

LG Key System Software Technical Information

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Title	LDK-300 and LDK-100 Monitor/Maintenance
System	LDK-300/LDK-100
Abstract	

Revision History

Revision	By	History
1.0	J. Kwon	2001. 09. 21
1.1	J. Kwon	2001. 11. 06 – System access procedure added.
1.2	H. Lim	2002. 04. 23 – LDK-100 Added
1.3	Cho.W.S	2005. 06. 16 – Enhanced Trace Added
1.4	SJ Ryu	2005. 12. 14 – Enhanced Trace Guide Added
1.5	Cho.W.S	2007. 02. 28 – Comments Added
1.6	Babmuse	2007. 08. 31 – Comments Added.

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1. System access procedure

1.1 Serial Connection

- Be sure PC application port is not assigned to serial port that you want to connect.
- For trace, program print port to the proper serial port(PGM 175 - BTN 7).
- Connect using hyper terminal or other terminal program.

1.2 LAN Connection

- Be sure PC application port is not assigned to telnet.
- Program IP address and Gateway of the system(PGM 108 – BTN 2, BTN 4).
- Reset the system with DIP Switch 8 at OFF position.
- For trace, program print port to telnet(PGM 175 - BTN 7).
- Connect via telnet.

1.3 Modem Connection

- Be sure PC application port is not assigned to COM3-MODU.
- For trace, program print port to COM3-MODU(PGM 175 - BTN 7).
- Connect via modem.

2. System monitoring commands

Password : jennie

mon> [t|d|m|s|c|p|?|x] [option|parameters]

2.1 DIP Switch setting and meaning

DIP switch/LED	Setting and Meaning
DIP3	Trace Control : ✓ ON-trace off ✓ OFF-trace on
DIP8	Database initialize: ✓ ON - initialize memory ✓ OFF-save database

2.2 Trace Commands

Monitoring Type	Command	Meaning
Board Trace (Max 6)	mon> t d ↵	Delete all current trace commands and revert to idle condition.
	mon> t b xx n ↵	Set trace for board in slot xx ,where 1 ≤ y ≤ 29 for LDK-300. (28 is CPTU, and 29 is DTRU) ,where 1 ≤ y ≤ 14 for LDK-100. (13 is CPTU, and 14 is DTRU) Option 'n' is graphical CO simple trace mode (Enhanced Trace). Option 'n' support the PRIB, VOIB, DCOB & LCO Type Boards. If PRI or VOI board was set, you can see the net msgs and information elements: IP info, Calling num, Called num and etc... Also in DCO or LCO board case, you can see the Calling num, Called num, and some of circuit commands related communications with outside system.
		e.g1) For setting trace for board in slot 7; mon>t b 07 e.g2) enhanced trace for board in slot 8; mon>t b 07 n

<p>Device Trace (Max 15)</p>	<p>mon> t ceht sxxx ↵</p>	<p>At the sxxx, xxx should be physical station number. (i.e. port number of station)</p> <p>Command options :</p> <p>c : device command tracing. (MP → PP)</p> <p>e : event tracing. (PP, Internal, Timer Event)</p> <p>h : highway tracing.</p> <p>t : CTI device command / event tracing.</p> <p><i>(Multi-options can be used; ceh, c, eh, chi .etc.)</i></p> <p>Example</p> <p>If you want to trace the Station 102, you should enter the physical station number as following;</p> <p>mon>t ceh s003</p> <p>Even if the station number was changed from 102 to 702, the physical station number is not changed;</p> <p>mon>t ceh s003</p>
	<p>mon> t cehtn cxxx ↵</p>	<p>Tracing related to CO xxx.</p> <p>Command options :</p> <p>n: Enhanced Tracing(Graphical Mode)</p> <p>(This side option 'n' is detailed enhanced trace mode. If you set the option 'n' at the particular CO in PRI or VOI boards, you may see all of network information elements.)</p> <p>Example</p> <p>For setting the command/event/hiway trace for CO line 07;</p> <p>mon>t ceh c007</p> <p>For the command/event graphical trace for CO line 08;</p> <p>mon>t cen c008</p>
	<p>mon> t c sxxx a ↵</p>	<p>Include LED / LCD data.</p>
	<p>mon> t nct</p>	<p>(Network Command Trace)</p> <p>Only printed network text message.</p>

* Enhanced Trace Option 'n' must need the DRAM. And It is executed over IP-LDK V3.5

2.3 Other Commands

Monitoring Type	Command	Meaning
Dump Memory	mon> d xxxxxx yyyyyy↵	Dump memory between address xxxxxx and yyyyyy. (xxxxxx and yyyyyy : memory address in hexadecimal.)
Modify Memory Content	mon> m xxxxxx bb↵	Modify memory of address xxxxxx to bb. (xxxxxx: memory address in hexadecimal, bb: byte value in hexadecimal)
Show STA Status	mon> s xxx ↵	Show STA xxx status , where $1 \leq y \leq 300$ for LDK-300. , where $1 \leq y \leq 96$ for LDK-100.
		e.g., For showing status of station 100 mon> s 001
Show CO Status	mon> c xxx ↵	Show CO xxx status , where $1 \leq x \leq 200$ for LDK-300. , where $1 \leq x \leq 40$ for LDK-100.
		e.g., For showing status of CO number 7 mon> c 007
Print Channel Assign	mon> p [v s]↵	This command views and sets print channel. Command options are: v: View print channel s: Set print channel
Help Menu	mon> ? ↵	This command shows the available commands and their description.
Exit	mon> x ↵	Exit monitor.

3. System Diagnostic/Maintenance commands

Password : brandy

3.1 Maintenance Commands

	Commands	Meaning
Maintenance Commands	maint> bc	Shows board configuration table.
	maint> bl xxx yyy {r t}	<p>Listens B-channel of specified time-slot.</p> <p>Example</p> <p>To listen to rx channel of time-slot 2 at station 100(port 1):</p> <p style="padding-left: 40px;">maint> bl 1 2 r</p> <p>Press any key to finish or after finished.</p>
	maint> bs [xx]↵	Shows board status. xx is slot number, 00 for MPB.
	maint> hd	Shows HDLC status.
	maint> reboot	This commands reboots the system. It needs admin password, and if it is not specified, '147*' is used temporarily.

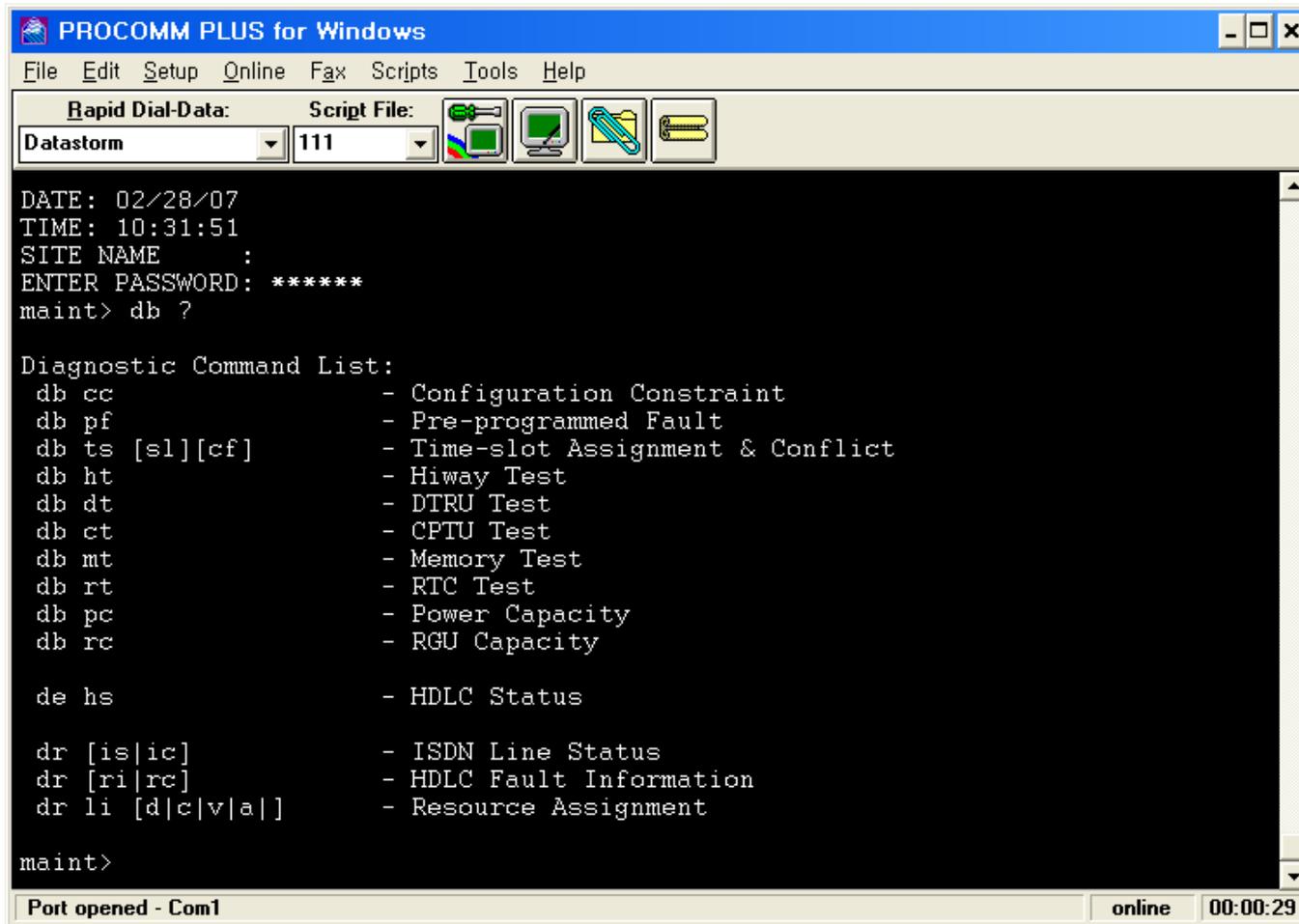
	<p>maint> ta [options]</p>	<p>Shows traffic analysis data. Command options: all <timetype>: Print All Traffic Report period <hhmm> <timetype>: Print Traffic Report Periodically period_abort: Cancel Periodic Print atd <timetype>: Print Attendant Traffic Report callsum: Print Call Summary Report callhour: Print Call Hourly Report hw <timetype>: Print H/W Usage Summary Report cosum <timetype>: Print CO Traffic Summary Report cohour <cogrp#>: Print CO Traffic Hourly Report</p> <p><timetype> can be one of following: tt : Today Total yt : Yesterday Total lh : Last Hour yp : Yesterday Peak tp : Today Peak</p>
	<p>maint> ws xx [options]</p>	<p>xx is slot number. Shows WTIB statistics data. Command options: upload: Upload statistics data from WTIB call: Total number of call & direction of the call subs: Information per subscribed device eoc: End of call cell: Usage of frequency and slot traf: Show holding time acce: Access info.(basic/hand-over) clea: Clear statistics data</p>

3.2 Diagnostic Commands

	Commands	Meaning
Diagnostic Commands	maint> db ?	Shows help screen about Diagnostic.
	maint> db cc	Shows configuration constraints check result. It gives OK if the system configuration meets the maximum board configuration constraints.
	maint> db pf	Shows preprogrammed faults. It checks if the admin programming configuration is same with the installed boards.
	maint> db ts {sl cf}	Shows time slot assignment and conflict status.
	maint> db ht xx yy #	<p>Tests PCM hiway using one DKT and one DTMF receiver. The first DKT of the assigned slot is used for the test.</p> <p>Command options: xx: slot number(DTIB) yy: dtmf duration time(10ms base) #: hiway number (0-7 for LDK-300, 0-2 for LDK-100)</p> <p>Example To test hiway #1 using DTIB installed at 1st slot: maint> db ht 01 01 1</p>
	maint> db dt	<p>Tests DTMF receiver. This feature tests all DTMF receivers(LDK-300: up to 32 / LDK-600: up to 64) in the system.</p> <p>Only idle DTMF receivers can be tested.</p>
	maint> db ct	This command tests CPTU.
	maint> db mt	This command tests DRAM module installed.
	maint> db rt	Tests RTC. You can see current time and modify it. The time does not elapse while you are testing RTC.
	maint> db pc	Shows power capacity of the PSU and current power usage status of the system.
	maint> db rc	Shows RGU capacity. This feature shows RGU capacity, CO incoming ring cadence and ICM call ring cadence.
	maint> de hs	Shows HDLC status.

	<p>maint> dr {is ic}</p>	<p>Shows ISDN line status information.</p> <p>Command options:</p> <p>is: Shows ISDN line information.</p> <p>ic: Clears ISDN line information.</p>
	<p>maint> dr {ri rc}</p>	<p>Shows reset information.</p> <p>Command options:</p> <p>ri: Shows reset information.</p> <p>rc: Clears reset information.</p>
	<p>maint> dr li {d c v a}</p>	<p>Shows current resource assignment.</p> <p>Command options:</p> <p>d: DTMF receiver assignment</p> <p>c: CPTU assignment</p> <p>v: VMIB channel assignment</p> <p>a: DTMF, CPTU, VMIB channel assignment</p>

This is Help Screen of Diagnostic Commands.



4.2 Usage of Enhanced Trace

Enhanced Trace is one of system monitoring commands.

Board Trace: t b x n ('x' means board number)

All of Networking Trace: t nct ('nct' means the set all of networking CO graphical trace)

Specific CO Trace: t n c# (option 'n' could be used with other options (e, h, c, t))

* Board Trace & All of Networking Trace: **Simple Display Type**

* Specific CO Trace: **Complete Display Type**

=> **Simple Display Type** shows the Networking Connection Message and Information Elements, but all of Information Elements (IE) could not be analyzed. Only including data of Called IP, Calling Number, Called Number and Cause elements could be analyzed, and then these data is printed.

=> **Complete Display Type** shows the Networking Connection Message, Information Elements and all of data contained on Information Elements (IE) data.

4.3 Supported Messages of Enhanced Trace

4.3.1 Digital Line (PRI, VOI, BRI, STI-t, NPRI, NBRI) Type

In case of digital line, networking messages are analyzed by the standard ETSI/ITU protocol.

Enhanced Trace Supported Messages for Networking Connection

Call Establishment Message	Call Information Phase Messages
ALERTING CALL PROCEEDING CONNECT CONNECT ACK PROGRESS SETUP SETUP ACK	USER INFORMATION
Call Clearing Messages	Miscellaneous Messages
DISCONNECT RELEASE RELEASE COMPLETE	FACILITY INFORMATION STATUS STATUS REQ

*** Additional Messages on ISDN also could be supported.**

Enhanced Trace Supported Message for Information Elements

Networking Information Element	Decoded & Print / Only Print	Networking Information Element	Decoded & Print / Only Print
IE_BEARER_CAPABILITY	Decoded & Print	IE_CONNECTED_NO	Decoded & Print
IE_CAUSE	Decoded & Print	IE_CONNECTED_SUBADDR	Only Print Data
IE_CALL_IDENTITY	Only Print Data	IE_CALLING_NO	Decoded & Print
IE_CALL_STATUS	Decoded & Print	IE_CALLING_SUBADDR	Only Print Data
IE_CHANNEL_INFO	Decoded & Print	IE_CALLED_NO	Decoded & Print

IE_AOC	Only Print Data	IE_CALLED_SUBADDR	Only Print Data
IE_FACILITY	Only Print Data	IE_TRANS_NET_SELECT	Decoded & Print
IE_PROG_INDICATION	Decoded & Print	IE_LOW_LAYER_COMPATIBLE	Only Print Data
IE_NET_SPECIFIC_FACILITY	Only Print Data	IE_HIGH_LAYER_COMPATIBLE	Only Print Data
IE_NOTIFY_INDICATION	Decoded & Print	IE_USER_USER	Only Print Data
IE_DISPLAY	Only Print Data	IE_CONGEST	Decoded & Print
IE_DATE_TIME	Decoded & Print	IE_ISDN_FLASH_REQ	Only Print Data
IE_KEYPAD_FACILITY	Only Print Data	IE_ISDN_FLASH_ACK	Only Print Data
IE_CALLING_IP	Decoded & Print		
IE_CALLED_IP	Decoded & Print		

*Blue Mark: able to decode IE & print the analyzed results. And the others is printed raw (HEX Value) data.

4.3.2 Analog Line Type (DCO, LCO) Type

In this case Enhanced Trace could show the related CO commands to communicate with other systems. Analog messages dose not include any information elements, so Enhanced Trace show only the sent or received digit.

DCO case

Supported Messages			
Receive Message Part		Send Message Part	
Message Type	When the Msg is appeared	Message Type	When the Msg is appeared
RING DETECT	Receive The Call	SEIZE	Try to Seize the CO Line
RING STOP		RLS	CO Release
METERING	Detect Call Metering Signal	ANSWER	Answer the Call
LOOP IDLE		DGT SENT	Digit Sent
DGT SENT ACK		SND REGISTER RCL	
SEIZE ACK	Receive CO Seize ACK	SND READY	
SEIZE NAK		SND END OF DIAL	
RLS ACK	Receive CO Release ACK	SND END OF DIAL	
RCV DGT	Receive Digit	BUSY	
RCV ANS	Receive Answer Signal	MAKE IDLE	
RCV BLOCK		SND BLOCKING	
RCV END OF DIAL		ANI DGT OP	Send Another Digit
CALLER ID	Receive Caller ID		
R2 END OF SIGNAL			
ANI SVC START	Detect Another Service Start		
ANI DGT SENT			

***Blue Mark: Able to see the related digit.**

LCO case

Supported Messages			
Receive Message Part		Send Message Part	
Message Type	When the Msg is appeared	Message Type	When the Msg is appeared
RING START RING STOP CALL METERING	Receive The Call Detect Call Metering Signal	SEIZE RELEASE ANSWER	Try to Seize the CO Line CO Release Answer the Call
LOOP SUP DETECT DIAL TX ACK SEIZE ACK SEIZE NAK RELEASE ACK	Receive CO Seize ACK Receive CO Release ACK	SEND_DIGIT	Digit Sent
FLASH ACK DISA DGT TONE DETECTED RELEASED CID DETECT	Detect the Tone Receive Caller ID		

***Blue Mark: Able to see the related digit.**

4.4.3 Outgoing Call with LCOB. (Analog Call)

```
SITE NAME :
ENTER PASSWORD:
*****
mon> t nct
t nct
Net Command Trace is set to ON!!!

mon> x
x

DATE: 02/18/01 TIME: 11:31:26
Exiting monitor utility...

----->>>> CO 35 Seize Request Message.
(CO 35) SEIZE

CO 35 Seize ACK Message. <<<<-----
(CO 35) SEIZE ACK

----->>>>
(CO 35) SEND NUMBER
  02 Dial Digit '2'

----->>>>
(CO 35) SEND NUMBER
  0A Dial Digit '0'

----->>>>
(CO 35) SEND NUMBER
  0A Dial Digit '0'

----->>>>
(CO 35) SEND NUMBER
  0A Dial Digit '0'

----->>>>
(CO 35) SEND NUMBER
  0A Dial Digit '0'

----->>>>
----- TALKING -----

(CO 35) RELEASE CO 35 Release Request

----->>>>
CO 35 Release ACK (CO 35) RELEASE ACK
```

Enhanced all of Networking CO Trace Simple Display Type

Sending Digit '2000'