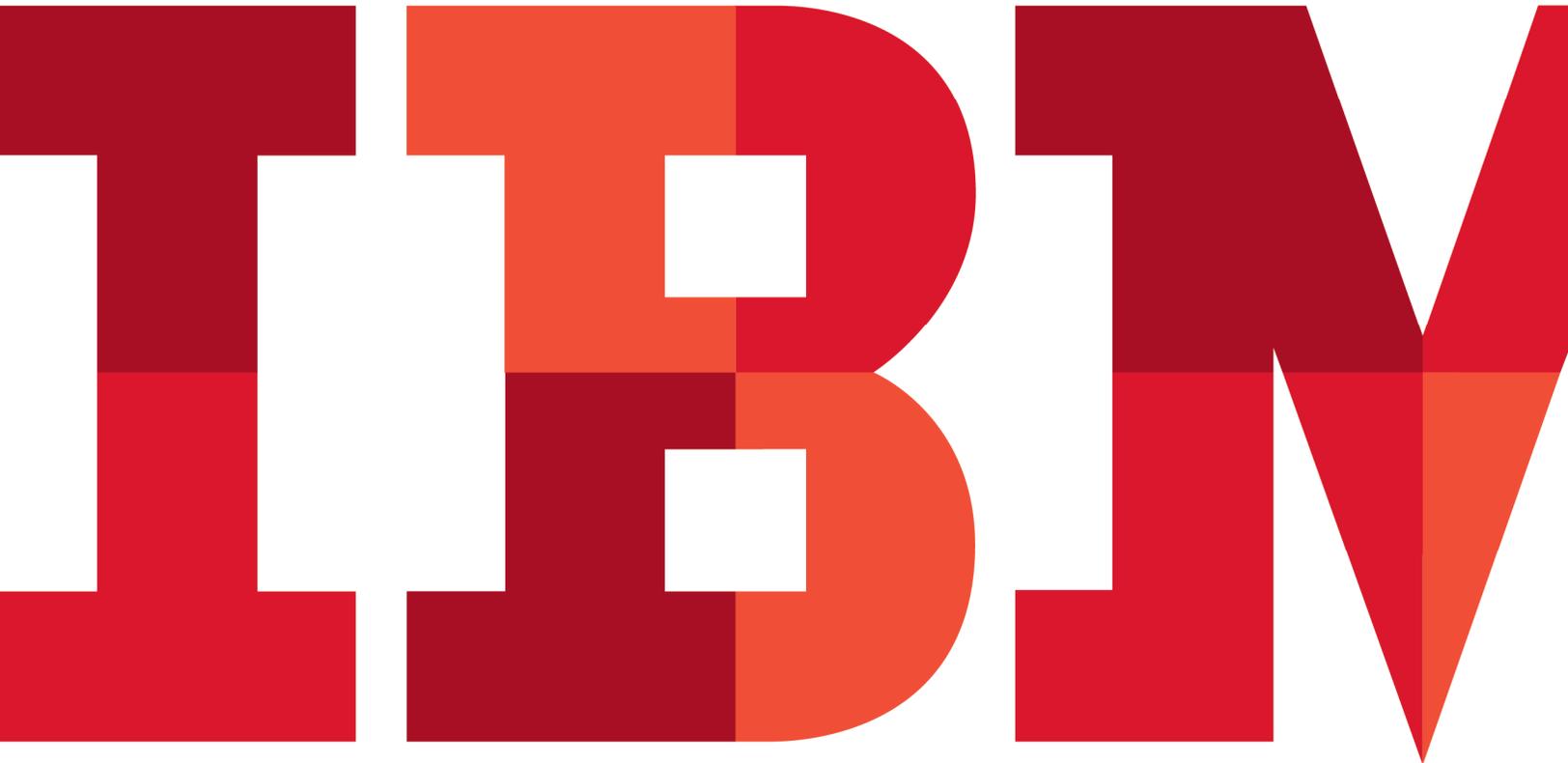


Discovering OMEGAMON

Volume 1

Enhanced 3270 User Interface

***e3270ui Introduction,
OMEGAMON z/OS V5.3, and
OMEGAMON CICS V5.3***



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Icons

The following symbols appear in this document at places where additional guidance is available.

Icon	Purpose	Explanation
	Important!	This symbol calls attention to a particular step or command. For example, it might alert you to type a command carefully because it is case sensitive.
	Information	This symbol indicates information that might not be necessary to complete a step, but is helpful or good to know.
	Troubleshooting	This symbol indicates that you can fix a specific problem by completing the associated troubleshooting information.

Lab#1 OMEGAMON Enhanced 3270 User Interface Introduction

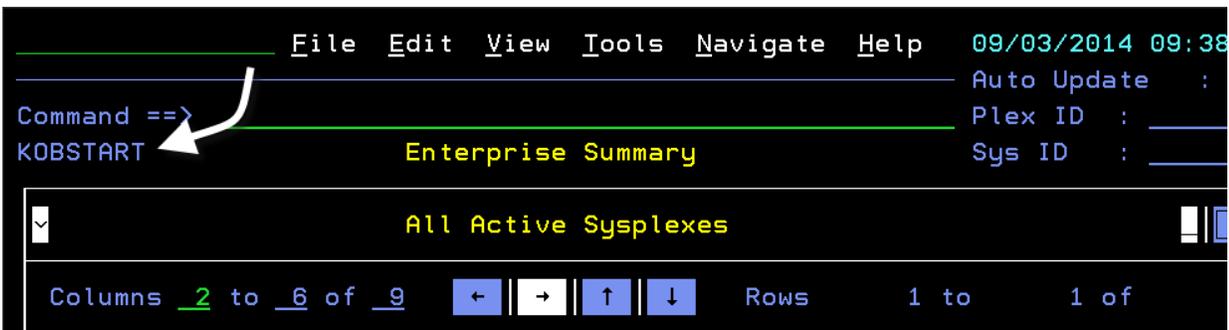
Introduction

This lab exercise will demonstrate how to navigate and use some of the primary features of the OMEGAMON XE V5.x enhanced 3270 user interface. In this lab exercise, the user will perform a series of scenarios focused on the following:

- How to navigate the e3270 User Interface
- How to get online help
- How to perform drill down analysis

1.1 Logon to e3270ui

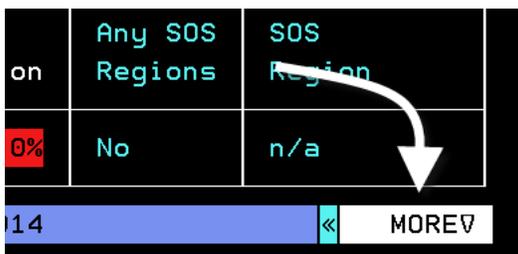
- Follow the logon instructions provided by the lab instructors.
- You should begin all lab exercises at the KOBSTART panel (see below). The panelid will appear on the upper left corner of the display.



1.2 Navigation and Scrolling

You are looking at the start panel for the e3270 ui (panelid KOBSTART). This panel contains overview information for the various agents, such as CICS, z/OS, DB2, and MQ that appear within the enhanced 3270ui. From here you may scroll, filter, or drill down for additional information. There are several methods for drill down and analysis that will be demonstrated as part of this lab exercise.

- From the KOBSTART panel you may notice a symbol in the lower right corner that indicates MORE. This means that you may scroll the panel to see additional information.



Note - The KOBSTART panel shows information from multiple agents



To see information from the various agents (z/OS, CICS, IMS, DB2, Networks, Messaging, and Storage) available within the enhanced 3270ui you may need to scroll the KOBSTART panel

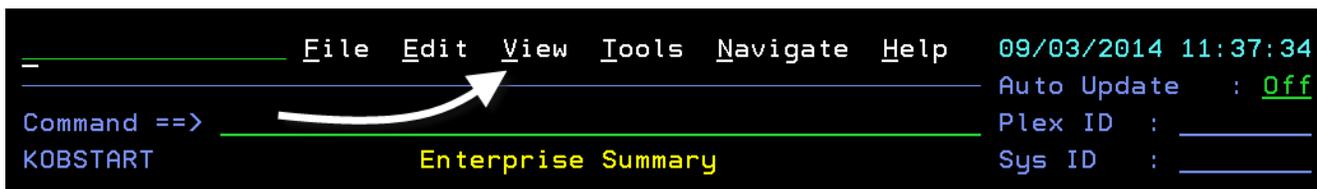
- b) **Press F8** to scroll the KOBSTART panel. You will now see information from the additional OMEGAMON agents that are available at the KOBSTART panel.



Also, notice that the MORE indicator on the lower right portion of the panel may now show both an up and down arrow indicating how you may scroll the panel.

- c) When you are finished reviewing the contents of the KOBSTART panel, **Press F7** to return to the top of KOBSTART.

Next, look at the tool bar at the top of the e3270ui.



- d) If you **tab to VIEW** and **Press Enter** you will see the following drop down menu.



- e) There are multiple options on this drop down. Some of the more interesting options include option S to see the actual source code for the panel, option T to see the threshold members that control highlighting on the panel, and option H that controls the history collection options.

Press F3 to remove the drop down menu.

- f) Now, in the underscore area in the upper left, **enter V** and then **Press Enter**.



Notice the same result (you will again get the View drop down).



Now that you have seen both ways to access drop down menus, **Press F3** to remove the drop down menu.

- g) Next, view the Tools option on the tool bar. In the underscore area **enter T** and **Press Enter**.



You are now looking at the Tools drop down menu.

The Tools drop down menu provides several options to view the monitoring configuration and monitoring options.

```

Tools  Navigate  Help  09/03/2014 13:
-----
 1. I Trace (User Interface)
 2. A Trace (Address Space)
 3. R Registry Refresh
 4. T Threshold Refresh
 5. U Active 3270 Users

-----

 6. H Current Hub Information
 7. P Products installed in Hub
 8. S Switch between hubs
 9. D Discard the secondary hub

-----

10. E Runtime Environment
11. G Global Timeout Control
12. V Internal Variables

```

Press F3 to remove the drop down menu.

h) In the underscore area **enter N** and **Press Enter**



```

N_ File
-----
Command =>

```

You are now looking at the navigation drop down menu. The navigation drop down menu provides you a convenient method to navigate between the various installed OMEGAMON monitoring tools.

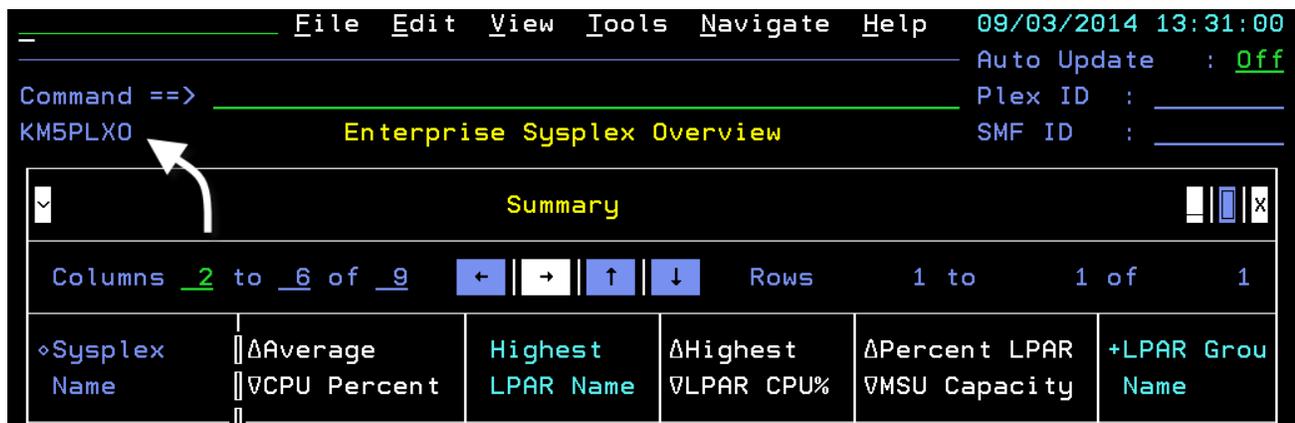
```

s  Navigate  Help  09/
-----
 1. Z z/OS
 2. C CICS
 3. G CICS/TG
 4. I IMS
 5. D DB2
 6. N Networks
 7. M MQ
 8. S Storage
 9. H Home

```

i) In the underscore area **enter Z** (for z/OS) and **Press Enter**

You are now looking at the KM5PLXO panel for OMEGAMON z/OS.



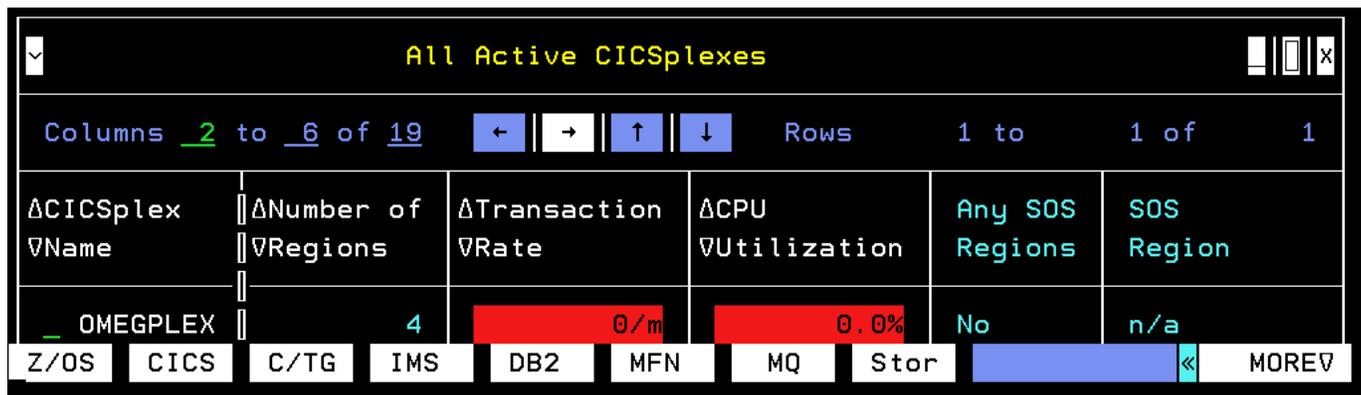
j) To navigate back to KOBSTART, in the underscore area **enter N.H** and **Press Enter**

You should now be back to the KOBSTART panel. If you wish, you may try using the navigate tool bar option to go to other monitoring panels. When finished, please return to KOBSTART.

There are additional techniques to navigate through the interface.

k) From the KOBSTART panel **Press F9**

You should see navigation buttons appear on the bottom of the panel.



You may use these buttons to navigate to the various monitoring components in the tool.

l) **Position the cursor** on the CICS button and **Press Enter**.

You should be looking at the KCPSTART panel for OMEGAMON CICS.

File Edit View Tools Navigate Help 09/03/2014 13:56:08
 Auto Update : Off
 Command ==> KCPSTART Enterprise CICSplex Summary
 CICSplex :
 Region :

All Active CICSplexes

Columns 2 to 6 of 19 Rows 1 to 5 of 5

ΔCICSplex ▽Name	ΔNumber of ▽Regions	ΔTransaction ▽Rate	ΔCPU ▽Utilization	Any SOS Regions	SOS Region
— CICSDEX1	6	0/m	0.0%	No	n/a
— CICSPLX1	10	0/m	0.0%	No	n/a
— OMEGPLEX	5	6/m	0.0%	No	n/a
— RDZ	1	0/m	0.0%	No	n/a
— TIVPLEX	3	0/m	0.0%	No	n/a

m) **Press F3** to return to KOBSTART.

There is another technique to navigate to various monitoring displays within the e3270ui.

n) **Position the cursor** on the command line **Enter =kcpstart** and **Press Enter**

=kcpstart_ File Edit View Tools Nav

Command ==> KOBSTART Enterprise Summary

All Active Sysplexes

Columns 2 to 6 of 9

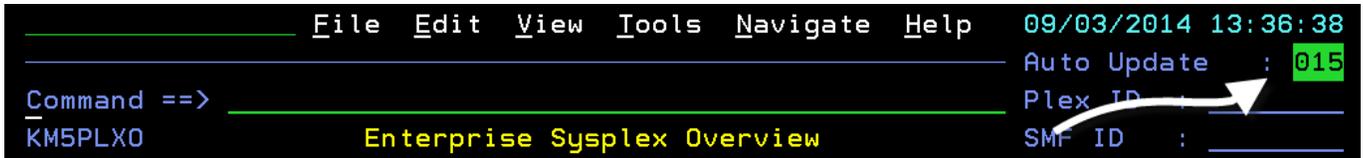
You will be looking at the KCPSTART panel again.

o) **Press F3** to return to KOBSTART.

1.2.1 Turn On/Off Auto-Update Mode

OMEGAMON enhanced 3270 ui supports the auto update function. Auto update will refresh the screen contents automatically based upon the specified time interval.

- On the right portion of the tool bar you will see the Auto Update field. By default auto update is set to OFF.
- Overtyping the Auto Update field, **enter 15** and **Press Enter**. This will set the auto update interval to refresh the display every 15 seconds.

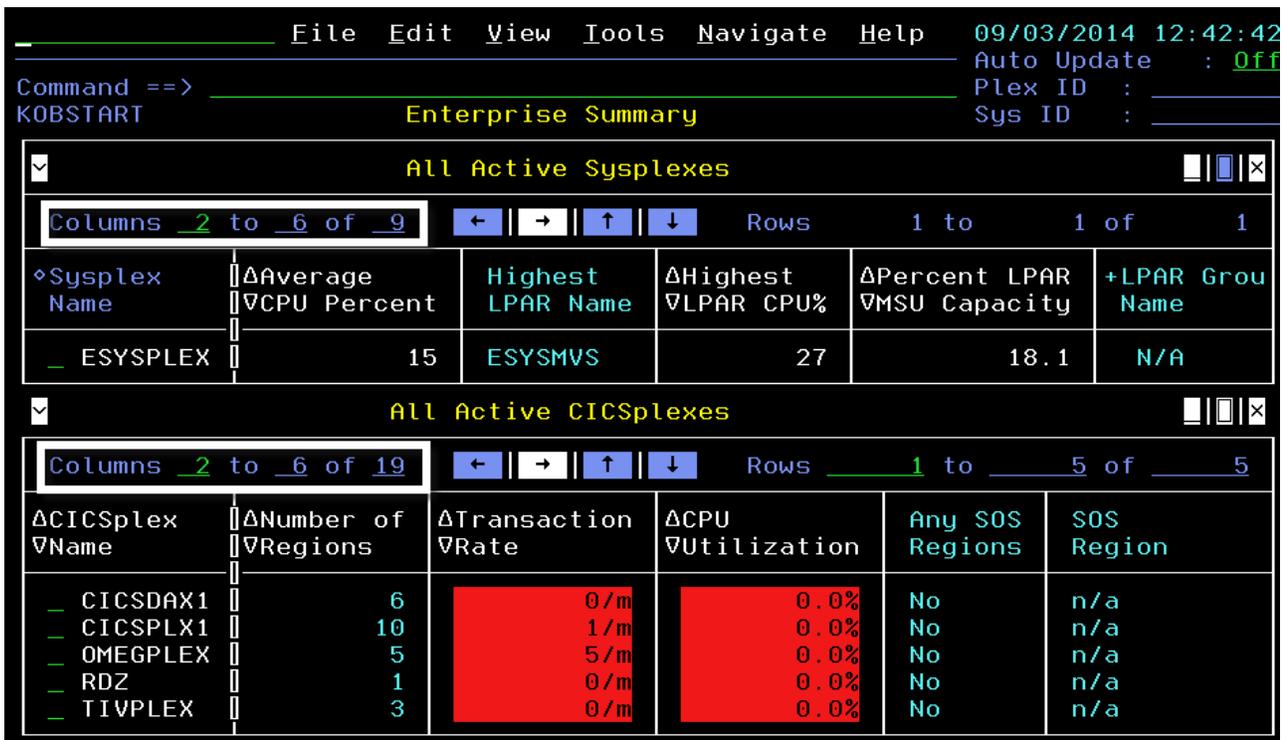


- c) Wait for the interval you specified, and you should see the screen automatically update. (Once you've seen the auto update function work, it is suggested you **set Auto Update back to the OFF setting**).

1.2.2 Additional Control and Navigation options

You may scroll the contents of the panels from side to side to view more detail.

- a) From the KOBSTART panel, **Press F11**. F11 is the shift right function key, and will shift the contents of the panel accordingly (notice the example below which is 24 X 80).



The e3270ui supports different screen widths



E3270ui may support various screen sizes and widths, including 80 character width up to 160 characters. Depending on the option chosen at logon (OMEGAMON versus OMEGAMON Widescreen), your selection will control the size of the screen displayed.

- b) Notice the panel may scroll differently if you logged on with a wider format of panel (OMEGAMON Widescreen).

The following example shows KOBSTART with a wider (160 character width) session. If you look carefully, in the wide screen example below the z/OS information will not need to scroll since all z/OS relevant the information is already on the screen, but the CICS data will scroll (note how the arrows are highlighted).

The screenshot shows the KOBSTART Enterprise Summary panel. At the top, it displays 'File Edit View Tools Navigate Help' and the date/time '09/03/2014 12:42:11'. Below this is the 'Enterprise Summary' section with 'Auto Update : Off', 'Plex ID :', and 'Sys ID :'. The main content is divided into two sections: 'All Active Sysplexes' and 'All Active CICSplexes'. The 'All Active Sysplexes' table has columns for Sysplex Name, Average VCPU Percent, Highest LPAR Name, Highest VLPAR CPU%, Percent LPAR VMSU Capacity, LPAR Group Name, LPAR Group Capacity Limit, Group LPAR MSU Limit, and Average Unused Group MSUs. The 'All Active CICSplexes' table has columns for CICSplex Name, Number of Regions, Transaction Rate, CPU Utilization, Any SOS Regions, SOS Region, Worst Performance Index, Worst Service Class Name, Enqueue Waits, Current Buffer Waits, Current String Waits, and I/O Rate. An arrow points to the 'SOS Region' column in the CICSplexes table.

ΔSysplex Name	ΔAverage VCPU Percent	Highest LPAR Name	ΔHighest VLPAR CPU%	ΔPercent LPAR VMSU Capacity	LPAR Group Name	LPAR Group Capacity Limit	Group LPAR MSU Limit	ΔAverage Unused Group MSUs
ESYSPLEX	15	ESYSMVS	27	18.1	N/A	Unavailable	Unavailable	0

ΔCICSplex Name	ΔNumber of Regions	ΔTransaction Rate	ΔCPU Utilization	Any SOS Regions	SOS Region	ΔWorst Performance Index	Worst Service Class Name	ΔEnqueue Waits	ΔCurrent Buffer Waits	ΔCurrent String Waits	ΔI/O Rate
CICSDAX1	6	0/m	0.0%	No	n/a	0.00%	n/a	0	0	0	0
CICSPLX1	10	0/m	0.0%	No	n/a	0.00%	n/a	0	0	0	0
OMEGPLEX	5	5/m	0.0%	No	n/a	0.00%	n/a	0	0	0	0
RDZ	1	0/m	0.0%	No	n/a	0.00%	n/a	0	0	0	0
TIVPLEX	3	0/m	0.0%	No	n/a	0.00%	n/a	0	0	0	0

- c) Press F10 to shift the data back.

Notice again how the data will shift and the arrows will change depending upon your screen size.

The arrows on the panel also control panel scroll functions.

- d) Position the cursor on the arrow pointing right in the CICSplexes portion of the menu, and Press Enter.

This is a close-up of the 'All Active CICSplexes' table from the previous screenshot. The table header shows 'Columns 2 to 6 of 19' and 'Rows 1 to 5 of 5'. The table has columns for CICSplex Name, Number of Regions, Transaction Rate, CPU Utilization, Any SOS Regions, and SOS Region. An arrow points to the right-pointing arrow in the table's navigation controls.

ΔCICSplex Name	ΔNumber of Regions	ΔTransaction Rate	ΔCPU Utilization	Any SOS Regions	SOS Region
CICSDAX1	6	0/m	0.0%	No	n/a
CICSPLX1	10	1/m	0.0%	No	n/a
OMEGPLEX	5	5/m	0.0%	No	n/a
RDZ	1	0/m	0.0%	No	n/a
TIVPLEX	3	0/m	0.0%	No	n/a

Notice how the CICS portion of the panel will shift.

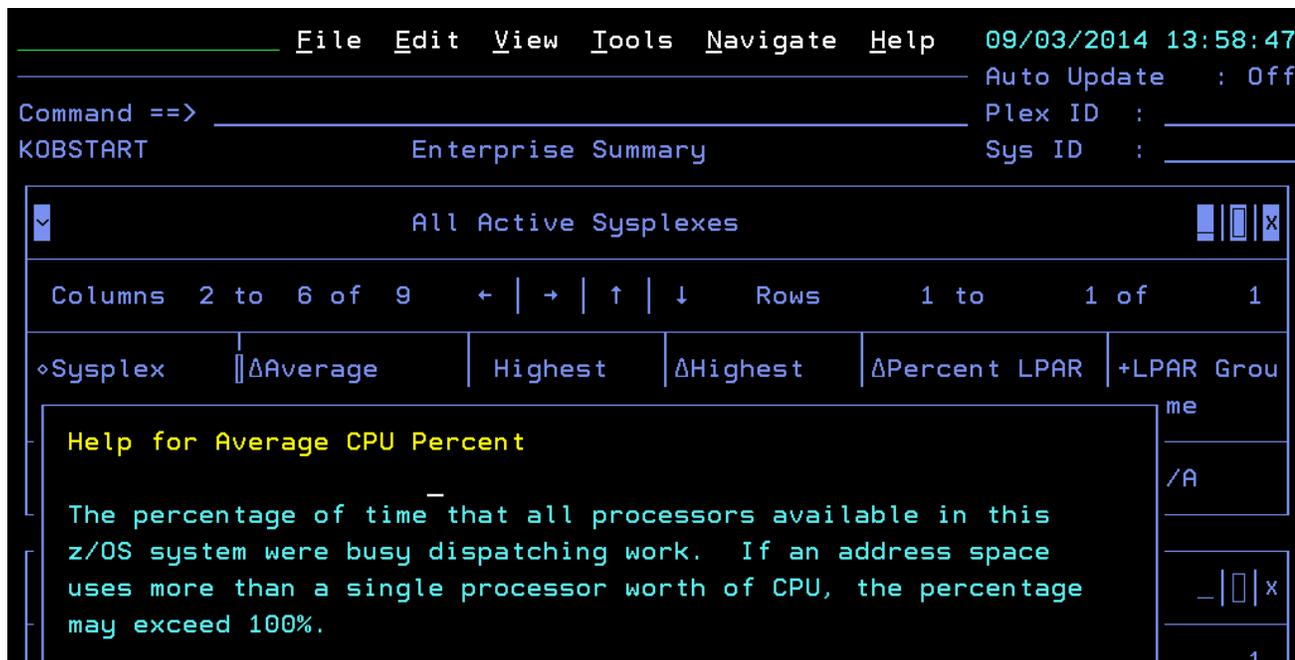
- e) Once you've seen how the arrow function supports the side to side scrolling features, Press F10 to scroll the entire KOBSTART panel back to the left.

1.3 Getting Help

There is extensive field level help contained within the e3270ui. To get help for a given field, position the cursor on the field and press F1 for help.

- a) From the KOBSTART panel, **position the cursor** on the 'Average CPU Percent" field, and **Press F1**.

You are now looking at the help text explaining the Average CPU Percent field and how it is calculated.

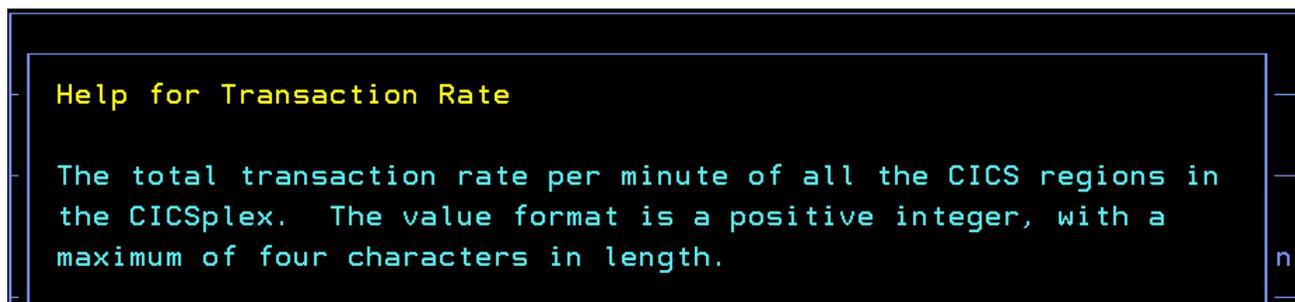


- b) **Press F3** to make the help popup go away.

The same technique works to get help for CICS information on the KOBSTART panel.

- c) For example, **position the cursor** on the "Transaction rate" field and **Press F1**

A help popup will appear for the Transaction rate field.



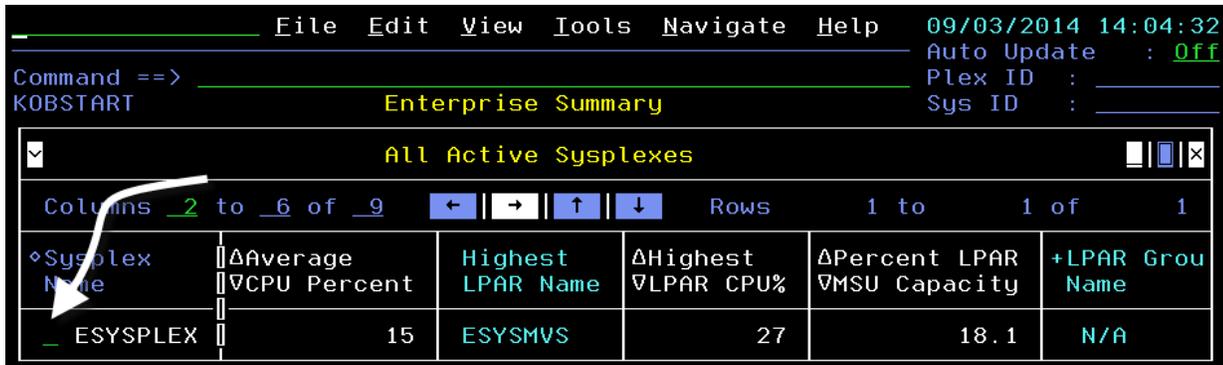
- d) Again **Press F3** to make the help popup go away.

1.4 Zoom and Drill Down Navigation

There a variety of ways minimize, maximize, zoom in and drill down using the enhanced 3270ui. This portion of the lab will demonstrate the most useful techniques.

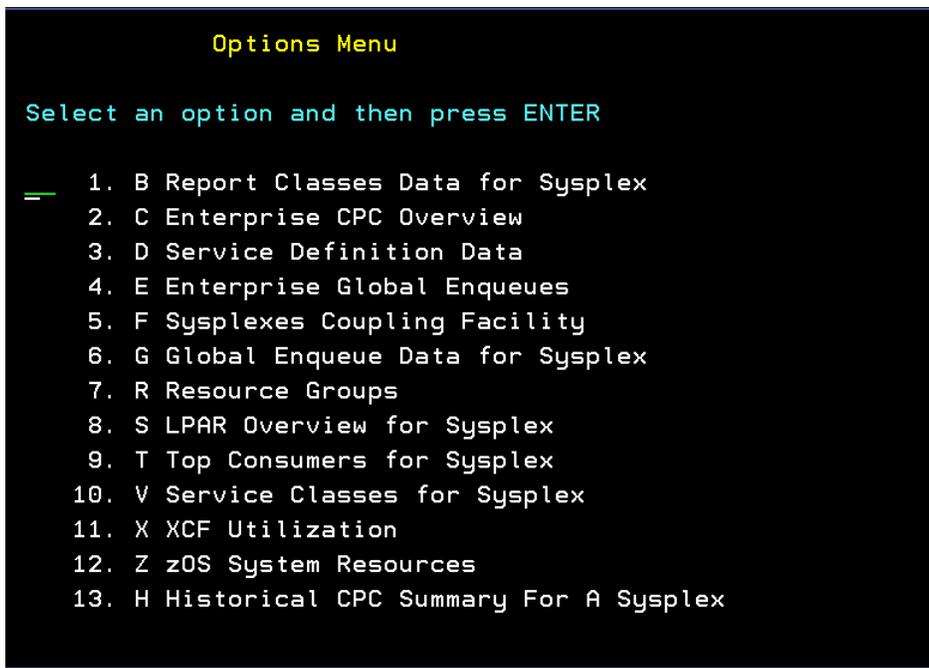
The `/` character is used extensively throughout the enhanced 3270 ui for navigation.

a) **Position the cursor** next to the Sysplex name, enter a `/` and **Press Enter**.



◆Sysplex Name	ΔAverage ∇CPU Percent	Highest LPAR Name	ΔHighest ∇LPAR CPU%	ΔPercent LPAR ∇MSU Capacity	+LPAR Grou Name
_ ESYSplex	15	ESYSMVS	27	18.1	N/A

b) You will get a popup that shows a variety of selection options for more detail.



```

Options Menu

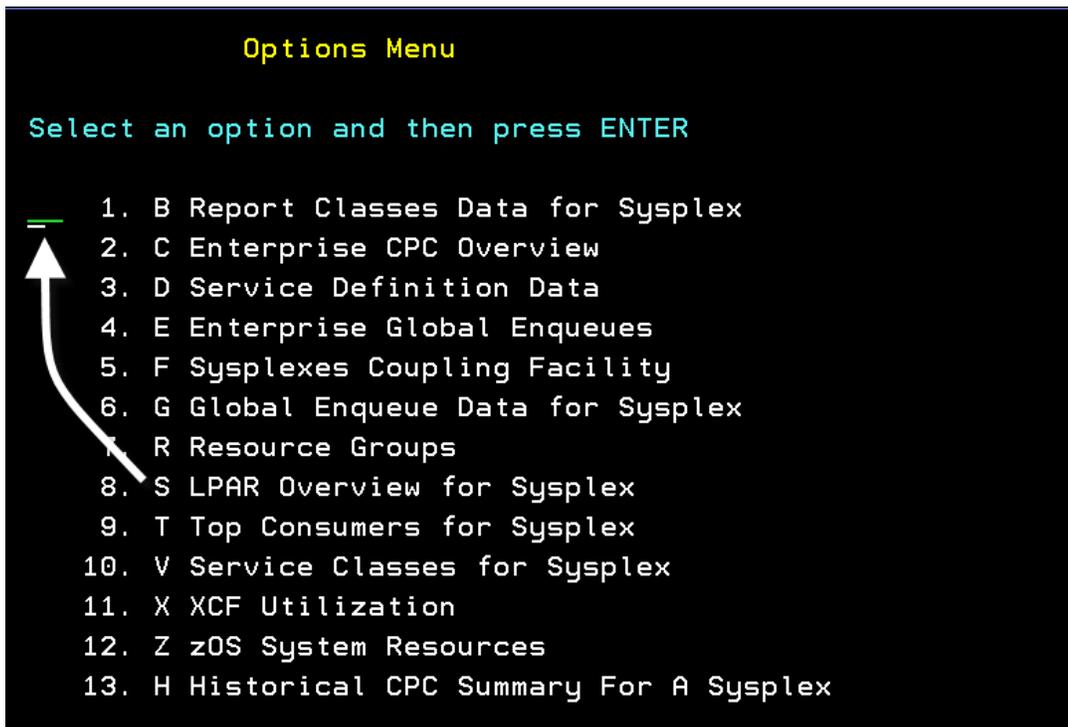
Select an option and then press ENTER

1. B Report Classes Data for Sysplex
2. C Enterprise CPC Overview
3. D Service Definition Data
4. E Enterprise Global Enqueues
5. F Sysplexes Coupling Facility
6. G Global Enqueue Data for Sysplex
7. R Resource Groups
8. S LPAR Overview for Sysplex
9. T Top Consumers for Sysplex
10. V Service Classes for Sysplex
11. X XCF Utilization
12. Z zOS System Resources
13. H Historical CPC Summary For A Sysplex
  
```

You can enter any of the letter commands or numbers to get additional detail.

c) Select option **T** for the Top Consumers, and **Press Enter**.

You will again get the navigation popup shown previously.



f) In this example select option **S** for the LPAR Overview for Sysplex, and **Press Enter**.

LPAR Name	ΔAverage ∇CPU Percent	Percent LPAR MSU Capacity	System Page Rate	Page Fault Rate	+CSA In U Percent
ESYSMVS2	5	0.3	0.0	0.0	8.3
ESYSMVS	27	18.1	0.0	0.0	27.6

You have now drilled into the OMEGAMON LPAR Overview screen. This panel will show the various LPARs in the current Sysplex. Notice how you may use the shift options demonstrated earlier to see additional information about the LPAR.

Once finished, you can **Press F3** to go back to the KOBSTART panel.

There are implicit drill down navigation options. The following steps will demonstrate.

- g) Instead of entering the / command, **position the cursor** next to the Sysplex name and **Press Enter**.

You will end up navigating to the same LPAR Overview display, as shown previously.

LPAR Name	ΔAverage CPU Percent	Percent LPAR MSU Capacity	System Page Rate	Page Fault Rate	+CSA In U Percent
ESYSMVS2	5	0.3	0.0	0.0	8.3
ESYSMVS	27	18.1	0.0	0.0	27.6

What this demonstrates is that, by default, the selection will implicitly be whatever the S option is in the popup. In this example, that takes us to the LPAR overview screen.

As in KOBSTART, from the LPAR overview display you may use the / navigation technique to drill down for more information.

- h) **Position the cursor** to the left of one of the LPARs **enter /** and **Press Enter**



You are now looking at the drill down popup menu from the LPAR overview display.

```

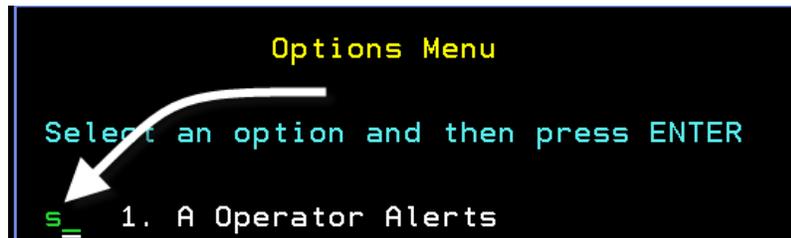
Options Menu

Select an option and then press ENTER

1. A Operator Alerts
2. B System CPU Utilization
3. C CPC Details and LPAR Clusters
4. D zAware Analysis
5. L Health Checker
6. M 4-Hour Rolling Average MSU Statistics
7. N Enclave Information
8. O Storage Resources
9. P System Paging & Dataset Activity
10. R Enqueue, Reserve, and Lock Summary
11. S Address Space Overview
12. V DASD, Channel & Tape Summary
13. W WLM Service Class Resources
14. Z z/OS UNIX System Services Overview
    
```

Notice how you will have different options from what may appear on other popup menus. This demonstrates that the / command and the options menus are context sensitive.

- i) Select option **S** and **Press Enter** to go to the Address Space Overview screen (KM5ASPO)



You are now looking at the Address Space overview display for the LPAR. This panel lists all the address spaces currently executing on the z/OS LPAR.

File Edit View Tools Navigate Help							09/03/2014 14:51:30	
Command ==> KM5ASPO							Auto Update : Off	
Address Space Overview							Plex ID : ESYSPLEX	
							SMF ID : MVSE	
Address Space Counts								
Address Space Count.....			300		Total Enclave Count.....		41	
Started Task Count.....			266		Active Enclave Count.....		25	
TSO User Count.....			6		Inactive Enclave Count...		16	
Batch Job Count.....			15		APPC Count.....		13	
CPU Utilization Summary								
Columns 4 to 6 of 37				Rows 1 to 22 of 300				
ΔAddress Space ▽Name	◇ASID	▽CPU Percent	TCB Percent	SRB Percent	CPU% Excluding Home SRB Time			
CBKCSRVR	014C	88.3	88.3	0.0	88.3			
DEMOJOB3	003C	28.3	26.5	1.7	28.3			
DEMOJOB2	003B	13.9	13.0	0.9	13.9			

Remember, by default you will always get the S option from a navigation popup when you position the cursor and press enter.

- j) **Press F3** and go back to the LPAR Overview screen.

There is another way to drill down for detail that is very useful to know. From any panel where you have white text in the data fields, you can position the cursor on the text and press enter, and you will drill down into the underlying detail display.

k) **Position the cursor** on the Average CPU percent field and **Press Enter.**

LPAR Name	Average CPU Percent	Percent LPAR MSU Capacity	System Page Rate	Page Fault Rate	+CSA In U Percent
ESYSMVS2	5	0.3	0.0	0.0	8.3
ESYSMVS	27	18.1	0.0	0.0	27.6

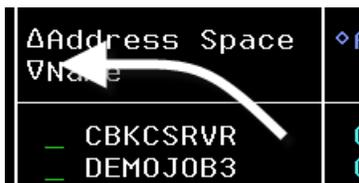
You will once again be on the Address Space Overview panel.

Address Space Name	ASID	CPU Percent	TCB Percent	SRB Percent	CPU% Excluding Home SRB Time
CBKCSRVR	014C	88.3	88.3	0.0	88.3
DEMOJOB3	003C	28.3	26.5	1.7	28.3
DEMOJOB2	003B	13.9	13.0	0.9	13.9

1.5 SORTing

Now that we are on the KM5ASPO Address Space Overview panel, it's a good time to demonstrate the sorting capabilities of the OMEGAMON enhanced 3270 ui.

a) **Position the cursor** on the arrow characters over Address Space Name, and then **Press Enter**



You will now see the Address Space information sorted by address space name.

Address Space Name	ASID	ΔCPU Percent	TCB Percent	SRB Percent	CPU% Excluding Home SRB Time
MASTER	0001	0.0	0.0	0.0	0.0
ADHMST31	0144	0.0	0.0	0.0	0.0
AIITAS	011F	0.0	0.0	0.0	0.0
ALLOCAS	0016	0.0	0.0	0.0	0.0
ANTAS000	000E	0.0	0.0	0.0	0.0

- b) You can sort the panel either ascending or descending. While leaving the cursor on the arrow field **Press Enter** again to see the sort sequence change.

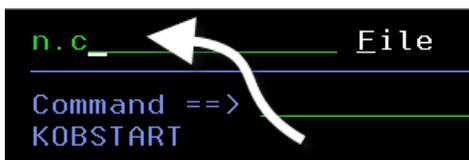
Notice that you also have the ability to use the same technique to sort by the CPU Percent field. You will see this type of sort option appear on other panels.

- c) Once finished, **Press F3** until you get back to the KOBSTART panel.

1.6 Filtering e3270ui panels

Filtering is available on many panels in the e3270ui. The following steps will demonstrate how filtering operates in the e3270 user interface.

- a) From the KOBSTART panel, **enter n.c** and **Press Enter**.



You are now looking at the KCPSTART OMEGAMON CICS panel.

- b) From the KCPSTART panel, **position the cursor** next to a CICSplex and **Press Enter**.

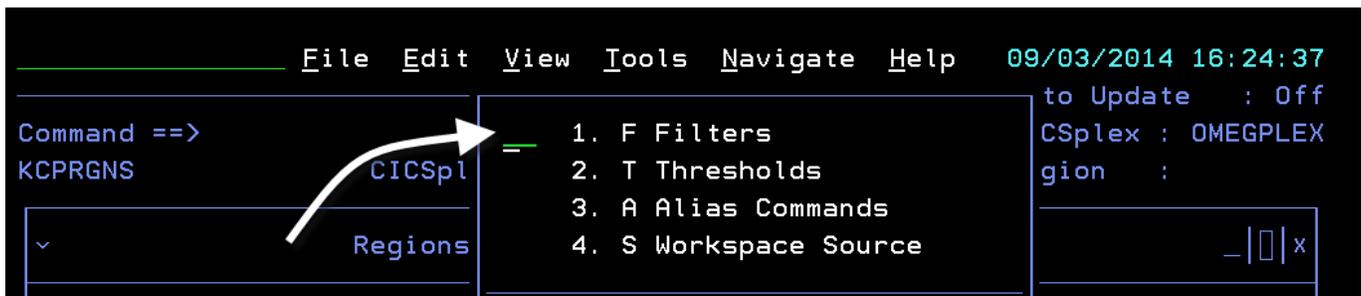
ΔCICSplex Name	ΔNumber of Regions	ΔTransaction Rate	ΔCPU Utilization	Any SOS Regions	SOS Region
CICSDAX1	6	0/m	0.0%	No	n/a
CICSPLX1	10	0/m	0.0%	No	n/a
OMEGPLEX	5	6/m	0.0%	No	n/a

You are now looking at the CICSplex region summary for OMEGPLEX.

ΔCICS Region ▽Name	ΔCPU ▽Utilization	ΔTransaction ▽Rate	ΔMaximum Tasks ▽Percent	SOS	ΔStg. Violat ▽
- CICSA0R9	0.0%	0/m	0%	No	0
- CICSAR10	0.0%	0/m	1%	No	0
- CICSCMAS	0.0%	6/m	12%	No	0
- CICSIL0G	0.0%	0/m	1%	No	0
- WSPOT65Z	0.0%	0/m	3%	No	0

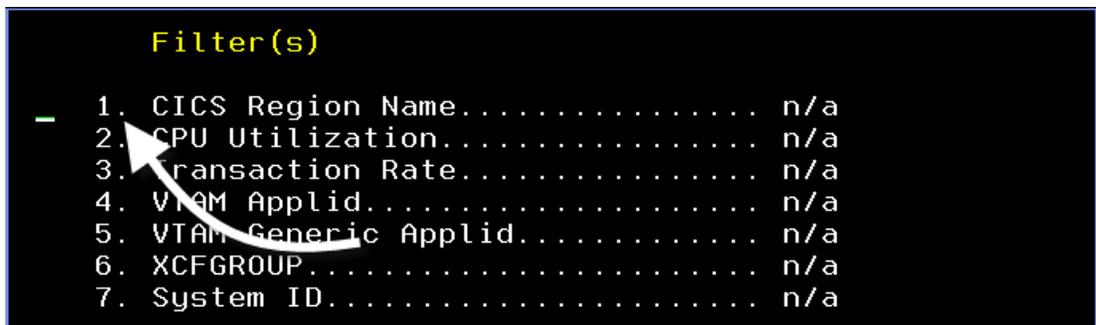
From here there are a variety of ways to invoke the Filter options to filter the display.

- c) On the toolbar you may either **tab to View** and **Press Enter** or you may **enter V** and **Press Enter** to get the following drop down menu.



- d) **Select option F** for Filters and **Press Enter**.

You are now looking at the filter popup for the panel.



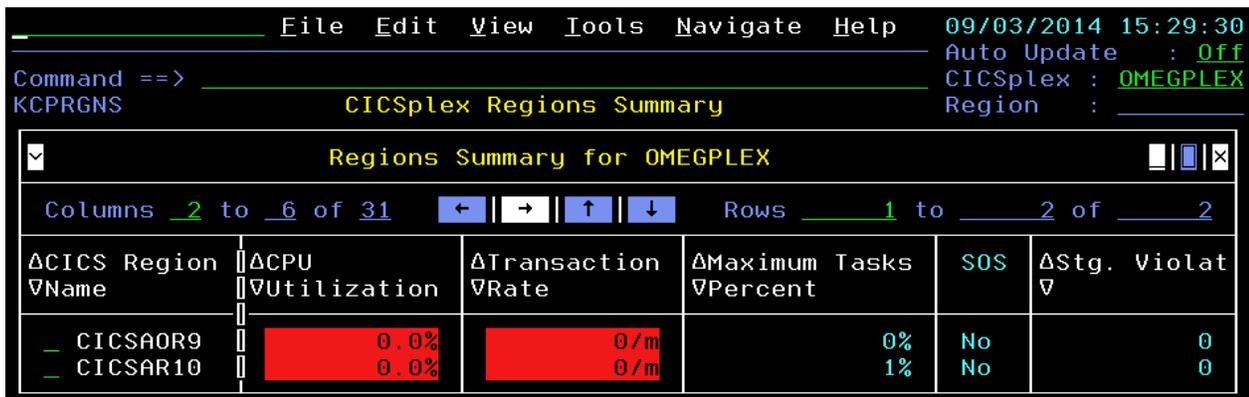
- e) From the popup **select option 1** for CICS Region Name and **Press Enter**.

You are now looking at the filter detail popup for CICS Region Name.



f) Enter a value of = for compare field, enter **CICSA***, and then **Press Enter**. Then **Press F3**.

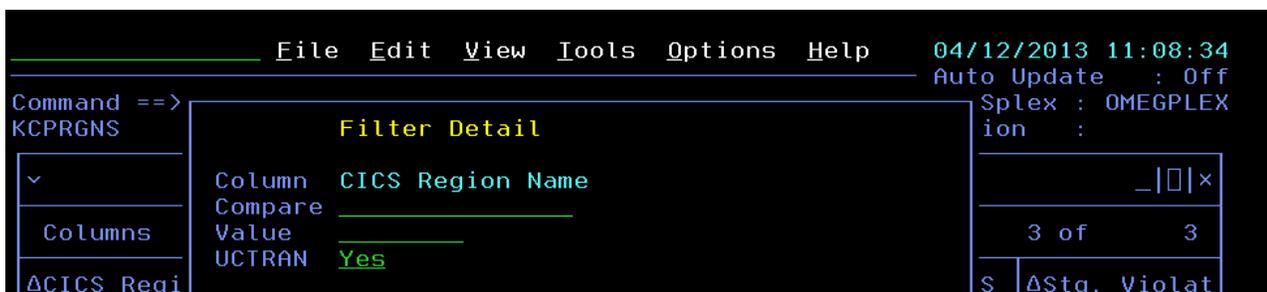
Notice you now have filtered the CICS Regions Summary panel based upon CICS region name.



g) To turn the filter off do the following.

Press F4. You will get the filter popup (NOTE - this is a quicker way to invoke the filters).

Select **option 1** and **Press enter**.



Blank out the filter options, and **Press enter**. Then **Press F3**.

You should now be able to see all the CICS regions in the CICSplex again.

h) **Press F3**. **Press F3 again**. You should now be back at the KOBSTART panel.

1.7 Viewing History Data In e3270ui (New in V5.3)

Historical performance information in the e3270 user interface is one of the new features added to V5.3 of OMEGAMON. OMEGAMON z/OS, CICS, Messaging, and Storage all exploit this new capability.

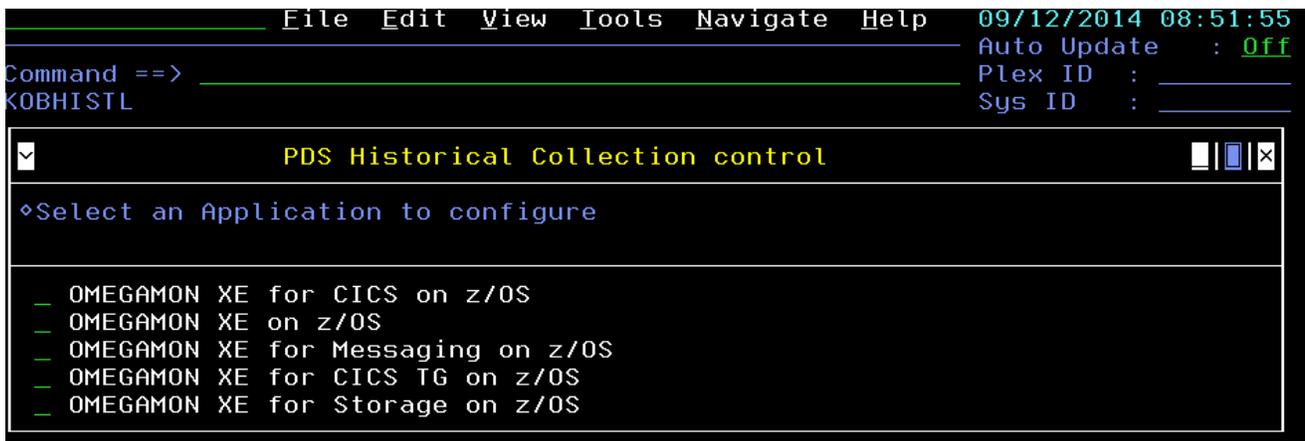
The user may configure what history data is collected and viewable within the e3270 user interface. The collection options may be specified at the level of individual data collection categories.

To understand what historical information is available:

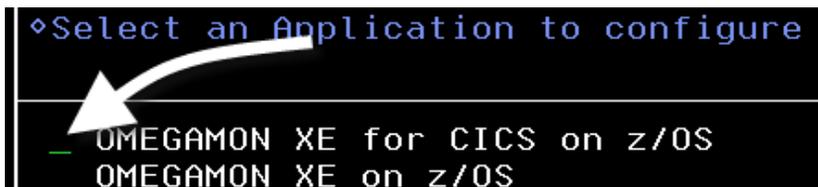
- a) From the KOBSTART panel, **enter v.h** and **Press Enter.**



You are now seeing a list of OMEGAMON monitors that may be enabled to display historical data in the e3270ui. In the example below, you see that history may be collected and shown for z/OS, CICS, CICS TG, Messaging, and Storage.



- b) To see specific collection information, **position the cursor** by one of the lines (such as CICS) and **Press Enter.**



You are now looking at the history collection options for OMEGAMON CICS. This panel shows that there are several tables of history information being collected by OMEGAMON CICS.

Attribute Group	Collection Name	Interval	STATUS
CICSplex Overview	CICSplex_Overview	15 Mins	Active
CICSplex Bottleneck Analysis	CICSplex_Bottlenec	15 Mins	Active
CICSplex Dispatcher TCB Modes	CICSplex_Dispatche	15 Mins	Active
CICSplex Dispatcher TCB Pools	CICSplex_Dispatche	15 Mins	Active
CICSplex Dispatcher Summary	CICSplex_Dispatche	15 Mins	Active
CICSplex Connections Summary	CICSplex_Connectio	15 Mins	Active
CICSplex Dynamic Storage Detail	CICSplex_Dynamic_S	15 Mins	Active
CICSplex DBCTL Summary			
CICSplex DB2 Summary	CICSplex_DB2_Summa	15 Mins	Active
CICSplex IPConnection Analysis	CICSplex_IPConnect	15 Mins	Active
CICSplex LSR Pool Status	CICSplex_LSR_Pool_	15 Mins	Active
CICSplex Pagepool Summary	CICS Page Pool	15 Mins	Active
CICSplex Region Overview	CICS Region Overvi	15 Mins	Active
CICSplex Storage Analysis	CICSplex_Storage_A	15 Mins	Active
CICSplex Connection Analysis	CICSplex_Connectoi	15 Mins	Active
CICSplex MQ Connection Details	CICSplex_MQ_Connec	15 Mins	Active
CICSplex Transaction Analysis	CICSplex_Tansacdti	5 Mins	Active
CICSplex VSAM Analysis	CICSplex_VSAM_Anal	15 Mins	Active
CICSplex Service Class Analysis	CICS Service Level	15 Mins	Active
CICSplex Task History			ONDV
CICSplex Application Trace			ONDV

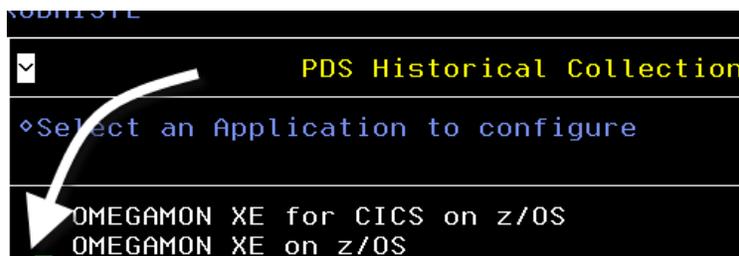
There are two primary categories of history data collected by OMEGAMON CICS.

Interval snapshot – Time interval basis collection – one record or records per interval

Task History – detailed CICS task level history – one record for each CICS task

Interval based history data is collected to the Persistent Data Store (PDS) files allocated to the OMEGAMON agent task or to the Tivoli Management Server (TEMS) task. The user may specify the location of data collection. Note that Task history specifies ONDV (for online data viewing) and does not specify a time collection interval.

- c) **Press F3** to return to panel KOBHISTL
- d) **Position the cursor** by OMEGAMON z/OS and **Press Enter.**



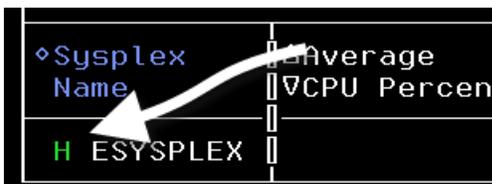
You are now looking at the history collection options for OMEGAMON z/OS.

The screenshot shows the OMEGAMON z/OS interface with a menu bar (File, Edit, View, Tools, Navigate, Help) and a status bar (09/12/2014 09:49:12, Auto Update: Off, Plex ID, Sys ID). The main window displays 'Hub Name: ESYSMVS:CMS Application: OMEGAMON XE on z/OS' and a table titled 'Historical tables'. The table has columns for 'Attribute Group', 'Collection Name', 'Interval', and 'STATUS'. The 'Attribute Group' column lists various performance metrics, and the 'STATUS' column shows 'RMF' for all entries.

Attribute Group	Collection Name	Interval	STATUS
Address Space CPU Utilization H			RMF
Address Space Delay Summary His			RMF
Common Storage Utilization Hist			RMF
CPC LPAR Details History			RMF
CPC LPAR Summary History			RMF
KM5 Device Job History			RMF
KM5 Device Resource History			RMF
KM5_Storage_Details_History			RMF
KM5_Storage_Summary_History			RMF
Real Storage Utilization Histor			RMF
WLM Service Class Resources His			RMF

Note that for OMEGAMON z/OS the history collection comes from RMF. OMEGAMON z/OS exploits the RMF DDS facility to collect and display z/OS performance history data. This includes address space level, system level, device level, and Workload Manager (WLM) level history.

- e) **Press F3 twice** to return to KOBSTART
- f) **Position the cursor** by the Sysplex name **enter H** and **Press Enter**.

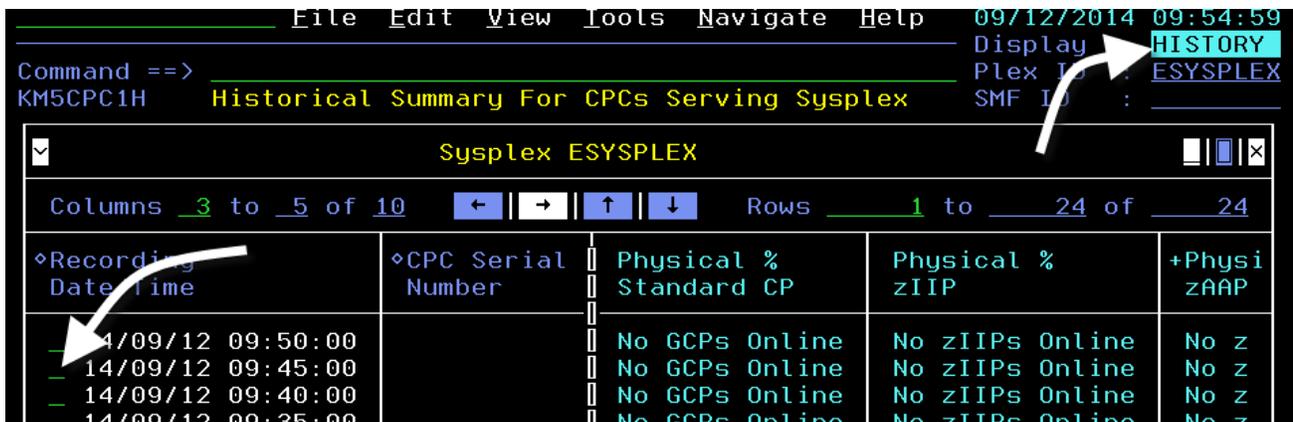


You are now looking at the history summary for the z/OS Sysplex. Each line represents a history collection interval taken from RMF.

Note – some hardware information is not available in this environment



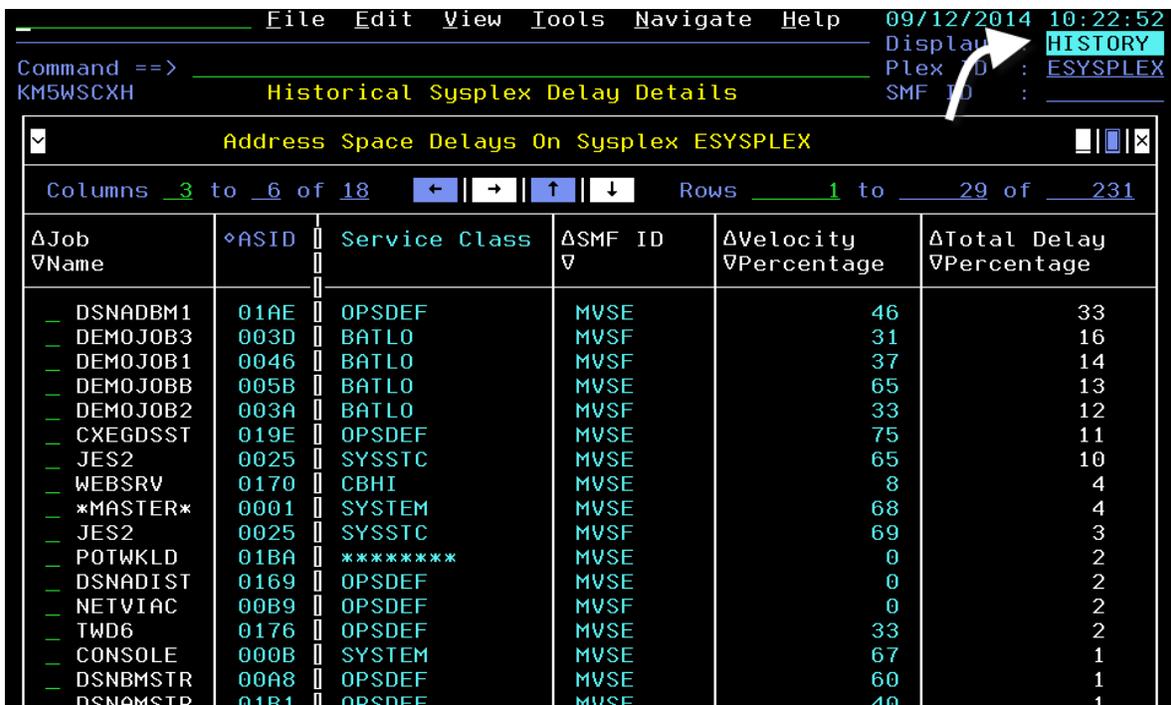
Due to the fact that the Proof of Technology environment is running in a z/VM environment, certain hardware/CPU level information will not appear in the RMF-based history displays (example – No GCPs online).



g) Position the cursor on a time interval enter X and Press Enter.

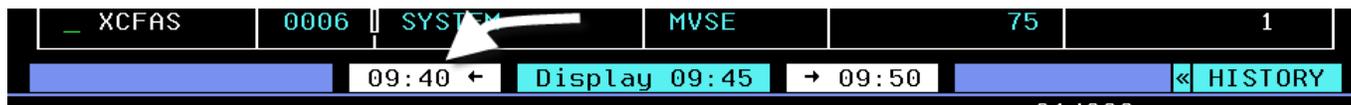


You are now looking at the z/OS address space level history for the Sysplex. Each line represents an address space, and shows the various wait reasons for that given task. You may scroll the panel down or to the right to see additional tasks and additional detail for a given job.



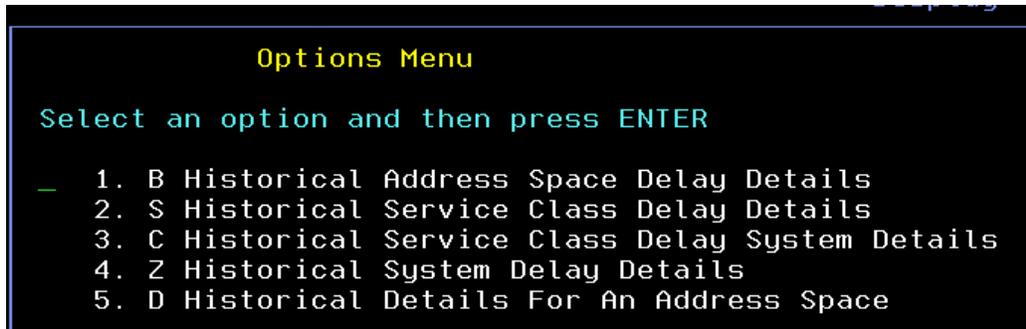
Note that there is a history navigation tool bar at the bottom of the panel (see example below). This tool bar may be used to navigate from one time interval to the next.

h) **Position the cursor** on the history tool bar and **Press Enter**



Note how as you press enter on the tool bar the history time interval will shift. Try going forward and backward through various time intervals using the history tool bar.

i) **Position the cursor** by one of the address spaces **enter /** and **Press Enter**



You are looking at the options drill down menu to get more historical detail for the given job or WLM service class.

Feel free to try one or more of the history drill downs.

j) **Press F3** until you have returned to the KOBSTART panel.

Congratulations! You've completed the introduction to the OMEGAMON enhanced 3270 user interface lab exercise. You now know how to navigate, scroll, drill down, sort and filter the displays. You have also seen new features, such as history displays in e3270ui. Please feel free to try one of the more advanced lab exercises.

Lab #2 OMEGAMON z/OS Enhanced 3270 Scenario Walkthrough

This lab exercise will demonstrate how to use some of the primary features of the OMEGAMON z/OS V5.3 enhanced 3270. In this lab the user will perform a series of scenarios focused on the following:

- Sysplex level resource monitoring
- z/OS LPAR level resource monitoring
- Analysis of high CPU tasks on z/OS
- Problem isolation using z/OS historical performance information (new in V5.3)
- Cross component performance analysis using embedded data (new in V5.3)

2.1 Overview from the Sysplex Perspective

The screenshot shows the OMEGAMON z/OS Enhanced 3270 interface. The top menu bar includes File, Edit, View, Tools, Navigate, and Help. The date and time are 09/04/2014 08:39:51. The command 'KOBSTART' is entered in the Command field. The main display area is titled 'Enterprise Summary' and contains two panels: 'All Active Sysplexes' and 'All Active CICSplexes'.

All Active Sysplexes

ΔSysplex Name	ΔAverage ∇CPU Percent	Highest LPAR Name	ΔHighest ∇LPAR CPU%	ΔPercent LPAR ∇MSU Capacity	+LPAR Group Name
_ ESYSplex	16	ESYSMVS	29	18.2	N/A

All Active CICSplexes

ΔCICSplex ∇Name	ΔNumber of ∇Regions	ΔTransaction ∇Rate	ΔCPU ∇Utilization	Any SOS Regions	SOS Region
_ CICS DAX1	6	0/m	0.0%	No	n/a
_ CICS PLX1	10	0/m	0.0%	No	n/a
_ OMEG PLEX	5	5/m	0.0%	No	n/a
_ RDZ	1	0/m	0.0%	No	n/a
_ TIV PLEX	3	0/m	0.0%	No	n/a

Here is the start panel for the e3270 ui (panelid KOBSTART). This panel contains overview information for all the OMEGAMON monitoring agents installed into the e3270ui. In the above example you see information for both CICSplex and z/OS Sysplex. From this panel you may scroll and/or drill down for additional information. There are several methods for analysis that will be demonstrated as part of this lab exercise.

2.2 Viewing Sysplex level resources

Beginning from the KOBSTART panel we see a Sysplex level view of the enterprise. We will look at a few of the drill down options from this panel.

- a) **Position the cursor** by the Sysplex Name, **enter /** and **Press Enter**. You will then see a popup with several navigation options.

Sysplex Name	Average CPU Percent
/ ESYSPLEX	16

You will get a popup with several drill down options. From this popup you can drill down to look at several categories of Sysplex level resources (CPC and LPAR overview information, Sysplex level coupling facility information, and Sysplex level WLM information).

Options Menu

Select an option and then press ENTER

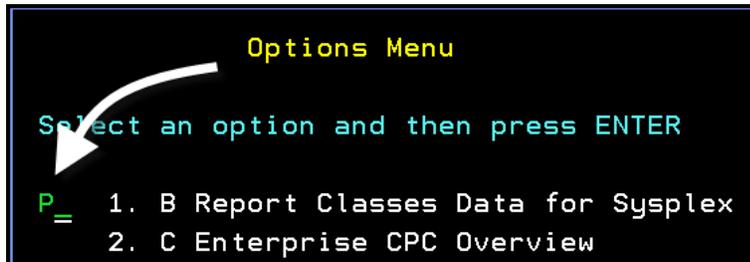
1. B Report Classes Data for Sysplex
2. C Enterprise CPC Overview
3. D Service Definition Data
4. E Enterprise Global Enqueues
5. F Sysplexes Coupling Facility
6. P Enterprise Sysplex Overview
7. R Resource Groups
8. S LPAR Overview for Sysplex
9. T Top Consumers for Sysplex
10. V Service Classes for Sysplex
11. X XCF Utilization
12. Z zOS System Resources
13. H Historical Summary For CPCs Serving Sysplex

Note – OMEGAMON z/OS V5.3 adds a new historical option



One of the major enhancements to OMEGAMON z/OS V5.3 was the addition of historical information to the enhanced 3270 ui (option H in the example below). This history information is collected from the RMF DDS interface. There will be more information on this later in the lab.

b) **Enter P** for Enterprise Sysplex Overview in the popup and **Press Enter**.



One of the major improvements in the enhanced 3270 ui is support for robust Sysplex level information in the 3270 interface. Here you see a Sysplex overview including such information as average CPU usage for the Sysplex, the highest CPU utilization LPAR, and the % CPU utilization of the highest LPAR.

File Edit View Tools Navigate Help 09/04/2014 09:13:37					
Command ==> Auto Update : Off					
KM5PLX0 Enterprise Sysplex Overview Plex ID : SMF ID :					
Summary					
Columns 2 to 6 of 9		Rows 1 to 1 of 1			
◇Sysplex Name	ΔAverage CPU Percent	Highest LPAR Name	ΔHighest LPAR CPU%	ΔPercent LPAR MSU Capacity	+LPAR Group Name
_ ESYSPLX	24	ESYSMVS	45	19.0	N/A
Exceptions					
Columns 3 to 5 of 6		Rows 1 to 2 of 2			
◇Sysplex Name	◇LPAR Name	ΔException	Value	Waiting Tasks	
_ ESYSPLX	ESYSMVS2	Performance Index	2.80	-	
_ ESYSPLX	ESYSMVS	Performance Index	1.62	-	

Note that when looking at the panel, there are several fields in white. Those fields are eligible for drill down. For example, you may want to see the tasks running on the highest utilization LPAR.

c) **Position the cursor** on the Average CPU Percent and **Press Enter**.

◇Sysplex Name	ΔAverage CPU Percent	Highest LPAR Name	ΔHighest LPAR CPU%
_ ESYSPLX	24	ESYSMVS	45

The tool has now navigated you directly to the Address Space Overview panel for the highest utilization LPAR, and shows the address spaces running on the LPAR sorted in descending CPU Percent order. From this panel you can analyze the various address spaces. This will be demonstrated later in the lab exercise.

```

File Edit View Tools Navigate Help 09/04/2014 09:18:53
Auto Update : Off
Command ==>
KM5ASPO Address Space Overview Plex ID : ESYSPLEX
SMF ID : MVSE
    
```

Address Space Count.....	297	Total Enclave Count.....	42
Started Task Count.....	263	Active Enclave Count.....	27
TSO User Count.....	6	Inactive Enclave Count....	15
Batch Job Count.....	15	APPC Count.....	13

```

CPU Utilization Summary
Columns 4 to 6 of 37 Rows 1 to 22 of 297
    
```

ΔAddress Space ▽Name	◇ASID	ΔCPU ▽Percent	TCB Percent	SRB Percent	CPU% Excluding Home SRB Time
— DEMOJOB3	003C	87.4	87.4	0.0	87.4
— DEMOJOB1	003A	44.8	42.2	2.6	44.8
— WLM	000C	2.2	2.2	0.0	2.2
— RD4ZRSE6	009F	2.2	0.9	0.0	2.2
— DB1IDBM1	00CB	1.3	0.0	0.0	0.0

d) **Press F3.** **Press F3** again. You should now be back at the KOBSTART panel.

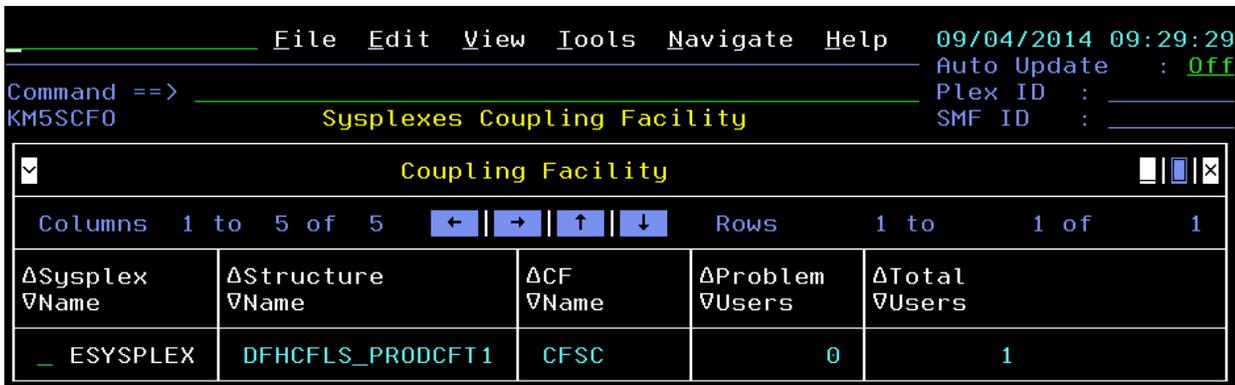
2.3 View Sysplex Coupling Facility Details

This lab exercise will show you how to view Sysplex Coupling Facility level information using the e3270 user interface.

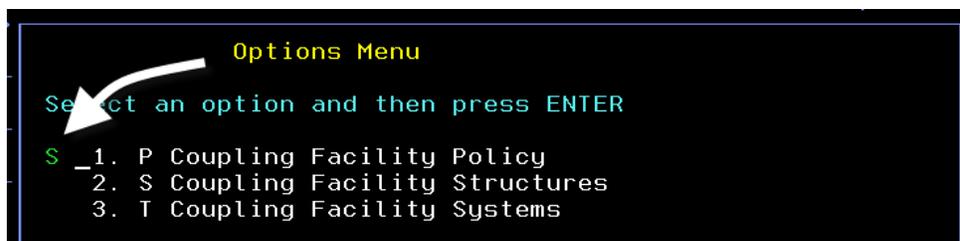
a) **Position the cursor** by the Sysplex Name, **enter F** and **Press Enter.**



The following is the Coupling Facility overview panel. From this panel you may get more detail on the coupling facility, its structures, and CF utilization.



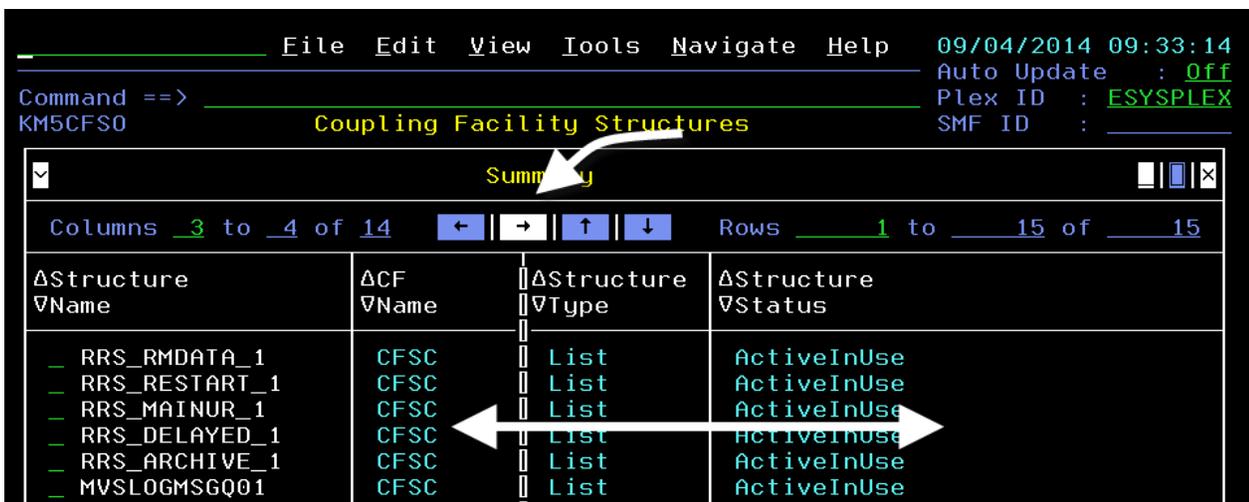
- b) To get more detail on the coupling facility, **Position the cursor** by the Sysplex Name, **enter /** and **Press Enter**.



From the popup you can select the coupling facility policy, look at the coupling facility structures, or look at what systems are utilizing the coupling facility.

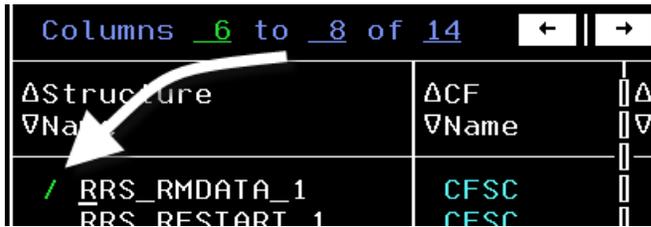
- c) **Enter S** for Coupling Facility Structures in the option and **Press Enter**.

You are now looking at the summary overview of all the structures defined within the coupling facility. This display shows status and utilization information for each structure defined within the coupling facility.

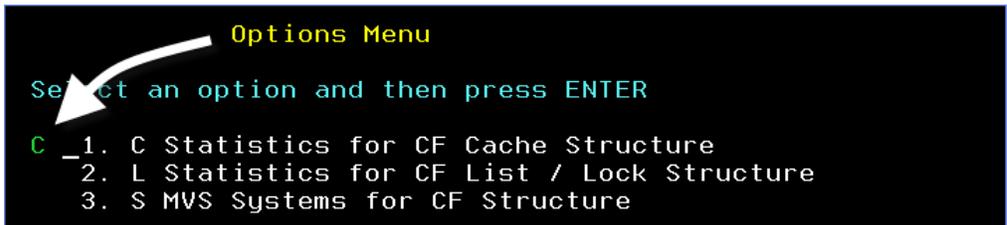


- d) You can scroll the screen right/left to see the various coupling facility structure statistics (using F10/F11 or the arrow buttons).

- e) To get detail on a specific coupling facility structure **position the cursor** by a Structure Name, **enter /** and **Press Enter**.



- f) From the popup **enter C** for Statistics for CF Cache Structure in the option and **Press Enter**.



The following panel shows details about the CF structure including structure type, structure size, utilization, and synchronous/asynchronous request rates.

File Edit View Tools Navigate Help 09/04/2014 09:58:23
 Auto Update : Off
 Command ==> KM5CFS04 Statistics for CF Cache Structure Plex ID : ESYSPLEX
 SMF ID :

Statistics Report for RRS_RMDATA_1

Structure Type.....	List	CF Name.....	CFSC
Storage Size.....	2304	Utilized Storage Size....	10.1
Minimum Structure Size....	2304	Maximum Structure Size....	2560
Percent Converted.....	0.0	Dump Contention.....	0
Total Queued Requests....	0	Percent Queued Requests...	0.0
Data Element Size.....	512	Dump Table Size.....	0
Rebuild Percent.....	0	First Castout Class.....	0
Last Castout Class.....	0	Directory Entry Count....	0
Data Area Element.....	0	Storage Classes.....	0

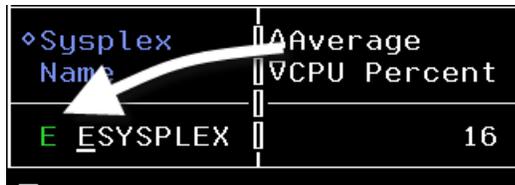
Asynchronous Report for RRS_RMDATA_1

Asynchronous Requests per minute	Percent of Total Requests - Asynch	Synch to Asynch Conversions per min	+Directory Ratio
4.0	26.3	0.0	

- g) **Press F3** then **Press F3** then **Press F3** again. You should be back at the KOBSTART panel.

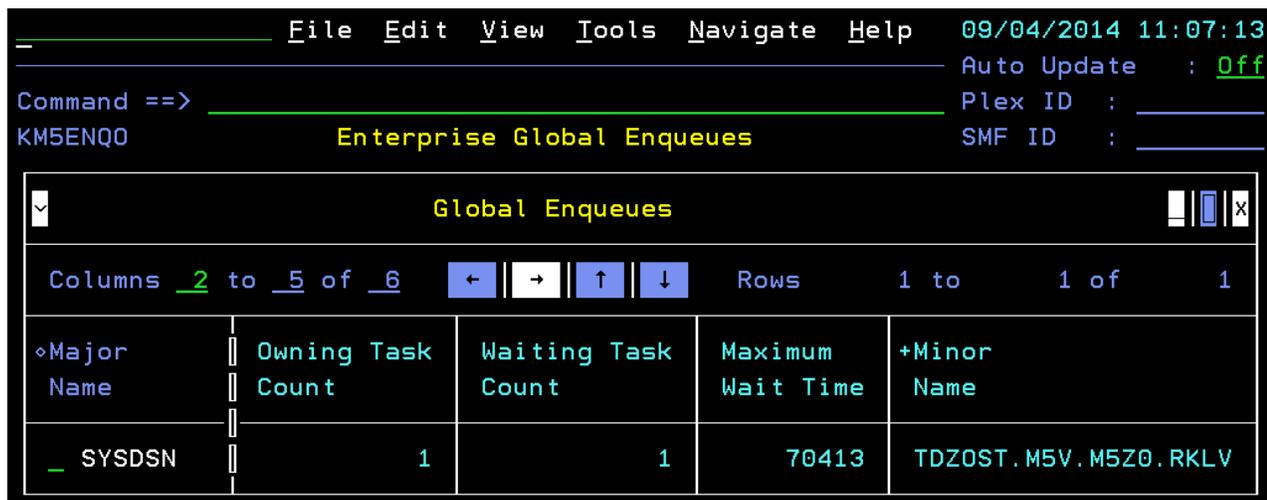
OMEGAMON will show enqueue activity across the Sysplex environment. The next portion of the lab will demonstrate how to see enqueue activity.

h) **Position the cursor** by the Sysplex Name, **enter E** and **Press Enter**.



◊Sysplex Name	ΔAverage VCPU Percent
E <u>E</u> SYSPLEX	16

You are now looking at enqueues currently on the system (if any).



File Edit View Tools Navigate Help 09/04/2014 11:07:13
Auto Update : Off
Command ==> KM5ENQ0 Enterprise Global Enqueues Plex ID : SMF ID :

Global Enqueues				
Columns				Rows
2 to 5 of 6	←	→	↑	↓
	1 to	1 of	1	
◊Major Name	Owning Task Count	Waiting Task Count	Maximum Wait Time	+Minor Name
<u>S</u> YSDSN	1	1	70413	TDZOST.M5V.M5Z0.RKLV

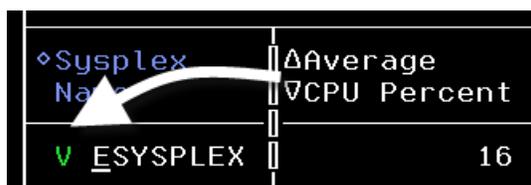
In the above panel you see information on z/OS resource enqueues, including resource name, owning tasks and waiting tasks.

i) **Press F3**. You should be back at the KOBSTART panel.

2.4 View WLM Service Class Details

Workload Manager (WLM) is an important function to monitor and analyze in a z/OS environment. The enhanced 3270 ui provides extensive information on WLM activity (both real time and in history).

a) **Position the cursor** by the Sysplex Name, **enter V** and **Press Enter**.



◊Sysplex Name	ΔAverage VCPU Percent
V <u>V</u> SYSPLEX	16

You are now looking at the WLM Service Class overview for the Sysplex. Note that by default the display is sorted by WLM performance index (PI). You may also sort the display by other fields, such as goal importance.

ΔService Class	ΔPeriod	ΔGoal Importance	ΔPerformance Index	ΔWorst Performance Index
— BATMED	1	Low	20.00	20.00
— OPSDEF	1	High	1.36	2.00
— OPSHI	1	Highest	0.93	1.40
— CICSDEF	1	High	0.50	0.50
— UNIX	3	Low	0.35	0.35
— UNIX	2	Medium	0.00	0.00
— SYSSTC	1	Unavailable	0.00	0.00

From this panel there are a variety of drills downs for more details on WLM service classes at the Sysplex level.

b) **Press F3**. You should be back at the KOBSTART panel.

2.5 View TOP Resource Consumers by a Sysplex

The Top Consumers display is a powerful analysis display the aggregates information from a variety of monitoring sources into a single combined panel. From the Top Consumers panel you may see high CPU tasks, high I/O tasks, high storage tasks, and tasks with enqueues, all from a single display. From the Top Consumers display you may drill down for more detailed analysis.

a) **Position the cursor** by the Sysplex Name, **Enter T** (for Top Consumer) and **Press Enter**

ΔSysplex Name	ΔAverage CPU Percent
T ESYSPLEX	16

You are now looking at the Top Consumers panel (KM5TOPC).

File Edit View Tools Navigate Help 09/04/2014 10:42:09
 Auto Update : Off
 Command ==> KM5TOPC Top Consumers for Sysplex ESYSPLEX
 Plex ID : ESYSPLEX
 SMF ID : MVSE

Highest Consuming Address Spaces of CPU

Columns 3 to 5 of 5 Rows 1 to 3 of 10

ΔAddress Space ▽Name	◇ASID	ΔCPU ▽Percent	Δ0..20..40..60..80..100 ▽	ΔLPAR ▽Name
— DEMOJOB3	003C	87.8		ESYSMVS
— DEMOJOB2	003A	47.4		ESYSMVS
— DEMOJOB1	003D	35.7		ESYSMVS

Highest Consuming Address Spaces of Real Storage

Columns 3 to 5 of 5 Rows 1 to 3 of 10

ΔAddress Space ▽Name	◇ASID	ΔCentral Frame ▽Count	Working Set Size	ΔLPAR ▽Name
— CXEGDSST	0138	206462	825848K	ESYSMVS
— IMSREST	0123	188320	753280K	ESYSMVS
— RD4ZRSE6	009F	175051	700204K	ESYSMVS

Highest Consuming Address Spaces of Virtual Storage

Columns 3 to 5 of 5 Rows 1 to 3 of 10

ΔAddress Space ▽Name	◇ASID	ΔTotal ▽Virtual (Mb)	ΔTotal ▽Fixed (Mb)	ΔLPAR ▽Name
— DSNTDBM1	00D0	1050169.0	4.1	ESYSMVS
— DB1RDBM1	00C9	1049899.0	3.1	ESYSMVS
— DSNCDM1	00C8	1049864.0	3.1	ESYSMVS

Highest Consumers of CSA Storage

Columns 3 to 6 of 6 Rows 1 to 3 of 10

Thursday September 04 2014 MORE

The Top Consumer panel (KM5TOPC) is a powerful panel in that it shows the top consumers of z/OS resources across the Sysplex. It is important to note that KM5TOPC shows information for the entire Sysplex. The Top Consumers panel pulls together information on the top CPU tasks, top storage utilization tasks, highest consumers of CSA and ECSA, highest I/O tasks, enqueue conflicts, and workloads not meeting their WLM goals (as indicated by a Performance index > 1).

There is a lot of information on the KM5TOPC panel, and if you notice the MORE option on the lower right, this indicates that there is more information if you scroll the panel down.

b) **Press F8** to scroll down and see the rest of the panel.

```

File Edit View Tools Navigate Help 09/04/2014 10:44:11
Auto Update : Off
Command ==> KM5TOPC Top Consumers for Sysplex ESYSPLEX Plex ID : ESYSPLEX
SMF ID : MVSE

```

Highest Consumers of CSA Storage

Columns 3 to 6 of 6 Rows 1 to 3 of 10

ΔAddress Space ▽Name	◇ASID	ΔCSA ▽In Use	Δ% of ▽Total CSA	CSA Orphaned	ΔLPAR ▽Name
— *MASTER*	0001	162816	4.0	No	ESYSMVS2
— *MASTER*	0001	158720	3.9	No	ESYSMVS
— IMSDMAST	010C	136192	3.3	No	ESYSMVS

Highest Consumers of ECSA Storage

Columns 3 to 6 of 6 Rows 1 to 3 of 10

ΔAddress Space ▽Name	◇ASID	ΔECSA ▽In Use	Δ% of ▽Total ECSA	ECSA Orphaned	ΔLPAR ▽Name
— *SYSTEM*	0000	35651584	9.2	No	ESYSMVS
— *SYSTEM*	0000	25165824	6.5	No	ESYSMVS2
— DSNTMSTR	00BB	5645312	1.4	No	ESYSMVS

Highest Consuming Address Spaces of I/O

Columns 3 to 4 of 4 Rows 1 to 3 of 10

ΔAddress Space ▽Name	◇ASID	ΔI/O ▽Rate	ΔLPAR ▽Name
— DEMOJOB1	003D	8302.2	ESYSMVS
— BBGZSRV	0125	3423.9	ESYSMVS
— DEMOJOB2	003A	3130.4	ESYSMVS

Enqueue Conflicts No Data

Performance Index > 1

Thursday September 04 2014 ΔMORE

There are variety of drill downs and navigation options from this panel. Problem analysis using the KM5TOPC panel will be shown later in this lab.

c) **Press F3.** You should be back at the KOBSTART panel.

2.6 More z/OS Systems Resource Information

OMEGAMON z/OS provides extensive monitoring detail for z/OS resources. While the focus so far had been primarily at the Sysplex resource level, there are other useful z/OS related information items that may be important for you to locate.

a) **Position the cursor** by the Sysplex Name, **enter Z** and **Press Enter**.

◊Sysplex Name	Average VCPU Percent
Z <u>E</u> SYSPLEX	16

You are looking at a popup menu that shows many drill down detail options. From this popup you may see address space detail, system CPU analysis, system enclave information, Health Checker information, zAware anomaly scores, the 4 hour MSU rolling average information, DASD device data, and z/OS Unix Systems Services information.

```

KM5SYSMN z/OS System Resources for ESYSMVS

Select one of the following, then press ENTER

1. A Address Space Overview
2. B Address Space Bottlenecks Summary
3. C CPC Details and LPAR Clusters
4. D System CPU Utilization
5. E Enclave Information
6. H Health Checker
7. M 4-Hour Rolling Average MSU Statistics
8. O Operator Alerts
9. P System Paging & Dataset Activity
10. R Enqueue, Reserve, and Lock Summary
11. S Storage Utilization
12. V Active DASD Devices
13. W WLM Service Class Resources
14. Z z/OS UNIX System Services Overview
  
```

From this popup you can select option V to see **DASD device** information. You can also select option Z to see **z/OS UNIX System Services** information.

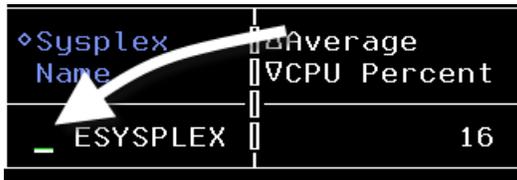
It's important to remember that if you want DASD or USS information, you need to start from the Sysplex level and then select z/OS System Resources.

b) **Press F3**. You should be back at the KOBSTART panel.

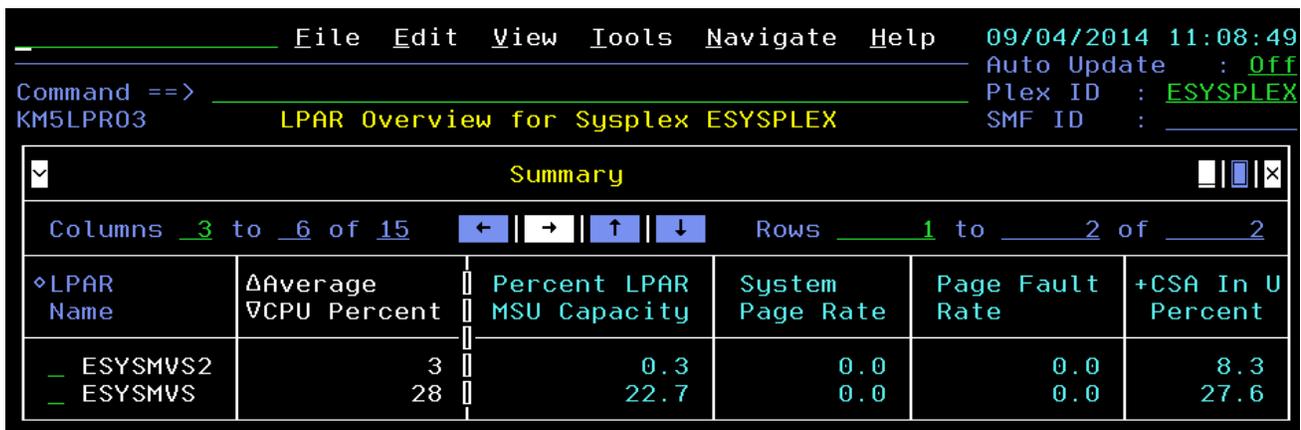
2.7 Overview from the LPAR perspective

Now that we've looked at examples of relevant information at the sysplex level, let's consider information available at the LPAR level. If you begin at KOBSTART, the LPAR Overview panel (KM5LPR03) is the default drill down option.

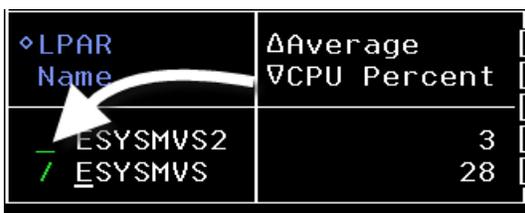
a) **Position the cursor** by the Sysplex Name, and **Press Enter.**



You are now looking at the LPAR Overview panel. The LPAR Overview panel (KM5LPR03) shows the LPARs in the selected sysplex environment. From this panel you can see the average CPU utilization for each respective LPAR, plus other key LPAR performance metrics.



a) **Position the cursor** by one of the LPAR Names, **enter /** and **Press Enter.**



You now have the Options Menu for the LPAR. From here you can drill in on alerts, CPU information, storage utilization/paging information, WLM service class information, and, of course, the address space overview.

```

Options Menu
Select an option and then press ENTER

1. A Operator Alerts
2. B System CPU Utilization
3. C CPC Details and LPAR Clusters
4. D zAware Analysis
5. H Health Checker
6. M 4-Hour Rolling Average MSU Statistics
7. N Enclave Information
8. O Storage Resources
9. P System Paging & Dataset Activity
10. R Enqueue, Reserve, and Lock Summary
11. S Address Space Overview
12. V Active DASD Devices
13. W WLM Service Class Resources
14. Z z/OS UNIX System Services Overview
    
```

b) In the Options Menu, enter **B** for System CPU Utilization and Press Enter

```

Options Menu
Select an option and then press ENTER

B_ 1. A Operator Alerts
    2. B System CPU Utilization
    3. C CPC Details and LPAR Clusters
    
```

You are now looking at the System CPU Utilization panel, which shows an overview of system CPU utilization, including zIIP and zAAP, and other relevant information.

File Edit View Tools Navigate Help				09/04/2014 11:12:12	
Command ==>				Auto Update : Off	
KM5CPUS				Plex ID : ESYSPLX	
System CPU Utilization				SMF ID : MVSE	
CPU Utilization Detail					
Average CPU Percent.....		42	RMF MVS CPU Percent.....		43.0
RMF LPAR CPU Percent.....		43.5	Total TCB%.....		92
Total SRB%.....		1	Average IFA Percent.....		5
Average zIIP Percent.....		5	Average zIIP on CP Percent		0
MVS Overhead.....		117	4 Hour MSUs.....		152
Percent LPAR MSU Capacity.		22.7	Partition LCPD%.....		0
Partition PCPD%.....		0			
LPAR Utilization					
Columns 1 to 5 of 5		← → ↑ ↓		Rows 1 to 1 of 1	
LPAR Group Capacity Limit	LPAR Group Name	Group LPAR MSU Limit	Average Unused Group MSUs	+HiperDispatch Management	
_ Unavailable	N/A	Unavailable	0	Unavailable	

Note – Some LPAR level information not available in the lab environment



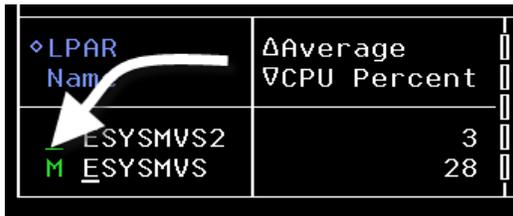
Some of the LPAR level display fields will show 'Unavailable'. This is due to the fact that the lab environment is hosted in a z/VM environment, and some LPAR information is not available in this hardware configuration.

c) **Press F3** to return to the KM5LPR03 panel.

2.8 Monitoring 4-Hour Rolling Over MSU Utilization

The 4 hour MSU information is easily available from the LPAR level.

a) **Position the cursor** by the LPAR Name, **enter M** and **Press Enter**.



You are now looking at a display of 4-hour MSU utilization information, with detail data broken out on 5 minute intervals.

```

File Edit View Tools Navigate Help 09/04/2014 11:28:28
Auto Update : Off
Command ==> KM5MSU0 4-Hour Rolling Average MSU Statistics Plex ID : ESYSPLEX
SMF ID : MVSE
    
```

LPAR			
4 Hour MSUs.....	154	LPAR Defined Capacity Set.	No
% LPAR MSU Capacity.....	23.0	Average % Time Capped.....	Unavaila
LPAR Capacity Limit.....	669	Average % Time Uncapped...	Unavaila
LPAR Capacity Limit Basis.	Entitled		

LPAR Group			
LPAR Group Name	Average Unused Group MSUs	LPAR Group Capacity Limit	Group LPAR MSU Limit
Unavailable	Unavailable	Unavailable	Unavailable

5 Minute Intervals					
Time Period	% Time Uncapped	Uncapped MSUs/Hour	% LPAR Uncapped	% Time Capped	Capped MSUs/Hour
11:26-11:28	100.00	124.16	18.56	0.00	0.00
11:21-11:26	100.00	157.39	23.53	0.00	0.00

b) **Press F3** to return to the KM5LPR03 panel.

2.9 Monitoring Storage Utilization (CSA, ECSA, SQA, ESQA)

OMEGAMON z/OS provides considerable information on storage utilization. This includes real and virtual storage utilization, paging activity, CSA, ECSA, SQA, and ESQA utilization. OMEGAMON z/OS also provides detailed analysis of CSA, ECSA, SQA, and ESQA utilization, including usage by address space, and orphaned storage.

- a) **Position the cursor** by the LPAR Name, **enter O** and **Press Enter**.

◊LPAR Name	ΔAverage ∇CPU Percent
ESYSMVS2	
O ESYSMVS	2

You will be presented with a popup panel.

- b) **Enter S** for Storage Overview and **Press Enter**

KM5STGMN Storage Utilization for ESYSMVS	
Select one of the following, then press Enter.	
S _1.	A Storage Shortage Alerts
2.	S Storage Overview
3.	U Storage Usage by Address Space

You are now looking at the Storage Overview display, showing CSA, ECSA, SQA, and ESQA utilization.

File Edit View Tools Navigate Help							09/04/2014 12:05:47
Command ==> KM5STG02						Auto Update : Off	
Storage Overview						Plex ID : ESYSPLEX	
						SMF ID : MVSE	
Common Storage							□□□X
Columns 2 to 7 of 11		← → ↑ ↓		Rows 1 to 4 of 4			
◊Area	Allocation	Allocation Percent	In Use	In Use Percent	Total Size	+Unowne	
_ CSA	1127424	28	1127424	27.6	4083712	288	
_ ECSA	163508224	42	159676K	41.6	384264K	1065K	
_ SQA	2539520	100	382976	15.1	2539520	128	
_ ESQA	79187968	100	30272512	38.2	79187968	7168	
Real Storage Summary							□□□X
Columns 2 to 6 of 7		← → ↑ ↓		Rows 1 to 1 of 1			
◊Total Frames	Online Frames	Total Fixed Frames	Available Frames	Offline Frames	Frames Used Percent		
_ 4194304	4194304	88082	98420	0	97.6		

To see CSA utilization information by address space:

- c) **Position the cursor** by CSA, enter and **Press Enter**.

Area	Allocation
CSA	1127424
ECSA	163508224

You are now looking at a panel that shows a summary of storage use by address space. This includes utilization of common storage, real storage, and virtual storage, all by address space. Note that from this display you may sort the common storage display by any of total CSA, total ECSA, total SQA, or total ESQA columns.

```

File Edit View Tools Navigate Help 09/04/2014 12:07:47
Auto Update : Off
Command ==> KM5STGS3 Storage Usage by Address Space Plex ID : ESYSPLEX
SMF ID : MVSE
    
```

Common Storage

Columns 3 to 6 of 14 Rows 1 to 4 of 474

ΔAddress Space ▽Name	◇ASID	Δ% of ▽Total CSA	Δ% of ▽Total ECSA	Δ% of ▽Total SQA	Δ% of ▽Total ESQA
SYSTEM	0000	3.0	9.2	11.2	25.5
DSNTMSTR	00BB	0.0	1.4	0.0	0.0
CXEG02	012F	0.0	1.3	0.0	0.0
DB1SMSTR	00B9	0.0	1.2	0.0	0.0

Real Storage

Columns 3 to 6 of 10 Rows 1 to 4 of 387

ΔAddress Space ▽Name	◇ASID	Swap Status	Management Status	ΔCentral Frame ▽Count	ΔFixed ▽Count
CXEGDSST	0138	InNSW	Monitored	205153	1462
RD4ZRSE6	009F	In	Monitored	202612	1276
IMSREST	0123	In	Monitored	188098	5900
BBOS001S	002F	In	OK	173882	1197

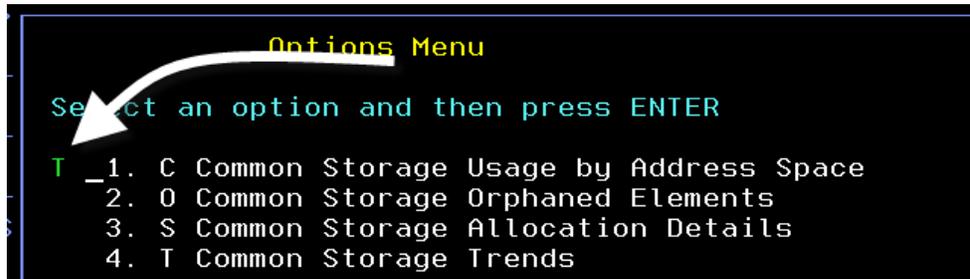
You may also see utilization trends as a drill down from this display. To see storage utilization trends:

- d) **Position the cursor** by an Address Space Name **enter /** and **Press Enter**

ΔAddress Space ▽Name	◇ASID	Δ% of ▽Total CSA
SYSTEM	0000	3.0
/ DSNTMSTR	00BB	0.0

You are now looking the options popup for the storage analysis drill down.

- e) From the Options Menu, **enter T** for Common Storage Trends, and **Press Enter**



You can now see CSA storage utilization trend information over time.

File Edit View Tools Navigate Help				09/04/2014 12:12:19
Command ==>		Common Storage Trend Details for DSNTMSTR		Auto Update : Off
KM5STGS8				Plex ID : ESYSPLEX
				SMF ID : MVSE
CSA Storage Trend Details				Columns 1 to 4 of 4
				Rows 1 to 7 of 7
Date	Time	In Use	% of Total	
09/04	12:12	2048	0.0	
09/04	12:09	2048	0.0	
09/04	12:04	2048	0.0	
09/04	11:59	2048	0.0	
09/04	11:54	2048	0.0	
09/04	11:49	2048	0.0	
09/04	11:44	2048	0.0	
ECSA Storage Trend Details				Columns 1 to 4 of 4
				Rows 1 to 7 of 7
Date	Time	In Use	% of Total	
09/04	12:12	5664768	1.4	
09/04	12:09	5652480	1.4	

- f) **Press F3**, the **Press F3** again, then **Press F3** again, to return to the KM5LPR03 (LPAR Overview) panel.

2.10 Monitoring WLM Service Class Resources

WLM is a critical process to view and monitor in z/OS. Earlier you viewed WLM Service Class activity at the Sysplex level. In this section you will view WLM Service Class information at the LPAR level.

- a) **Position the cursor** by the LPAR Name, **enter W** and **Press Enter**.

LPAR Name	Average VCPU Percent
ESYSMVS2	3
W ESYSMVS	28

You are now looking at the WLM service class overview for the LPAR. Note that you can sort the display by several columns, such as Service Class, Performance Index, or Goal Importance.

File Edit View Tools Navigate Help 09/04/2014 12:19:43
 Auto Update : Off
 Command ==> KM5WSCS WLM Service Class Resources
 Plex ID : ESYSPLEX
 SMF ID : MVSE

Resource Summary by Period

Columns 3 to 6 of 29 Rows 1 to 29 of 81

Service Class	Period	Performance Index	Goal Importance	Goal Type	Goal Per
ASCHDEF	1	0.00	High	PctResp	
ASCHDEF	2	0.00	Low	Velocio	
ASCHHI	1	0.00	High	PctResp	
ASCHHI	2	0.00	Medium	Velocio	
ASCHLO	2	0.00	Lowest	Velocio	
ASCHLO	1	0.00	Medium	PctResp	
BATHI	2	0.00	Low	Velocio	

- b) **Position the cursor** on the shift right navigation arrow and **Press Enter**. You may **Press Enter** multiple times to see additional information for the Service Classes.

File Edit View Tools Navigate Help 09/04/2014 12:20:26
 Auto Update : Off
 Command ==> KM5WSCS WLM Service Class Resources
 Plex ID : ESYSPLEX
 SMF ID : MVSE

Resource Summary by Period

Columns 6 to 9 of 29 Rows 1 to 29 of 81

Service Class	Period	Goal Percentile	Goal Value	Duration	Average Response Time
ASCHDEF	1	80	1000	500	0
ASCHDEF	2	0	20	0	0
ASCHHI	1	90	500	500	0
ASCHHI	2	0	20	0	0
ASCHLO	2	0	20	0	0
ASCHLO	1	75	3000	250	0
BATHI	2	0	20	0	0

Note how you may shift the display to the right to see additional detail on each respective service class. This includes such detail as goal type, importance and duration. Note that many of the columns are sortable.

- c) **Position the cursor** on the sort arrow for Performance Index **Press Enter** to sort the display by WLM performance index.

ΔService ▽Class	ΔPeriod ▽	▽Performance _Index	ΔGoal ▽Importance
— OPSDEF	1	2.06	High
— OPSHI	1	1.22	Highest
— UNIX	3	0.61	Low
— TSO	2	0.55	Medium
— CICSDEF	1	0.50	High

You may see detail on what z/OS tasks are running within a given service class/period. To see what address spaces or tasks are running within a given Service Class:

- d) **Position the cursor** to the left of the desired Service Class, **enter C** and **Press Enter**

ΔService ▽Class	ΔPeriod ▽	▽Performance _Index
C OPSDEF	1	2.06
— OPSHI	1	1.22
— UNIX	3	0.61

You are now looking at z/OS address spaces running within the given service class.

```

_____ File Edit View Tools Navigate Help 09/04/2014 12:29:34
Auto Update : Off
Command ==> KM5ASPS5 CPU Utilization Plex ID : ESYSPLEX
SMF ID : MVSE
    
```

Service Class OPSDEF Period 1						
ΔAddress Space ▽Name	ΔASID ▽	ΔStep ▽Name	Proc Step	JESJOBID	ΔCPU ▽Percent	ΔTCB ▽Percent
— CXEG02	012F	CXEG02	CXEG02	STC08988	2.2	1.7
— DB1IDBM1	00CB	DB1IDBM1	IEFPROC	STC08887	1.3	0.0
— GLAPROC	0177	GLAPROC	ZLOGOUT	STC09076	0.4	0.4
— CXEGDSST	0138	CXEGDSST	CXEGDSST	STC08999	0.4	0.4
— BBGZSRV	0125	BBGZSRV	STEP1	STC08976	0.4	0.0
— WMQBCHIN	019B	WMQBCHIN	MQ71	STC09473	0.0	0.0

- e) **Press F3**, then **Press F3** again, to return to the KM5LPR03 (LPAR Overview) panel.

2.11 Monitoring Address Spaces

OMEGAMON z/OS provides detailed analysis of z/OS address spaces. This includes CPU analysis by task, and bottleneck analysis. This section will demonstrate Address Space level analysis.

- a) **Position the cursor** by the LPAR Name, and **Press Enter**.

◊LPAR Name	ΔAverage ∇CPU Percent
— SYSMVS2	3
— ESYSMVS	28

You are now looking at the Address Space overview panel, KM5ASPO.

```

File Edit View Tools Navigate Help 09/04/2014 12:40:05
Auto Update : Off
Command ==> KM5ASPO Address Space Overview Plex ID : ESYSPLEX
SMF ID : MVSE

```

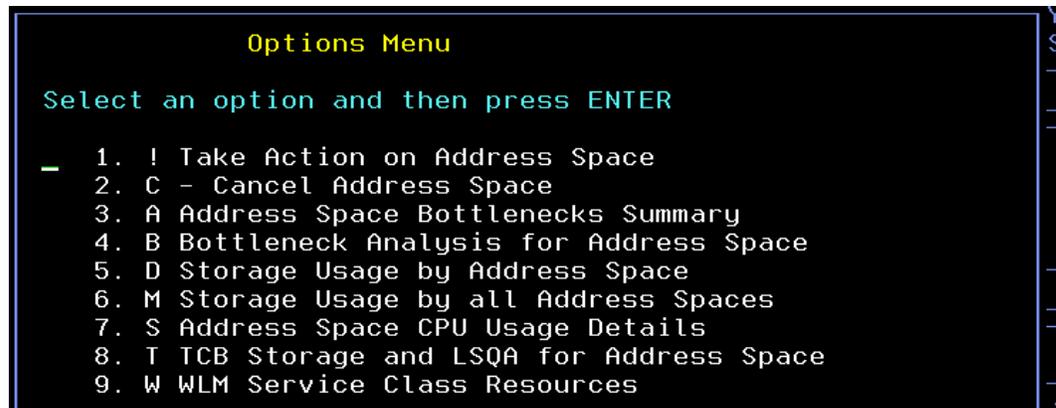
Address Space Count.....	304	Total Enclave Count.....	42
Started Task Count.....	269	Active Enclave Count.....	26
TSO User Count.....	7	Inactive Enclave Count....	16
Batch Job Count.....	15	APPC Count.....	13

ΔAddress Space ∇Name	◊ASID	ΔCPU ∇Percent	TCB Percent	SRB Percent	CPU% Excluding Home SRB Time
— DEMOJOB3	003A	84.8	84.8	0.0	84.8
— DEMOJOB1	003B	37.4	35.2	2.2	37.4
— DEMOJOB2	003C	22.6	21.3	1.3	22.6
— WLM	000C	2.2	2.2	0.0	2.2
— DB1IDBM1	00CB	1.3	0.0	0.0	0.0

You can sort the panel by either Address Space Name or by CPU Percent. You can also drill in on a given address space for additional detail drill downs, or to issue commands.

- b) **Position the cursor** by an Address Space Name (pick one of the DEMOJOBS), **enter /** and **Press Enter**

ΔAddress Space ∇Name	◊ASID	ΔCPU ∇Percent
/ DEMOJOB3	003A	84.8
— DEMOJOB1	003B	37.4
— DEMOJOB2	003C	22.6



Note from this Options Menu you can Cancel the address space, issue a command to the address space, as well as drill in for detail on the address space, including CPU usage, storage usage, and bottleneck analysis.

- c) **Press F3** to make the popup go away. **Press F3** again to return to the LPAR Overview. **Press F3** one more time to return to the KOBSTART panel.

You have now looked at examples of information available at both the Sysplex and the LPAR level. Next you will take a look at problem analysis scenarios that demonstrate the navigation of the tool to solve common z/OS issues.

2.12 High CPU usage scenario

This scenario will show how you may use the Top Consumer panel (KM5TOPC) to identify a task using high CPU within the system. The scenario will then show how you may drill down for further analysis of the task.

- a) Begin at the KOBSTART panel. **Enter T** by the Sysplex Name and **Press Enter**

◊Sysplex Name	ΔAverage CPU Percent
T ESYSPLEX	16

You are now looking at the KM5TOPC (Top Consumers) panel. The top portion of the Top Consumers panel shows the Highest Consuming Address Spaces Of CPU across the Sysplex.

```

File Edit View Tools Navigate Help 09/04/2014 12:46:16
Auto Update : Off
Command ==>
KM5TOPC Top Consumers for Sysplex ESYSPLEX Plex ID : ESYSPLEX
SMF ID : MVSE

```

Highest Consuming Address Spaces of CPU				
ΔAddress Space ▽Name	◇ASID	ΔCPU ▽Percent	Δ0..20..40..60..80..100 ▽	ΔLPAR ▽Name
— DEMOJOB3	003A	87.0		ESYSMVS
— DEMOJOB1	003B	30.9		ESYSMVS
— DEMOJOB2	003C	17.0		ESYSMVS

b) **Position the cursor** by an Address Space Name (pick one of the DEMOJOBS), and **Press Enter**

You are now looking at the CPU Usage panel for the address space (KM5ASPS6). This panel shows several items of information about the task, such as task type (batch job, started task, etc), current CPU percent, TCB percent, and zIIP processor utilization (if any) for the task.

```

File Edit View Tools Navigate Help 09/04/2014 12:48:10
Auto Update : Off
Command ==>
KM5ASPS6 CPU Usage Plex ID : ESYSPLEX
SMF ID : MVSE

```

Details Information for DEMOJOB3 0x003A	
Type.....	Batch
CPU Percent.....	87.0
IFA Percent.....	0.0
SRB Percent.....	0.0
TCB Percent.....	87.0
zIIP Percent.....	0.0
CPU Percu Excluding Home SRB Time.....	87.0
IFA on CP Percent.....	0.0
zIIP on CP Percent.....	0.0
IFA Percent With Enclave Home SRB Time.....	0.0
zIIP Percent With Enclave Home SRB Time.....	0.0
Job CPU Percent.....	74.6
Job SRB Percent.....	0.6
Job TCB Percent.....	74.0
Job CPU Time.....	3174.72
Job SRB Time.....	25.08
Job Preemptable Home SRB Service Time.....	0.00
Job Start Date.....	14/09/04
Job Start Time.....	11:37:08
Job Elapsed Time.....	1h 11m
Start Up Monitored.....	Yes
Job Additional SRB Service Time.....	0.00
Job Additional SRB Service Percent.....	0.0
Job Preemptable Home SRB Service Percent.....	0.0

c) **Press F3** to return to the Top Consumer panel.

2.13 How to Invoke Bottleneck Analysis

Bottleneck Analysis is an analytic function of OMEGAMON z/OS. Bottleneck Analysis will determine what a workload on z/OS is doing, what resources the workload is consuming, and where that workload is spending its time. To see address space level bottleneck analysis information:

- a) **Position the cursor** by the Address Space Name (pick one of the demo jobs), **enter B** and **Press Enter**

ΔAddress Space ▽Name	◇ASID	ΔCP	▽Pe
B DEMOJOB3	003A		
— DEMOJOB1	003B		
— DEMOJOB2	003C		

You are now looking at the Bottleneck Analysis panel for the task. This panel will show relevant information that will allow you to determine where the task is spending its time. Focus on the section of the panel that shows Contention(%) by Resource. This information will indicate the relative percentage of time the task using CPU versus waiting for CPU. It will show resource waits, such as I/O waits, paging waits, and zIIP processor waits.

09/04/2014 12:50:31

File Edit View Tools Navigate Help

Command ==> KM5B0TA2

Bottleneck Analysis

Auto Update : Off
Plex ID : ESYSPLEX
SMF ID : MVSE

Address Space DEMOJOB3 Summary

Columns 3 to 3 of 4 Rows 1 to 4 of 4

◇Attribute	◇Percent	0...20...40...60...80...100
— Using CPU	48.2	<div style="width: 48.2%; height: 10px; background-color: yellow;"></div>
— CPU Loop Index	53.2	<div style="width: 53.2%; height: 10px; background-color: yellow;"></div>
— CPU Wait	4.2	<div style="width: 4.2%; height: 10px; background-color: green;"></div>
— zIIP Wait	0.7	<div style="width: 0.7%; height: 10px; background-color: green;"></div>

Contention(%) by Resource

Step Name.....	DB2IT	Using CPU.....	95.0
Proc Step.....		Using IFA.....	0.0
Service Class.....	BATLO	Using zIIP.....	0.0
CPU Wait.....	4.2	CPU Loop Index.....	53.2
ECB Wait.....	0.0	Resource Group Capping...	0.0
IFA Wait.....	0.0	Active I/O.....	0.0
VIO Wait.....	0.0	Queued I/O.....	0.0
zIIP Wait.....	0.7	Tape Mount.....	0.0
Stimer Wait.....	0.0	Shared Pages.....	0.0
Enqueue Wait.....	0.0	Server Swap-In.....	0.0
MVS Lock Wait.....	0.0	Common Page-In.....	0.0
Stimer ECB Wait.....	0.0	Private Page-In.....	0.0
Server Paging.....	0.0	Hiperspace Page-In.....	0.0
Server MPL Delay.....	0.0	Cross Memory Page-In.....	0.0

Note in the example above the percentage of time the task is using CPU. You may also note a number called CPU Loop index. CPU Loop Index indicates the likelihood that a task is in a loop. The higher the number (up to 100) the greater the likelihood that a task is in a CPU loop.

b) **Press F8** to scroll the display.

This portion of the panel will show other bottleneck reasons for the task, including JES2 delays, HSM delays, and various SWAP reasons.

2.14 Using The INSPECT Function - Task CPU Utilization Analysis

a) **Press F7** to scroll the panel back up.

b) **Position the cursor** at the top of the panel next to one of the relevant CPU wait reasons, and **Press Enter**.



You will then be navigated to an INSPECT CPU panel (KM5INSS). This panel will show CPU usage within the task by load module and TCB.

```

File Edit View Tools Navigate Help 09/04/2014 12:55:27
Auto Update : Off
Command ==>
KM5INSS Inspect: CPU Usage for DEM0JOB3 0x003A Plex ID : ESYSPLEX
SMF ID : MVSE
    
```

Sampling Statistics			
Columns	3 to 4 of 4	Rows	1 to 1 of 1
◊Samples	◊Interval	Samples Taken	Samples Used
1000	2	1000	85

```

CPU Usage for DEM0JOB3 0x003A
    
```

Load Module Name	TCB Address	Load Module Address	Load Module CPU % of Job	+ 0..20..40..60..80..100
— IGWBBMF1		07E9A000	0.4
— IGWFCHF0		080B9000	1.1
— IGWDDCC0		07FC8000	1.3
— IGWFARM0		080A2000	3.0

c) From the INSPECT panel, **Press F3** then **Press F3** again to return to the Top Consumer panel.

- d) **Position the cursor** by the Address Space Name, **enter A** for Address Space Overview and **Press Enter**.

ΔAddress Space ▽Name	ASID	ΔCPU ▽Percent
A DEMOJOB3	003A	87.0
— DEMOJOB1	003B	30.9
— DEMOJOB2	003C	17.0

You are now looking at the Address Space Overview panel. You may recall this panel from earlier in the lab. You can sort the panel by either Address Space Name or by CPU Percent. You can also drill in on a given address space for additional detail drill downs, or to issue commands.

```

_____ File Edit View Tools Navigate Help 09/04/2014 12:57:08
Auto Update : Off
Command ==> KM5ASPO Address Space Overview Plex ID : ESYSPLEX
SMF ID : MVSE
    
```

Address Space Counts			
Address Space Count.....	301	Total Enclave Count.....	42
Started Task Count.....	266	Active Enclave Count.....	26
TSO User Count.....	7	Inactive Enclave Count....	16
Batch Job Count.....	15	APPC Count.....	13

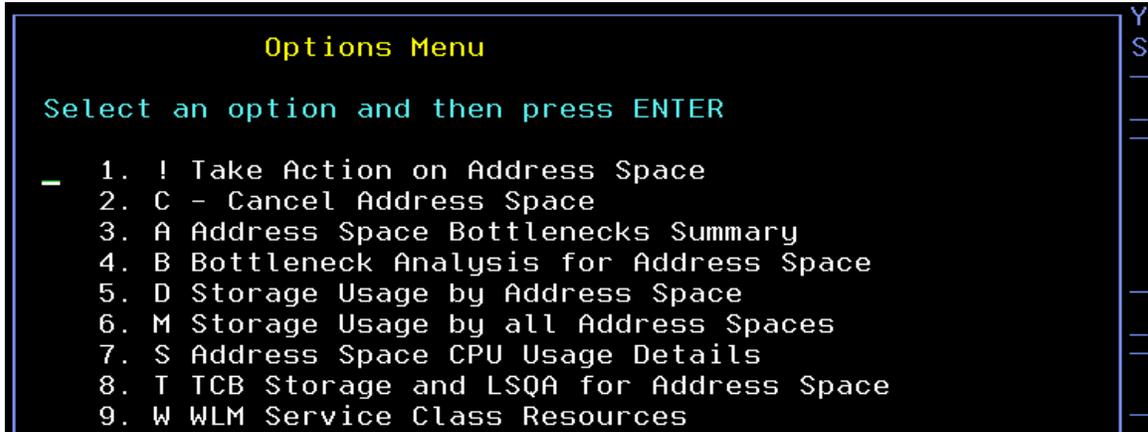
CPU Utilization Summary					
Columns 4 to 6 of 37		Rows 1 to 22 of 301			
ΔAddress Space ▽Name	ASID	ΔCPU ▽Percent	TCB Percent	SRB Percent	CPU% Excluding Home SRB Time
— DEMOJOB3	003A	86.5	86.5	0.0	86.5
— DEMOJOB1	003B	41.3	39.1	2.2	41.3
— CXEG02	012F	2.6	2.2	0.0	2.2
— WLM	000C	2.2	2.2	0.0	2.2
— CXEGDSST	0138	1.3	1.3	0.0	1.3

2.15 Take Action or Take Control on Address Space

- a) **Position the cursor** by an Address Space Name, **enter /** and **Press Enter**.

ΔAddress Space ▽Name	ASID	ΔCPU ▽Per
/ DEMOJOB3	003A	
— DEMOJOB1	003B	
— CXEG02	012F	

If you want to cancel the task, or issue a command to the task, you can do it from this popup menu.

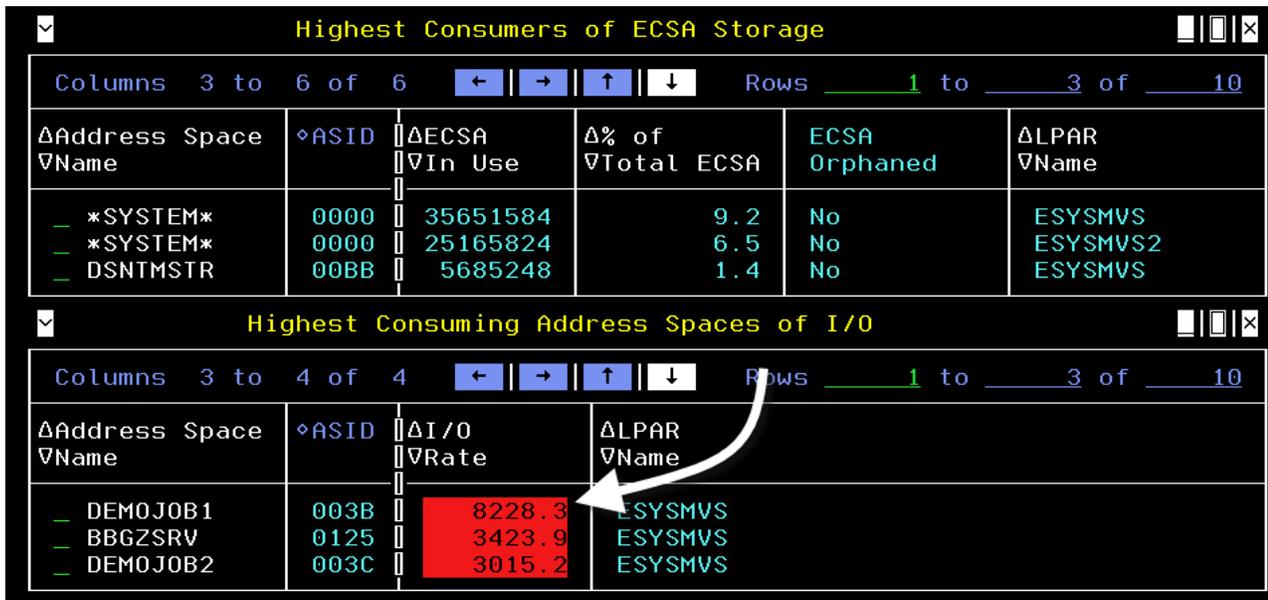


b) Press F3 then Press F3 again to return to KM5TOPC.

2.16 High I/O rate task scenario

This scenario will show how you may use the Top Consumer panel (KM5TOPC) to identify a task doing a relatively high amount of I/O within the sysplex. The scenario will then show how you may drill down for further analysis of the task.

a) Begin at the Top Consumers panel (KM5TOPC). To see the Highest Consuming Address Spaces of I/O portion of the panel you will need to scroll down. Press F8 to scroll the panel down.



Once you have scrolled down you should be able to see the tasks on the system that are performing the most I/O at the current time.

b) **Position the cursor** by the Address Space Name and **Press Enter**

ΔAddress Space ▽Name	◇ASID	ΔI/O ▽Rate
DEMOJOB1	003B	
BBGZSRV	0125	

You are now looking at the Bottleneck Analysis display for the task. Notice in this example the % Contention for Active I/O.

```

File Edit View Tools Navigate Help 09/04/2014 13:44:30
Auto Update : Off
Command ==> KM5B0TA2 Plex ID : ESYSPLEX
SMF ID : MVSE
Bottleneck Analysis

```

Address Space DEMOJOB1 Summary

Columns 3 to 3 of 4 Rows 1 to 7 of 7

◇Attribute	◇Percent	0...20...40...60...80...100
Using CPU	1.4
ECB Wait	16.6	■■■■.....
CPU Wait	5.5	■■■■.....
Active I/O	1.7
CPU Loop Index	1.7
Active I/O	1.0
Queued I/O	0.7

Contention(%) by Resource

Step Name.....	STEP1	Using CPU.....	22.2
Proc Step.....		Using IFA.....	0.0
Service Class.....	BATLO	Using zIIP.....	0.0
CPU Wait.....	5.5	CPU Loop Index.....	1.7
ECB Wait.....	16.6	Resource Group Capping....	0.0
IFA Wait.....	0.0	Active I/O.....	44.4
VIO Wait.....	0.0	Queued I/O.....	11.1
zIIP Wait.....	0.0	Tape Mount.....	0.0
Stimer Wait.....	0.0	Shared Pages.....	0.0
Enqueue Wait.....	0.0	Server Swap-In.....	0.0
MVS Lock Wait.....	0.0	Common Page-In.....	0.0
Stimer ECB Wait.....	0.0	Private Page-In.....	0.0
Server Paging.....	0.0	Hiperspace Page-In.....	0.0
Server MPL Delay.....	0.0	Cross Memory Page-In.....	0.0

Next you may look at I/O activity from a WLM perspective on the z/OS system.

c) **Press F3** then **Press F3** again to return to KOBSTART

d) **Position the cursor** by the Sysplex Name and **Press Enter**.

◇ Sysplex Name	Δ Average CPU Percent
ESYSPPLEX	16

You are now looking at the LPAR Overview.

```

File Edit View Tools Navigate Help 09/04/2014 13:47:44
Auto Update : Off
Command ==> KM5LPR03 LPAR Overview for Sysplex ESYSPPLEX Plex ID : ESYSPPLEX
SMF ID :
    
```

Summary						
◇ LPAR Name	Δ Average CPU Percent	Percent LPAR MSU Capacity	System Page Rate	Page Fault Rate	+CSA In U Percent	
ESYSMVS2	3	0.3	0.0	0.0	8.3	
ESYSMVS	23	22.7	0.0	0.0	27.6	

e) **Position the cursor** by an LPAR Name noted earlier for the job, **enter W** and **Press Enter**.

◇ LPAR Name	Δ Average CPU Percent	Percent LPAR MSU Capacity
ESYSMVS2	3	
W ESYSMVS	23	

You are now looking at the WLM Service Class Resource Summary panel. This panel lists all the service classes running on the LPAR, and the resource utilization by type for each WLM Service Class.

```

File Edit View Tools Navigate Help 09/04/2014 13:48:58
Auto Update : Off
Command ==> KM5WSCS WLM Service Class Resources Plex ID : ESYSPPLEX
SMF ID : MVSE
    
```

Δ Service Class	Δ Period	Δ Performance Index	Δ Goal Importance	Goal Type	Δ Goal Per
ASCHDEF	1	0.00	High	PctResp	
ASCHDEF	2	0.00	Low	Velocio	
ASCHHI	1	0.00	High	PctResp	
ASCHHI	2	0.00	Medium	Velocio	
ASCHLO	2	0.00	Lowest	Velocio	
ASCHLO	1	0.00	Medium	PctResp	
BATHI	2	0.00	Low	Velocio	
BATHI	1	0.00	Medium	Velocio	

- f) **Press F11** multiple times until you see the I/O Rate information for the WLM Service Class.
- g) **Position the cursor** on the I/O Rate sort arrows and **Press Enter** to sort the display.

ΔService ▽Class	ΔPeriod ▽	Promoted Percent	ΔI/O Rate ▽
— ASCHDEF	1	0.000	0.0
— ASCHDEF	2	0.000	0.0

You are now looking at the WLM Service Class display sorted by I/O Rate.

ΔService ▽Class	ΔPeriod ▽	Promoted Percent	▽I/O Rate	I/O Priority	CSS Priority
— BATLO	1	0.000	14090.7	000000F2	Unavailable
— OPSDEF	1	0.000	4407.1	000000F8	Unavailable
— UNIX	3	0.000	202.3	000000F9	Unavailable
— BATMED	2	0.000	64.2	000000F2	Unavailable
— OPSHI	1	0.000	18.4	Unavailable	Unavailable
— BATMED	1	0.000	0.7	Unavailable	Unavailable

- h) To see detail on what tasks are contributing to the high I/O workload, **position the cursor** by a Service Class, **enter B** and **Press Enter**.

ΔService ▽Class	ΔPeriod ▽	Pr Pe
b BATLO	1	
— OPSDEF	1	

You are now looking at the Bottleneck Analysis information for each address space within the given WLM Service Class. To see the I/O information for each address space you may need to Press F11.

```

File Edit View Tools Navigate Help 09/04/2014 13:52:24
Auto Update : Off
Command ==> KM5ASPS2 Service Class Bottleneck Analysis Plex ID : ESYSPLEX
SMF ID : MVSE

```

Contention(%) by Resource for Service Class BATL0 Period 1							
Columns 3 to 8 of 31			Rows 1 to 2 of 2				
ΔAddress Space ▽Name	◇ASID	ΔStep ▽Name	Proc Step	Type	ΔUsing ▽CPU	Using IFA	+Usin zIIP
DEMOJOB3	003A	DB2IT	→	Batch	94.1	0.0	
DEMOJOB2	003C	PACK		Batch	41.6	0.0	

From this display you see the Active I/O and Queued I/O information by address space.

To issue an action on the task, **position the cursor** by an Address Space Name, enter / and **Press Enter**.

- i) **Press F3** then **Press F3** again to return to panel KM5LPRO3

2.17 Using Embedded Data for performance analysis – New in V5.3

This scenario will show how you can exploit a new feature of OMEGAMON z/OS V5.3 called embedded data. Embedded data exploits the unique integration capabilities of OMEGAMON to pull together information from multiple monitoring sources, and enable fast easy transparent navigation through the e3270 user interface.

As an example, assuming you have a monitoring environment that includes both OMEGAMON z/OS and OMEGAMON CICS, embedded data allows you to easily navigate between z/OS monitoring panels and CICS monitoring panels.

- a) **Position the cursor** by the LPAR name and **Press enter**

◇LPAR Name	ΔAverage ▽CPU Percent	P
ESYSMVS2	3	
ESYSMVS	23	

You are now looking at the KM5ASPO Address Space Overview panel. This panel lists all the address spaces active on the chosen LPAR.

```

File Edit View Tools Navigate Help 09/08/2014 11:05:53
Auto Update : Off
Command ==>
KM5ASPO Address Space Overview Plex ID : TESTPLX
SMF ID : MVST

```

Address Space Count.....	146	Total Enclave Count.....	23
Started Task Count.....	134	Active Enclave Count.....	11
TSO User Count.....	2	Inactive Enclave Count...	12
Batch Job Count.....	0	APPC Count.....	10

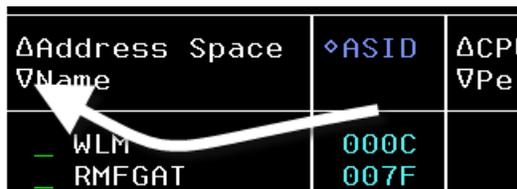
```

CPU Utilization Summary
Columns 4 to 6 of 37 Rows 1 to 22 of 146

```

ΔAddress Space ▽Name	◊ASID	ΔCPU ▽Percent	TCB Percent	SRB Percent	CPU% Excluding Home SRB Time
WLM	000C	0.4	0.4	0.0	0.4
RMFGAT	007F	0.4	0.4	0.0	0.4
CXEG02	008C	0.4	0.4	0.0	0.4
MASTER	0001	0.0	0.0	0.0	0.0
PCAUTH	0002	0.0	0.0	0.0	0.0
RASP	0003	0.0	0.0	0.0	0.0
TRACE	0004	0.0	0.0	0.0	0.0

b) **Position the cursor** on the Address Space Name sort arrows **Press enter** to sort



You should now have a display sorted by address space name.

c) **Press F8** to scroll the panel to find a CICS region

Note – CICS region names will start with CICS

d) **Position the cursor** by a CICS region name **Press enter**



You are now looking at the address space detail for the selected CICS region.

```

File Edit View Tools Navigate Help 09/08/2014 11:14:17
Auto Update : Off
Command ==> KM5ASPS6 CPU Usage Plex ID : TESTPLX
SMF ID : MVST

Details Information for CICSTIV1 0x00AD
Type..... STC
CPU Percent..... 0.0
IFA Percent..... 0.0
SRB Percent..... 0.0
TCB Percent..... 0.0
zIIP Percent..... 0.0
CPU Percent Excluding Home SRB Time..... 0.0
IFA on CP Percent..... 0.0
zIIP on CP Percent..... 0.0
IFA Percent With Enclave Home SRB Time..... 0.0
zIIP Percent With Enclave Home SRB Time..... 0.0
Job CPU Percent..... 0.1
Job SRB Percent..... 0.1
Job TCB Percent..... 0.1
Job CPU Time..... 5.32

Job SRB Time..... 0.83
Job TCB Time..... 4.48
Job Preemptable Home SRB Service Time..... 0.00
Job Start Date..... 14/09/07
Job Start Time..... 15:58:15
Job Elapsed Time..... 19h 15m
Start Up Monitored..... Yes
Job Additional SRB Service Time..... 0.00
Job Additional SRB Service Percent..... 0.0
Job Preemptable Home SRB Service Percent..... 0.0

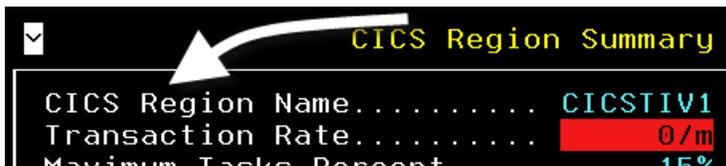
CICS Region Summary for CICSTIV1
CICS Region Name..... CICSTIV1 CICS SYSIDNT..... CTV1
Transaction Rate..... 0/m SOS..... No
Maximum Tasks Percent..... 15% Stg. Violations last hour..... 0
Region's Worst Perf. Index 0.00% Any Current WS Faults..... No
Worst Region Service Class n/a Any Current WS Timeouts... No
Current VSAM String Waits. 0 Enqueue Waits..... 0

Monday September 08 2014 << MOREV
    
```

Note that if you have selected a CICS region, CICS specific information will appear at the bottom of the panel (assuming that OMEGAMON CICS is installed).

From this panel you may drill down directly into several different relevant CICS detail displays.

- e) **Position the cursor** on the CICS region name (highlighted in white) and **Press enter**



You will then be presented with a popup menu that list the relevant drill down options for CICS detail.

```
KCPM5R0Z Navigation Options for CICSTIV1
Select an action and then press ENTER
- 1. B CICS Bottlenecks
  2. F CICS File/Data Resources
  3. R CICS Resources
  4. S CICS Region Overview
  5. T CICS Task Summary
```

From this popup you can drill down directly to see a CICS region overview, see active CICS tasks in the region, or look at other CICS resources.

f) **Position the cursor** Enter S (for CICS Region Overview) and **Press Enter**

```
KCPM5R0Z Navigation Options for CICSTIV1
Select an action and then press ENTER
S - 1. B CICS Bottlenecks
    2. F CICS File/Data Resources
    3. R CICS Resources
    4. S CICS Region Overview
```

You are now looking at the CICS region overview panel (KCPRGNO).

The screenshot displays the CICS Region Overview panel (KCPRGNO) for region CICSTIV1. The panel includes a menu bar (File, Edit, View, Tools, Navigate, Help), a command line (Command ==> KCPRGNO), and a status bar (09/08/2014 11:24:19, Auto Update: Off, CICSplex: OMEGPLEX, Region: CICSTIV1). The main content is divided into two sections: 'CICSTIV1 Overview' and 'Bottleneck Summary'.

CICSTIV1 Overview

System ID.....	MVST	CICS Region Name.....	CICSTIV1
Worst Region Service Class	n/a	Region's Worst Perf. Index	0.00%
CPU Utilization.....	0.0%	CICS TOD Updated.....	Yes
Transaction Rate.....	0/m	Maximum Tasks Percent....	15%
Queued Remote Requests....	0	SOS.....	No
Stg. Violations last hour.	0	AIDs.....	0
ICEs.....	4	CICS TOD Clock.....	11:24:19
Any Current WS Faults.....	No	Any Current WS Timeouts...	No
CICS Version.....	6.8.0		

Bottleneck Summary

Columns 3 to 5 of 14 | Rows 1 to 3 of 3

ΔResource ▽Type	ΔSummary Short ▽Term Percentage	ΔSummary Long ▽Term Percentage	Summary Short Term Percentage	+Sum Ter
- USERWAIT	33%	33%		
- IS_SCHED	33%	33%		

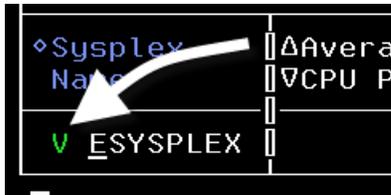
g) **Press F3** four times to return to the KOBSTART panel

2.18 z/OS Historical performance analysis – New in V5.3

This scenario will demonstrate the new historical display facilities in the e3270 user interface. OMEGAMON z/OS V5.3 uses RMF as the mechanism for history data collection. History data collected by RMF, such as system, CPU, WLM service class, and address space history may now be displayed using e3270 user interface.

To see history data, beginning on the KOBSTART panel:

- a) **Position the cursor** by the Sysplex name **Enter V** and **Press Enter**



You are now looking at the Sysplex level WLM service class view of the system.

File Edit View Tools Navigate Help 09/09/2014 08:37:11
 Auto Update : Off
 Command ==> _____ Plex ID : **ESYSPLEX**
 KM5WSCO Service Classes for Sysplex SMF ID : _____

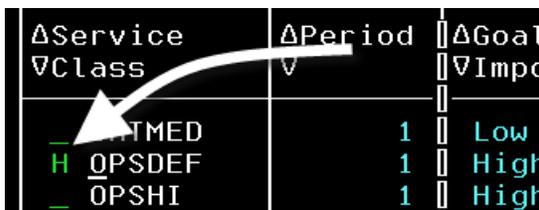
Summary

Columns 3 to 5 of 12 Rows 1 to 15 of 15

ΔService ▽Class	ΔPeriod ▽	ΔGoal ▽Importance	ΔPerformance ▽Index	ΔWorst ▽Performance Index
— OPSLO	1	Medium	20.00	20.00
— OPSDEF	1	High	2.60	2.60
— OPSHI	1	Highest	2.12	2.12
— BATMED	1	Low	1.42	1.42
— UNIX	3	Low	0.76	0.76
— DDFDEF	1	Medium	0.50	0.50

From here you may drill in to see history for a given WLM service class.

- b) **Position the cursor** by a service class (for example pick OPSDEF) **Enter H** and **Press Enter**



You are now looking at the historical interval records for the WLM service class.

File Edit View Tools Navigate Help 09/09/2014 08:53:49
 Command ==> Historical Summary For A Service Class Period
 KM5WSCOH Display : HISTORY
 Plex ID : ESYSPLEX
 SMF ID :

Service Class OPSDEF Period 1 (Goal = Velocity(+I/O) > 60)

Goal Importance	Duration	Service Class Description	Workload Name
High	Unavailable	default systems work	STC_WKL

Historical Summary

Recording Date/Time	Performance Index	Actual	Avg. Resp. Time	+Avg. Wait Time
14/09/09 08:50:00	1.11	54	Unavailable	Unavailabl
14/09/09 08:45:00	1.04	58	Unavailable	Unavailabl
14/09/09 08:40:00	1.97	30	Unavailable	Unavailabl
14/09/09 08:35:00	2.84	21	Unavailable	Unavailabl
14/09/09 08:30:00	1.11	54	Unavailable	Unavailabl
14/09/09 08:25:00	1.10	55	Unavailable	Unavailabl
14/09/09 08:20:00	1.10	54	Unavailable	Unavailabl

Note that in the upper right corner of the panel you see HISTORY, that indicates you are looking at history information, versus real time monitoring data. The bottom portion of the panel shows a summary of history interval records, showing such information as the WLM performance index for the service class for the given interval.

c) Position the cursor by a time interval Enter / and Press Enter

Recording Date/Time	Performance Index
/ 14/09/09 08:50:00	1.11
14/09/09 08:45:00	1.04
14/09/09 08:40:00	1.97

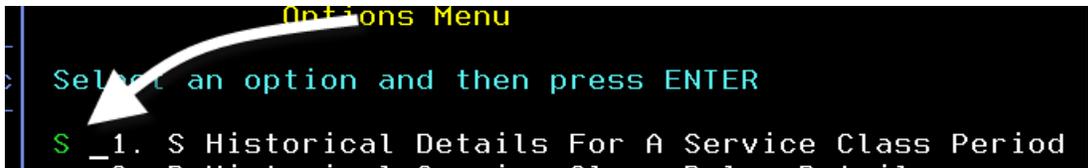
You are now looking at the popup menu for history detail drill down analysis.

Options Menu

Select an option and then press ENTER

- 1. S Historical Details For A Service Class Period
- 2. B Historical Service Class Delay Details
- 3. X Historical Sysplex Delay Details

d) Position the cursor by a time interval Enter S and Press Enter



You are now looking at historical details for the WLM service class. Information includes WLM performance index (PI), CPU usage for the service class, and the address spaces that were executing within the service class.

File Edit View Tools Navigate Help 09/09/2014 09:03:30
 Command ==> Display : HISTORY
 KM5WSCDH Historical Details For A Service Class Period Plex ID : ESYSPLEX
 SvcClass : OPSDEF

Service Class OPSDEF Period 1 (Goal = Velocity(+I/O) > 60)

Performance Index	Actual	Avg. Resp. Time	Avg. Wait Time	Avg. Exec. Time	+Trans Rate
1.11	54	Unavailable	Unavailable	Unavailable	

Service Class Period CPU

CPU Percent	GCP Percent Including Enclave Home SRB Time	zIIP Percent Including Enclave Home SRB Time	zIIP on CP Percent
8.7	6.9	1.2	0.0

Service Class Period Address Space CPU

Job Name	ASID	SMF ID	ΔCPU %	GCP Percent Including Enclave Home SRB Time	+zIIP P Enclav
- CXEGDSST	019E	MVSE	2.7	2.7	0.0
- CXEG02	0137	MVSE	1.7	1.4	0.3
- DB1IDBM1	00CB	MVSE	1.1	0.1	0.9
- CXEGTOM	0192	MVSE	0.8	0.8	0.0
- BBGZSRV	0125	MVSE	0.4	0.0	0.0
- CXEGMC	016C	MVSE	0.4	0.4	0.0
- CXEGN3	0191	MVSE	0.3	0.3	0.0
- CDCIDAAT	0172	MVSE	0.2	0.2	0.0
- GPMSERVE	0138	MVSE	0.2	0.2	0.0
- CXEGC5	0185	MVSE	0.2	0.2	0.0
- WMQAMSTR	0152	MVSE	0.2	0.2	0.0

08:45 ← Display 08:50 → Nothing Later << HISTORY

Note the bottom of the panel that shows the history time interval. To navigate to other time intervals:

- e) **Position the cursor** on the time interval and **Press Enter**

CXEGN3	0191	MVSE	0.2	0.2	0.0
CDCIDAAT	0172	MVSE	0.2	0.2	0.0
GPMSEVE	0138	MVSE	0.2	0.2	0.0
CXEGC5	0185	MVSE	0.2	0.2	0.0
WMQAMSTR	0152	MVSE	0.2	0.2	0.0

08:45 ← Display 08:50 → Nothing Later << HISTORY

Notice how when you press enter the time intervals will change, as will the content of the panel.

CXEGC5	0185	MVSE	0.2	0.2	0.0
WMQAMSTR	0152	MVSE	0.2	0.2	0.0
CXEGN3	0191	MVSE	0.1	0.1	0.0

08:30 ← Display 08:35 → 08:40 << HISTORY

You may also drill down on an address space to see historical details for the task.

Job Name	ASID	SMF ID	ΔCPU Percent
— CXEG02	0137	MVSE	1.5
— DB1IDBM1	00CB	MVSE	0.8
— CXEGDSST	019E	MVSE	0.8

f) **Position the cursor** by a job name and **Press Enter**

You are now looking at details for the job, as stored in history. This history includes information on CPU usage for the job, zIIP usage (if any), and storage/memory usage by the job.

```

File Edit View Tools Navigate Help 09/09/2014 09:19:47
Command ==> Display : HISTORY
KM5ASP3H Historical Details For An Address Space Plex ID : ESYSPLX
SMF ID : MVSE

```

Service Class.....	OPSEDF	CPU Percent.....	0.8
GCP Percent Including Encl	0.1	zIIP Percent Including Enc	0.7
zIIP on CP Percent.....	0.0	IFA Percent Including Encl	0.0
IFA on CP Percent.....	0.0	TCB Percent.....	0.0
SRB Percent.....	0.0	Job CPU Time.....	2.53
Job Additional SRB Service	0.0	Job Preemptable Home SRB S	0.8
CPU Percent Excluding Home	0.0	Time On CP Percent.....	0.0

Total Frames.....	16290	Active Frames.....	16290
Page-In Rate.....	0	Active Frames Working Set.	16290
Active Frames Fixed.....	932	Active Frames DIV.....	6708
Idle Frames.....	0	Auxiliary Storage Slots...	39306
Shared Page-In Rate.....	0	Shared Pages Total Views..	0
Shared Pages Total Valid..	0	Shared Pages Validation Ra	0
Memory Objects Allocated..	Unavaila	1 Meg Frames In Real.....	Unavaila

g) **Press F3** to return to panel KM5WSCDH

You may also see bottleneck/delay history information for a given address space.

h) **Position the cursor** by a job name **Enter B** and **Press Enter**

◊ Job Name	◊ ASID	SMF ID
REG02	0137	MVSE
B DB1IDBM1	00CB	MVSE

You are now looking at the address space delay state information for the selected task. This panel will show wait state percentage information for a variety reasons, such as CPU waits, storage waits, and various other system waits.

File Edit View Tools Navigate Help 09/09/2014 09:30:07			
Command ==>		Display :	HISTORY
KM5ASP4H		Plex ID :	ESYSPLEX
Historical Address Space Delay Details		SMF ID :	MVSE
<input checked="" type="checkbox"/> Address Space DB1IDBM1 0x00CB Summary Execution/Delay States			
Service Class.....	OPSDEF	Velocity Percentage.....	86
Total Delay Percentage...	0	Total Using Percentage...	2
Total CPU Wait Percentage.	0	Capping Wait Percentage...	0
Total Enqueue Wait Percent	0	Total Device Wait Percenta	0
Total Storage Wait Percent	0	Total Subsystem Wait Perce	0
Total JES Wait Percentage.	0	Total HSM Wait Percentage.	0
Total XCF Wait Percentage.	0	Total Operator Wait Percen	0
Idle Wait Percentage.....	0	Unknown Wait Percentage...	98

i) **Press F3** and **Press F3** again to return to panel KM5WSCO

From the KM5WSCO panel you may also look at WLM service delays across the Sysplex. To see this information:

j) **Position the cursor** by a time interval **Enter X** and **Press Enter**

Columns 3 to 5 of 8			
◊ Recording Date/Time	◊ Performance Index		
X 1 09/09 08:50:00	1.11		
147/09/09 08:45:00	1.04		
147/09/09 08:40:00	1.07		

You are now looking at a panel that shows address spaces for a time interval and the percentage delay by address space for the given time interval. From this display you may use the time navigation on the bottom of the panel to look at different time intervals. You may also drill in on a specific job to see more information for the job.

```

File Edit View Tools Navigate Help 09/09/2014 09:36:44
Command ==> Display : HISTORY
KM5WSCXH Historical Sysplex Delay Details Plex ID : ESYSPLEX
SMF ID :

```

Address Space Delays On Sysplex ESYSPLEX					
Columns 3 to 6 of 18			Rows 1 to 20 of 20		
ΔJob ▽Name	◇ASID	Service Class	ΔSMF ID ▽	ΔVelocity ▽Percentage	ΔTotal Delay ▽Percentage
DDMEINCI	004A	BATMED	MVSE	0	100
DEMOJOB1	004B	BATLO	MVSE	83	21
DEMOJOB2	004C	BATLO	MVSE	82	16
DEMOJOB3	004D	BATLO	MVSE	90	10

To see more detail for a specific job:

k) **Position the cursor** by a Job Name and **Press Enter**

ΔJob ▽Name	◇ASID	Service Class	Δ
MEINCI	004A	BATMED	
DEMOJOB1	004B	BATLO	
DEMOJOB2	004C	BATLO	

You are now looking at the service class history for the WLM service class where the selected job/task is executing. To see details for a specific job you may select the job as shown earlier.

```

File Edit View Tools Navigate Help 09/09/2014 09:44:20
Command ==> Display : HISTORY
KM5WSCBH Historical Service Class Delay Details Plex ID : ESYSPLEX
SvcClass : BATLO

```

Service Class BATLO					
Columns 1 to 6 of 8			Rows 1 to 1 of 1		
Period	Performance Index	Actual	Avg. Resp. Time	Avg. Wait Time	+Avg. Exec. Time
1	Unavailable	Unavailable	0.000	0.000	0.000

Service Class Address Space Delays					
Columns 3 to 6 of 17			Rows 1 to 3 of 3		
ΔJob ▽Name	◇ASID	ΔSMF ID ▽	ΔVelocity ▽Percentage	ΔTotal Delay ▽Percentage	ΔTotal Using ▽Percentage
DEMOJOB1	004B	MVSE	83	21	82
DEMOJOB2	004C	MVSE	82	16	61
DEMOJOB3	004D	MVSE	90	10	91

l) **Press F3** multiple times to return to the KOBSTART panel

Congratulations. You have now completed the OMEGAMON z/OS V5.3 Test Drive.

Please feel free to continue with the CICS exercises, or ask your lab instructor for additional exercises.

Lab #3 OMEGAMON CICS Enhanced 3270 Scenario Walkthrough

Introduction

This lab exercise will demonstrate how to navigate and use some of the primary features of the OMEGAMON CICS V5.3 enhanced 3270 user interface. In this lab the user will perform a series of scenarios focused on the following:

- CICSplex level monitoring
- CICS region level resource analysis
- CICS workload analysis
- CICS resource analysis
- CICS historical analysis – Task History (new in V5.3)
- CICS historical analysis – region and resource level (new in V5.3)

3.1 Overview from the CICSplex perspective

The screenshot shows the OMEGAMON CICS Enhanced 3270 user interface. At the top, there is a menu bar with 'File', 'Edit', 'View', 'Tools', 'Navigate', and 'Help'. The date and time are '09/04/2014 08:39:51'. Below the menu bar, there is a status bar with 'Auto Update : Off', 'Plex ID :', and 'Sys ID :'. The main display area is divided into two panels. The first panel is titled 'Enterprise Summary' and shows 'All Active Sysplexes'. It contains a table with the following data:

ΔSysplex Name	ΔAverage CPU Percent	Highest LPAR Name	ΔHighest LPAR CPU%	ΔPercent LPAR MSU Capacity	+LPAR Group Name
_ ESYSPLEX	16	ESYSMVS	29	18.2	N/A

The second panel is titled 'All Active CICSplexes' and shows a table with the following data:

ΔCICSplex Name	ΔNumber of Regions	ΔTransaction Rate	ΔCPU Utilization	Any SOS Regions	SOS Region
- CICS DAX1	6	0/m	0.0%	No	n/a
- CICS PLX1	10	0/m	0.0%	No	n/a
- OMEG PLEX	5	5/m	0.0%	No	n/a
- RDZ	1	0/m	0.0%	No	n/a
- TIV PLEX	3	0/m	0.0%	No	n/a

Here is the start panel for the e3270 ui (panelid KOBSTART). This panel contains overview information for CICSplex as well as z/OS Sysplex and other OMEGAMON monitoring agents. From this panel you may scroll, filter, or drill down for additional information. There are several methods for analysis that will be demonstrated as part of this lab exercise.

First you will perform a brief overview of the CICSplex level information available in the enhanced 3270 interface, then you will drill down into CICS region specific level information.

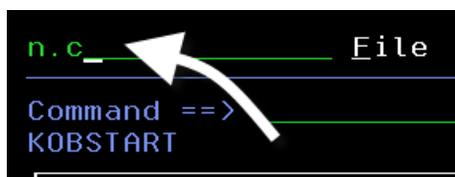
Beginning from the KOBSTART panel (as seen above) you see a Sysplex/CICSplex level view of the enterprise. Note that this panel can show multiple CICSplexes.

What constitutes a CICSplex?



Keep in mind that a CICSplex, from the perspective of OMEGAMON monitoring, may be either a CICSplex as defined in CICSplex SM, or a grouping of CICS regions as defined by OMEGAMON

- a) **Position the cursor**, enter **N.C** and **Press Enter**



You are now looking at the KCPSTART panel. This panel is the overview panel specific to OMEGAMON CICS monitoring.

File Edit View Tools Navigate Help						09/05/2014 08:42:30
Command >						Auto Update : Off
KCPSTART						CICSplex : _____
Enterprise CICSplex Summary						Region : _____
All Active CICSplexes						
Columns 2 to 6 of 19			Rows 1 to 5 of 5			
ΔCICSplex ▽Name	ΔNumber of ▽Regions	ΔTransaction ▽Rate	ΔCPU ▽Utilization	Any SOS Regions	SOS Region	
— CICSDAX1	6	0/m	0.0%	No	n/a	
— CICSPLX1	10	1/m	0.0%	No	n/a	
— OMEGPLEX	5	6/m	0.0%	No	n/a	
— RDZ	1	0/m	0.0%	No	n/a	
— TIVPLEX	3	0/m	0.0%	No	n/a	

You can sort the display by multiple columns, including Number of Regions, Transaction Rate, or CPU Utilization.

- b) **Position the cursor** on the sort arrow in the Transaction Rate column, and **Press Enter**



You are now looking at the CICSplexes sorted by Transaction Rate.

The screenshot shows the 'Enterprise CICSplex Summary' window. At the top, there is a menu bar with 'File', 'Edit', 'View', 'Tools', 'Navigate', and 'Help'. The date and time are '09/05/2014 08:52:44'. Below the menu bar, the command 'KCPSTART' is entered, and the title is 'Enterprise CICSplex Summary'. The window displays a table titled 'All Active CICSplexes' with the following data:

ΔCICSplex ▽Name	ΔNumber of ▽Regions	▽Transaction _Rate	ΔCPU ▽Utilization	Any SOS Regions	SOS Region
— TIVPLEX	3	124/m	0.0%	No	n/a
— OMEGPLEX	5	6/m	0.0%	No	n/a
— CICSPLX1	10	1/m	0.0%	No	n/a
— CICSDEX1	6	0/m	0.0%	No	n/a
— RDZ	1	0/m	0.0%	No	n/a

3.2 Drill Down Menu Options

From the KCPSTART panel there are several drill down analysis options.

- a) **Position the cursor** by a CICSplex Name (select TIVPLEX), **enter /** and **Press Enter**

You will then see a popup with several navigation options.

The screenshot shows the 'Options Menu' popup. It contains the following text:

```

Options Menu

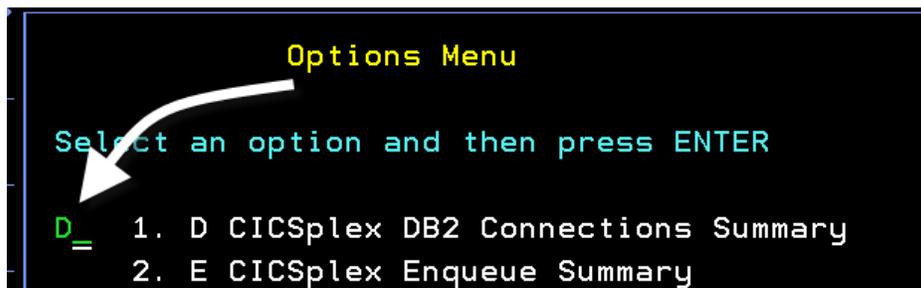
Select an option and then press ENTER

— 1. D CICSplex DB2 Connections Summary
   2. E CICSplex Enqueue Summary
   3. I CICSplex DBCTL Connections Summary
   4. M CICSplex Storage Overview
   5. P CICSplex Regions Performance Summary
   6. Q CICSplex Messaging Overview
   7. R CICSplex Service Level Analysis
   8. S CICSplex Regions Summary
   9. T CICSplex Dispatcher Summary
  10. V CICSplex VSAM RLS Summary
  11. H History
    
```

From this Options Menu popup you can drill in connection information, such as DB2, IMS, or messaging. You can drill in on storage information, look at the service level analysis (also known as response time analysis), or look at a CICS region overview within the CICSplex. **Note new options such as history.**

3.3 Monitoring CICS – DB2 Attachment Facility

a) From the above popup panel, **enter D** and **Press Enter**



You are now looking at the **DB2 Connections** Summary. From here you can see the connection status of the various CICS regions to DB2. In addition to DB2 Subsystem Name, you can shift the screen to the right to see such information as the number of tasks accessing DB2 and the RCT interface used.

ΔCICS Region ▽Name	ΔDB2 Subsystem ▽Name	Connection Status	Adapter Status	Connection TCB Limit	+Active Using D
_ CICSTIV1	n/a	Unconnected	Inactive	0	0
_ CICSTIV2	n/a	Unconnected	Inactive	0	0
_ CICSTIV3	DSNB	Connected	Active	30	0

b) **Press F3** to return to KCPSTART.

3.4 Monitoring CICS – MQ Interface

Similar to the DB2 interface status, OMEGAMON will show the status of the CICS to MQ interface.

a) **Position the cursor** by the CICSplex Name, **enter Q** and **Press Enter**

ΔCICSplex ▽Name	ΔNumber of ▽Regions
Q TIVPLEX	3
_ OMEGPLEX	5

You are now looking at the **CICSplex Messaging** Summary panel. This display is similar to the DB2 panel in that it shows an overview of what CICS regions are connected to which MQ Queue Managers. Plus if you shift the display to the right you can see relevant MQ call metrics.

File Edit View Tools Navigate Help 09/05/2014 09:00:38
 Auto Update : Off
 Command ==> KCPMQMP CICSplex Messaging Overview CICSplex : TIVPLEX
 Region : _____

CICSplex Messaging Summary

Columns 2 to 5 of 18 Rows 1 to 3 of 3

ΔCICS Region ▽Name	ΔQueue Manager ▽Name	Connection Status	Adapter Status	API Calls
— CICSTIV1	WMQT	Connected	Active	144
— CICSTIV2	n/a	Not installed	Not installed	0
— CICSTIV3	n/a	Not installed	Not installed	0

b) Press **F3** to return to KCPSTART.

3.5 Monitoring CICS Storage

OMEGAMON will information of CICS storage utilization by address space (including DSA, EDSA, GDSA, Storage violations, short on storage, and more).

a) Position the cursor by the CICSplex Name, enter **M** and Press **Enter**

ΔCICSplex ▽Name	ΔNumber of ▽Regions
M TIVPLEX	3
— OMEGPLEX	5

You are now looking at the CICSplex Storage Overview panel. This panel shows storage utilization by CICS region.

File Edit View Tools Navigate Help 09/05/2014 09:03:06
 Auto Update : Off
 Command ==> KCPSTG0 CICSplex Storage Overview CICSplex : TIVPLEX
 Region : _____

CICSplex Storage Overview for TIVPLEX

Columns 2 to 7 of 19 Rows 1 to 3 of 3

ΔCICS Region ▽Name	ΔDSA ▽SOS	DSA Use Percentage	ΔEDSA ▽SOS	EDSA Use Percentage	ΔGDSA ▽SOS	GDSA Use Percentage
— CICSTIV1	No	25%	No	9%	No	0%
— CICSTIV2	No	20%	No	8%	No	0%
— CICSTIV3	No	20%	No	8%	No	0%

- a) To see more detail for a specific region, **position the cursor** by a CICS Region Name and **Press Enter**



You are now looking at the storage utilization detail display for a specific CICS region.

```

File Edit View Tools Navigate Help 09/05/2014 09:04:13
Auto Update : Off
Command ==> KCPSTGS CICSplex : TIVPLEX
KCPSTGS CICS Storage Summary for CICSTIV1 Region : CICSTIV1
    
```

Overview of CICS Storage Areas

Columns 2 to 6 of 7 Rows 1 to 3 of 3

Area	SOS	Percent Used	Storage Limit	Storage in Use	Storage Available
DSA	No	25%	5.0M	1.2M	3.7M
EDSA	No	9%	512.0M	47.0M	465.0M
GDSA	No	1%	15.9	6.0M	15.9

Summary of CICS Dynamic Storage Areas

Columns 2 to 6 of 27 Rows 1 to 12 of 12

Area	SOS	ΔPercent Used	Storage in Use	Storage Available	Storage Allocated
CICS Key DSA	No	8%	356K	156K	512K
Read Only Key DSA	No	5%	224K	32K	256K
Read Only Key EDSA	No	5%	27.1M	1.8M	29.0M
CICS Key EDSA	No	3%	14.2M	776K	15.0M
User Key DSA	No	1%	36K	220K	256K
Shared Key GDSA	No	0%	0K	0K	0K
User Key GDSA	No	0%	0K	0K	0K
CICS Key GDSA	No	0%	6.0M	1.9G	2.0G
Trusted EDSA	No	0%	32K	992K	1.0M
Shared Key DSA	No	0%	12K	244K	256K
Shared Key EDSA	No	0%	148K	876K	1.0M
User Key EDSA	No	0%	192K	832K	1.0M

- b) **Press F3** then **Press F3** again to return to the KCPSTART panel.

3.6 Service Level Analysis

Service Level Analysis is a powerful feature of OMEGAMON CICS that will analyze the workload, correlate transaction response time, and also break down the major wait reasons for the CICS workload. The important thing to keep in mind is that Service Level Analysis is calculated and displayed at the CICSplex level.

- a) To see Service Level Analysis, position the cursor by the CICSplex Name, enter R and Press Enter.

ΔCICSplex ▽Name	ΔNumber of ▽Regions
R TIVPLEX	3
OMEGPLEX	5

You are now seeing response time data and transaction service times. This information shows counts of transactions executed and average response time. Also, if you shift the display you will be able to see percentage wait times for a variety of wait reasons including CPU, database, and file waits.

File Edit View Tools Navigate Help 09/05/2014 09:07:50
 Auto Update : Off
 Command ==> KCPPSLA CICSplex Service Level Summary CICSplex : TIVPLEX
 Region :

CICSplex Service Level Analysis for TIVPLEX

Columns 2 to 6 of 43 Rows 1 to 3 of 3

Service Class Name	Workload Name	ΔAverage ▽Response Time	Transactions Total	ΔPerformance ▽Index	+Tra Rat
STRW	STRS	5.557s	118	11.11%	
MTRANS	DFTLWORK	10.668s	1	10.66%	
WTRANS	DFTLWORK	0.000s	1	0.00%	

Note how you can see information such as % wait time for various workload resources.

File Edit View Tools Navigate Help 09/05/2014 09:09:35
 Auto Update : Off
 Command ==> KCPPSLA CICSplex Service Level Summary CICSplex : TIVPLEX
 Region :

CICSplex Service Level Analysis for TIVPLEX

Columns 6 to 9 of 43 Rows 1 to 3 of 3

Service Class Name	Transaction Rate	Interval End Timestamp	% Time Using CPU	% Wait on DB2
STRW	118	09:07:00	0%	0%
MTRANS	1	09:07:00	0%	0%
WTRANS	1	09:07:00	0%	0%

- b) Position the cursor by the Service Class Name and Press Enter

Service Class Name	Transaction Rate
STRW	118
MTRANS	1

You are now looking at the Service Class Detail display. This display shows more detail, down to the transaction code and CICS region level.

Command ==> KCPPSLD

09/05/2014 09:11:45
Auto Update : Off
CICSplex : TIVPLEX
Region :

CICSplex Transactions for Service Class STRW

Transaction ID	ΔAverage Response Time	Transactions Total	ΔPerformance Index	Transaction Rate
STRW	5.641s	118	11.28%	118

CICSplex Regions for Service Class STRW

CICS Region Name	ΔAverage Response Time	Transactions Total	ΔPerformance Index	Transaction Rate
CICSTIV1	5.641s	118	11.28%	118

b) Press F3 then Press F3 again to return to the KCPSTART panel.

3.7 Monitoring CICS Region Summary and Details

OMEGAMON CICS provides a region summary panel that pulls together many critical region level performance metrics across all the regions in a given CICSplex.

a) Position the cursor by the CICSplex and Press Enter.

Command ==> KCPRGNS

09/05/2014 09:16:41
Auto Update : Off
CICSplex : TIVPLEX
Region :

Regions Summary for TIVPLEX

ΔCICS Region Name	ΔCPU Utilization	ΔTransaction Rate	ΔMaximum Tasks Percent	SOS	ΔStg. Violat
TIVPLEX		3			
OMEGAPLEX		5			

You are now looking at the CICSplex Regions Summary panel (KCPRGNS). From here you can perform more detailed analysis at the CICS region level.

Command ==> KCPRGNS

09/05/2014 09:16:41
Auto Update : Off
CICSplex : TIVPLEX
Region :

Regions Summary for TIVPLEX

ΔCICS Region Name	ΔCPU Utilization	ΔTransaction Rate	ΔMaximum Tasks Percent	SOS	ΔStg. Violat
CICSTIV1	0.0%	119/m	3%	No	0
CICSTIV2	0.0%	0/m	1%	No	0
CICSTIV3	0.0%	0/m	1%	No	0

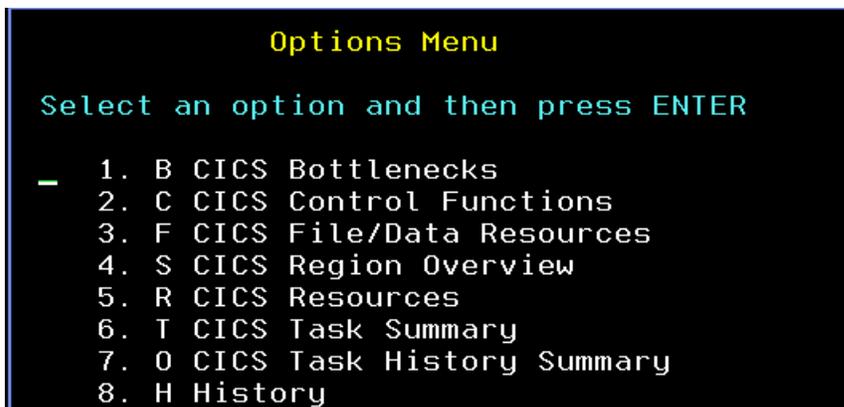
3.8 Overview from the CICS region perspective

You should now be on the CICSplex Regions Summary panel (KCPRGNS). From this display you can drill down for quite a bit of detail specific to a given CICS region.

- a) **Position the cursor** by a CICS Region Name (select region CICSTIV1), **enter /** and **Press Enter.**



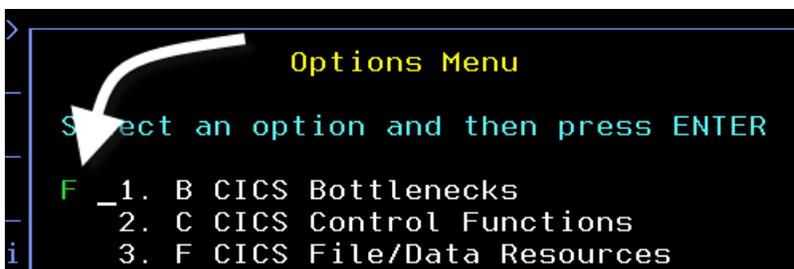
You will then see a popup with several navigation options.



From the popup you may look at the Region Overview display for the region, or select either other CICS resource displays, or look a CICS task history or region level interval history.

To see CICS file information:

- b) **Position the cursor** in the popup menu, **enter F** and **Press Enter.**



You will then be presented with another popup menu where you may specify which file structure types you are interested in viewing.

```

Select CICS File/Data Resources

Select an action and then press ENTER

1. D CICS DB2 Connection Summary
2. I CICS DBCTL Connection Summary
3. M CICS Messaging Summary
4. F CICS File Summary
5. J Region Datasets
6. L CICS LSR Pool Summary
7. P RPL Datasets
8. R VSAM RLS Files
9. V VSAM File Summary

```

c) Position the cursor in the popup menu, enter F and Press Enter

```

Select CICS File/Data Resources

Select an action and then press ENTER

F 1. D CICS DB2 Connection Summary
  2. I CICS DBCTL Connection Summary
  3. M CICS Messaging Summary
  4. F CICS File Summary

```

You are now looking at the File Summary panel. From here you can Press F11 to shift the screen to the right and see additional file information.

```

File Edit View Tools Navigate Help 09/09/2014 09:58:50
Auto Update : Off
Command ==>
KCPCFSS File Summary CICSplex : TIVPLEX
Region : CICSTIV1

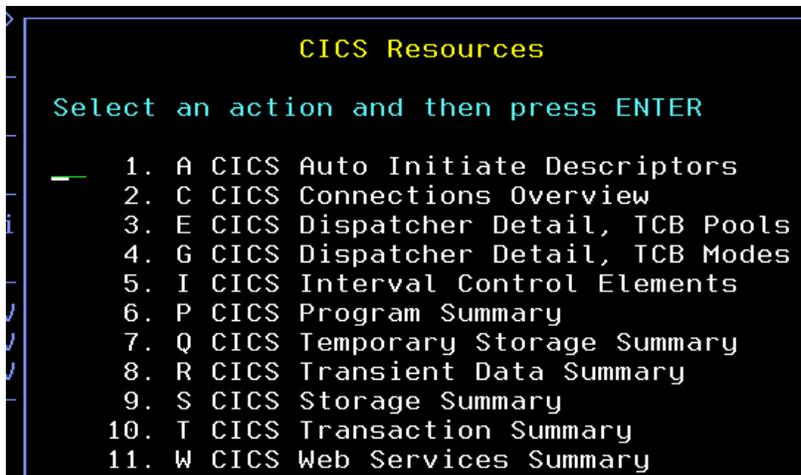
```

CICS Files allocated to CICSTIV1				
File Name	Open Status	Enable Status	Current String Waits	Current Buffer Waits
FILEA	Closed	Enabled	0	0
EZACONFG	Closed	Disabled	0	0
EZACACHE	Open	Enabled	0	0

3.9 Monitoring CICS - File Exceptions

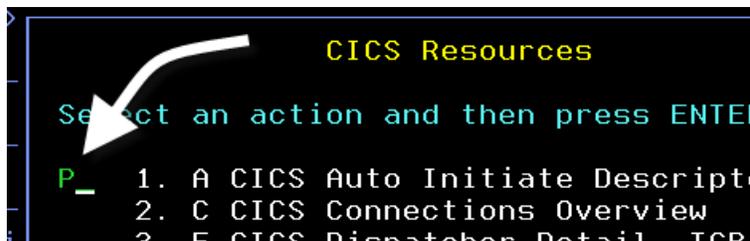
a) To see detail on a specific file, position the cursor by a File Name and Press Enter

File Name	Open Status	Enable Status
FILEA	Closed	Enabled
EZACONFG	Closed	Disabled



3.11 CICS Program Summary

a) From the popup, **Position the cursor,** **enter P** and **Press Enter**



You are now looking at the Program Summary panel. From here you may drill into a CICS program for detail, or to issue commands.

Program Name	Program Status	Language	Length	Program Location	+Concurrency
ABNDPROG	Enabled	Assembler	0	n/a	Quasireentran
ADDER	Enabled	COBOL	0	n/a	Quasireentran
ADDERT	Enabled	COBOL	0	n/a	Quasireentran
ADDER1	Enabled	COBOL	0	n/a	Quasireentran
AIDPGM	Enabled	Assembler	0	n/a	Quasireentran
AIDPGM1	Enabled	Assembler	0	n/a	Quasireentran
AOPCICS3	Enabled	Assembler	6560	ESDSA	Quasireentran
BUFWAIT	Enabled	Assembler	0	n/a	Quasireentran

b) **Position the cursor** by a Program Name, **enter /** and **Press Enter**

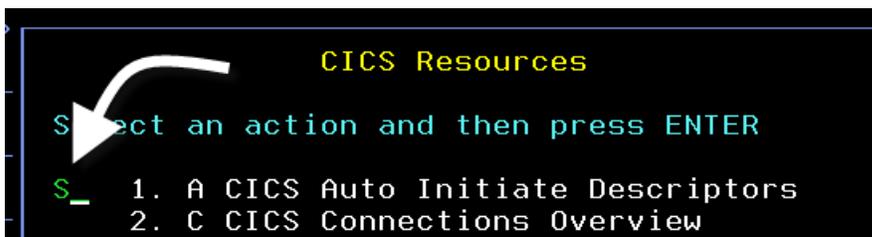
3.12 CICS Storage Summary (including history – New in V5.3)

From the KCPRGNS panel you may drill down to see information on CICS region storage utilization.

a) Position the cursor, enter **R** and **Press Enter**



b) From the popup menu, **Position the cursor**, enter **S** and **Press Enter**



You are now looking at the CICS Storage Summary panel for the CICS region. From this display you can see storage details such as DSA and EDSA utilization for the region.

09/09/2014 10:57:11
Auto Update : Off
CICSplex : TIVPLEX
Region : CICSTIV1

Command ==> **CICS Storage Summary**

Overview of CICS Storage Areas for CICSTIV1

Columns 2 to 6 of 7 Rows 1 to 3 of 3

Area	SOS	Percent Used	Storage Limit	Storage in Use	Storage Available
DSA	No	20%	5.0M	1.0M	4.0M
EDSA	No	9%	512.0M	48.0M	464.0M
GDSA	No	1%	15.9	6.0M	15.9

Summary of CICS Dynamic Storage Areas

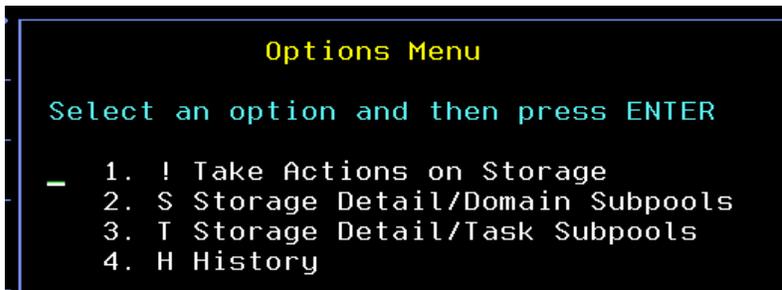
Columns 2 to 6 of 27 Rows 1 to 12 of 12

Area	SOS	ΔPercent Used	Storage in Use	Storage Available	Storage Allocated
CICS Key DSA	No	7%	344K	168K	512K
Read Only Key EDSA	No	6%	27.1M	1.8M	29.0M

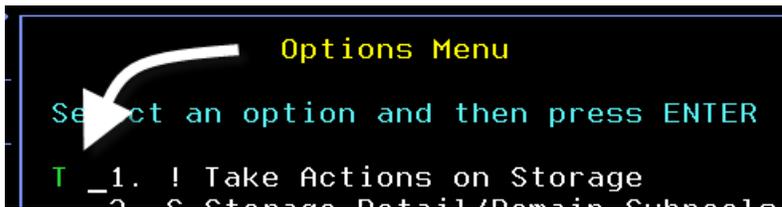
c) **Position the cursor** by DSA or EDA, enter / and **Press Enter**



You will then see a popup with several navigation options. Note that in addition to the real time options, you also have the option to view the history of CICS storage utilization.



d) From the popup, **Position the cursor** enter T and **Press Enter**



You are now looking at CICS storage utilization listed by task number.

File Edit View Tools Navigate Help 09/09/2014 11:02:19
 Auto Update : Off
 Command ==> KCPSTGD2
 CICSplex : TIVPLEX
 Region : CICSTIV1

CICS DSA Storage Detail

SOS.....	No	Storage Allocated.....	5.0M
Percent Used.....	20%	Storage in Use.....	1.0M
Storage Limit.....	5.0M	Storage Available.....	4.0M

Summary of Task Subpools in the DSA

Columns 3 to 7 of 15 Rows 1 to 23 of 32

Task Number	Subpool Name	DSA Name	DSA Use Percentage	Getmains	Freemains	+Curr Elem
0000059	M0000059	CDSA	3.125%	0	0	
0000058	M0000058	CDSA	0.781%	0	0	
0000007	M0000007	CDSA	0.781%	0	0	
0000006	M0000006	CDSA	0.781%	0	0	

e) To see details on a given task, **position the cursor** by a task on the list and **Press Enter**

Task Number	Subpool Name	DSA Name
0000059	M0000059	CDSA
0000058	M0000058	CDSA

You are now looking at the Task Details panel for the task using the CICS storage.

File Edit View Tools Navigate Help 09/09/2014 11:04:02
 Auto Update : Off
 Command ==> KCPTASD Details for Transaction OMEG Task 00059 CICSplex : TIVPLEX
 Region : CICSTIV1

Details Statistics Storage Timings I/O Definitions

Transaction Details

Transaction ID.....	OMEG	Time in Suspend.....	3m 12s
CPU time.....	0.005s	Elapsed Time.....	19h 39m
Storage Used Above 16M....	2K	Storage Used Below 16M....	13K
Attach time.....	15:24:55	Time of Suspend.....	11:00:49
Suspend Timeout Due.....	None	Facility Type.....	Task
Facility ID.....	n/a	Task State.....	Suspend
Dispatcher Queue.....	TXN mstr	First Program ID.....	KOCOME00
Current Program ID.....	KOCOME00	Resource Type.....	USERWAIT
Resource Name.....	SR2WORK	User ID.....	CICSUSER
EXEC CICS Command.....	WAIT EXT	Purgeable Suspend.....	No
Purge Status.....	No purge	Suspend Type.....	MVS
UOW State.....	Inflight	Umbrella Transaction ID...	OSEC

f) **Press F3**, then **Press F3** again to return to the KCPSTGS panel.

g) Again **position the cursor** next to DSA **enter H** and **press Enter**

Area
H DSA
FRSA

You are now looking at historical interval information for DSA utilization of the CICS region.

File Edit View Tools Navigate Help 09/09/2014 11:07:57
 Display : HISTORY
 Command ==> KCPSTGS Historical Summary CICSple : TIVPLEX
 Region : CICSTIV1

Selected item DSA

Columns 3 to 7 of 8 Rows 1 to 8 of 8

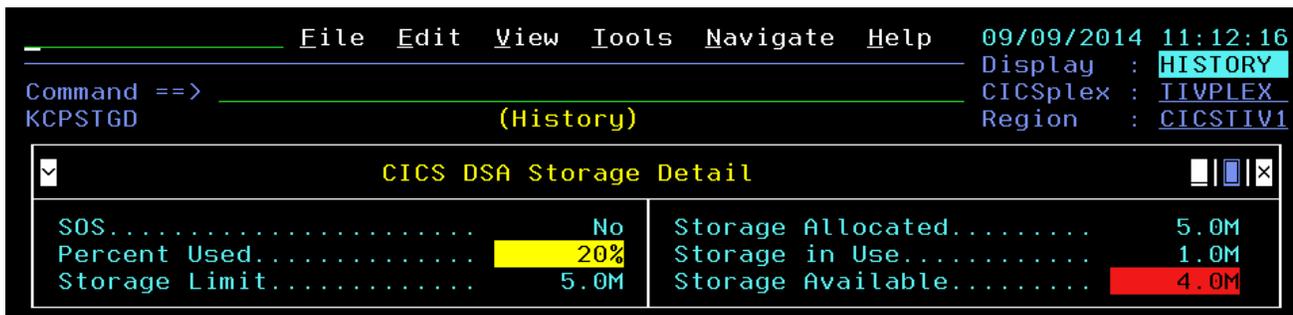
Recording Time	Area	SOS	Percent Used	Storage Limit	Storage in Use	+Sto Ava
11:00:00	DSA	No	20%	5.0M	1.0M	
10:45:00	DSA	No	20%	5.0M	1.0M	
10:30:00	DSA	No	20%	5.0M	1.0M	

Note that the upper right portion of the panel indicates that this is historical information. The bottom portion of the panel shows a line for each history interval, with a drill down option for more detail.

h) **Position the cursor** next to a time interval and **press Enter**



You are now looking at the history information for the specific interval.



You may shift the history interval by using the history tool bar at the bottom of the panel.



i) **Position the cursor** on the time interval tool bar and **press Enter**

Note how the history time frame shifts each time you press enter.

j) **Press F3** then **Press F3 again**, then **Press F3** one more time to return to the KCPRGNS panel.

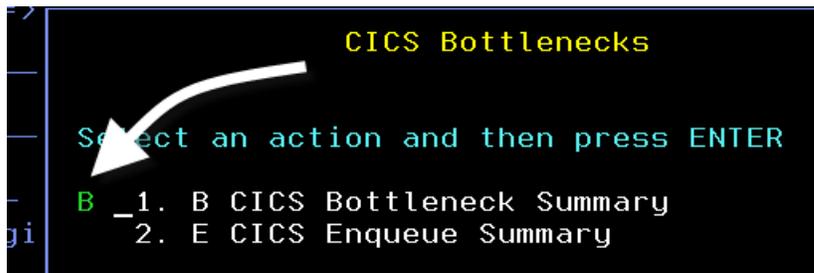
3.13 CICS Bottleneck Analysis

From the KCPRGNS display you may view bottleneck analysis information for a given CICS region.

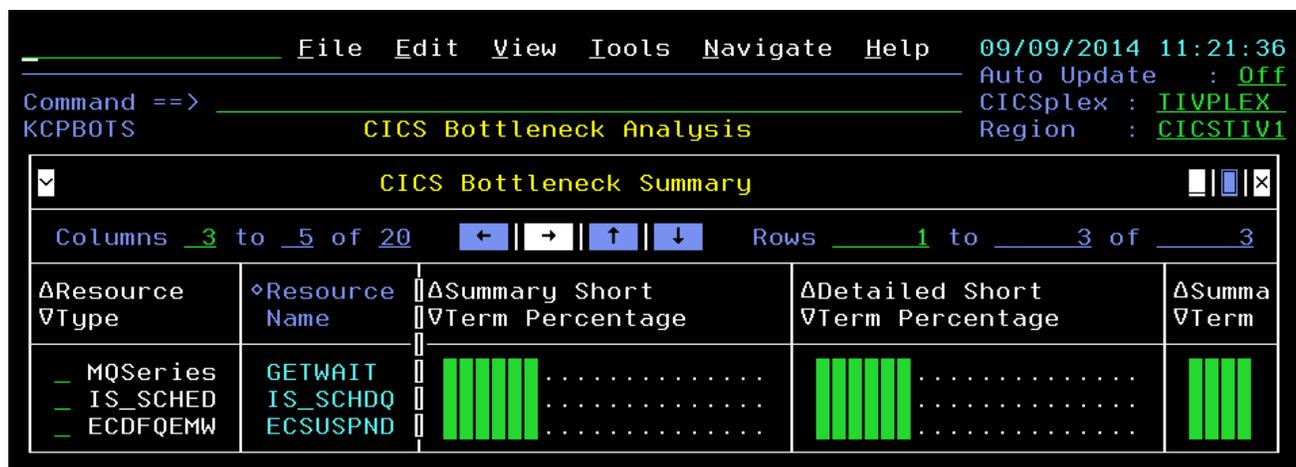
a) **Position the cursor**, by a CICS region **enter B** (for CICS Bottlenecks) and **Press Enter**



- b) From the CICS Bottlenecks Menu, **position the cursor**, **enter B** (for CICS Bottleneck Summary) and **Press Enter**



You are now looking at the CICS Bottleneck Summary panel. This panel will show the bottleneck analysis breakdown for the region. You can **Press F11** multiple times to see an explanation of each of the CICS resource types.



- c) **Press F3** to return to the KCPRGNS panel.

3.14 CICS Task Analysis (including Task History – New in V5.3)

You may use OMEGAMON CICS to see details about the tasks currently active in the CICS region. You may also use OMEGAMON CICS task history to view task activity over time, with drill down for task details.

- a) **Position the cursor** by a CICS Region Name, **enter T** and **Press Enter**



You are now looking at the CICS tasks running in the CICS region. You can sort the display by multiple columns, including CPU time, elapsed time, and task number.

The screenshot shows a terminal window titled "CICS Task Summary" with a menu bar (File, Edit, View, Tools, Navigate, Help) and a status bar (09/09/2014 11:38:30, Auto Update: Off, CICSplex: TIVPLEX, Region: CICSTIV1). The main display is a table of active tasks.

ΔTransaction ▽ID	ΔCPU ▽Time	ΔElapsed ▽Time	Wait Type	Resource Type	Resource Name	ΔDurati ▽of Sus
— OSRV	0.011s	20h 13m	TaskCntl	USERWAIT	SRVWORK	7m
— OSEC	0.005s	20h 13m	TaskCntl	USERWAIT	SR2WORK	7m
— SLQR	0.003s	7.010s	Interval	ICWAIT		0.2
— CKTI	0.002s	20h 14m		MQSeries	GETWAIT	20h
— MLPR	0.002s	6.540s	Interval	ICWAIT		0.2
— STRW	0.001s	5.790s	Database	EKCWAIT	WAIT TEN	4.8
— STRW	0.000s	5.580s	Database	EKCWAIT	FIVE	4.7
— STRW	0.000s	5.590s	Database	EKCWAIT	SEVEN	4.7

b) To filter the display, **Press F4**

You are now looking at the filter popup for the CICS task panel.

The screenshot shows a "Filter(s)" popup menu with a list of filter options:

1.	Transaction ID.....	n/a
2.	Program ID.....	n/a
3.	Current Program ID.....	n/a
4.	First Program ID.....	n/a
5.	Terminal ID.....	n/a
6.	User ID.....	n/a
7.	CICS Transaction ID.....	n/a

c) **Position the cursor, enter 1** (for Transaction ID) and **Press Enter**

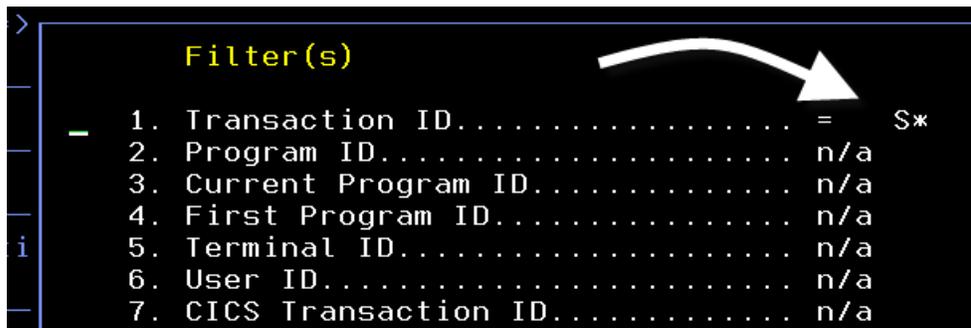
You are now looking at the filter popup for the transaction filter.

d) **Enter a comparison** (for example try =) and then **Enter a value** for the transaction (for example S*). **Press Enter**

The screenshot shows a "Filter Detail" popup menu for the Transaction ID filter:

Column	Transaction ID	
Compare	=	(= <> > < >= <=)
Value	S*	(compare to this)
UCTRAN	Yes	(Y or N, uppercase)

You will then see the filter specified in the popup.



e) Press F3

You are now looking at the filtered CICS task display.

File Edit View Tools Navigate Help							09/09/2014 11:47:14
Command ==>						Auto Update	: Off
KCPTASS						CICSplex	: IIVPLEX
CICS Task Summary						Region	: CICSTIV1
Active Tasks							
Columns 2 to 7 of 19		Rows 1 to 9 of 9					
ΔTransaction ID	ΔCPU Time	ΔElapsed Time	Wait Type	Resource Type	Resource Name	ΔDuration of Sus	
- SLQR	0.125s	8m 50s	Interval	ICWAIT		0.6	
- SLPR	0.114s	8m 19s	Interval	ICWAIT		0.6	
- STRW	0.027s	8m 49s	Database	EKCWAIT	WAIT TEN	8.0	
- STRW	0.000s	8.030s	Database	EKCWAIT	EIGHT	8.0	

f) To reset the filters on the Task display, Press F4 again.

g) In the filter popup, enter 1 (for Transaction ID) and Press Enter. Blank out the filter and Press F3. You should now see the unfiltered CICS task display.

h) Press F3 to return to the KCPRGNS panel

From the KCPRGNS display you may also look at CICS task history. Being able to see CICS task history is a new feature of the enhanced 3270 user interface. To see task history:

i) Position the cursor, next to CICS region (select CICSTIV1) enter O and Press Enter

ΔCICS Region Name	ΔCPU Utilization
0 CICSTIV1	0.0%
- CICSTIV2	0.0%

You are now looking at task history for the CICS region.

Transaction ID	CPU Time	Response Time	End Time	Task Number	File Requests	ABEND Code
STRW	0.000s	7.077s	12:00:07	11621	0	
STRW	0.000s	7.077s	12:00:07	11611	0	
STRW	0.000s	6.028s	12:00:06	11622	0	
STRW	0.000s	6.029s	12:00:06	11612	0	
STRW	0.000s	5.242s	12:00:05	11623	0	
STRW	0.000s	5.242s	12:00:05	11613	0	
STRW	0.000s	4.193s	12:00:04	11624	0	
STRW	0.000s	4.193s	12:00:04	11614	0	

Note that in the upper right corner of the panel, history is indicated for the data content. You may filter the task history display to find specific transaction occurrences.

j) To filter the display, **Press F4**

You are now looking at the filter popup for the CICS task history panel.

Filter Criteria	Filter Type	Input Field	Examples
Transaction ID	EQ.....	_____	CEMT or CE*
User ID	EQ.....	_____	USER1 or USER*
Terminal ID	EQ.....	_____	TRM1 or TRM*
ABEND code	EQ.....	_____	ASRA or AS* or YES
Response Time	GE.....	_____	ss or ss.t or mm:ss.t
CPU Time	GE.....	_____	ss or ss.t or mm:ss.t
Storage HWM	GE.....	_____	1000 or 10.2K or .5M

KCPUI0007I Enter or clear filters and press enter.
All filters are case sensitive.

k) Enter filter criteria, (such as 10 in the response time field) and **Press Enter**



You are now looking at a filtered CICS task history display.

Note how the panel indicates that the data is filtered.

```

File Edit View Tools Navigate Help 09/09/2014 12:03:41
Display : HISTORY
Command ==> KCPTASH CICS Task History Summary
CICSplex : TIVPLEX
Region : CICSTIV1

```

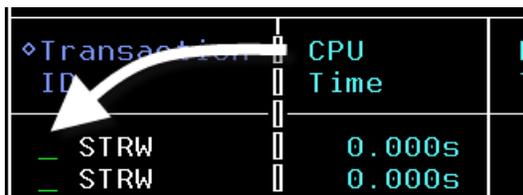
Data is filtered

Columns 2 to 7 of 13

Transaction ID	CPU Time	Response Time	End Time	Task Number	File Requests	ABEND Code
STRW	0.000s	10.224s	12:03:35	12026	0	
STRW	0.000s	10.224s	12:03:35	12016	0	
MLPR	0.000s	10.631s	12:03:33	12015	12	
STRW	0.000s	10.223s	12:03:25	12004	0	
STRW	0.000s	10.224s	12:03:25	11994	0	

You may also drill down for detail on a specific transaction.

I) **Position the cursor** next to a transaction and **Press Enter**



Transaction ID	CPU Time
STRW	0.000s
STRW	0.000s

You are now looking at the task history detail.

```

File Edit View Tools Navigate Help 09/09/2014 12:09:25
Display : HISTORY
Command ==> KCPTASHD Task History Detail
CICSplex : TIVPLEX
Region : CICSTIV1

```

Task History Detail for Task Number 12026

Transaction ID.....	STRW	CPU Time.....	0.000s
Response Time.....	10.224s	End Time.....	12:03:35
Task Number.....	12026	User ID.....	CICSUSER
Program ID.....	MICKSTRW	Storage HWM.....	1024
File Requests.....	0	Terminal ID.....	n/a
Terminal I/O.....	0	ABEND Code.....	
Trace active.....	No	End Date.....	14/09/09

Task Timings

Overall Elapsed Time.....	10.224s	Total Wait Time.....	10.224s
Dispatch Time.....	0.000s	Terminal I/O Wait.....	0.000s
Journal Wait.....	0.000s	Temporary Storage Wait....	0.000s
File Wait.....	0.000s	Redispatch Wait.....	0.000s
MRO Wait.....	0.000s	Transient Data Wait.....	0.000s
Exception Wait.....	0.000s	KC ENQ Delay.....	0.000s
1st Dispatch Delay Total..	0.001s	1st Dispatch Delay Other..	0.001s

m) **Press F3 multiple times** until you return to the KOBSTART panel.

3.15 CICS Workload Analysis Scenario

In this scenario you will see how to use the tool to analyze CICS workload relative to the various CICS regions in the system.

- a) **Position the cursor** on the sort arrow on the Transaction Rate column and **Press Enter**.

ΔCICSplex ▽Name	ΔNumber of ▽Regions	▽Transaction Rate	ΔCPU ▽Util
TIVPLEX	3	116/m	
OMEGPLEX	14	10/m	

You are now looking at the various CICSplexes sorted by transaction rate.

- b) **Position the cursor**, by the CICSplex with the highest transaction rate and **Press Enter**.

ΔCICSplex ▽Name	ΔNumber of ▽Regions	▽Transaction Rate	ΔCPU ▽Util
TIVPLEX	3	116/m	
OMEGPLEX	14	10/m	
CICSDAX1	6	0/m	

You are now looking at the CICS Region Summary for the CICSplex.

File Edit View Tools Navigate Help 09/09/2014 12:18:03
 Auto Update : Off
 CICSplex : TIVPLEX
 Region : _____

Command ==> _____
 KCPRGNS CICSplex Regions Summary

ΔCICS Region ▽Name	ΔCPU ▽Utilization	ΔTransaction ▽Rate	ΔMaximum Tasks ▽Percent	SOS	ΔStg. Violat ▽
CICSTIV1	0.1%	107/m	3%	No	0
CICSTIV2	0.0%	0/m	1%	No	0
CICSTIV3	0.0%	0/m	1%	No	0

- c) **Position the cursor** by the highest transaction rate CICS region and Press **Enter**

ΔCICS Region ▽Name	ΔCPU ▽Utilization	ΔTr ▽Rate
CICSTIV1	0.1%	
CICSTIV2	0.0%	

You are now looking at the CICS Region overview panel (KCPRGNO). This display provides a summary overview from a single set of panels of much of the critical analysis information for the CICS region.

The screenshot shows the CICS Region Overview panel with the following data:

CICSTIV1 Overview		CICSTIV1 Overview	
System ID.....	MVSE	CICS Region Name.....	CICSTIV1
Worst Region Service Class	STRW	Region's Worst Perf. Index	11.39%
CPU Utilization.....	0.1%	CICS TOD Updated.....	Yes
Transaction Rate.....	114/m	Maximum Tasks Percent.....	4%
Queued Remote Requests...	0	SOS.....	No
Stg. Violations last hour.	0	AIDs.....	0
ICEs.....	12	CICS TOD Clock.....	12:21:05
Any Current WS Faults....	No	Any Current WS Timeouts...	No
CICS Version.....	6.7.0		

Bottleneck Summary				
ΔResource	ΔSummary Short	ΔSummary Long	Summary Short	+Sum
∇Type	∇Term Percentage	∇Term Percentage	Term Percentage	Ter
- EKCWAIT	70%	69%	[Bar Chart]	[Bar Chart]
ICWAIT	13%	13%	[Bar Chart]	[Bar Chart]

Note that there are several fields highlighted in white on this panel. Fields highlighted in white indicate an area to drill down for analysis. That makes this panel powerful as a tool to do drill down analysis when looking at CICS region activity.

What are the poorest performing transactions in the CICS region?

d) **Position the cursor** on the “Worst Region Service Class” text and **Press Enter**



You are looking at the Service Level Analysis display that shows average transaction response time and transaction counts.

```

File Edit View Tools Navigate Help 09/09/2014 12:28:15
Auto Update : Off
Command ==>
KCPCSLA CICS Service Level Summary CICSplex : TIVPLEX
Region : CICSTIV1
    
```

CICS Service Level Analysis for CICSTIV1					
Service Class Name	Workload Name	ΔAverage Response Time	Transactions Total	ΔPerformance Index	+Tra Rat
STRW	STRS	5.703s	116	11.40%	
MTRANS	DFLTWORK	10.589s	1	10.58%	

You may use the arrows or F11 to scroll the information to the right to see the delay %s as measured by service level analysis for the CICS workload.

CICS Service Level Analysis for CICSTIV1				
Service Class Name	% Wait on SUPRA	50% of Goal	60% of Goal	70% of Goal

- e) Press F3 to return to the KCPRGNO panel
- f) Position the cursor on the "Transaction Rate" text and Press Enter

CICS Region	z/OS Address Space
CICSTIV1 Overview	
System ID	MVSE
Worst Region Service Class	STRW
CPU Utilization	0.1%
Transaction Rate	114/m
Queued Remote Requests	0

You are now looking at the Task Summary display for the CICS region.

```

File Edit View Tools Navigate Help 09/09/2014 12:34:20
Auto Update : Off
Command ==>
KCPTASS CICS Task Summary CICSplex : TIVPLEX
Region : CICSTIV1
    
```

Active Tasks						
ΔTransaction ID	ΔCPU Time	ΔElapsed Time	Wait Type	Resource Type	Resource Name	ΔDuration of Sus
SLQR	0.801s	55m 57s	Interval	ICWAIT		0.1
SLPR	0.783s	55m 25s	Interval	ICWAIT		0.1
STRW	0.024s	7m 56s	Database	EKWAIT	WAIT TEN	6.4

- g) **Press F3** to return to the KCPRGNO panel
- h) **Press F8** to scroll the panel to find the Highest CPU Tasks in the region
- i) **Position the cursor** by the highest CPU task in the CICS region and **Press Enter**.

Transaction ID	ΔCPU Time	ΔElapsed Time	Task State
SLQR	0.863s	1h 00m	Suspend
SLPR	0.844s	59m 39s	Suspend

You are now looking at the task details for the selected CICS task. This panel shows a huge amount of information for the CICS task, including Transaction ID, CPU time, program information, storage utilization, and much more.

File Edit View Tools Navigate Help 09/09/2014 12:48:59
 Auto Update : Off
 CICSplex : IIVPLEX
 Region : CICSTIV1

Command ==>
 KCPTASD Details for Transaction SLQR Task 09095

Details Statistics Storage Timings I/O Definitions

Transaction Details

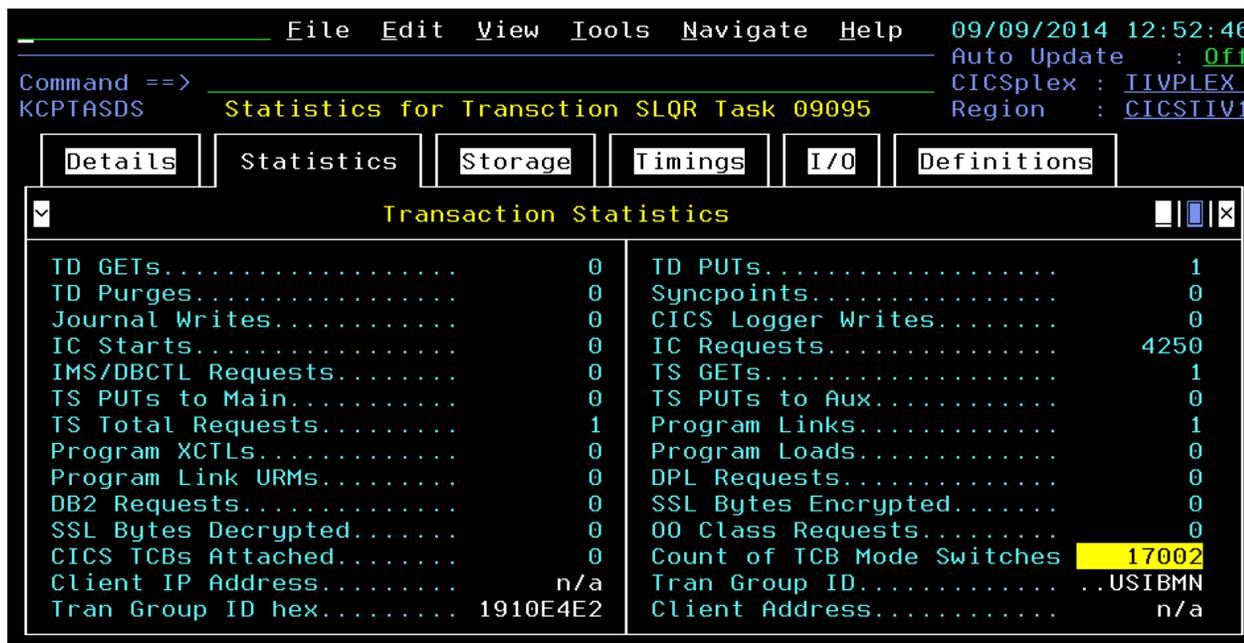
Transaction ID.....	SLQR	Time in Suspend.....	0.909s
CPU time.....	1.016s	Elapsed Time.....	1h 10m
Storage Used Above 16M....	147K	Storage Used Below 16M....	1K
Attach time.....	11:38:22	Time of Suspend.....	12:48:58
Suspend Timeout Due.....	None	Facility Type.....	Task
Facility ID.....	n/a	Task State.....	Suspend
Dispatcher Queue.....	TXN mstr	First Program ID.....	MQSLOPUR
Current Program ID.....	MQSLOPUR	Resource Type.....	ICWAIT
Resource Name.....		User ID.....	CICSUSER
EXEC CICS Command.....	DELAY	Purgeable Suspend.....	No
Purge Status.....	No purge	Suspend Type.....	Suspend
UOW State.....	Inflight	Umbrella Transaction ID...	None
Originating Transaction ID	SLQR	Trace active.....	No

Note that there are tabs on the display to display the various categories of task detail. To see task statistics:

- m) **Position the cursor** on the “Statistics” tab and **Press Enter**



You are now looking at the statistics counters for the CICS task.



- n) Try the other tabs on the KCPTASDS panel to see the additional task details available
- o) **Press F3** and then **Press F3** again to return to the KCPRGNS panel

You have now completed a top down scenario including the following:

- Identified the busiest CICSplex
- Drilled in on the CICSplex to see the CICS regions within the CICSplex
- Identified the busiest CICS region
- Drilled in for detail on processing within the CICS region
- Identified the highest CPU transaction within the region
- Drill down on the transaction for more detail

3.16 CICS Historical Region Analysis – New in V5.3

In this scenario you will see how to use the tool to analyze CICS workload relative to historical performance information captured over time. This scenario will demonstrate how you can look at CICS region activity over time. This scenario assumes you are on the KCPRGNS panel.

- a) **Position the cursor** next to the CICS Region (select CICSTIV1) and **enter H** and **Press Enter**

ΔCICS Region ▽Name	ΔCPU ▽Utilization
H CICSTIV1	0.1%
- CICSTIV2	0.0%

You are now looking at CICS region level history over time. Each line represents a time interval.

File Edit View Tools Navigate Help 09/09/2014 13:16:53
 Display : HISTORY
 CICSplex : TIVPLEX
 Region : _____

Command ==> _____
 KCPRGNS Historical Summary

Selected item CICSTIV1

Columns 3 to 6 of 33 Rows 1 to 8 of 8

◇Recording Time	◇CICS Region Name	CPU Utilization	Transaction Rate	Maximum Tasks Percent	SOS
- 13:15:00	CICSTIV1	0.1%	76/m	3%	No
- 13:00:00	CICSTIV1	0.1%	111/m	4%	No
- 12:45:00	CICSTIV1	0.1%	116/m	5%	No
- 12:30:00	CICSTIV1	0.1%	111/m	6%	No
- 12:15:00	CICSTIV1	0.1%	116/m	7%	No

To see the detail for a given time interval:

b) Position the cursor next to a time interval and Press Enter

◇Recording Time	◇CICS Region Name
- 13:15:00	CICSTIV1
- 13:00:00	CICSTIV1

You are now looking at the CICS region information for the time period.

File Edit View Tools Navigate Help 09/09/2014 13:19:38
 Display : HISTORY
 CICSplex : TIVPLEX
 Region : CICSTIV1

Command ==> _____
 KCPRGNO CICS Region Overview (History)

CICS Region z/OS Address Space Data Sources

CICSTIV1 Overview

System ID.....	MVSE	CICS Region Name.....	CICSTIV1
Worst Region Service Class	CTRANS	Region's Worst Perf. Index	1887.43%
CPU Utilization.....	0.1%	CICS TOD Updated.....	Yes
Transaction Rate.....	76/m	Maximum Tasks Percent.....	3%
Queued Remote Requests...	0	SOS.....	No
Stg. Violations last hour.	0	AIDs.....	0
ICEs.....	9	CICS TOD Clock.....	13:15:24
Any Current WS Faults.....	No	Any Current WS Timeouts...	No
CICS Version.....	6.7.0		

As you may have noted in the earlier history example, you may shift the history interval by using the history tool bar at the bottom of the panel.



c) **Position the cursor** on the time interval tool bar and **press Enter**

Note how the history time frame shifts each time you press enter. By viewing the history you may be able to see variations in workload activity, and different high usage CICS tasks over time.

d) **Press F3** and then **Press F3** again to return to the KCPRGNS panel

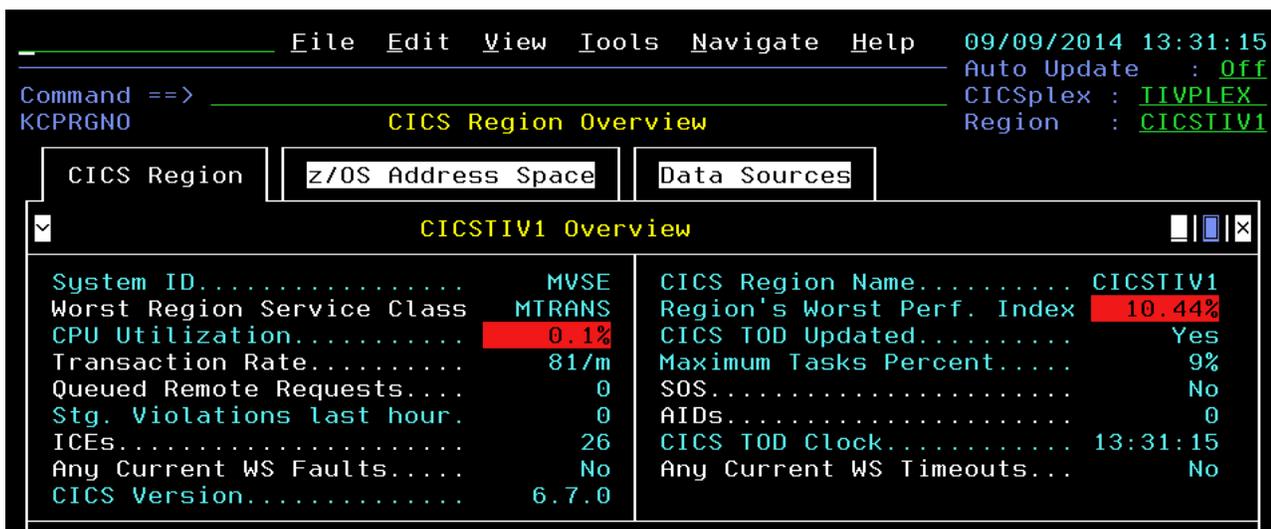
3.17 CICS Integration Through Embedded Data – New in V5.3

In this scenario you will see how OMEGAMON supports easy cross monitoring component navigation through a mechanism called embedded data. Embedded data allows the user to easily navigate from one monitoring component to another.

a) **Position the cursor** next to the CICS Region (select CICSTIV1) and **Press Enter**

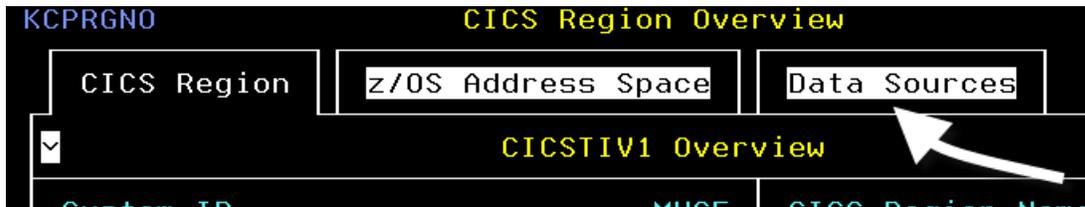


You are now looking at the KCPRGNO CICS region overview panel.

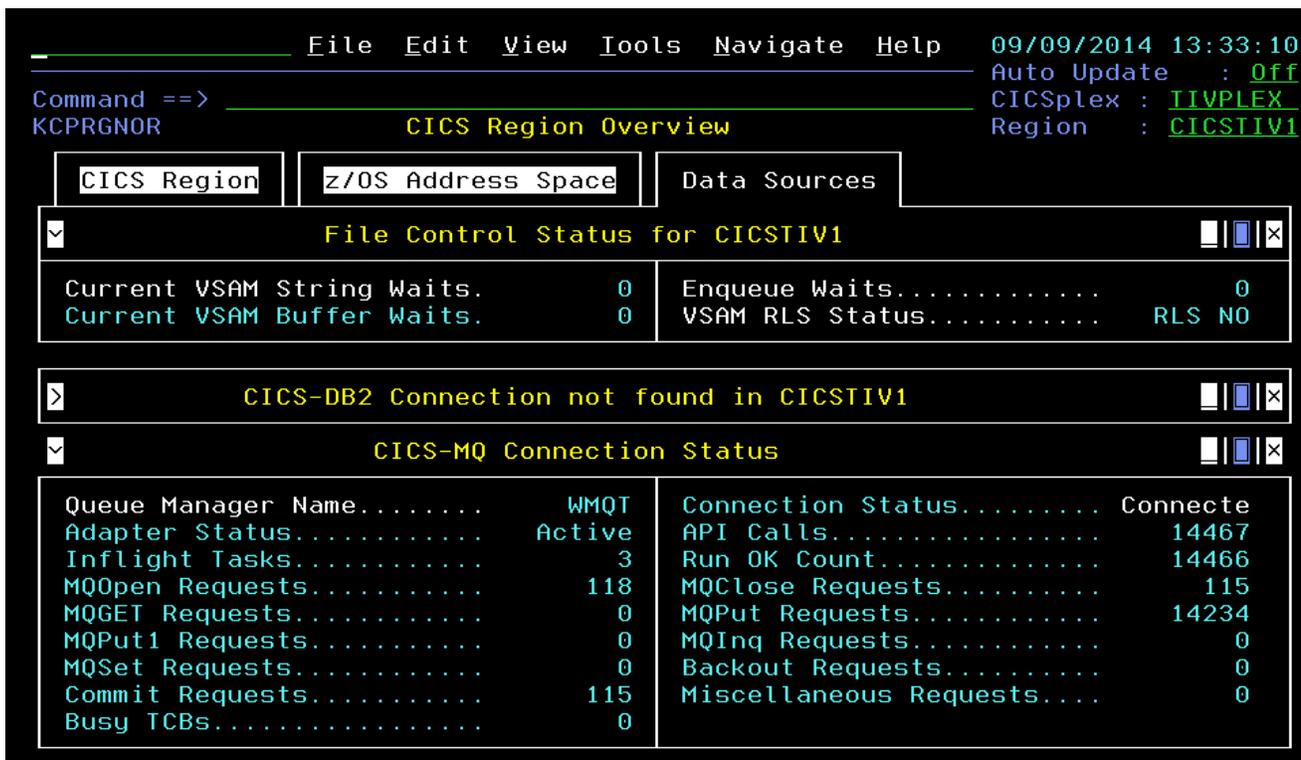


The KCPRGNO panel provides tabs for additional information on the CICS region.

b) Position the cursor on the “Data Sources” tab and Press Enter



You are now looking at the CICS region data sources panel. Note that in this example the CICS region is connected to MQ Series.



c) Position the cursor on the white “Queue Manager Name” and Press Enter



You are now looking at more information on the CICS to MQ messaging status.

```

File Edit View Tools Navigate Help 09/09/2014 13:36:07
Auto Update : Off
Command ==>
KCPMQMS CICS Messaging Summary CICSplex : TIVPLEX
Region : CICSTIV1
    
```

CICS Messaging Status		
Columns 1 to 3 of 3	← → ↑ ↓	Rows 1 to 1 of 1
Queue Manager Name	Connection Status	Adapter Status
WMQT	Connected	Active

```

CICS Messaging Statistics for WMQT in CICSTIV1
    
```

Busy TCBS.....	0	API Calls.....	14841
Inflight Tasks.....	3	Run OK Count.....	14840
MQOpen Requests.....	121	MQClose Requests.....	118
MQGET Requests.....	0	MQPut Requests.....	14602
MQPut1 Requests.....	0	MQInq Requests.....	0
MQSet Requests.....	0	Backout Requests.....	0
Commit Requests.....	118	Miscellaneous Requests...	0

```

Queue Manager Status for WMQT
    
```

QMgr Name.....	WMQT	Host Name.....	MVSE
QMgr Status.....	Running	Connection Count.....	33
Command Server Status.....	Waiting	Channel Initiator Status..	Running

There are additional drill downs from the KCPMQMS panel.

d) **Position the cursor** on the white “QMgr Name” and **Press Enter**

The screenshot shows the 'Queue Manager Status for WMQT' panel. A white arrow points to the 'QMgr Name' field in the first row of the table. The table contains the following data:

QMgr Name.....	WMQT	Host Name.....	MVSE
QMgr Status.....	Running	Connection Count.....	33
Command Server Status.....	Waiting	Channel Initiator Status..	Running

You are now looking at monitoring detail on the MQ Series Queue manager. Note that the panel name is KMQQMSTS. This indicates that the monitoring information is coming from OMEGAMON Messaging. From the here the user may do more detailed drill down analysis of MQ activity.

This scenario demonstrates how embedded data functions to expedite navigation within the enhanced 3270 user interface.

File Edit View Tools Navigate Help 09/09/2014 13:38:55
Auto Update : Off
HostName : MVSE
QmgrName : WMQT

Command ==> KMQQMSTS
Current Queue Manager Status

Status Parameters

Queue Manager Health

QMGR Name.....	WMQT	Host Name.....	MVSE
QMGR Health.....	Warning	Connection Count.....	33
QMGR Status.....	Running	Channel Initiator Status..	Running
Command Server Status....	Waiting	Current MQEvents.....	1

Queue Health

Queue Health.....	Critical	DLQ Depth.....	0
High Depth Queue Count....	1	Put Inhibited Queue Count.	1
Total XMIT Queue Messages.	6901	Get Inhibited Queue Count.	2
Total Messages.....	35250	Open Queue Count.....	19

Channel Health

Channel Health.....	Critical	Indoubt Connections.....	0
Current Not Running.....	1	Server Connections.....	0
Current Connections.....	1	% Max Channels.....	0.5
Active Connections.....	0	% Max Active Channels....	0.0

e) **Press F3** multiple times to return to the KCPRGNS panel

3.18 CICS Resource Analysis Scenario Using the FIND Command

One of the new commands added in OMEGAMON CICS V5.1 is the FIND command. With the FIND command you can have OMEGAMON CICS search across the CICSplex and locate CICS related resources defined across various CICS regions. The resources could include such things as transactions, programs, databases or other components.

This exercise assumes you are on the KCPRGNS panel.

a) **Position the cursor** on the Command line and **enter the FIND command** (for example – find tran STRS)

File Edit View Tools Navig

Command ==> find tran str
KCPRGNS CICSplex Regions Summary

You are now looking at a panel that shows every CICS region in the CICSplex where the specified transaction is found. From the panel you may do various drill downs for analysis, or issue commands.

```

File Edit View Tools Navigate Help 09/09/2014 13:47:57
Auto Update : Off
Command ==> CICSplex Transaction Summary CICSplex : IIVPLEX
KCPTRNP Region :

```

CICS Regions with Transaction STRS installed					
ΔCICS Region ▽Name	Transaction Status	Program Name	ΔUse ▽Count	ΔRestart ▽Count	ΔStorage ▽Violations
— CICSTIV1	Enabled	MICKSTRS	0	0	0
— CICSTIV2	Enabled	MICKSTRS	0	0	0
— CICSTIV3	Enabled	MICKSTRS	0	0	0

b) Position the cursor by a CICS Region Name, enter / and Press Enter

ΔCICS Region ▽Name	Transaction Status
/ CICSTIV1	Enabled
— CICSTIV2	Enabled

You will then see a popup with several navigation options.

```

Options Menu
Select an option and then press ENTER
— 1. ! Take Actions on Transaction
2. E - Enable Transaction
3. D - Disable Transaction
4. U - Set Transaction Purgeable
5. N - Set Transaction Notpurgeable
6. S Transaction Details
7. R Remote Transaction Details
8. 0 Program Details

```

You are now looking at transaction details for the select transaction.

c) Press F3 and then Press F3 again to return to the KCPRGNS panel.

d) To see what else you can use the FIND command for, position the cursor on the Command line and enter the FIND command (this time with no other parms)

```

File Edit Vi
Command ==> find
KCPRGNS CICSplex R

```

You are now looking at the FIND command popup. Notice that you can apply the FIND command to a variety of CICS resources, including programs, files, users along with transactions.

```

File Edit View Tools Navigate Help 09/09/2014 13:51:37
Auto Update : Off
Comma KCPRG KCPCMDSC Select Command
Select an action and enter a resource name, then press ENTER
1. FIND ACTIVE
2. FIND DBCTL
3. FIND DB2conn
4. FIND DDName
5. FIND DSName
6. FIND FILE
7. FIND MQconn
8. FIND PROGram
9. FIND RLS
10. FIND TRANsaction
11. FIND USERid
12. FIND VSAMfile
13. FIND WEBSservice

```

e) Press **F3** to return.

Congratulations. You have now completed the OMEGAMON CICS V5.3 lab exercise. Feel free to explore or to try other lab exercises.

Appendix A. Documentation Revision History

Date of Revision	Number	Completed by	Revision Log
9/9/2014	V6.0	Ed Woods	Combined Intro, z/OS, and CICS into one doc file. Updated for OM V5.3 content.
9/19/2014	V530	Lih Wang	Edits for Enterprise2014 conference Lab session.

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