a zBNA study file.



Name the file **testrel4** (".zBNA" will automatically be appended to the file name), and click **Save**.



## zBNA Lab Guide

- Return to the zBNA Filters panel and set the **Top Program Pct** to **10%**, which will only include jobs where a Top Program is 10% or greater. Note that there are now only **36 jobs** in the table, including the four that we selected as Key Batch jobs. Click **OK**.

The screenshot shows the IBM System z Batch Network Analyzer (zBNA) interface. The 'zBNA Filters' dialog box is open, allowing users to filter jobs based on various criteria. In the 'Job Thresholds' section, the 'Top Program Pct (0-100)' is set to 10%. The 'Job Name Include Mask' field contains 'M3\*' and 'M4\*', and the 'Exclude by Job Name' field contains 'M373DVF(JOB27570)'. The 'Filter by time' section shows a time range from 4/25/13 00:00:00 to 4/25/13 07:59:54. The background table displays a list of jobs, with 36 jobs selected, as indicated by the '36 Jobs' status at the bottom left.

- Let's add the job step data (SMF Type 30 subtype 4 records). Click **File, Add Selected Step Level Records**.

The screenshot shows the IBM System z Batch Network Analyzer (zBNA) interface. The 'File' menu is open, and the 'Add Selected Step Level Records...' option is highlighted. The background table displays a list of jobs, with 36 jobs selected, as indicated by the '36 Jobs' status at the bottom left.



# zBNA Lab Guide

11. The main zBNA panel is redisplayed. Now a job can be drilled down to show the step level details. (Note that the message **“Only JOB end records (type 30 subtype 5) have been loaded”** is no longer displayed in the information bar).

IBM System z Batch Network Analyzer - TEST FILE

File Edit Filters Action Graph Reports Help

Applied Filters

Mainframe Information

Model:

2817-711

Partition Name:

ONLIM

SYSID:

SYS1

CPU Logical Utilization:

93.7%

CPC Utilization:

93.7%

SERVICE CLASS: BATCHI, BATPRDF, BATTSTDF

JOB NAMES: M3\*, M4\*

Key Batch	Job Name	Steps	Job Class	Acct Code	Service Class	Elapsed Time	CPU Time	zAAP Time	zIP Time	CPU Intensity	EXCPs	Top Program	Top Pgm %	Condition Code
	M3BRV44	3	J	36090332	BATPRDF	38.1m	13.9m	0.0s	0.0s	36.5%	172,420,DSNECP10	10.0%	0.000	
	M373BFD	7	J	37397332	BATPRDF	58.5m	19.4m	0.0s	0.0s	33.1%	855,814,DSNECP10	48.0%	0.000	
	M3EHL8S	2	J	3EH49432	BATPRDF	44.5m	12.2m	0.0s	0.0s	27.3%	36,613,DSNECP10	15.0%	0.000	
	M373ZS	3	J	37397332	BATCHI	1.2h	22.8m	0.0s	0.0s	31.1%	43,231,DSNECP10	22.0%	0.000	
	M4E59EVS	7	J	4E595732	BATPRDF	1.1h	15.0m	0.0s	0.0s	23.7%	6,954,DSNECP10	18.0%	0.000	
	M3YH78G	2	J	3YH4YH32	BATPRDF	1.4h	33.1m	0.0s	0.0s	40.1%	37,194,DSNECP10	63.0%	0.000	
	M34DUG3	15	J	34D94432	BATPRDF	1.3h	23.9m	0.0s	0.0s	29.5%	21,548,DSNECP10	29.0%	0.000	
	M373XQ3	5	J	37397332	BATPRDF	1.5h	56.6m	0.0s	0.0s	62.5%	6,101,DSNECP10	87.0%	0.000	
	M3YH78E	26	J	3YH4YH32	BATPRDF	1.5h	36.6m	0.0s	0.0s	40.3%	874,506,DSNECP10	64.0%	0.000	
	M3YH78S3	23	J	3YH4YH32	BATPRDF	1.5h	33.9m	0.0s	0.0s	36.6%	512,864,DSNECP10	62.0%	0.000	
	M3YH78G	26	J	3YH4YH32	BATPRDF	1.5h	38.8m	0.0s	0.0s	39.4%	598,359,DSNECP10	62.0%	0.000	
	M3HS23VA	3	J	3HS3H532	BATPRDF	2.0h	46.0m	0.0s	0.0s	37.8%	21,905,DSNECP10	49.0%	0.000	
	M373IAS	3	J	37397332	BATCHI	2.6h	34.2m	0.0s	0.0s	22.2%	67,910,DSNECP10	26.0%	0.000	
	M373ON4A	4	J	37397332	BATPRDF	2.8h	1.2h	0.0s	0.0s	40.8%	56,388,DSNECP10	63.0%	0.000	
	M3E066S0	2	J	3E06E032	BATPRDF	1.1h	49.8	0.0s	0.0s	13.4%	342,DSNECP10	12.0%	0004	
	M3E066SA	3	J	3E06E032	BATPRDF	1.0h	18.2m	0.0s	0.0s	27.2%	340,DSNECP10	22.0%	0004	
	M3E066SN	2	J	3E06E032	BATPRDF	1.2h	17.2m	0.0s	0.0s	23.7%	320,DSNECP10	13.0%	0004	
	M34DE83	6	J	34D94432	BATPRDF	3.3h	2.0h	0.0s	0.0s	61.6%	31,510,DSNECP10	92.0%	0.000	
	M337F83	5	J	33793732	BATPRDF	1.2h	26.6m	0.0s	0.0s	36.3%	2,434,989,DSNECP10	26.0%	0.000	
	M373H9S	3	J	37397332	BATCHI	3.7h	1.3h	0.0s	0.0s	34.8%	144,845,DSNECP10	34.0%	0.000	
	M34D7J8	3	J	34D94432	BATPRDF	1.5h	38.2m	0.0s	0.0s	43.5%	3,735,605,DSNECP10	21.0%	0.000	
	M3E0C0S	3	J	3E06E032	BATPRDF	2.2h	29.6m	0.0s	0.0s	21.9%	4,404,DSNECP10	26.0%	0.000	
	M373B5J	11	J	37397332	BATPRDF	2.0h	39.0m	0.0s	0.4s	32.2%	14,821,030,SYNCSORT	9.0%	0.000	
	M373C0S	15	J	37397332	BATPRDF	45.5m	571.8	0.0s	0.0s	21.0%	510,393,DSNECP10	13.0%	0.000	
	M3E066S0	2	J	3E06E032	BATPRDF	2.2h	19.8m	0.0s	0.0s	15.2%	34,DSNECP10	15.0%	0004	
	M3H5A51A	3	J	3HS3H532	BATPRDF	58.4m	21.8m	0.0s	0.0s	36.6%	121,786,DSNECP10	23.0%	0.000	
	M373CNS	5	J	37397332	BATPRDF	1.3h	19.9m	0.0s	0.0s	25.3%	392,740,DSNECP10	19.0%	0.000	
	M3E0K5N	4	J	3E06E032	BATPRDF	1.3h	20.3m	0.0s	0.0s	26.5%	1,976,574,DSNECP10	8.0%	0.000	
	M3YFUEE	3	J	3YF3YF32	BATPRDF	3.0h	48.2m	0.0s	0.0s	27.2%	441,DSNECP10	21.0%	0.000	
	M373FVY	3	J	37397332	BATCHI	2.0h	20.0m	0.0s	0.0s	15.2%	1,776,080,DSNECP10	17.0%	0.000	
	M373EC5	3	J	37597532	BATPRDF	2.6h	34.1m	0.0s	0.0s	22.1%	316,DSNECP10	25.0%	0.000	
	M402GX3L	17	J	40242032	BATPRDF	54.2m	27.9m	0.0s	0.0s	51.5%	2,949,226,ENGXGE	4.0%	0.000	
	M373BD5	21	J	37397332	BATPRDF	6.3h	2.0h	0.0s	0.8s	32.0%	18,169,677,DSNECP10	46.0%	0.000	
	M373JUS	14	J	37397332	BATCHI	55.3m	21.6m	0.0s	0.2s	39.1%	3,407,043,DSNECP10	27.0%	0.000	
	M4E5F3SS	66	J	4E595732	BATPRDF	5.6h	29.7m	0.0s	0.2s	6.2%	10,950,843,DSNECP10	14.0%	0.000	

16 Jobs

Let's sort on the **Elapsed Time** column so that the longest running job is the first one displayed in the table.

IBM System z Batch Network Analyzer - TEST FILE

File Edit Filters Action Graph Reports Help

Applied Filters

SERVICE CLASS: BATCHI, BATPROF, BATSTDF  
JOB NAMES: M3\*, M4\*

Mainframe Information

Model: 2817-711  
Partition Name: CHL11  
SYSID: SYS1  
Partition Logical Utilization: 93.7%  
CPC Utilization: 93.7%

Key Batch	Job Name	Steps	Job Class	Acct Code	Service Class	Elapsed Time	CPU Time	zAAP Time	zIIP Time	CPU Intensity	EXCPs	Top Program	Top Pgm %	Condition Code
	M373B03	24	J	37397332	BATPROF	6.3h	2.0h	0.0s	0.0s	32.0%	18,161,777 DSNCEP10	6.4%	0.000	0000
	M4E59JSS		J	4E595732	BATPRODF	5.5h	20.7m	0.0s	0.2s	6.2%	19,950,843 DSNCEP10	17.0%	0.000	
	M373V9S		J	37397332	BATCHI	1.3h	1.3h	0.0s	0.0s	34.8%	144,846 DSNCEP10	34.0%	0.000	
	M34DE53		J	34004432	BATPRODF	3.3h	2.0h	0.0s	0.0s	61.6%	31,510 DSNCEP10	92.0%	0.000	
	M373044A		J	37397332	BATPRODF	2.9h	1.2h	0.0s	0.0s	27.2%	441 DSNCEP10	21.0%	0.000	
	M373CECS		J	37597632	BATPRODF	2.5h	34.1m	0.0s	0.0s	22.1%	56,384 DSNCEP10	63.0%	0.000	
	M373IAS	3	J	37397332	BATCHI	2.6h	34.2m	0.0s	0.0s	22.2%	67,910 DSNCEP10	25.0%	0.000	
	M3E0C0S	3	J	3E09E032	BATPRODF	2.2h	29.6m	0.0s	0.0s	21.9%	4,404 DSNCEP10	26.0%	0.000	
	M3E068S0	2	J	3E09E032	BATPRODF	2.2h	19.6m	0.0s	0.0s	14.9%	344 DSNCEP10	15.0%	0004	
	M373PFI	32	J	37397332	BATCHI	2.0h	20.0m	0.0s	0.0s	15.2%	1,776,000 DSNCEP10	17.0%	0.000	
	M3MS23VA	3	J	3H534H32	BATPRODF	2.0h	46.0m	0.0s	0.0s	37.8%	21,905 DSNCEP10	49.0%	0.000	
	M373BJS	11	J	37397332	BATPRODF	2.0h	39.0m	0.0s	0.4s	32.2%	14,821,030 SYNCSORT	9.0%	0.000	
	M3YHK75G	26	J	3YH3YH32	BATPRODF	1.5h	38.8m	0.0s	0.0s	39.9%	596,359 DSNCEP10	62.0%	0.000	
	M3YHK783	26	J	3YH3YH32	BATPRODF	1.5h	33.9m	0.0s	0.0s	36.6%	512,864 DSNCEP10	62.0%	0.000	
	M3YHK78E	26	J	3YH3YH32	BATPRODF	1.5h	36.6m	0.0s	0.0s	36.0%	674,595 DSNCEP10	64.0%	0.000	
	M373X03	5	J	37397332	BATCHI	1.5h	56.6m	0.0s	0.0s	62.5%	6,101 DSNCEP10	87.0%	0.000	
	M34D7JS	3	J	34004432	BATPRODF	1.5h	38.2m	0.0s	0.0s	43.5%	3,735,605 DSNCEP10	21.0%	0.000	
	M3YHK7SF	26	J	3YH3YH32	BATPRODF	1.4h	33.1m	0.0s	0.0s	40.1%	731,964 DSNCEP10	63.0%	0.000	
	M3MDUC3	15	J	34094432	BATPRODF	1.3h	23.9m	0.0s	0.0s	29.5%	21,548 DSNCEP10	29.0%	0.000	
	M373CNS	5	J	37397332	BATPRODF	1.3h	19.9m	0.0s	0.0s	39.2%	340 DSNCEP10	19.0%	0.000	
	M3E0KSN	4	J	3E09E032	BATPRODF	1.3h	20.3m	0.0s	0.0s	26.5%	1,976,574 DSNCEP10	8.0%	0.000	
	M373ZS	3	J	37397332	BATCHI	1.2h	22.8m	0.0s	0.0s	31.0%	43,231 DSNCEP10	22.0%	0.000	
	M373FB	3	J	37397332	BATPRODF	1.2h	26.6m	0.0s	0.0s	36.3%	2,434,989 DSNCEP10	26.0%	0.000	
	M3E068SN	2	J	3E09E032	BATPRODF	1.2h	17.2m	0.0s	0.0s	23.7%	32 DSNCEP10	13.0%	0.000	
	M3E068SA	2	J	3E09E032	BATPRODF	1.1h	18.2m	0.0s	0.0s	27.1%	340 DSNCEP10	22.0%	0004	
	M4E594EVS	7	J	4E595732	BATPRODF	1.1h	15.0m	0.0s	0.0s	23.7%	6,954 DSNCEP10	18.0%	0.000	
	M3E068SU	2	J	3E09E032	BATPRODF	1.0h	498.0s	0.0s	0.0s	13.4%	342 DSNCEP10	12.0%	0004	
	M3MS451A	9	J	3H534H32	BATPRODF	59.4m	21.8m	0.0s	0.0s	36.6%	121,786 DSNCEP10	23.0%	0.000	
	M373BFD	13	J	37397332	BATCHI	53.9m	19.4m	0.0s	0.0s	86.5814 DSNCEP10	48.0%	0.000		
	M373JUS	14	J	37397332	BATCHI	55.3m	21.6m	0.0s	0.2s	39.1%	3,407,043 DSNCEP10	24.0%	0.000	
	M402GX3L	17	J	40240232	BATPRODF	54.2m	27.9m	0.0s	0.0s	51.5%	2,949,226 ENGEXE	4.0%	0.000	
	M373CCS	15	J	37397332	BATPRODF	45.5m	571.8s	0.0s	0.0s	21.0%	510,039 DSNCEP10	13.0%	0.000	
	M3EHL8S	2	J	3EHL4932	BATPRODF	44.5m	12.2m	0.0s	0.0s	27.7%	36,613 DSNCEP10	15.0%	0.000	
	M3EVB4S	3	J	36896832	BATPRODF	38.1m	13.9m	0.0s	0.0s	36.5%	172,542 DSNCEP10	10.0%	0.000	

36 Jobs

Job **M373BDS** is the longest running job in this filtered set. You can see that the elapsed time is **6.3 hours** and had **21 Steps**. Right click on that job, and select **Show Step Details**. **Note:** Double clicking in the job row will perform the same task.



## zBNA Lab Guide

12. The details on the steps are displayed. One row per each Step is provided, and all the columns for the Job level are provided for each Step. Remember to use both the vertical and horizontal scroll bars to view all of the information.

**Job Information**

Job Name: M373BDS      Job Number: JOB27655      Number of Steps: 21      Key Batch: No

Start Date: Apr 25, 2013      Start Time: 12:00 AM      End Date: Apr 25, 2013      End Time: 6:17 AM

Job Class: J      Service Class: BATPRDDF      Account Code: 37397332      Condition Code: 0000

Top Pgm %: 46%      Top Program: DSNECP10      Elapsed Time: 22672.7 Seconds      CPU Intensity: 32.0%

Key Batch	Start Date	Start Time	End Date	End Time	Job Name	Step Name	Program Name	Step Number	Sub Type	Job Class	Acct Code	Se
	4/25/13	0:00:00	4/25/13	6:17:52	M373BDS			21 Total				
	4/25/13	0:00:00	4/25/13	2:31:53	M373BDS	S373BD3	LNMHVW23	3	Step	J	37397332	
	4/25/13	2:31:53	4/25/13	2:39:29	M373BDS	EDFNXS3	LHEJHQHU	4	Step	J		
	4/25/13	2:39:29	4/25/13	2:47:18	M373BDS	EDFNXS4	LHEJHQHU	5	Step	J		
	4/25/13	2:47:18	4/25/13	2:50:28	M373BDS	EDFNXS5	LHEJHQHU	6	Step	J		
	4/25/13	2:50:28	4/25/13	2:51:11	M373BDS	EDFNXS6	LHEJHQHU	7	Step	J		
	4/25/13	2:51:11	4/25/13	2:52:45	M373BDS	EDFNXS7	LHEJHQHU	8	Step	J		
	4/25/13	2:52:45	4/25/13	2:55:25	M373BDS	VRUWBD3	VBOFVRUW	9	Step	J		
	4/25/13	2:55:25	4/25/13	3:02:35	M373BDS	S373BD4	LNMHVW23	10	Step	J		

Scroll to see the remaining columns.

Service Class	Report Class	Elapsed Time	CPU Time	zAAP Time	zIIP Time	IIP CP Time	EXCP	CPU Intensity	Top Program	Top Pgm %
BATPRDDF		6.3h	2.0h	0.0s	0.8s	0.0s	18169677	32.0%	DSNECP10	46.0%
BATPRDDF		2.5h	37.1m	0.0s	0.0s	0.0s	2857559	24.5%	DSNECP10	29.0%
BATPRDDF		455.0s	13.8s	0.0s	0.0s	0.0s	1263029	3.0%	IEFIIC	0.0%
BATPRDDF		469.0s	8.2s	0.0s	0.0s	0.0s	2695024	1.7%	IEFIIC	0.0%
BATPRDDF		189.0s	3.7s	0.0s	0.0s	0.0s	1069746	1.9%	IEFIIC	0.0%
BATPRDDF		42.0s	0.8s	0.0s	0.0s	0.0s	228224	1.8%	IEFIIC	0.0%
BATPRDDF		93.0s	1.7s	0.0s	0.0s	0.0s	455276	1.8%	IEFIIC	0.0%
BATPRDDF		160.0s	4.1s	0.0s	0.3s	0.0s	3967	2.6%	IEFIIC	0.0%
BATPRDDF		430.0s	12.1s	0.0s	0.0s	0.0s	1375561	2.8%	IEFIIC	0.0%

The detailed information on each step of the job includes:

- start/end time and date
- step name
- program name
- step number
- sub type
- job class
- account code
- service class
- report class
- elapsed time
- CPU time
- zAAP time
- zIIP time
- IIP CP time
- EXCPs
- CPU intensity
- Top Program
- Top PGM %

These step level fields may be useful once you've identified a job that you want to reduce the elapsed time, because you'll be able to identify the step and program level resources to know where to focus tuning or alternative technology.

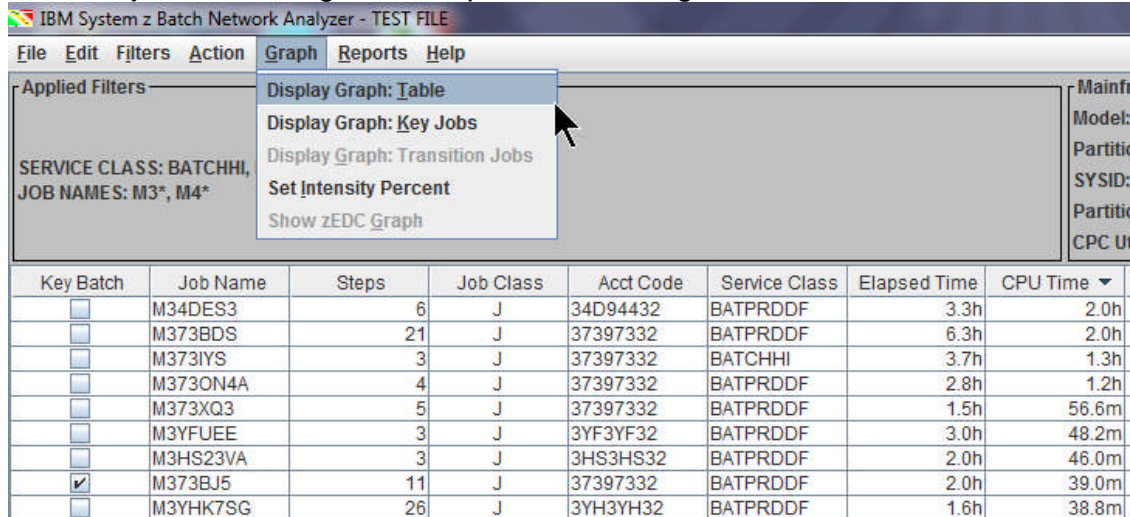
Click OK to return to the zBNA main panel.



## zBNA Lab Guide

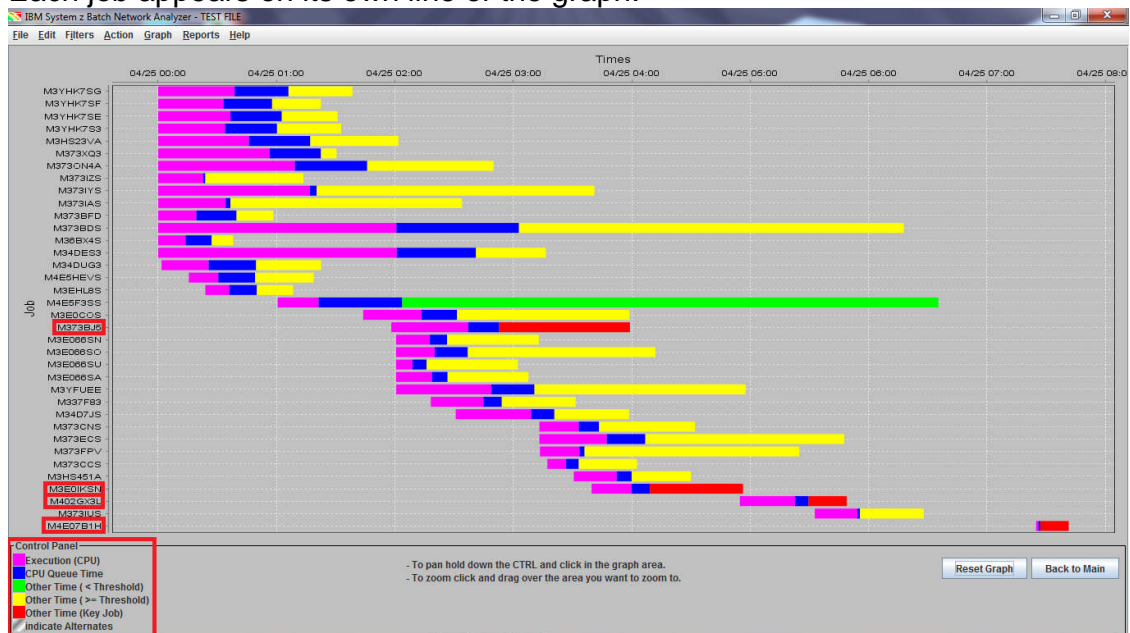
### Task 3 - Displaying a Graph

1. The data in the table on the main zBNA panel may also be displayed in a graph format by selecting **Graph** then **Display Graph: Table**. This will graph the selected jobs remaining from the previous filtering.



Key Batch	Job Name	Steps	Job Class	Acct Code	Service Class	Elapsed Time	CPU Time
<input type="checkbox"/>	M34DES3	6	J	34D94432	BATPRDDF	3.3h	2.0h
<input type="checkbox"/>	M373BDS	21	J	37397332	BATPRDDF	6.3h	2.0h
<input type="checkbox"/>	M373IYS	3	J	37397332	BATCHHI	3.7h	1.3h
<input type="checkbox"/>	M373ON4A	4	J	37397332	BATPRDDF	2.8h	1.2h
<input type="checkbox"/>	M373XQ3	5	J	37397332	BATPRDDF	1.5h	56.6m
<input type="checkbox"/>	M3YFUEE	3	J	3YF3YF32	BATPRDDF	3.0h	48.2m
<input type="checkbox"/>	M3HS23VA	3	J	3HS3HS32	BATPRDDF	2.0h	46.0m
<input checked="" type="checkbox"/>	M373BJ5	11	J	37397332	BATPRDDF	2.0h	39.0m
<input type="checkbox"/>	M3YHK7SG	26	J	3YH3YH32	BATPRDDF	1.6h	38.8m

2. Each job appears on its own line of the graph.



The Elapsed Time for a job is the sum of **CPU Time + CPU Queue Time + Other Time**. Other time is all other time, and is typically comprised of I/O time. The sum of the 3 components is placed on the X axis when the Job's Elapsed Time occurred in the interval, but they represent the % of time spent in each component (e.g. the actual CPU Time does not all occur at the beginning of the job).

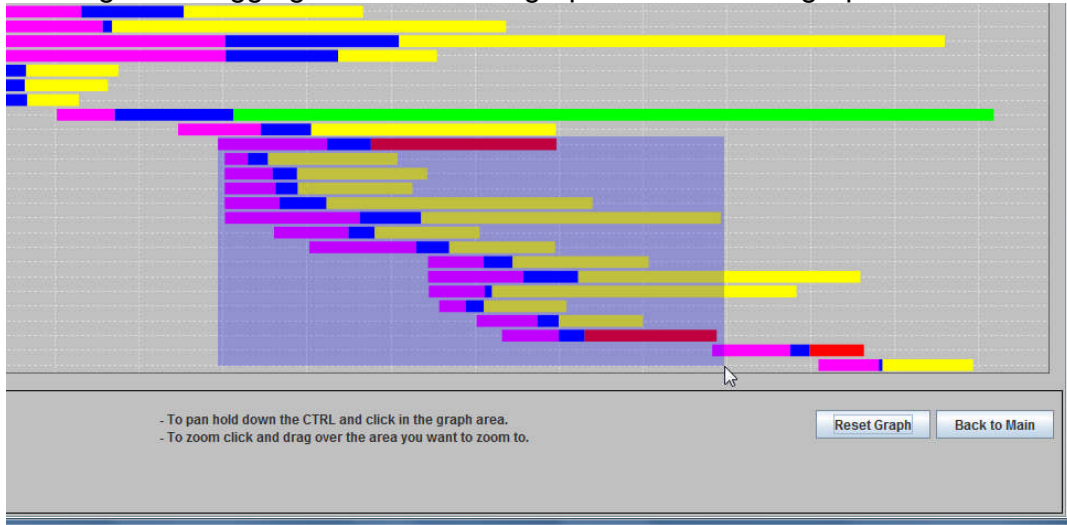


## zBNA Lab Guide

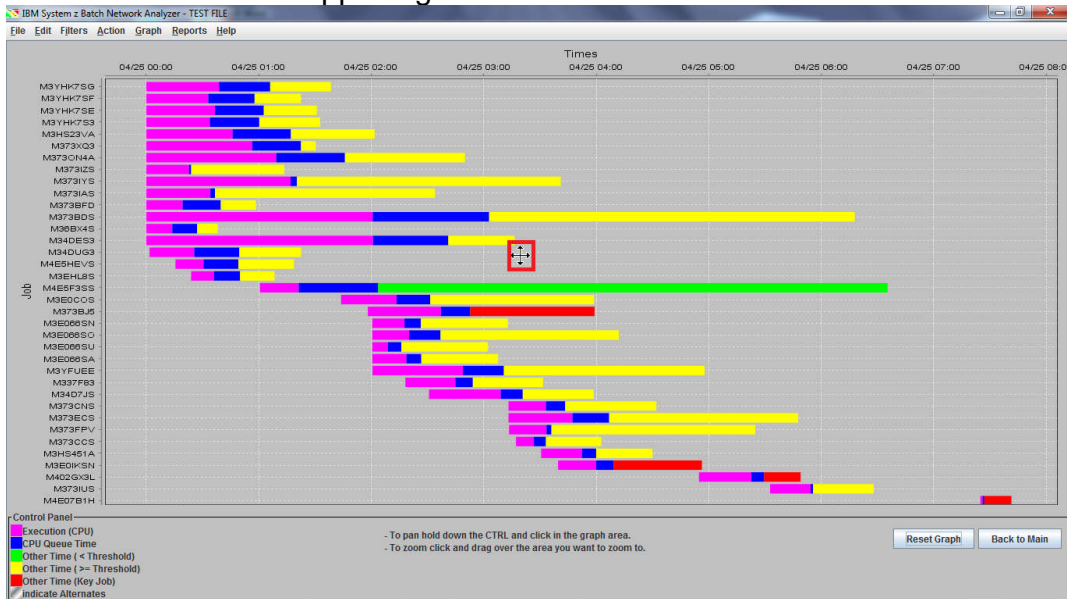
The legend for the graph appears in the bottom left corner.

- Pink, **Execution (CPU Time)**, shows the measured CPU time for a job.
- Blue, **CPU Queue Time**, represents the estimated CPU wait time for a job, which is calculated from the *RMF Service class waiting for dispatch* field.
- **Other Time**, a green bar signifies that the job's CPU execution time is less than 10% (default value for **Set Intensity Percent**) of the job's duration.
- **Other Time**, a yellow bar signifies that the CPU execution time is more than 10% (default value for **Set Intensity Percent**) of the duration.
- **Other Time**, a red bar signifies *Key batch* jobs.

3. Clicking and dragging an area on the graph will zoom the graph in to that area.



4. Holding Control allows the user to pan across the graph. The cursor will become a cross when this is happening.

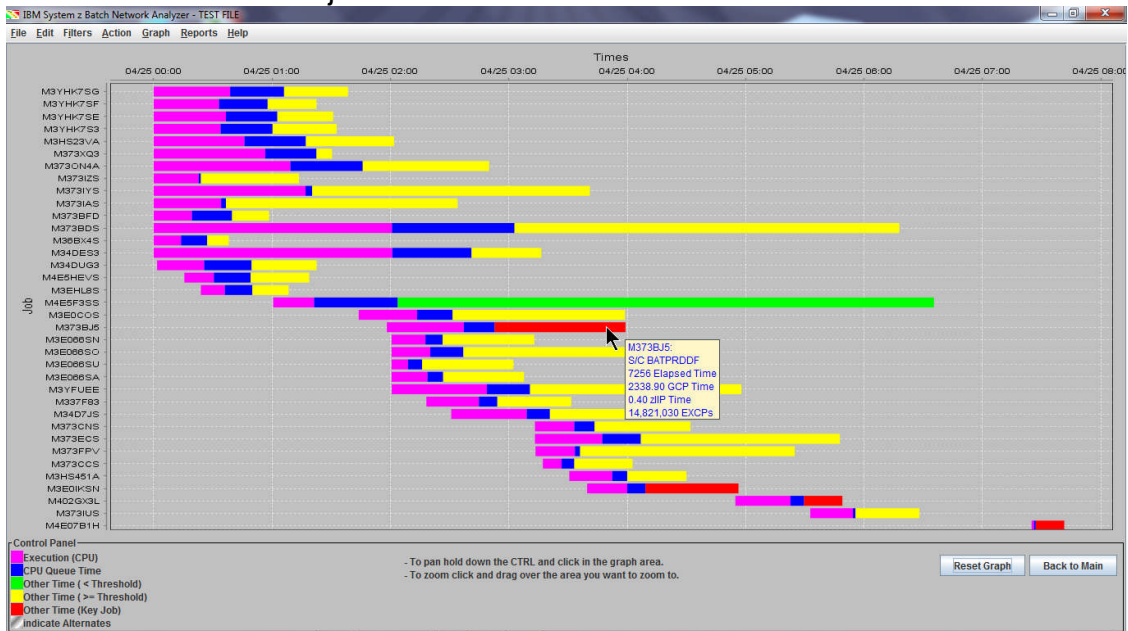


Click **Reset Graph** to show the original graph.

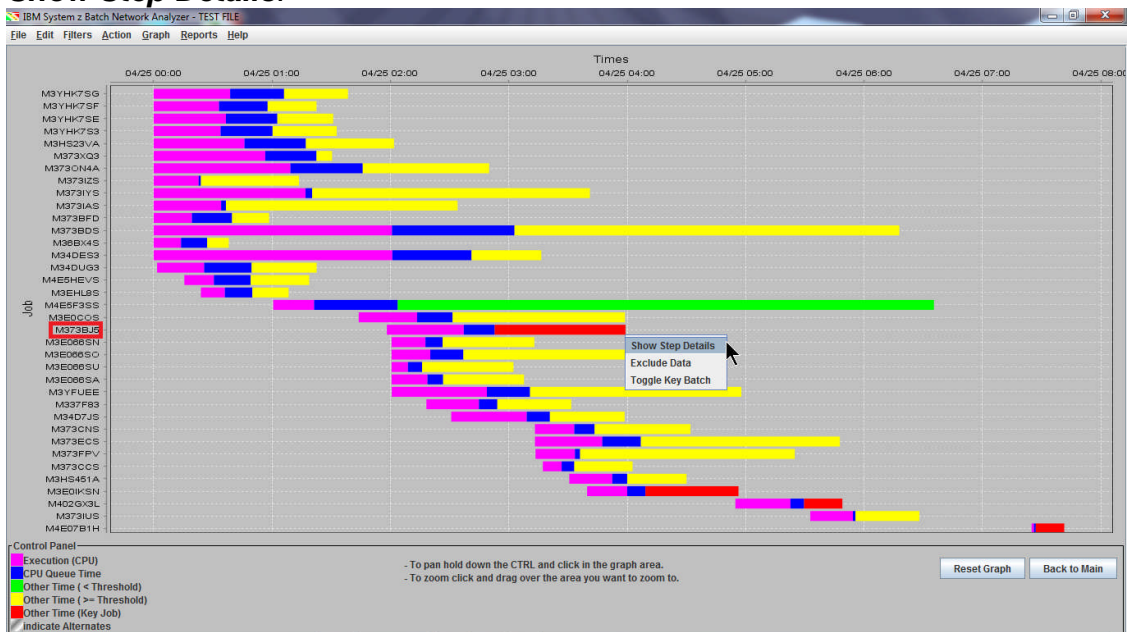


## zBNA Lab Guide

5. Hold the mouse over a job to show the Job information.



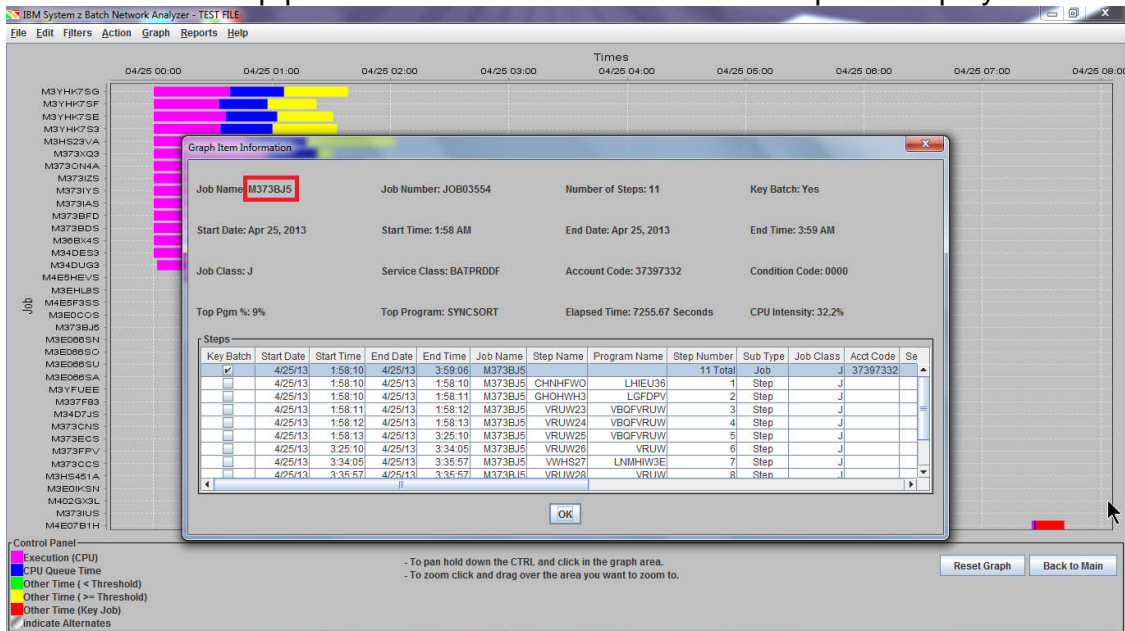
Further detail is available for each job by right-clicking and selecting *Show Step Details*. Right-click **M373BJ5** (the first Key job with Red Other time) and click *Show Step Details*.





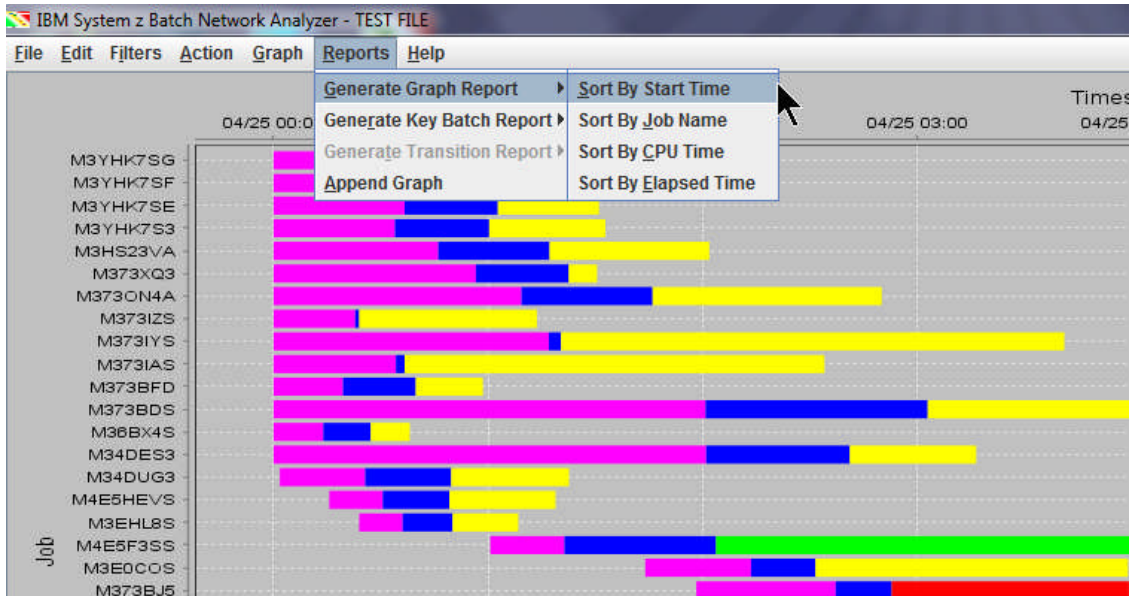
## zBNA Lab Guide

6. The same Job Step panel that is accessible from the main panel displays.



Click **OK** to return to the graph.

7. A graph report can automatically be created by using the **Reports** menu while displaying the graph. Click **Generate Graph Report** then select what job attribute (Start Time, Job Name, CPU Time, Elapsed Time) you would like the data sorted in the table that is included in the report. Select **Sort By Start Time**.



This will prompt you to save the report as an HTML file. Key in a file name, e.g. **TEST\_Report.htm** and click **Save**.



## zBNA Lab Guide

8. Open the file (**TEST\_Report.htm**) in an internet browser. After a legal disclaimer, the report will show the filters that were used and the resulting table. Key batch jobs are in bold. There is one line for each job, and at the very bottom there is a "Total" job line that is the sum of the resources used for all the Filtered jobs.

### Filters

Type	Filter
Top Percent	Greater than 10%
CPU Time	Greater than 10.0
Service Class	Must be BATCHHI, BATPRDDF or BATTSTDF
Job Names	Must match M4* or M3*
Exclude	Excluded from analysis: M373DVF(JOB27670)

### Data

There are 36 jobs in the following table.

Line	Key	Job Name	Program Name	Start	End	Steps	Job Class	Acct Code	Serv Class	Elapsed Time	CPU Time	Top Program	Top Pgm %
1		M3YHK7SG		4/25/13 12:00 AM	4/25/13 1:38 AM	26	J	3YH3YH32	BATPRDDF	5,908	2,327	DSNECP10	62
2		M3YHK7SF		4/25/13 12:00 AM	4/25/13 1:22 AM	26	J	3YH3YH32	BATPRDDF	4,950	1,988	DSNECP10	63
3		M3YHK7SE		4/25/13 12:00 AM	4/25/13 1:30 AM	26	J	3YH3YH32	BATPRDDF	5,458	2,198	DSNECP10	64
4		M3YHK7S3		4/25/13 12:00 AM	4/25/13 1:32 AM	26	J	3YH3YH32	BATPRDDF	5,565	2,035	DSNECP10	62
5		M3HS23VA	LNMH3W3D	4/25/13 12:00 AM	4/25/13 2:01 AM	3	J	3HS3HS32	BATPRDDF	7,308	2,763	DSNECP10	49
36	X	M4E07B1H		4/25/13 7:24 AM	4/25/13 7:41 AM	132	B	4E595732	BATCHHI	991	72	IEFIIC	0
		Total								239,325	72,959		

**Note:** A report may also be generated solely for key batch jobs by selecting **Generate Key Batch Report** on the **Reports** menu. The following is included in the report.



## zBNA Lab Guide

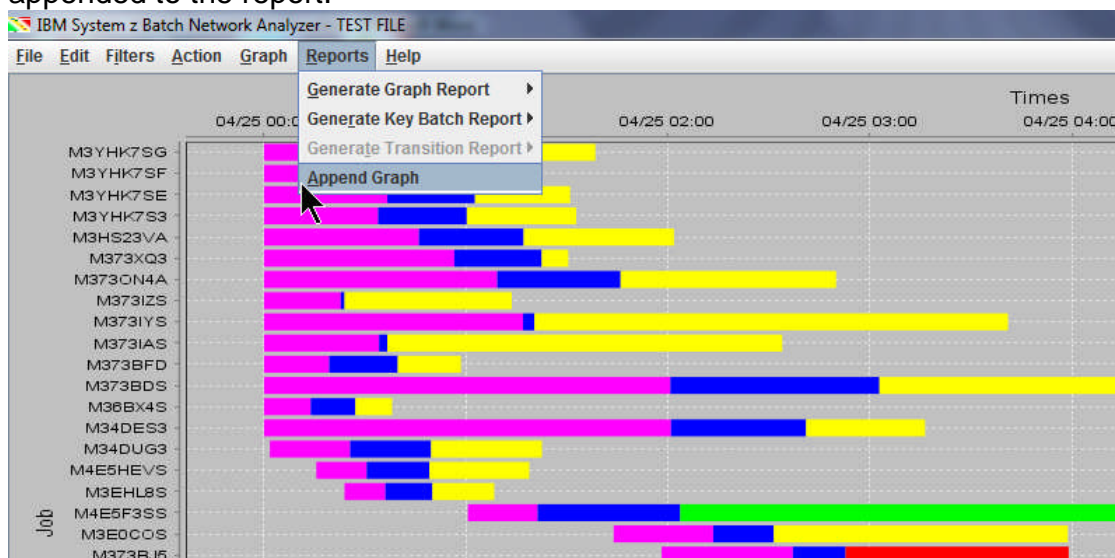
### Key Batch Jobs

These are jobs that the user specifically selected for display.

There are 4 jobs in the following table.

Line	Key	Job Name	Program Name	Start	End	Steps	Job Class	Acct Code	Serv. Class	Elapsed Time	CPU Time	Top Program	Top Pgm %
1	X	M373BJ5		4/25/13 1:58 AM	4/25/13 3:59 AM	11	J	37397332	BATPRDDF	7,255	2,339	SYNCSORT	9
2	X	M3E0IKSN		4/25/13 3:39 AM	4/25/13 4:56 AM	4	J	3E09E032	BATPRDDF	4,601	1,218	DSNECP10	8
3	X	M402GX3L		4/25/13 4:54 AM	4/25/13 5:49 AM	17	J	40242032	BATPRDDF	3,252	1,674	ENGEXE	4
4	X	M4E07B1H		4/25/13 7:24 AM	4/25/13 7:41 AM	132	B	4E595732	BATCHHI	991	72	IEFIIC	0
		Total								16,099	5,301		

- When the graph report is initially generated, the graph is not present. *To include the graph in the report, click **Reports, Append Graph**.* You will be prompted to select the previously saved report file. Then click **Save**, and the graph will be appended to the report.



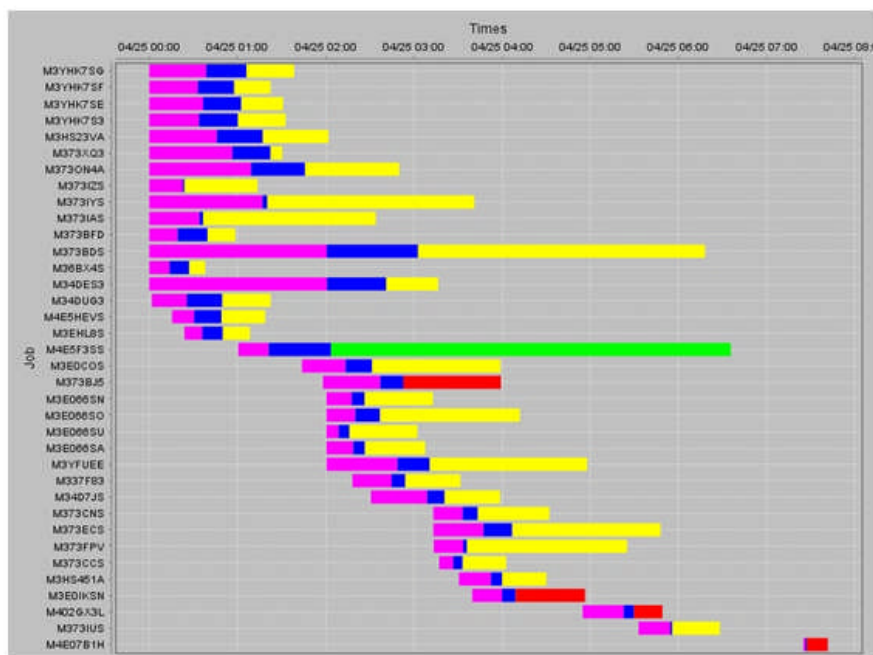
Click **Back to Main** to return to the zBNA main panel.



## zBNA Lab Guide

10. Reload (or Refresh via F5) the report, which will now include the graph positioned below the job table.

33	X	M3E0IKSN	4/25/13 3:39 AM	4/25/13 4:56 AM	4	J	3E09E032	BATPRDDF	4,601	1,218	DSNECP10	8
34	X	M402GX3L	4/25/13 4:54 AM	4/25/13 5:49 AM	17	J	40242032	BATPRDDF	3,252	1,674	ENGEXE	4
35		M373IUS	4/25/13 5:32 AM	4/25/13 6:28 AM	14	J	37397332	BATCHHI	3,315	1,296	DSNECP10	24
36	X	M4E07B1H	4/25/13 7:24 AM	4/25/13 7:41 AM	132	B	4E595732	BATCHHI	991	72	IEFIIC	0
		<b>Total</b>							<b>239,325</b>	<b>72,959</b>		



	Execution
	Wait for Execution
	Other Time (< Threshold)
	Other Time (>= Threshold)
	Other Time (Key Job)
	indicate Alternates



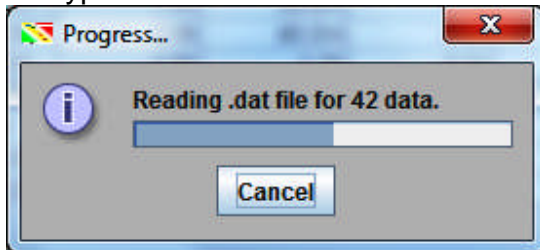
## zBNA Lab Guide

### Task 4 – Reviewing DASD Data Set Information

1. The SMF Type 42 subtype 6 records are required to view the DASD data set I/O information. They are loaded into zBNA via the .dat file when the job step level data is added.

Key Batch	Job Name	Steps	Job Class	Acct Code	Service Class	Elapsed Time	CPU Time	ZAAP Time	zIIP Time	CPU Intensity	EXCPs	Top Program	Top Pgm %	Condition Code
	M373BJ5	11	J	37397332	BATPRDDF	2.0h	39.0m	0.0s	0.4s	32.2%	14,821,030	SYNCSORT	9.0%	0000
	M3E0IKSN	4	J	3E09E032	BATPRDDF	1.3h	20.3m	0.0s	0.0s	26.5%	1,976,574	DSNECP10	8.0%	0000
	M402GX3L	17	J	40242032	BATPRDDF	54.2m	27.9m	0.0s	0.0s	51.5%	2,949,225	ENGEXE	4.0%	0000
	M4E07B1H	132	B	4E595732	BATCHHI	16.5m	71.9s	0.0s	0.1s	7.2%	3,928,474	IEFJIC	0.0%	0000
	M36BX4S		J	36B96B32	BATPRDDF	38.1m	13.9m	0.0s	0.0s	36.5%	172,542	DSNECP10	10.0%	0000
	M373BFD		J	37397332	BATPRDDF	58.5m	19.4m	0.0s	0.0s	33.1%	865,814	DSNECP10	48.0%	0000
	M3EHL8S		J	3EH94932	BATPRDDF	44.5m	12.2m	0.0s	0.0s	27.3%	36,613	DSNECP10	15.0%	0000
	M373J2S		J	37397332	BATCHHI	1.2h	22.8m	0.0s	0.0s	31.0%	43,231	DSNECP10	22.0%	0000
	M4E9HEVS		J	4E595732	BATPRDDF	1.1h	15.0m	0.0s	0.0s	23.7%	6,954	DSNECP10	18.0%	0000
	M3YHK7SF	21	J	3YH3YH32	BATPRDDF	1.4h	33.1m	0.0s	0.0s	40.1%	731,954	DSNECP10	63.0%	0000
	M34DUG3	15	J	34D94432	BATPRDDF	1.3h	23.9m	0.0s	0.0s	29.5%	21,548	DSNECP10	29.0%	0000

A job must be selected to display the data set information. Let's focus on one of the jobs identified as key batch. Double click on the **Key Batch** header to sort that column. Right click on the job, **M4E07B1H**, and select **Job Dataset Report** (this option is also available on the Action menu). zBNA reads the SMF Type 42 subtype 6 data.





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- The zBNA **Job Dataset Report** panel displays the data sets for job **M4E07B1H**.

**Job Dataset Report**

File Edit Action

Job Details:

Job Name: **M4E07B1H** Key Batch: Yes Elapsed Time: 991.79 Seconds CPU Intensity: 7.2%  
 Start Date: Apr 25, 2013 Start Time: 7:24 AM End Date: Apr 25, 2013 End Time: 7:41 AM

Step	Step Number	DSN	Total IO Time	IO Count	Response Time	Queue Time	Pending Time	Connect Time	Disconn Time
S4E5N227	92	I4E5SEY.M4E57B1S.SOQDVSG.LQGHA	188.0s	1879622	0.1	0.0	0.0	0.0	
S4E5H22E	76	I4E5SE.M4E57B1S.PHD.HAWUDFW.J2439Y22	42.1s	619	68.0	0.0	0.1	34.6	
S4E0T8A4	66	Y325.L576.WPV	25.0s	249682	0.1	0.0	0.0	0.0	
S4E03FQG	44	I4E0SEY.M4E07B1S.HAW2KLS.GDWD	22.5s	7746	2.9	0.0	0.0	2.8	
S4E5N27G	91	I4E5SE.VRUWLOH.M4E57B1S.J2421Y22	19.8s	738	26.8	0.0	0.0	20.7	
S4E5H22E	76	I4E5SE.SE5H2233.M4E57B1S	19.5s	698	28.0	0.0	0.0	21.5	
S4E03FQ7	36	VBV35337.W294677.UD222.M4E07B1H.U2910380	15.7s	83	189.0	0.0	1.4	159.3	
S4E5N26F	82	I4E5SE.SE5N226F.M4E57B1S	15.6s	10401	1.5	0.0	0.0	1.4	
S4E5N24E	75	I4E5SE.SE5N2233.M4E57B1S	13.2s	145	90.7	0.0	0.0	84.2	
S4E5N27E	89	I4E5SE.HAWUDFW.M4E57B1S.ILOH	12.8s	3276	3.9	0.0	0.0	2.5	
S4E5N227	92	I4E5SE.VRUWLOH.M4E57B1S.J2421Y22	8.4s	5249	1.6	0.0	0.0	1.5	
S4E03EQ.I	47	I4E0SEY.M4E07B1S.HAW2KLS.LQGHA	8.4s	83547	0.1	0.0	0.0	0.0	

OK

Be sure to use the scroll bars to get a complete view of the job details. Sort the **Total IO Time** column in descending order so that the data set with the most IO time is positioned in the first row.

- Right click on **I4E5SEY.M4E57B1S.SOQDVSG.LQGHA**, and select **Get the Life of this Dataset**.

**Job Dataset Report**

File Edit Action

Job Details:

Job Name: M4E07B1H Key Batch: Yes Elapsed Time: 991.79 Seconds CPU Intensity: 7.2%  
 Start Date: Apr 25, 2013 Start Time: 7:24 AM End Date: Apr 25, 2013 End Time: 7:41 AM

Step	Step Number	DSN	Total IO Time	IO Count	Response Time	Queue Time	Pending Time	Connect Time	Disconn Time
S4E5N227	92	I4E5SEY.M4E57B1S.SOQDVSG.LQGHA	188.0s	1879622	0.1	0.0	0.0	0.0	
S4E5H22E	76	I4E5SE.M4E57B1S.PHD.HAWUDFW.J2439Y22	42.1s	619	68.0	0.0	0.1	34.6	
S4E0T8A4	66	Y325.L576.WPV	25.0s	249682	0.1	0.0	0.0	0.0	
S4E03FQG	44	I4E0SEY.M4E07B1S.HAW2KLS.GDWD	22.5s	7746	2.9	0.0	0.0	2.8	
S4E5N27G	91	I4E5SE.VRUWLOH.M4E57B1S.J2421Y22	19.8s	738	26.8	0.0	0.0	20.7	
S4E5H22E	76	I4E5SE.SE5H2233.M4E57B1S	19.5s	698	28.0	0.0	0.0	21.5	
S4E03FQ7	36	VBV35337.W294677.UD222.M4E07B1H.U2910380	15.7s	83	189.0	0.0	1.4	159.3	
S4E5N26F	82	I4E5SE.SE5N226F.M4E57B1S	15.6s	10401	1.5	0.0	0.0	1.4	
S4E5N24E	75	I4E5SE.SE5N2233.M4E57B1S	13.2s	145	90.7	0.0	0.0	84.2	
S4E5N27E	89	I4E5SE.HAWUDFW.M4E57B1S.ILOH	12.8s	3276	3.9	0.0	0.0	2.5	
S4E5N227	92	I4E5SE.VRUWLOH.M4E57B1S.J2421Y22	8.4s	5249	1.6	0.0	0.0	1.5	
S4E03EQ.I	47	I4E0SEY.M4E07B1S.HAW2KLS.LQGHA	8.4s	83547	0.1	0.0	0.0	0.0	

OK



## zBNA Lab Guide

4. zBNA reads the .dat file that is loaded for the SMF 42 then the SMF 30 data. It searches through **all Jobs (5147)**, not just the Filtered Jobs. When it finishes the process, the **zBNA: Life of a Dataset** panel is displayed.

Job	Step	Step Number	Job Number	Step End	Total IOTime	IO Count	Response Time	Queue Time	Pending Time	Connect Time	Disconnect Time
M4E07B1H	S4E5N27D	88	JOB21576	04/25/2013 07:31:53	0.1s	130	1.1	0.0	0.0	1.0	0.0
M4E07B1H	S4E5N227	92	JOB21576	04/25/2013 07:41:01	188.0s	1,879,622	0.1	0.0	0.0	0.0	0.0

Read Percent	Compressed	Type	Extended
6	No	KSDS index	No
100	No	KSDS index	No

The job names using this data set are shown. Use the scroll bar to view all of the data, and the columns can be sorted.

In this case, **Job M4E07B1H** is the only job that accessed the data set; in Steps 88 and 92. Step 92 has the most **Total IO Time**, 188 seconds. The response time is very low. If you scroll to the right, in the column **Type**, you'll see it is a "**KSDS Index**". While not currently provided in zBNA, one could investigate SMF 64s and consider increasing LSR / NSR buffers to hold Index Set and potentially eliminate ~3 Minutes of I/O time, which would be approximately 18% of the Job's elapsed time (16.5 minutes).

Click **OK** until the zBNA main panel is displayed.



## zBNA Lab Guide

### 5. Click the **Action** menu then **Top 10 Dataset Report**.

Key Batch	Job Name	Steps	Job Class	Acct Code	Service Class	Elapsed Time	CPU Time	zAAP Time	zIIP Time	CPU Intensity	EXCPs	Top Program	Top Pgm %	Condition Code
M373BJ5		11	J	37397332	BATPRDDF	2.0h	39.0m	0.0s	0.4s	32.2%	14,821,030	SYNCSORT	9.0%	0000
M3E0IKSN		4	J	3E09E032	BATPRDDF	1.3h	20.3m	0.0s	0.0s	26.5%	1,976,574	DSNECP10	8.0%	0000
M402GX3L		17	J	40242032	BATPRDDF	54.2m	27.9m	0.0s	0.0s	51.5%	2,949,226	ENGEXE	4.0%	0000
M4E07B1H		3	B	4E595732	BATCHHI	16.5m	71.9s	0.0s	0.1s	7.2%	3,028,474	IEFIC	0.0%	0000
M36B4AS		3	J	36B99832	BATPRDDF	38.1m	13.9m	0.0s	0.0s	36.5%	172,542	DSNECP10	10.0%	0000
M373BFD		7	J	37397332	BATPRDDF	58.5m	19.4m	0.0s	0.0s	33.1%	865,814	DSNECP10	48.0%	0000
M3EHL8S		2	J	3E094932	BATPRDDF	44.5m	12.2m	0.0s	0.0s	27.3%	36,613	DSNECP10	15.0%	0000
M373I2S		3	J	37397332	BATCHHI	1.2h	22.8m	0.0s	0.0s	31.0%	43,231	DSNECP10	22.0%	0000
M4E5HEVS		7	J	4E595732	BATPRDDF	1.1h	15.0m	0.0s	0.0s	23.7%	6,954	DSNECP10	18.0%	0000
M3YHK7BF		26	J	3YH3YH32	BATPRDDF	1.4h	33.1m	0.0s	0.0s	40.1%	731,964	DSNECP10	63.0%	0000
M34DUG3		15	J	34D94432	BATPRDDF	1.3h	23.9m	0.0s	0.0s	29.5%	21,548	DSNECP10	29.0%	0000
M373XQ3		5	J	37397332	BATPRDDF	1.5h	56.6m	0.0s	0.0s	62.5%	6,101	DSNECP10	87.0%	0000
M3YHK7SE		26	J	3YH3YH32	BATPRDDF	1.5h	36.6m	0.0s	0.0s	40.3%	874,506	DSNECP10	64.0%	0000
M3YHK7S3		26	J	3YH3YH32	BATPRDDF	1.5h	33.9m	0.0s	0.0s	36.6%	512,864	DSNECP10	62.0%	0000
M3YHK7SG		26	J	3YH3YH32	BATPRDDF	1.6h	38.8m	0.0s	0.0s	39.4%	596,359	DSNECP10	62.0%	0000
M3HS23VA		3	J	3HS3HS32	BATPRDDF	2.0h	46.0m	0.0s	0.0s	37.8%	21,905	DSNECP10	49.0%	0000
M373IAS		3	J	37397332	BATCHHI	2.6h	34.2m	0.0s	0.0s	22.2%	67,910	DSNECP10	26.0%	0000
M373ON4A		4	J	37397332	BATPRDDF	2.8h	1.2h	0.0s	0.0s	40.8%	56,388	DSNECP10	63.0%	0000
M3E066SU		2	J	3E09E032	BATPRDDF	1.0h	498.0s	0.0s	0.0s	13.4%	342	DSNECP10	12.0%	0004
M3E066SA		2	J	3E09E032	BATPRDDF	1.1h	18.2m	0.0s	0.0s	27.1%	340	DSNECP10	22.0%	0004
M3E066SN		2	J	3E09E032	BATPRDDF	1.2h	17.2m	0.0s	0.0s	23.7%	320	DSNECP10	13.0%	0004
M34DES3		6	J	34D94432	BATPRDDF	3.3h	2.0h	0.0s	0.0s	61.6%	31,510	DSNECP10	92.0%	0000
M373F83		5	J	37397332	BATPRDDF	1.2h	26.6m	0.0s	0.0s	36.3%	2,434,989	DSNECP10	26.0%	0000
M373IYS		3	J	37397332	BATCHHI	3.7h	1.3h	0.0s	0.0s	34.8%	144,846	DSNECP10	34.0%	0000
M34D7JS		3	J	34D94432	BATPRDDF	1.5h	38.2m	0.0s	0.0s	43.5%	3,735,605	DSNECP10	21.0%	0000
M3E0CCS		3	J	3E09E032	BATPRDDF	2.2h	29.6m	0.0s	0.0s	21.9%	4,404	DSNECP10	26.0%	0000
M373CCS		15	J	37397332	BATPRDDF	45.5m	571.8s	0.0s	0.0s	21.0%	510,039	DSNECP10	13.0%	0000
M3E066SO		2	J	3E09E032	BATPRDDF	2.2h	19.6m	0.0s	0.0s	14.9%	344	DSNECP10	15.0%	0004
M3HS451A		9	J	3HS3HS32	BATPRDDF	59.4m	21.8m	0.0s	0.0s	36.6%	121,786	DSNECP10	23.0%	0000
M373ONS		5	J	37397332	BATPRDDF	1.3h	19.9m	0.0s	0.0s	25.3%	392,740	DSNECP10	19.0%	0000
M3YFUEE		3	J	3YF3YF32	BATPRDDF	3.0h	48.2m	0.0s	0.0s	27.2%	441	DSNECP10	21.0%	0000
M373PPV		9	J	37397332	BATCHHI	2.2h	20.0m	0.0s	0.0s	15.2%	1,776,060	DSNECP10	17.0%	0000
M373ECS		3	J	37597532	BATPRDDF	2.6h	34.1m	0.0s	0.0s	22.1%	316	DSNECP10	25.0%	0000
M373BDS		21	J	37397332	BATPRDDF	6.3h	2.0h	0.0s	0.8s	32.0%	18,169,677	DSNECP10	46.0%	0000
M373IUS		14	J	37397332	BATCHHI	55.3m	21.6m	0.0s	0.2s	39.1%	3,407,043	DSNECP10	24.0%	0000

zBNA displays an information panel showing that it is reading the SMF 42 (6) then SMF 30 data from the loaded .dat file. The **zBNA: Top 10 Data Sets** panel is displayed.

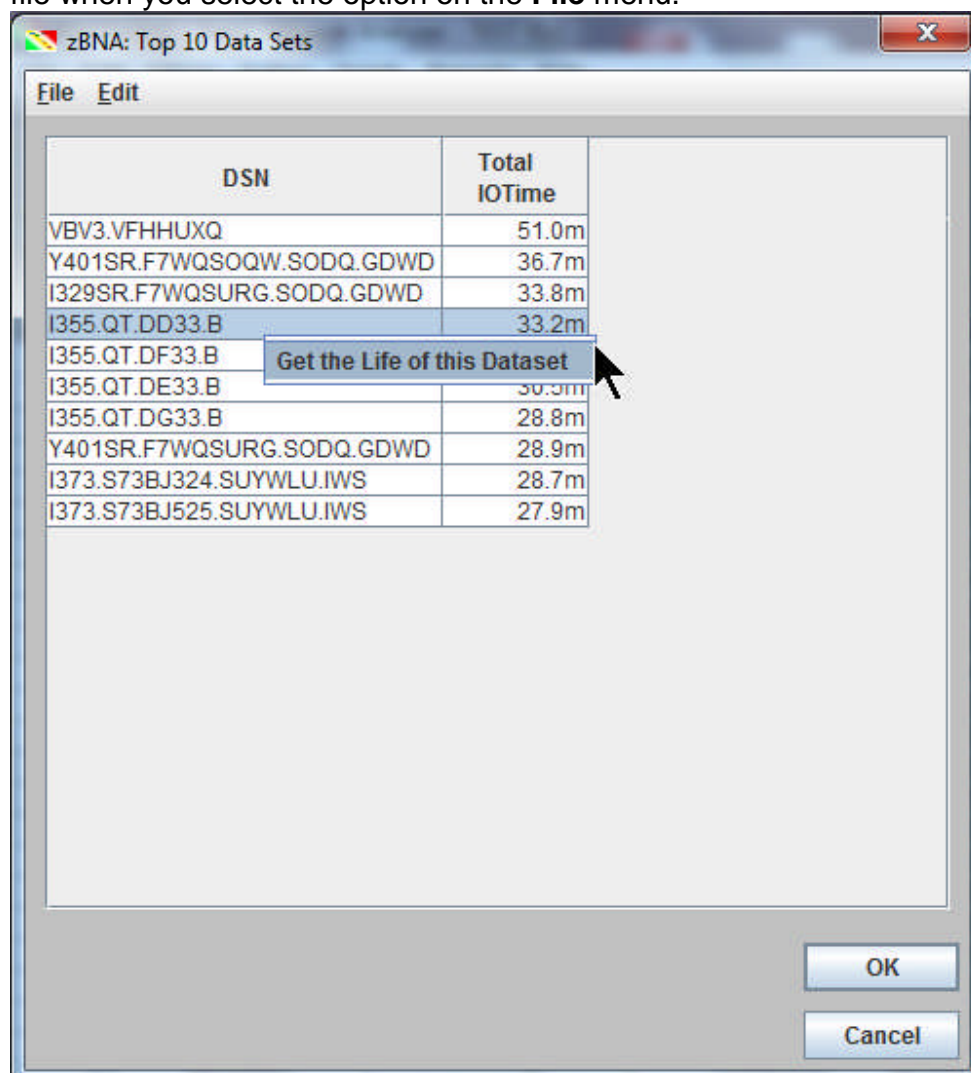
DSN	Total IOTime
VBV3.VFHHUXQ	51.0m
Y401SR.F7WQSOQW.SODQ.GDWD	36.7m
I329SR.F7WQSURG.SODQ.GDWD	33.8m
I355.QT.DD33.B	33.2m
I355.QT.DF33.B	32.5m
I355.QT.DE33.B	30.5m
I355.QT.DG33.B	28.8m
Y401SR.F7WQSURG.SODQ.GDWD	28.9m
I373.S73BJ324.SUYWLU.IWS	28.7m
I373.S73BJ525.SUYWLU.IWS	27.9m



## zBNA Lab Guide

The purpose is to show where the most I/O time is, over the entire interval and regardless of who is accessing the dataset. Then looking at the characteristics, technology options can be evaluated to improve the response time, and thus the elapsed times of the jobs/online applications that are accessing it. In this case, it appears that 4 data sets starting with **I355.QT.** are the 4<sup>th</sup> through 7<sup>th</sup> Top data sets. Perhaps they are clones that we enabled for parallel processing? We'll investigate one of these files.

6. The Top 10 data sets are displayed, and the information can be written to a CSV file when you select the option on the **File** menu.



Right click on the **I355.QT.DD33.B** data set then **Get the Life of this Dataset**. After zBNA reads the SMF 42 and 30 data in the .dat file, the **zBNA: Life of a Dataset** panel is displayed.



## zBNA Lab Guide

7. The job details are shown for the **I355.QT.DD33.B** data set. You can see that multiple different Jobs access this data set throughout the Batch interval.

zBNA: Life of a Dataset

File Edit Action

Data Set Details: **Data Set: I355.QT.DD33.B** Number of Job Steps: 395

Job	Step	Step Number	Job Number	Step End	Total IOTime	IO Count	Response Time	Queue Time	Pending Time	Connect Time	Disconnect Time
M4E5H7S	S4EH7S5	5	JOB29802	04/25/2013 00:16:01	1.3s	199	6.7	0.0	0.1	0.1	6.1
M4E5UHS3	VWHS7	11	JOB29797	04/25/2013 00:16:17	0.1s	11	5.1	0.0	0.1	0.3	4.1
M4E077VH	S4E5N27D	46	JOB29932	04/25/2013 00:16:37	0.0s	4	2.4	0.0	0.1	0.1	2.1
M4E0N7GH	S4E5N27D	55	JOB29876	04/25/2013 00:16:40	0.0s	2	3.7	0.0	0.0	0.2	3.1
M4E0N7GF	VWHS2302	25	JOB30315	04/25/2013 00:21:17	0.0s	1	0.3	0.0	0.1	0.1	0.1
M4E0YEDF	VWHS2302	25	JOB30739	04/25/2013 00:31:42	4.6s	860	5.4	0.0	0.1	0.2	4.1
M35703S	S357024	3	JOB31246	04/25/2013 00:34:25	0.0s	126	0.3	0.0	0.0	0.1	0.1
M35702S	S357024	3	JOB31261	04/25/2013 00:34:59	0.7s	2,440	0.3	0.0	0.1	0.1	0.1
M4E0XCOH	S4E5N27D	80	JOB31288	04/25/2013 00:35:30	0.0s	2	7.4	0.0	0.1	0.1	7.1
M35703S	S357020	12	JOB31246	04/25/2013 00:36:19	0.0s	124	0.3	0.0	0.1	0.1	0.1
M35703S	S357028	13	JOB31246	04/25/2013 00:36:24	0.0s	126	0.3	0.0	0.1	0.1	0.1
M4E0XCOF	VWHS2302	25	JOB31578	04/25/2013 00:37:30	0.0s	1	0.3	0.0	0.1	0.1	0.1
M35700S	S357093	5	JOB31515	04/25/2013 00:41:00	0.3s	76	4.4	0.0	0.1	0.2	3.1
M35702S	S357020	12	JOB31261	04/25/2013 00:53:33	12.3s	2,414	5.1	0.0	0.1	0.2	4.1
M35702S	S357028	13	JOB31261	04/25/2013 00:55:14	1.7s	2,467	0.7	0.0	0.1	0.2	0.2
M35709G	S357093	13	JOB32268	04/25/2013 01:01:50	1.4s	219	6.2	0.0	0.1	0.8	5.1
M35709H	S357093	13	JOB32263	04/25/2013 01:02:00	1.2s	263	4.7	0.0	0.1	0.9	3.1
M35709E	S357093	13	JOB32266	04/25/2013 01:02:07	1.8s	322	5.4	0.0	0.1	0.8	4.1
M35709F	S357093	13	JOB32267	04/25/2013 01:02:56	2.1s	343	6.2	0.0	0.1	1.6	4.1
M35709D	S357093	13	JOB32265	04/25/2013 01:04:24	2.1s	329	6.5	0.0	0.1	1.4	4.1

OK

Now we want to see which Jobs have the most IO Time. Perform a sort on the **Total IO Time** column in descending order.

zBNA: Life of a Dataset

File Edit Action

Data Set Details: **Data Set: I355.QT.DD33.B** Number of Job Steps: 395

Job	Step	Step Number	Job Number	Step End	Total IOTime ▼	IO Count	Response Time	Queue Time	Pending Time	Connect Time	Disconnect Time
M354KQR	VWHS23	2	JOB02903	04/25/2013 03:43:08	24.8m	281,099	5.3	0.0	0.0	0.3	4.1
M354GJS	S354GO3	3	JOB03191	04/25/2013 03:22:10	460.0s	82,127	5.6	0.0	0.0	0.5	4.1
M35702S	S357020	12	JOB31261	04/25/2013 00:53:33	12.3s	2,414	5.1	0.0	0.1	0.2	4.1
M4E0YHBH	S4E5N27D	86	JOB10179	04/25/2013 04:20:52	5.6s	1,194	4.7	0.0	0.1	0.6	3.1
M4E0YVGH	S4E5N27D	148	JOB1395	04/25/2013 01:34:20	4.7s	745	6.2	0.0	0.1	2.1	3.1
M4E0YEDF	VWHS2302	25	JOB30739	04/25/2013 00:31:42	4.6s	860	5.4	0.0	0.1	0.2	4.1
M4E5DQAS	VWHS223	3	JOB02930	04/25/2013 02:20:23	3.2s	1,327	2.4	0.0	0.1	0.5	1.1
M4E0XBQH	S4E5N27D	82	JOB20027	04/25/2013 07:10:23	2.8s	467	6.0	0.0	0.1	1.5	4.1
M4E563S	S4E5634	3	JOB16213	04/25/2013 06:09:27	2.7s	558	4.9	0.0	0.1	0.2	4.1
M35709D	S357093	13	JOB32265	04/25/2013 01:04:24	2.1s	329	6.5	0.0	0.1	1.4	4.1
M35709F	S357093	13	JOB32267	04/25/2013 01:02:56	2.1s	343	6.2	0.0	0.1	1.6	4.1
M35709E	S357093	13	JOB32266	04/25/2013 01:02:07	1.8s	322	5.4	0.0	0.1	0.8	4.1
M35702S	S357028	13	JOB31261	04/25/2013 00:55:14	1.7s	2,467	0.7	0.0	0.1	0.2	0.2
M35709G	S357093	13	JOB32268	04/25/2013 01:01:50	1.4s	219	6.2	0.0	0.1	0.8	5.1
M4E5H7S	S4EH7S5	5	JOB29802	04/25/2013 00:16:01	1.3s	199	6.7	0.0	0.1	0.1	6.1
M35709H	S357093	13	JOB32263	04/25/2013 01:02:00	1.2s	263	4.7	0.0	0.1	0.9	3.1
M4E0XWJH	S4E5N27D	82	JOB21988	04/25/2013 07:32:03	1.2s	314	3.8	0.0	0.1	0.1	3.1
M4E0YTRH	S4E5N27D	46	JOB23296	04/25/2013 07:47:50	1.1s	251	4.3	0.0	0.1	0.2	3.1
M35702S	S357024	3	JOB31261	04/25/2013 00:34:59	0.7s	2,440	0.3	0.0	0.1	0.1	0.1
M4E07HCH	S4E5N27D	82	JOB18469	04/25/2013 06:42:49	0.7s	153	4.8	0.0	0.1	0.6	3.1

OK

We can see that many of the Jobs have Response times in the 2 - 6 MS range. Based on this, perhaps an investigation of I/O technology to reduce I/O response times should be a follow-on action.

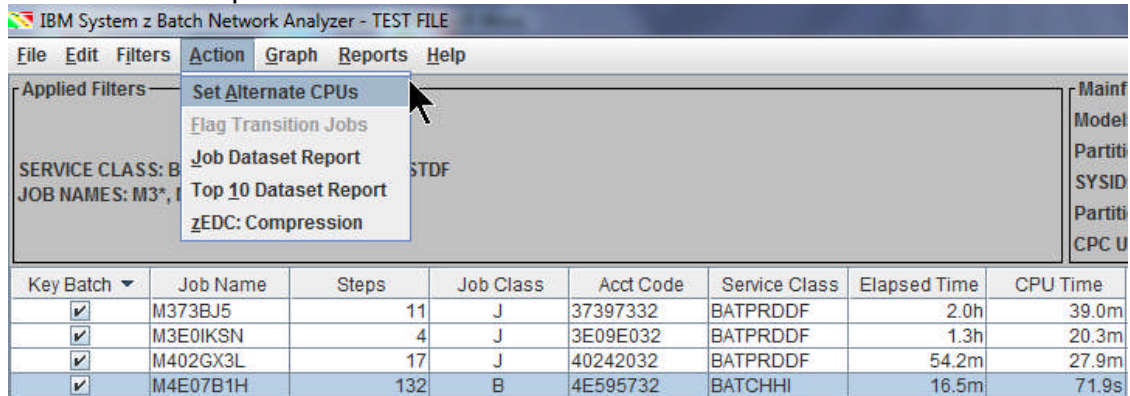
Click **OK** until the zBNA main panel is displayed.



## zBNA Lab Guide

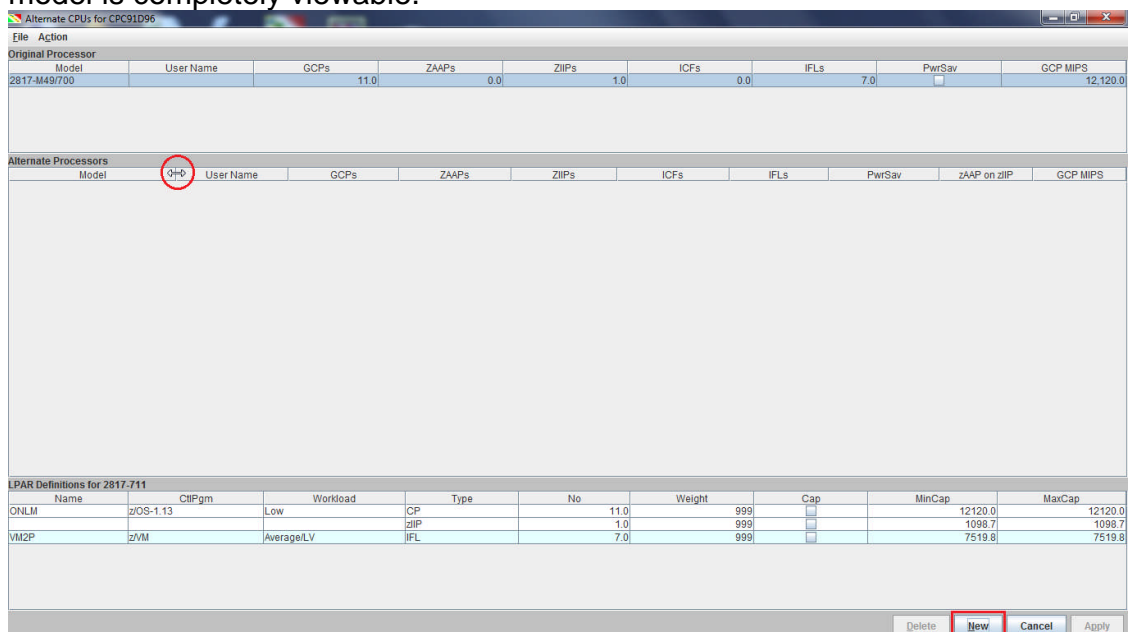
### Task 5 – Performing an Alternate Processor Analysis

1. Now we will view a “what-if” scenario by selecting an alternate processor to “execute” the same batch jobs. Click **Action, Set Alternate CPUs** to load the Alternate CPUs panel.



Key Batch	Job Name	Steps	Job Class	Acct Code	Service Class	Elapsed Time	CPU Time
<input checked="" type="checkbox"/>	M373BJ5	11	J	37397332	BATPRDDF	2.0h	39.0m
<input checked="" type="checkbox"/>	M3E0IKSN	4	J	3E09E032	BATPRDDF	1.3h	20.3m
<input checked="" type="checkbox"/>	M402GX3L	17	J	40242032	BATPRDDF	54.2m	27.9m
<input checked="" type="checkbox"/>	M4E07B1H	132	B	4E595732	BATCHHI	16.5m	71.9s

2. Maximize the **Alternate CPUs** window to show all of the columns. Then expand the **Model** column in the **Alternate Processors** table so that the name of each model is completely viewable.



Model	User Name	GCPs	ZAAPs	ZIIPs	ICFs	IFLs	PwrSav	GCP MIPS
2817-M49/700		11.0	0.0	1.0	0.0	7.0	<input type="checkbox"/>	12,120.0

Model	User Name	GCPs	ZAAPs	ZIIPs	ICFs	IFLs	PwrSav	zAAP on ZIIP	GCP MIPS
-------	-----------	------	-------	-------	------	------	--------	--------------	----------

Name	CPU	Workload	Type	No	Weight	Cap	MinCap	MaxCap
ONLM	z/OS-1.13	Low	CP	11.0	999	<input type="checkbox"/>	12120.0	12120.0
			z/PP	1.0	999	<input type="checkbox"/>	1098.7	1098.7
VM2P	z/VM	Average/LV	IFL	7.0	999	<input type="checkbox"/>	7519.8	7519.8

Buttons: Delete, **New**, Cancel, Apply

Click **New**.



## zBNA Lab Guide

- A drop-down menu will appear that allows you to select the new processor. In this example we are going to select a processor with less total capacity and also less capacity per engine. Select the **zEC12/600** family, and then the **2827-607**.

In this example, we are selecting a zEC12 607 subcapacity model versus the current z196 711 full capacity model. (Perhaps they have a zEC12 607 and are considering migrating these jobs to that processor, and they want to understand the impact to elapsed time changes versus their required Batch completion time.

The application window 'Alternate CPUs for CPC91D9' displays the following data:

Original Processor	
Model	User Name
2817-M49/...	

Alternate Processors	
Model	User Name
zEC12/700	
zEC12/600	
zEC12/500	
zEC12/400	
z196/700	
z196/600	
z196/500	
z196/400	

Alternate Processors	
Model	User Name
2827-601 = 1,014	
2827-604 = 3,684	
2827-605 = 4,530	
2827-606 = 5,355	
2827-607 = 6,159	
2827-608 = 6,943	
2827-609 = 7,707	
2827-610 = 8,453	
2827-611 = 9,179	

Alternate CPUs for CPC91D96									
Original Processor									
Model	User Name	GCPs	ZAAPs	ZIIPs	ICFs	IFLs	PwrSav	GCP MIPS	
2817-M49/700		11.0	0.0	1.0	0.0	7.0	<input type="checkbox"/>	12,120.0	

Alternate Processors									
Model	User Name	GCPs	ZAAPs	ZIIPs	ICFs	IFLs	PwrSav	ZAAP on ZIIP	GCP MIPS
2827-420/600		7	0	1	0	7	<input type="checkbox"/>		6,400.4

LPAR Definitions for 2827-607									
Name	CBPgm	Workload	Type	No	Weight	Cap	MinCap	MaxCap	
ONLM	z/OS-1.13	(UseBase)	CP	7.0	999	<input type="checkbox"/>	6400.4	6400.4	
			ZIIP	1.0	999	<input type="checkbox"/>	1456.0	1456.0	
VM2P	z/VM	(UseBase)	IFL	7.0	999	<input type="checkbox"/>	9466.4	9466.4	

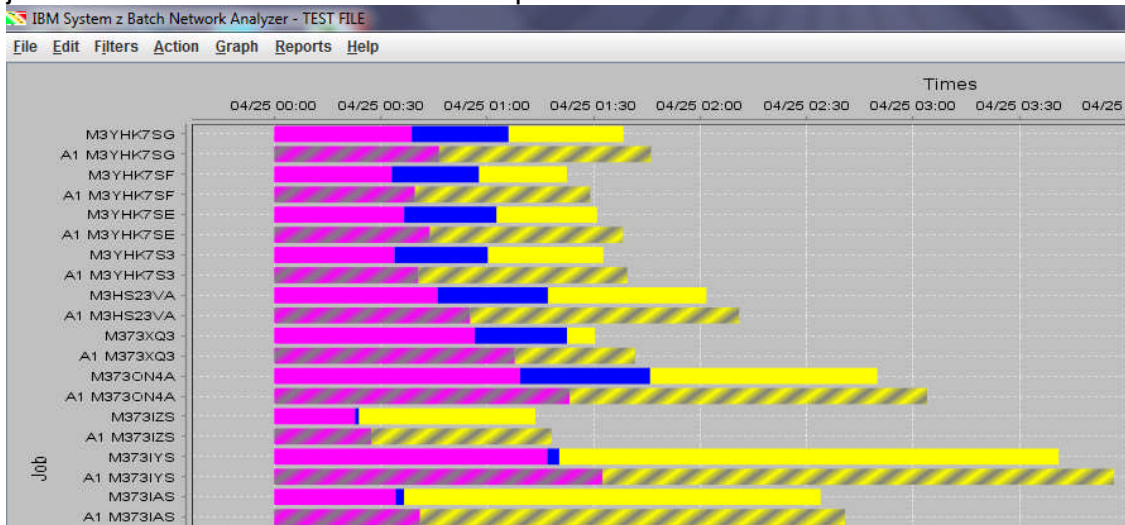
Delete New Cancel **Apply**

Click **Apply** to view the hypothetical scenario with this new processor.

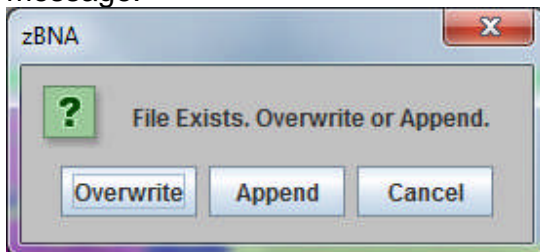


## zBNA Lab Guide

- From the main zBNA panel, use **Graph, Display Graph: Table** to display the graph to see that each row now contains a gray striped one below it. This second row shows the same jobs, however, the total times are estimated as if the jobs were run on the alternative new processor.



- We can generate a new report that includes the alternate processor details or we can append to the one previously saved in **Task 3**. To do this, click on the **Reports** menu, then select **Generate Graph Report, Sort By Start Time**. This will prompt you to save the report as an HTML file. Since we have already created a report, you can select that file. zBNA will display the following message.



Click **Append** to add to the end of the previously generated file.

**Note:** Click **Overwrite** to replace the file. Click **Cancel** to return to the graph.



## zBNA Lab Guide

6. The report will now include the alternate processor, as well as the estimated run-time in the table for this new processor.

The processors considered in this analysis are the following:

**Note:** There is no effort to determine if the alternate processor has the total capacity to run this workload. The analysis is simply comparing the single engine speed of base versus the alternate processor.

Name	Processor	Single GCP Mips	Ratio
Base (B)	2817-711	1,102	
Alternate 1 (A1)	2827-607	914	-17.0%

The analysis follows:

### Data

There are 36 jobs in the following table.

Name	Line	Key	Job Name	Program Name	Start	End	Steps	Job Class	Acct Code	Serv Class	Elapsed Time	CPU Time	Top Program	Top Pgm %
B	33	X	M3E0IKSN		4/25/13 3:39 AM	4/25/13 4:56 AM	4	J	3E09E032	BATPRDDF	4,601	1,218	DSNECP10	8
A1	33	X	M3E0IKSN		4/25/13 3:39 AM	4/25/13 5:00 AM	4	J	3E09E032	BATPRDDF	4,851(5.4%)	1,468		
B	34	X	M402GX3L		4/25/13 4:54 AM	4/25/13 5:49 AM	17	J	40242032	BATPRDDF	3,252	1,674	ENGEXE	4
A1	34	X	M402GX3L		4/25/13 4:54 AM	4/25/13 5:54 AM	17	J	40242032	BATPRDDF	3,595(10.5%)	2,018		
B	35		M373IUS		4/25/13 5:32 AM	4/25/13 6:28 AM	14	J	37397332	BATCHHI	3,315	1,296	DSNECP10	24
A1	35		M373IUS		4/25/13 5:32 AM	4/25/13 6:32 AM	14	J	37397332	BATCHHI	3,581(8.0%)	1,561		
B	36	X	M4E07B1H		4/25/13 7:24 AM	4/25/13 7:41 AM	132	B	4E595732	BATCHHI	991	72	IEFIIC	0
A1	36	X	M4E07B1H		4/25/13 7:24 AM	4/25/13 7:41 AM	132	B	4E595732	BATCHHI	1,006(1.5%)	87		
B			Total								239,325	72,959		
A01			Total								254,106(6.2%)	87,740		

In this case we can see that the Alternate Processor had a **Ratio** of **-17% Single GCP MIPS**, resulting in slightly increased CPU and Elapsed times compared to the current processor for each job.

7. Let's save the study as a zBNA file, click **File, Save As zBNA Study File**. This saves a .zBNA file containing the current filters and settings including the key batch jobs. However, when you load the .zBNA file, the original SMF70 and SMF30 files will still be needed.



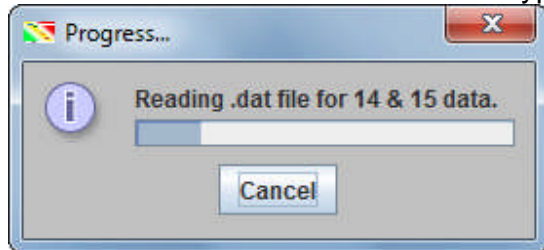
## zBNA Lab Guide

### Task 6 – Exploring zEDC Compression

1. To use the zBNA zEDC Compression function, SMF Type 14 and 15 (Input/Output Data Set Close) Records must be included in the “.dat” file. Click **Action, zEDC: Compression** on the main zBNA menu.

Key Batch	Job Name	Steps	Job Class	Acct Code	Service Class	Elapsed Time	CPU Time	ZAAP Time	zIIP Time	CPU Intensity	EXCPs	Top Program	Top Pgm %	Condition Code
M36BX4S		3	J	36996832	BATPRDDF	38.1m	13.9m	0.0s	0.0s	36.5%	172,542	DSNECP10	10.0%	0000
M373BFD		7	J	37397332	BATPRDDF	58.5m	19.4m	0.0s	0.0s	33.1%	865,814	DSNECP10	48.0%	0000
M373J23		2	J	36994932	BATPRDDF	44.5m	12.2m	0.0s	0.0s	27.3%	36,813	DSNECP10	15.0%	0000
M4E5HVS		7	J	4E595732	BATPRDDF	1.1h	15.0m	0.0s	0.0s	23.7%	6,954	DSNECP10	18.0%	0000
M3YHK7SF		26	J	3YH3YH32	BATPRDDF	1.4h	33.1m	0.0s	0.0s	40.1%	731,964	DSNECP10	63.0%	0000
M34DUG3		15	J	34D94432	BATPRDDF	1.3h	23.9m	0.0s	0.0s	29.5%	21,548	DSNECP10	29.0%	0000
M373XQ3		5	J	37397332	BATPRDDF	1.5h	56.6m	0.0s	0.0s	62.5%	6,101	DSNECP10	87.0%	0000
M3YHK7SE		26	J	3YH3YH32	BATPRDDF	1.5h	36.5m	0.0s	0.0s	40.3%	874,506	DSNECP10	64.0%	0000
M3YHK7S3		26	J	3YH3YH32	BATPRDDF	1.5h	33.9m	0.0s	0.0s	36.6%	512,864	DSNECP10	62.0%	0000
M3YHK7SG		26	J	3YH3YH32	BATPRDDF	1.6h	38.8m	0.0s	0.0s	39.4%	596,359	DSNECP10	62.0%	0000
M3HS23VA		3	J	3HS3HS32	BATPRDDF	2.0h	46.0m	0.0s	0.0s	37.8%	21,905	DSNECP10	49.0%	0000
M373IAS		3	J	37397332	BATCHHI	2.6h	34.2m	0.0s	0.0s	22.2%	67,910	DSNECP10	26.0%	0000
M373ON4A		4	J	37397332	BATPRDDF	2.8h	1.2h	0.0s	0.0s	40.8%	56,388	DSNECP10	63.0%	0000
M3E066SU		2	J	3E09E032	BATPRDDF	1.0h	498.0s	0.0s	0.0s	13.4%	342	DSNECP10	12.0%	0004
M3E066SA		2	J	3E09E032	BATPRDDF	1.1h	18.2m	0.0s	0.0s	27.1%	340	DSNECP10	22.0%	0004
M3E066SN		2	J	3E09E032	BATPRDDF	1.2h	17.2m	0.0s	0.0s	23.7%	320	DSNECP10	13.0%	0004
M34DES3		6	J	34D94432	BATPRDDF	3.3h	2.0h	0.0s	0.0s	61.6%	31,510	DSNECP10	92.0%	0000
M337F83		5	J	33797332	BATPRDDF	1.2h	26.6m	0.0s	0.0s	36.3%	2,434,989	DSNECP10	26.0%	0000
M373YIS		3	J	37397332	BATCHHI	3.7h	1.3h	0.0s	0.0s	34.6%	144,846	DSNECP10	34.0%	0000
M34D7JIS		3	J	34D94432	BATPRDDF	1.5h	38.2m	0.0s	0.0s	43.5%	3,735,605	DSNECP10	21.0%	0000
M3E0COS		3	J	3E09E032	BATPRDDF	2.2h	29.6m	0.0s	0.0s	21.9%	4,404	DSNECP10	26.0%	0000
M373BJ5		11	J	37397332	BATPRDDF	2.0h	39.0m	0.0s	0.4s	32.2%	14,821,030	SYNCSORT	9.0%	0000
M373CCS		15	J	37397332	BATPRDDF	45.5m	571.8s	0.0s	0.0s	21.0%	510,039	DSNECP10	13.0%	0000
M3E066SO		2	J	3E09E032	BATPRDDF	2.2h	19.6m	0.0s	0.0s	14.9%	344	DSNECP10	15.0%	0004
M3H451A		9	J	3H33H332	BATPRDDF	59.4m	21.8m	0.0s	0.0s	36.6%	121,786	DSNECP10	23.0%	0000
M373CNS		5	J	37397332	BATPRDDF	1.3h	19.9m	0.0s	0.0s	25.3%	382,740	DSNECP10	19.0%	0000
M3E0IKSN		4	J	3E09E032	BATPRDDF	1.3h	20.3m	0.0s	0.0s	26.5%	1,976,574	DSNECP10	8.0%	0000
M3YFUEE		3	J	3YF3YF32	BATPRDDF	3.0h	48.2m	0.0s	0.0s	27.2%	441	DSNECP10	21.0%	0000
M373FPV		9	J	37397332	BATCHHI	2.2h	20.0m	0.0s	0.0s	15.2%	1,776,060	DSNECP10	17.0%	0000
M373ECS		3	J	37597532	BATPRDDF	2.6h	34.1m	0.0s	0.0s	22.1%	316	DSNECP10	25.0%	0000
M402GX3L		17	J	40242032	BATPRDDF	54.2m	27.9m	0.0s	0.0s	51.5%	2,949,226	ENGEEXE	4.0%	0000
M373BD9		21	J	37397332	BATPRDDF	6.3h	2.0h	0.0s	0.8s	32.0%	18,169,677	DSNECP10	46.0%	0000
M373JUS		14	J	37397332	BATCHHI	55.3m	21.6m	0.0s	0.2s	39.1%	3,407,043	DSNECP10	24.0%	0000
M4E5F3SS		66	J	4E595732	BATPRDDF	5.6h	20.7m	0.0s	0.2s	6.2%	19,960,843	DSNECP10	17.0%	0000

zBNA reads the data from the SMF Type 14 and 15 records.





## zBNA Lab Guide

- The **zEDC Top Data Sets** panel displays after the SMF Type 14 and 15 records have been loaded.

DSN	File Type	MB	RW Ratio	Comp Ratio
I373.S73BJ324.SUYWLU.IWS	COMP	281256	2:1	2.8
I373.S73BJ525.SUYWLU.IWS	COMP	234674	1:1	2.8
I3SK.I68S.UA592.VXE.HHLG3.J3885Y22	COMP	93490	1:1	6.8
I3SK.UA592.VXE.HHLG3.J3994Y22	COMP	93431	1:1	6.8
I3SK.I68S.UA592.VXE.HHLG5.J3885Y22	COMP	89614	1:1	6.8
I3SK.VXEGWO.VRUW04.HHLG5	COMP	89556	1:1	6.8
I3SK.I68S.UA592.VXE.HHLG7.J3885Y22	COMP	89369	1:1	6.8
I3SK.I68S.UA592.VXE.HHLG4.J3885Y22	COMP	89357	1:1	6.8
I3SK.UA592.VXE.HHLG7.J3992Y22	COMP	89311	1:1	6.8
I3SK.VXEGWO.VRUW04.HHLG7	COMP	89310	1:1	6.8
I3SK.UA592.VXE.HHLG4.J3993Y22	COMP	89299	1:1	6.8
I3SK.I68S.UA592.VXE.HHLG6.J3885Y22	COMP	89275	1:1	6.8
I3SK.VXEGWO.VRUW04.HHLG6	COMP	89215	1:1	6.8
I373.S73BF42.SUYWLU3.RXWSXW.ILQDO.J2282Y22	COMP	57968	2:1	3.1
I3NOSE.UFH.FODLPHAW.ILAHG	COMP	56448	1:1	5.2
I373.J73BJ523.GHOWD.SUYDHA.FXUUHQW.J2258Y22	COMP	47649	1:1	3.2
I3SK.I69S.UA592.GHS.HHLG3.J3885Y22	COMP	47461	1:1	6.5
I3SK.I69S.UA592.GHS.HHLG5.J3885Y22	COMP	47141	1:1	6.5
I3SK.I69S.UA592.GHS.HHLG7.J3885Y22	COMP	47066	1:1	6.5
I3SK.I69S.UA592.GHS.HHLG6.J3885Y22	COMP	46907	1:1	6.5
I3SK.I69S.UA592.GHS.HHLG4.J3885Y22	COMP	46844	1:1	6.5
I3SK.I05S.VXE.IXOOILOH.HHLG3.J3891Y22	COMP	46678	R	6.8
I3SK.I05S.VXE.IXOOILOH.HHLG5.J3891Y22	COMP	44740	R	6.8
I3SK.I05S.VXE.IXOOILOH.HHLG7.J3891Y22	COMP	44618	R	6.8
I3SK.I05S.VXE.IXOOILOH.HHLG4.J3891Y22	COMP	44612	R	6.8

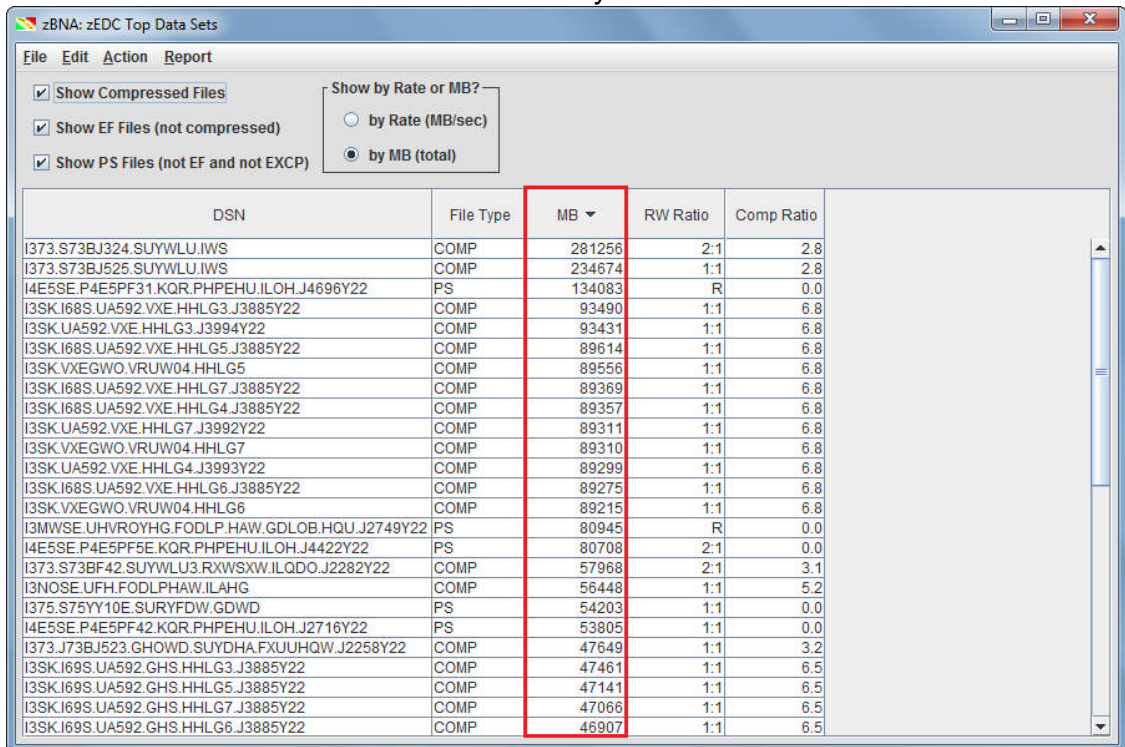
These are the data sets that zBNA has calculated are the top zEDC Compression candidates. **Note:** By default, the list is ordered by the top data sets, according to MB, in each of the compression categories.

The purpose of providing the Top Data Sets is to identify which ones will provide the most impact/benefit from zEDC compression, and may provide a starting point for which ones to implement first. Also, you can drill down further on a data set by right clicking on its name and selecting **Get the Life of this Dataset**.



## zBNA Lab Guide

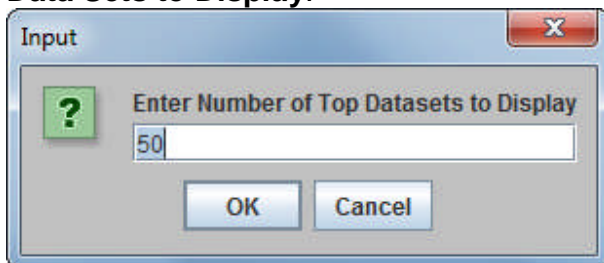
- Double click on **MB** to sort the list of files by this characteristic.



DSN	File Type	MB	RW Ratio	Comp Ratio
I373.S73BJ324.SUYWLU.IWS	COMP	281256	2:1	2.8
I373.S73BJ525.SUYWLU.IWS	COMP	234674	1:1	2.8
I4E5SE.P4E5PF31.QQR.PHPHU.ILOH.J4696Y22	PS	134083	R	0.0
I3SK.I68S.UA592.VXE.HHLG3.J3885Y22	COMP	93490	1:1	6.8
I3SK.UA592.VXE.HHLG3.J3994Y22	COMP	93431	1:1	6.8
I3SK.I68S.UA592.VXE.HHLG5.J3885Y22	COMP	89614	1:1	6.8
I3SK.VXEGWO.VRUW04.HHLG5	COMP	89556	1:1	6.8
I3SK.I68S.UA592.VXE.HHLG7.J3885Y22	COMP	89369	1:1	6.8
I3SK.I68S.UA592.VXE.HHLG4.J3885Y22	COMP	89357	1:1	6.8
I3SK.UA592.VXE.HHLG7.J3992Y22	COMP	89311	1:1	6.8
I3SK.VXEGWO.VRUW04.HHLG7	COMP	89310	1:1	6.8
I3SK.UA592.VXE.HHLG4.J3993Y22	COMP	89299	1:1	6.8
I3SK.I68S.UA592.VXE.HHLG6.J3885Y22	COMP	89275	1:1	6.8
I3SK.VXEGWO.VRUW04.HHLG6	COMP	89215	1:1	6.8
I3MWSE.UHVROYHG.FODLP.HAW.GDLOB.HQU.J2749Y22	PS	80945	R	0.0
I4E5SE.P4E5PF5E.QQR.PHPHU.ILOH.J4422Y22	PS	80708	2:1	0.0
I373.S73BF42.SUYWLU3.RXWSXW.ILQDO.J2282Y22	COMP	57968	2:1	3.1
I3NOSE.UFH.FODLPHAW.ILAHG	COMP	56448	1:1	5.2
I375.S75YY10E.SURYFDW.GDWD	PS	54203	1:1	0.0
I4E5SE.P4E5PF42.QQR.PHPHU.ILOH.J2716Y22	PS	53805	1:1	0.0
I373.J73BJ523.GHOWD.SUYDHA.FXUHQW.J2258Y22	COMP	47649	1:1	3.2
I3SK.I69S.UA592.GHS.HHLG3.J3885Y22	COMP	47461	1:1	6.5
I3SK.I69S.UA592.GHS.HHLG5.J3885Y22	COMP	47141	1:1	6.5
I3SK.I69S.UA592.GHS.HHLG7.J3885Y22	COMP	47066	1:1	6.5
I3SK.I69S.UA592.GHS.HHLG6.J3885Y22	COMP	46907	1:1	6.5

Now the top data sets are listed by MB no matter which compression category they are in.

- Let's change the number of top data sets to display. Use **Action, Number of Data Sets to Display**.



Input

Enter Number of Top Datasets to Display

50

OK Cancel

Change the default value of 50 to **10**. Click **OK** to redisplay the **zEDC top Data Sets** panel.



## zBNA Lab Guide

zBNA: zEDC Top Data Sets

File Edit Action Report

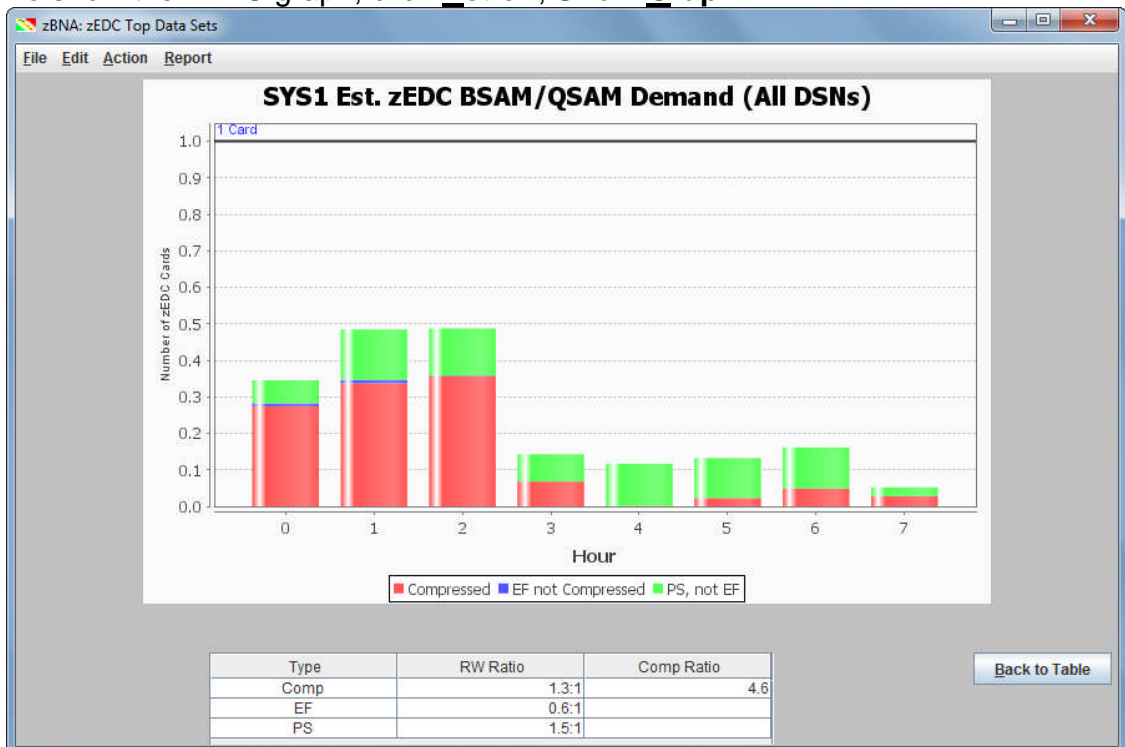
☒ Show Compressed Files
 ☒ Show EF Files (not compressed)
 ☒ Show PS Files (not EF and not EXCP)

Show by Rate or MB?

☐ by Rate (MB/sec)  
☒ by MB (total)

DSN	File Type	MB	RW Ratio	Comp Ratio
I373.S73BJ324.SUYWLU.IWS	COMP	281256	2:1	2.8
I373.S73BJ525.SUYWLU.IWS	COMP	234674	1:1	2.8
I3SK.I68S.UA592.VXE.HHLG3.J3885Y22	COMP	93490	1:1	6.8
I3SK.UA592.VXE.HHLG3.J3994Y22	COMP	93431	1:1	6.8
I3SK.I68S.UA592.VXE.HHLG5.J3885Y22	COMP	89614	1:1	6.8
I3SK.VXEGWO.VRUW04.HHLG5	COMP	89556	1:1	6.8
I3SK.I68S.UA592.VXE.HHLG7.J3885Y22	COMP	89369	1:1	6.8
I3SK.I68S.UA592.VXE.HHLG4.J3885Y22	COMP	89357	1:1	6.8
I3SK.UA592.VXE.HHLG7.J3992Y22	COMP	89311	1:1	6.8
I4E5SE.P4E5PF31.KQR.PHPEHU.ILOH.J4696Y22	PS	134083	R	0.0

5. To show the zEDC graph, click **Action, Show Graph**.





## zBNA Lab Guide

This graph shows the estimated number of zEDC cards by hour needed to support the workload for **all data sets** that met the criteria in the interval. With this graph you can see the peak time and how many cards are required from a capacity perspective. Save this data and graphic image to a zBNA report file by clicking **Report, Output Graph**. Input “**zEDCgraph**” for the file name, and click **Save**. Both the “.htm” and “.jpg” files are generated.

You have successfully completed all the tasks in running the zBNA Lab.