



subject: *tblsumm* enhancement to *dvdisplay* command.

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PRODUCT DOCUMENTATION NOTICE

This memo describes additions made to the **dvdisplay** command in BNS-2000 Release 5.0.

The **dvdisplay** command now displays an additional option, namely **tblsumm**.

A description of this new command follows:

A new object, called *tblsumm*, has been added to the *dvdisplay* command. This object writes the following information to the Datakit/ BNS2000 console:

1. A complete view of the current switch configuration. The switch is queried for its "view" of every device controller on every shelf, and (for each one) the module number, number of channels configured, channels in use, channels free, and module type are displayed. The "IN USE" count is obtained from the switch route table itself, and so is "current" (accurate as of the time the *dvdisplay* is issued)

(for example)

SUMMARY - ALL MODULES

MODULE	CHANNELS	IN USE	FREE	TYPE
1	52	0	52	trkt3s
4	3	0	3	cim
5	3	0	3	cim
6	3	0	3	cim
7	52	0	52	trkt3a
68	2006	7	1999	trkhs

.....

2. A summary of the current state of the switch route table (i.e., its "memory map"). This shows the route table entries actually allocated (by location and quantity), which module has them, and what kind of module it is (because modules other than device controllers can get entries in the route table, the module type may be displayed as "unknown").

(for example)

SUMMARY - ACTIVE MODULES (SWITCH MEMORY MAP)

MODULE	LOCATION	ALLOCATED	TYPE
4	516	2	cim
4	519	1	unknown
71	521	12	ty12
71	534	12	ty12
68	547	2005	trkhs
79	2553	1	unknown

Note that for module types where the user base and the supervisor base are different (as for module 71 in the example above), the same module will appear twice in the display; this reflects exactly the way in which entries are allocated for these module types.

3. A "fragmentation map". This shows the total number of route table entries used currently, the total number of fragments (unused entries which are bounded by used entries), and the total number of trailing entries (entries which follow all used entries in the table). This map allows for (but does not display) entries reserved for the controller(s), so the user may consider the number of available entries (fragments + trailing) as completely accurate (but note that the values displayed, therefore, do not sum to 32767, which is the actual number of entries in the route table). Finally, the size of the largest fragment is displayed; since the switch will not break up entries for a single module (i.e., allocation of a new block of channels must fit completely into an existing fragment or in the trailing space), this number represents the largest new channel allocation that could be accomplished without using trailing space.

(for example)

TOTAL NUMBER OF USED ENTRIES: 2033
TOTAL NUMBER OF FRAGMENTS: 3
TOTAL NUMBER OF TRAILING ENTRIES: 28934
LARGEST FRAGMENT: 3

It is intended that this command and its output be useful in the allocation of channels to those modules for which variable allocation is possible and in the determination of when switch memory has become fragmented to an unacceptable degree (and therefore when an init circuits command should be issued). In this connection, this command implements in a convenient form and enhances the procedures discussed in the document Tools to Detect Switch Fragmentation (q.v.); additional information relevant to the interpretation of the output of this command may be found in the document CTG13 BNS-2000 Extended Switch Module Hardware External Design.

Dvdisplay tblsumm takes no arguments (has no options); access is always in "cooked" form over all switch routing table elements (512-32767). Because the command may take a few seconds to complete, a plea for patience is issued (PROCESSING WILL TAKE A FEW SECONDS - PLEASE WAIT) immediately upon invocation of the tblsumm routine.

Note: an init circuits command forces a reboot of the node and so should not be issued capriciously.