

Use UCN Toolkit Displays

L53688

UCN

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Table of Contents

INTRODUCTION	1
Module Overview	1
UCN TOOLKIT DISPLAYS	3
UCN Selections on PERFMENU	3
UCNCOMM Display	7
UCNEVENT Display	9
UCNVERSN Display	11
IOMDATA Display	12
NIMTREND Display	13
UCNSUMM Display	15
NODESTA1 Display	17
NODESTA2 Display	19
SISF Display	21
Additional Toolkit Displays	22
LAB EXERCISES	23
Lab 1—Call Up Toolkit Displays	23
Lab 2—Interpret UCN Toolkit Displays	28
STUDENT PROFICIENCY EVALUATION	33

Figures and Tables

Figure 1	PERFMENU Overview	3
Figure 2	UCNCOMM Example	6
Figure 3	UCNEVENT Example.....	8
Figure 4	UCNVERSN Example	10
Figure 5	IOPMDATA Example.....	11
Figure 6	NIMTREND Example	12
Figure 7	NIMTREND Show Info Example	13
Figure 8	UCNSUMM Example.....	14
Figure 9	NODESTA1 Example	16
Figure 10	NODESTA2 Example	18
Figure 11	SISF Example	20
Figure 12	NODEPERF Example	21
Figure 13	Criterion Test Toolkit Displays.....	34
Table 1	UCN Selections on PERFMENU.....	4

Acronyms

APM.....	Advanced Process Manager
LCN.....	Local Control Network
LM.....	Logic Manager
PARSEC.....	Parameters per Second
PM.....	Process Manager
UCN.....	Universal Control Network

References

Publication Title	Publication Number	Binder Title	Binder Number
For R5xx :			
<i>HPM Service</i>	HP13-500	PM/APM/HPM Service-1	TPS 3061-1
<i>PM/APM Service</i>	AP13-500	PM/APM/HPM Service-1	TPS 3061-1
<i>Universal Control Network Guidelines</i>	UN20-500	Installation/Universal Control Network	TPS 3041
<i>HPM Implementation Guidelines</i>	HP12-500	Implementation/HPM-1	TPS 3066-1
<i>APM Implementation Guidelines</i>	AP12-500	Implementation/APM-1	TPS 3042-1
<i>PM Implementation Guidelines</i>	PM12-500	Implementation/PM-1	TPS 3040-1
For R4xx:			
<i>APM Service</i>	AP13-400	PM/APM Service	TPS 2061
<i>PM Service</i>	PM13-400	PM/APM Service	TPS 2061
<i>UCN Guidelines</i>	UN20-400	Installation/UCN	TPS 2041
<i>APM Implementation Guidelines</i>	AP12-400	Implementation/APM	TPS 2042-1
<i>PM Implementation Guidelines</i>	PM12-400	Implementation/PM	TPS 2040-1

Introduction

Module Overview

About this module

This course module discusses Toolkit displays, which can be used to baseline your UCN system. You can monitor and troubleshoot UCN performance problems by using Toolkit displays that are available on your system. Usually customers set up Toolkit displays on directories DIA1 and TLK1 and access them by entering a schematic name of PERFMENU.

Objectives

The objectives of this course module are to

- Interpret UCN-related information displayed in the Toolkit display
 - List ways displays are used to monitor performance.
-

Sample test items

This course module's Criterion Test includes the following items:

- List a good CPUFREE target value and which Toolkit display presents CPUFREE values.
 - Circle the information in the Figure 10 displays that represents
 - transactions,
 - parameters/second, and
 - requests/second, responses/second
 - transaction request trip times
 - transaction response trip times
-

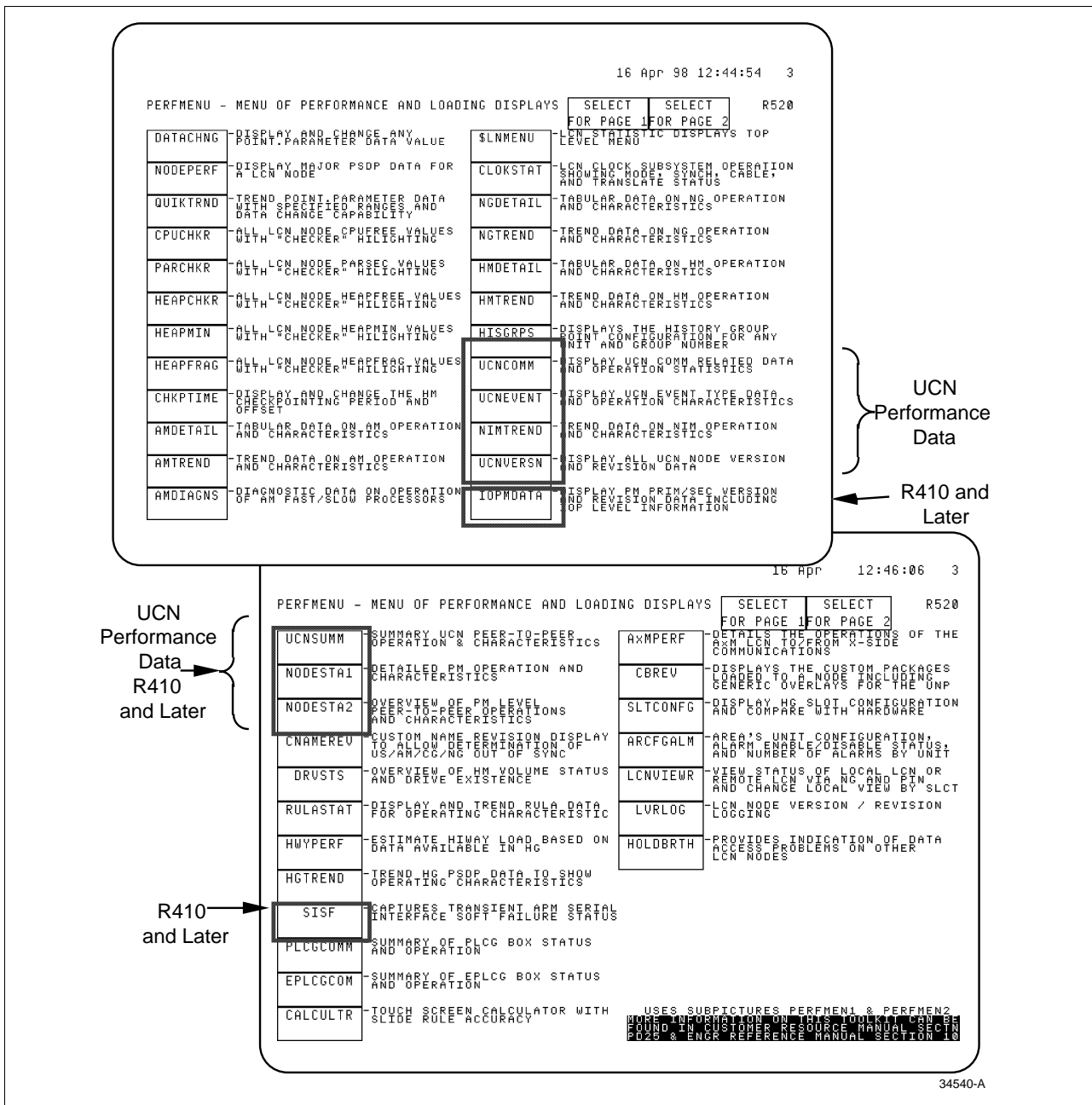
UCN Toolkit Displays

UCN Selections on PERFMENU

PERFMENU

The 2-page PERFMENU for the UCN Toolkit displays is shown in Figure 1. The selections for UCN-related data are highlighted.

Figure 1 PERFMENU Overview



UCN Selections on PERFMENU

UCN Toolkit displays

The UCN Toolkit displays provide the following data:

- Cable-handling statistics
 - Node-performance data
 - Peer-to-peer performance data
 - on a network level
 - on an individual node basis.
-

UCN selections

Table 1 summarizes the UCN selections appearing on the PERFMENU.

Table 1 UCN Selections on PERFMENU

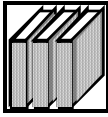
Selection	Description
UCNCOMM	Overviews UCN communication statistical data, particularly cable status.
UCNEVENT	Provides UCN event (alarms, status changes return to normal) data
NIMTREND	Provides trending of UCN-related parameter to isolate NIM problems
UCNVRSN	Provides UCN node version and revision data
IOPMDATA	Provides PM primary/secondary and IOP version and revision data
UCNSUMM	Summarizes UCN peer-to-peer performance across the UCN
NODESTA1	Details node performance, such as CPUFREE.
NODESTA2	Identifies node transaction/second and parameters/second data.
SISF	Captures transient APM SI communication link error message.

Some useful reminders

Several useful reminders follow that apply to most Toolkit displays:

- Look at how the whole system is used whenever you monitor any system's performance. For example, a peer-to-peer performance problem may be caused by unusually heavy LCN requests or problems with the UCN cable connections.
 - Use one Universal Station to call up the Toolkit displays to avoid placing unnecessary loads on the UCN. Some displays are parameter intensive.
 - Baseline your system before and after a major database change.
 - Correlate statistics between displays, looking for observable patterns.
 - Avoid quick judgments as you observe the data.
-

UCN Selections on PERFMENU, Continued



REFERENCE — For more information about parameters referenced in the Toolkit displays, you can refer at a later time to

- Section 6 in the PM, APM, or HPM *Implementation Guidelines* manual.
- Section 6 in the HPM or APM/PM *Service Manual*.

Toolkit Versions

The following table shows what version each toolkit display should show for each running release of software.

Tool Kit Display	Running version of system software						
	R400	R401	R410	R430	R431	R500	R510
PERFMENU	R400	R400	R411	R430	R431	R500	R510
NODEPERF	NONE	NONE	R410	R411	R411	R500	R500
DATACHNG	R232	R400	R411	R411	R411	R411	R411
QUIKTRND	R400	R400	R411	R411	R411	R411	R411
CPUCHKR	R400	R400	R410	R410	R410	R410	R410
HEAPCHKR	R400	R400	R411	R411	R411	R411	R411
HEAPMIN	R400	R400	R411	R411	R411	R411	R411
PARCHKR	R400	R400	R400	R400	R400	R400	R400
AMDETAIL	R400	R400	R410	R410	R410	R410	R410
AMTREND	R400	R400	R322	R420	R420	R500	R500
SLTCONFIG	R232	R232	R411	R420	R431	R431	R431
HEAPFRAG	R400	R400	R411	R411	R411	R411	R411
CHKPTIME	R300	R300	R411	R411	R411	R411	R411
CLOKMODE	R400	R400	R400				
CLOKSYNC	R400	R400	R400				
CLOKTRAN	R400	R400	R400				
CLOKCABL	R320	R320	R320				
UCNCOMM	R321	R321	R411	R411	R411	R500	R500
UCNEVENT	R321	R321	R411	R411	R411	R500	R500
NIMTREND	R322	R322	R322	R322	R322	R500	R500
NGDETAIL	R400	R400	R410	R410	R410	R500	R500
NGTREND	R400	R400	R410	R410	R410	R500	R500
HMDETAIL	R400	R400	R410	R410	R410	R500	R500
HMTREND	R400	R400	R410	R410	R410	R500	R500
HGTREND			R322	R322	R322	R500	R500

Tool Kit Display	Running version of system software						
	R400	R401	R410	R430	R431	R500	R510
UCNSUMM			R411	R411	R411	R411	R411
NODESTA1			R411	R411	R411	R411	R411
NODESTA2			R411	R411	R411	R411	R411
CNAMEREV			R411	R411	R411	R411	R411
DRVSTS			R411	R420	R420	R420	R510
CBREV			R410	R410	R410	R410	R410
IOPMDATA				R322	R322	R322	R322
RULASTAT				R411	R411	R411	R411
HWYPERF				R323	R323	R323	R323
SISF				R420	R420	R420	R420
UCNVERSN				R420	R420	R420	R420
PLCGCOMM				R430	R431	R430	R431
CALCULTR				R420	R431	R420	R431
ABOTCALC				R430	R431	R430	R431
CLOKSTAT				R430	R431	R430	R431
AXMPERF					R431	R500	R500
HISGRPS						R430	R430
AMDIAGNS							R510
ARCFGALM							R510

UCNCOMM Display

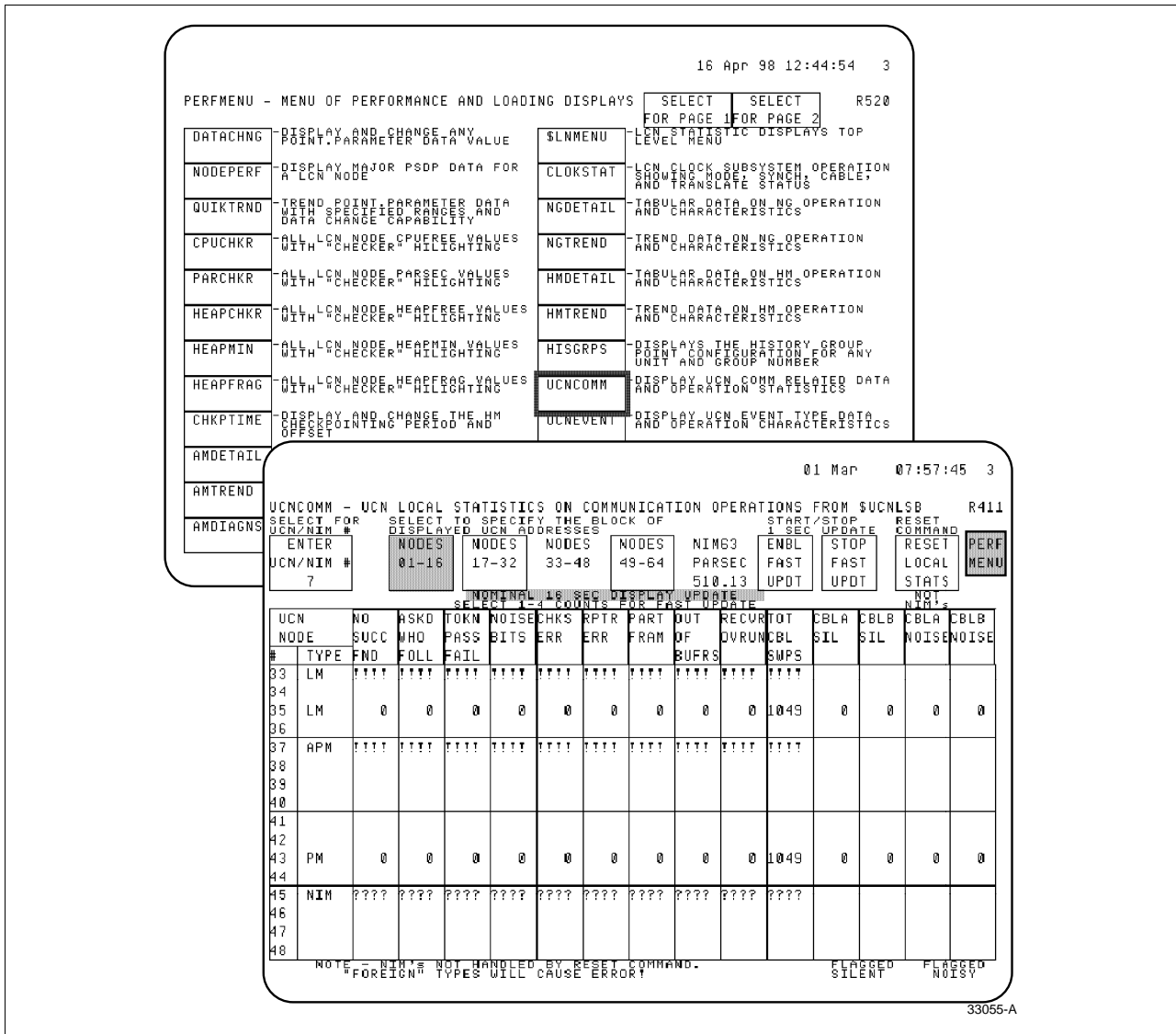
Description

The UCNCOMM display provides detail on the health of the UCN cabling and cabling components.

Example

Figure 2 is an example display of the UCNCOMM

Figure 2 UCNCOMM Example



UCNCOMM Display, Continued

Advantages

The advantages of using this display are that

- You can have a look at the network as a whole, instead of using the detail display for each node.
- You can reset the UCN Node Statistics for UCN nodes (except NIMs) from this display.

Tips

Several tips in using this display are

- Have a physical topology map of your network available so you can correlate statistics with physical cabling order.
- Look for statistical correlations. For example, cable silence on one node may be related to token pass failures in a predecessor node.
- Refer to the UCN Guidelines or HPM/APM/PM/LM/SM *Service manuals* which describe the statistics. (See Appendix A of course module L5687 (Interpret UCN Communication) for an excerpt.)
- Note that the display is primarily intended to identify cable health. For example, cable health problems can contribute to UCN overruns, refer to this display first to eliminate cable health as contributing to a UCN overrun problem.
- Have a baseline available for comparison.
- If substantial changes made (new hardware, additional configuration), take a new snapshot.

Troubleshooting technique

One troubleshooting technique for intermittent cable quality problems is to “shake” the suspect cable or cable component and observe whether any problems appear in this display.

UCNEVENT Display

Description

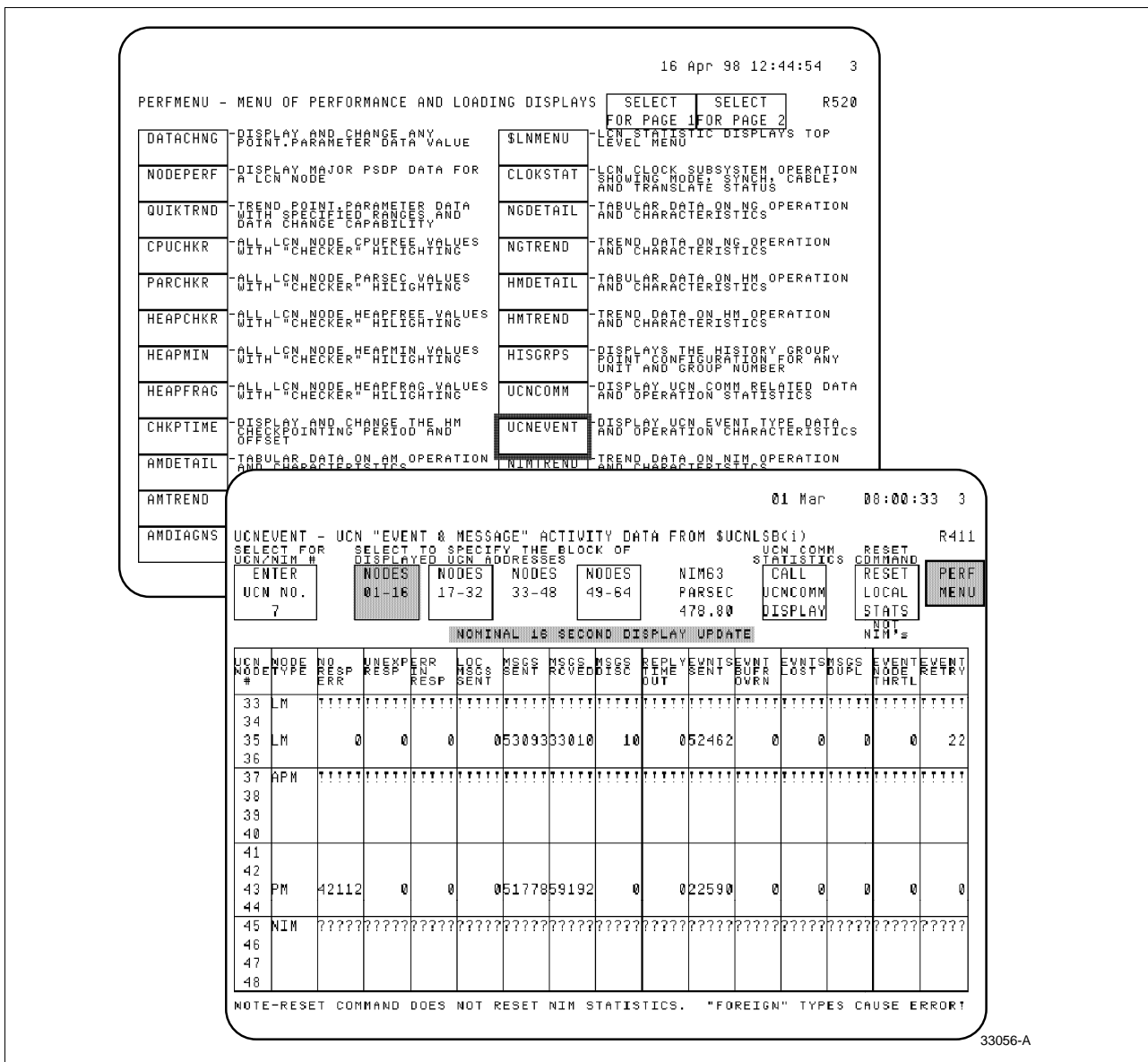
The UCNEVENT Display provides additional detail on events occurring on the UCN. Examples of events are

- process alarms,
- status changes (such as a node going from IDLE to processing),
- an alarm returns to normal, or
- event-initiated processing (a CL program is triggered).

Example

Figure 3 is an example display of the UCNEVENT

Figure 3 UCNEVENT Example



UCNEVENT Display, Continued

Advantages

The advantage of using this display is that

- You can have a look at the events on the network as a whole, instead of using the detail display for each node.
- You can reset the UCN Node Statistics for UCN nodes (except NIMs) from this display

Tips

Several tips in this using this display are

- Recall that NIMs are event receivers and PMs/APMs/LMs are event senders.
 - Look for statistical correlations between the event sender and event receivers.
 - Refer to the UCN Guidelines or APM/PM or HPM *Service manuals* that describe the statistics.
 - Note that the display is primarily intended to identify UCN events. Because event occurrence is sometimes sporadic, a copy of what your event data is during normal operations could be helpful here.
 - Message sent/message received activity is recorded in this display; the messages measure the amount of LCN and UCN requests (not events.)
 - Try the simplest possibilities first. For example, if you suspect a busy schematic, clear the US screen, one station at a time. Note that additional Toolkit displays, such as NIMTREND and others can be used; however, be sure to minimize the loading on the NIM by calling several Toolkit displays in more than one US.
-

UCNVERSN Display

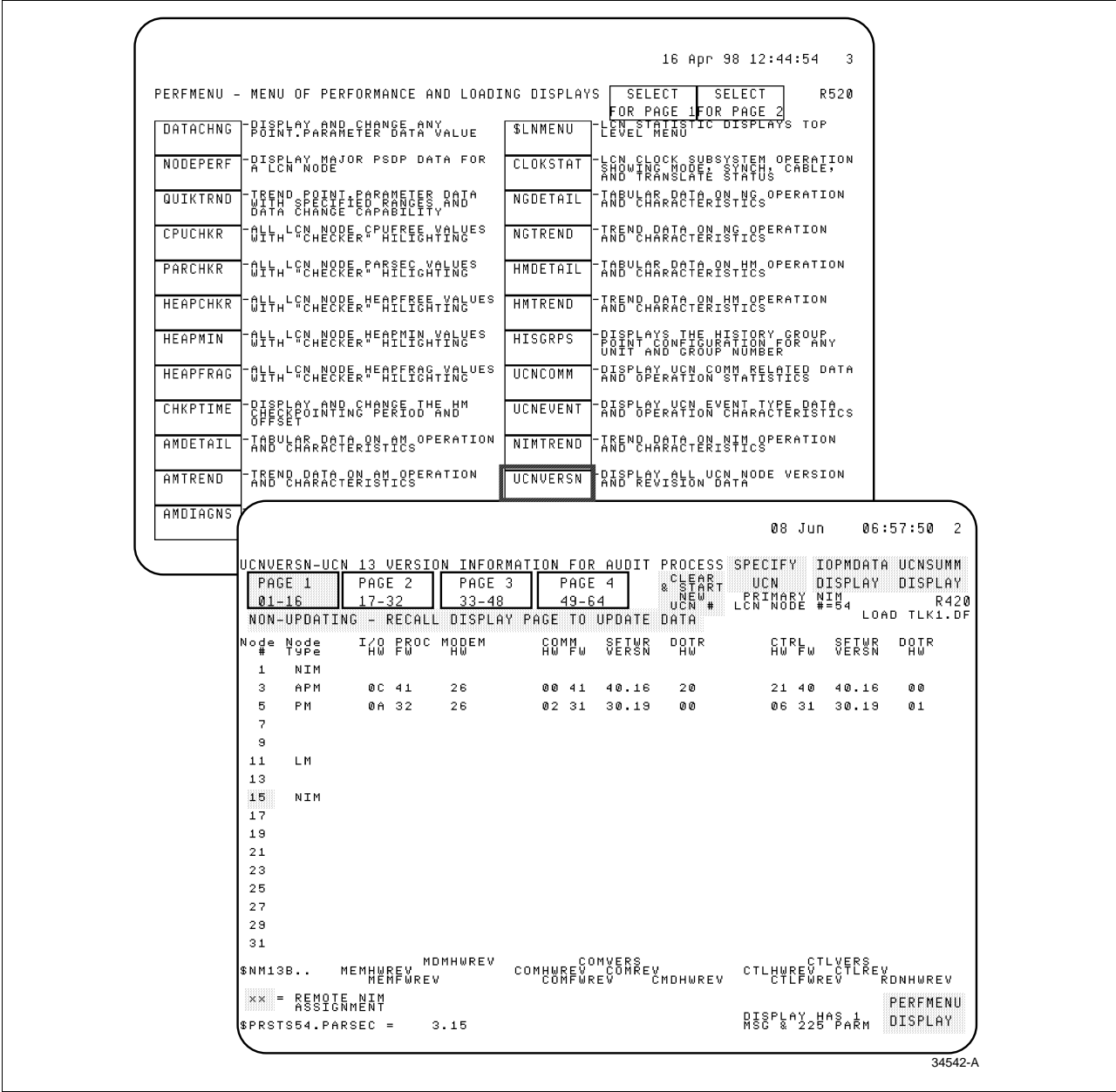
Description

The UCNVERSN display provides all UCN node versions and revisions data.

Example

Figure 4 is an example of the UCNVERSN display.

Figure 4 UCNVERSN Example



IOMDATA Display

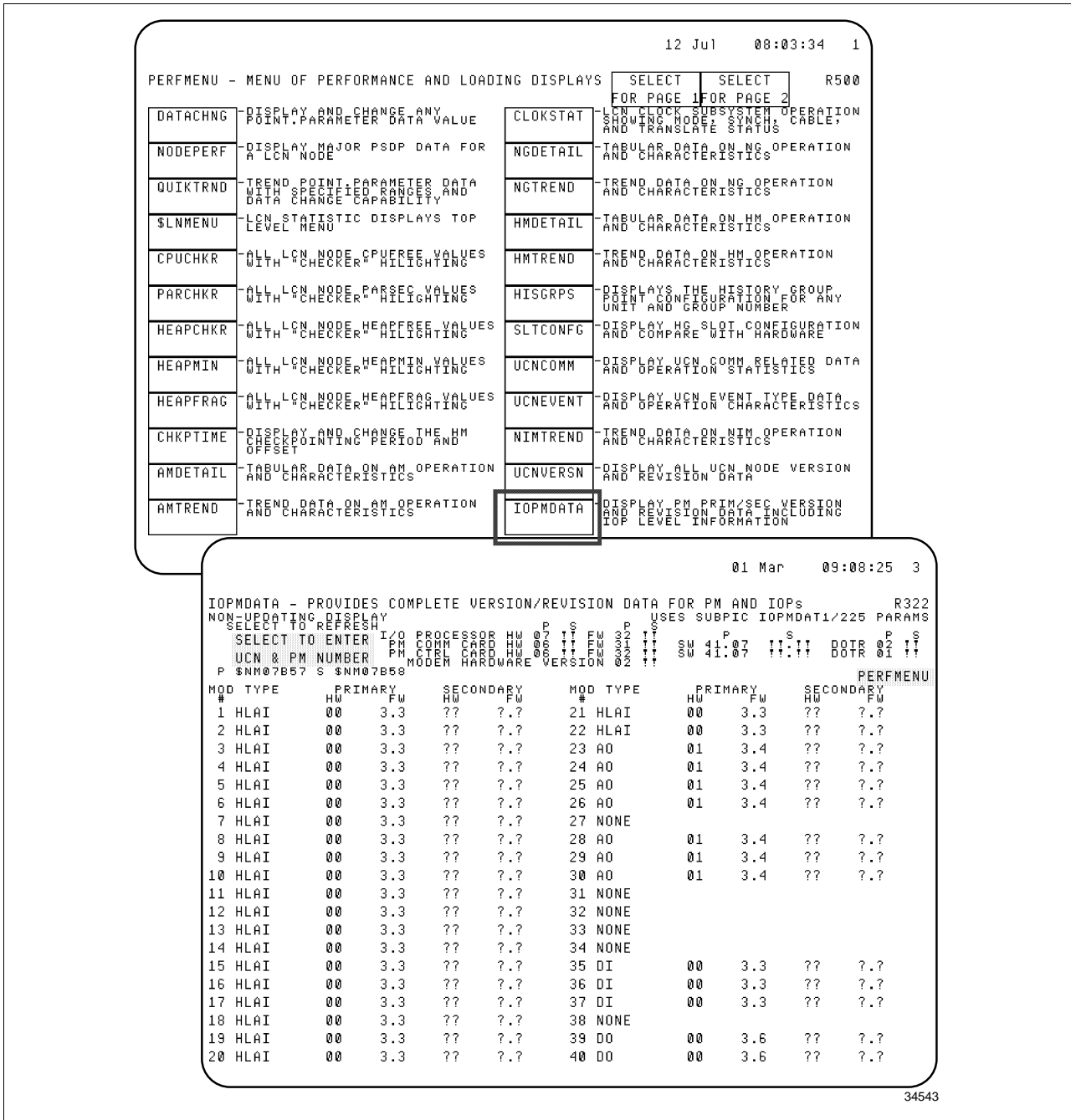
Description

The IOMDATA display provides the version and revision data for the PM/APM/HPM primary and secondary and the IOPs.

Example

Figure 5 is an example of the IOPMDATA display.

Figure 5 IOPMDATA Example



NIMTREND Display

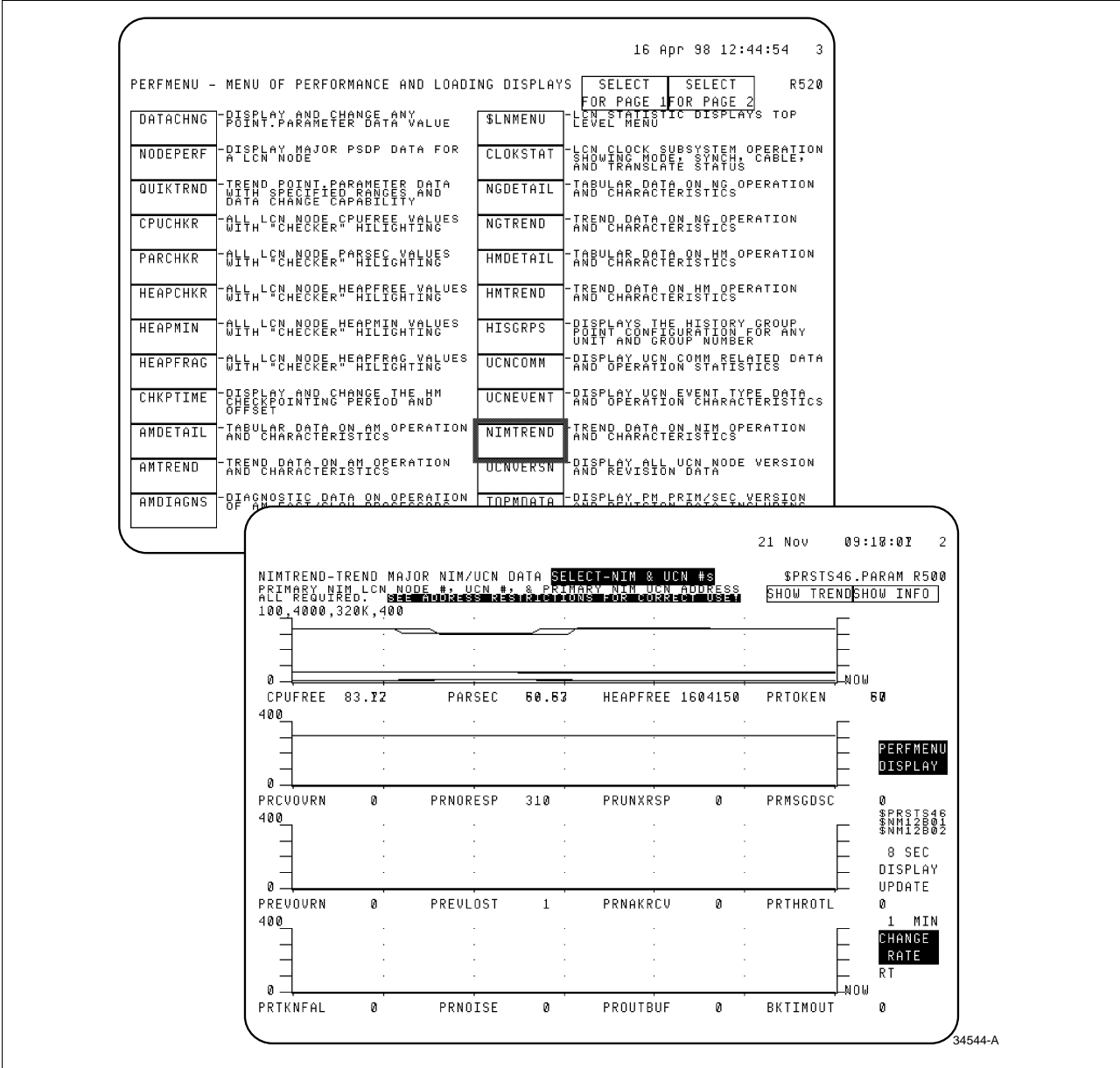
Description

The NIMTREND display provides a way to trend NIM parameters

Example

Figure 6 is an example display of the NIMTREND

Figure 6 NIMTREND Example



Uses

You could use this display to do the following:

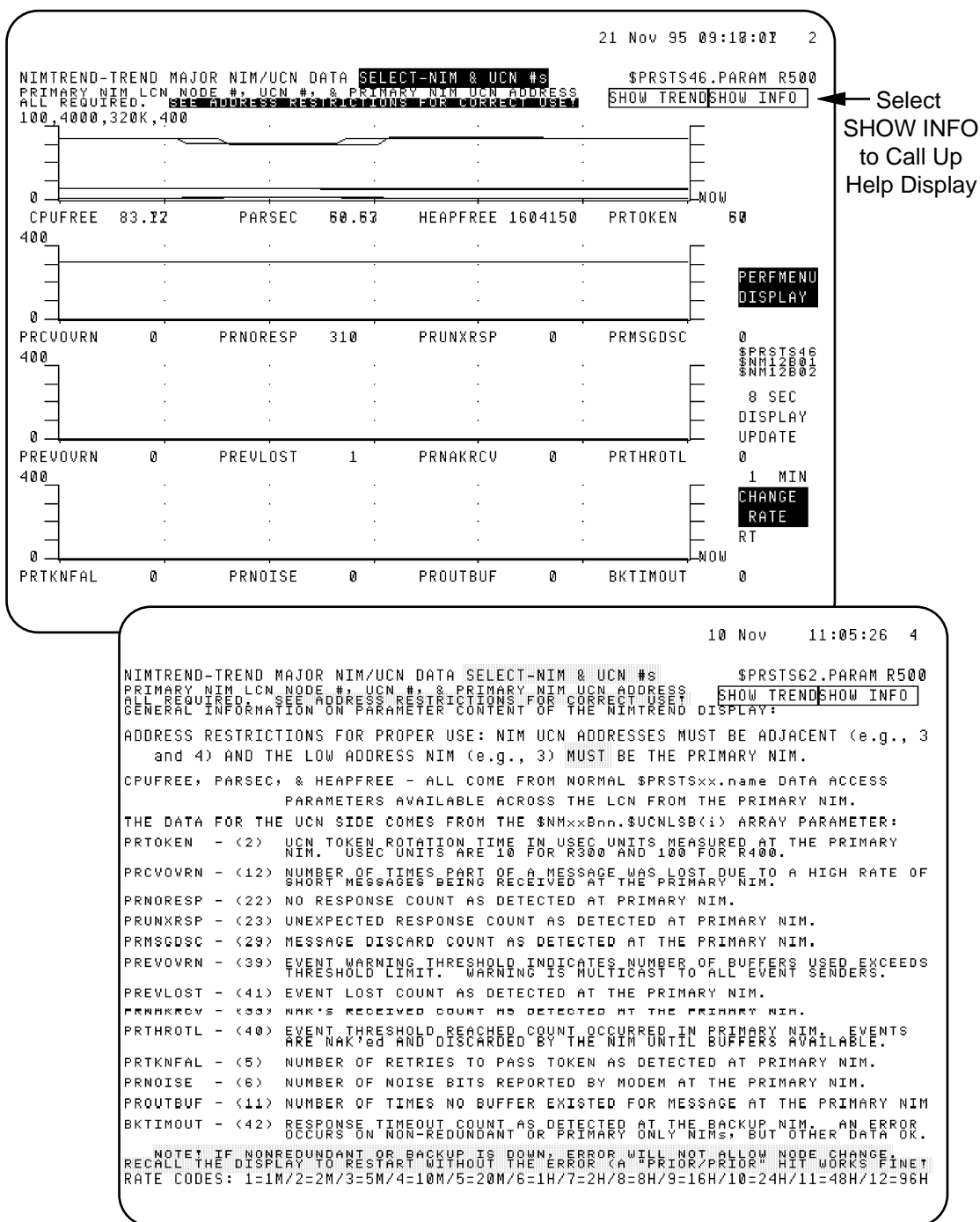
- Trend relevant parameters (refer to Figure 7) such as PARSECs
- Correlate this data with LCN loading factors you have estimated.

NIMTREND Display, Continued

Example

The NIMTREND Show Info display describes trend parameters.

Figure 7 NIMTREND Show Info Example



34545

UCNSUMM Display

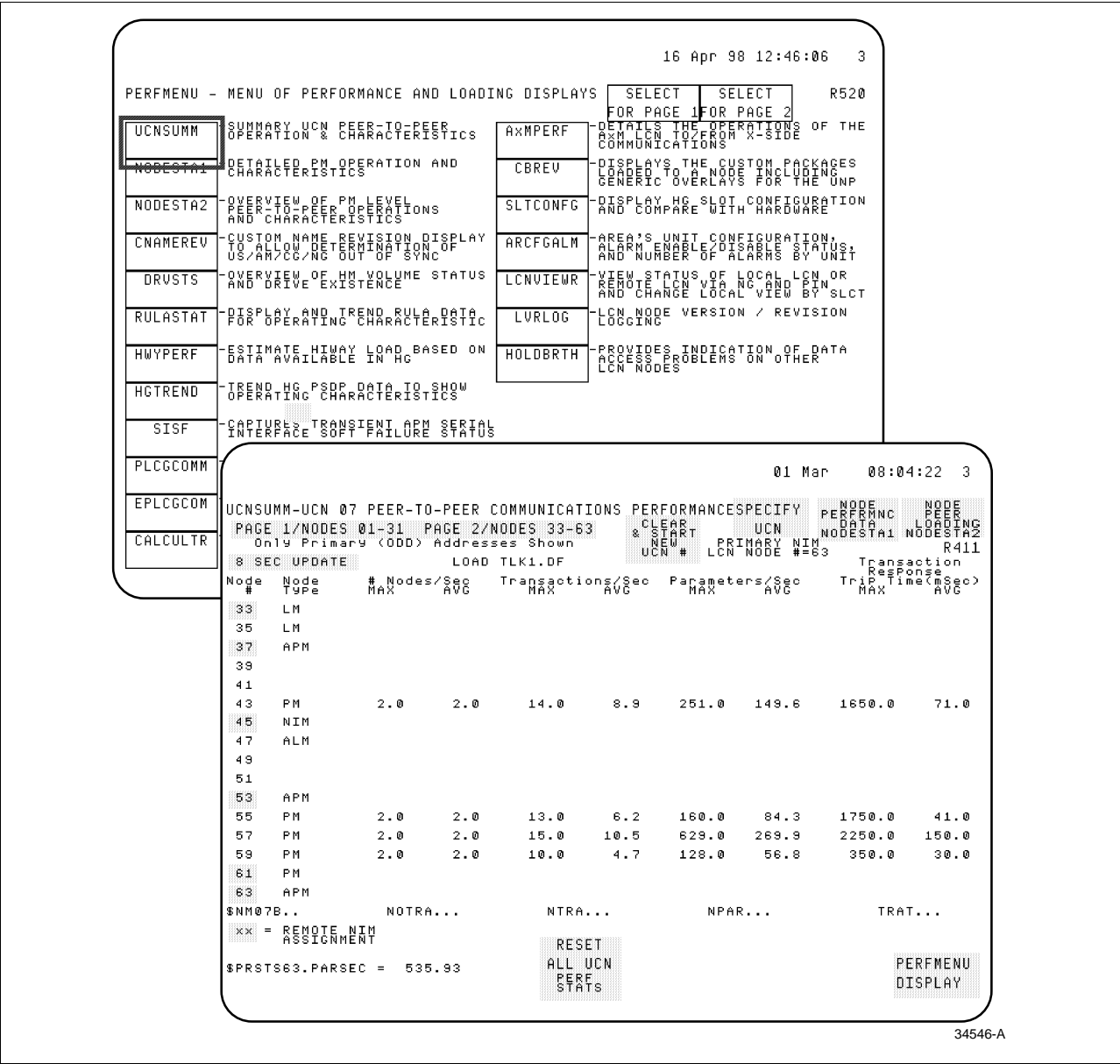
Description

The UCNSUMM display provides UCN peer-to-peer communications performance data. The advantage of using this display is that you can have a look at each node transaction/second, parameters/second, and transaction response trip times.

Example

Figure 8 is an example display of the UCNSUMM

Figure 8 UCNSUMM Example



UCNSUMM Display, Continued

Advantages

The advantages of using this display are that

- You do not have to calculate loading performance as in previous releases.
- You can have a look at the network as a whole, instead of using the detail display for each node.
- You can reset the UCN Node Statistics for all UCN nodes from this display.

Parameter definitions

Some definitions of parameters are as follows:

- **# Nodes/second**—This identifies the number of nodes conducting transactions with “this” node. A transaction consists of messages requesting data, and the response to that node requesting data.
- **Transaction/second**—This number identifies the number of transactions per second. While this data is closely related to #Nodes/second, the value is from a different perspective. For example, if we are pulling data from one node, its possible to see two transactions/second. The transaction limit is 50/second for APMs, PMs, and LMs; for HPMs, it is 100. Some users prefer to keep the number of transactions at approximately half the limit.
- **Parameters/seconds**—The maximum number of parameters/second for APMs, PMs, and LMs is 400; for HPMs, it is 1000.
- **Transaction response trip time**—The value represents the amount of time (in milliseconds) for a UCN node to respond to a request for data

Tips

Several tips in this using this display are

- Generally experience has shown that nodes tend to exceed the transaction/second times before they exceed parameters/second.
- Look for statistical correlations. For example, correlations between the transactions/second and transaction response trip times.
- Use additional displays (such as NODESTA1 and NODESTA2) for a closer look at transaction data.
- Note that the display is primarily intended to summarize transactions. Additional displays such as NODESTA1 and NODESTA2 provide the necessary detail
- Refer to the course material on managing UCN Communications and to the Implementation Guidelines manual for additional details on these parameters.

NODESTA1 Display

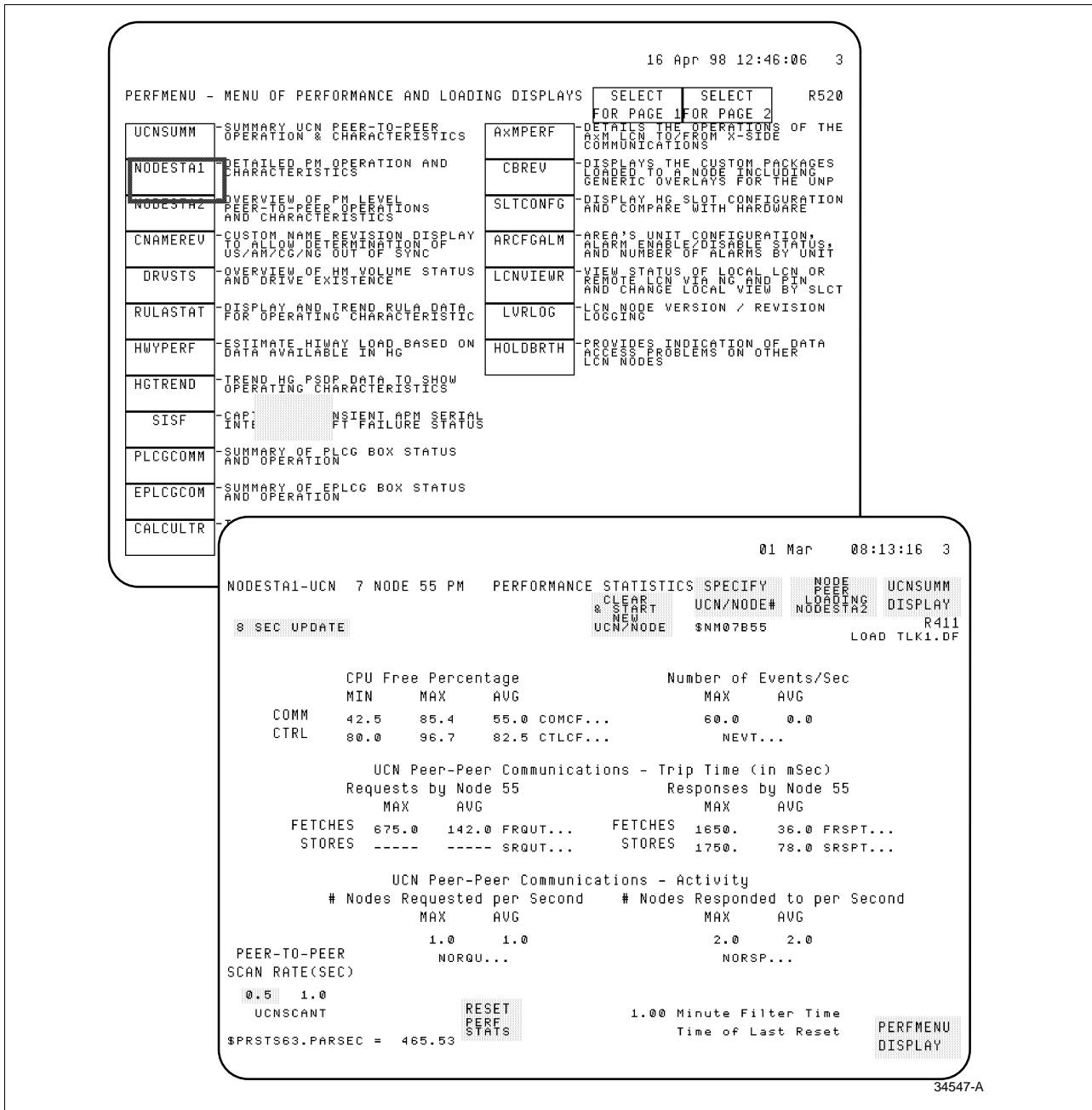
Description

The NODESTA1 display provides additional detail on the health of an individual node. For example, you can monitor a UCN node's CPUFREE value.

Example

Figure 9 is an example display of the NODESTA1

Figure 9 NODESTA1 Example



NODESTA1 Display, Continued

Advantages

The advantage of using this display is that

- You can monitor relevant peer performance parameters for a single node
 - You can reset the values (except CPUFREE) for a UCN node.
-

Parameter definitions

Some definitions of parameters are as follows:

- CPU Free Percentage—This identifies the amount of available CPU processing time.
 - Events/second—Recall that examples of events are process alarms, status changes.
 - Transaction response trip time—The value represents the amount of time (in milliseconds) it takes for a UCN node to respond to a request for data. Peer-to-peer communication and control are high priority tasks for UCN nodes, so high values on a regular basis could indicate problems with
 - how many nodes are requesting data from this node.
 - how many nodes are responding to data from this node.
-

Tips

Several tips in this using this display are

- Low CPU Free percentage is not necessarily caused by just peer-to-peer activity. You should also be aware that other system demands (for example, schematics) can place a load on CPUFREE.
 - You can monitor CPUFREE after making major configuration changes.
 - A target for CPUFREE is typically 20% or higher.
 - Normally events do not add to UCN loading, typically they may amount to two or three transactions/second. If you see high event activity and your process seems stable, the activity could be caused by chattering alarms that were disabled or inhibited. (Recall that disabled/inhibited alarms are reported from an HPM, APM, PM, or LM to the NIM.)
 - If parameters/second appears to be high, check CPUFREE. The CPUFREE percentage may indicate that the load is OK.
 - Refer to the course material on managing UCN Communications and to the *HPM, APM, or PM Implementation Guidelines* manual for additional details on these parameters.
-

NODESTA2 Display

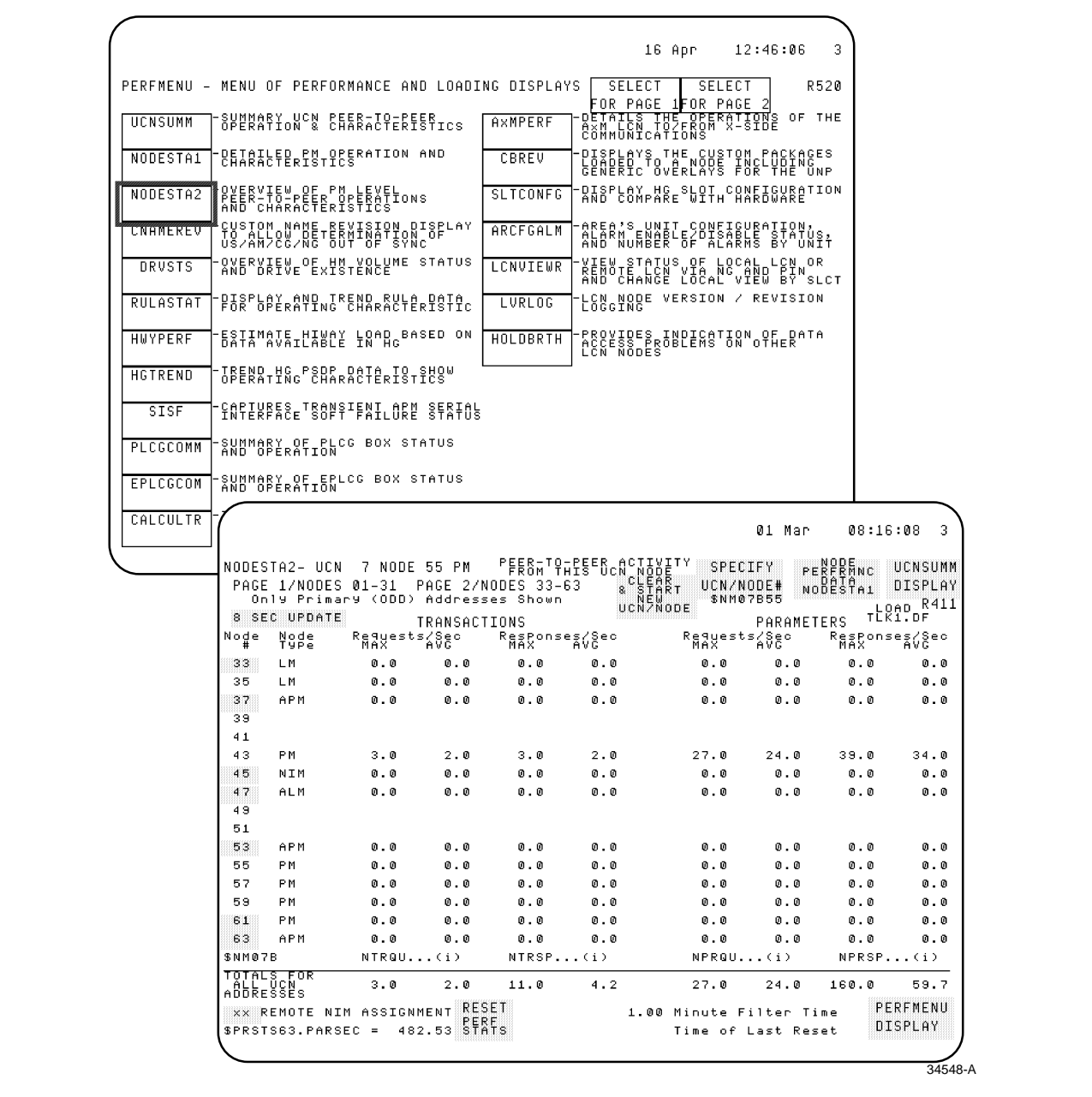
Description

The NODESTA2 display provides a node specific view of UCN communication loading.

Example

Figure 10 is an example of the NODESTA2 display.

Figure 10 NODESTA2 Example



NODESTA2 Display, Continued

Advantages

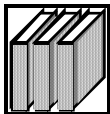
The advantage of using this display is that

- You can access the way “this” node views the network.
- You can reset the UCN peer-to-peer statistics for all UCN nodes from this display.

Tips

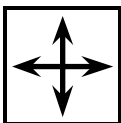
Several tips in this using this display are

- Generally, experience has shown that nodes tend to exceed the transaction/second times before they exceed parameters/second.
- Note that the display is primarily intended to summarize transactions.
- Refer to the course material on managing UCN Communications and to the *Implementation Guidelines manual* for additional details on these parameters.
- You can reset the statistics to get a more recent scan to observe over a period of time if maximum values improve.
- Each node line, for example APM node 5, can be selected to call up the NODESTA1 display for that node.
- When examining peer-to-peer between two nodes, a good practice is to call up both nodes’ NODESTA2 displays.
- When a node is called up, it reports 0 transactions against itself. For example, APM5 reports 0 against itself; the transactions APM5 are seen in the other nodes’ transaction columns.



REFERENCE—Read the following sections for more information about UCN performance parameters referenced in the UCNSUMM, NODESTA1, NODESTA2 displays.

- Section 6 in the *HPM, APM, or PM Implementation Guidelines manual*.
- Section 6 in the *HPM or APM/PM Service Manual*.



Your course manager may decide to review the training lab’s NODESTA2 display.

This display includes transactions resulting from peer-to-peer configurations you entered in a previous lab exercise.

SISF Display

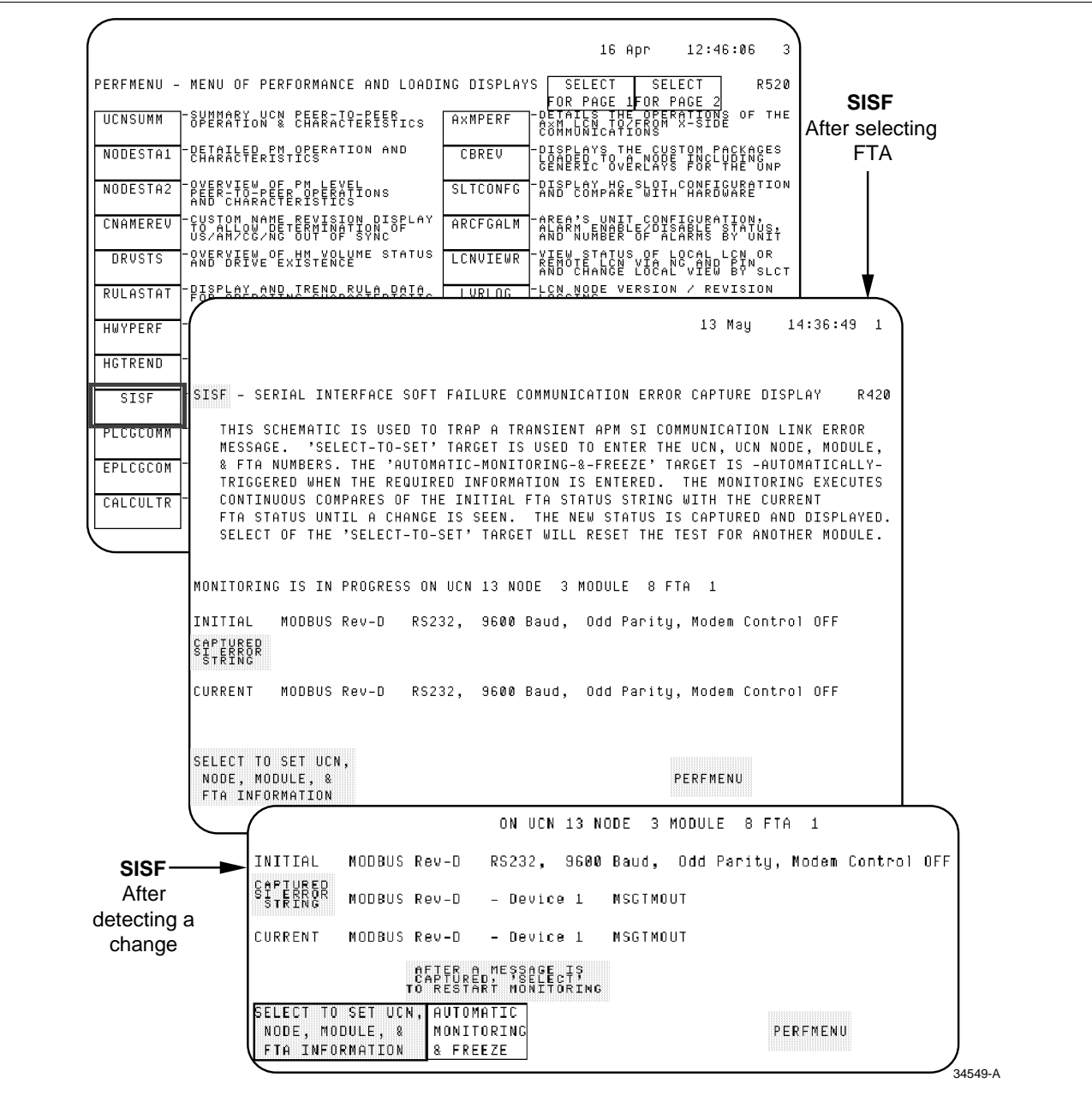
Description

The SISF display captures the transient errors on HPM/APM serial interface hardware.

Example

Figure 11 is an example display of the SISF display.

Figure 11 SISF Example



Additional Toolkit Displays

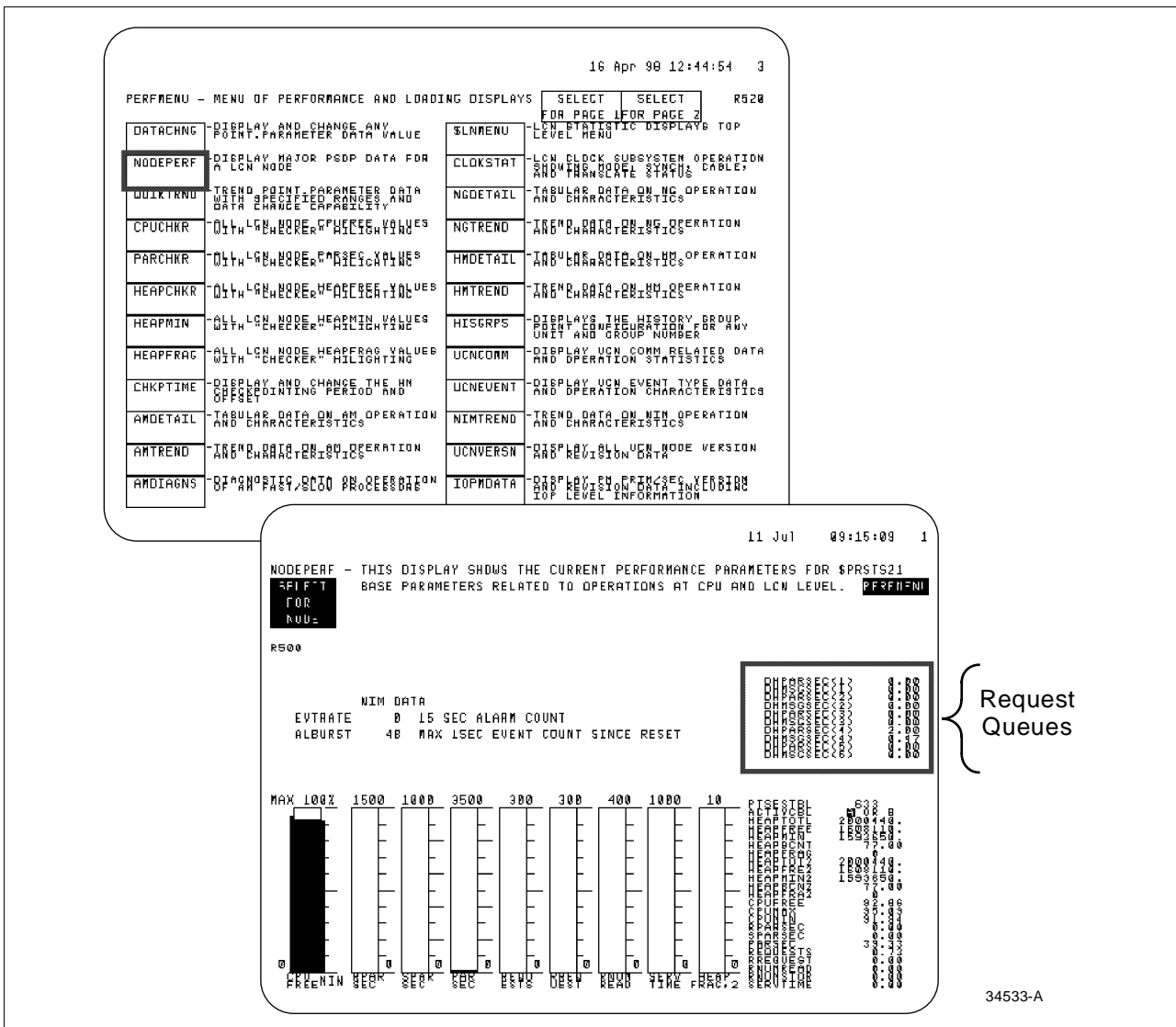
Description

Additional Toolkit displays provide detail about the LCN requests to the UCN. The advantage of using these displays is that you can have a look at how the LCN requests affect the UCN.

Example

Figure 12 is an example display of the NODEPERF display. The NODEPERF display is discussed in more detail in the course material called Interpret NIM Loading.

Figure 12 NODEPERF Example



Discussion

Your course manager may decide to conduct a discussion and review session on how other Toolkit displays are used to monitor the UCN. At the end of the discussion session, proceed to the lab exercise

Lab Exercises

Lab 1—Call Up Toolkit Displays

Lab overview

This lab exercise has you call up various Toolkit displays and locate performance information. These displays can be used to baseline your UCN system. The displays include

- UCNCOMM—Overviews UCN communication statistical data, particularly cable status.
- UCNEVENT—Provides UCN event (alarms, status changes return to normal) data
- NIMTREND—Provides trending of UCN-related parameter to isolate NIM problems
- UCNSUMM—Summarizes UCN peer-to-peer performance across the UCN
- NODESTA1—Details node performance, such as CPUFREE.
- NODESTA2—Identifies node transaction/second and parameters/second data.

Lab considerations

The lab exercise has the following considerations:

- Some Toolkit displays require R410 or later software.
 - Your course manager may decide to insert faults that overload the system to demonstrate its effect on statistics. Your course manager will tell you if that is to be done, and the effect you should see.
-

Call Up Toolkit Displays, Continued

Call up UCNCOMM

Call up the UCNCOMM display for your assigned network and become familiar with its layout.

Step	Action
1	From the PERFMENU, select the UCNCOMM target.
2	Select a UCN network assigned to you. Note that the display represents all the UCN nodes on the UCN network.
3	<p>While all the statistics are useful in this display, locate the following fields for the statistics that are most likely to be needed. Place a checkmark next to the statistic when you have located it.</p> <ul style="list-style-type: none">• <input type="checkbox"/> Cable A silence• <input type="checkbox"/> Cable B silence• <input type="checkbox"/> Cable A noise• <input type="checkbox"/> Cable B noise• <input type="checkbox"/> Total cable swaps• <input type="checkbox"/> Noise bits

Call Up Toolkit Displays, Continued

Call up UCNEVENT

Call up the UCNEVENT display for your assigned network and become familiar with its layout.

Step	Action
1	From the PERFMENU, select the UCNEVENT target.
2	Select a UCN network assigned to you. Note that the display represents all the UCN nodes on the UCN network.
3	While all the statistics are useful in this display, locate the following fields for the statistics that are most likely to be needed. Place a checkmark next to the statistic when you have located it. <ul style="list-style-type: none">• ____ Messages sent• ____ Messages received• ____ Events sent• ____ Event buffer overrun• ____ Event node throttle

Call up NIMTREND

Call up the NIMTREND display for your assigned network and become familiar with its layout.

Step	Action
1	From the PERFMENU, select the NIMTREND target.
2	Select a NIM from the UCN network assigned to you.
3	While several statistics can be trended in this display, note the following statistics: <ul style="list-style-type: none">• ____ CPUFREE• ____ PARSEC• ____ HEAPFREE <p>NOTE: If the node displayed is lightly loaded and the scale resolution is high, the HEAPFREE value may not appear on the NIMTREND display.</p>
4	Select the SHOW INFO target to call up the second page of the NIMTREND display.
5	Note the format for additional UCN parameters.

Call Up Toolkit Displays, Continued

Call up UCNSUMM

Call up the UCNSUMM display for your assigned network and become familiar with its layout.

Step	Action
1	From the PERFMENU, select the UCNSUMM target.
2	Select a UCN network and UCN node assigned to you. Note that the display represents the communication this UCN node has with all the other UCN nodes.
3	Locate the following fields and place a checkmark next to the parameter when you have located it. <ul style="list-style-type: none">• ____ Number of nodes accessed per second• ____ Transactions per second• ____ Parameters per second• ____ Trip times

Call up NODESTA1

Call up the NODESTA1 display for your assigned network and become familiar with its layout.

Step	Action
1	From the PERFMENU, select the NODESTA1 target.
2	Select a UCN network assigned to you. Note that the display represents all the UCN nodes on the UCN network.
3	While all the statistics are useful in this display, locate the following fields for the statistics that are most likely to be needed. Place a checkmark next to the statistic when you have located it. <ul style="list-style-type: none">• ____ CPUMIN/CPUMAX for the communication processor• ____ CPUMIN/CPUMAX for the control processor

Call Up Toolkit Displays, Continued

Call up NODESTA2

Call up the NODESTA2 display for your assigned network and become familiar with its layout.

Step	Action
1	From the PERFMENU, select the NODESTA2 target.
2	Select a UCN node assigned to you. Note that the display represents the peer-to-peer activity with other UCN nodes on the UCN network.
3	Place a checkmark next to the statistic when you have located it. <ul style="list-style-type: none">• ____ Transactions to another peer node• ____ Parameter requests to another peer node• ____ Time statistics were last reset• ____ Filter time on statistics
4	Call up another NODESTA2 display for a UCN node on your network. Observe how it displays its transaction amount in relation to the node you displayed in step 3.

Additional displays

Additional Toolkit displays are also useful, they can also be examined if you want to. A useful display to review is NODEPERF.

Step	Action
1	From the PERFMENU, select the NODEPERF target.
2	Select NIM assigned to you.
3	While all the statistics are useful in this display, locate the following fields for the statistics that are most likely to be needed. Place a checkmark next to the statistic when you have located it. <ul style="list-style-type: none">• ____ CPUFREE• ____ PARSEC• ____ DHPARSEC• ____ DHMSGSEC

This is the end of the lab exercise, if you have any questions about what you have seen, ask your course manager for assistance.

Lab 2—Interpret UCN Toolkit Displays

Lab overview

The following lab has you interpret Toolkit display changes caused by conditions that stress the UCN system.

Lab constraints

The following lab exercise should be performed on an off-line system only, because the scan interval is changed from 0.5 second to 1 second. R410 or later is required. The lab should be performed as a group exercise.

Lab procedure

Call up the UCN Toolkit displays and interpret the conditions. Lab results may vary, depending on the number of stations and amount of peer-to-peer configured.

Step	Action
1	<p>Call up NODESTA2. List the following for your assigned UCN node:</p> <ul style="list-style-type: none">Transactions requests/second:_____ <p>Explain how the transaction amount shown corresponds to the number of peer-to-peer inputs scanned and output stores configured in your database. For example, if you see three transactions, you should be able to explain how many transactions are the result of input scans (pulls) and how many transactions are the result of output stores (pushes).</p> <hr/> <ul style="list-style-type: none">Parameters request/second:_____ <p>Explain how the parameter amount shown corresponds to the number of peer-to-peer inputs scanned and output stores configured in your database. For example, if you see nine parameters, you should be able to explain how many are the result of input scans (pulls) and how many are the result of output stores (pushes).</p> <hr/> <p>(If necessary, refer to the node schedule, Control Configuration display #scan items, and Find Names to determine the number of peer connections.)</p>

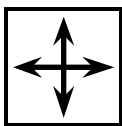
Lab 2—Interpret UCN Toolkit Displays, Continued

2	<p>Inactivate your logic slot point SETNK###.</p> <p>Note: All lab partitions should have their logic slot points inactivated.</p>
3	<p>Observe the effects in NODESTA2</p> <ul style="list-style-type: none"> • Transactions requests/second:_____ <p>Explain how the transaction amount shown corresponds to the number of peer-to-peer inputs scanned configured in your database.</p> <p>_____</p> <ul style="list-style-type: none"> • Parameters request/second:_____ <p>Explain how the parameter amount shown corresponds to the number of peer-to-peer inputs scanned configured in your database.</p> <p>_____</p>
4	<p>Change the node scan cycle time from 1/2 second to 1 second.</p> <p>Note: Only one group needs to do this; please make sure everyone in the lab is at this step. All partitions should keep their logic slot points inactivated. Also, reset the statistics to get a “fresh” scan.</p>
5	<p>Observe the effects in NODESTA2</p> <ul style="list-style-type: none"> • Transactions requests/second:_____ <p>Explain how the transaction amount shown corresponds to the number of peer-to-peer inputs scanned.</p> <p>_____</p> <ul style="list-style-type: none"> • Parameters request/second:_____ <p>Explain how the parameter amount shown corresponds to the number of peer-to-peer inputs scanned.</p> <p>_____</p> <p>Return all logic slots to active after everyone in the lab has reached this step.</p>

Lab 2—Interpret UCN Toolkit Displays, Continued

6	Call up the NODEPERF display for the NIM at one or more USs.
7	Start the UCN Exerciser from one Universal Station.
8	Observe the effects of the UCN Exerciser on the NODEPERF display for the NIM. Note the effects on the CPUFREE of the NIM.
9	Experiment with various selections in the UCN Exerciser to see its effect on the NIM statistics.
10	Call up an I/O link Diagnostic display at one US. Observe its effect on: <ul style="list-style-type: none">• NODEPERF message queues_____• NODESTA1 CPUFREE values_____• Note whether any trip times increase_____

Directions



DIRECTIONS—This is the end of the study material for this module. Discuss questions concerning the study material or the lab activities with a colleague or a course manager

If you are satisfied that you have achieved the objectives of this module, continue with the next section, the Student Proficiency Evaluation.

Student Proficiency Evaluation

Criterion Test

**What you are
expected to know**

- List a good CPUFREE target value, and which Toolkit display presents CPUFREE values.

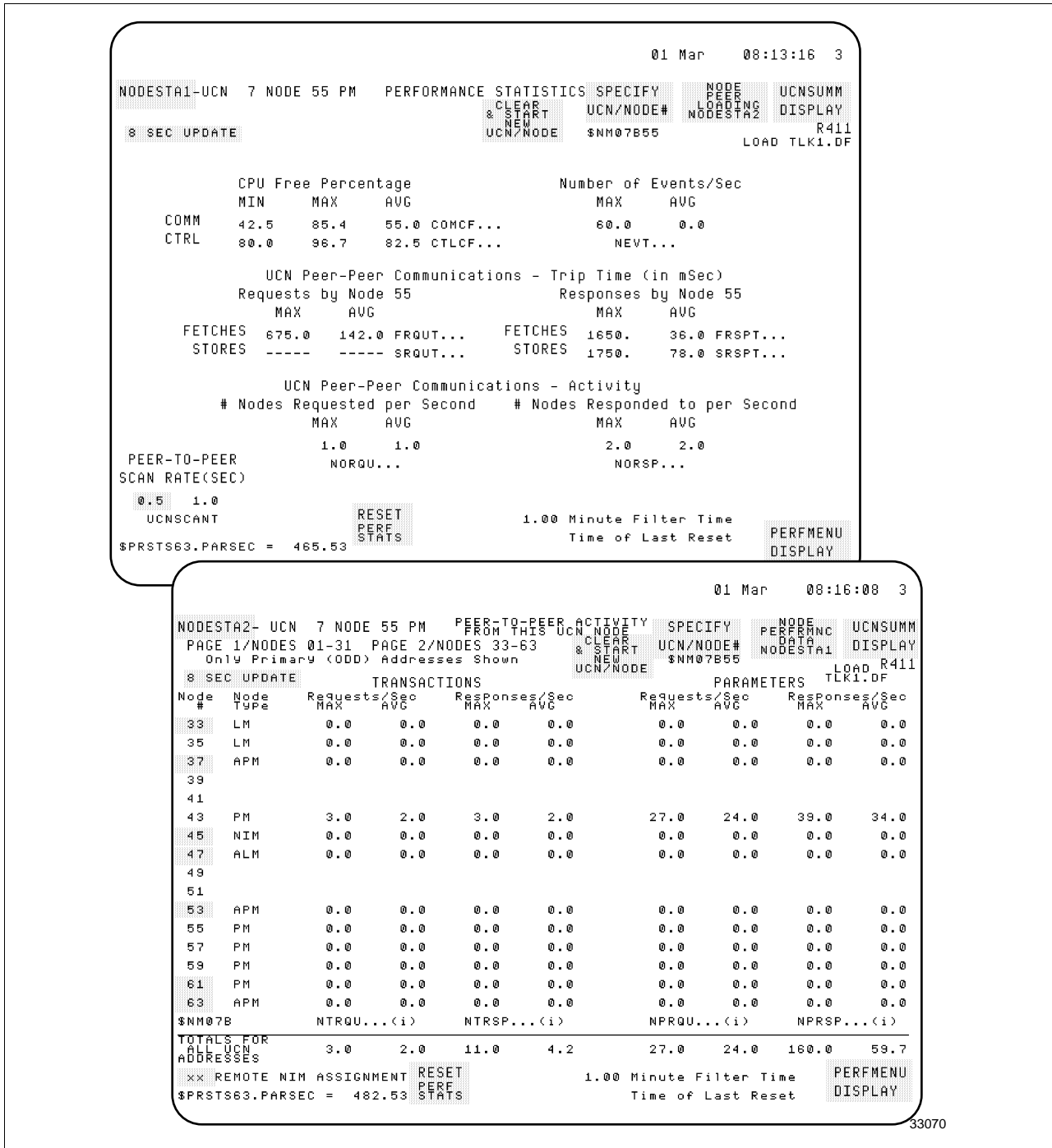
-
- Circle the information in the Figure 13 displays that represents
 - transactions,
 - parameters/second, and
 - requests/second, responses/second
 - transaction request trip times
 - transaction response trip times
-

Which of the following is *not* a good system monitoring technique?

- Look at how the whole system is used when you monitor performance.
 - Use one Universal Station to call up the displays to avoid placing unnecessary loads on the UCN.
 - Baseline your system before and after a major database change.
 - Correlate statistics between displays, looking for observable patterns.
 - Make quick judgments as you observe the displayed data.
-

Criterion Test, Continued

Figure 13 Criterion Test Toolkit Displays

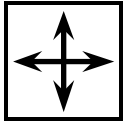


Self-Evaluation

Self check

Your course managers will review the results of the criterion test in a class discussion. You can refer to the course material on NODESTA1 and NODESTA2 to check your answers.

Directions



DIRECTIONS—This is the end of this module.

Use your course map to

- Get your course manager to sign off this module.
- Choose your next eligible module.

If you have a question

- Ask your course manager.
-

LAST PAGE