Comm-Pro Associates
Host Network Access Support

HNAS
Migration By
VnRnMn Reference

All VnRnMn Supported Releases

(Information is also available in Chapter 5 of the HNAS Guide and Reference Manual)

Please see next page for important
information concerning your
Host NAS distribution materials.

This file revised November 8, 2012 9:34 am, includes maintenance thru 2400111.

General Information

Comm-Pro Associates is the designer and developer of the X.25 Host Network Access Support host resident Program Product (Commonly referred to as **Host NAS** or **HNAS**). The Host NAS product provides support for X.25 connectivity over router based networks using Cisco's X.25 over TCP/IP (**XOT**) or IBM's X.25 through TCP/IP (**XTP**) transport protocols. The HNAS implementation was designed to avoid application changes by providing a transparent migration from IBM 3745 NSPI based communication controllers to the HNAS router based solution. The product offering provides a robust suite of non-SNA NPSI type support. Please refer to Chapter 1 (Introduction) for a complete list of products and Applications supported.

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For additional documentation and up-to-date information, please refer to member @README in the Comm-Pro distribution macro library. See our WEB site for the latest information.

Important Notes

1) Please refer to the optional README/@README file included with the HNAS product distribution media (separate file or HNASMAC macro member) for additional product information and documentation not included in this manual. Additional information can also be located on our web site (Please refer to Contact Information section for contact details).

Chapter 5 - Migration

This chapter describes the configuration operands and run time functions that have changed or been removed under the denoted HNAS releases. The specific migration list items should be carefully reviewed before implementing a product upgrade or refresh to ensure that your environment isn't impacted by the changes.

Migration Overview

Every effort has been made to preserve previously defined default values so that migration to newer levels of HNAS occurs with minimal impact to our customers. There are times, however, when the program logic must be updated or altered for new program options or to correct previously defined default assumptions found to be incorrect. This includes changes to configuration operands, messages and runtime processes that can cause the environment to operate differently than previous releases. The migration sections also contain information on documentation section reassignment, as appropriate.

As each new release is introduced the migration issues for that particular release will be denoted under the respective V*n*R*n*M*n* release heading **"Program Logic changes to V*n*R*n*M*n* that may affect your environment migration"** of this documentation area.

When upgrading to a newer release, you should review all V*n*R*n*M*n* migration sections after your existing release up through the release you are interested in upgrading to.

If you are upgrading from V2R3M0 to V2R4M0, you need only review the V2R4M0 migration section.

If you are upgrading from V2R2M0 to V2R4M0, you need to review the V2R2M0 thru V2R4M0 migration sections.

We also recommend that you review the migration section for the release that you are upgrading from to see if any items were added to the migration list after your HNAS product implementation date. This doesn't occur often because APARs are typically issued to document these type of changes for an active release.

We suggest that you review the **DNAS** console command output to determine the current release level and generation date of your existing HNAS product. The information is normally available in the SYSPRINT area when HNAS is started although it can be displayed at any time using the Local or Remote DNAS console command.

Migration

For **V2R4M0**, the DNAS command produces the following output:

```
HNAS --> VERSION=V2R4M0 DIST=SMP                                     1
         ASMDATE=2006/01/02 ASMHOST=ZOS                              2
         RUNNING UNDER z/OS 01.04.00                                 3
         DNAS COMMAND ENTERED AT 01:21:33 ON 2006/01/03             4
         HNAS PROGRAM STARTED AT 01:09:54 ON 2006/01/03             5
         HNAS PRODUCT CREATED AT 21:17:43 ON 2006/01/02             6
         CREATED WITH MAINTENANCE THROUGH APAR 2400000              7
         MOST RECENT MAINTENANCE APPLIED IS APAR 2400000            8
         SHIPID=0000000000199999 AUTH=00                            9
         CUSTMAC=                         <-- if present            10
         CUSTOBJ=                         <-- if present            11
         CUSTID= cid_cust#  (i.e. trl_99999)                        12
         CUSTINFO= optional customer info                           13
         MAINTENANCE/USE ANNIVERSARY DATE IS 2007/01/31             14
         DATAFONO SUPPORT IS INCLUDED     <-- if present            15
                                                                    16
         APARID   MODULE  (APPLIED MAINTENANCE)                     17
         ALL MAINTENANCE ON THROUGH MOST RECENT APAR 2400000        18

         - or -

         aparid  NOT INSTALLED                                      19
         :
         aparid  NOT INSTALLED                                      n
```

Items in **bold** are new for 240.

Line numbers to the right of the DNAS display above are for reference only. Lines 10 and/or 11 are displayed only if a custom MACLIB and/or OBJLIB were used to create the HNAS distribution. The APAR number in line 7 represents the highest APAR number that was included in the HNAS distribution when it was created (*distribution APAR*). The APAR number in line 8 represents the highest APAR number applied to HNAS after the distribution was installed at the customer site (*applied APAR*). The *distribution APAR* and the *applied APAR* will be the same if no maintenance has been applied since the original HNAS install. If there are no missing APARs between the *distribution APAR* and the *applied APAR* (all APAR numbers are consecutive), line 18 will be displayed. If, however, there are 'wholes' between the *distribution APAR* and the *applied APAR* then the missing APAR(s) are displayed following line 17 of the form shown in line 19.

Items in **bold** are new for 240. Please refer to the DNAS section of the Console Sub-system Operations Guide for a description of the new fields.

For **V2R3M0**, the DNAS command produces the following output:

```
HNAS --> VERSION=V2R3M0 DIST=NON-SMP ASMDATE=12/16/05 ASMHOST=ZOS    1
          RUNNING UNDER z/OS 01.04.00                                 2
          STARTED AT 10:54:50 ON 12/16/2005                           3
          CREATED AT 10:11:31 ON 12/16/2005                           4
          CREATED WITH MAINTENANCE THROUGH APAR 2300168               5
          MOST RECENT MAINTENANCE APPLIED IS APAR 2300168             6
          SHIPID=9999999999999999 AUTH=00                             7
          CUSTMAC=COMM1.TEST.HNASMAC                                  8
          CUSTOBJ=COMM1.TEST.HNASOBJ                                  9
                                                                     10
          APARID   MODULE   (MAINTENANCE STATUS)                     11
          ALL MAINTENANCE ON THROUGH MOST RECENT APAR 2300168        12

          - or -

          aparid  NOT INSTALLED                                      13
          :
          aparid  NOT INSTALLED                                       n
```

Line numbers to the right of the DNAS display above are for reference only. Lines 8 and/ or 9 are displayed only if a custom MACLIB and/or OBJLIB were used to create the HNAS distribution. The APAR number in line 5 represents the highest APAR number that was included in the HNAS distribution when it was created (*distribution APAR*). The APAR number in line 6 represents the highest APAR number applied to HNAS after the distribution was installed at the customer site (*applied APAR*). The *distribution APAR* and the *applied APAR* will be the same if no maintenance has been applied since the original HNAS install. If there are no missing APARs between the *distribution APAR* and the *applied APAR* (all APAR numbers are consecutive), line 12 will be displayed. If, however, there are 'wholes' between the *distribution APAR* and the *applied APAR* then the missing APAR(s) are displayed following line 11 of the form shown in line 13.

Note: The **DNAS** conditional output for display line 11 heading '`APARID MODULE (MAINTENANCE STATUS)`' and display line 13 (and what follows) '`aparid NOT INSTALLED`' were originally introduced into 230 via APAR 2300062. The text, as it now appears, was subsequently changed by 2300089.

Note: The **DIST=NON-SMP|SMPE**, **CUSTMAC=** and **CUSTOBJ=** fields were introduced into 230 via APAR 2300112.

We also suggest that anytime problems arise, you issue the **DNAS** console command and forward the output along with your **CDF** (configuration data file) to your HNAS Sales and Support representative when ordering the product refresh or upgrade. This will provide the HNAS support representative with an opportunity to review your specific configuration and

maintenance environment in an effort to provide a smooth transition to the newer product level.

Distribution Library Names

We strongly recommend that all HNAS product refreshes and upgrades be installed into new uniquely defined libraries.   We suggest that the second level dataset name qualifier identify either the:

@*vrmnnnn* (**@2400001**) HNAS Version, Release, Modification *vrm* and APAR mainte- nance level id *nnnn*, or

V*n*R*n*M*n* (**V2R4M0**) HNAS release designation and a single digit Generation Identifier (**A**, B,,, to clearly identify the iteration level)

in an effort to clearly identify the maintenance level for product upgrades or refreshes.

Samples: *hlq.***@2400001**.HNASMAC
            *hlq.***V2R4M0A**.HNASMAC

Refer to Chapter 6 section 'Upgrade and Refresh Distribution Maintenance Installation' sec- tion of this documentation manual for additional information regarding maintenance installa- tion topics.

Information Sources

For additional information, please refer to the following information sources:

1) "**HNAS New Features - V***n***R***n***M***n*" located in the Appendix D section of this documenta- tion manual;

2) Web sites: **www.comm-pro.com/hostnas/maint/index.htm**
               www.comm-pro.com/hostnas/docs/docindx.htm

3) **README**, **@README** or **@CSTMEMO** files located in with the HNAS product distribution (these optional members are located in the **HNASMAC** or **HNASMACX** macro libraries) or

4) "**Document, V***n***R***n***M***n*" and/or "**Program, V***n***R***n***M***n*" entries are located in the **Revision Index** section of the Special Revision Master Index book (available upon request)

Please refer to Chapter 6 of this documentation for information on maintenance.

Migration - V2R4M0

Program Logic changes to V2R4M0 that may affect your environment migration

1) In an effort to standardize the date format in HNAS documentation, console command output and alert messages date fields, the HNAS generated date format are now in the yyyy-mm-dd date format while the Host system generated dates are provided in their native format which is typically in the month day, year (January 1, 2006) format.

   In addition, throughout our documentation the dataset name qualifier of **QQQQ.** or **qqqq.** has been replaced with **hlq.** to better reflect the **h**igh **l**evel **q**ualifier of the dataset names.

2) The HNAS non-SMP/E product installation process has changed. Several improvements were implemented including a REXX exec that builds the installation JOB from a template parameter file and reduces the steps required to install the product.

   The sample **ZAP** step was removed from the **HNASINST** JOB and is no longer provided or necessary in the **HNASMNT** JOB (the ZAP step was historically provided as a sample although all HNAS maintenance is provided in macro or object format, no ZAPping is required). In addition, the HNAS product installer no longer has to manually create the non-SMP/E **HNASMNT** JOB because the 240 installation process now does this auto-matically.

3) The **DNAS** command output display contains additional environment information, some of the display output lines were reordered. Please refer to the DNAS command description in the Console Guide for additional information.

4) The **PRNTXTP ON** parameter option now defaults to **PRNTXTP OFF**. Other **PRNTtype** start parameters were under consideration to be changed from **ON** to **OFF** defaults although further review revealed that important Information messages would be elimi-nated from SYSPRINT. The best way to eliminated unwanted **NAS***cnnn***l** SYSPRINT messages is to enable the ALRMFLTR=(...,**NAS***cnnn***l(P)** Purge filtering.

   The **PRNTtype** start parameter controls the logging of **I**nformational **NAS***cnnn***l** (severity *s-value* of **I** are controlled by this process) SYSPRINT alarm and alert message activity.

5) Message content was altered (improved) in the following Alert Messages:

   NAS0030I, **NAS0050A**, **NAS0200W**, **NAS0201E (**was **NAS0201W), NAS0202W NAS7701W**, **NAS7702E**, **NAS7717W** and **NAS9205***i*.

   Please refer to the respective message ID for additional information.

6) The following messages are now written to SYSPRINT regardless of the PRNTtype or SHOWtype setting via DEV=F (see Informational Alert Message Considerations).

   NAS0030I and **NAS9205I**.

Please refer to the Messages & Codes Alert Message sections for additional information concerning these messages and other DEV=F messages.

7) MCH names **SKIP** and **CLEAR** are now reserved names for **RTEIN=** list filter processing to allow predefining of dteaddr entries to be positionally skipped (reserved for future use) as well associating dteaddr values filtering for clear processing. Please refer to the remote type LOCAL, RTEIN= parameter for additional information.

8) The **TRCMCH ALLON** console command <u>no longer</u> sets the ICR, ICRF, OCR, ICLR and OCLR options in order to force it to behave the same as the TRCMCH ALLON start parameter. The ALLON function is now separate from the ICR, ICRF, OCR, ICLR and OCLR trace requests. The TRCMCH ALLON start parameter and console command will now start MCH tracing only although the TRCMCH ICRF option is now set by default. When the ICR, ICRF, OCR, ICLR and/or OCLR trace options are in effect, corresponding trace entries are only logged if the MCH(s) are also being traced (TRCMCH ALLON is in effect).

The console command or start parameter operators **ICR, ICRF, OCR, ICLR** and **OCLR** can still be entered individually or as a group. While the start parameter decode assumes that these operators are *global*, the console command processor now requires the **GBL** option (or the assumed GBL default mentioned below) to identify these parameters as *global*. If **GBL** is omitted and RNM=*rmtname* **or** ID=*nn* is specified, these parameters are assumed to be *local* to the MCHs identified by the RNM= **or** ID= modifiers. If GBL is omitted and both RNM= **and** ID= are not set (null), these parameters are assumed to be *global* (**GBL** is assumed).

Because of the complexity of the TRCMCH command, we recommend that when working with command operators (**ICR, ICRF, OCR, ICLR** and **OCLR**) in global mode that the **GBL** parameter always follow the primary command (i.e. **TRCMCH GBL ICR ON|OFF**).

9) Console commands (whether entered via CONCMDQ= or by the console operator) will now be prefixed with text "**HNASCMD->**" when written to the SYSPRINT output in an effort to improve general readability and improve find|search capabilities.

10) Some **TRC*type*** console commands (TRCLU, TRCMCH, TRCMCHX and TRCVC) will now display "**HNASCMD->**" identifying the command and related command **modifiers** and **arguments** (including default arguments) that will be used during command execution. Please refer the 240 New Features or the specific console command for additional information.

11) The **DLU** and **DVC** command output display now contains heading field SESSINIT which identifies the VC connect state as well as the initiator (direction) of the Call Request. The CID field is no longer provided in the default (FMT1) base display although it is provided in the 'DLU|DVC FMT2' or 'DLU|DVC SHOWCID' display. Please refer to the 240 New Features section for additional DLU or DVC improvements.

12) The PRTLMT= operand maximum value was changed from 134217727 (X'7FFFFFF) to 16777215 (X'FFFFFF') for PRTSWLST=DYNAMIC support via 240 as Enhancement APAR 2400001. This was required because the DYNALLOC parameter list element for the SYSOUT print limit (SVC99 key X'001B') is a 3-byte field.

13) The HNAS buffer size has been increased by 16 bytes for diagnostic purposes. This means that when you specify a BFRSIZ= value, you must allow for this new 16 byte area.

Prior to V2R4, the packet header length was 52 bytes. Thus, for a packet size of 128, BFRSIZ=180 had to be specified if a single buffer was to contain a full packet.

Starting with V2R4, the packet header is now 68 bytes. Thus, for a packet size of 128, BFRSIZ=196 has to be specified if a single buffer was to contain a full packet.

Beginning with **APAR 2400002**, HNAS will automatically increase the BFRSIZ= value by 16-bytes and issue the following message if the BFRSIZ= value does not already compensate for the new packet header length:

```
NAS1121D BUILD BFRSIZ=dddd AUTOMATICALLY INCREASED TO dddd,
         DEBUG FIELD ADDED
```

The BFRSIZ= value will not be increased by 16-bytes and this message will be withheld if the BFRSIZ= value already accounts for the new 68 byte packet header, that is, it is one of the following values:

```
 196 = 68 + 128
 324 = 68 + 256
 580 = 68 + 512
1092 = 68 + 1024
2116 = 68 + 2048
4164 = 68 + 4096
9362 = TCPIP transfer limit
```

Note that the packet size is always given as a power of 2 via facility code 42 therefore intervening values do not have to be tested.

Note: The logic to automatically increase the BFRSIZ= was introduced into 240 under APAR 2400002.

14) The following console error messages have been changed:

```
from: NASC522E INPUT DATA INVALID, REQUIRED
to:   NASC532E PARAMETER DATA INVALID, REQUIRED
```

```
from: NASC003E DECODE FAILURE, RE-ENTER
to:   NASC003E DECODE FAILURE FOR badcmd..., RE-ENTER
```

Note: These error message changes were introduced into 240 under APAR 2400014.

15) APAR **2400018** corrected **IDLETO=** processing so that the session idle timeout value is taken from the IDLETO= parameter on the MXT (if coded), the SPU (if coded), the MCH (if coded) and BUILD (if coded - 0 is the default for BUILD). Prior to the APAR if, for

example, an SVC0= string addressed a TYPE=MXT REMOTE with an omitted IDLETO= parameter then a value of zero was used instead of the MCH or BUILD IDELTO= values.

16) Prior to APAR 2400017, only the following alarm messages were forced and some, but not all, could be filtered from SYSCONS and SYSPRINT using the BUILD ALRMFLTR= operand.

Message ID	Message Description	Subject to ALRMFLTR
NAS0001I	HNAS initialization complete alert message	NO
NAS003xI	HNAS shutdown messages	NO
NAS0205I	SYSPRINT logging terminated by SHUTDOWN	NO
NAS0208I	PRTSWLST= SYSPRINT log dataset opened	NO
NAS0210I	PRTSWLST= SYSPRINT log switch requested	NO
NAS0910I	Date crossover message issued at midnight	NO
NAS3796I	Gate Fast Connect LU session start alert message	YES
NAS3798I	LU session start alert message	YES
NAS3799I	LU session end alert message	YES
NAS920xI	HNAS authorization messages	NO

Effective with APARs 2400017 and 2400019, the following alarm messages are now forced and some, but not all, can be filtered from SYSCONS and SYSPRINT using the BUILD ALRMFLTR= operand. Note that existing forced message IDs prior to APAR 2400017 are listed in **bold**.

Message ID	Message Description	Subject to ALRMFLTR
NAS0001I	**HNAS initialization complete alert message**	**NO**
NAS003xI	**HNAS shutdown messages**	**NO**
NAS0050A	Tracing suspended or snapshot dump taken by *consname*	NO
NAS0060W	Tracing resumed or snapshot dump resumed by *consname*	NO
NAS0070W	Trace trap action status changed by *consname*	NO
NAS0071W	Trace trap action status	NO

Message ID	Message Description	Subject to ALRMFLTR
NAS0120I	SYSCONS error and info alarms enabled by *consname*	NO
NAS0121W	SYSCONS non-forced alarms disabled by *consname*	NO
NAS0122I	SYSCONS error alarms enabled by *consname*	NO
NAS0130W	SYSCONS alarm options modified by *consname*	NO
NAS0201E	SYSPRINT log record limit reached, logging terminated	NO
NAS0204E	SYSPRINT ABEND, logging terminated	NO
NAS0205I	**SYSPRINT logging terminated by SHUTDOWN**	**NO**
NAS0207W	SYSPRINT PRTSWLST= log datasets all used	NO
NAS0208I	**SYSPRINT PRTSWLST= log dataset opened**	**NO**
NAS0209E	SYSPRINT PRTSWLST= log dataset could not be opened	NO
NAS0210I	**SYSPRINT PRTSWLST= log switch requested**	**NO**
NAS0210I	SYSPRINT logging enabled by *consname*	NO
NAS0210W	SYSPRINT trace logging enabled by *consname*	NO
NAS0211I	SYSPRINT trace logging disabled by *consname*	NO
NAS0211W	SYSPRINT logging disabled by *consname*	NO
NAS0230W	SYSPRINT logging options modified by *consname*	NO
NAS0910I	**End of day crossover message issued at midnight**	**NO**
NAS3796I	**Gate Fast Connect LU session start alert message**	**YES**
NAS3797I	SLU BIND received from PLU	YES
NAS3798I	**LU session start alert message**	**YES**
NAS3799I	**LU session end alert message**	**YES**
NAS5720I	Datafono LU session start alert message	YES
NAS5721I	Datafono leased LU normal session end alert message	YES
NAS5722W	Datafono leased LU error session end alert message	YES
NAS920*x*I	**HNAS authorization messages**	**NO**

17) Effective with APAR 2400028, the following configuration error messages have been substituted when the *vclmt* value for the PVC=, SVC0=, SVC3=, SVC4= or SVC5= operands exceed their respective operand array limit:

```
from: NAS1321E ERROR: REMOTE   SVC0=(512,
  to: NAS1303E LIMIT: REMOTE   SVC0=(512,
```

Note that the maximum *vclmt* values are as follows:

```
PVC    SVC0    SVC3    SVC4    SVC5
255     511     255     511     511
```

The NAS1303E message will also be issued when the *vclmt* value for the alternate syntax for SVC0=, SVC4= or SVC5= exceeds the respective operand array limit. For example, if SVC0=(MCH1XX,01,256) is specified, the following message will be issued when the *vclmt* suboperand is encountered:

```
NAS1303E LIMIT: REMOTE   256)
```

This occurs because the generated SLU names are limited to eight (8) characters in length (MCH1XX01 through MCH1XXFF). The *vclmt* value of 256 would cause SLU names to exceed the 8 character limit (MCH1XX100).

Note: These error message changes were introduced into 240 under APAR 2400028.

18) Effective with APAR 2400031, the NAS3711 alert message, which reports that HNAS has received a -RSP from the PLU, can be issued with 'I' and 'W' severity levels. The 'W' severity is used when HNAS will terminate the VTAM session based on the sense data. The 'I' severity indicates that the VTAM session will be left active. In addition, the sense data sent by the PLU is now displayed in the alert.

19) Effective with APAR 2400032, the following error messages will be issued if an invalid table is named for the LOGTAB=, USSTAB= or OPTIONS=NRITAB= operands:

For BUILD:

```
NAS1111E BUILD LOGTAB=lgtbnm IS NOT A VALID LOGON TABLE, REQUIRED
NAS1111E BUILD USSTAB=ustbnm IS NOT A VALID USS TABLE, REQUIRED
```

For REMOTE:

```
NAS1311E REMOTE rmtnm LOGTAB=lgtbnm IS NOT A VALID LOGON TABLE, REQUIRED
NAS1311E REMOTE rmtnm USSTAB=ustbnm IS NOT A VALID USS TABLE, REQUIRED
NAS1311E REMOTE rmtnm NRITAB=nrtbnm IS NOT A VALID NRI TABLE, REQUIRED
```

Because these messages are severity 'E', HNAS will terminate after the CDF is completely scanned if any of these messages are issued.

An invalid table is one that does not conform the format as dictated by the given operand. For example, if the LOGTAB= operand specifies a USS table name instead of a LOGON table name (e.g., LOGTAB=ISTINCDT), the following message will be issued:

```
NAS1311E REMOTE rmtnm LOGTAB=ISTINCDT IS NOT A VALID LOGON TABLE, REQUIRED
```

Prior to this APAR, an invalid table was not detected until the table was selected during call setup processing.

For a bad USSTAB=, the following message is issued and the call is cleared:

```
NAS5702E LU sluname ADDRESSES INV USSTAB
```

For a bad LOGTAB= value, no action is taken (treated as if no LOGTAB= value was specified). In this case USSTAB= is used. If the USSTAB= operand is (also) missing, the following message is issued and the call is cleared:

```
NAS5703E LU sluname MISSING USSTAB
```

The new configuration messages now mean that a bad table will be detected during CDF scan processing so they can be corrected before HNAS actually is allowed to start.

20) Effective with APAR 2400032, most console error message will now include the name of the command that generated the message. For example:

```
NASC013E UNSUPPORTED FUNCTION, cmdname COMMAND ABORTED
```

21) Effective with APAR 2400034, the EXEC command will stop queuing commands when an embedded EXEC command or the new END statement is decoded. This will reduce the likelihood of receiving the following error message:

```
NASC054E EXEC CMDLIST1 FILE EXCEEDS QUEUED COMMAND LIMIT, EXEC COMMAND ABORTED
```

If more than 512 bytes of command data and data length bytes are listed in the command list identified by the *ddname* argument, the NASC054E message will be generated. Prior to APAR 2400034, this would occur even if the command list contains an embedded EXEC command (which ends the current command list) listed early in the command list file. The problem occurred because the decode of the embedded EXEC command was not performed until after the entire command list was read into memory. Some users like the ability to list many commands in an EXEC command list beyond the EXEC command for use at a later time. The old logic prevented large numbers of saved commands to be listed in a command list file. The new logic will allow any number of commands to be saved after the END or embedded EXEC command.

Note: EXEC command list END statement and suspend queuing support was introduced into 240 as Enhancement APAR 2400034.

22) Effective with APAR 2400039, PING response alarm messages no longer contain the name of the console that initiated the request. The messages now contain the destination IPADDR and DTEADDR addresses in all PING response alert messages as well as providing a correlation sequence number in all PING request and response messages.

23) Effective with APAR 2400053, the timer value used for the PVC VTAM connect timer has been made a constant value of 60 seconds. This timer controls how often HNAS will issue a REQSESS VTAM macro asking the PLU for a BIND to start a session for a PVC that has completed the XOT PVC SETUP process. Previously the value used depended on circumstances -- for example, if a request failed because the PLU was not active (SENSE=08570001) the value was 2 minutes. This means that the NAS3702W alert (REQSESS FAILED) may be observed more often and that the sessions will be started in a more timely fashion when the PLU is activated. This APAR also provides improved

DIAGX= values for the 196 (C4) Reset Diagnostic code in NAS5705W RESET SCHED-
ULED messages.

24) Effective with APAR 2400055, the following HNAS messages were altered:

NAS2511M monitor message now contains a retry counter, changes in **bold**:

```
 NAS2511M XOT TAP TIMEOUT, RESPONSE NOT RECEIVED FOR CONNECTION
          SETUP (nnnnn)
```

NAS2502E alert message now contains processing options, changes in **bold**:

```
NAS2502E ROUTER CONTACT LOST, CLOSEONTAPFAILURE OPTION IS IN
          EFFECT
```

25) Effective with APAR 2400074, the following HNAS messages were altered:

NAS7708W alert message now contains the LU name, changes in bold:

```
NAS7708W XOT PVC SETUP  INIT=ininm     PVC=pvc#
         RESP=rspnm     PVC=pvc# LU=luname
```

NAS7718T alert message now contains the LU name, changes in bold:

```
NAS7718T ii.iii.iii.iii(port) {CALL REQ | PVCSETUP}
         TO MCH mchname LU luname
```

26) Effective with APAR 2400075, HNAS will now only accept queued command strings up to
    63-bytes in length instead of 80-bytes in length. This change was required to allow two
    bits in command string count byte to be reserved for flags.

    This change affects the CONCMDQ= and SCHEDULE= configuration parameters as well
    as the EXEC and SCHEDULE console commands.

27) Effective with APAR 2400077, the configuration will now issue the NAS1311S message
    when SOCLMT=*limit* and the sum of the TYPE=XOT REMOTE VCLMT= values (for
    which the LOCAL is HOME) is greater than *limit*-2. This eliminates a runtime ABEND dur-
    ing HNAS initialization. In the past, the test was for *limit* only which did not take into con-
    sideration 2 reserved sockets. One for the LOCAL's HOME IP address (the LISTENing
    socket) and one for a temporary socket that is used during REMOTE connection process-
    ing.

    The NAS1311S message will now have the following format:

```
NAS1311S REMOTE XOTCNOT2 HOME XOTSRVR LIMIT REACHED
                SOCCNT=00303 SOCLMT=00602 NEEDED=00301
```

    This message is issued when NEEDED+SOCCNT>SOCLMT. SOCCNT includes the 2
    reserved sockets.

28) Effective with APAR 2400078, the HNAS DLU STAT column heading was renamed to LUST. VCTO column was added to the DVC output and LUTO column was added to the DLU output. See command descriptions for specifics.

29) Effective with APAR 2400079, the following configuration and alert message changes have been made:

1) The severity code for the following configuration messages have been changed from W to I to prevent CC=4 from being set.

```
NAS1321W REMOTE IPADDR WAS ALSO SPECIFIED FOR LOCAL
         NAMED LXOT
NAS1321W VALID ONLY IN HNAS-TO-HNAS ENVIRONMENT USING THE
         SAME TCPIP STACK

NAS1321W REMOTE IPADDR AND PORT WERE ALSO SPECIFIED FOR
         REMOTE NAMED R2CNOT1
NAS1321W THE SOCKETS FROM BOTH REMOTES WILL BE COMBINED
         IN A COMMON POOL
```

Message ID **NAS1321I** will now be used for these configuration messages. This change was made because these messages are actually more for information than as a warning.

2) The following configuration messages are now issued only during a FASTRUN execution.

```
NAS1391I THE FOLLOWING OPERANDS FOR SLU MCH1P001 (DEFINED ON
         MCH MCH1)
NAS1391I AS PVC ENTRY 000) COME FROM MXT MXTPVC01 RATHER THAN
         THE MCH
NAS1391I --> FAC=420808430404
```

This change was made to reduce the number of messages logged in SYSPRINT during a normal HNAS run. It also minimizes the possibility of receiving the NAS0200W message.

3) The severity code for the following alert message has been changed from W to I to prevent CC=4 from being set.

```
NAS0200W 00016384 SYSPRINT LOG RECORDS WRITTEN
```

Message ID **NAS0200I** will now be used for these configuration messages. This change was made because these messages are actually more for information than as a warning.

30) Effective with APAR 2400080, the CONCMDQ= operand will now accept either an inline command list or a DDNAME that identifies a command list. In order to differentiate

between an inline command list and a DDNAME, the command list must be specified as a sublist (enclose in parentheses). A DDNAME is assumed if the CONCMDQ= value is not in parentheses. Users must be aware of this when they have previously coded a single command as a CONCMDQ= value. For example, CONCMDQ=DNAS, which in the past would have queued the DNAS command for execution, will now treat DNAS as a DDNAME. The correct syntax is as follows:

CONCMDQ=*ddname*|(*cmd*1,...,*cmd*n)

Note: The EXEC= operand was added as an alias for the CONCMDQ= operand to provide symmetry with the SCHEDULE= operand and SCHEDULE console commands. The EXEC console command which was previously the counterpart for the CONCMDQ= operand is now also the counterpart for the EXEC= operand.

31) Effective with APAR 2400083, corrections have been made in the way HNAS handles the omitted SVRSTRT start parameter when the TCPIP stack is deactivated.

Problem 1:
When the SVRSTRT option is not in effect (the default when not specified), **prior to this APAR**, HNAS would remain active after the stack was taken down when it should have been shutdown.

The following callout message could be generated because HNAS erroneously would not reconnect with the stack even though VTAM sessions would still be allowed to come active.

```
NAS7720W BRN1 CALL OUT, CAN'T CALL CALLED
         ADDR=F311022081263127 CALLING ADDR=C311022081040000
```

The following TCPIP alerts would also be present:

```
NAS2401W CLIENT=169.165.250.144(01656) SOCKID=0001
         PCEID=0009 NAME=BR1XOT
NAS2401W RECEIVE REQUEST FAILED, RC=FFFFFFFF 00000005 (00005)
```

This implied that a TCPIP RECEIVE operation ended with I/O errors.

```
NAS2401W CLIENT=169.165.250.144(01657) SOCKID=0002
         PCEID=000A NAME=BR1XOT
NAS2401W RECEIVE REQUEST FAILED, RC=FFFFFFFF 0000040C (01036)
```

This implied that a TCPIP RECEIVE operation ended because the stack was down.

```
NAS2102E TCPIP SEVER INDICATED, PATHID=0001 TCPNAME=RCCTCP11
```

This says TCPIP stack was taken down.

Note: Inbound calls would also fail (calls cleared) under this scenario because the HNAS HOME server component remained down.

Effective with APAR 2400083, when the SVRSTRT option is not specified and the stack is taken down, HNAS will shutdown as the documentation specifies. This will require HNAS to be restarted when the stack is restarted.

Note: If the SVRSTRT option had been specified, HNAS would have monitored the stack for reactivation which would have prevented the callouts and callins from failing. This still applies even with APAR 2400083 on the system.

Problem 2:
A second problem has also been fixed when the SVRSTRT option is omitted and multiple stacks are defined to HNAS. In this case, connections to an active stack would hang if one stack was stopped.

When SVRSTRT was omitted and only one stack is defined to HNAS, HNAS should shutdown (see problem 1). Due to a logic error, HNAS remained active but would not allow the stopped stack to restart. In addition, the omitted SVRSTRT logic erroneously prevented other stacks from continuing operation. This caused the hang condition.

HNAS has been modified to force the SVRSTRT option to be in effect when multiple stacks are specified. This will ensure that an active stack will continue to communicate with HNAS if another stack is taken down. In addition, it will allow the deactivated stack to come active again. The following new configuration message is generated in this case.

```
NAS1211D MULTIPLE TCPNAME VALUES SPECIFIED, SVRSTRT OPTION FORCED
```

Note: These 2 problems were introduced into HNAS when multiple server support was added in February of 2002. During our testing of the multiple server support, the SVRSTRT option was in effect and so HNAS recovered as it was supposed to when one stack was taken down. We believe that these problems were not discovered until recently because most customers run with the SVRSTRT option active or manually shutdown HNAS whenever a stack is taken down. In either case, it prevented these problems from being observed until now.

In addition to these problem fixes, APAR 2400083 includes format changes for a few HNAS alert messages which will now be forced to SYSCONS and cannot be filtered. These alert messages are as follows:

Old: ```NAS2102E TCPIP SEVER INDICATED, PATHID=0001 TCPNAME=TCPIPROD```

New: ```NAS2102E SERVER=010.117.056.171(01998) SOCKID=0000```
```   PCEID=0007 NAME=LXOT```
```   NAS2102E SEVER INDICATED FOR TCPNAME=TCPIPROD PATHID=0001```

Old: ```NAS2103W TCPIP QUIESCE INDICATED```

New: ```NAS2103W SERVER=010.117.056.171(01998) SOCKID=0000```
```   PCEID=0007 NAME=LXOT```
```   NAS2103W QUIESCE INDICATED FOR TCPNAME=TCPIPROD```

Old: ```NAS2104I TCPIP RESUME INDICATED```

New: `NAS2104I SERVER=010.117.056.171(01998) SOCKID=0000`
`            PCEID=0007 NAME=LXOT`
`  NAS2104I RESUME INDICATED FOR TCPNAME=TCPIPROD`

Old: `NAS2105S CLIENT=010.117.056.100(20944) SOCKID=001E`
`            PCEID=0009 NAME=R1CNIN`
`  NAS2105S TCPIPROD TRANSFER FAILED, RC=FFFFFFFF 0000040C (01036)`

New: `NAS2105S CLIENT=010.117.056.100(20944) SOCKID=001E`
`            PCEID=0009 NAME=R1CNIN`
`  NAS2105S TRANSFER TO TCPNAME=TCPIPROD HAS FAILED,`
`            RC=FFFFFFFF 0000040C (01036)`

Old: `NAS2030I SERVER=010.117.056.171(01998) SOCKID=0000`
`            PCEID=0007 NAME=LXOT`
`  NAS2030I API CONNECTION TO TCPIPROD VR=0614 CAN BE PERFORMED`

New: `NAS2030I SERVER=010.117.056.171(01998) SOCKID=0000`
`            PCEID=0007 NAME=LXOT`
`  NAS2030I API CONNECTION TO TCPNAME=TCPIPROD VR=0614`
`            CAN BE PERFORMED`

Old: `NAS2031W SERVER=010.117.056.171(01998) SOCKID=0000`
`            PCEID=0007 NAME=LXOT`
`  NAS2031W API CONNECTION TO TCPIPROD IS BEING DEFERRED`

New: `NAS2031W SERVER=010.117.056.171(01998) SOCKID=0000`
`            PCEID=0007 NAME=LXOT`
`  NAS2031W API CONNECTION TO TCPNAME=TCPIPROD IS BEING DEFERRED`

Old: `NAS2032E SERVER=010.117.056.171(01998) SOCKID=0000`
`            PCEID=0007 NAME=LXOT`
`  NAS2032E API CONNECTION TO TCPIPROD CANNOT BE PERFORMED,`
`            RC=FFFFFFFF 0000040C (01036)`

New: `NAS2032E SERVER=010.117.056.171(01998) SOCKID=0000`
`            PCEID=0007 NAME=LXOT`
`  NAS2032E API CONNECTION TO TCPNAME=TCPIPROD CANNOT BE`
`            PERFORMED, RC=FFFFFFFF 0000040C (01036)`

Old: `NAS2050I SERVER=010.117.056.171(01998) SOCKID=0000`
`            PCEID=0007 NAME=LXOT`
`  NAS2050I API CONNECTION TO TCPIPROD HAS BEEN ESTABLISHED`

New: `NAS2050I SERVER=010.117.056.171(01998) SOCKID=0000`
`            PCEID=0007 NAME=LXOT`
`  NAS2050I API CONNECTION TO TCPNAME=TCPIPROD HAS BEEN`
`            ESTABLISHED`

Old: NAS2051S SERVER=010.117.056.171(01998) SOCKID=0000
            PCEID=0007 NAME=LXOT
   NAS2051S API CONNECTION TO TCPIPROD HAS FAILED,
         RC=FFFFFFFF 0000040C (01036)

New: NAS2051S SERVER=010.117.056.171(01998) SOCKID=0000
            PCEID=0007 NAME=LXOT
   NAS2051S API CONNECTION TO TCPNAME=TCPIPROD HAS FAILED,
         RC=FFFFFFFF 0000040C (01036)

Old: NAS2060I SERVER=010.117.056.171(01998) SOCKID=0000
            PCEID=0007 NAME=LXOT
   NAS2060I API CONNECTION TO TCPIPROD HAS BEEN TERMINATED

New: NAS2060I SERVER=010.117.056.171(01998) SOCKID=0000
            PCEID=0007 NAME=LXOT
   NAS2060I API CONNECTION TO TCPNAME=TCPIPROD HAS BEEN
         TERMINATED

Old: NAS2061S SERVER=010.117.056.171(01998) SOCKID=0000
            PCEID=0007 NAME=LXOT
   NAS2061S API DISCONNECTION FROM TCPIPROD HAS FAILED,
         RC=FFFFFFFF 0000040C (01036)

New: NAS2061S SERVER=010.117.056.171(01998) SOCKID=0000
            PCEID=0007 NAME=LXOT
   NAS2061S API DISCONNECTION FROM TCPNAME=TCPIPROD HAS FAILED,
         RC=FFFFFFFF 0000040C (01036)

32) Effective with APAR 2400084 GENERIC resource names may be specified when PCNE (LLC0) or PAD (LLC5) callout resources are defined (SVC0=, SVC5=). This allows a PLU to acquire the HNAS resource using a generic name.

33) Effective with APAR 2400085 for trail distributions only, when the DNAS command output shows a 16-digit SHIPID= field that starts with a 1 (1xxxxxxxxxxxxxxx) and a non-zero AUTH=value, it indicates that HNAS will ABEND when the trial NASAUTH file expires. Conversely, if the SHIPID= field is not 16 digits in length, HNAS will continue to run when the trial NASAUTH file expires but will not be allowed to restart if it is shutdown.

34) Effective with APAR 2400086 utility changes were made to the HNAS Authorization Date validation process to correct an error observed in the trial product expiration date processing.

35) Effective with APAR 2400089, various utility changes were made to HNAS.

The following is a summary of these changes:

1) NAS9206I ... ALLOWS DATAFONO SUPPORT message reassigned to NAS9220I

2) HNAS will now generate End of Maintenance/Use Anniversary Date countdown messages NAS9206i

3) Alarm Log Table Expansion and Relocation so that all messages are logged when HNAS initialization begins.

Because the alarm logging table is allocated after the CDF scan completes, a number of runtime alarms (like NAS92*xxs* AUTH alarms) were not logged. HNAS has been modified to allocate the alarm logging table immediately after it starts with a default entry limit of 512. The limit, which was previously specified in the CDF as the ninth (last) suboperand of the ALRMLMTS= operand, has been retired. If a value is specified, the following configuration alert message is generated:

```
NAS1101D BUILD ALRMLMTS LOGGING TABLE LIMIT PARAMETER
NAS1101D HAS BEEN RETIRED, 0512 ALWAYS USED
```

Note: Prior to APAR 2400089, a user could specify a value of zero (0) for the alarm logging table limit which would prevent the table from being created. Since the alarm logging table is an important component for debugging problems, this change means that the table will ALWAYS be generated.

4) Alarm logging logic corrected to fix a counting error with message chains.

Because of an error in the processing of some multiple line alarms (NAS2030I for example), the alarm counts are not correct. This has to do with how the HNAS WTO service routine (XFWTO) processes the WTO. The XFWTO macro and it's service routine have been fixed to process multi-line WTOs correctly so that the alarm logging table reflects the proper alarm count when displayed using the ALARM LOG=? command.

5) DNAS now displays MAINTENANCE/USE ANNIVERSARY DATE IS yyyy/mm/dd even when date is older than current date.

6) Utility changes were also made to the HNAS Authorization Date validation logic to correct an error observed in the trial product expiration date processing.

36) Effective with APAR 2400095, various changes were made to the Authorization Logic in support of the new EOMKEY support.

37) Effective with APAR 2400098, the NASC052W message will no longer be issued when the EXEC LIST command is issued without a command list (*ddname* or (*cmd*1,...,*cmd*n)). EXEC LIST now displays the current setting of the PURGEONERROR|NOPURGEON-ERROR option in effect. For more information, please see the description of the EXEC= operand on the BUILD definition statement or the EXEC console command.

38) Effective with APAR 2400098, the VARY *sluname* FORCE command will close the TCP/IP socket associated with the SLU even if the SLU is inactive (normally only PVCs can be in this state). Prior to this change, the command would have been rejected if the SLU was inactive.   For more information, please see the description of the VARY console command.

39) Effective with APAR 2400098, the NAS9206I message is now withheld until todays date is within 60 days of the EOMDATE. In addition, the message severity is changed from 'I' to 'S' as todays date gets closer to the EOMDATE. For more information, please see the description of the NAS9206I message in the Messages and Codes documentation.

40) When a PULSE frequency of 60 (for example) is specified:

PULSE=(hh:mm:ss,hh:mm:ss,60)

it is actually treated as 61. To have the PULSE message (NAS0299I) issued once per minute, you would have to specify 59 as the frequency.   Effective with APAR 2400102, HNAS has been modified to use the specified frequency value <u>as is</u> rather than adding one (1) to it.

41) The DNAS command is now executed uncondionally during FASTRUN execution without having to specify CONCMDQ as a FASTRUN follower in the PARM= operand. FAS-TRUN or FASTRUN CONCMDQ are treated the same way effective with APAR 2400103.

n) Additional entries will be provided in this section as APAR Enhancements or Fixes are developed that alter the operation of the code or features.

Migration - V2R3M0

Program Logic changes to V2R3M0 that may affect your environment migration
(On March 6, 2004 some items in this list were reordered in consideration of importance)

1) Beginning with 230, the load module member is now stowed as **HNAS** (**PGM=HNAS**) to accommodate our alternate SMP/E installation support. For HNAS 220 and earlier, the HNAS load module member was stowed as **NASMAIN**.

2) HNAS has been modified to wait until the NAS0001I Host NAS **Initialization Complete,** All Functions Ready state is achieved prior to scheduling HNAS VTAM specific tasks. This prevents potential host operator confusion when VTAM specific HNAS operations were starting prior to the initialization complete message being issued.

3) Changes to **HNAS clear diagnostic** bytes:
   A normal UNBIND from the PLU will result in a clear diagnostic byte of 0 (was 140)
   A non-normal UNBIND from the PLU continues to get a diagnostic byte of 140.
   When HNAS UNBINDs a session the diagnostic byte will be 146. When a session is cleared by a VTAM NOTIFY the diagnostic byte is now 145 (was 140).

4) HNAS has been modified to internally create a **Clear Request** packet when a TCP/IP remote session disconnect condition is detected. This will cause XOT routines to perform cleanup processing which will result in an UNBIND of the LU. This will allow the LU to be released and made available for a subsequent VC connection.

   This logic was actually added to HNAS 220 and propagated to HNAS 230 via APAR 2200048 on 08-06-2003.

5) The **PFXWTO** option will no longer prefix console command output with the NASNAME= operand value. Only HNAS alarm messages (**NAS***innns*) will be prefixed and only when these messages are routed to the operating system master console (SYSCONS) by passing alarm filter (ALRMFLTR=) and alarm limit (ALRMLMTS=) processing. An alarm message that is written to the SYSPRINT log file may or may not contain the NASNAME= prefix depending on whether the alarm passes filtering or limiting. If prefixing is active and an alarm is routed to the SYSCONS, it will also contain the prefix in the SYSPRINT log. However, if prefixing is active and an alarm cannot be routed to the SYSCONS, it will not contain the prefix in the SYSPRINT log.

   The **PFXWTO CONS** start parameter has been added to allow HNAS console output to be prefixed using the existing **NASNAME=** value. This enhancement provides a unique message id that can be used for customer automation processes. This processing requires that the **SHOW CONS ON** option must also be in affect. This processing does not affect alarm output.

   Note: Starting with 220, console command output is, by default, **not routed** to SYSCONS. To override the default and allow console command output to be routed to SYSCONS, specify the SHOWON start parameter or the SHOW ON console command. For 230, specify the SHOWCONS start parameter or the SHOW CONS console command.

Please refer to Enhancement APAR 2300006 (issued on 03-29-2004) for recent changes to this support.

The **PFXWTO *text*** start parameter has been added to allow the *text* value to be appended to the beginning of each alarm WTO in lieu of the NASNAME= operand value. This same text is used to prefix console output if the PFXWTO CONS option is also in affect. Up to 8 non-blank characters may be specified.

Specify **PFXWTO *text* PFXWTO OFF PFXWTO CONS** if you only want console output to be prefixed with the *text* value.

Note: This new feature was introduced into 230 as Enhancement APAR 2300026.

6) **GATE** sessions continue to default to a session start-up delay value of 2 seconds although now there is a new parameter OPTIONS=REQSESSDELAY=*value* which allows users greater flexibility in fine tuning their delay value. The REQSESS delay is used during GATE callout. The delay is imposed after the Call Accept packet has been sent to the CTCP (on the control session LU) and before the REQSESS is issued to ask for a BIND to start the GATE data session. Systems using CFT typically require the delay. Some environments don't require a delay value so they can now disable the timer by coding a value of 0 to eliminate the session start delay.

7) The **TRCPRNT** start parameter and TRCPRNT ON console command no longer controls whether TCP/IP informational messages are written to the SYSPRINT log. This function is now controlled using the **PRNTTCP** start parameter or the PRNT TCP ON console command. The TRCPRNT option has been restored to its original use which is simply to control the logging of trace information to the SYSPRNT log. Please refer to the section titled 'SYSPRINT log filtering' in the V2R3M0 New Features Guide for additional information.

8) The **TRCALL** start parameter and **TRCALL ON** console command no longer include the TRCSUBR or TRCTASK options. If these options are required, they must be specified in addition to TRCALL. Specifying the TRCALL start parameter is the same as specifying TRCBFR, TRCDATA, TRCDBK, TRCDISP, TRCIO, TRCLU MAXDATA, TRCMCH, TRC-MCHX, TRCVC MAXDATA. Entering the TRCALL ON console command is the same as entering TRCBFR, TRCDATA, TRCDBK, TRCDISP, TRCIO, TRCLU STRT, TRCMCH, TRCMCHX, and TRCVC STRT. The TRCALL ON|OFF|STRT|STOP console commands no longer alter the state of the TRCLU|VC MAXDATA|MINDATA|NODATA options.

9) Messages containing **clear diagnostic** bytes now contain an additional diagnostic extension byte that provides additional information in cases where there are several reasons for the diagnostic value. This changes the text of the messages but does not change the HNAS message number (NASxxxx).

10) The **severity code** (the ***s-value*** in NAS2*nnns* messages) for multiple line TCP/IP error messages now carry the same severity code for all messages in the sequence. You may need to modify your HNAS ALRTMSG=***filters*** list or host SYSCONS message filtering

mechanism.

11) The **severity code** for NAS1051 and NAS1052 messages has changed from W to E. NAS1051E is issued when HNAS attempts to LOAD a module (for example a USS table) from a library that cannot be opened because the DDNAME was not present in the HNAS start JCL. NAS1052E is issued when the DDNAME for the library is present but the module is not found in the library.

12) Migration item number omitted.

13) HNAS has been modified to generate a **default port value** of 1998 rather than DYNAMIC for a TYPE=XOT REMOTE when an IP address is provided. A default of DYNAMIC is still used when IPADDR=DYNAMIC is specified. This change takes advantage of the shared socket capability that was introduced in 220.

14) For TYPE=XTP|XOT LOCAL and REMOTE definition statements with a valid IP address, a **default port value** of 3065 (XTP) or 1998 (XOT) is forced when a value other than these are coded and the following configuration warning message is generated:

NAS1211D LOCAL PORT *badval* INVALID, 3065|1998 ASSUMED
NAS1211D REMOTE PORT *badval* INVALID, 3065|1998 ASSUMED

15) Several HNAS **TCP/IP event alerts** generate a pair of messages. The first message provides the alert message number (***nnn***), severity code (***s-value***) and identifies the resource, for example, SERVER=*ipaddr*(*port*), SOCKID=, PCEID=, NAME=. The second message identifies the event, error condition and appropriate error/reason codes. For HNAS 220, the second message of a pair always used the same alert message number but had an ***s-value*** of '**I**' regardless of the ***s-value*** of the first message. Starting with 230, the entire message identifier for second message will be the same as for the first including the ***s-value***.

Although the same message identifier is used for both messages of a pair, the alert is only counted once when alarm logging is active. See the ALRMLMTS= operand of the BUILD definition statement and the ALARM console command for more information on alarm logging.

16) The **FASTRUN** process will now propagate VTAM operands that are specified on a TYPE=MXT REMOTE definition statement if that MXT is associated with a SLU in the LUNAME= operand list on a TYPE=SPU REMOTE definition statement. If no MXT is associated with an SLU entry, the VTAM operands are taken from the root TYPE=SPU REMOTE definition statement as in previous releases. In this way, the generated APPL statements for each SLU can have different VTAM operands (for example, MODETAB, DLOGMOD, etc.).

17) The **FASTRUN** process will now allow the name for the AMNF VBUILD statement to be specified using the APPLNAME= operand rather than NASNAME= operand on BUILD definition statement (Enhancement APAR 2300007). If the APPLNAME= operand is omitted, the name will come from the NASNAME= operand as it did in the past. If the NASNAME= operand is also omitted, the VBUILD statement will be produced without a name. This is also true if APPLNAME=NONE is specified.

18) HNAS has been modified to generate a **configuration error message** if GATE=GEN-ERAL and SUBADDRESS=YES are specified without any LLCi= operands. The reason is that GATE=GENERAL and SUBADDRESS=YES implies that subaddress values are required but none were provided using the LLCi= operands. This condition will terminate HNAS execution after the entire CDF has been scanned. In the past, this condition would not have been discovered until a user attempted to connect which would then have resulted in a Clear.

19) HNAS has been modified to generate a **configuration error message** if GATE=GEN-ERAL, SUBADDRESS=YES and LLCi=(*list*) are specified without any SVCi= operands. The reason is that GATE=GENERAL, SUBADDRESS=YES and LLCi=(*list*) implies that LLCi SLU resources are required but none were provided using the SVCi= operands. This condition will terminate HNAS execution after the entire CDF has been scanned. In the past, this condition would not have been discovered until a user attempted to connect which would then have resulted in a Clear.

20) HNAS has been modified to generate a **configuration error message** rather than setting default values if the SVC0= operand is omitted or SVC0=NONE is specified and GATE=NO, PAD=NO and SVC3=NONE are specified **or if** GATE=GENERAL, SUBAD-DRESS=YES and LLC0=(*list*) are specified **or if** GATE=GENERAL and CTCP=(...,80,...) are specified. The reason is that these specifications imply that LLC0 (PCNE) SLU resources are required but none were provided using the SVC0= operand. This condition will terminate HNAS execution after the entire CDF has been scanned. In the past, this condition would have caused 64 SLUs to be generated for LLC0 connectivity Now, the number of SLUs and, optionally, their names must be specifically identified.

21) HNAS has been modified to generate a **configuration error message** rather than setting default values if the SVC3= operand is omitted or SVC3=NONE is specified and GATE=NO, PAD=NO and SVC0=NONE are specified **or if** GATE=GENERAL, SUBAD-DRESS=YES and LLC3=(*list*) are specified **or if** GATE=GENERAL and CTCP=(...,83,...) are specified. The reason is that these specifications imply that LLC3 (QLLC) SPU resources are required but none were provided using the SVC3= operand. This condition will terminate HNAS execution after the entire CDF has been scanned. In the past, this condition would have caused 32 SPUs to be reserved for LLC3 connectivity Now, the number of SPUs and, optionally, their names must be specifically identified.

22) HNAS has been modified to generate a **configuration error message** rather than setting default values if the SVC4= operand is omitted or SVC4=NONE is specified and GATE=GENERAL, SUBADDRESS=YES and LLC4=(*list*) are specified **or if** GATE=GEN-ERAL and CTCP=(...,<28,...) are specified. The reason is that these specifications imply that LLC4 (GATE) SLU resources are required but none were provided using the SVC4= operand. This condition will terminate HNAS execution after the entire CDF has been scanned. In the past, this condition would have caused 64 SLUs to be generated for LLC4 connectivity Now, the number of SLUs and, optionally, their names must be specifically identified.

23) HNAS has been modified to generate a **configuration error message** rather than setting default values if the SVC5= operand is omitted or SVC5=NONE is specified and GATE=NO and PAD=INTEG|TRANSP are specified **or if** GATE=GENERAL, SUBAD-

DRESS=YES and LLC5=(*list*) are specified **or if** GATE=GENERAL and CTCP=(...,85,...) are specified. The reason is that these specifications imply that LLC5 (PAD) SLU resources are required but none were provided using the SVC5= operand. This condition will terminate HNAS execution after the entire CDF has been scanned. In the past, this condition would have caused 64 SLUs to be generated for LLC5 connectivity Now, the number of SLUs and, optionally, their names must be specifically identified.

24) HNAS has been modified to generate a **configuration error message** rather than setting default values if the CUD0=, SUBD= and CTCP= operands do not all contain the same number of elements. In the past, the number of elements for these operands would have been forced to the highest common value and the following configuration warning message was generated:

NAS1311W REMOTE CUD0 REQUIRES ONE-TO-ONE CTCP MAPPING, FORCED
NAS1311W REMOTE SUBD REQUIRES ONE-TO-ONE CTCP MAPPING, FORCED

Now, the following message will be issued and HNAS will terminate after the entire CDF is scanned:

NAS1311E REMOTE CUD0 AND CTCP COUNTS DO NOT MATCH, REQUIRED
NAS1311E REMOTE SUBD AND CTCP COUNTS DO NOT MATCH, REQUIRED

25) The display *count* values for the NAS1709W Configuration message and NAS3798I, NAS4700W, NAS4701W, NAS5700E and NAS5701E Alert messages were changed from Hexadecimal to Decimal to avoid confusion.

26) The **IDLETO=** operand may now be coded for a TYPE=SPU|MXT|MCH|XTP REMOTE definition statement to specify an inactivity timeout value that is used for the HNAS virtual circuit connections associated with the REMOTE definition statement. HNAS monitors each virtual circuit for the absence of input or output. Anytime data is sent or received, HNAS resets the inactivity timeout clock. If no data is sent or received over a virtual circuit after *minutes* have elapsed, the virtual circuit call is cleared.

Note: Permanent virtual circuits are exempt from inactivity timeout processing.

You may specify a *minutes* value between 0 and 255. A value of 0 causes HNAS to suppress inactivity timeout processing. If a *minutes* value is not specified or if the specified value is invalid, a default value will be taken from the **IDLETO=** operand on the **BUILD** definition statement.

Note: If an IDLETO= operand value is specified for an MXT and the MXT is associated with an SLU in the SVC0= or SVC5= operand or an SPU in the SVC3= operand of a **TYPE=MCH REMOTE** definition statement, this value will override the IDLETO= value in affect for the root MCH. In the case of an SPU, the MXT IDLETO= value is used only if the SPU is allocated based on DTE address matching within the SVC3= operand.

Note: If an IDLETO= operand value is specified for an **TYPE=SPU REMOTE** definition statement, this value will used if the SPU is allocated based on IDBLK/IDNUM matching.

27) The **DMAP APAR** command has been modified so that it automatically executes at initialization time *with no delays*. The output of the command is logged in the HNAS SYSPRINT so that maintenance can be viewed using an SDSF panel.

Additionally, during the initialization pass, the DMAP APAR command creates a table that is sorted in APAR ID order so that it can be displayed using the new **DNAS APAR** command. Note that you can still use the DMAP APAR command to display APARs but command output is in module name order rather than APAR ID order. This logic was added to HNAS 230 via APAR 2300004 on 03-19-2004.

28) The **DNAS** command has been modified to display the APAR=*apar-id* of the latest maintenance applied by the customer in addition to the *apar-id* that was incorporated when the HNAS distribution was created. The AUTH=*month-count* value was also added to the DNAS display output to provide the number of months established for the trial period.

Additionally, a new argument (APAR) has been added to the DNAS command so that the table, created at initialization time by the **DMAP APAR** command, can be displayed. The **DNAS APAR** command will display all APARs on the HNAS system in APAR ID order while the DMAP APAR command displays all maintenance in module name order. This logic was added to HNAS 230 via APAR 2300004 on 03-19-2004.

29) The **INIT=** operand may now be coded for a TYPE=XOT|XTP LOCAL definition statement to specify whether the server connection identified by the LOCAL definition statement should be initially active or inactive. In addition, a retry count and delay time between retires can be specified to control the number of times a stack connection is attempted and the amount of time to delay between connect attempts. If the INIT= operand is omitted, the following is assumed: INIT=(ACTIVE,RETRYLMT=0,**DELAYTIME=5**). Additional information on this support is available in the 230 New Feature Configuration Enhancements section.

Note: If a TCPIP BIND request fails with *errno*=30 (see NAS2231W message), the 'linger' timeout is reset so that the next BIND attempt will not end with this error. However, if the INIT= operand is omitted, the **default delay of 5 minutes** will be enforced. This will force HNAS to wait this amount of time before retrying the BIND. To avoid this delay, specify INIT=(ACTIVE,DELAYTIME=0).

30) With APAR 2300037 applied, the way that GATE control sessions and Gate Fast Connect data sessions are activated has been changed as follows: If a REQSESS VTAM operation fails the NAS3702W message is issued to indicate that HNAS cannot set up the GATE control fast connect data session. Before 2300037, HNAS would wait for a BIND from the PLU. With the APAR applied HNAS will retry the REQSESS based on the OPTIONS=MCHTMR=xx value specified in the CDF (xx default=60 seconds). If HNAS is left active when GATE CTCPs are inactive the number of NAS3702W messages will increase.

31) The initial implementation of the HNAS ALARM console command processor replaced existing FILTER= values instead of appending values to the **ALRMFLTR=** array. This restriction forced users to reenter existing alarm list entries (previous specified on the BUILD ALRMFLTR=) so that they could add new message ID's via the console.

With APAR 2300045 applied, the HNAS ALARM console command processor has been modified to append FILTER= values to the existing ALRMFLTR= array rather than reset-ting the array first. This eliminates the need to enter an entire list of alarm IDs in order to add just one entry to the end of the list. For example:

If `BUILD ALRMFLTR=(ALLOW,NAS2***I(P))` was specified in the CDF and if `ALARM FILTER=(NAS3701W(P))` is issued as a console command, the `ALARM FILTER=?` command would produce the following display:

```
ALRMFLTR=ALLOW
         NAS2***I(P)
         NAS3701W(P)
```

If you wish to clear the `ALRMFLTR=` array before entering new values, enter `ALARM FIL-TER=*` to clear the entries followed by `ALARM FILTER=(disp,list)` for the new filter entries.

32) The non-SMP/E **hnas.ZIP** and SMP/E **lns.ZIP** distribution **file names** were **expanded** to provide information regarding the HNAS release and maintenance level of the product provided with-in the zip achieve file. The support is effective June 21, 2004.

33) The **DNAS** command has been modified to display a list of missing *apar-ids* if the 'latest' *apar-id* is different than the *apar-id* that was incorporated when the HNAS distribution was created. The missing *apar-id* logic is only executed when DNAS is entered with no argu-ments. This new feature generates a minimum of 2 additional lines (line 6-n depending upon maintenance manually applied) to the DNAS display output.

Please refer to the 'DNAS Command - Display HNAS Information' section of the Console Subsystem Operations Guide for additional information.

Note: This new feature was introduced into 230 as APAR 2300062.

34) **CustomUserMods** are now provided in the HNASMACX and/or HNASOBJX distribution files for customers that have custom enhancements carried forward for refresh and/or upgrade distributions. This was done to separate their product distribution custom enhancements from the standard distribution source (macro) and object members to improve customer enhancement documentation and maintenance support services.

Note: This new feature was introduced into 230 as APAR 2300069.

35) Effective with APAR 2300017 (04-13-2004), **TAP operation** is slightly different than it was prior to this APAR. Older TAP logic allowed the router to timeout an active socket connection because the TAP socket was opened at the beginning of the TAP= timeout interval but the TAP packet was not transmitted until the TAP= timeout expired. The router expects to see data within a 120 second time period after a socket connection is estab-lished. If the TAP= timeout value is greater than 120 seconds, no data will be received by the router before its data timeout expires. In this case, the router will close the socket connection. This will prevent the complete TAP Keep Alive sequence from completing correctly. While the socket closure indicates that the router is active, it does not indicate whether an addressed MCH is active. The new TAP logic delays opening of the socket

until the TAP= timeout expires so that the socket opening and TAP packet transmission are done at approximately the same time. This prevents the router from timing out the socket connection. This, in turn, will allow a TAP packet that addresses a specific X.25 MCH on the router to reach its destination and the response from the MCH (either Clear or Call Confirm if the TAP packet is a Call Request) to get back to HNAS. Clear cause and diagnostic codes help determine the MCH state.

Note: This new feature was introduced into 230 as APAR 2300017. This migration APAR item was erroneously overlooked and not added to the 230 migration documentation section until 09-02-2004.

36) The HNAS configuration processor has been modified to set **PVC=NONE** as the default when the PVC= operand is omitted. A **NAS1301D** informational message will now be produced rather than a **NAS1301W** warning message. This will eliminate the requirement of environments without PVC resources having to code PVC=NONE to eliminate the CC-4 condition codes previously set by the warning message.

Note: This logic change was introduced into 230 under APAR 2300077.

37) **Clarification for the SHOW***type* start parameters and their equivalent SHOW *type* console commands. The SHOWERR, SHOWON, SHOWOFF and SHOWCONS start parameters provide the same function as the SHOW ERR, SHOW ON, SHOW OFF and SHOW CONS ON console commands. The SHOWERR, SHOWON and SHOWOFF functions are mutually exclusive. The SHOWCONS function is independent.

SHOWERR allows only error alarm messages to be displayed at the SYSCONS.

SHOWON allows error and informational alarm messages to be displayed at the SYSCONS.

SHOWOFF inhibits all alarm messages from being displayed at the SYSCONS.

When SHOWERR or SHOWON are in affect, alarm messages are also subject to filtering and limiting which may prevent them from being displayed at the SYSCONS.

The SHOWCONS start parameter and SHOW CONS ON console command are not related to the other SHOW*type* start parameters or SHOW *type* console commands, respectively. SHOWCONS only governs whether console command output will be displayed at the SYSCONS.

HNAS activates with SHOWERR and SHOWCONS OFF in affect unless specifically overridden by the user. This means that only error alarm messages will be displayed at the SYSCONS and console command output will be restricted to SYSPRINT.

Note: Regardless of the SHOW*type* setting, all alarm messages are logged in SYSPRINT unless PURGE is specified as the default ALRMFLTR disposition (first suboperand) or the alarm message is specifically filtered using the NAS*xxxxx*(P) option. SYSPRINT logging is always active when HNAS is started but may be inhibited for all alarm and console command output using the PRNT OFF console command.

38) The **DNAS** command has been modified to minimize the confusion regarding missing maintenance. 'MAINTENANCE STATUS' is displayed instead of 'MISSING MAINTE-NANCE' in the header text and 'NOT INSTALLED' is displayed instead of 'MISSING' under MODULE when an APAR is not applied. When all APARs are installed (up to the most recent APAR ID), 'ALL MAINTENANCE ON ...' will be displayed instead of 'NOTH-ING MISSING'. Hopefully, these changes will eliminate customer concerns and confusion when some maintenance is not installed.

OLD display:

```
APARID    MODULE   (MISSING MAINTENANCE)
230xxxx   MISSING
:
230xxxx   MISSING
 -or-
APARID    MODULE   (MISSING MAINTENANCE)
NOTHING MISSING
```

NEW display:

```
APARID    MODULE   (MAINTENANCE STATUS)
230xxxx   NOT INSTALLED
:
230xxxx   NOT INSTALLED
 -or-
APARID     MODULE   (MAINTENANCE STATUS)
ALL MAINTENANCE ON THROUGH MOST RECENT APAR xxxxxxx
```

Note: This logic change was introduced into 230 under APAR 2300089.

39) A default value for the **CUD=** operand is no longer set for a TYPE=MCH|XTP REMOTE definition statement. This change was implemented by APAR 2300095 (January 2005) so that the correct default CUD can be set for PCNE and PAD calls. Prior to this APAR, a default CUD of 01000000 was set for both PCNE and PAD. This forced the remote DTE to provide PAD services for a PCNE call. By not setting a default for the CUD= operand, the correct default CUD can be set for PCNE and PAD VCs when the outbound Call Request packet is built.

If no ***cud*i** suboperand is specified and the CUD= operand is also omitted, a default value of C0000000 will be used for PCNE (LLC0) and a default value of 01000000 will be used for PAD (LLC5).

40) A CR/LF (0D/25) prefix and suffix are no longer added to a **USSMSG** sent to a QLLC SLU. This additional output data caused problems on subsequent LOGON input from the terminal operator. The input was being truncated so that the LOGON was rejected during **USSTAB** processing and caused USSMSG2 ('COMMAND UNRECOGNIZED') to be transmitted.

Note: This change was implemented by APAR 2300096 (January, 2005).

41) The **HNASXEQ** job in the *qqqq*.HNASCNTL dataset that is shipped with HNAS now contains additional SYSPRINT DD statements (SYSPRNT2 and SYSPRNT3). These are provided as an example of how multiple SYSPRINT files can be specified for use by the PRNT CLSOPN console command. Note that the original HNASXEQ job with a single SYSPRNT DD statement is also present but has been renamed to HNASXEQO. This change is included in distributions created after 2005-01-17.

42) The **TRCALL ON|OFF** console command no longer operates on PCEs only. The PCE trace function has been removed form the ON|OFF processing. ON and OFF are now treated the same as STRT and STOP, respectively. The PCE trace function is now controlled by the **TRCPCE ON|OFF|ALON|ALLOFF** console command. Note that TRCPCE is a console command only. TRCPCE provides the function as TRCBFR, TRCDATA, TRCDISP and TRCIO together.

   Note: This logic change was introduced into 230 under APAR 2300110.

43) The **TRCBFR**, **TRCDATA**, **TRCDISP** and **TRCIO** console command processors have been modified to accept the **ALLON|ALLOFF** arguments. These arguments provide for global PCE tracing while the existing ON|OFF arguments provide local PCE tracing using the RNM= or ID= modifiers.

   Note: This logic change was introduced into 230 under APAR 2300110.

44) Some of the alarm messages that were generated by the **TRCALL**, **TRCTRAP** and **TRCPRNT** console command processors have been modified to display the name of the console issuing the command. Where the console name is now displayed, the text 'COMMAND' used to be displayed. The following alarm messages were changed:

For TRCPRNT ON

   NAS0210W SYSPRINT TRACE LOGGING ENABLED BY *consname*,
             MORE CPU CYCLES REQUIRED

For TRCPRNT OFF

   NAS0211I SYSPRINT TRACE LOGGING DISABLED BY *consname*

For TRCALL SUSP or TRCTRAP SUSP

   NAS0050A TRACING SUSPENDED BY *consname*

For TRCALL RSME or TRCTRAP RSME

   NAS0060W TRACING RESUMED BY *consname*

For TRCTRAP SNAP

   NAS0080A SNAPSHOT DUMP TAKEN BY *consname*

For TRCTRAP RSMESNAP

NAS0080W SNAPSHOT DUMPING RESUMED BY *consname*

Note: This change was made so that a SYSCONS console operator will know if the trace state has been changed by a remote console operator. For the local SYSCONS, *consname*=WAPCECON. For a remote console, *consname*=RCON*xxxx* where *xxxx* is the number of the REMOTE console PCE.

Note: This logic change was introduced into 230 under APAR 2300110.

45) From traces collected by a customer, it appears that an SPU can return a **QXID** request as a response to a QXID request that HNAS sends. HNAS ignores SPU QXID request and a timeout occurs even though the SPU QXID request carries a valid IDBLK/IDNUM value. The timeout causes following alarm message to be issued:

NAS8191W CLIENT=002.241.202.250(01178) SOCKID=0001
          PCEID=0032 NAME=XOTCNOT1

NAS8191W XID TIMEOUT FOR PU MTA31PUR

HNAS retries the QXID request 3 times and eventually clears the call with CAUSE/DIAG=000/089.

Starting with APAR 2300116, a QXID request from an SPU that is received as a response to a QXID request that HNAS sends will be treated as a QXID response if the SPU is configured as the primary (OPTIONS=PRI) or as a peer link station (OPTIONS=PEER). Only when the SPU is configured as the secondary (OPTIONS=SEC) will the QXID request will be treated as a request.

Note: This change was implemented by APAR 2300116 (March, 2005).

46) From traces collected by a customer, it appears that HNAS is receiving **INIT-SELF** requests for SLUs that are still waiting for their ACTLU response. HNAS should reject these requests but does not. The INIT-SELF (or any other request in ACTLU pending state) violates the rules for Immediate Response Mode protocol.

Starting with APAR 2300116, HNAS will now reject any request received from an SLU before the ACTLU completes with 200D error sense (Response Owed Before Sending Request).

Note: This change was implemented by APAR 2300116 (March, 2005).

47) The VARY console command was modified to allow a single socket on a router to be manipulated using the ID= command modifier. Prior to this change, all sockets on a router were manipulated because the command resolution was limited to a REMOTE level using the RNM=*rmtname* modifier. While the RNM= modifier can still be used to activate or deactivate a router, the ID= modifier can now be used to activate or deactivate a single socket or a group of sockets on a router. As part of this change, logic was also added to ask the operator to confirm his VARY request in order to prevent an inadvertent change that could disrupt a production environment. In the past the VARY command was

executed immediately with the given parameters as soon as the enter key was pressed. Now, the VARY command will echo back the parameters that were entered and require a YES or NO confirmation response before actually executing the command.

Step 1: `RNM=XOTCLNT1 DPCE` <- set the router name and display its sockets

```
 PID   NAME       NASOPT TYPE TYPQ PROT STAT SUBST IPADDR ...
 0008 XOTCLNT1           TCP  RMT  XOT  IDLE T     010.117...
 0009 XOTCLNT1           TCP  RMT  XOT  IDLE       010.117...
 000A XOTCLNT1           TCP  RMT  XOT  IDLE       010.117...
 000B XOTCLNT1           TCP  RMT  XOT  IDLE       010.117...
 000C XOTCLNT1           TCP  RMT  XOT  IDLE       010.117...
```

Step 2: `V OFF` <- deactivate entire router (RNM=XOTCLNT1 still set)
Note that TAP socket (T in SUBST column) is not affected.

```
VARY PARMS: ACTION=OFF TYPE=RMT RNM=XOTCLNT1
    ENTER: N=ABORT, Y=EXECUTE
```

Step 3: `V RNM= ID-9 ON` <- reset the router name (temporarily) and activate the first (non-TAP) socket

```
VARY PARMS: ACTION=ON  TYPE=N/A ID=0009-0009
    ENTER: N=ABORT, Y=EXECUTE
```

Step 4: `DPCE` <- display router sockets (RNM=XOTCLNT1 still set)

```
 PID   NAME       NASOPT TYPE TYPQ PROT STAT SUBST IPADDR ...
 0008 XOTCLNT1           TCP  RMT  XOT  IDLE T     010.117...
 0009 XOTCLNT1           TCP  RMT  XOT  IDLE       010.117...
 000A XOTCLNT1           TCP  RMT  XOT  CLSD       010.117...
 000B XOTCLNT1           TCP  RMT  XOT  CLSD       010.117...
 000C XOTCLNT1           TCP  RMT  XOT  CLSD       010.117...
```

Note: This change was implemented by APAR 2300123 (March, 2005).

48) HNAS will now issue a Clear **diagnostic code 211 x'D3**' instead of a Reset packet sequence due to improvements in the SIGNAL processing. Please refer to APAR 2300140 for additional information.

Note: This change was implemented by APAR 2300140 (June, 2005).

49) The default value for the DELAYTIME= suboperand of the INIT= operand for a LOCAL definition statement has been changed from 5-minutes to 1-minute. If a BIND the failure occurs, the smaller DELAYTIME= default should make BIND error recovery operate more quickly. In addition, HNAS now resets the TCPIP 'linger timeout' before the initial BIND is issued instead of after the first failure. This should minimize the probability of receiving the EADDRINUSE error condition (*errno*=30 in the NAS2231W BIND FAILURE message) and further speed up HNAS initialization processing. For more information on the EADDRINUSE error condition, please see the description of the INIT= operand for the

LOCAL definition statement in Chapter 4 of this document.

Note: This change was implemented by APAR 2300150 (August 9, 2005).

50) Changes to HNAS **PVC reset packet** processing were implemented to improve network PVC VC (virtual circuit) status reporting to the Host PLU.

When a reset is received for an LLC0 or LLC5 PVC with a cause/diagnostic of 029/115 (network/link out of order) or 001/000 (out of order) then the PLU will be notified of the error by a NOTIFY request generated when the HNAS ACB for the session is closed. Other resets continue to be reported with SIGNAL PIUs sent to the PLU.

When a reset request other than 015/000 or 000/000 (network/device operational) is received for an LLC3 session all LUs associated with the VC's PU are be taken down (PLU will receive NOTIFY). This stronger treatment is provided for LLC3 because when a RESET is received it is not possible to tell which LUs are affected.

Note: This change was implemented by APAR 2300151 (August 16, 2005).

 51) Changes to the HNAS **PVC Setup Status Codes** were implemented to improve Cisco router PVC setup retry logic. Following list contains the status code reassignments with notations, as required:

New status codes used by HNAS to reject inbound SETUP packets. Codes greater than X'0F' cause the router to never retry the setup. The new codes allow the router to retry the setup every 5 minutes, as appropriate.

 X'**13**' = no such destination interface is now X'**0C**'. This code is used when the router has an incorrect HNAS MCH name.

 X'**14**' = destination interface not up is now X'**08**'. This code is used when a SETUP is received when HNAS is coming down.

X'**16**' = no such destination PVC is now X'**0D**'. This code is used when a SETUP is received for an HNAS MCH but the setup's LCN has not been defined in HNAS.

X'**19**' = can't support flow control values, is now X'**09**'. This code is used when a SETUP is received specifying a window size > 7 or a packet size > 4096.

X'**1A**' = PVC setup protocol error, is now X'**0E**'. This code is used when a SETUP is received for a PVC that already has a session.

Please refer to RFC1613 and the HNAS Messages and Codes PVC Status Field Sense Codes section for additional information.

Note: This change was implemented by APAR 2300151 (August 16, 2005).

52) The VARY console command was modified to accept the new FORCE option so that the OFF (or INACT) function for LOCAL and REMOTE resources operates in a similar fash-ion for the purpose of closing active remote client sockets. Prior to enhancement APAR

2300156, V LCL OFF closed the LOCAL socket and marked the LOCAL offline but did not close any associated remote CLIENT sockets. Conversely, V RMT OFF closed all active remote client sockets and marked the REMOTE offline. This lack of symmetry is corrected by using the FORCE adverb in conjunction with the OFF verb as follows:

V LCL OFF will close the LOCAL socket and mark the LOCAL offline (no change).

V LCL OFF FORCE will close the LOCAL socket, mark the LOCAL offline and also close any active remote client sockets for which the LOCAL is HOME (new functionality).

V RMT OFF will mark the REMOTE offline but will not close any remote client sockets (changed functionality).

V RMT OFF FORCE will close all active remote client sockets and mark the REMOTE offline (FORCE is required to perform the old functionality).

Note: This change was implemented by APAR 2300156 (September 29, 2005).

53) The HNAS PADPARM=value option now utilizes a Set instead of a Set & Read for X.25 Pad resources to better simulate the operation that NPSI performs. Please refer to the HNAS PADPARM= parameter in Chapter 4 of the HNASBook for additional information.

Note: This change was implemented by APAR 2300159 (October 13, 2005).

54) The NASC300E console command error message will now be issued for a command that requires either RNM= or ID= and both are omitted. For example, MON TAP requires either RNM=*rmtname* or ID=*lo*[-*hi*] to be provided. If both RNM= and ID= are omitted (not initialized), the command will be rejected and the NASC300E message will be issued.

Console commands that require RNM= have always been rejected with the following message issued when RNM= was omitted:

 NASC300E RNM= OMITTED, REQUIRED

Note: This logic change was introduced into 230 under APAR 2300161.

55) Suffix modifiers (right side modifiers) that are entered for commands that do not use modifiers (e.g., DPARM) will now be treated as command arguments. Prior to APAR 2300161, right side modifiers were processed even though they were not used by the command that preceded them. This precluded their use as a command argument. After APAR 2300161, right side modifiers for commands that do not use modifiers will be passed to the command processor so that they can be processed as an argument. For example, if DPARM RNM= is entered, RNM= will now be decoded by the DPARM command processor and will cause the value of the RNM= modifier to be displayed.

Note: This logic change was introduced into 230 under APAR 2300161.

56) The default HOST= operand has been changed from OS390 to ZOS. This affects the non-SMP HNASRCV installation job (NASMAIN and NASTCP assemblies) but is otherwise transparent to HNAS operation. For SMP/E installation, the NASMAIN and NAS-

TCP assemblies should now always end with CC=0 regardless of whether HOST=ZOS or HOST=OS390 is specified. Note that the DNAS display has also been modified to display the actual HOST= operand (either ZOS or OS390) from the NASMAIN assembly rather than simply HOST=OS390|ZOS.

Note: This logic change was introduced into 230 under APAR 2300162.

57) On November 1, 2005 changes were made to the SMP/E distribution mechanism to tailor the process based upon recommendations from our Business Partners and direct SMP/E customers;

1) A single LNS.*aparid_date_cust#_custid*.ZIP edistribution level file is now provided instead of an edistribution level subdirectory containing Individual distribution files;
2) The FTPGET JOB in SLNSCNTL (used to automate fetching of the individual files) is no longer generated;
3) The HNAS distribution date and APAR level is now included SMP/E maintenance ++FUNCTION, DESC() area;
4) The SMP/E edistribution file packaging is now similar to non-SMP/E edistributions.

58) The DPARM EXEC command will now display ALLON|ALLOFF instead of ON|OFF for TRCBFR, TRCDATA, TRCDISP, TRCIO, TRCLU, TRCMCH, TRCMCHX and TRCVC to more properly describe *global* trace states.

Note: This logic change was introduced into 230 under APAR 2300165.

59) The PRNTQLLC start parameter and PRNT QLLC ON|OFF console command have been added to allow QLLC VC informational alarm message (NAS8*xxx*I) logging to be controlled by its own option rather than with the PRNTVC start parameter or PRNT VC ON|OFF console command as in the past.

Note: This logic change was introduced into 230 under APAR 2300167.

60) The **DNAS** command has been modified to display the running operating system type and version level as well as the time and date when HNAS was started. In addition, some existing DNAS display items have been relocated.

```
OLD display:

VERSION=V2R3M0 HOST=ZOS    ASMDATE=10/28/05 DIST=NON-SMP
CUSTMAC=COMM1.TEST.HNASMAC
CUSTOBJ=COMM1.TEST.HNASOBJ
CREATED AT 14:33:16 ON 12/13/2005
CREATED WITH MAINTENANCE THROUGH APAR 2300167
MOST RECENT MAINTENANCE APPLIED IS APAR 2300167
SHIPID=999999999999999 AUTH=00

APARID   MODULE   (MAINTENANCE STATUS)
ALL MAINTENANCE ON THROUGH MOST RECENT APAR 2300167
```

```
NEW display:

VERSION=V2R3M0 DIST=NON-SMP ASMDATE=12/16/05 ASMHOST=ZOS <-chgd
RUNNING UNDER z/OS 01.04.00                         <- new line
STARTED AT 10:54:50 ON 12/16/2005                   <- new line
CREATED AT 10:11:31 ON 12/16/2005
CREATED WITH MAINTENANCE THROUGH APAR 2300168
MOST RECENT MAINTENANCE APPLIED IS APAR 2300168
SHIPID=9999999999999999 AUTH=00
CUSTMAC=COMM1.TEST.HNASMAC                          <- moved
CUSTOBJ=COMM1.TEST.HNASOBJ                          <- moved
                                                    <- new line
APARID   MODULE   (MAINTENANCE STATUS)
ALL MAINTENANCE ON THROUGH MOST RECENT APAR 2300168
```

Note: In this example the product was generated and installed on the same date. The 'CREATED AT' date and ASMDATE date are normally the same because the CONSD-NAS module is assembled as part of the distribution creating job.

Note: This logic change was introduced into 230 under APAR 2300168.

61) **USEMDFY** is now a default start parameter. This means that the system MODIFY command interface will now be the default method for providing input to the HNAS console subsystem. In the past, WTOR was the default method for entering console input. With this new default, USEMDFY can now be removed from the startup parameter list. To restore WTOR as the console input method, you need to specify USEMDFY OFF or USEWTOR {ON}. Note that USEWTOR is a new start parameter that was added for this change. USEMDFY ON|OFF is treated the same as USEWTOR OFF|ON, respectively.

Note: This logic change was introduced into 230 under APAR 2300169.

62) **TAP operation** response timer is now equal to the TAPping timer interval. Prior to this APAR the response time was 1/2 of the tap timer interval. Under the old logic, when TAP=10 was specified a response timer of 5 was enforced which was too short for some router networks.

In addition, the configuration process has been changed to inhibit default messages for TAP parameters like CUD=, DCEADDR=, DTEADDR= and FAC= when TAP=0 is specified. These default messages were inhibited when TAP= was omitted which sets 0 by default. Specifying TAP=0 or allowing it to default when TAP= is omitted should be treated the same way, that is, tapping is not to be activated and hence, these TAP parameters are not required. Note also that if these TAP parameters are specified for a REMOTE for which tapping is inhibited, a informational message will be displayed indicating that the specified parameters will be ignored but will be saved in the event that tapping is started via a console command.

Note: This logic change was introduced into 230 under APAR 2300173.

63) The **TRCMCH INI** command has been retired. This command set a flag that was never tested. When HNAS was first written, it was assumed that MCH initialization processing would be traced based on this command but subsequently this trace activity became unnecessary.

Note: This logic change was introduced into 230 under APAR 2300174.

64) **NAS3705W** alert message sense code conditions of 0813xxxx or 0814xxxxs are now reported under an informational **NAS3705I** alert message. These sense values indicate bracket race condition that are recoverable.

Note: This logic change was introduced into 230 under APAR 2300177.

65) **HNASRCV** job was modified to remove the sample (NOP) ZAP step that is rarely, if ever utilized in the product distribution installation or maintenance (also affects the **HNASMNT** job which is created from the HNASRCV job). If a ZAP (patch) is required for a pre-APAR emergency problem fix JCL can be provided when the temporary fix is delivered.

APAR PTF's are no longer distributed with ZAP (patches), we now only employ source (macro) and object PTF's.

Another reason for the removal was because some systems personal responsible for HNAS installation are not authorized to use the super ZAP program (AMASPZAP) which caused unnecessary confusion.

Note: This change was made for distributions created after February 2, 2006.

66) **NAS0910I** alert message '3 BELLS AND ALL IS WELL' is now written to SYSCONS as well as SYSPRINT. Routing is no longer controlled by SHOWERR. This message is issued once per day at the midnight crossover. Writing the message to SYSCONS now allows it to also be routed to NETVIEW which some customers wanted.

Note: This logic change was introduced into 230 under APAR 2300182.

67) **NAS25xxM** monitor messages can no longer be filtered via ALRMFLTR=(NAS25xxI(P)) on the BUILD definition statement. This 'loophole' that allowed monitor messages to be filtered (M was being treated as I internally) has been closed. Like their trace message counterparts (for example, NAS7718T), monitor messages must never be filtered from SYSPRINT. If they are not wanted, MON TAP ALLOFF should be entered to terminate TAP monitoring.

Note: This logic change was introduced into 230 under APAR 2300183.

68) **NAS4707W** LU lu-nm GENERATING ERR/INFO PACKET FOR CTCP... alert message type for "CMD RCV'D 17 HNAS ERROR CODE 1, 2 or 3" condition will no longer be generated. We have been advised that NPSI silently discards a clear confirm from the CTCP. HNAS has been modified to do the same.

Note: This logic change was introduced into 230 under APAR 2300185.

69) The **TRCLU**, **TRCLUQ**, **TRCMCH**, **TRCMCHX**, **TRCPCE, TRCVC** and **TRCVCQ** command processors have been modified to reject a request when RNM=, LUNM= and ID= are all omitted. The following error message is also issued:

```
NASC100E ID= OMITTED, REQUIRED WHEN LNM=, RNM= OR
                     LUNM= IS NOT SET
```

If ID=0 is in effect when RNM= and LUNM= are not set, these commands operate on all PCEs associated with the corresponding resources as they always have. For additional information on the command modifier hierarchy, refer to the Console Subsystem documentation.

Note: This logic change was introduced into 230 under APAR 2300188.

70) HNAS has been modified to execute the **DNAS** command when HNAS is started, unconditionally. DNAS no longer has to be specified in the CONCMDQ= operand and will no longer be a default queued command if CONCMDQ= is omitted. Unlike the DNAS command in the CONCMDQ= list which is executed after the NAS0001I INITIALIZATION COMPLETE is issued, the new DNAS logic executes as soon as the CDF scan completes.

The **DMAP APAR** command is also executed after the CDF scan is complete (before DNAS) in order to populate the APAR table and find the highest APAR number on the system which DNAS displays. Starting with this APAR, the DNAS APAR command that is executed at startup will no longer write output to SYSPRINT. If you wish to see DMAP APAR output, you can enter the command manually or specify it in the CONCMDQ= operand.

Note: This logic change was introduced into 230 under APAR 2300192.

71) The **TRCMCH ALLON|ALLOFF** console commands no longer manipulate the ICR, OCR, ICLR and OCLR arguments as was erroneously done in the past. Now these arguments can only be manipulated using individual console commands (e.g., TRCMCH ICR, TRCMCH OCR,..., etc.). The Chapter 2 Start Parameter section in older versions of the 230 HNASBook documentation manual (prior to May 10, 2006) incorrectly indicated that the TRCMCH ALLON|ALLOFF start parameters enable or disable the individual ICR, OCR, ICLR and OCLR arguments.

In a future enhancement, the TRCMCH arguments will be supported via start parameters (PARM=) in addition to existing console command input or CONCMDQ= methods. This change is primarily being implemented so that TRCMCH ALLON|ALLOFF start parameter and console commands are consistent.

Note: This logic change was planned for V2R3M0 but has deferred until V2R4M0.

72) **NAS7708W** alert message was altered so that the Initiator PVC number and Responder PVC number are now included in the message.

```
NAS7708W XOT PVC SETUP INIT=SERIALmch-name PVC number
         RESP=SERIALn/n PVC number
```

Note: This logic change was introduced into 230 under APAR 2300196.

73) PVCs are no longer marked with the inoperative bit since there are cases where HNAS is not notified that the Serial Interface PVC is operational unless data is sent or received. This logic was initially implementent via APAR 2300151 in an effort to avoid PLU data delivery attempts to a remote PVC that isn't available.

Note: This logic change was introduced into 230 under APAR 2300196.

74) **NAS7718T** *ipaddr*(*port*) PVCSETUP TO MCH *mch-name* trace record is no longer erroneously generated by default in SYSPRINT when TRCPRNT is enabled. The record is now only generated when enabled via the TRCMCH ICR console command.

Note: This logic change was introduced into 230 under APAR 2300196.

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Migration - V2R2M0

Program Logic changes to V2R2M0 that may affect your environment migration

1) HNAS **now requires an authorization file (NASAUTH)** in order for it to operate. The authorization file is specified by the **//AUTH DD** statement in the HNAS start job. For example:

   //AUTH DD DSN=*qqqq*.HNASMAC(NASAUTH),DISP=SHR

   As part of the distribution build process, HNAS identification and authorization files (NASIDENT and NASAUTH) are created and stowed in the HNASMAC macro library. The DNAS console command module (CONSDNAS) is then assembled as part of the HNAS distribution process to pickup the current NASIDENT copy code.

   For users undergoing HNAS trials, a NASAUTH file is provided with a 90 day expiration date. In this case, HNAS will issue an **alert message** everyday at midnight indicating how many days are left before the authorization expires. If the authorization expires while HNAS is running, it will continue to run. However, if HNAS is stopped, it will not be able to be restarted. In addition to the expiration date, the NASAUTH file also contains a SHIPID which is unique to each customer. The SHIPID in the NASAUTH file is compared against the DNASID that can be displayed using the DNAS console command. If the SHIPID does not match the DNASID, HNAS will not be able to start. HNAS will treat the SHIPID/ DNASID mismatch as an authorization failure. A permanent authorization file will be provided following the trial tests when HNAS is accepted by the customer.

   If the //AUTH DD statement is not specified or if the specified authorization file has expired, HNAS will terminate (ABEND) at startup time. An HNAS image that is currently running when the authorization expires will continue to run until stopped by the console operator. However, if HNAS is stopped, it will not be allowed to restart until a permanent authorization file is provided.   Customers who have completed their trial tests and have purchased HNAS will be given a permanent authorization file that will never expire.

2) Changes were made to the HNAS 220 **edistribution** for ***.STR** stream and ***.ZIP** file formats. The ***.STR** stream files now contain OS unloaded PDS libraries generated using the TSO XMIT command and now loaded using the TSO RECEIVE command.   The IKJEFT01 (batch TSO command processor) is primarily used to invoke the RECEIVE process at the customer site. For ***.ZIP** distributions all product edistribution stream files are now contained in a single ZIP file. We no longer distribute the HNASMAC or HNA-SOBJ installation files as binary sequential LRECL=80 *.STR stream files in our standard edistribution. Please refer to Chapter 2 (Installation and Generation) for additional information.

3) We no longer distribute HNAS physical media on **3480 cartridge tapes. CD** is the primary physical distribution media available although DAT tape can be special ordered, if required. eDistribution is the primary distribution method available via **FTP**, **e-mail attachment** or **IND$FILE** transfer services.

4) **Shared Socket Support (REMOTE TYPE=XOT IPADDR=*a.b.c.d*,PORT=1998)**.
A single TYPE=XOT REMOTE definition statement with a **fixed IP address** and
PORT=1998 is all that is required to create an *shared socket pool* (inbound and out-
bound) for a specific router. The VCLMT= operand value specifies the number of sockets
in the pool. If multiple REMOTE definitions with the same fixed IP address and
PORT=1998 are provided, the sum of their VCLMT= operand values will be used to build
the shared socket pool for the target router. A socket from the pool is allocated to an acti-
vating session on a first come, first served basis. The same socket can be used for an
inbound connection at one time then an outbound connection at another time.

If you are planning to use all three types of socket pools (**dynamic**, **inbound** and
shared), they should be specified in this order within the CDF. This will allow sockets to
be allocated from the *dynamic socket pool* before any are allocated from the *inbound
socket pool* and from the *inbound socket pool* before any are allocated from the
shared socket pool. This ensures that more sockets from the *shared socket pool*
remain available for outbound connections. Please refer to Chapter 4 operand **IPADDR=**
for a complete description of this support.

5) **Callin LLC0 (SVC0=) and LLC5 (SVC5=) DTE Address Filtering** for **TYPE=MCH|XTP**
REMOTEs SLUname association. HNAS now supports filtering of DTE addressed based
on the number of digits coded on the SVC0= and SVC5= dteaddri suboperands. In ear-
lier releases the inbound DTE address in the call request packet had to match the
SVC0|5 dteaddri value exactly for LU selection to occur. With the new logic if
SVC0=(...,LU1/1234I,...) is coded then LU1 is selected by a call request packet with a
calling DTE address of 1234,12345, 123456 etc. (with the previous logic, only 1234 would
select LU1). Please refer to Chapter 4 for revised information on SVC0 and SVC5 coding
rules.

6) **Callin with GATE=GENERAL,CONNECT=NO,SUBADDR=YES** logic was corrected to
set the LLC using CUD0 then subaddress. Earlier HNAS levels erroneously sets the LLC
using the subaddress before examining the CUD0 value. <Ref: 2110018 09-05-2002>

This logic was backed out. Please refer to APAR Ref: 2200002 11-21-2002.

7) **Callin SLU/PLU fixed connection support for PCNE (LLC0) and PAD (LLC5).** Rede-
signed 220 logic now supports coding of an MCH **APPLNAME=** index entry for direct
mapping instead of the previous 211 requirement for a SYSL=DATA=*char* system select
value. Please refer to Chapter 4 for revised information on **SVC0** and **SVC5** coding rules.
The following table depicts the differences in 211 and the new 220 coding requirements:

Old Method Under V2R1M1	New Method Under V2R2M0

<pre>SVC0=(2,
     MCH10001/123456IA,
     MCH10002/X001540IB)
     SYSL=(DATA=A/0,DATA=B/1)
     APPLNAME=(TSO,CICS)</pre>
	<pre>SVC0=(2,
	     MCH10001/123456I0,
	     MCH10002/X001540I1)
	     APPLNAME=(TSO,CICS)</pre>

8) **Callin Default PLU assignment via SVC0=/SVC5= APPLNAME= association** is now supported in HNAS. For **LLC0 and LLC5 inbound calls**, after HNAS sets the LLC TYPE and locates an LU for the call, a PLUname for the session must be determined. If the name is not provided by the **SVC0/5=** operand (SVC5=(...,LU1/l2,...) where 2 is an index in APPLNAME=) or by SYSL= then the first **APPLNAME=** entry is used as a default. See sample coding in item 7 above. This default is also taken if **SYSL=** is omitted (**SYSL= was required** in previous releases and is **now optional**). Please refer to Chapter 4 for revised information on SVC0= and SVC5= coding rules.

9) **TAP=**_value_ can now only be coded on the primary TYPE=XOT REMOTE for each unique IPADDR=. This is really a cosmetic change because the TAP=value on the secondary remote's was never used for tapping although the CDF configuration decode made it seem so. This parameter change will now eliminate confusion regarding which remote resource represent the actual tapping value.

   TAP keep alive logic was redesigned and now schedules an XOT Call Request instead of an XOT Clear Request to ensure that a protocol level response (in this case a Clear Request) is always received from the router's XOT services.

   TAP= logic can now perform protocol level tapping with XOT Call or XOT Clear packet. See new parameter OPTION=TAPWITHCLR that was added on 2003-08-27 via APARs 2200048 and 2200052.

10) **RTEIN= (TYPE=MCH)** and **RTEOUT= (TYPE=XOT)** LOCAL **rmtnamei** entries must now correspond to valid TYPE=XOT REMOTE names or a cc-8 configuration error message will be generated and HNAS activation will terminate at the end of the CDF scan process. In previous HNAS levels a cc-4 configuration warning messages was generated which allowed the activation process to continue.

11) **LLC0=, LLC4=, LLC5=** and **SVC0=, SVC4=, SVC5=** operands no longer require values of **NONE** for TYPE=MCH|XTP REMOTEs in order to eliminate NAS1301W configuration warning messages. The values can now be coded as NONE or left blank.

12) **Configuration and Alert Message Reassignment** - The following HNAS messages were reassigned to improve category classification:

```
From       To        Message ID
--------   --------   --------------
NAS0010I->           'INITIALIZATION STARTED AT hh:mm:ss ON mm/dd/yy'
       ->NAS0000I 'HOST NAS STARTED AT hh:mm:ss ON mm/dd/yy'
```

13) **NAS0001I HOST NAS INITIALIZATION COMPLETE, ALL FUNCTIONS READY** message is now generated once the initialization phase of the HNAS activation process completes successfully. This new alert message is independent from the HNAS and router connectivity alert messages, like **NAS2020I** which was previously employed by users in an attempt to determine HNAS availability after the activation process. The new message now provides a more accurate representation of HNAS system availability.

14) **NAS1***s Configuration Definition File (CDF) scan /decode messages** are no longer written to the operator console when HNAS is started. The messages will continue to be

logged into the SYSPRINT file should viewing be required. In the unlikely event that you would like to continue receiving these message at the operator console you can re-enable using the PARM=**SHOWCNFG** option.   **SHOWCNFG OFF** is the default start parameter and is new to V2R2M0.

15) **SHOWERR** is now the default start parameter which inhibits information only HNAS Alert messages from being displayed on the system console. Only HNAS error messages will be displayed although all messages will continue to be written to the SYSPRINT file. In Previous HNAS levels, SHOW ON (SHOWALL) was the default value which caused all Alert messages to be routed to the system console. Users who prefer to see select error and information messages should run with start parameter SHOWALL and filter unwanted information or error messages using the ALRMFLTR= option.

   Note: Starting with 220, console command output is, by default, **not routed** to SYSCONS. To override the default and allow console command output to be routed to SYSCONS, specify the SHOWON start parameter or the SHOW ON console command.

16) The **TRCPRNT** start parameter and **TRCPRNT ON** console command are **now also used to control the display/logging of NAS2nnnI** TCP/IP Event Alert Informational **messages**. These messages will no longer be displayed or logged in **TRCPRNT OFF** mode (TRCPRNT omitted from the HNAS Start Parameter or set off via TRCPRNT OFF console command).

   These informational messages are considered 'trace like' and are rarely required. Further more, they generate unnecessary Operator Console (when SHOWOFF or SHOWERR are omitted) and SYSPRINT activity. If TRCPRNT mode is required to capture other Alert Message activity we suggest that you eliminate these information messages using the ALRMFLTR=(SUPPRESS,NAS2***I(S),...) or ALRMFLTR=(PURGE,NAS2***I(S),...) alarm filter options. Note that TRCPRNT can be active when all other tracing is off to allow informational alert messages.

17) **TRCLU MINDATA, TRCVC MINDATA, TRCMCH** and **TRCMCHX** are now the default trace options enabled at HNAS activation. The trace entries will be written to the local trace table (see BUILD **TRCLMT=** operand) unless **TRCPRNT** option is enabled where trace records will be written to the SYSPRINT file.

   WARNING: The **TRCPRNT** option **consumes additional computing cycles** and can **influence HNAS performance and available Host CPU cycles** especially when several traces are active. We suggest that the option only be enabled under the guidance of a HNAS support representative. To eliminate all trace activity you can code **TRCALL OFF** on the HNAS start parameter or you can turn off specific tracing by specifying; **TRCLU OFF**, **TRCVC OFF**, **TRCMCH OFF** or **TRCMCHX OFF**.

18) **NAS6715W and NAS7715W Alert Message** SYSPRINT entries now include a display of the buffer content for the call request packet that encountered the clear condition.

19) **DNAS console output** HOST= was changed from OS390 to OS390|ZOS to identify as a common distribution for Z/OS and OS/390 environments.

20) The **DPARM** console display output was modified to list all of the default start parameter options to improve presentation of the operational parameters.

21) Execution of console commands specified on the **CONCMDQ=** BUILD operand will now be deferred until after the initialization process completes. This reduces intermingling of activation messages and console display command output.

22) **HNASBook** documentation manual was **reorganized** and **grouped** into **separate manuals** with some of the sections renamed to improve usability. Please refer to the following table on the next page for section cross referencing:

The following table denotes the documentation manual section reassignment:

HNAS 220 Manual	HNAS 220 Section	HNAS 211 Section	HNAS 220 Section Description
HNASBOOK	-	-	HNAS Configuration Guide and Reference.
-	Preface	Preface	Preface, Important Notes and New Features
-	Chapter 1	Chapter 1	Introduction
-	Chapter 2	Chapter 2	Installation and Activation
-	Chapter 3	Chapter 3	Configuration Statement Guide
-	Chapter 4	Chapter 4	Configuration Statement Ref.
-	Chapter 5	Chapter 7	Migration Overview
-	Chapter 6	Chapter 8	Maintenance (APAR and PTF)
-	Appendix A	Appendix F	X.3 Pad Parameter Summary
-	Appendix B	Appendix G	HNAS Configuration Examples
-	Appendix C	Appendix H	Router Checklist Overview *
-	Glossary	Glossary	Glossary
MSGCODES	-	-	HNAS Messages and Codes * Debugging Guide
-	ConfigMsgs	Appendix B	Configuration Messages
-	AlertMsgs	Appendix C	Alert Messages
-	ResetCodes	Appendix D	Reset Cause/Diagnostic Codes
-	ClearCodes	Appendix E	Clear Cause/Diagnostic Codes
-	CiscoMsgs	(new)	Cisco Messages related to HNAS
CONSOLE	-	-	HNAS Console Subsystem Operations Guide * 2
-	Console	Chapter 5	Console Subsystem

HNAS 220 Manual	HNAS 220 Section	HNAS 211 Section	HNAS 220 Section Description
CONSTRC	-	-	HNAS Console Subsystem Operations Guide with Trace Entry Formats *
-	Console	Chapter 5	Console Subsystem
-	Trace	Appendix A	Trace Entry Formats
INDEXALL	-	-	HNAS Master Index (Index of sections from all books)

  * - Tools for Problem Diagnosis
  2 - Console Subsystem Operations Guide is also provided without trace entries for those who
     plan to print the guide but don't require use of the 70 pages of Trace Entry Formats.

23) **NAS2nnns and NAS2nnnI TCPIP Alert Message Enhancement** - This new TCPIP alert message format may prevent host system automation traps or filters from ignoring or highlighting some HNAS TCPIP alert message events. System automation filtering options may require tweaking to accommodate the new alert message formats.

Please refer to the HNAS New Features - V2R2M0 entry for a description of the new message formats. <**06-25-2003** - Although this new feature was provided in the initial implementation of 220 we erroneously omitted the description from this section>.

24) **TRCVC MINDATA** and **TRCLU MINDATA** independent parameters implemented as well as various HostNAS console trace command corrections/refinements. Please refer to APAR <Ref: 2200047 08-04-2003> for additional information.

25) Configuration process for **LLC0** or **LLC5 SYSL=(,NULL=0** no longer defaults to **NULL/0** (as of APAR 2200057) and will now generate an error message during HNAS CDF scan preventing activation. Simply change **NULL=*n*** to **NULL/*n*** in the CDF to prevent the error condition. Please refer to APAR <Ref: 2200057 10-23-2003> for additional information.

26) Prior to APAR 2200058: **TRCALL STOP** and **TRCLU|VC STOP|ALLOFF** commands erroneously reset the global **TRCLU|VC MINDATA|MAXDATA** buffer data logging option forcing **NODATA** instead. **TRCALL STRT** and **TRCLU|VC ALLON** commands errone-ously force the global **TRCLU|VC MAXDATA** buffer data logging option. Please refer to APAR <Ref: 2200058 10-27-2003> for additional information.

27) The **FASTRUN** process will now propagate VTAM operands that are specified on a TYPE=MXT REMOTE definition statement if that MXT is associated with a SLU in the SVC0= and/or SVC5= operand list. If no MXT is associated with an SLU entry, the VTAM operands are taken from the root TYPE=MCH|XTP REMOTE definition statement as in previous releases. In this way, the generated APPL statements for each SLU can have different VTAM operands (for example, MODETAB, DLOGMOD, etc.).

28) Changes to **HNAS clear diagnostic** byte for **UNBIND**: A normal UNBIND from the PLU will result in a clear diagnostic byte of 0 (was 140) while a non-normal UNBIND from the

PLU continues to get a diagnostic byte of 140. Please refer to APAR <Ref: 2200062 11-24-2003> for additional information.

Changes made to this distribution after the initial release date may also be found in the **220 Maintenance Summary** section of the **HostNAS V2R2M0 MAINTENANCE (APAR and PTF) INFORMATION** section on the Maintenance Web site.

Migration - V2R1M1

Program Logic changes to V2R1M1 that may affect your environment migration

1) **TAP=0** is the new default operand for TYPE=XOT|XTP REMOTE definitions. In previous releases the default TAP (keep-alive) value was 60. Some XOT router IOS or software levels don't always respond to an XOT Clear Request received on an idle virtual circuit but must respond to a XOT Call Request.   <Ref: 2100015 05-16-2002>

2) **Alert Message Reassignment** - Duplicate alert message identifiers can cause confusion when analyzing event alert message activity. <Ref: 2100020 05-31-2002> The following alert messages were reassigned to eliminate duplicate assignment and improve group category classification:

```
     From       To      Message ID
   --------  --------  --------------
   NAS2321W->NAS2501W (KEEPALIVE FAILED)    (was dup)
   NAS2322E->NAS2502E (CONTACT LOST)
   NAS2323I->NAS2503I (CONTACT REAQUIRED)
   NAS2321W->NAS2401W (RECEIVE FAILED)      (was dup)
   NAS2331W->NAS2411W (SEND FAILED)
   NAS2311W->NAS2331W (IOCTL FAILED)
   NAS2281W->NAS2291W (SETSOCKOPT FAILED)
   NAS2261W->NAS2281W (GETSOCKNAME FAILED)
   NAS2260I->NAS2280I (GETSOCKNAME COMPLETE) (was dup)
```

3) **DNAS console output** no longer displays the DTR= (VOLSER) value. This information is no longer on any use. <Ref: 211_internal 08-26-2002>

Migration - V2R1M0

Program Logic changes to V2R1M0 that may affect your environment migration

1) HNAS Alert Message NAS0101W (Buffer Shortage) updated. This message now shows the current free buffer count as well as the maximum free buffer count. It is issued when the buffer pool becomes 60% depleted. If you continually receive this alert message, consider increasing the number of buffers in the HNAS buffer pool (see BFRLMT operand on BUILD definition statement).

2) Custom modifications to replace the *calling* DTE address in a GATE **outbound** Call Request packet (GATE=GENERAL/REPDCEADDR) or to strip the *called* DTE address from a GATE **inbound** Call Request packet (GATE=GENERAL/STRIPRTEIN) have been incorporated into the standard logic. To request these features, specify:

   For V1R1M4:   GATE=GENERAL/REPDCEADDR
   For V2R1M0:   GATE=GENERAL,OPTIONS=REPDCEADDR
   For V1R1M4:   GATE=GENERAL/STRIPRTEIN
   For V2R1M0:   GATE=GENERAL,OPTIONS=STRIPRTEIN
   For V1R1M4:   GATE=GENERAL/REPDCEADDR/STRIPRTEIN
   For V2R1M0:   GATE=GENERAL,OPTIONS=(REPDCEADDR,STRIPRTEIN)

3) Custom modifications to strip the facilities field from a GATE **inbound** Call Request packet has been incorporated into the standard logic. To request this feature, specify:

   For V1R1M4:   not supported
   For V2R1M0:   GATE=GENERAL,OPTIONS=STRIPFAC

4) MBITCHN=NO parameter default was changed to MBITCHN=YES to mirror the IBM NPSI default chaining values.

5) XOT Call-out logic - Call Accept packet facilities from router are now processed by HNAS. This support allows the router to step down the facilities values (like packet and window sizes originally provided in the HNAS Call Request packet) allowing an additional attempt at facilities negotiation.

6) XOT LLC0/LLC5 Call-in logic - HNAS Call Accept packets now provide Calling/Called length and addresses in the outbound Call Accept packet.

   This global enhancement was disabled on April 28, 2002 (see APAR 2100002 for details) because some TRANSPAC X.25 implementations (and possibly other older X.25 network and PAD subscription implementations) don't support DTE addresses in the X.25 Call Accept packet. This support will be provided via parameter OPTIONS= ECHODTEADDR in our upcoming V2R2 release. We apologize for any confusion regarding this feature.

7) The TAP=15 parameter default was changed to 0 (none) on May 16, 2002 (see APAR 2100015). This new default will accommodate router environments that do not properly support our tapping (keep alive simulation) option and allow those that do to define their preferred tapping value.

Migration - V1R1M4

Program Logic changes to V1R1M4 that may affect your environment migration

1) As of release V1R1M4, the console input prompt no longer includes the text from the NASNAME operand on the BUILD definition statement unless you request this via the PFXWTO start parameter or PFXWTO ON console command. This was done because the console input prompt is now configured using the CONPRMT operand on the BUILD definition statement.

2) As of release V1R1M4, the inactivity time-out value is now configured using the IDLETO operand on the BUILD definition statement. In prior releases, this value was fixed internally at 15 minutes. You may now vary this value between 0 (inhibit time-out) and 9999 minutes. (09-20-2000)   If omitted, a value of 0 will be used. (03-28-2001)

3) HNAS SYSPRINT BLKSIZE was optimized for MVS (08-09-2001).

4) HNAS Alert Messages; NAS3799I (Clear codes added) and NAS3702W (REQSESS Failed) modified/added (10-20-2001).

5) HNAS Alert Messages; NAS6715W and NAS7715W modified, NAS6716W, NAS6717W, NAS7716W and NAS7717W added (12-06-2001).

6) HNAS Alert Messages; NAS4700W, NAS4701W and NAS4702W added (01-16-2002).