

# LAPP Addition

## *Change in organization*

Thu, Oct 7, 1999

The size of the prompting text for local applications file (HELPLLOOP) has increased beyond 8000 bytes, and this prompts the need to change how the LAPP ("Page E") page application works. In most cases, the prompting text is found on a specified node such as node0508. The current logic reads out this file every time a new request is activated, say, by advancing through consecutive entry numbers. This causes a lot of network activity between the client and the "Help node." In order to reduce this, only request this text once upon page entry, then every time a new Help node is entered and an interrupt is made in that field.

Another unnecessary overhead is requesting the entire CODES table from the target node. This is done only to obtain the date of program used by the currently-displayed LATBL entry. One can also obtain this date by making a request for the target program with listype 76, using an offset value of -1. This returns the contents of the relevant CODES table entry, which contains the version date.

As a new approach, we collect the entire file of prompting text in pieces. To reduce unnecessary network traffic, we do this in pieces that fit within an ethernet frame. Requesting pieces of size 1400 bytes, say, fulfills this requirement. If the file size is 8000 bytes, this requires 6 pieces. This slows down program initialization, but it needn't be required after that time. We show the H character in front of the Help node field in inverse video to provide feedback that the help text is being collected. The Help node# field is only read when an interrupt is made there, so that inverse video caused by the user typing in that field remains so until an interrupt is made in that field. (The inverse video is removed for any characters read by the program, to provide feedback for the user.) When the prompt/help text has been collected, we re-activate the display, in case the new prompt text might influence what should be shown for the entry displayed.

### ***Implementation***

When initializing the display, Activate is called, which performs the following jobs, where the numbers in parentheses denote the list# used for the request:

Request(7) HELPLLOOP CODES table entry from local node and Help node, if any.

Request(1) at 15Hz the current LATBL entry from the Target node, entry#.

Request(9) LATBL specs from Target node.

Initialize display.

Set state = 1.

The DoCycle routine performs state logic for the following steps each cycle:

*state1:*

Collect(7) HELPLLOOP CODES table entry of local node and Help node.

Collect(1) 15Hz data about Target LATBL entry, allowing for reply delay.

Request(8) CODES entry for Target program, if any.

If HELPLLOOP available locally, Request(2) first piece.

If no HELPLLOOP locally, request from Help node.

Set state = 2.

*state2:*

Collect(2) piece of HELPLOOP file, allowing for delay.

If last piece, Set haveHelp = true.

RequestInfo (which also sets state = 3).

Unhilit H to show HELPLOOP file collected.

If not last piece, issue Request(2) for next piece.

*state3:*

Collect(3) bit text

Collect(4) channel text

Display bit and channel text

Set state = 0.

*state0:*

Collect(1) 15Hz data about current LATBL entry, allowing for reply delay.

Collect(8) Target CODES entry to get version date.

Collect(9) LATBL specs, display #entries allocated.

Display counter value if changed.

Display ptr to static variables if changed.

Display name if changed, and Activate.

Display parameter values if changed, RequestInfo.

Collect(5) bit data, display if changed.

Collect(6) channel data, display if changed.

RequestInfo:

Search target name parameter text record in HELPLOOP file.

Display prompting text.

Request(3) bit text for all Bit# parameters.

Request(5) at 15Hz bit data.

Request(4) channel names, units text for all Chan# parameters.

Request(6) at 15Hz channel readings.

Set state = 3;

## Summary of list# usage

List#	Rate	Node	Purpose
1	15Hz	Target	Current LATBL entry
2	once	Help	Segments of HELPLOOP prompting text file
3	once	Target	Bit# parameters text
4	once	Target	Chan# parameters names, units text
5	15Hz	Target	Bit# data readings
6	15Hz	Target	Chan# data readings
7	once	Help	HELPLOOP CODES table entry, both local and target
8	once	Target	Program CODES table entry
9	once	Target	LATBL specs from target node

In view of the above, upon program termination, we cancel lists 2 and 7 first, then the rest. This causes the cancel requests for the Help node to be grouped together, followed by the cancel messages for the Target node requests.

The following is a listing of network frame diagnostics when calling up Page E on node0576, which is targeting node063A and using node0508 for its Help node, then exiting after a few seconds. Entry 28 was targeted, which holds the program FMON, whose parameters only include digital Bit#,s, no analog Channel#s. In this example, node0508, Classic UDP port, is represented by node# 6131. And node063A, Classic UDP port, is represented by node# 61B2. Node0576 and node0508 are on token ring, whereas node063A is on ethernet. UDP/IP communications is used throughout.

```
F NETWORK FRAMES 10/07/99 1428
NODE<0576> #RCVD= 87 LIST<0576>
NODE=0000 - SIZE=0000 TIME>0000
SrcN Size T ^Frame HrMn:Sc-Cy+ms
6131 003C T 085768 1428:04-10+35 Request HELPLOOP CODES entry from Help node
61B2 0044 T 0857B6 1428:04-10+36 Request Target LATBL entry, table dir entry
6131 0048 R 064940 1428:04-10+41 HELPLOOP CODES entry
61B2 0058 R 06499E 1428:04-10+44 LATBL entry, table dir entry
61B2 0048 R 064A0C 1428:04-11+17 LATBL entry
61B2 0048 R 064A6A 1428:04-12+17 LATBL entry
61B2 003C T 08580C 1428:04-12+25 Request Bit text
6131 003C T 08585A 1428:04-12+25 Request first Help text piece
61B2 0048 R 064AC8 1428:04-12+30 Bit text
6131 05A0 R 064B26 1428:04-12+39 First Help text piece
61B2 0048 R 0650DC 1428:04-13+17 LATBL entry
61B2 0048 R 06513A 1428:04-14+17 LATBL entry
6131 0046 T 0858A8 1428:04-14+22 Request next Help text piece
6131 05A0 R 065198 1428:04-14+35 Next Help text piece
61B2 0048 R 06574E 1428:05-00+17 LATBL entry
6131 0046 T 085900 1428:05-00+23 Request next Help text piece
6131 05A0 R 0657AC 1428:05-00+38 Next Help text piece
61B2 0048 R 065D62 1428:05-01+17 LATBL entry
6131 0046 T 085958 1428:05-01+23 Request next Help text piece
6131 05A0 R 065DC0 1428:05-01+36 Next Help text piece
61B2 0048 R 066376 1428:05-02+17 LATBL entry
```

```

6131 0046 T 0859B0 1428:05-02+23 Request next Help text piece
6131 05A0 R 0663D4 1428:05-02+37 Next Help text piece
61B2 0048 R 06698A 1428:05-03+17 LATBL entry
6131 0046 T 085A08 1428:05-03+23 Request last Help text piece
6131 03C0 R 0669E8 1428:05-03+33 Last Help text piece
61B2 0048 R 066DBE 1428:05-04+17 LATBL entry
61B2 0048 T 085A60 1428:05-04+30 LATBL entry
61B2 0054 R 066E1C 1428:05-04+40 LATBL entry, Bit readings
61B2 0054 R 066E86 1428:05-05+17 LATBL entry, Bit readings
61B2 0054 R 066EF0 1428:05-06+17 LATBL entry, Bit readings
61B2 0054 R 066F5A 1428:05-07+19 LATBL entry, Bit readings
61B2 0054 R 066FC4 1428:05-08+17 etc.
61B2 0054 R 06702E 1428:05-09+17
61B2 0054 R 067098 1428:05-10+17
61B2 0054 R 067102 1428:05-11+17
61B2 0054 R 06716C 1428:05-12+17
61B2 0054 R 0671D6 1428:05-13+17
61B2 0054 R 067240 1428:05-14+17
61B2 0054 R 0672AA 1428:06-00+17
61B2 0054 R 067382 1428:06-01+17
61B2 0054 R 0673EC 1428:06-02+17
61B2 0054 R 067456 1428:06-03+17
61B2 0054 R 0674C0 1428:06-04+17
61B2 0054 R 06752A 1428:06-05+17
61B2 0054 R 067594 1428:06-06+17
61B2 0054 R 0675FE 1428:06-07+19
61B2 0054 R 067668 1428:06-08+17
61B2 0054 R 0676D2 1428:06-09+17
61B2 0054 R 06773C 1428:06-10+17
61B2 0054 R 0677A6 1428:06-11+17
61B2 0054 R 067810 1428:06-12+17
61B2 0054 R 06787A 1428:06-13+17
61B2 0054 R 0678E4 1428:06-14+17
61B2 0054 R 06794E 1428:07-00+17
6131 0034 T 085ABA 1428:07-00+29 Cancel Help node requests
61B2 0066 T 085B00 1428:07-00+30 Cancel Target node requests

```

```

E LOCAL APPS      10/07/99 1430
NODE<063A> NTRY<28>/64 H<0508>
NAME=FMON CNTR=05 DT= 0.5 MS
TITL"NET FRAME MONITOR      "
SVAR=0004160C      09/27/99 1349
ENABLE B<00DF>*FMON ENABLE
NODE#    <E1A1>
ON       B<00DE>*FMON CAPTURE ON
MAX INDX <2000>
DIAGPHI <0030>
DIAGPLO <0000>
W OFFSET <0015>
FLAGS TR <0003>
        <09EA>
        <0000>

```