



subject: **BNS-2000 Release 4.0 Build 92 Release Letter**

date: **December 10, 2004**

from: **BNS-2000 Customer Support**

### *Release Description*

This letter contains a description of maintenance changes made in BNS-2000 Release 4.0 Build 92.

Unless stated otherwise in this document, the modifications described within are compatible with those issues of BNS-2000 associated products (e.g., StarKeeper<sup>®</sup> II NMS, IP-CommKit<sup>®</sup> Software) intended to support this version of the product (Release 4.0).

Note that a new Software Registration Key is required.

In all descriptions below, alarms are referred to by their unique id number (unid). This is consistent with the convention in the *Data Networking Products Messages Reference*.

#### **1. DOWNLOADABLE MODULES VERSIONS**

Note that when upgrading from Release 1.2, 2.0, and 3.0, the boot of Release 4.0 Build 92 will cause all downloadable modules (e.g., AIT1,TRKT1) to be loaded with new software. This will result in the teardown of any existing circuits on these module types until after the download is complete. For connectionless traffic, the transmission facility will not be available until the download is complete.

When upgrading from earlier builds of Release 4.0, the boot of Release 4.0 Build 92 will only cause a downloadable module (e.g., TSM8, SAM) to be loaded with new software if a software change has been made to that module since the last build on the customer's node. For example, if a customer were running Build 49 on their node, and they upgraded the node to Build 50, only downloadable modules that were changed in Build 50 would redownload with the new software. In the table below, the version numbers of the modules for the current build are listed. The last digits of the version number, those following the last ".", denote the build number. If the Frame Relay Module (FRM) had a version number of frm.4.0.51, that would mean that the latest version of that module was built in Build 51. This will result in the teardown of any existing circuits on these module types until after the download is complete.

BNS-2000 RELEASE 4.0 DOWNLOADABLE MODULES	
Downloadable Module	Version
AIE1 MODULE	aie1.4.0.92
AIE3 MODULE	aie3.4.0.92
AIT1 MODULE	ait1.4.0.92
AIT3 MODULE	ait3.4.0.92
AIT3PE MODULE	ait3pe.4.0.92
AIT3PI MODULE	ait3pi.4.0.92
BSC HOST MODULE	bsch.4.0.81
BSC TERM MODULE	bsct.4.0.81
CPMML MODULE	cpmml.4.0.81
DKAP MODULE	dkap.4.0.81
CHANNELIZED FRM (E1) MODULE	e1frm.4.0.81
V.35 FRM MODULE	frm.4.0.81
CHANNELIZED FRM-M2 (E1) MODULE	fre1.4.0.92
CHANNELIZED FRM-M2 (T1) MODULE	frt1.4.0.92
GAR MODULE	gar.4.0.92
HIGH SPEED CPMML MODULE	hscml.4.0.81
HIGH SPEED DKAP MODULE	hskdp.4.0.81
ICIT3E MODULE	icit3e.4.0.92
ICIT3I MODULE	icit3i.4.0.92
LAN PROTOCOL MODULE	lpm.4.0.81
TRK-PQ MODULE	pwt.4.0.81
SAMML MODULE	samml.4.0.81
SDLC8 MODULE	sdlc8.4.0.81
CHANNELIZED FRM (T1) MODULE	t1frm.4.0.81
TSM8 MODULE	tsm8.4.0.85
HIGH SPEED TSM MODULE	tsmt1.4.0.81
TRKE3 MODULE	trke3.4.0.92
TRKE3A MODULE	trke3a.4.0.92
TRKT3 MODULE	trkt3.4.0.92
TRKT3A MODULE	trkt3a.4.0.92
TRKT3S MODULE	trkt3.4.0.92
TSM8 MODULE	tsm8.4.0.85
X.25 MODULE	xim.4.0.85
RS232 X.25P MODULE	xpr.4.0.92
V.35 X.25P MODULE	xprv.4.0.92

## 2. YEAR 2000 SUPPORT

The year 2000 is supported in this release, starting with Build 39.

## 3. UMI SUPPORT

Connectivity between an IP network and a BNS (refers to both BNS-2000 and BNS-2000 VCS (aka. Datakit II VCS)) network is accomplished using the Universal Mediation Interface Module (UMI). As a state-of-the-art "solid state" module that resides in a BNS node, the UMI is both a replacement and enhancement of the LCS60 product.

Beginning with Build 89, BNS-2000 Release 4 allows a UMI module to be configured as standard BNS module, namely a UMI module, in the node. Prior to this release the UMI was configured on the BNS controller as a SAM504, mapping 504 BNS ports to 504 "virtual ports" residing in the IP network. All IP configuration data was entered directly on the UMI console. Hence, every virtual port had to be configured twice, once on the node and once on the UMI module itself. With this release, the Base Configuration of the UMI and the configuration of all the virtual ports (vports) including their IP information is performed on the BNS node only, and downloaded to the UMI module when it is restored to service. The major benefits are that all the IP configuration information for the module and all the virtual ports can be entered, changed, verified, saved, and backed-up on the BNS controller, just like for any other BNS module, and once only. In builds 89, 90, 91, and 92 maintenance fixes and enhancements were added that affect the UMI configuration in a node. Therefore it is strongly recommended that a node be upgraded to build 92.

Note that UMI's IP address can be specified on the node and in the UMI module itself. However, beginning with build 23 of UMI software, only the value specified in the UMI module itself is used. The node value no longer overrides the IP address specified on the module. The change was made for security reasons.

#### 4. Build 92 MODIFICATIONS

##### 4.1 Control Computer

1. Updated the copyright year range to include 2005.
2. Changed all the messages for the install registration command to provide the Datatek contact information instead of Lucent Technologies information.
3. The problem with database upgrade out of sync when auto backup is enabled for dual controller system has been fixed.
4. There is a problem that the database didn't get sync'ed when backing up the database and other files to the host. This problem has been fixed.
5. A customer reported a problem with the MOVE/COPY command for trunk T1. This problem has been fixed.
6. The problem with T3 links going down on installation of a new build was caused by all of the "SMDS" modules being re-built in every build, regardless of whether a software change has been made that affects them. This problem has been fixed.
7. When a customer installed BNS-2000 VCS R6 build 88, they had a problem with file system space. In order to get some space back, the AIM and BRIDGE modules were deleted, since they have been DA'ed for a long time. However, BRIDGE is used by the ait3p module, which is two-board module, for establishing the communication between the two boards. So BRIDGE was put back.
8. A customer reported a problem with auto removing babbling ports. It works when the ports are configured as SAM *terminal* port and didn't work when the ports are configured as SAM *host* port. This problem has been fixed.

*The remaining items below are all related to UMI modules.*

9. A customer requested that the SNMP PORT prompt be skipped in the ENTER/CHANGE UMI MODULE commands if the value of the SNMP ADDR parameter is none. This request has been implemented.
10. Per a customer's request, the DSTAT UMI and DMEAS UMI commands have been added, and the output reports will use UMI terminology.

11. A VERIFY COMMENT UMI command has been added to this release, and the timeout problem in the VERIFY COMMENT command has been fixed.
12. A customer requested that the vport information be displayed in the output of the command DISPLAY CONNECTIONS for UMI modules. This feature has been added.
13. The customer requested that three-digit vports for the UMI module be aligned properly in the DISPLAY CONNECTIONS report. The report has been modified.
14. The maximum host id was increased from 16 to 32. It was not consistently increased on the controller. This problem has been fixed for the ENTER, CHANGE, DELETE, and VERIFY UMI commands.
15. A customer asked for the change for the VERIFY GROUP command to display UMI vport information instead of SAM port information. This change has been made in the release.
16. The problem with MESSAGE TOO LONG FORCING BREAK on VERIFY GROUP command for UMI has been fixed.
17. Added changes to *samp* to send dialstring information to an UMI. The change is to pass VLP information to the UMI. Dialstring and originating group information that is used for security will be used for future enhancements to various applications. This software and build 23 or higher of the UMI will be necessary for these applications.
18. Made changes to the DVDELETE command to allow at to remove UMI files for the UMI module.
19. Customers want to backup the database to the hosts, but the BACKUP HOST command only backups cfdata, sysgen and comments files. It did not backup the ipgate file and UMI files. The same problem also exist for the RETRIEVE HOST command. Both commands have been changed to handle ipgate and UMI files.
20. While testing UMI in our lab, it was noticed that the controller caused the UMI calls come down during a warm reboot (init controller). This problem has been fixed.

## 5. BUILD 91 MODIFICATIONS

### 5.1 Control Computer

1. Qwest requested a stress test of putting multiple UMI vports into the FIX state. While testing this, another problem was found where call process software for SAMs would not exit after hitting 179 ports. After 179 ports were in the FIX state, trying to set up additional calls would fail. This problem has been fixed.
2. To support UMI build 21, there are four new options for SNMP MIB-II, sysComm, sysContact, sysName, sysLocation, added to DK/BNS interface to configure. Note that a DTK41 is not required to save these initial values when the DK/BNS interface is used.

## 6. BUILD 90 MODIFICATIONS

### 6.1 Control Computer

1. BellSouth reported that the problem with "retrieve umi" failure in BNS-2000 VCS (Datakit) release R6.0. This problem has been fixed and rolled forward to this release.
2. There was a problem with UMI option missing from retrieve command in BNS-2000 release. This problem has been fixed.
3. It was found that if the settings for PAP, CCAR and BAUD RATE were incorrectly set, problems would occur during UMI call setup. The correct settings to enter are PAP=off, CCAR=off and BAUD= NO AUTO.

4. After converting from a SAM504 to a UMI, the IP address and related configuration showed incorrect data. This problem has been fixed.
5. There is a problem when a converting from a SAM504 to a UMI; the output of "verify umi vport" incorrectly shows vports as configured and in-service which were never entered into the database. This problem has been fixed.
6. The connection between the StarKeeper host and a node would be disconnected when the StarKeeper administrator tried to restore a UMI vport that was already in service. It was discovered this could also occur on the "A" port. This problem was fixed.
7. Several new features were added in build 20 of a UMI. The ability to configure these features in a BNS node was added in this release. Among these features are:
  - CUGS for SNMP requests
  - Multiple DNS entries
  - The configuration of PDD strings in mnemonic form for IP destinations. **(This feature requires that a DTK41 IO board is used with a Series 1:2 UMI module.)**
  - Allow an SNMP GET to verify a DTK41 IO board is used with the UMI.

## 7. BUILD 89 MODIFICATIONS

### 7.1 Control Computer

1. New features were added to build 20 of the UMI. The controller has been changed to access those new features. Build 20 or later of the UMI is needed to utilize these features. If they are configured on the controller but the UMI is not running a version that supports those features, the configuration will just be ignored. These features are completely described in the updated version of "Universal Mediation Interface (UMI) Module User's Manual Supplement For BNS/Datakit II VCS Nodes" which can be found at <http://www.datatekcorp.com>.
2. When a customer installed BNS-2000 VCS R6 build 87, they had a problem with file system space. In order to get some space back, we deleted AIM and BRIDGE modules, since they have been DA'd for a long time.
3. Customer reports that not all alarms were being reported to SK. We found that alarm 8455 was being reported, but not alarm 8452. As it turns out 8455 is a Major alarm and 8452 is classified as Informational. SK only logs Critical, Major and Minor alarms, not Informational. So alarm 8452 has been changed from type informational to type major.
4. The Auto Remove Babbling Ports feature was not working properly. The message said that the ports were being marked as DEAD but were not being removed. The StarKeeper II NMS was getting repeated messages and it was generating as many as 36 message log files a day. The problem has been fixed.
5. The SAM call process was changed for synchronous ports. The STATION ID and Message of the Day are no longer sent to ports configured as synchronous.

## 8. BUILD 88 MODIFICATIONS

### 8.1 Control Computer

1. A problem was found at AT&T while installing UTM boards into MPC concentrators. If a high baud rate was configured (ie: 1.544M) the node would "lock-up". If a low baud rate (ie: 9600) was configured the node and the concentrator would operate with no problems. The problem has been fixed.

2. This is a Y2K bug. The "smeas log dis" command shows ":0" in the date field instead of "00". This is not service affecting since it is just a report. This problem has been corrected.
3. Update the copyright year range to the current year, 2002.

## 9. BUILD 87 MODIFICATIONS

### 9.1 Control Computer

1. A problem existed where a customer tried to run dstat on a range of bsc terminals and couldn't do it, although he could run dstat on an individual terminal successfully. This problem has been corrected.
2. Billing connections were not hanging up when a trunk that they traversed failed. The problem has been fixed.
3. When a password was administered on the node's B-port, the user would not get prompted for it but would be connected to the node. This has been fixed.
4. An X.25P problem existed where the module did not handle the frame reject packet (FRMR) correctly, instead retransmitting the frame with the wrong frame size, causing an infinite looping situation. This problem has been corrected.
5. A dmeas on an AIT1 port could show the "BUF UTIL" higher than the "PEAK BUF UTIL". This is not right since the "PEAK BUF UTIL" should always be greater than or equal to the "BUF UTIL". The formula to calculate the values used inconsistent variables. The formula has been made consistent.

## 10. BUILD 86 MODIFICATIONS

### 10.1 Control Computer

1. After a **dbupgrd** a CPM connected host could not make calls. It was determined that the security parameters on the CPM were not upgraded properly. The **dbupgrd** was fixed to properly upgrade the CPM modules in the database.
2. A problem with several of the **change** commands resulting in database corruption of the Predefined Destination (PDD) tables. If this corruption occurred the following message would be printed during a change or delete of the effected module.

```
COMMAND FAILED: Internal database error:  
(, chgpvcdest, xxxx, dbm_pdd, 1, 125, 0)
```

or

```
COMMAND FAILED: Internal database error:  
(, dportpdn, xxxx, dbd_pdd, 1, 91, 0)
```

The corruption could be cleaned up. Now however, the cause of the corruption has been eliminated. If a customer experiences this problem loading this software will not correct the problem, instead it will prevent the problem from occurring. If you experience this problem contact the Customer Assistance Center for instructions to clean up the corruption.

3. The year 1999 was added to the copyright message that appears at boot time.
4. The command **dstat module <n> high** was modified to include three more fields, "MODE SW TRANS", "MRC TRANS", "STDBY TRANS". This is a breakdown of the number of Hardware Errors.
5. The **hsomeas** measurement process reading the switch on channel 1 is a contributing factor to a number of standby switch failures. The process has been modified to read from a different channel.

## 10.2 X.25, X.25P and X.75 Services

1. When X25p was configured for internal clocking, it showed correct lead status for the physical layer but failed to establish the link layer. This problem has now been fixed.

## 11. BUILD 85 MODIFICATIONS

### 11.1 DKTOBNS Conversion

The **dkto** tool does not work as specified. If a **dkto** conversion is needed please contact the Customer Assistance Center for assistance.

### 11.2 Control Computer

1. If an incompatible database (i.e., for the wrong generic) is in the backup area the backup area will be cleared. Previously the database would remain in the backup area and it would not be possible to boot the node.
2. The year 1998 was added to the copyright message that appears at boot time.
3. The **enter/change profile** commands have been changed to limit the CLOSED USER GROUPS (CUG) allowed from 255 to 254. This change addresses a problem where CUGs greater than 128 did not work properly while maintaining backward compatibility.
4. At very high utilization (near 100%) the trunk utilization measurements, **dmeas trunk**, are incorrect. Specifically the peak trunk utilization is wrong. This error has been corrected.
5. The **change x25p port** command on an in service module did not work correctly if the START SVC CHANNEL did not use the default. The *STARTING SVC LOGICAL CHANNEL NUMBER* is changed back to the default value used in the **enter x25p port** command. The problem has been corrected.
6. Some users reported problems bringing up a new server on a CPM-connected host when the CPM was in a concentrator. The following error message was displayed: ACCESS DENIED. Alarm 8332 was also displayed, and the alarm had err no=28. An internal table was being incorrectly sized. The problem has been fixed.

### 11.3 X.25P Services

1. The **dstat x25p** command showed incorrect status of DTE, DCE, DSR, RTS, CTS and DCD leads. This has been fixed. This fix also corrects the lead status response on the debug channel for l1eia command.
2. The following series of events resulted in a buffer not being freed. An X.25 host sends a X.29 packet to the X.25 module to change the PAD profile. Next a call cleared packet arrives. The buffer is not freed which results in excessive buffer utilization and impacts performance. This issue applies to the X.25, X.25P and X.75 modules.
3. EIA leads did not come up during X.25P loop around diagnostics resulting in diagnostic failures. In addition, after the failure the module failed to bring up the link making the module unusable.

### 11.4 SMDS Modules

1. For customers with an SMDS network using an IC configuration there was a potential problem if a SMDS SR/SA combination was deleted from the node with an ICI trunk. As part of the routing algorithm a combination of the first SR/SA on the list, known as the local source address, for that node and the source address in the L3PDU ingress into a TRK-T3I is used for routing if the destination address is a group address. When the first address on the list was deleted the TRK-T3I was not automatically updated. This caused data to be lost. The work around was to remove and restore the trunk. This problem has been fixed, the TRK-T3I is automatically updated if the local source address changes.

2. A change to a T3S trunk for FRAMING did not take effect on an in service trunk. If the framing was changed from **m13** to **CBIT** the database was updated but not the module. This problem has been fixed.
3. The alarm 8917 has been changed to direct the administrator to the message reference where a detailed description can be found.
4. An option was added to the "dupdisk" command to allow the copy of partition P2. The P2 partition contains the ICI files which should be downloaded from StarKeeper II NMS. This is the recommended procedure. However, using the "-a" will force the copy of the P2 partition. The following message is printed when the command is run.

**This command is intended to copy the VTOC and partitions 0 and 3 from the primary disk to the secondary. If you want to include partition 2 in the copy, please run this command with the "-a" option." If the command is run with the "-n" option, it means copy normally.**

## 12. BUILD 84 MODIFICATIONS

### 12.1 MSM Module

1. An enhancement was made to the MSM module. Prior to the enhancement, alarm numbers 8451 and 8452 displayed the logical channel number instead of the physical port numbers. Those alarms will now display the physical port numbers.

### 12.2 SMDS Modules

1. When the link state changed for TRKT3s or TRKE3s, occasionally the LED on the module was out of sync with the link state. This problem was sometimes seen when a **remove/restore** occurred on both ends of a trunk simultaneously, or when cables were disconnected. Sometimes under those conditions the LED would not reflect the correct link state.
2. The values for channel ranges for T3 trunks were not the same in the output of the **verify group** and **verify trunk** commands. For example, for a trunk with 2000 channels, one of the reports showed the channel range as being from 13-2012, while the other report showed the range as being from 20-2019. The values for high and low channels will now be the same for both reports.

### 12.3 LAN Protocol Module (LPM)

1. The output of the **display connections module <num>** command was incorrectly formatted when executed for LPM modules. The output for some of the fields did not come out correctly aligned under the headings. The alignment of the output has been corrected.

## 13. BUILD 80 THROUGH BUILD 83 MODIFICATIONS

### 13.1 Control Computer

1. The output of the **verify schedule** command for the FRM, FRM-M2, AI, and GAR modules showed the scheduled measurements as coming out on an hourly basis. Those four modules report scheduled measurements every 15 minutes, so the output of the **verify schedule** command has been changed to reflect that.
2. The output of the **mcsusage** command was incorrect for the Percent Used field of the Controller Channel Usage portion of the report. The value for the Percent Used field was coming out as 0. The problem has been fixed so that the field will calculate the percent used as follows:

Max Available/Total Used \* 100

3. Many times a piece of bad hardware caused empty slot and wrong module type status packets to be sent. The following alarms were generated:

```
*C 1034B MODADDR=<number> MODTYPE=<type>  
REPORT ALARM:stat: Empty slot  
Rec act: Make sure the module is in the slot
```

and

```
** 1031B MODADDR=<number> MODTYPE=<type>  
REPORT ALARM: stat: Wrong module type  
Rec act: Compare database entry with the module actually in the slot
```

In addition to generation of the above alarms, the node would take the module out of service, even though the module was functioning correctly. The software has been made less sensitive to alarm 1034 for CIM and CTRM modules, and less sensitive to alarm 1031 for all modules, so that modules will not be affected when these messages are erroneously generated. However, when a genuine error condition occurs, appropriate action will be taken.

4. A user reported a problem with the StarKeeper bandwidth utilization report. The LINK TYPE SPEED field for a T1 trunk contained garbage. The controller will now send the T1 link speed correctly to StarKeeper. The problem has been fixed.

### 13.2 MSM Module

1. The output of the **display connections ...** command for the MSM module was misaligned in both the TO MOD and the GROUP fields. The output of the **tracec** command was also affected, since the input for the **tracec** report is generated by the **disp connections** command. The problem has been fixed.

### 13.3 Frame Relay Module (FRM)

1. A word was misspelled in one of the prompts for the **enter frm port ...** command. In the prompt PVC MANAGMENT TYPE, MANAGMENT has been corrected to MANAGMENT.
2. A user reported some instances of half-connected calls between FRM dlci's. The frame relay calls traversed several E3 trunks, and the problem was induced by a noise spike that resulted in a trunk going down and up almost immediately. The calls appeared to be connected on one side, while the other side showed no record of the channel. Execution of the **dstat frm dlci ...** command reported the dlci was in the data transfer state, while the other side reported the dlci as not connected. The problem has been isolated and fixed. While the fix is in software common to all trunks, this problem has only been reported with the TRKE3S.

### 13.4 X.25 and X.25P Modules

1. A call into an X.25P port on a certain logical channel number got a response from the X.25P module on a different logical channel number after the call was connected. The problem has been fixed.
2. A customer reported a problem with the output of the **dstat x25p module ..** command. The value for the OPERATING STATE field was "up" when it should have been "down". This problem did not occur with the X.25 module. The problem has been fixed.
3. A problem was introduced in build 73 of this release. In that build and subsequent builds, X.25 switched calls no longer worked. The problem did not manifest itself with X.25P modules. The problem has been isolated and fixed.

### 13.5 Synchronous/Asynchronous Multiplexer (SAM)

1. An enhancement was made to the SAM module. Prior to the enhancement, SAM receive ports asserted the DCD lead when a call was placed to the SAM port. After the call was disconnected, the DCD lead was dropped. This enhancement allows the receiving SAM port to keep the DCD lead high after the call has been dropped. It has been made a configurable option in the **enter/change sam port ...** command. The new prompt will appear as follows:

DCD/DTR LEADS ALWAYS HIGH [yes, no: +(no)]:

For further information, see the attached Product Documentation Notice.

### 13.6 SMDS Modules

1. A user reported that the output of the **dstat** report for the TRKT3A module was incorrect. The operating state was reported as being down, when, in fact, the trunk was up and data transport was taking place. The problem has been isolated and fixed.
2. If the **diag ai ...** command was executed for an AI module with no ports configured, the following error message was generated:

```
COMMAND FAILED: Internal Database Error:  
(diagsmnds, ck_aumodaddr, 1169, dbf_pt, 30, 0, 0)
```

The following error message should have been generated instead:

Module <number> must have at least one port configured before running diagnostics.

The problem has been fixed.

3. In certain instances, when there were two equidistant parallel paths for intra-lata traffic, one of the paths was unavailable for certain addresses. The source, destination, and intermediate nodes were all in different lata's. This problem only affected connectionless traffic. The problem has been isolated and fixed.

## 14. BUILD 76 THROUGH BUILD 79 MODIFICATIONS

### 14.1 Control Computer

1. When a module was in the out/fault state, it was not displayed as part of the output of the **verify oosports** command. There was no problem when the module was in the out/manual state. The problem has been fixed, so that the **verify oosports** command correctly reports all modules that are out of service.
2. A customer reported that 2 alarms being displayed on their nodes were erroneous and should not be coming out. The first alarm was:

```
**8032 SHELF=  
REPORT ALARM: stat: Rectifier failure
```

For BNS-2000, there is only a charger, and no rectifier. In cases where the above alarm was being displayed, the following alarm will now be displayed instead:

```
**8033 SHELF=  
REPORT ALARM: stat: Charger failure  
Rec act: Check AC utility power supply
```

This alarm will not be generated until the condition of the battery backup is tested.

Alarm 8031 was also being generated:

\* 8031 SHELF=

REPORT ALARM: Running on reserve power  
Rec act: Check AC utility power supply

The condition of the battery backup will be tested before generating this alarm.

3. A customer reported that the following error message was displayed in the StarKeeper event log at 4 A.M. each morning:

04:03

58006 REPORT CNMSMSG dkpoller: Unable to poll node <node name>  
for (shelf) meas., node error (-21)

Sometimes the above alarm was generated for a GAR or an AI module. The problem has been isolated and fixed.

4. In a dual controller CCM system in which the CCMs were installed in shelf 4 and shelf 5, a **dstat node** command reported the standby controller shelf as being a port shelf. However, the **dstat shelf 5** command correctly reported the shelf type as **ctrl**. The problem has been fixed.
5. The **install release ...** command has been enhanced to allow for a database upgrade from one build in this release to another build in this same release. Previously, database upgrades were not needed when installing a newer build of a maintenance release. This enhancement allows us the flexibility of making database changes within a maintenance release, while maintaining the ease of upgrading from one build to another using the new **install release** command.
6. When a user executed the **diag/dki** command from the **LOADER>** prompt of the standby controller on a CCM node and selected the "return to loader" option, the active switch would fail. The problem has been fixed.
7. A problem was found when executing the **install release** command. When the user went from a release where the frm had a large number of dcli's that were in service to a release where the frm had had those same dcli's out of service, the console remained hung at the **BOOTING CC0>** prompt. The problem has been isolated and fixed.
8. During load testing, some processes aborted, and the following message was displayed on the console:  
  
Supervisory stack overflow or user meddling killed curproc - xxxxxx  
  
A Usart interrupt caused the supervisory stack overflow. The problem has been isolated and fixed.
9. A database upgrade failed because of an incorrect version string comparison in the database upgrade program. The problem has been fixed.

#### 14.2 X.25 and X.25P Services

1. A customer reported a problem with X.25P data transport. The transmission of data from the X.25P port stopped. In order to restart the data transmission, the customer had to remove and restore the module. The problem has been isolated and fixed.

#### 14.3 Frame Relay Module (FRM)

1. There was an extra value (0) following the **FRAME SLIP SECS** field in the output of the **diag frm online <module> <port> facility** command. The value had no heading. The following heading has been added for that field: **BER6**.
2. An enhancement was made to the FRM-M2 module. When congestion occurs at a low level and frames are discarded, the following 2 alarms will now be displayed to indicate ingress data buffer congestion:

```
7100 MODADDR=<address> PORT=<num> VIRTUAL PORT=<num> MODTYPE=<type>  
REPORT ALARM: hsmaint: Ingress data transport buffer congestion  
CLASS=22 TASKID=<num>
```

and

```
7670 MODADDR=<address> PORT=<num> VIRTUAL PORT=<num> MODTYPE=<type>  
REPORT ALARM: hsmaint: Ingress buffer congestion cleared  
CLASS=22 TASKID=<num>
```

In addition, the CONGEST COUNT and CONGEST SECONDS fields in the **dmeas** report will be incremented.

3. Occasionally, if a receiving FRM module was in congestion, some of the receiving DLCIs would not be able to receive calls because they would incorrectly be in the AUTOWAIT state. The problem has been isolated and fixed.
4. When modules were removed or restored, the following system message would be displayed:

```
restore <module type> <module number>
```

The system message was missing the keyword "module", which will now be displayed in the message to indicate which component is being restored or removed. The system message will now be displayed as follows:

```
restore <module type> module <module number>
```

This fix applies to any module that must be removed or restored by indicating that the module is the component to be restored.

Example: restore frm module <module>

5. There were negative values in continuation billing records for the FRM module. The problem has been isolated and fixed.
6. The FRM module was added to the list of excluded modules in the **help verify oosports** command since the module is not supported in the **verify oosports** command.
7. A new flavor of the sleeping dlci bug was found and fixed. The symptoms of this problem were that after a period of normal data transmission, sometimes a dlci stopped transmitting data to the backplane to a remote dlci. The problem has been fixed.
8. The output of the **remove/restore frm dlci ...** command was garbled when specifying a range of dlci's that included several that were already out/in service. The problem has been fixed. In the future, a single message will be displayed at the end of the output if one or more dlci's were ascertained to be out/in service when the **remove/restore frm ....** command was executed. components.

#### 14.4 MSM Module

1. An MSM module was placed in slot 14 of an MPC15 (a full remote shelf), and a user could not restore it to service. It failed with the following error message:

```
Restore failed: Control computer in slot <module>/14
```

Other modules worked correctly in that slot. The problem has been found and fixed.

#### 14.5 LAN Protocol Module (LPM)

1. When a user executed the **verify lpm route all** command through StarKeeper on an LPM with 26 routes defined, there was no output. The same command was executed on the node console, and 23 routes were displayed, after which the following error message appeared:

## MESSAGE TOO LONG FORCING BREAK: DATA LOST

The problem has been isolated and fixed so that all routes defined will now be displayed.

### 14.6 SMDS Modules

1. The output of the **dstat trunk ..** command was incorrect, in that it showed the link to be up, when the trunk on the other end was removed from service. The **dstat trunk ...** command output should have showed the link to be down. The problem has been corrected.
2. There was a problem with the RAP process. This problem appeared when a customer was adding a number of new nodes to the network. Adding the new nodes necessitated addition of new prefixes, SA's, and SR's. This combination of events caused a buffer to exceed its limit, thereby causing a routing table problem. The problem has been fixed.

## 15. BUILD 75 MODIFICATIONS

### 15.1 SMDS Modules

1. An enhancement was delivered to Build 74 of this release that allows a maximum hop count for connectionless traffic to be configured on the BNS-2000 node via the **enter node** and **change node** commands. The CLNS hop count is entered or changed on the node through the **enter/change node** commands via a direct console port or the StarKeeper II NMS cut-through facility. The CLNS hop count is not supported by the StarKeeper II NMS Network Builder application in R8.0. Attempting to change the value of any field in Network Builder's node form caused an error, due to the node expecting the new CLNS hop count in the interface message from Network Builder. A fix has been made to the BNS-2000 R4.0 software so that it does not expect the CLNS hop count from StarKeeper II NMS in this release. Network Builder support of the CLNS hop count will be available in the StarKeeper II NMS R9.0 and BNS-2000 R5.0 releases.
2. In the StarKeeper command **smeas trunk t3i <module> count congestion current**, the MAX MIDS USED (TO NODE) field was always 0. The problem has been fixed so that the field is properly updated with the correct number.

## 16. BUILD 70 THROUGH BUILD 74 MODIFICATIONS

### 16.1 Control Computer

1. When a user upgraded a dual controller node from one release to another they got the following error messages:

```
util> copystby cannot access bstat6
      copystby cannot access *
```

The upgrade was done correctly and these error messages were incorrectly generated. The problem has been fixed.

2. When **dbupgrd** was executed, the **CPMML** host ID was changed to N/A. The problem has been fixed so that the host ID is handled correctly during the upgrade.
3. Occasionally, after execution of the **remove** or **restore sam ...** command, the node would panic and the following alarm would be displayed:

```
*C REPORT PANIC!! Unexpected supervisor bus error
```

This problem also sometimes happened when an ISN concentrator was attached. This problem was isolated and fixed.

4. Version information was corrected in the output of the **help** command.

## 16.2 SLM Module

1. On a CCM node, the offline boot diagnostics for the SLM module were failing on an intermittent basis. The problem has been isolated and fixed.

## 16.3 Frame Relay Modules (FRM and FRM-M2)

1. Under heavy load conditions, and after a period of normal data transmission, sometimes a dlcI stopped transmitting data to the backplane to a remote dlcI. The problem has been isolated and fixed.
2. When a FRM port, virtual port, or dlcI was entered on an out-of-service module that was in the "out(fault)" state, the "INITIAL SERVICE STATE" prompt was not being generated, and it should have been. After entering the port, virtual port, or dlcI, when the **verify frm ...** command was executed, the service state for the entered component was set to out-of-service. The problem has been fixed so that the INITIAL SERVICE STATE prompt will now be generated when entering any of the above-mentioned components.
3. A problem was encountered when executing the **diag frm on ...nping** command. If, for example, dlcI 100 was selected the first time the test was run, the **nping** was executed for that dlcI. However, if yes was selected at the CONTINUE TESTING [yes, no (+no)]: prompt, and another dlcI was specified, the **nping** still executed on the original dlcI selected. The problem has been fixed.
4. When a user entered a virtual port on a CHE1 FRM, if all 31 timeslots were already allocated, whatever the user entered at the timeslot prompt was rejected with an error message and the user was reprompted in an endless cycle. The problem has been fixed so that if a user is trying to enter a virtual port and all timeslots have already been allocated, an INPUT ERROR message will be displayed. If the timeslots are all allocated after a virtual port has been entered, an INFO message to that effect will be generated.
5. When the **enter frm-m2 virtual ...** command was executed for a comma-separated list of ports, the port number header line was not displayed while the command looped for time slot allocation for the list of ports. However, the header line was correctly displayed when a range of ports was entered. This problem was also seen with the CHT1 frm m1 module. Also, a blank line has been inserted between the MAXIMUM AGGREGATE CIR FROM REMOTE DEVICES prompt and the BILLING prompt because the BILLING prompt and the prompt following it are common to the entire list or range of ports, and not specific to the last port on the range or list.
6. When executing **diag frm on ...**, the following instruction was being displayed for link tests:  
INFO: Place DSU port in loop-around mode  
That instruction should only be displayed when the user executes the virtual port test. The problem has been fixed.
7. A change was made so that all INPUT ERROR messages for **remove, restore, enter, change** and **delete frm-m2**, will be formatted in the same way.
8. A change has been made to the DATA LINK CONNECTION IDENTIFIER prompt in the **verify frm dlcI ...** command. Previously, that prompt contained both pvc and multicasting DLCIs specified in one range. Now, this prompt will have the PVC DLCIs (16-1022) separated from the multicast DLCIs (1019-1022), and will appear as follows:  
DATA LINK CONNECTION IDENTIFIER [16-1007, 1019-1022: +(16-1022)]:

## 16.4 LAN Protocol Module (LPM)

1. There was an incorrect system response to the LPM host portion of an IP address. The host portion of the IP address is determined by the IP address entered and the subnet mask. A user entered an IP address with a host portion of 0. The user got a confusing error message.

The original error message was:

INPUT ERROR: 0.0.0.0 is an invalid host value for IP address

The message was not clear, because it printed the host portion (in this case zero) as a complete IP address x.x.x.x. Basically, this error message was to let the user know that a host value of an IP address is not allowed to be all zeros or all ones. A new and more informative error message will now be generated in this case. The new error message is as follows:

Host value of IP address of all zeros or all ones is invalid

2. There were 2 problems with connection and termination billing records for calls originated by the LPM module and going through a PQ-Trunk to a node. The first problem was that in both the connection and termination records, the PQ-Trunk slot was displayed as <module#>/0 instead of just <module#>. The second problem was that in both the connection and termination records, the channel numbers for the PQ-Trunk were off by 4. Output of the **display connections** command for dlcis 16-20 showed PQ-Trunk channels 105-109, but the billing records showed channels 101-105. Both problems have been fixed.

### 16.5 X.25 and X.25P Services

1. An enhancement was made to the X.25P module. An option has been added to allow the user to configure the X.25P port to drop DTR on removal of the port. This option is available for RS232 X.25P modules. It is unnecessary for V.35 modules. Before addition of the new option, after the port was removed from service, DTR remained high. A new prompt has been added, which is displayed as follows:

DROP DTR ON PORT REMOVAL [yes, no (+no)]:

For further information, see the attached Product Documentation Notice.

2. When an X.25P module was in service and a user executed the **change x25p port ...** command to change the packet or window size, there was no warning message telling them the maximum recommended packet and window size for the number of channels configured. An enhancement has been added, so that before prompting for the DEFAULT NETWORK LEVEL WINDOW SIZE and the MAXIMUM WINDOW SIZE, if the module is in service, the following INFO message will be displayed:

INFO: The largest window size recommended given the number of channels and packet size currently configured is <num>. Exceeding this number can exceed the module capacity.

Just before prompting for the DEFAULT NETWORK LEVEL PACKET SIZE, the MAXIMUM PACKET SIZE, and the MAXIMUM REMOTE PACKET SIZE, if the module is in service the following INFO message will be displayed:

INFO: The largest packet size recommended given the currently configured number of channels and window size is <num>. Exceeding this number can exceed the module capacity.

3. When executing the **diag x25p ...** command, if the user hit the **delete** key at any of the prompts, the **CC0>** prompt came out on the same line as the prompt the user was deleting out of. The **CC0>** should come out on a new line. The problem has been fixed.
4. After upgrading from another release, a user reported that PAD addresses associated with receive-only SVCs could not be accessed. Attempts to do so generated the "Address is busy" response. The problem has been isolated and fixed.
5. When a call was placed from an X.25P port, the calling address sent to the destination was changed to the sr/sa/epn of the originating X.25P port. An enhancement has been made so that a new prompt has been added that will allow the user to turn the CALLING ADDRESS SUBSTITUTION feature either on or off. For further information, see the Product

Documentation Notice attached to this letter.

6. When a node's database was converted via the **dbclean** command, the following error message was displayed for the X.25P modules:

Upgrade error for x25p module  
Cannot find x.3 profile

The modules were converted correctly. The message indicated a problem where there was none, and was generated about 8-15 times per module. The problem has been fixed.

#### 16.6 DKAP and HSDKAP Modules

1. Several calls were set up via the monitor channel of the DKAP module. The calls were to TY12 ports with PCs attached. After 10 calls were set up, the module reset and requested a TEXT + CONFIGURATION download. The problem has been isolated and fixed.
2. There were some timing and register access problems found in the backplane access with the HSDKAP. The problems have been fixed.
3. The EDOS scheduler used for interface modules was inefficient when only the main processor was being used. Performance improvements were added for the case in which no peripheral processors are used. In addition, other performance improvements were added, and throughput measurements were enhanced.
4. Some improvements were made to the dkap module. The takedown routine was modified to better clean up channels when calls on channelsets get taken down. Performance was improved, and throughput measurements were enhanced. In addition, a new route manager function was added that will print the current state of the Common Signaling Channel (CSC).
5. If the HARDWARE CONFIGURATION TYPE on a dkap module was changed from "hskap" to any other string, or changed from any other string to "hskap", the database was not properly updated. This problem caused the **restore dkap ...** and **diagnose dkap ...** commands to fail and to generate confusing error messages. After failure of the **restore** command, the following error message was generated:

Restore dkap module <num> failed

Module address <num> contains dkap module  
(dkap expected)

After the **diagnose dkap** command failed, the following error message was generated:

INPUT ERROR: Module <num> is a(n) dkap.  
MODULE ADDRESS:

In addition, the **diag dkap** command was modified to prevent illegal diagnostic commands on the HSDKAP, and to provide better error messages.

6. If **change dkap ...** was executed with a current COMMENT displayed as the default, and a <CR> was entered to accept the current COMMENT, and the HARDWARE CONFIGURATION TYPE was either changed to **hskap** or from **hskap** to something else, the COMMENT information was deleted. When the **verify dkap ...** command was executed, there was no entry shown in the COMMENT field. The problem has been isolated and fixed.
7. The **enter dkap channelset ..** command specified the wrong number in the CHANNELS PER CHANNEL SET prompt when configuring a HSDKAP. The prompt with the incorrect number of channels was displayed as follows:

NUMBER OF CHANNELS PER CHANNEL SET [1-2043: +(2043)]:

The maximum number of channels should be 1023, and the default should be 100. The

corrected prompt will appear as follows:

**NUMBER OF CHANNELS PER CHANNEL SET [1-1023: +(100)]:**

The problem has been fixed.

8. The **dkap** debug command **netprthru** has been modified to provide more accurate throughput calculations. In addition, performance improvements were added.
9. Support for HSDKAP was added to the **dbclean** and **dbupgrd** commands.

#### 16.7 SMDS Modules

1. This enhancement insures that looping PDUs are detected and dropped. The detection mechanism is a hop count. To use this feature, the hop count must be configured. See the attached Product Documentation Notice for more information on this feature and how to configure it.
2. A problem was found by System Test with the GAR module when upgrading from one build of Release 4.0 to another. A GAR module that had been in service before the upgrade went "out of service (manual)", and a "Configuration data download failed" alarm was generated. The problem has been isolated and fixed.
3. When an HP75000 analyzer was programmed to set the ICIP reserved field to 1, a looping PDU occurred. This problem has been fixed.
4. An AIT1 module reset during a short period of extremely heavy congestion. The reset occurred because of an unconfigured SNI. The problem has been fixed.
5. A change was made to the download order for ICI tables for all of the AI modules. The change was made to avoid conditions that could cause the looping PDU problem.

#### 16.8 Switched Bisync Module (BSC)

1. The comment error message for an in-service port on an in-service bsc module contained the wrong module and port number. If a user tried to change the comment field for the port on an in-service module when the port was also in service, the following error message was displayed:

Can only change the comment field with module 1 port 0 in service

The message was erroneous because it always said module 1 port 0, no matter what module and port the user was trying to change. The problem has been fixed.

### 17. BUILD 68 THROUGH BUILD 69 MODIFICATIONS

#### 17.1 Control Computer

1. When running LOADER switch diagnostics on the standby switch, test #9 failed. Test #9 is the "Channel number out-of-range or mask error detector" test. The failure occurred on the second or third time that test #9 was run by itself. The failure of test #9 also occurred every time test #18 was run. Test #18 is a group test that includes all the tests. When the failure occurred, the following error message was displayed:

```
error - Unexpected source module.channel LSE13-15 = (aa00bb, cc0000,  
114a)  
expected 22337.18  
test did not pass.
```

The problem has been fixed.

2. The on-line **help** commands were updated to accurately reflect the allowable objects for the **remove**, **restore**, **enter**, **change**, **delete**, **diagnose**, **display**, and **verify** commands.

3. A SIM debug command called **restime** has been added so that the time string of the restoral time of a module can be printed out. As a check, the command will also print out the current time string. The following modules will use the new debug command: Switched Bisync, Frame Relay, CPMML, HSCPMML, DKAP, SAMML, SDLC8, TRK-PQ, TSM8, TSMT1, X.25, X.25P, AIE1, AIE3, AIT1, AIT3, AIT3PE, AIT3PI, FRM-M2 (CHT1 and CHE1), GAR, ICIT3E, ICIT3I, TRKE3, TRKE3A, TRKT3, and TRKT3A.

#### 17.2 Frame Relay Module (FRM and FRM-M2)

1. After a user upgraded a node from R2.0 to R4.0 of BNS-2000 they experienced a problem with the Frame Relay Module link resetting. The problem was accompanied by the display of the following alarm:

```
* 7097 MODADDR=<num> MODTYPE=frm
REPORT STATUS: syncmaint: Link was reset - possible data loss
CLASS=4 TASKID=<num>
```

The problem has been fixed.

2. Some information in the output of the **dstat frm-m2 ...** command was incorrect. A user had 2 frm-m2 dcli's pointing to 2 frm-m1 dcli's. When a **dstat frm-m2 ...** command was executed for the frm-m2 dcli's, the output indicated that performance tuning was on, meaning that AAL-5 was being used. That was not the case, and the information in the dstat report was incorrect. The problem has been fixed.

### 18. BUILD 66 THROUGH BUILD 67 MODIFICATIONS

#### 18.1 Control Computer

1. The **dbupgrd** process failed for a customer that was upgrading from BNS-2000 R2.0 to Release 4.0. The **dbupgrd** program was generating an error message that it was unable to enter some SNI data because the database tables were too small. The problem was fixed.
2. When a user was upgrading to a new release and running the disk certifier diagnostic to list disk defects, they got an error message saying that "Defects exceed buffer space". That problem has been resolved.

#### 18.2 High Speed DKAP Module (HSDKAP)

1. Support for the HSDKAP module was added to the **dbclean** and the **dbupgrd** programs.

#### 18.3 SMDS Modules

1. A customer found that the GAR module was not resolving a group address correctly when they had a 2 or 3 digit carrier id configured for their IC carrier. This problem did not occur if the carrier id was either 1 or 4 digits. The problem has been resolved.
2. An enhancement was made to the disagreement counts section of the StarKeeper **smeas..** output. If the GAR receives a group-addressed PDU, it checks to see if the PDU has already been resolved. If it has already been resolved, it discards the PDU. Before the PDU is discarded, it will now be counted in a new disagreement type that appears in the disagreement count section and in the disagreement log for the StarKeeper **smeas** command. The new disagreement type is "L\_3 PDU Discard NGA Already Resolved (Egress)".

### 19. BUILD 59 THROUGH BUILD 65 MODIFICATIONS

#### 19.1 Control Computer

1. In parallel with CCM development, a special lab configuration was set up to reproduce heavy controller loads. During controller overload, customers have seen these symptoms: controller panics, little or no new call setups and takedowns, trunks going down, trunk channel state mismatches and failure to restore service after a controller reboot. This testing

effort helped development isolate and fix several operating system deadlocks, expand the message buffer pool and adjust message thresholds to decrease the chance of running out of message buffers at a critical time, improve the handling of overload cases by the trunk call processes, and change operating system algorithms for critical resource allocation. The changes made in this MR have greatly improved the controller's ability to handle overloads and recover gracefully.

2. When a TRKFAIL message is received by trunkloop (e.g. rem trk), the Session Maintenance port attribute data structure is referenced to determine if the trunk is a Primary. However, this reference should be done only if the trunk is a Session Maintenance trunk. Previously, this reference was always done, which led to the use of a null pointer and a bus error for non-Session Maintenance trunks.
3. While testing with 34 downloadable modules, the **init hard** command would leave the X.25 modules out of service. This problem was fixed.
4. The **dmeas peak main utilization** report was showing incorrect values. This problem has been fixed.
5. When executing the **dmeas trk current** command from StarKeeper, the command output would terminate prematurely. The problem occurred if the trunk group name was 8 characters long. **dmeas** was fixed to properly handle 8-character group names.
6. This fix correctly cleans up after the death of a child which is spawned by the nmsiep process. The nmsier process was receiving errors from three system calls. This fix will keep StarKeeper connections from hanging.
7. The **dbwalker** command has been changed so that the node information and billing table will not print out unless specifically requested by using the -h option.
8. While testing internally with an 8-shelf node, and executing an **init hard** command, the node went into a state where it would not take any command at all. The hang was due to the CPU UTILIZATION reaching 100%. The problem was caused by syncmaint for various modules getting caught in a tight loop.

Another problem occurred due to the large number of modules. The sendmsg to config failed because the config message queue was full. This problem has been fixed.

9. When the billing connection was brought back up after being down, the billing channel header displayed a message indicating that a negative number of billing records had been discarded. The problem has been isolated and fixed.
10. There are some early alarms generated if there are problems when retrieving a database. These alarms were getting lost. The problem has been fixed.
11. There was a problem with data being sent to StarKeeper for the **enter trunk ...** command. The ENABLE/DISABLE LINK MEASUREMENT field should send either y for yes, or n for no to StarKeeper. StarKeeper was receiving a null instead. The problem was seen with the T1 and PQ trunks. The problem has been fixed.
12. When users were connected to the B port and accessing the MRCM, and then connected to the standby CC, they found that no commands could be executed. The problem has been fixed so that commands can now be executed properly from the B port.
13. The year 1997 was added to the copyright message that appears at boot time.
14. The **help enter ssm4** command output has been updated to include references to FRM-M2 as a candidate for a primary or a secondary source.
15. An internal user was unable to execute the **change node** command on a CCM node that used shelf 7 as the controller shelf. The following error message was displayed:

COMMAND EXITED PREMATURELY: REASON 2

The problem has been isolated and fixed.

16. A problem was found internally when running the **dbresize** command. The LD table was full, and the node could not reboot. The problem was fixed by introduction of a checking routine in another place.
17. A user's node did a switchover after any one of 3 alarms was generated. The first was Alarm #7008. The text of the alarm is as follows:

```
*7008 MODADDR=<addr>  MODTYPE=<type>
REPORT ALARM: stat: channel range error detected by switch.
Rec act: See Messages Reference Manual
```

The next alarm was Alarm #7030, the text of which follows:

```
* 7030 MODADDR=<addr> CHANNEL=<num>  MODTYPE=<type>
REPORT ALARM: Segment parity error detected by switch
Rec act: Check the module
```

The third alarm was Alarm #7031, which reads as follows:

```
*7031 MODADDR=<addr> MODTYPE=CMA1-SW
REPORT ALARM: Either mask error or segment parity
Rec act: Check the switch module
```

After the node generated any of the alarms, it rebooted, causing the switchover. The problem has been fixed.

18. There was a problem where alarm #7013 was coming out every hour on the hour for some nodes. The text of the alarm is as follows:

```
**7013
REPORT ALARM: Controller was overloaded.
Rec act: Reduce load on controller.
```

This alarm by itself is only an indicator of potential problems, and it should be interpreted in the light of other error indicators. Because the alarm was often being generated unnecessarily, we fixed a sensitivity bug in the detection mechanism.

19. References to AT&T have been changed to Lucent Technologies in the copyright message and in the output of various commands.
20. The backup and save areas of the standby (secondary) disk became unreadable via the **dstat cc ..** report when removing the standby disk in an ECPU system. The workaround for the problem was to execute an **init controller** command, or to turn on the automatic backup feature. The problem has been fixed.
21. Under certain conditions, the IEP connection to StarKeeper could not be made. The controller was sending an invalid response. The problem has been isolated and fixed.
22. An alarm will now be generated when the **install registration** command is not run promptly on a node. The text of the alarm is as follows:

```
7112
** REPORT ALARM: skforker: This software is not fully operational.
Rec act: Enter install registration for detailed guidance on
software registration.
```

23. Alarm #7420B's second line was too long. The second line was the one beginning with the words "REPORT ALARM". The problem has been fixed so that the alarm is formatted correctly.

24. A user was not able to send 2 Level 3 PDUs at the same time across a Trunk T3A. The problem has been fixed.
25. There was a problem seen when a user requested an **SMEAS** report through StarKeeper. Requesting the report caused a T3I trunk to reset and to request a TEXT + CONFIGURATION download. There were 3 alarms for the T3I trunk generated to the console:  
1040 stat: Module was reset  
  
1057 stat: fifo reset  
  
8608 hsmaint: TEXT + CONFIGURATION DOWNLOAD REQUESTED  
  
The problem was resolved.
26. The help screens were modified for the **remove** and **restore** commands in order to reflect the addition of the **remove/restore sm** commands to the command set.
27. The **dstat module** command did not recognize AIT1 or AIE1 modules when configured with the correct I/O boards. This problem has been isolated and fixed.
28. Alarm #8456 was incorrectly formatted. The problem has been fixed so that the alarm comes out now with correct spacing.
29. A problem was found where the following two commands would exit prematurely, and generate an alarm:  
**verify group all**  
  
**verify group all mod**  
  
The following alarm was generated:  
\* 1121  
REPORT ERROR: stat: Unexpected exit of command or call processors  
  
The problem has been fixed.
30. The new disk, the ST51080N, could not be used to run the **diag cert** command when used with earlier releases. A change has been made so that the disk will now support execution of the **diag cert** command in BNS-2000 Release 3.0 and higher.
31. An enhancement was made to the Session Maintenance feature that would allow it to be turned on or off from the node console. The following commands were added to the command set:  
**remove sm**  
  
**restore sm**
32. Occasionally after a period of heavy load on a node, the node would panic and the following alarm would be displayed:  
\*C REPORT PANIC!! Unexpected supervisor bus error  
  
This problem also sometimes happened when an ISN concentrator was attached. This problem was isolated and fixed.
33. The LED on a standby CC appropriately went out when the controller slots were changed via the **change node** command. However, when a **change node** command was executed again, and the controller slots were configured to reflect the current position of the CC, the ONLINE LED light did not come on. The problem has been fixed.

34. Occasionally a user would type characters at the console, and instead of those characters being displayed, commands typed earlier at the console would appear. This problem has been isolated and fixed.
35. A problem was experienced when changing the tape cartridge in a tape drive. The first attempt to access the tape always failed, whether the tape device used was block or character. The second attempt to read to or write from the tape worked correctly. This problem has been fixed.

### 19.2 DKAP Interface Module (DKAP)

1. The DKAP module was using an invalid default number of channel sets. If the module was configured for 100 channels, the first time a user entered a channel set, the default for number of channels per channel set was 100, which was correct. However, after 1 channel was specified and the user entered another channel set, the default for the number of channels per channel set should have been 99, not 100. The problem has been fixed.
2. When entering the channel sets for a DKAP module, an incorrect channel range was displayed. If a module was configured for 100 channels, and the user executed the **enter dkap channelset ..** command, the prompt for NUMBER OF CHANNELS PER CHANNEL SET was incorrect. The prompt displayed the range of 1-507, even though only 100 channels were configured for the module. The problem has been fixed so that the correct number of channels will now be displayed.
3. When a range or list of dkap modules was changed, and the number of channels was different for them, there was a bug that allowed the change to be made. In addition, it changed the value of the number of channels on all the modules to be that of the last module in the list changed. The change should not have been allowed. The problem has been fixed.

### 19.3 GAR Module

1. Some customers have experienced problems when a GAR module is placed in slot 1 of an M2 shelf. It is recommended that GAR modules be placed in any slot other than slot 1.

### 19.4 LAN Protocol Module (LPM)

1. When executing the **dmeas lpm dlci <mod> <port> <dlci>** command on an out-of-service dlci, sometimes garbage was printed out instead of the correct dlci number in the following error message:  
Measurements not available for module 37 port 1 dlci <garbage>  
The problem has been fixed.
2. Inverse ARP support has been configured for a DLCI on an LPM, but if the remote IP address learned from the remote endpoint is not on the same sub-network as the FR port for this DLCI, the **dstat lpm dlci** report will show **neterr** in the **RMT IP ADDR STATUS** field for this DLCI. The remote endpoint that the DLCI connects to must be on the same sub-network as the DLCI.
3. A problem was found internally with the reporting of LPM route status. A user had 3 routes set up on a FRMport on an LPM. These routes were correctly designated as "best" in the output of the **dstat lpm route <module>** command. However, after that FRMport on the LPM was removed from service, and the command was run again, only one of the routes was correctly designated as "unavailable", and the other two were incorrectly shown to still be "best". The problem has been fixed.
4. A user experienced a problem in upgrading from Datakit II VCS to BNS2000. The database was upgraded using the program **dkto bns**. When the LPM module was restored to service, the following error message was displayed:

restore lpm module <module number> failed

Download failed for module <module number>.

The problem has been fixed.

5. There was a problem that was occasionally seen when executing the **diag lpm on ...** command and choosing the **ping** option. If the physical connection was temporarily broken for any reason, the PING statistics showed the correct number of packets received and transmitted, but an incorrect percentage of packet loss. The problem has been fixed so that the percentage of packet loss will now be correct.

#### 19.5 X.25 and X.25P Services

1. There was occasionally a problem with X.25P data transfer. The problem happened sometimes when a user was using D bits on data packets, which means that end to end acknowledgement of data packets was required. The customer would have sometimes seen a delay in opening a session on their application. The session would open, however, after the delay. The problem has been isolated and fixed.
2. There was a problem found internally with getting packet level restart to occur between an X.25P module and a 5ESS TN82B board for the Billdata application. The problem has been fixed.
3. A customer occasionally encountered problems in bringing up the link on an X.25P module. This occurred with the Black Box SME V.35. Although the modem eliminator was asserting DCD, the X.25P module did not detect DCD on the port, and therefore, the link would not come up. The problem has been isolated and fixed.
4. There was a problem that was occasionally seen with the X.25P module. It happened when call user data was included in a CALL ACCEPT packet, and the packet size including the user data was less than 128 bytes. Sometimes, under those circumstances, buffers were stranded. After a while, buffer congestion would occur, there were not enough buffers to set up new calls, and the module would have to be removed and restored. The problem has been fixed.
5. There was a problem seen when changing multiple X.25P/X.75 ports, one after another. Although the user was prompted each time for either **extended** or **normal**, after all ports were changed and a **verify X.25P port ...** command was executed, whatever value was chosen for the first port changed (normal or extended) was propagated to all the other ports changed.
6. An enhancement was made to the X.25P module which provides the opportunity for users to configure an interframe delay of 0, 4, 8, or 12 characters at 64Kbps. This interframe delay can be configured when entering an X.25P port. The new port-level prompt is called MINIMUM INTERFRAME FLAGS.
7. If a call was made to an invalid destination, and the connection to the PAD was dropped, there was a 60 second delay before the call was taken down and the user could try to reconnect. That delay was removed.

#### 19.6 TSMT1 Module

1. An enhancement has been made to the TSM-T1 so that, if a port is configured to use GOS5, a new prompt will be issued giving the administrator the option of NOT stripping the CRC. Since the CRC is not stripped on ingress nor regenerated on egress, if data corruption is undetected for any reason, a good CRC will not then be inadvertently put on corrupted data. Note that no change is made to the CRC handling of GOS3 ports.
2. This was a fix for the sleeping DLCI problem. A problem was reported after TSM8's were replaced by TSM-T1's or Frame Relay Modules. The response of the TSM-T1 or the FRM to

an unrelated network problem (data loss on SWTs) caused the module to stop transmitting on the backplane to the other end of the call. In a configuration with 2 FRMs using NNI, data was sent from 1 FRM module to the second FRM module, but the second FRM module did not send it to the router. This problem was seen with both CHT1 and V.35 modules. The fault was not in the interface to the attached equipment. In order to clear the problem, the port had to be removed and restored to service. This problem has been isolated and fixed.

#### 19.7 Trunk PQ (TRK-PQ)

1. There was an error in the output of the **dstat trk-pq current** command. The command was executed for an in-service module, and the following output was displayed:

```
CC0> dstat trunk <module number>
```

Status request for module 87 port 1 returned error (HD2); report will be incomplete.

In the above-mentioned output, under the port level output, both the ACTUAL SRVC STATE and the OPERATING STATE had values of UA, when those fields should have displayed the words IN SERVICE. The problem has been fixed.

2. After execution of the **dmeas trunk ...** command for a TRK-PQ, the headers for AVERAGE, PEAK, and CURRENT MAIN UTIL did not line up correctly. The problem has been fixed so that all fields are now properly aligned.

#### 19.8 Frame Relay Module (FRM)

1. A fix was submitted for a problem where **dstat dlci** for an LOF/LOS link was returning garbage to the controller.
2. Removed a fix for losing Tx underrun interrupt for V.35 FRM.
3. During testing of GOS3, data transfer was compared between GOS3 and GOS4 to observe the setting of FECN and BECN bits. It was discovered that during load/congestion that GOS3 does not set FECN/BECN bits. The support of FECN/BECN under GOS3 has been added.
4. An incorrect termination of a loop for iop/frm caused some frames to be processed that were supposed to be ignored. The problem has been resolved.
5. When removing a Frame Relay DLCI and the module is rfs, the port is oos, and the dlci is rfs, the message "Cannot send message to module (x)" appeared at the console. This problem has been fixed.
6. A fix from MR nsw941362 to not print far end measurements for CHT1 if loopback rec=no had broken far end measurements printing for CHE1 at all. This was made so that far end headings and measurements do not print for T1 with loopback rec=no.
7. The **dmeas frm** command was exiting prematurely. Problem was fixed.
8. The output of the **dstat frm ...** command was out of alignment for the following FAR END fields: CODE VIO, ERRD SECS, SEVRE ERRD SECS, and SEVRE ERRD FRAME SECS. The problem has been fixed.
9. A new requirement was added to section D.5.2 of the ANSI standard regarding non-receipt of a STATUS message in a polling interval after transmission of a STATUS ENQUIRY: "if the unanswered STATUS ENQUIRY requested Full Status, the user equipment shall again request Full Status." The Frame Relay implementation was updated to meet this requirement.
10. When the FRM removes a DLCI from service, it needs to clear the ON\_HOLD flag. This change also applies to the LPM module.

11. A customer was losing link integrity on channelized FRM ports on an intermittent basis. The only way to restore the link integrity was to **remove** and **restore** the ports. This problem was only seen with CHT1 modules. This problem has been isolated and fixed.
12. When a user tried to configure CIR on a virtual port of a FRM-M2 that was originally configured for 0 CIR, the following error message was displayed:  
Max aggregate CIR for Port: 1 is 0.  
The message will now specify both the port and the virtual port.
13. Running the **dmeas ...** command on a CHE1 FRM module returned an error when the user was running the data at the full rate. The user had a FRM-M2 sending data to a CHE1 FRM. All 31 time slots were used, and were configured on one dlci. When the **dmeas frm ...** command was executed on the CHE1 FRM, the following error messages were displayed:  
Measurement request for module <mod #> returned error; report will be incomplete.  
  
Measurement request for module <mod #> port <#> dlci <#> returned error;  
report will be incomplete.  
COMMAND FAILED: EXITED PREMATURELY: REASON 2  
  
After the error messages, a few lines of the **dmeas** report came out, listing the starting interval as: "\*\*\*:\*\*", followed by the line:  
No data available for this section.  
  
After the above error messages, the terminal hung, and the user had to hit delete to get the CC0> prompt back again. The problem has been fixed.
14. Part of the output for the **dmeas frm-m2 port ...** report was not correctly aligned. The data in the NEAR END and FAR END sections of the report were misaligned whenever the %ERR FREE SECS field contained "0.0". The problem has been fixed.
15. The output of the **dstat frm-m2 vp ...** command was inconsistent in one field. The value of the OPERATING STATE field for both the virtual port and the physical port was link reverse. However, one said "link reverse" and the other said "linkrvrs". They should be the same. The problem has been fixed so that the words "link reverse" will appear in both places.
16. After failure of the **restore frm-m2 ...** command, the following error message was printed twice:  
Module address <#> contains unknown I/O board type.  
  
Module may have reset. Try again.  
  
The problem has been fixed so the above message appears only once.
17. The diagnostics and dmeas facility measurements for the M2FRM showed far end measurements for line errored seconds, frame slips and severely errored frame seconds even though the M2FRM never receives these. The far end measurements were also displayed in the E1 M2FRM diagnostics and dmeas reports even though the E bits were configured as off. They should not have been displayed when the E bits are not configured. The E1 M2FRM does not return far end measurements to the far end if E bits are off so far end measurements should not be displayed. There was another problem where a user executing the **dmeas frm-m2 ...** command for a CHE1 FRM-M2 with the E-bit enabled saw the error message "No data available for this interval" in the FAR END part of the measurement report. Both problems have been fixed.
18. After a FRM-M2 module was restored to service with ports in the rfs state, the output of the **dmeas frm-m2 port ...** command showed an initial line code errored second or line code

violations. The problem has been fixed so that an initial waiting period has been introduced in order to ensure accurate measurement reporting.

19. The dmeas report for the M2FRM sometimes showed an inconsistency between the number of bit-errored seconds and the number of far end code violations actually reported by the far end. Also, sometimes the dmeas report would show a fractional percentage of error free seconds (%ERR FREE SECS) even though every second contained an error. Both these problems have been fixed.
20. This was the memory pointer fix for the module reset problem. Frame Relay modules were resetting while in buffer congestion. After the reset, the FRM modules were automatically re-downloaded by the controller, and the PVCs were re-setup. This problem was seen with both CHT1 and V.35 modules. This problem has been fixed.
21. A customer experienced problems with a channelized FRM. The FRM would not respond to commands or to polls for measurements. If erroneous data came in over a port, the module would hang. The problem has been fixed.
22. There was a performance problem with the X.25P and the FRM modules. If there were originate and receive channels and traffic was going in both directions, the module would eventually hang. This problem only occurred at low speeds, such as 56K or 64K. The problem has been isolated and fixed.
23. When there were no DLCI's configured for a Frame Relay Module or a Lan Protocol Module (LPM), scheduled measurements failed to come out. This problem has been isolated and fixed.
24. A user reported a problem when trying to delete a range of multicast dlcis. The following error message was generated:  
  
COMMAND FAILED: EXITED PREMATURELY: REASON 9  
  
All of the dlcis were not deleted. The problem has been isolated and fixed so that when deleting a range of multicast dlcis, all the dlcis specified get deleted.
25. This was a fix for the sleeping DLCI problem. A problem was reported after TSM8's were replaced by TSM-T1's or Frame Relay Modules. The response of the TSM-T1 or the FRM to an unrelated network problem (data loss on SWTs) caused the module to stop transmitting on the backplane to the other end of the call. In a configuration with 2 FRMs using NNI, data was sent from 1 FRM module to the second FRM module, but the second FRM module did not send it to the router. This problem was seen with both CHT1 and V.35 modules. The fault was not in the interface to the attached equipment. In order to clear the problem, the port had to be removed and restored to service. This problem has been isolated and fixed.
26. A customer reported that once the BECN bit was set in the frames from the node, it stayed permanently. To clear that bit, the customer had to remove and restore the port. This problem has been isolated and fixed.
27. When a user executed the **dmeas frm dlci ....** command for an out-of-service dlci on a FRM or an LPM module, an informational message was displayed indicating that measurements were not available. After that message, the following instruction was displayed:  
  
Use the "VERIFY" command to determine out of service dlcis.  
  
The word **VERIFY** has been changed to lower case letters, **verify**, so that it is consistent with other commands and with the convention that a command cannot be entered in upper case letters.
28. After completion of the **diagnose frm on-line <mod> link internal\_port** test, the CONTINUE TESTING [yes, no: +(yes)]: prompt appeared. However, if **yes** was selected, the **internal\_port** test was run again. What should have happened was that the list of available

tests for link diagnostics should have been displayed, giving the user the opportunity to select another test. This problem has been isolated and fixed.

### 19.9 SMDS Modules

1. When a trunk t3i was removed from service, the standby switch received an alarm 8215 and was also taken out of service. This problem has been fixed.
2. There was a typo in one of the prompts for the **diag smds ...** command.

TEST PATTERN [qrs, 1\_in\_8, all\_ones ,all\_zeros: +(qrs)]:

has been changed to:

TEST PATTERN [qrs, 1\_in\_8, all\_ones, all\_zeros: +(qrs)]:

3. Occasionally, an AI module failed to respond to the controller. It appeared that the OA&M partition was consuming 100% of the CPU, although that was not the case. The problem could have happened with any downloadable module. The problem has been fixed.
4. A change was made to the default threshold profile values for AI-E1 and AI-E3 so that they meet the ESIG specifications. The default values are displayed when a user enters the **verify threshold default all** command, or when a specific threshold is entered via the **enter threshold ...** command. However, in order for the default thresholds for E1 and E3 to take effect the customer must run the **dbupgrd** procedure.

## 20. BUILD 58 MODIFICATIONS

### 20.1 Control Computer

1. The change address command has a prompt which allows all originating security strings to be changed when the current security string is changed. The security strings were not properly updated for the speedcall addresses. This has been fixed.

### 20.2 Frame Relay Module

1. When a user executed the **diag frm-m2 online...** command for a virtual-port that was not entered, the following error message was displayed:

INPUT ERROR: Port <number> is not entered.

The error message should be consistent with those displayed by other commands in the same situation, and should read as follows:

INPUT ERROR: Module <number> port <number> virtual port <number> is not entered.

The problem has been fixed.

2. When a FRM-M2 module was removed from service, the port LEDs remained lit. They should have been turned off when the module was removed from service. The problem has been fixed.

### 20.3 LAN Protocol Module (LPM)

1. A **remove/restore** of an LPM module caused a loss of route entries. After execution of the **remove/restore** command, both the **dstat lpm route <module> ...** and the **verify lpm route <module>** commands showed that the routes that existed prior to the **remove/restore** were gone. The problem has been fixed.

#### 20.4 SMDS Modules

1. There were two problems seen by a user. The first was a problem seen when taking a T3 trunk out of service. Other nodes in the network reported alarm 7409, the text of which is as follows:

**\*\*7409B**

REPORT FAILURE: rap: Trunk routing table capacity exceeded  
Can't route CLNS traffic to address range  
<list of addresses>  
Rec act: Reconfigure network

The second problem was that they could not route traffic to their IP router, even though there were routes available to the node to which it was connected. When they executed the **display route dest add** <address of node connected to IP router> command on nodes in the network, the output of the command showed that no routes were available, even though there were available routes. The problem has been isolated and fixed.

2. A user reported that when two AIT1 ports on one module were talking to two AIT1 ports on another module, the response time was poor and the **ping** success rate was 80%-90%. The problem has been isolated and fixed.



## CONTENTS

1. DOWNLOADABLE MODULES VERSIONS . . . . .	1
2. YEAR 2000 SUPPORT . . . . .	2
3. UMI SUPPORT . . . . .	2
4. Build 92 MODIFICATIONS . . . . .	3
4.1 Control Computer . . . . .	3
5. BUILD 91 MODIFICATIONS . . . . .	4
5.1 Control Computer . . . . .	4
6. BUILD 90 MODIFICATIONS . . . . .	4
6.1 Control Computer . . . . .	4
7. BUILD 89 MODIFICATIONS . . . . .	5
7.1 Control Computer . . . . .	5
8. BUILD 88 MODIFICATIONS . . . . .	5
8.1 Control Computer . . . . .	5
9. BUILD 87 MODIFICATIONS . . . . .	6
9.1 Control Computer . . . . .	6
10. BUILD 86 MODIFICATIONS . . . . .	6
10.1 Control Computer . . . . .	6
10.2 X.25, X.25P and X.75 Services . . . . .	7
11. BUILD 85 MODIFICATIONS . . . . .	7
11.1 DKTOBNS Conversion . . . . .	7
11.2 Control Computer . . . . .	7
11.3 X.25P Services . . . . .	7
11.4 SMDS Modules . . . . .	7
12. BUILD 84 MODIFICATIONS . . . . .	8
12.1 MSM Module . . . . .	8
12.2 SMDS Modules . . . . .	8
12.3 LAN Protocol Module (LPM) . . . . .	8
13. BUILD 80 THROUGH BUILD 83 MODIFICATIONS . . . . .	8
13.1 Control Computer . . . . .	8
13.2 MSM Module . . . . .	9
13.3 Frame Relay Module (FRM) . . . . .	9
13.4 X.25 and X.25P Modules . . . . .	9
13.5 Synchronous/Asynchronous Multiplexer (SAM) . . . . .	10
13.6 SMDS Modules . . . . .	10
14. BUILD 76 THROUGH BUILD 79 MODIFICATIONS . . . . .	10
14.1 Control Computer . . . . .	10
14.2 X.25 and X.25P Services . . . . .	11
14.3 Frame Relay Module (FRM) . . . . .	11
14.4 MSM Module . . . . .	12
14.5 LAN Protocol Module (LPM) . . . . .	12
14.6 SMDS Modules . . . . .	13
15. BUILD 75 MODIFICATIONS . . . . .	13
15.1 SMDS Modules . . . . .	13
16. BUILD 70 THROUGH BUILD 74 MODIFICATIONS . . . . .	13
16.1 Control Computer . . . . .	13

16.2	SLM Module	14
16.3	Frame Relay Modules (FRM and FRM-M2)	14
16.4	LAN Protocol Module (LPM)	14
16.5	X.25 and X.25P Services	15
16.6	DKAP and HSDKAP Modules	16
16.7	SMDS Modules	17
16.8	Switched Bisync Module (BSC)	17
17.	BUILD 68 THROUGH BUILD 69 MODIFICATIONS	17
17.1	Control Computer	17
17.2	Frame Relay Module (FRM and FRM-M2)	18
18.	BUILD 66 THROUGH BUILD 67 MODIFICATIONS	18
18.1	Control Computer	18
18.2	High Speed DKAP Module (HSDKAP)	18
18.3	SMDS Modules	18
19.	BUILD 59 THROUGH BUILD 65 MODIFICATIONS	18
19.1	Control Computer	18
19.2	DKAP Interface Module (DKAP)	22
19.3	GAR Module	22
19.4	LAN Protocol Module (LPM)	22
19.5	X.25 and X.25P Services	23
19.6	TSMT1 Module	23
19.7	Trunk PQ (TRK-PQ)	24
19.8	Frame Relay Module (FRM)	24
19.9	SMDS Modules	27
20.	BUILD 58 MODIFICATIONS	27
20.1	Control Computer	27
20.2	Frame Relay Module	27
20.3	LAN Protocol Module (LPM)	27
20.4	SMDS Modules	28