Generic Software Release Notes V4.2 FSR00 PUN32

63103950142-0DR

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generated, used, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manuals, may cause interference in which case the user will be required to correct the interference at his/her own expense.

NOTICE: Customers connecting this device to the network shall, upon request of the telephone company, inform the telephone company of the particular lines such connections are made, the FCC registration number, and ringer equivalence number of this device. This information is contained on the label located on the rear panel of the system.

If this device causes harm to the network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice isn't practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If they do, you will be notified in advance to give you the opportunity to maintain uninterrupted service.

If you experience trouble with the system, please contact Cisco Systems, Inc. (formerly Summa Four, Inc.), 25 Sundial Avenue, Manchester, NH 03103-7251, (800) 978-6624 for repair information. The telephone company may ask you to disconnect this equipment from the network until the problem has been corrected, or you are sure that the equipment is not malfunctioning.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

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For further information about this product, contact:

Cisco Systems Inc.

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This symbol on the product's nameplate means it has been tested by Electronic Testing Labs, Inc.

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PREFACE

Note: These release notes for V4.2 FSR00 PUN 32 are provided in the form established with V4.2 FSR00 PUN 28. See those release notes for a more complete explanation of the changes.

Release Documentation in Two Formats

In an effort to make the documentation easier to use and to highlight change, Cisco Systems provides release documentation in two formats. A baseline and a shortened version for PUN releases that deals only with the incremental changes since the product's documentation baseline. This is a PUN release.

Definition of Terms

FSR Release

The initial (and subsequent) release of the Generic containing significant number of fixes and/or minor functionality change.

PUN Release

An intermediate release of the Generic containing fixes and/or a small number of minor functionality changes.

FSR Release Notes

Documentation provided with each FSR release that completely describes the Generic, including complete lists of design and functional constraints.

Release Notes Addendum

Documentation provided with a PUN release that describes the incremenal changes since the previous FSR or PUN release. The complete product description is a combination of the FSR release notes and PUN release notes (the Release Notes Addendum).

What is Included in this Release Notes Addendum

This document contains the following:

- A list of new features since the FSR release
- A cumulative list of fixes since the FSR release
- A cumulative list of Known Design Constraints since the FSR release
- A cumulative list of Known Functional Constraints since the FSR release
- Installation Instructions for the current PUN release (essentially unchanged from the FSR release)
- Specific software download changes since the previous PUN release

What is Not Included in this Release Notes Addendum

Since complete documentation is provided with the FSR release, the following is not included in the PUN release notes (the Release Notes Addendum):

- Functionality introduced with the FSR release
- A complete list of Known Design Constraints (See Section 4 in the V4.2 FSR00 release notes. (Additions since the FSR00 release are contained in the most recent release notes addendum.)
- A complete list of Known Functional Constraints (See Section 5 in the V4.2 FSR00 release notes. (Additions since the FSR00 release are contained in the most recent release notes addendum.)
- Database Card Configuration information for new systems (See Appendix A in the V4.2 FSR00 release notes.)
- Re-installation instructions for the Generic—the conventional procedure, not Live Upgrade (See Appendix B in the V4.2 FSR00 release notes.)
- MIB configuration information (see Appendix C in the V4.2 FSR00 release notes)

This Release Notes Addendum

For this release, complete information is contained in the V4.2 FSR00 Release Notes, Part Number 61220300042, which was shipped with the FSR00 release and which is shipped with all subsequent PUN releases. The FSR00 release notes are also available on the Cisco Systems WEB site, *www.cisco.com*. You must be a registered user and you must have your contract number available to access the documentation.

Section 1
CONTENTS OF THE RELEASE

1.1 INTRODUCTION

Generic V4.2 is the system software for all SDS and VCO Series systems. V4.2 FSR00 PUN 32 is an incremental release that consists of the following components:

- Five (5) Generic V4.2 FSR00 PUN 32 software diskettes that contain the Generic V4.2 PUN 32 files. These files include the database files and the card download files.
- Optional diskettes. For example: TeleRouter, Ethernet (includes the MIB Supplemental disk), ISDN, NFAS, and NI-2.

See Appendix B in the V4.2 FSR00 Release Notes for information on installing the Generic software, or *Section 3* for information on upgrading your system to V4.2 FSR00 PUN 32.

If any of the required diskettes or technical publications are not in this package, contact Cisco Systems, Inc. Technical Support at 1-800-553-2447 or, via E-mail, at tac@cisco.com**.**

> *NOTE: This PUN 32 release documentation is an accumulation of changes to the Generic V4.2 FSR00 since its release and includes PUN 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, and 32 changes.*

New systems shipped with V4.2 software have all generic and download files installed on the system hard disk. If you need to re-install the software, you must install all files from the five V4.2 diskettes onto the hard drive as outlined in Appendix B of the V4.2 FSR00 Release Notes. If you are upgrading to V4.2 FSR00 PUN 32, you must install all files from the five V4.2 diskettes onto the hard drive as part of the overall upgrade steps outlined in *Section 3*.

Generic V4.2 FSR00 PUN 32 provides full upgrade compatibility with previous versions of Generic software.

The Generic V4.2 FSR00 PUN 32 release includes:

- Fixes since PUN 31 — see *Section 1.4.11*
- Added 2B channel transfer — see *Section 1.3*

The Generic V4.2 FSR00 PUN 31 release includes:

- Fixes since PUN 30 — see *Section 1.4.10*
- Added Brazil double answer in 4XE1 — see *Section 1.2*

The Generic V4.2 FSR00 PUN 30 release includes:

- Fixes since PUN 29 — see *Section 1.4.9*

The Generic V4.2 FSR00 PUN 29 release includes:

- Fixes since PUN 28 — see *Section 1.4.8*

The Generic V4.2 FSR00 PUN 28 release includes:

- Fixes since PUN 27 — see *Section 1.4.7*

The Generic V4.2 FSR00 PUN 27 release included:

- Fixes since PUN 26 — see *Section 1.4.6*

The Generic V4.2 FSR00 PUN 26 release included:

- Fixes since PUN 25 — see *Section 1.4.5*
- Added tone for North American customers (DTG firmware V1.25)

The Generic V4.2 FSR00 PUN 25 release included:

- Fixes since PUN 24 — see *Section 1.4.4*

The Generic V4.2 FSR00 PUN 24 release included:

- MFCR2 Enhancement for Outpulsing Different Categories
- Fixes since PUN 23 — see *Section 1.4.3*
- Support for the new 16Mb, 33MHz CPU

The Generic V4.2 FSR00 PUN 23 release included:

- NET5 Network Side Support — see *Section 1.4*
- A new Feature Flag for Busy Tone in Japanese Networks
- Fixes since the V4.2 FSR00 release — see *Section 1.4.2*

The Generic V4.2 FSR00 PUN 22 release included:

- Fixes since PUN 24 — see *Section 1.4.1*

The Generic 4.2 FSR00 release included:
(see V4.2 FSR00 Release Notes, 61220300042, available on the Cisco Systems WEB site *www.cisco.com* for details) You must be a registered user and you must have your contract number available to access the documentation.

- National ISDN-2 (NI-2) Option
- Drop and Insert Card Support
- ISDN NET5 Overlap Sending
- Network-side Japanese ISDN
- Call throughput performance enhancement
- Live Upgrade
- Remote File Transfer
- Inverted E&M
- Host Failure Detection
- Configurable IP Subnet Mask
- Core Dump

1.2 BRAZIL DOUBLE ANSWER IN 4XE1

This feature replaces the former single answer signalling with the double answer signalling scheme. When an incoming seizure is received, a $3A message is sent to the Generic and an off-hook report is generated to the host. Once the host tells the 4XE1 to answer, the card will send an answer signal for 1 second, then a clear signal for 2 seconds, before it sends the permanenent answer signal. This design does not affect the host application software nor the hardware. The existing parameter - WINK-DET:MAX in the Trunk Timing Configuration Screen is used to indicate the feature for the 4XE1 card.

1.3 2B CHANNEL TRANSFER

Previous to this change 2B channel transfer was sending of the call reference from the generic to the host in an $EA report. The call reference is a two-byte call reference in bytes 20 and 21 of the $EA report that were formally defined to be all zero's. This change acknowledges the use of these two bytes.

This feature can be enabled and disabled from the System Feature screen. See Figure 1.1.

```
                    S Y S T E M    F E A T U R E S

          FEATURES                              FEATURES
                       ALLOWED (Y,N)                        ALLOWED
(Y,N)
Redundant System                  Y     Send All ISDN Connect Reports     N
Output Periodic Alarm Reports     N     Enable $66 Cmd Host Checking      N
Card/Alarm Status at Init.        N     Cut Thru For Non-ISDN Alerting    N
Manual Intervention For SLIP/OOF  N     Enable 4th Column DTMF            N
Enable Grace Timing On Null Rule  N     Set MVDC-Backplane to A-Law       N
Disable Card Error Report/Reset   N     Enable AllPortsDeactivated Alrm   N
Enable Digit Field Reporting      N     $EA Reports on DChannel RESTART   N
Suppress PSC/Rule Abort Messages  N     Enable NET5 Overlap Receiving     Y
Enable Host Password Check        N     Send All ISDN Disconnect Report   N
Force Bearer/Lap Activation       N     Convert Reorder Tone To Busy      N
Enable MFC-R2 Supervised Clear    N     K1197 Layer 3 Testing             N
Enable SLIC Guarded Disconnect    N     Enable Host Call Ref              Y
Enable CPA Monitor Disconnect     N
Revert to Basic Redundancy        N
Send Reports Before Guard Time    N
Enable ISDN Manual Disconnect     N
```

TP000278

Figure 1.1: System Features Screen with Enable Host Call Reference

Note:

1. The feature flag will always appear as "N" after a full Generic install. However, in the case of an incremental install, it can conceivably come up as "Y" rather then an "N". Check the feature flag after the upgrade to ensure that it is set properly.

2. The release complete $EA report does not have call reference.

1.4 PROBLEMS CORRECTED IN V4.2 Since the FSR00 Release

See the applicable ISDN release notes for a listing of ISDN issues that have been fixed.

1.4.1 Problems Corrected in V4.2 FSR00 PUN22

TR #	Corrected Problems
U706250004	Previously, if a bad DRC-48 card or a DRC-48 that was not in the database was inserted in a slot, an "FRM341: NBC Error - Comm Bus Interf- DID err, 3 reset/polling cycles done" message was generated in the Log file. Once this message appeared, the DRC-48 card would not activate other than via the console. This has been fixed. A DRC-48 card inserted after the FRM341 message will now activate by itself without manual intervention.
U706250005	5191: There are now log messages that indicate the PCM coding configuration (A-Law or µ-Law) whenever a 4xT1 or 4xE1 card is brought into service: “FRM103: T1/E1 Card Configured for U-Law- RLS X,X,XX-span” and “FRM104: T1/E1 Card Configured for A-Law - RLS X,X,XX-span.” When the configuration is changed, the message indicates the change. 4.2 DS: While restoring the 4xT1/E1 card, the log messages for the configuration of the A Law/Mu Law were not found in the log file. These should have been generated to indicate the PCM coding law configuration used whenever the card was brought into service or when the configuration was changed for the PCM coding law. New behavior: When a span of 4xT1/W1 card is activated, its PCM coding law is indicated by a log message "FRM125: T1/E1 Card Configuration For U-Law - RLS X,X,XX-span" or "FRM126: T1/E1 Card Configuration For A-Law - RLS X,X,XX-span" is printed to the log file and on the console terminal.
U707290001	Previously, when the system attempted to write to a protected floppy disk, a misleading error was returned. The message was: "Error During Disk Operation." The correct message now appears: "Error: Disk Write Protected or Bad."
U708070003	Previously, during a switchover from Active to Standby, all ports on the new standby side in CP_SUBRAT state were forced to CP_IDLE. Normally ports not in CP_STAB and CP_SETUP (with Basic Redundancy) are forced to CP_IDLE. Attached resources are also released. Ports in CP_SUBRAT were treated similarly. Now ports in CP_SUBRAT are no longer affected, even in systems with Basic Redundancy.

TR #	Corrected Problems
U708130003	Previously, if a bad MFCR2 card or a MFCR2 that was not in the database was inserted in a slot, an "FRM341: NBC Error - Comm Bus Interf- DID err, 3 reset/polling cycles done" message was generated in the Log file. Once this message appeared, the MFCR2 card would not activate other than via the console. This has been fixed. An MFCR2 card inserted after the FRM341 message will now activate by itself without manual intervention.
U708130004	Previously, if a bad card or a card that was not in the database was inserted in a slot, an "FRM341: NBC Error - Comm Bus Interf- DID err, 3 reset/polling cycles done" message was generated in the Log file. Once this message appeared, any valid card (configured in the database) would not activate other than via the console. This has been fixed. A card inserted after the FRM341 message will now activate by itself without manual intervention.
U708130006	Previously, if a bad IPRC-64 card or a MFCR2 that was not in the database was inserted in a slot, an "FRM341: NBC Error - Comm Bus Interf- DID err, 3 reset/polling cycles done" message was generated in the Log file. Once this message appeared, the IPRC-64 card would not activate other than via the console. This has been fixed. An IPRC-64 card inserted after the FRM341 message will now activate by itself without manual intervention.
U708220002	Previously, if a bad NBC-3/DTG-2 card or a NBC-3/DTG-2 that was not in the database was inserted in a slot, an "FRM341: NBC Error - Comm Bus Interf- DID err, 3 reset/polling cycles done" message was generated in the Log file. Once this message appeared, the NBC-3/DTG-2 card would not activate other than via the console. This has been fixed. An NBC-3/DTG-2 card inserted after the FRM341 message will now activate by itself without manual intervention.
U710130001	There was an issue in which 4xT1 cards took an excessive amount of time to report an inward seizure. In addition, the 4xT1 port did not report the seizure within a consistent time period. The FXS ground start timer was changed to a “one-phase” counter which is tested against a configurable timer value. An FXS or FXO ground start port on the 4xT1 card will now report an inward seizure after the off-hook timing requirement has been satisfied.

TR #	Corrected Problems
U710140005 U708280004	Previously, the size of the DBvers.tbl failed to properly update after a database conversion. In the previous Generic release the table size was 306 bytes, which remained unchanged. (This was further complicated by the fact that the empty table size in V4.2 is 324 bytes.) In a related matter the table size remained at 288 bytes following an upgrade from a V3.3 database. The table size after upgrade is now 324 bytes.
U710290003	The MVDC-T 1 card experienced problems with set up for conference calls. No voice path was established to the DCC even after the port was properly added to the conference. The code has been changed to allow set up of the MVDC-T1 card with the $6D command in the same manner as the 4xT1 card.
U711030003	A problem occurred when MVDC-T1 spans were used for primary and secondary incoming timing source. Following a primary loss the timing did not switch to secondary. Instead, the internal clock was used. This was fixed as part of a more general solution to the problem of a failure to switch to internal timing for a momentary (less than two second) loss of carrier and when no secondary timing was configured. MVDC-T1 cards now switch properly to secondary timing (when previously so configured).
U711120004	Previously, when a 4xT1/E1 span was taken out of service from the Maintenance menu, both active and standby sides of a redundant system sent a $D9 report to the Host indicating an OOS state. When the span was restored, a $D9 report was generated only by the active side. The Host connected to the standby side did not receive a report. The code has been modified to remove a check of the active/standby side status associated with the span before the $D9 message is sent. The result is that a $D9 message is generated both active and standby sides of a redundant switch.
U711120006	The VCO system was designed to present a fast busy (reorder) tone during PSC processing on a port. This fast busy tone is not supported in Japanese networks. The normal busy tone is, instead, used in Japanese networks. This has been accommodated by the addition of a feature flag on the System Features screen. This feature "Convert Reorder Tone To Busy" when set to "Y" results in the normal busy being presented to the caller instead of fast busy.

1.4.2 Problems Corrected in V4.2 FSR00 PUN23

TR #	Corrected Problems
U507315154 (TR5154)	Trace files did not close at the end of the calendar day unless tracing had previously been disabled. The system continued to add trace data to the previous date's trace file. This has been fixed.
U604190004	Previously, when a span was taken out of service on a 4xE1, the green LED did not illuminate. It now does so, to indicate an OOS span.
U610030003	Cold boots would intermittently cause an error "FRM051 Error Reading Download File-Code 0x73e Filename C:/boot/4xE1.dwn" and "... Filename C:/boot/mvdct1.dwn." The cards would then load properly. This problem occurred more frequently with a greater number of cards (such as 4xT1/ E1s). The messages no longer occur during a cold boot.
U704090001	If the external timing source was connected only to the active side NBC-3, or if the external timing source was removed from the standby side, the standby side continuously reported FRM020 and FRM040 messages reporting the failure to obtain an external clock on the standby side. This was because the Generic did not inform the NBC-3 to switch to internal clock. Now, when the standby side NBC-3 reports an inability to sync to the external clock, the Generic instructs the NBC-3 to switch to internal clock. The NBC-3 selects internal clock and sends an acknowledgment message to the Generic.
U706230001	This was a problem that occurred with PRI/N call processing. The switch would intermittently report "FRM182: Outpulsing In Incorrect State - RLSP x, x, xx, x." This was caused by an error of the Generic code that failed to perform a check on the state of the port before a call. Now the outgoing port is released as expected and no FRM182 report is generated.
U707080004	The problem of new trace files not being created at midnight, even when the trace was left enabled, has been corrected.

TR #	Corrected Problems
U707300004	When the external timing source was lost, the system would switch to the internal timing source. However, once the external timing source was restored, the system did not switch back to external as it should have. In addition, upon external timing source loss, a major alarm was not generated. The corrected behavior of the system is that a major alarm is now set and cleared when the external clock is lost and then recovered. The following FRM messages are displayed and sent to the log: FRM504: Major Alarm Set For - ALM067: NBC Loss of External Sync. FRM511: Major Alarm Clear For - ALM067: NBC Loss of External Sync. These alarms also appear under the Major alarms of the System Alarms Display option. In addition, $F0 reports similar to the following are sent to the host when ALM67 is set and cleared: df 44 00 00 f0 43 05 01 05 df 44 00 00 f0 43 00 00 00 The $43 in the $F0 report indicates this new alarm code. Also, upon external timing reference loss, the Generic tries three times, at one minute intervals, to reselect the external clock. If the NBC3 reports a success on the first attempt, subsequent attempts are aborted. If the incoming timing source is selected immediately after the external timing reference loss, the Generic aborts the external clock selection. Since the host now receives an indication of the external clock loss, it can send a $C002 command at any time to retry selecting the external source, or switch to an incoming source.
U708010008	Previously, the inactivity time on remote terminals was inconsistent; the timer would vary from three to eight minutes. Now, if a user logs on to a remote terminal and then does nothing, after five minutes have elapsed the connection is closed with a logout message.
U708140001	There was a problem with the IPRC card still being able to run diagnostics while it was active. Users would see the proper message, "ERROR: Receiver NOT in Diagnostic Mode." However, if the user pressed the Enter key, the test would run. This problem has been corrected.
U708200006	Previously, when a card was deleted through the admin console on the active side, the number of timeslots on the active side was reduced by the number of timeslots occupied by the deleted card. The number of timeslots on the standby side however, was not reduced. This could cause problems if a switchover to the standby side occurred, since these timeslots remained occupied as far as the system was concerned, and therefore, would remain unused.

TR #	Corrected Problems
U709020009	There was a problem with the standby side NBC3: when the card was pulled out of the slot, the active side continued to display its status “S” (standby) instead of “O” (out of service). Now, the active side takes the card’s state to out of service and declares an update channel failure.
U709110001	There was a problem with running diagnostic tests on the IPRC. Users could not stop the test by pressing a key, and the screen would lock until the tests were completed. Now, if an operator presses a key, the tests are aborted and the DGN09 or DGN11 messages are displayed.
U709120005	Previously, when users printed the Database Detail from the Database Administration menu, the Ethernet TCP/IP and/or Subrate Configuration detail was not included.
U709180001	A problem existed when a cable was pulled for fewer than two seconds from a carrier which was acting as the primary timing source. (For that brief a period of time, no alarms are generated.) The NBC3 however, would lose its synchronization to the incoming timing source. Therefore, if no secondary timing source was configured, the VCO switched to internal instead of trying to use the primary again. Now, if a cable is removed from the adapter of a card (span) being used as primary timing source for less than two seconds, the Generic will try to use it again, rather than switching to the internal clock and generating alarms.
U709230001	When a $49 command is used to connect a controlling port and an associated port for an outgoing call, the active side removes the start and end records after redirecting the associated port (from incoming to outgoing). An issue previously existed in which the standby side’s start and end records were not deallocated properly. This caused the start and end records to accumulate until they exceeded the memory pool size. In addition, the number of allocated start and end records were not in synch between the active and standby sides, and the number of start and end records would not reset to zero, even after the call had been torn down. The system could not deallocate the start and end records while the major state of the standby side’s ports were in CP_SETUP. With this release, the $49 command’s connection operation deallocates the start and end records on both the active and standby sides, if the associated port is formerly allocated with those records. Therefore, the start and end record exhaust condition will not occur on the standby side due to this call scenario.
U710140001	When the card used for Incoming Primary timing was pulled, the switch went to Internal timing rather than Secondary timing. Secondary timing is now used when the Primary timing card is pulled.

TR #	Corrected Problems
U710240003	The $72 command (seize and unseize a port) sent to the switch did not function properly. When a $72 command was processed to seize a port, the port should have been flagged as SEIZED. Instead, it was flagged as ANSWER. Therefore, the system saw nothing to unseize and the port remained unavailable. The conditions of the port are now acknowledged properly.
U710280002	The class of service bits are set according to the characters entered. Valid characters are A, O, T, and 2, or a combination of these characters. However, the software did not reject certain invalid combinations. If a call was routed through this port the switch rebooted. This was found in Line, Trunk, and PRI Card configurations. The port's class of service bits are now verified. If invalid, the function's logic rejects it and an error message is printed.
U710300006	When the AM2-D bulk call generator was configured as FXOGS, and the MVDC T1 card configured as FXSGS, only 50% of the calls were processed. After the first call, the ports stayed in CP_GARD, GD_NORMAL mode. The next call from the load box hung up the port. The MVDC T1 card saw 100% completions and the load box only saw 50% completions. The MVDC T1 card now reacts faster when it gets the seizure. When the MVDC T1 is commanded to abandon a call, it now goes back to an IDLE condition in a reasonable time. The port is no longer hung in an infinite loop.
U711010001	The System Administration master console would hang if the MVDC T1 diagnostics were running in 'Continually Loop Through Test' mode, and the MVDC T1 was pulled out of the subrack and then reinserted. The card downloaded and resumed running, but the console did not accept keystrokes to terminate the diagnostics. The diagnostics tests are now only run on an MVDC T1 card which is in the diagnostic state. If the card goes to an out-of-service (OOS) state, the test loop is terminated. The operator is notified, via a console message, that the diagnostics test has been terminated due to a card going OOS. Two new diagnostic messages are associated with this fix: "DGN45: %s Test Aborted, Card Went OOS -ATP- %d Tests Executed" "DGN46: %s Test Aborted, Card Went OOS -STF- %d Tests Executed, %d Failed"
U712010001	When the $67 command was issued to remove a DTMF receiver from a port, the command was rejected, indicating that there was no resource of this type in the call's resource chain. The m_state of the controlling port was being changed when the receiver was detached. Now, when the command is rejected, the port's m_state does not change. The m_state is changed only when the command is executed successfully.

TR #	Corrected Problems
U712090001	The CPA Monitor Disconnect feature did not function properly. After a call was established, and the calling party disconnected, the UTC port did not return to an IDLE state. The UTC port is now released when the calling party hangs up.
U712100002	A feature was recently added to improve the speed of the system. However, due to an adjustment of calls-in-queue, the messages transferred between the switch and host were not being prioritized properly. This resulted in a HOST_TX_Q overflow. The enhancement has been removed and the calls in queue are no longer automatically running at a higher priority in order to continue processing without getting discarded.
U712160003	The system failed to switch from secondary incoming timing source to primary incoming timing source. The switch selected the secondary timing source. If not there, it searched for the internal timing source, even though the primary timing source was available. The system now successfully switches from the primary incoming timing source to the secondary incoming timing source and vice versa.

1.4.3 Problems Corrected in V4.2 FSR00 PUN24

TR #	Corrected Problems
U610160001	The MVDC erroneously reported PRI D-Channel Failure as a failure. This occurred even though the switch did not have either the PRI or PRI/N option installed. The correct alarm is T1 OOF. This was caused by an error string mismatch within alarm look-up. The correct alarm is now displayed.
U702280004/ U710080002	During the file sync, the standby side would sometimes report database errors (RED45: Standby DB Update Error). This has been fixed.
U707300004	There are two problems associated with this fix. The first occurred when the external timing source was lost. When restored, the switch stayed at internal source and did not switch back to external. The second issue was the failure to generate a major alarm when the external timing was lost. Now major alarm is set and cleared when the external clock is lost and then restored. The following FRM messages are displayed on the screen and are sent to the logs: FRM504: Major Alarm Set For - ALM067:NBC Loss Of External Sync (SA) and FRM511: Major Alarm Clear For - ALM067:NBC Loss Of External Sync.

TR #	Corrected Problems
U704140001	Fixed by U708130004 implemented in V4.2 FSR00 PUN23. Previously, if the error message FRM341: NBC error - Comm Bus Interf-DID err was received, cards in the system could fail to come into service. This usually occurred because a card was in a slot that was not defined for that card. When this was the case, other cards, even if properly defined, could also fail to come into service because device polling is discontinued.
U708260018	The IPRC prompt library maintenance screen failed to show the correct data for TOTAL USAGE. When initially entering the screen it shows 0:00. Subsequent entries show correct values. Also a message "Error - No Such Prompt ID" appears if you enter a library number followed by the enter key. This is an invalid error. The correct library data is now shown and the erroneous error message does not appear.
U709100001	When multiple NFAS groups are configured in a VCO switch and the D channel of the group (other than group 1) is taken down it causes all the B channels in group 1 to be OOS-NE (Out-Of-Service Near-End). The B channels in the broken D channel remain IN_SERV. Now when the D channel of a NFAS group goes out of service, only the B channel ports for that group become out of service.
U710290004	CP_MSG_Q overflow occurs as a result of burst commands from multiple hosts connected via Ethernet. Command bursts from multiple hosts via Ethernet are now handled at higher volume.
U711040004	Slip and OOF counters were not clearing at midnight on cards such as the MVDC, 4XT1, and 4XE1. Counters are now cleared at midnight.
U711110006	If a virtual port was allocated via a $6A command, but not connected, the port was unavailable if the host connection was lost and then re-established. Now if the host connection is lost and host failure action is set to call teardown, the system makes virtual ports available for allocation in the future.
U712080003	When an ISDN command ($49) was issued to tear down a T1 incoming call in CP_SETUP state, the switch crashed. This was an invalid command. However, the switch now accepts the command without crashing the switch.
U712150005	This was a problem of the switch supporting loads only to 68K. This is now fixed to run at 75K.

TR #	Corrected Problems
U801020001 related: U207293581 (TR3581) U603040003 U709100001	If the span carrying the active or backup D channel of an NFAS group goes out of service, the D channel in properly identified as out of service and (if active) is switched to the backup. The B channels, however, appear to be in service and available for calls when, in fact, they are not. The B channels are now marked OOS-NE rather than left as IN-SERV.
U801130001	4xE1 cards running in CCS31 signaling mode were reporting MFA alarms that were inconsistent with the mode. Alarms were being generated for channel 17 for OOF, AIS (remote alarm), or all zeros for an entire Multi-frame. In CCS31 mode channel 17 is a bearer channel not a signaling channel, and the alarms are valid only for channel 17 operating in signaling mode. The card no longer reports MFA alarms when operating in CCS31 mode.
U801130009	This is a new feature called Party Re-Answer added to 4xE1 capabilities. This is used in Singapore to allow the called party to hang up and go offhook again, without releasing the call. The called party has to go offhook within a certain time, otherwise the call is released. The call can also be torn down by the calling party as soon as it goes onhook.
U802050001	When using a Telerouter on a VCO to provide NTT to NET5 protocol converter application, CAUSE IE for the DISCONNECT message is not propagated from one side of the cal to the other. Instead, the VCO always generates a predefined CAUSE IE of "Normal Cal Cearing" (80 90).
U802090003	This is an enhancement that allows the host application to outpulse different category digits from a $69 command as part of the MFCR2 call processing. This provides flexibility over defining each different category digit in a different Outpulse Rule.
U802090005 and U802130004	Previously, several screens experienced a lockup problem after the EXIT_SCREEN or PREV_MENU keys were pressed. Once locked up there was no response to any key, and the screen timed out after 15 minutes. During the lockup all other Generic functions remained intact. There are now no screen lockups regardless of key input.
U802100005	The dbvers.tbl file in V4.2 PUN23 did not contain the latest version number for itself. When a database conversion was done, an unexpected report states that dbvers.tbl was converted Version 4 to Version 5. The number of records recorded for dbvers.tbl was also incorrect (one less than the actual number). Note that dbvers.tbl contains a value for the version number of every table in the database, including itself. There is no effect on the system from this error, but it could cause confusion. Now a database conversion will not report that any files were converted.
U802130004	See U802090005

TR #	Corrected Problems
U802130005	Intermittent system crashes were reported which were believed to be associated with Enhanced $67 command processing. However, the problem could not be reproduced at either headquarters or the customer site. The problem was identified from core file analysis and code inspection and a fix was implemented.
U802180003	When a 4xE1 card was added with its spans configured as CCS/31, time slot 17 was unavailable. It could be made available by manually P'ing it in from the maintenance menu. Time slot 17 is now available without manual intervention.
U802230001	Previously with an outbound PSTN port connected to a clear-channel port via $6A and $66 commands, no $DA report was sent to the host following a switchover with the PSTN port going onhook. Now when a switchover is initiated and the PSTN port goes onhook, a $DA report is sent to the host.
U802240001	During live upgrade while the switch is processing calls, after option F (switchover to ACT on the SBY side), the new active side (after switchover) rebooted. This has been fixed.
U803020002	Start/End record exhaust condition was seen during host initialization as the host sent a burst of commands to activate the ports and connect them using a $66 command. The number of start and end records have been increased from 900 to 1600.
U803110014	Occasionally users experienced a problem where they could not go beyond the Main Menu, and that any attempt to use any one of the four options available on the Main Menu would then cause the user to be logged out. Once this condition occurred, both telnet and local console access would experience the same behavior. The switch did allow the user to log in, but did not allow access to any other menu beyond the Main menu. The forced logout and access denial no longer occur.

1.4.4 Problems Corrected in V4.2 FSR00 PUN25

TR #	Corrected Problems
U802100001	Prior to this fix if you attempted to exit a Telnet session with the CTRL] escape combination, the working (displayed) screen did not close and you were not returned to the login screen unless you had first logged out from the switch. Subsequent Telnet sessions would bring up the same menu from where the previous Telnet session was terminated instead of bringing up the login screen. The system now treats the CTRL] escape sequence as a valid logout event. The new Telnet session will always take the you to the login screen.
U803110012	There was a problem in the dbvers.tbl data base file that occurred with the transition from the V4.2 FSR00 PUN 23 release to the PUN 24 release. PUN 23 had failed to fill in the filename field for subrate and motomap table entries and with PUN 24 the conversion program was modified to fill in the file names. If an conversion had been performed with PUN 23, an upgrade to PUN 24 would not correct the missing table entries. All file names and field entries are now correctly made.
U803110013	Previously, when you logged out of a Telnet session and logged into the console, the console would lock up at the main menu and would not accept any keyboard input until the 15-minute system time-out. Occasionally this lockout would also occur if you exited from the Telnet session via the escape sequence resulting in keyboard input lockout after telnet reconnection. A logout from a Telnet session will not prevent keyboard access to the administration screen.
U803190001	If an IPRC64 or IPRC128 was taken out of service while their ports were engaged in active calls, a call chain corruption would occur that would subsequently cause a system dump. Now neither call corruption nor a system dump will occur if an IPRC64 or IPRC128 is taken out of service even if their ports are attached to calls. All calls associated with the IPRC are released when the card goes OOS.
U803230008	Data base conversion after an upgrade from any V4.2 FSR00 Generic release to a newer PUN release will fail if it is attempted in systems with a new 33 MHz CPU (NVRAN un-initialized). Prior to this fix a workaround was to upgrade the Generic before upgrading the CPU. With V4.2 FSR00 PUN25 both Generic and CPU upgrade can be performed at the same time. Database conversion is successful even for systems with new, un-initialized CPUs.

TR #	Corrected Problems
U804010005	Previously, live upgrade from V4.2 FSR00 PUN24 to V4.2 FSR00 PUN25 failed. The standby side of a redundant system would crash as soon as a live upgrade was attempted. The problem occurred only if the system was processing calls. Live upgrade could not be performed from PUN24 to PUN25. This problem existed only when live upgrading from PUN24 to PUN25. Customers running any other V4.2 Generic release, such as the V4.2 FSR00 base line or V4.2 FSR00 PUN23 are able to live upgrade to PUN25 successfully. Live upgrade from PUN25 onwards works correctly.

1.4.5 Problems Corrected in V4.2 FSR00 PUN26

TR #	Corrected Problems
U709110003	The code FRM340 would intermittently be reported for unknown reason. Normally the sequence would be similar to: FRM363: 4XT1 Internal Communications Time Out RLS x,x,x-x followed by an FRM340 code; FRM340: Code Error_api_slot_table.c, 1714:15,0,0,2 or FRM340: Code Error_api_slot_table.c, 1714:15,0,0,3. Code analysis has led to a code change to eliminate the FRM340 code message.
U712040002	Prior to this fix, the system would occasionally generate a $09 time-out error indicating an aborted download of a 4XT1 card. The $09 time-out during a 4XT1 download no longer occurs.
U802170002	Previously, when a $66 command was used to connect two ports, the active side would properly show the voice path on the Port Display screen. However, the standby side would not show the voice path on the port display screen. Both active and standby sides now correctly show the voice path.
U804080001	Prior to this fix the uncompress option in the disk utilities did not work. After properly specifying a file to be uncompressed, the utility would simply ask for the file name again. The disk utilities uncompress option now works correctly.

TR #	Corrected Problems
U804150001	A cold re-boot of the switch downloads cards in a DRC, CPA, 4XT1/4XE1 sequence. Prior to this fix systems would experience errors during the 4XT1 (or 4XE1) download phase. Multiple "FRM179 Internal Port Card Errors" (parsing errors) occurred which pointed to the RLS of the CPA card. The CPA card was found to have been in-service during the 4XT1/4XE1 broadcast download, and the CPA card attempted to capture the 4XT1 download messages. The CPA card could not process these messages which resulted in FRM179 error messages. Cards are now prevented from being placed in-service until the broadcast download cycle is complete.
U804290003	Previously, during a switchover from primary incoming timing to secondary or internal timing, some 4XT1 or 4XE1 spans may report a momentary remote alarm condition. This alarm clears by itself after a few seconds, but the spans on which the alarm occurred are momentarily placed into maintenance state and active calls on these spans are dropped. Now, following a switchover from primary timing to secondary because of a carrier alarm, or a manual switchover from primary timing to internal, no remote or carrier alarms are seen on any spans and calls are not interrupted.
U804290005	Previously, when a span or card was used for secondary incoming timing went into maintenance state (as a result of a remote alarm), the Generic switched the timing to internal instead of primary, even if primary was available. Now the system switches to primary timing when a remote alarm is reported by the secondary timing source.
U805120003	Previously, if a switchover (initiated from via a $C001 command or from the maintenance menu) was performed on a redundant system running a call scenario which involved returning ports from CP_STAB to CP_SETUP state, a reboot could occur on the new active side following the switchover. Switchover from one side to the other occurs without failure under the above conditions.
U805210001	Previously, the debug message "steprule -> unexpected 1" was sent to the log file during inpulse rule processing in a switch configured for MF digit collection. This message is erroneous and has been removed.

TR #	Corrected Problems
U805290004	Prior to this fix, a system running call transfers under load would crash following a switchover to the standby side. A Call Chain Dump would precede the crash with a cause indication of "EXCEPTION FAULT PC=0x00000006" This problem occurred while the call transfer application was creating a CP_SETUP state for ports on the standby side at the time the switchover and crash occurred. This fix corrects problems associated with this scenario. Switchover occurs properly.

1.4.6 Problems Corrected in V4.2 FSR00 PUN27

TR #	Corrected Problems
U611120001	Previously, if NFS was disabled from the Ethernet Configuration screen, the system would not allow you to leave NFS-related fields blank. Attempts to do so would result in the message: “LEADING SPACES ARE NOT ALLOWED.” NFS fields can not be made blank when NFS is disabled.
U704210001	Previous to this fix, tearing down a large conference (more than 150 ports) would cause the system to reboot. This fix results in $A3 commands being sent only to ports involved in 2-way conference. This prevents Tx overrun and subsequent system reboot. A conference of 150+ calls is now torn down gracefully.
U707250004	Previous to this fix the VCO may reboot during conference call processing if a DCC involved in the conference is taken OOS. The system no longer experiences reboots during conference processing even if a DCC is taken OOS.
U712240002	Previously when a restart message (46) was entered in an ISDN message template, the switch would crash with a “FRM531: Core File Created - cause = EXCEPTION FAULT PC-0x00123722”. (Actually any numerical string other than the SELECT/PREV_SELECT key would cause the system to crash. The problem was in the message template field. Only legal hex digits as listed in the ISDN supplement Guide are accepted
U801260001	There was a problem with the Host Setup Timer. When first enabled from the System Host Configuration screen it would come up set to zero seconds. This can cause all calls to be torn down. The initial timer value is now set to 6 seconds and the available range from 1 to 60 seconds (previously 0 to 60 seconds).

TR #	Corrected Problems
U802120001	A switchover (from active to standby) from the local console via the Maintenance Menu, the message “RED39: System Switched by Operator” is not reported to the logs. The message is now reported to the console and to the logs.
U803230005	Previous to this fix, the NBC-3 would crash when the MSC rebooted. Fixed in NBC-3 EPLD LP140D.
U804060001	When multiple hosts were connected to a VCO, reports sent to the hosts would occasionally arrive at the wrong host. Reports are now sent to the correct host.
U804070003	When an outgoing ISDN port goes to mstate: CP_WTFSUP and istate: O_DELIVRD upon receiving an Alerting message. At this point, if a system switchover occurs, mstate of the port is correctly forced to CP_IDLE, but the istate stays in O_DELIVRD state and the next call to the port from the new active side fails. Subsequent calls are processed correctly. In the event of a switchover, ISDN calls which are forced to IDLE are cleared properly and their istate and callid are reset to ISDN_IDLE and 0, respectively. A DISC message is also generated to clear the call. This permits the first call following the switchover to be processed successfully.
U805040002	Occasionally the standby side of a redundant system will reboot when conference calls are torn down. Call teardown will no longer cause reboot of the standby side.
U805060001	Systems with 4XT1 and PRI/N cards in an NFAS group exhibit the following problems: the active side does not show the alarms on the 4XT1 card and the standby side shows D-channel Failure alarms for all spans of the 4XT1 card. Failure to properly update and to clear the alarms on the 4XT1 card has been corrected.
U805070003	Previously, when a $67 command was followed by a $6C command, the port would stay in CP_DTMF state even after the $DE and $D1 report was received and all timers had expired. The next $67 command would be rejected with an NSB of 5C. Now the port’s major state changes back to CP_SETUP after digit processing and the next $67 command is not rejected.

TR #	Corrected Problems
U805150005	If a span carrying the active or backup D-channel of an NFAS group went OOS, the switch did not send a Service/OOS message for B-channels to remote switches via the D-channel. The far end, therefore, had no knowledge of the failing B-channels on the OOS span. This protocol violation has been corrected. In an NFAS group with primary and backup D-channels experiences a span failure (one of the D-channels goes OOS), the far end is notified via the backup D-channel with a SERVICE message specifying the failing B-channel on the OOS span.
U806110001	See U611120001.
U807220001	This problem was detected by engineering. Before this fix, a live upgrade from PUN26 to PUN27 would fail with an invalid DBVERS.TBL version.

1.4.7 Problems Corrected in V4.2 FSR00 PUN28

TR #	Corrected Problems
U602271001	Previously, a 4XT1/E1 card processing calls would miss messages between the 340 and 302 processors. This would cause an FRM 370 message to be sent to the Generic and the span would go OOS. The message is no longer posted and the span remains active.
U707010002	Upon reboot an ALM061: T1/E1 Blue Alarm appears following the NBC download on the minor alarm screen and does not clear when the download of the PRI card(s) is complete. The T1/E1 alarm is now generated only when a valid alarm condition exists.
U711120001	Previously, a 4XT1/E1span would occasionally send a $53 message to one of its spans and the span would not respond in time. The card would report an Internal Broadcast error and the span would not come into service. The $53 message is now sent only when valid.
U805110001	Previously a RELEASE was rejected for the reason IE missing. This occurred because after the call went stable, the switch sent a DISCONNECT to the network and the network replied with a RELEASE that did not contain a CAUSE IE. The switch then responded with a RELEASE COMPLETE, causing the IE missing. This rejection no longer occurs.

TR #	Corrected Problems
U805210006	The NET5 card (E1-PRI) presented an E1 CRC alarm during system initialization. This E1 CRC alarm was cleared when the card became operational, but the system alarm screen continued to show it (the card display screen properly did not indicate an alarm). The alarm display screen now does not present a CRC alarm for a properly activated E1-PRI card.
U806010003	Prior to this fix the IPRC would download twice when the system underwent a cold start. This problem was a consequence of the fix for issue U804150001 that was introduced with V4.2 FSR00 PUN26. (This issue dealt with placing cards in service while a download was still in process with another card) The IPRC card is no longer affected by the U804150001. There is only one download of the IPRC card with a cold start.
U808040001	Previously, if a $69 command was issued to force an outgoing port to idle when the port was already in CP_IDLE state, a FRM340: Code Error was placed in the log file. To prevent this message from being printed under the conditions described, it is now associated with debug switch 29. The error will be printed to the log file only if the debug switch 29 is set to 0x01.
U808180006	Before this fix, whenever a Drop and Insert card was added or at bootup with a Drop and Insert card in the database, the message “FRM340: CODE Error - serv_listupdator.cc,822” was printed to the log file. This is because SNMP did not support the Drop and Insert card. The message is no longer printed.

1.4.8 Problems Corrected in V4.2 FSR00 PUN29

TR #	Corrected Problems
U808200001	Upon cold reboot, some of the Net5 cards connected to the network may not accept the broadcast download. After the broadcast cycle completes, these cards stay in maintenance state. Looped-back cards and cards without network connections do not exhibit this behavior. Other ISDN cards can also experience a similar problem. The ISDN cards now receive a download after every system reset, cold or warm.

1.4.9 Problems Corrected in V4.2 FSR00 PUN30

TR #	Corrected Problems
U808100001	When 4XE1 spans are looped back together and one span is taken out of service and then placed back in service, all the ports on the other span will become stuck in CP_GARD state. Spans no longer remain in CP_GARD state under these conditions.

1.4.10 Problems Corrected in V4.2 FSR00 PUN31

TR #	Corrected Problems
U504074989/ U810150002	If a span is forced out of service and then placed back in service, the Port Display screen shows the ports to be CP_IDLE. The Card Display screen, however, shows the ports to be OFF HOOK. Both screens now show the ports to be CP_IDLE.
U807090001	Currently, given a T1 span that is (1) on a 4XT1 card or on a T1-MVDC card and, (2) is in an NFAS group with one D-Channel/one PRI/N card. When a T1 span loses its carrier signal and then it is restored. the T1 span sends an additional ISDN Message, a “SERVICE, OUT-OF-SERVICE” message, to the AT&T-4ESS switch that it is connected to, telling the AT&T-4ESS that, in effect, the switch has just acknowledged the 24 ‘SERVICE, IN-SERVICE’ messages but is saying that now the 24 ‘SERVICE, OUT-OF-SERVICE’ messages is being sent. The T1 span responded with “SERVICE, OUT-OF-SERVICE” because it was still in alarm when it received the “SERVICE, IN-SERVICE” messages from the AT&T-4ESS. The ‘SERVICE, OUT-OF-SERVICE’ message is no longer sent under these conditions.
U810280008	Previously, when a 4xE1 card sent an abandon command ($6A - tear down) to an incoming VCO port, the ABCD signalling transmit bits did not transition from a “sieze ack”(1101) to “Idle”(1001) state. Signaling bits now transition correctly.

1.4.11 Problems Corrected in V4.2 FSR00 PUN32

Note: This table references Cisco CSC numbers rather than the previous TR numbers.

CSC #	Corrected Problems
CSCdk80666	Before this fix, if the Host socket was lost and an attempt was made to restore it immediately, "$A30: Addr already in use" errors were written to the log files. The error no longer occurs.
CSCdk92965	Previously, there was a card state mismatch between active and standby side. This could be seen by using Card Maintenance to change one of the spans from ACTIVE to MAINTENANCE mode. On a card with Active and Standby sides showing the span in "M" mode, change the span from "M" to "O". Both sides will show span in "O" mode. Use Card Maintenance to change from "O" to "A" mode. The Active side will show the span as "A" while the Standby Side will show span in "M" mode. All alarms are clear on both sides except for an OOF on the Standby Side. The Correct mode is now shown.
CSCdm27910	A Telnet admin session will be terminated after 15 minutes if there is no activity. Any admin screen that is automatically refreshed, such as the Port Status screen, constitutes activity and therefore the session will not be terminated unless the user exits the screen. The user must exit the screen if Telnet timeout termination is desired. This is a design requirement.
CSCdm33959	Timer T309 is started when data link establishment fails. When T309 expires, the B-channel is released as is the call reference. T309 was not stopped in previous Generic implementations. This caused a problem with sending layer 3 messages. Timer T309 is now stoped upon expiration and layer 3 messges are properly passed to layer 2.

Section 2
SYSTEM REQUIREMENTS

2.1 INTRODUCTION

This section provides a listing of system requirements for running Generic V4.2 FSR00 PUN 32. These requirements are divided into database, hardware, firmware, and software. Contact Cisco Systems, Inc. Technical Support at 1-800-553-2447 or, via E-mail, at tac@cisco.com for any site-specific information.

2.2 DATABASE CONFIGURATION

New system users: note that your VCO-20 or VCO-80 system is shipped to you with:

- the Generic software installed on the hard drive
- the licenses configured in the database
- the NBC-3 and DTG/DTG-2 cards configured in the database
- all cards physically installed inside the enclosure

Appendix A in the V4.2 FSR00 Release Notes contains an overview of the steps you must follow to add and configure the cards in your system.

2.3 HARDWARE REQUIREMENTS

The components listed in this section are installed in new systems prior to shipment. To operate V4.2 FSR00 PUN32, a system must be equipped with the following components:

VCO-20

Control Circuit Cards

- Combined Controller (two Combined Controllers are required for redundant systems; one for non-redundant systems.
  - 8 MB or 16MB RAM 68030-based CPU (replaceable central processing unit)
  - SWI (built in)
  - Floppy Disk Drive (built in)
- Storage/Control I/O Module (two Storage/Control I/O Modules are required for redundant systems; one for non-redundant systems.
  - SCSI interface hard drive, 80 Megabytes or larger (built in)
  - Ethernet/Console/Modem/Printer Interface (built in)
- AAC
- NBC-3 Card Rev C0ER (or later) or E0AR (or later)
  (Two NBC-3 cards are required for redundant systems; one NBC-3 for non-redundant systems.)
- BRC—Bus Repeater Card —*not used/required for VCO/20 systems*

Service Circuit Cards

- DTG-2—Digital Tone Generator (installed on the NBC-3 card)
  A minimum of one tone card is required to provide a quiet tone to the network. Two DTG-2 cards are required for redundancy.

Note: Instead of DTG-2 cards on the NBC-3, DTG cards may be installed in slots 7 and 8 to perform the same function.

VCO-80 and SDS-1000

Control Circuit Cards

- CPU Transition Module (CPU-TM) (Two CPU-TM cards are required for redundant systems; one card for non-redundant systems.)

  The CPU-TM is the Ethernet/Console/Modem/Printer Interface.
- 8 MB or 16MB RAM 68030-based CPU (central processing unit) (Two CPU cards are required for redundant systems; one card for non-redundant systems.)
- SWI Version A0AR (Two SWI cards are required for redundant systems; one card for non-redundant systems.)
- AAC
- NBC-3 Card Rev C0ER (or later) or E0AR (or later)
  (Two NBC-3 cards are required for redundant systems; one card for non-redundant systems.)
- BRC—Bus Repeater Card Rev B0YR (or later)
  A BRC, configured for slave operation, is required in each expansion rack—one in slot 1 in the expansion port subrack if the system is non-redundant; one each in slots 1 and 2 in the expansion port subrack if the system is redundant.

  A BRC, configured for master operation, is required in the master port subrack—one master BRC is required for each slave BRC.

Storage Subsystem

- SCSI interface hard drive, 80 Megabytes or larger with attached 3.5" SCSI Interface Floppy Drive (Two hard drive/floppy drive units are required for redundant systems; one unit for non-redundant systems.)

Service Circuit Cards

- DTG or DTG-2—Digital Tone Generator (DTG-2 is installed on the NBC-3 card)
  A minimum of one tone card is required to provide a quiet tone to the network. Two DTG or DTG-2 cards are required for redundancy.

Note: If your system uses DTG cards, Cisco strongly recommends that the DTG cards be installed in slots 3 and 4.

SDS-500 (Non-Redundant Platform)

Control Circuit Cards

- CPU Transition Module (CPU-TM) or Storage/Control I/O module

  The CPU-TM is the Ethernet/Console/Modem/Printer Interface.
- 8 MB or 16MB RAM 68030-based CPU (central processing unit)
- SWI Version A0AR
- AAC
- NBC-3 Card Rev C0ER (or later) or E0AR (or later)
- BRC—Bus Repeater Card—*not used/required in SDS-500 systems*

Storage Subsystem

- SCSI interface hard drive, 80 Megabytes or larger with attached 3.5" SCSI Interface Floppy Drive

Service Circuit Cards

- DTG or DTG-2—Digital Tone Generator (DTG-2 is installed on the NBC-3 card) A minimum of one tone card is required to provide a quiet tone to the network. For tone redundancy, the second tone card must be a DTG card installed in slot 4. (There can be no redundant DTG-2 because there can be no second NBC-3).

All Platform Types

SNMP Management

- Ethernet Option software diskette and Ethernet cable installed on the SDS/VCO system

If you are planning to monitor and control your system remotely via SNMP, an SNMP network management application or platform needs to be connected to your SDS/VCO system via Ethernet/Internet.

You will also need an SNMP application installed on your SNMP network management platform in order to monitor and/or control your SDS/VCO system. See Appendix C in the *V4.2 FSR00 Release Notes*.

The MIB diskette supplied by Cisco (with the Ethernet diskette) is for use on SNMP network management platforms. See Appendix C in the *V4.2 FSR00 Release Notes*.

Port Interface Cards (Optional)

- E1-PRI 120 Ω (NET5) Card Rev A0CR (or later)

2.4 FIRMWARE REQUIREMENTS

Card firmware requirements are listed in Table 2.1. Table 2.2 lists the ISDN optional products firmware requirements. Table 2.3 lists North American feature package firmware requirements. Refer to the technical descriptions in Volumes 3 and 4 of your hardware documentation set for firmware locations for each card. Instructions for removing and replacing firmware PROMS are contained in *Appendix A* of this document.

The version of the firmware on cards in your system can be obtained by going to the Card Mainenance Screen (see the *System Administrator's Guide*). The version of the CPU firmware can be determined only examining the card. EPLDs (identified with a version number beginning with LP), and certain other chips, also can be determined only by examining the card. Version numbers listed in bold text in the tables that follow can be viewed from the Card Maintenance Screen (see the *System Administrator's Guide*).

Table 2.1: Firmware Requirements

Card Name	Firmware	Checksum[1]	Version[8]	Location	Changed Since V4.2 FSR00 PUN 28?	Changed Since V4.2 FSR00?
AAC	No firmware requirements					
BRC	BRC	00002412	2.01	U2	N	N
CPA	See Table 2.3					
CPU 8Mb[3,4] 25MHz	Boot Even	006E6CB3	4.04	U1	N	N
	Boot Odd	0086954F	4.04	U15	N	N
	MVME147 MVME147	5741B41F 5741B42F	2.44[5] 2.44[5]	U30 U22	N N	- -
	MVME147 MVME147	5741B41E 5741B42E	2.43[5] 2.43[5]	U30 U22	N N	N N
CPU 16Mb[3,4] 33MHz	Boot Even	006E691D	5.00	U1	N	-
	Boot Odd	00866CBF	5.00	U15	N	-
	MVME147 MVME147	5741B41F 5741B42F	2.44 2.44	U30 U22	N N	- -
DCC	See Table 2.3					
DDI	See the *Master Configurator Release Notes* (Part No. 63098350133)					
DID-2	DID-2	000010C3	1.41	U2	N	N
DRC-8[7]	DRC	00009625	5.23	U2	N	N
DRC-24	DRC-24/48	00004241	3.08	U2	N	N
DRC-48	DRC-24/48	00004241	3.08	U2	N	N
Drop & Insert	D&I	00A998F6	2.01	U9	N	N
DTG	See Table 2.3					
DTG-2	See Table 2.3					
DVC	DVC	000095BE	2.07	U2	N	N
E+M (2W or 4W)[7]	E+M	0000D381	2.06	U2	N	N
E1-PRI	See Table 2.2					
E1-PRI 120Ω	See Table 2.2					

Table 2.1: Firmware Requirements(Continued)

Card Name	Firmware	Checksum[1]	Version[8]	Location	Changed Since V4.2 FSR00 PUN 28?	Changed Since V4.2 FSR00?
E1[7]	E1-CAS/MERC	0000F1C6	2.13	U23	N	N
	E1-CAS/R2 (CRC4)	00002654	2.01	U23	N	N
	E1-31B	0000EF58	3.03	U23	N	N
	E1-CAS/R2 (No CRC4)	000EDF08	3.43	U23	N	Y
	E1-CAS/ALS70D	See the *Master Configurator Release Notes* (Part No. 63098350133)				
	CAS PROC	00001E78	1.04	U85	N	N
	32 CHAN SETUP	0000CDDE	1.00	U113	N	N
	PCM GAIN/LAW	000011D2	1.02	U45/53	N	N
ETC/LTC	See the *Master Configurator Release Notes* (Part No. 63098350133)					
IPRC-8	IPRC 8-PORT	00220D75	1.03	U2	N	N
IPRC-64	IPRC 64-PORT	00220DC1	1.03	U2	N	N
IPRC-128	IPRC 128-PORT	00220E0A	1.03	U2	N	N
MFCR2	See the *Master Configurator Release Notes* (Part No. 63098350133)					
MRC	MRC	0000EE80	3.08	U2	N	N
MVDC-T1	Local Bus	000D373B	LP100A	U35	N	N
	Com Bus	00186169	LP101A	U19	N	N
	Interrupt	000AE787	LP102	U75	N	N
	PCM Interface	001748E3	LP103A	U107	N	N
	Framer	0005FE2C	LP104	U76	N	N
	Gain/Law	0005A153	LP105B	U49	N	N
	T1 Clock	000BE051	LP106	U80	N	N
	Gain/Law	00776220	—	U50	N	N
	Boot PROM	0065B028	1.06	U10	N	N

Table 2.1: Firmware Requirements(Continued)

Card Name	Firmware	Checksum[1]	Version[8]	Location	Changed Since V4.2 FSR00 PUN 28?	Changed Since V4.2 FSR00?
NBC-3 Card Rev C0ER or later[6]	LP122 SWI	00194974	LP122C	U66	N	N
	LP123 Counter	0018E096	LP123E	U13	N	N
	LP124 Chip Select	000D7B43	LP124C	U12	N	N
	LP125 Com Bus FPGA[2]	—	LP125C	U43	N	N
	LP126 Com Bus EPLD	0005CED8	LP126B	U47	N	N
	LP127 Mezza-nine Add.	0006C919	LP127A	U105	N	N
	Boot PROM	00F597BE	1.02	U4	N	N
NBC-3 Card Rev E0AR or later	LP141 SWI	0019204D	LP141A	U31	N	N
	LP140 Counter	00187206	LP140C	U73	N	Y
	LP139 Chip Select	000D4209	LP139A	U30	N	N
	LP125 Com Bus FPGA[2]	—	LP125C	U53	N	N
	Boot PROM	00F597BE	1.02	U1	N	N
PRI	See Table 2.2					
PRI/N	See Table 2.2					
SSC	Com Bus Control	00186169	LP101A	U24	N	N
	PCM Interface	00198315	LP130B	U76	N	Y
	Quad 9 to 1	0017878C	LP129A	U71/U70	N	N
	Redundancy Control	0017F249	LP128A	U100	N	N
	Subrate Matrix Control	000BB573	LP131	U31	N	N
	Boot PROM	00400736	1.02	U10	N	Y
SLIC-2[7]	SLIC-2	000010B9	1.41	U2	N	N
SWI	No firmware requirements					

Table 2.1: Firmware Requirements(Continued)

Card Name	Firmware	Checksum[1]	Version[8]	Location	Changed Since V4.2 FSR00 PUN 28?	Changed Since V4.2 FSR00?
T1[9]	T1 E+M	00002BA5	1.26	U2	N	N
	T1 Aux Proc	00007125	1.00	U45	N	N
UTC-2	UTC, 40006800023	0000F91E	6.00	U2	N	N
	UTC, 40015400023	0000ECF0	6.54	U2	N	N
4XE1	4XE1 68340 VIRT CM	0028FAF0	1.09	U10	N	Y
	4XE1 68302 ODD	00263E25	1.04	U47, 93, 150, 185	N	Y
	4XE1 68302 EVEN	002313DD	1.04	U48, 94, 151, 186	N	Y
	GAIN/LAW CCITT G.711	000FCD68	1.03	U25, 28, 67, 78, 120, 131, 158, 170	N	N
	PATH SETUP ROM	0000CDDE	1.00	U35, 86, 116,178	N	N
4XT1	4XT1 68340 VIRT CM	0028FAF0	1.09	U10	N	Y
	4XT1 68302 ODD	00277AE4	1.14	U47, 93, 150, 185	N	Y
	4XT1 68302 EVEN	00242750	1.14	U48, 94, 151, 186	N	Y
	GAIN/LAW CCITT G.711	000FCD68	1.03	U25, 28, 67, 78, 120, 131, 158, 170	N	N
	PATH SETUP ROM	0000CDDE	1.00	U35, 86, 116,178	N	N

Notes for Table 2.1:

1 *The firmware label applied by Cisco may list only the last four digits of the checksum.*

2 *The checksum for the NBC-3 LP125 is not given because the programming for this item is part of the NBC-3 download file and is included in the checksum for the NBC download file.*

3 *8MB RAM/25MHz CPU cards are shipped with all new systems unless 16MB RAM/33 MHz CPU cards are specially ordered.*

4 *Since May 1998, all new systems have been shipped with V2.44 MVME147 PROMS. This firmware is supplied by Motorola.*

5 *The 8Mb 25MHz CPU card firmware Version 2.43 and Version 2.44 can co-exist, one on one side of the switch and one on the other. However, the same version (2.43 or 2.44) must be installed on a given CPU card at locations U30 and U22. It is not necessary to replace Version 2.43 with Version 2.44 firmware.*

6 *The Version C0ER NBC-3 card is no longer manufactured. If the card needs to be replaced, use the new, Rev E card (Version E0AR, or later) with the latest firmware and EPLDs.*

7 *If your system is using DTG/DTG-2 firmware (i.e., Tone Plan, Country Feature Package) other than North American, you may have special firmware requirements for the card identified by the footnote. See the* Master Configurator Release Notes *(Part No. 63098350133).*

If, upon review of the Master Configurator Release Notes, *the card identified is not listed in the Applicable Country Feature Package Table in the* Master Configurator Release Notes, *the firmware version(s) stated in these Generic Release Notes applies.*

If, upon review of the Master Configurator Release Notes, *the card identified* is *listed in the Applicable Country Feature Package Table in the* Master Configurator Release Notes, *the firmware version(s) stated in the* Master Configurator Release Notes *applies. If you are doing an upgrade and you received (in your Upgrade Kit). firmware for the card identified and that firmware does not match the version listed in the* Master Configurator Release Notes, *contact Cisco Technical Support.*

8 *Version numbers in bold type can be viewed from the Card Maintenance Screen (see the* System Administrator's Guide*).*

9 *The type of firmware chip installed in position U2 of the T1 card determines the card's network signalling capabilities. If your T1 card is currently using other than E+M signalling and you beleive that the firmware version for your signaling type is not the most current,* contact Cisco Systems, Inc. Technical Support at 1-800-553-2447 or, via E-mail, at tac@cisco.com.

Table 2.2: ISDN Optional Products Firmware Requirements

Card Name (Software Product Name)	Optional Product Release Note Reference (See Table 2.5 for Release Note P/N)	Changed Since V4.2 FSR00 PUN 26?	Changed Since V4.2 FSR00?
E1-PRI (NTDASS2, DPNSS)	See the NTDASS2 Release Notes or the DPNSS Release Notes	N	N
E1-PRI 120 ohm (NET5) Rev A0CR or later	See the NET5 Release Notes	N	Y
E1-PRI 120 ohm (NET5) Rev A0AR or A0BR	See the NET5 Release Notes	N	Y
PRI (ISDN-PRI)	See the ISDN-PRI/ISDN-NFAS Release Notes Note: The PRI card is not NFAS (nor NI2 nor NTTPRI) capable.	N	N
PRI/N (ISDN-PRI, ISDN-NFAS, NI2, NTTPRI)	See the ISDN-PRI/ISDN-NFAS Release Notes, the NI2 Release Notes, or the NTTPRI Release Notes	N	N

Note for Table 2.2: If you are missing any of the documents you need for your upgrade, contact Cisco Systems, Inc. Technical Support at 1-800-553-2447 or, via E-mail, at tac@cisco.com.

Table 2.3: North American Feature Package Firmware Requirements[1]

Card Name	Firmware	Checksum	Version	Location	Changed Since V4.2 FSR00 PUN 26?	Changed Since V4.2 FSR00?
DCC	DCC	0000A575	2.02	U2	N	N
	LIN/PCM 0 DB	0000B9A2	1.00	U43	N	N
	LIN/PCM -3 DB	0000AB04	1.00	U44	N	N
	PCM/LIN Odd	0000AFA2	1.00	U33	N	N
	PCM/LIN Even	0000B736	1.00	U34	N	N
DTG[3]	DTG (See Note 2 below)	00007C30	1.25[2]	U2	N	N
		000077AD	1.23[2]	U2	N	N
	Tone Odd	00000078	2.04	U54	N	N
	Tone Even	00004217	2.04	U53	N	N
	MAP PROM LP87	0000628A	1.1	U36	N	N
	MAP PROM LP88	00004B9E	1.1	U37	N	N
CPA	CPA	0000A7A2	1.03	U2	N	N

Notes for Table 2.3:

[1]*For firmware supporting other Country Feature Packages see the Master Configurator Release Notes, 63098350133.*

[2]*Version 1.23 or 1.25 required. Version 1.25 differs by supplying an additional tone for Canadian customers.*

[3]*"DTG" in this table refers to either the DTG card or the DTG-2 card attached to the NBC-3 card.*

2.5 SOFTWARE REQUIREMENTS

Valid software checksums and versions for the Generic V4.2 FSR00 PUN 28 software are listed in Table 2.4. Valid software checksums and versions for optional products are listed in Table 2.5.

Use the Software/Firmware Configuration utility to identify the version and checksum of each software file installed on the system (refer to the *System Administrator's Guide* for more information). Generic software files are distributed across the installation floppy diskettes. Each optional software product is contained on a single floppy diskette.

Table 2.4: V4.2 FSR00 PUN 28 Software Requirements

Software Product Name	Filename	Check-sum	File Vers.	Changed since V4.2 FSR00 PUN 28?	Changed since V4.2 FSR00?	Number of 3.5-inch Diskettes
GENERIC V4.2 FSR00 PUN 28	GLOBALS.EXE	01549205	4.04	Y[1]	Y	5
	HOSTMGR.EXE	021D2369	4.04	Y[1]	Y	
	SYSWD.EXE	00000000	4.04	N	N	
	REDMGR.EXE	00F30F98	4.04	Y[1]	Y	
	PERMGR.EXE	00000000	4.04	N	N	
	NETMGR.EXE	02831DB1	4.04	Y[1]	Y	
	SNMP.EXE	051788F9	4.04	Y[1]	Y	
	INSTALL.EXE	02189911	4.04	N	Y	
	MVDCT1.DWN	00F2D33A	1.08	N	Y	
	NBC.DWN	01095DE7	1.08	Y	Y	
	SSC.DWN	006C84CB	1.00	N	N	
	CPA.DWN[2]	003079F3	8.09	N	N	
	DVC.DWN	005ADA02	1.08	N	N	
	IPRC.DWN	0022E1EA	1.04	N	N	
	DTMF.DWN	00053D1A	2.02	N	N	
	DNI.DWN	006EF8D7	1.01	N	N	
	4XT1.DWN	00349052	1.49	N	Y	
	4XE1.DWN	0037F884	1.43	Y	Y	
	VRTX OS	—	1.08	N	N	
	IFX	—	1.11	N	N	
	TNX	—	1.45	N	N	

Notes for Table 2.4

[1] *Checksum change only. Version remains the same.*

[2] *The CPA.DWN file listed is only for CPA cards installed in systems operating with North American DTG/DTG-2 firmware. If your system uses a different type of DTG/DTG-2 firmware, see Section 3.2.6, Special System Considerations.*

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Table 2.5: V4.2 FSR00 PUN 26 Optional Products Software Requirements

Software Product Name	Filename	Check-sum	File Vers.	Changed since V4.2 FSR00 PUN 28?	Changed since V4.2 FSR00?	Number of 3.5-inch Diskettes
	Optional Product Release Note Reference					
ETHERNET	ETHERMGR.EXE	00007B0C	4.02	N	N	1
TELEROUTER	TELERTE.EXE	00007ADA	4.00	N	N	1
MOTOROUTER	MOTORTE.EXE	00007ADA	4.00	N	N	1
ISDN Options						
ISDN-NFAS	See ISDN-NFAS Release Notes (for Generic V4.2 FSR00 PUN32 and higher) P/N 63105650142			Y	Y	1[2]
ISDN-PRI	See ISDN-PRI Release Notes (for Generic V4.2 FSR00 PUN32 and higher) P/N 63105750142			Y	Y	1
NI-2	See NI-2 Release Notes (for Generic V4.2 FSR00 PUN32 and higher) P/N 63105550142			Y	Y	1
NTTPRI	See NTTPRI Release Notes (for Generic V4.2 FSR00 PUN23 and higher) P/N 63105450142			N	Y	1
NTDASS2	See NTDASS2 Release Notes (for Generic V4.2 FSR00 PUN23 and higher) P/N 63100450142			N[1]	Y	1
DPNSS	See DPNSS Release Notes (for Generic V4.2 FSR00 PUN23 and higher) P/N 63100650142			N[1]	Y	1
NET5	See NET5 Release Notes (for Generic V4.2 FSR00 PUN31and higher) P/N 63100550142			Y	Y	1

Notes for Table 2.5

[1] *Released for V4.2 FSR00 PUN23 and higher shortly after the initial release of PUN23.*

[2] *In order for your system to detect the installation of the ISDN-NFAS diskette, you must also install the ISDN-PRI diskette. See Section 3.2.6, Special System Considerations.*

Section 3
UPGRADING TO V4.2 FSR00 PUN 32

3.1 INTRODUCTION

This section describes the procedures for installing Generic V4.2 FSR00 PUN 32 on systems currently running any V3.3, V4.0, V4.1 version of the Generic software as well as any V4.2 Generic software released prior to V4.2 FSR00 PUN32.

To upgrade to V4.2 FSR00 PUN32 from any release earlier than V3.3, contact Cisco Systems Technical Support. Do not attempt an upgrade from any release earlier than V3.3 without first contacting Cisco Systems Technical Support.

Take special note of the following:

- Contact Cisco Systems, Inc. Technical Support at 1-800-553-2447 or, via E-mail, at tac@cisco.com, if you are running a version of the Generic earlier than V3.3 FSR00.
- All systems are shipped with the 8Mb RAM/25 MHz CPU unless the 16Mb RAM/ 33MHz CPU is specially ordered. The 16Mb RAM/33 MHz CPU card became available as an option with V4.2 FSR00 PUN24 and higher.
- **This section provides detailed installation instructions for loading system software and upgrading hardware. Deviating from these instructions can result in lost data. Read all the material in this section prior to upgrading. If you encounter any problems during the installation, contact Cisco Systems Technical Support at the number listed above.**
- **If you are currently running a Generic with a version V4.2 FSR00 through V4.2 FSR00 PUN23 or V4.2 FSR00 PUN25 through V4.2 FSR00 PUN32, you may perform a Live Upgrade. The Live Upgrade procedure is described later in this section.**

  DO NOT perform a Live Upgrade if you are currently running V4.2 FSR00 PUN 24 (see the fix for issue U804010005 in Section 1.4.4). Upgrading from V4.2 FSR00 PUN24 to V4.2 FSR00 PUN 32 must be done manually.

  CAUTION: Upgrading to V4.2 on redundant systems with any card other than an NBC-3 configured in slot 2 of the Master Port Subrack, can cause the CPU to crash during the reboot after the database conversion is performed. There is also a potential risk that the database cannot be converted back to its original state after the CPU crashes.

  Before you upgrade your system, verify, through the Card Maintenance screen, the Card Alarm Display screen, and the System Alarms Display screen, that your NBC-3 card(s) is/are properly installed and configured in slots 1 (and 2) of the Master Port Subrack.

  Before you upgrade your non-redundant system, verify, through the Card Maintenance screen, the Card Alarm Display screen, and the System Alarms Display screen, that no card of any type is installed and configured in slot 2 of the Master Port Subrack.
- If you are upgrading from Generic V3.3 or earlier, you must replace your NBC card with an NBC-3 Rev C0ER or higher.

3.2 PREPARING FOR THE SOFTWARE UPGRADE

There are two ways you can perform an upgrade: a manual procedure and an automated procedure (Live Upgrade). Live Upgrade is possible only on systems running Generic V4.2 FSR00 PUN00 or later (with the exception of V4.2 FSR00 PUN24).

Before you begin the software upgrade to V4.2 FSR00 PUN32, you need to first complete the following site prep checklist to ensure a successful upgrade:

Software Upgrade Site Prep Checklist		
Task	**Date Completed**	**Completed By**
Gather all required documents for the upgrade. Section 3.2.1		
Verify file sizes. Section 3.2.2		
Verify the PUN32 Upgrade Kit provided by Cisco. Section 3.2.3 (Verify the BOM against the completed Upgrade Kit Request form. Verify all diskettes, firmware, and hard-ware (cards))		
Determine the hardware and firmware updates to be done before, during, or after the upgrade (manual or Live Upgrade). Section 3.2.4		
Identify the necessary peripheral equipment (consoles, diskettes, etc.). Section 3.2.5		
Verify a properly functioning update channel and/or other special system considerations. Section 3.2.6		

3.2.1 Additional Required Documents

Before you install the software, make sure you are familiar with, and have on-hand at the time of upgrade, the material contained in this section.

Note: If you are missing any of the documents you need for your upgrade, contact Cisco Systems, Inc. Technical Support at 1-800-553-2447 or, via E-mail, at tac@cisco.com.

- SDS/VCO Generic Release Notes, V4.2 FSR00, Part No. 61220300042.
- CPU Upgrade Procedure, Part No. 63104050100, (if you have purchased the 16MB RAM/33 MHz CPU)
- If you are running any type of ISDN software, you should have a copy of the applicable release notes. See Section 2, Table 2.5, for the part number(s) of these release notes.
- The V4.2 Documentation Set for SDS and VCO Hardware and Software (seven volumes total: Hardware volumes 1, 2, 3, and 4; and Software volumes 1, 2, and 3).
- The *Country Feature Package Master Configurator Release Notes,* Part No. 3098350133.

  Note: The Country Feature Package Master Configurator Release Notes *provide important guidelines on how to properly configure those Service Circuit and Netword cards requiring A/Mu-Law settings, documents all country feature package firmware and software requirements, and serves as a supplement to Section 2 of these release notes.*

- Country Supplement

  If your system is using a Country Feature Package other than the North American Country Feature Package (i.e., if your system is using DTG/DTG-2 firmware - tone plan - other than North America), you should obtain a copy of the applicable Country Supplement if you do not already have a copy.

  Note: There is no country supplement for North America. The details of the North American tone plan are contained in the Programming Reference *in the software volume of the V4.2 documentation set*

- The applicable optional product supplement for any optional software product that you may have:

Optional Software Supplements	
Software Product Name	**Applicable Reference**
Ethernet	*Ethernet Supplement*, P/N 61230200241
TeleRouter	*TeleRouter Reference Guide*, P/N 61230200140
MotoRouter	*Motorouter Release Notes*, P/N 63101750142
ISDN-PRI ISDN-NFAS	*ISDN Supplement*, P/N 61230200341
NI-2	*NI-2 Supplement*, P/N 61230200541

Optional Software Supplements	
Software Product Name	**Applicable Reference**
NTTPRI	*Japanese ISDN (NTTPRI) Supplement*, P/N 61230200442
NTDASS2	*DASS2 Supplement*, P/N 61060210133
DPNSS	*DPNSS Supplement*, P/N 61094050233
NET5	*ISDN NET5 Supplement*, P/N 61040800033
MIB	*VCO V4.2 Management Information Base (MIB) Reference Guide*, P/N 61200200241 *VCO V4.2 Management Information Base (MIB) User's Guide*, P/N 61200200141
IPRC	*IPRC Technical Description*, P/N 61140300842 *IPRC User Supplement*, P/N 61060500033

3.2.2 Determining File Sizes

Because of some variations in existing installations, you may have difficulty converting from your current database to V4.2 FSR00 PUN32. To determine if this is the case, you need to know the size of several of your files. To determine the file sizes, use the Show Directory option in the Disk Utilities menu to display the files in the c:/dbase directory. The sizes of your files should match the file sizes in Table 3.1.

Table 3.1: File Sizes

Version Number[1]	File Name					
	syscnfg.tbl	dbvers.tbl	card.tbl	port.tbl	resgroup.tbl	promptlb.tbl
V3.3 FSR00	2081	288	32046	93184	2016	1120
V3.3 FSR01	2081	288	32046	93184	2016	1120
V3.3 FSR02	2160	288	32046	93184	2016	1120
V3.3 FSR03	2160	288	32046	93184	2016	1120
V3.3 FSR04	2160	288	32046	93184	2016	1120
V3.3 FSR05	2160	288	32046	93184	2016	1120
V3.3 FSR06	2160	288	32046	93184	2016	1120
V3.3 FSR06 PUN38	2160	288	32046	93184	2016	1120
V4.0 FSR00	2160	288	32046	93184	2016	1120

Table 3.1: File Sizes (Continued)

Version Number[1]	File Name					
	syscnfg.tbl	**dbvers.tbl**	**card.tbl**	**port.tbl**	**resgroup.tbl**	**promptlb.tbl**
V4.0 FSR00 PUN22	2928	306	32046	158720	2016	1120
V4.0 FSR01	2928	306	32046	158720	2016	1120
V4.0 FSR02	2928	306	32046	158720	2016	1120
V4.1 FSR00 PUN22	3394	306	32046	158720	2016	1120
V4.2 FSR00	3394	324	32046	158720	2016	1120
V4.0 FSR02 PUN23	3394	324	32046	158720	2016	1120
V4.0 FSR02 PUN25	3394	324	32046	158720	2016	1120
V4.0 FSR02 PUN26	3394	324	32046	158720	2016	1120

Note for Table 3.1:

[1]*If your system is running a version of the Generic that contains an FSR number greater than 10 and there is no PUN number,* contact Cisco Systems, Inc. Technical Support at 1-800-553-2447 or, via E-mail, at tac@cisco.com.

If your system is running a version of the Generic that contains a PUN number and that PUN number does not appear in Table 3.1, see the next lower version in the table.

If the size of any of these files does not match the size listed in Table 3.1, contact Cisco Technical Support immediately. Failure to have Technical Support evaluate the file size inconsistency will result in problems converting your current database to the V4.2 FSR00 PUN28 format.

3.2.3 V4.2 FSR00 PUN32 Upgrade Kit Inventory

Inventory your Upgrade Kit by comparing it to the packing slip provided with the kit and to the Fax-back Upgrade Kit Request Form. Depending on the current status of your system, your upgrade kit will consist of some or all of the following software, hardware, or firmware items.

> *Note: The Upgrade Kit that has been shipped to you is based on a completed Upgrade Kit Request Form, originally submitted by someone in your company. If you do not have a copy of this completed form,* contact Cisco Systems, Inc. Technical Support at 1-800-553-2447 or, via E-mail, at tac@cisco.com.

Software:

- Five (5) Generic software diskettes.
- Optional Product Software diskettes that you specified on your Upgrade Kit Request Form (see Section 2, Table 2.5 for a complete list of optional product software).

  Note: If you are entitled to the Ethernet disk, then you are automatically shipped the MIB disk with this upgrade kit. Do not install the MIB disk onto your switch. The MIB software is to be installed on your Network Management Workstation only. See Section 3.6 for instructions on installing the MIB disk.

  Under normal circumstances if your country feature package is other than North American, you will not receive a new "Country Feature Package" diskette (containing the cpa.dwn *file for your feature package).*

  A new Country Feature Package diskette is sent only to satisfy specifically requested enhancement or fixes.

  The North American cpa.dwn file is included in the Generic diskette set.

Hardware:

- NBC-3 card, Rev C0ER (or later) or E0AR (or later)—two cards for redundant systems—if Cisco determined that you require new NBC-3 cards.
- SWI card (two cards in a redundant system), Rev A0AR (or later)—if Cisco determined that upgrading your SWI card is required.

  Note: This applies only to the VCO-80, SDS-1000, or SDS-500.

  SWI cards at Revision A0AR (or later) are labeled SWI (underlined) on the front of the card.

Firmware

- 8Mb (68030) CPU firmware V4.04 (one ODD, U15; and one EVEN, U1)—if Cisco determined that upgrading your 8Mb CPU card is required
- NBC-3 Boot firmware V1.02—if Cisco determined that upgrading your NBC-3 is required
  - for card Revision C0ER, or higher, the firmware position is U4
  - for card Revision E0AR, or higher, the firmware position is U1

Note: Firmware supplied by Cisco in this upgrade kit may be labeled U1, U4, or U1 / U4. Regardless of the label, install the firmware in the position appropriate to the card Revision as shown above.

- NBC-3 EPLD firmware Version LP140C or higher (one piece, U73)—if Cisco determined that upgrading your NBC-3 is required.

  Note: This applies only to Rev E0AR (or later) cards. If you have a C0ER (or later) NBC-3 card, then you will not install this firmware.

- You may have received other firmware not listed in this subsection. To account for this firmware, compare your Upgrade Request Form with the firmware requirements listed in Table 2.1 of these release notes.

3.2.4 Updating Hardware and Firmware

Depending on whether you perform the Manual Upgrade procedure or the Live Upgrade procedure, exactly when you replace each hardware and/or firmware component is specified in *Table 3.2* and *Table 3.3*. Each component will be upgraded either before, during, or after the upgrade procedure.

Table 3.2: Upgrading Hardware & Firmware (Cards in Your System Before Upgrade)

Card or Firmware	Note	Refer to:	When to Install Component	
			Manual Upgrade Procedure	Live Upgrade Procedure
Firmware for CPU (8Mb)	You must update the firmware on the CPU card if you are at any version before V4.2 FSR00.	Refer to Section 2 for the checksum, version, and the location of the firmware to be updated.[1]	During Upgrade (firmware)	N/A
CPU Card (16Mb)	No firmware updates required.	CPU Upgrade document 63104050100.	After Upgrade (card)	
SWI Card	You must update your SWI card if it is prior to Rev A0AR.	The *Technical Description: Switch Interface (SWI) Card.*	Before Upgrade (card)	

Table 3.2: Upgrading Hardware & Firmware (Cards in Your System Before Upgrade) (Continued)

Card or Firmware	Note	Refer to:	When to Install Component	
			Manual Upgrade Procedure	Live Upgrade Procedure
NBC Card (Customers running V3.3 systems with NBC cards)	V4.2 does not support the NBC card; only the NBC-3 card is supported by V4.x systems. If you currently have an NBC card, you must upgrade to the NBC-3 card. *Note:* *The new NBC-3 card supports the DTG-2 mezzanine card.* Your system can operate with an NBC-3 card and your current DTG card, or with the new NBC-3/ DTG-2 card combination.	The *Technical Description: Network Bus Controller 3 (NBC-3) Card* in your hardware volume set — for instructions on installing the NBC-3 card in conjunction with the instructions contained in this section. Note: If you are upgrading from the NBC card, make certain to following the removal instructions for the NBC card. Do not remove the NBC card while the system is powered up.	During Upgrade (card)	N/A (Live Upgrade procedure not allowed)
Firmware for NBC-3 (Rev C0ER or greater)	The NBC-3 card firmware must be updated if you are at any version before V4.2 FSR00. The NBC-3 card is a hot swap card: it can be removed and replaced while the system is powered up.	Refer to Section 2 for the checksum, version, and the location of the NBC-3 firmware to be updated.[1]	During Upgrade (firmware)	
Firmware for 4XT1		Refer to Section 2 for the checksum, version, and the location of the 4XT1 firmware to be updated.[1]	During Upgrade (firmware)	
Firmware for 4XE1		Refer to Section 2 for the checksum, version, and the location of the 4XE1 firmware to be updated.[1]	During Upgrade (firmware)	
E1-PRI Card 120 ohm	If you have this card, Revision A0BR or earlier, you must swap this for an A0CR, or higher, card to avoid CRC errors.	Refer to Section 2 for the checksum and version	During Upgrade (card)	
Check all Release Notes for any other changes.				

Note for Table 3.2:

[1] *Section 2 lists firmware location by U number. The card's technical description graphically shows the physical location of the firmware on the card. Firmware and EPLD removal and replacement procedures are contained in Appendix A.*

Table 3.3: Installing New Cards (if Included in the Upgrade Kit)

Card	Note	Refer to:	When to Install Component	
			Manual Upgrade Procedure	**Live Upgrade Procedure**
NBC-3 (Rev E0AR or greater)	The new NBC-3 card supports the DTG-2 mezzanine card. Your system can operate with an NBC-3 card and your current DTG card, or with the new NBC-3/DTG-2 card combination. The NBC-3 card is a *hot swap* card: it can be removed and replaced while the system is powered up. *Note: Depending on your configuration, the NBC-3 card may be a new card. Some customers may have already upgraded to the NBC-3. If you already have an NBC-3 card installed in your system, you may need to update the firmware, (see Table 3.2). You may also opt to install the DTG-2 mezzanine card on your NBC-3 (refer to DTG-2 Card information in this table).*	*Technical Description: Network Bus Controller 3 (NBC-3) Card* in your hardware volume set — for instructions on installing the NBC-3/DTG-2 card in conjunction with the instructions contained in this section *Note: If you are upgrading from the NBC card, be sure to follow the removal instructions for the NBC card. Do not remove the NBC card while the system is powered on.*	During Upgrade (If upgrading from V3.x you must do a manual upgrade)	During Upgrade
CPU (16Mb)	No firmware updates required.	Refer to Section 2 for checksum and version.	Swap After Upgrade	

Table 3.3: Installing New Cards (if Included in the Upgrade Kit) (Continued)

Card	Note	Refer to:	When to Install Component	
			Manual Upgrade Procedure	Live Upgrade Procedure
DTG-2	If you have an NBC-3 card, you may opt to purchase and install the DTG-2 mezzanine card on your current NBC-3. The DTG-2 is optional for SDS-1000 and VCO-80 systems. Your system can operate with an NBC-3 card and your current DTG card, or with the new NBC-3/DTG-2 card combination. The DTG-2 is required for VCO-20 systems.	*Technical Description: Digital Tone Generator 2 Mezzanine (DTG-2) Card* in your hardware volume set — for instructions on installing the DTG-2 mezzanine card in conjunction with the instructions contained in this section.	During Upgrade	
E1-PRI 120 ohm (optional)	If you have this card, Revision A0BR or earlier, you must swap this for an A0CR, or higher, card to avoid CRC errors.	*Technical Description: E1-PRI Card* in your hardware volume set.	Install card Before Upgrade[1]	Install card During Upgrade

Note for Table 3.3:

[1] *Add the card to the database (see the* System Administrator's Guide*). Ensure that you have enough time slots. Cable the slot to the network. Physically insert the card during upgrade.*

3.2.5 Other Necessary Items You Will Need for an Installation

You will need to have the following additional material, tools, and equipment available for your upgrade:

Material and Tools:

- Blank diskettes for database and log file backup:
  Four blank diskettes—if you are doing a Manual Upgrade
  Six blank diskettes—if you are doing a Live Upgrade
- Firmware chip remover
- EPLD chip remover (supplied by Cisco as part of the Upgrade Kit)

Equipment:

- System printer, so you have a printed record of the installation process.
- For redundant systems, be sure you can connect a system console to both system controllers. Depending on your equipment's arrangement, you can:

  Set up a separate system console for each controller (A- and B-side).

  Use an A/B transfer switch wired to both system controller CPU-TM front panels and a single console to access both sides of the system.

  Physically remove and reconnect the system console cable from one CPU-TM front panel to the other.

3.2.6 Special System Considerations

Observe the following precautions before starting your upgrade.

3.2.6.1 Rack-Level-Slots 1-1-1 and 1-1-2

Redundant and Non-redundant Systems

If you are upgrading from Generic V3.3 or earlier, you must replace your NBC card with an NBC-3 Rev C0ER or higher.

If you are upgrading from Generic V4.0 or later, verify through the Card Maintenance screen, the Card Alarm Display screen, and the System Alarms Display screen, that your NBC-3 card(s) is/are properly installed and configured in slots 1 (and 2) of the Master Port Subrack before you upgrade your system.

Redundant Systems:

Upgrading redundant systems with any card other than an NBC-3 installed in slot 2 of the Master Port Subrack, can cause the CPU to crash during the reboot after the database conversion is performed. There is also a potential risk that the database cannot be converted back to its original state after the CPU crashes.

Non-Redundant Systems:

Before you upgrade your non-redundant system, verify that no card of any type is installed and configured in slot 2 of the Master Port Subrack.

3.2.6.2 Card and System Alarms

Redundant and Non-redundant Systems

Verify, via the System Alarms Display, and the log file, that there are no Fatal or Critical alarms currently on the system. Determine if Major and Minor alarms will have an effect on the upgrade (see the Card Alarm Display and the log file). The alarms are explained in Appendix D in the *System Administrator's Guide.*

Redundant Systems:

Any alarm containing the words "Update Channel" or "UPD" must be resolved before attempting an upgrade.

3.2.6.3 CPA Cards in Systems not using North American DTG/DTG-2 Firmware

The North American cpa.dwn file is contained on one of the Generic software diskettes. Installing the Generic diskettes (either manually or during live upgrade) automatically overwrites any existing non-North American cpa.dwn file on the system's hard drive.

Both the manual and live upgrade procedures that follow explain when and how to re-install your non-North American cpa.dwn file on your system.

3.2.6.4 Live Upgrade/CUI# Messages

See *Appendix C* if either of the following messages appear during Live Upgrade:

CUI#: Firmware Incompatible, Upgrade Required for <cardtype> at (x x xx)

CUI#: Firmware Incompatible, Upgrade Recommended for <cardtype> at (x x xx)

3.3 LIVE UPGRADE PROCEDURE

The Live Upgrade feature provides the ability to update software on a redundant VCO-20, VCO-80, or SDS-1000 system without loss of calls, and with a minimum reduction in capacity. The procedure consists of installing the new software, updating the system controller (CPU card) and/or NBC-3 card and/or DTG/DTG-2 cards (if needed), then switching over to the new release, and finally, updating certain network and service circuit cards (if needed).

Note:
The Live Upgrade feature must be installed on a switch before a Live Upgrade to a subsequent release can be performed. Because the Live Upgrade feature is included with V4.2 FSR00 and higher, it can be used to upgrade to future versions of the Generic.

Live Upgrade cannot be performed on a switch running V4.2 FSR00 PUN24.

You can abort the process at any time and restore the prior version up to the time when the active controller is running the new release of software. To revert to the prior release of software *after* the active controller is running the new software, you must perform a non-live (manual) installation of the prior release.

Note: Live Upgrade applies only to the Generic software; it does not does not upgrade SS7 software.

3.3.1 Preparing for Live Upgrade

Note the following when performing a live upgrade:

- Calls can be continued during the upgrade.
- Live Upgrade can be performed only on a redundant system. Non-redundant systems must be upgraded with the Manual Upgrade procedure (see Section 3.4).
- The switch will operate in a non-redundant mode during much of the Live Upgrade procedure. This period of non-redundancy has been minimized as much as possible.

  Note: When upgrading software on the SDS/VCO, the software is upgraded on the CPU. The active or standby side of a system refers to the CPU or controller.
- The system administrator is prevented from modifying the configuration of the switch during the Live Upgrade procedure.
- If the upgrade includes hardware, firmware, or software for a card that is a *single resource,* there may be an interruption of service that is provided by that resource.
- Perform the live upgrade when call traffic is lowest; the switch cannot operate at full capacity during the live upgrade. Also note that, should the live upgrade fail, upgrading during low volume periods would affect the least number of calls.
- 20 MB disk space must be available on each controller's hard drive to perform the live upgrade. See the *System Administration Guide,* Section 4 (Maintenance), Disk Utilities, Show Free Disk Space. The Live Upgrade procedure will automatically check the free space on both hard drives and if there is a shortage of space, it aborts the Live Upgrade and reports the problem to the Regular Log file as well as to the Live Upgrade log file. Live Upgrade log file error messages and corrective action are contained in *Appendix B*. Regular log file error messages and corrective action are contained in the *System Administrator's Guide, Appendix D*.
- Modifications to the database are not allowed during the live upgrade. You should not remove cards from the switch unless directed to do so as part of the upgrade process.
- Control of the upgrade may be done via:
  - *Local Console via serial port (Administration Console)*
  - *Telnet session (Ethernet)*
  - *Modem port*

  Note: Hardware and/or firmware updates require on-site personnel. In this case, the live upgrade cannot be done remotely.
- If you are planning to replace the AAC card, and/or SWI card, and/or install the 16Mb/33Mhz CPU, do not do these card swap-outs during the Live Upgrade. (See Section 3.2.4.)
- All log information about the live upgrade is sent to the Regular log file and to the Live Upgrade log file (of both hard drives). Also, "Prompt, Warning, and Error" messages will appear in the lower, right-hand corner of the screen when you execute various Live Upgrade steps from the Live Upgrade Control Menu.

The format of the Regular log file is C:/LOG/A-*mmmdd*.LOG and C:/LOG/B-*mmmdd*.LOG. These two file names will be on both hard drives. However, keep in mind that files A-*mmmdd*.LOG and B-*mmmdd*.LOG on the A-side's hard drive are different from files A-*mmmdd*.LOG and B-*mmmdd*.LOG on the B-side's hard drive.

The format of the Live Upgrade log file is C:/LOG/UG*mmddyy*.LOG. This log is similar to the Regular log, but is written only during upgrade and reflects the upgrade in progress. Note that the filename contains the month, day, and year of the update in the format *mmddyy*. The log file can be displayed and printed by choosing the Display/Print Upgrade Log menu option. This file name will be on both hard drives. However, keep in mind that the file UG-*mmddyy*.LOG on the A-side's hard drive is different from file UG-*mmddyy*.LOG on the B-side's hard drive.

For information on how to display the Regular log file on the screen, see the *System Administrator's Guide, Maintenance Section*.

For information on how to display the Live Upgrade log file on the screen, see this procedure.

Note: If a printer is connected to the system while the Live Upgrade is in progress, both the Regular log file and the Live Upgrade log file are printed. Live Upgrade log file messages appear indented with respect to the Regular log file messages.

Regular log file entries pertaining to Live Upgrade consist of an ALM15x message imbedded in an FRM5xx message.

Live Upgrade log file entries: (1) pertain only to Live Upgrade, (2) do not contain ALM15x and FRM5xx headers.

- The upgrade can be aborted up to the point where the Active CPU running the old version of the software switches control over to the Standby CPU running the new version of the software.
- New messages related to the live upgrade are contained in *Appendix B*.

3.3.2 Overview of the Procedure

To upgrade a system via Live Upgrade, you will be required to perform some or all of the four basic tasks (tasks 1 and 3 are mandatory).

1. Follow the Live Upgrade procedure to upgrade the software on both sides of the system. Install the Generic and optional software.
2. Update the CPU, and/or the NBC-3, and/or the DTG/DTG-2 if needed.
3. Switchover to the new software release.
4. Update certain Network cards and/or Service Circuit cards. if needed.

Access the Live Upgrade Control Menu from the Maintenance Menu, Live Upgrade option. This is illustrated in Figure 3.1.

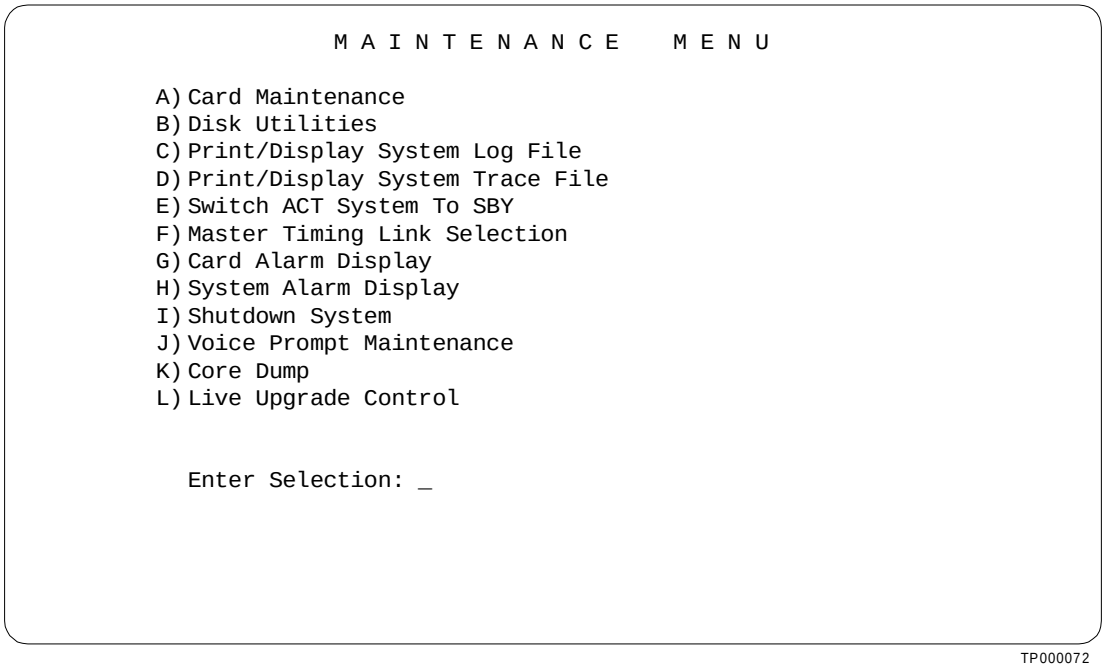

Figure 3.1: Live Upgrade on the Maintenance Menu

The Live Upgrade Control Menu is illustrated in Figure 3.2. Valid selections are limited to those appropriate for the current step as indicated in brackets "[]". For example, "Enter Selection [A,J,K]:".

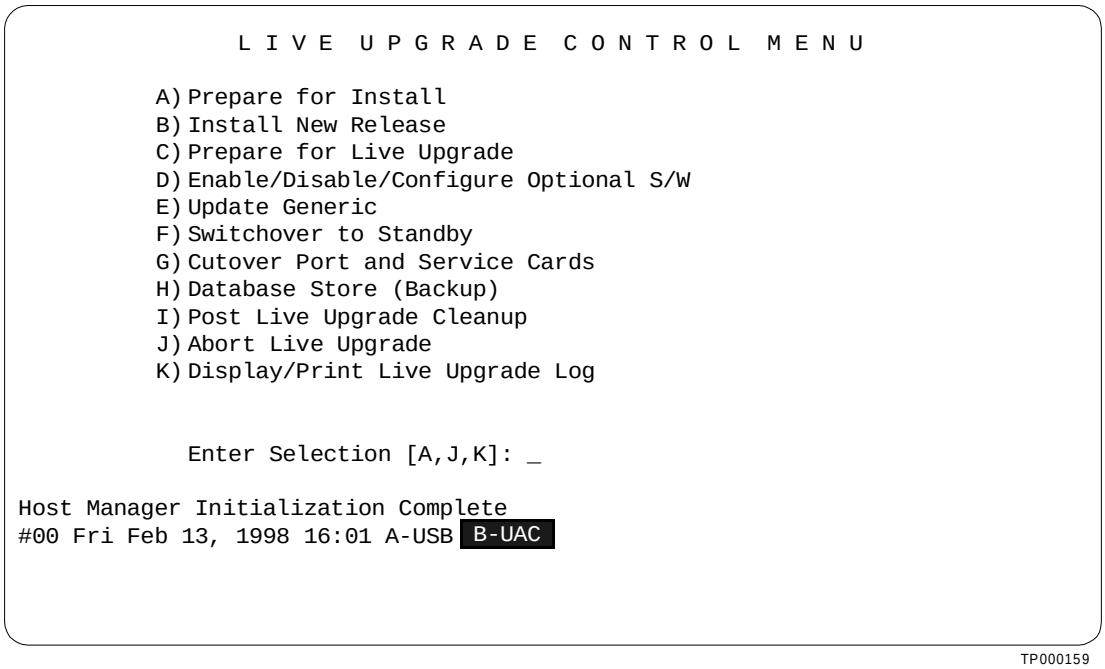

Figure 3.2: Live Upgrade Control Menu

To indicate that a live upgrade is in progress, the field displays UAC or USB. UAC indicates UpgradeACtive mode, and USB indicates UpgradeStandBy mode. In Figure 3.2, side A is in standby mode and side B is active.

3.3.3 Access to Other Menus and Screens

To access the main menu and Maintenance menu from the Live Upgrade screen, do the following:

Main Menu Access

To access the Main Menu, press **Main Menu**.

Maintenance Menu

To access the Maintenance menu, press **Prev Menu** or **Exit**.

3.3.4 Overview of the Steps

An overview of the steps required to perform a live upgrade are listed below:

Step	Action (Live Upgrade Control Menu Option)
1	Prepare for the installation of the new release—Option A Directories that are needed for the process are created. The current release on each side of system is backed-up.
2	Backup the existing database on each side—Option H
3	Install the new software on each side—Option B The needed files are placed on both hard drives of the switch.
4	Prepare for the upgrade—Option C Takes place on the *initial* standby side. The system is set up to boot from the new release. Suitability of system to accept the release is checked.
5	Enable/disable/configure optional software on the standby side—Option D (e.g. Ethernet, ISDN, NFAS, Telerouter)
6	Update the generic—Option E The new release is booted on the standby side. A database conversion (if needed) is done automatically. A synchronization of dynamic information is done.
7	Switch the active side to standby—Option F *The other side will now be updated.* *Note: After this step is complete, the upgrade can no longer be aborted.*
8	Prepare for the upgrade—Option C Takes place on the *remaining* side. The system is set up to boot from the new release. Suitability of system to accept the release is checked.

9	Enable/disable/configure optional software—Option D (e.g. Ethernet, ISDN, NFAS, Telerouter)
10	Update the generic—Option E The new release is booted on the new standby side. A database conversion (if needed) is done. A synchronization of dynamic information is done.
11	Cutover of Port and Service Cards—Option G The port and service cards are switched-over.
12	Backup the new database—Option H
13	Clean-up—Option I
Upgrade to the 16Mb/33MHz CPU. See Section 3.5.	
Install MIB software. See Section 3.6.	

3.3.5 Performing a Live Upgrade

The following is a detailed explanation of the steps outlined in Section 3.3.4. Follow these steps to perform a live upgrade on your system.

3.3.5.1 Step 1: Prepare for the Installation of the New Release

Live Upgrade Control Menu: Option A—Prepare for Install

To initiate installation of both the Active and Standby sides, choose option A on the upgrade menu while logged into the A-side and then, again, while logged into the B-side.

The installation routine determines if the disk has enough free space to create a new directory structure and to store the new files. If a shortage of disk space is detected, you are notified and the upgrade is automatically aborted.

If you do not have enough free space to perform the upgrade and are unsure of the disk maintenance necessary to obtain it, contact Cisco Systems, Inc. Technical Support at 1-800-553-2447 or, via E-mail, at tac@cisco.com.

The directory structure that is required by the upgrade process is shown in Figure 3.3. The directories created for the upgrade procedure are shown in bold italic; they are automatically created by the Generic software automatically when you choose the Prepare for Install option. If they already exist, any existing files in these directories are deleted, but the directories themselves are maintained, for use during the upgrade process.

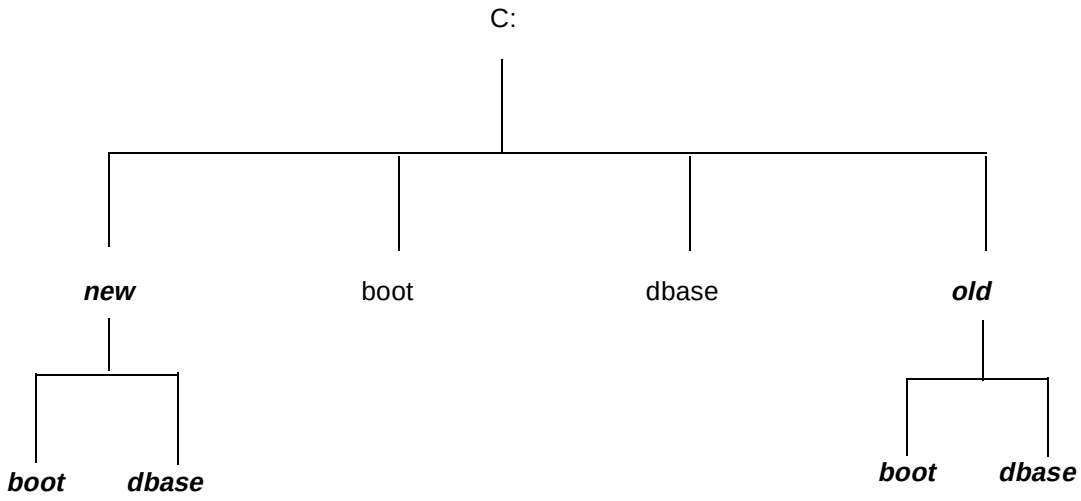

Figure 3.3: Directory Structure

Directory	Contents
C:/new/boot	New executable files, and download application files
C:/new/dbase	New, empty database
C:/old/boot	Current software release The current Generic software is restored from this directory if the Abort Upgrade option on the Live Upgrade Control menu is selected.
C:/old/dbase	Current database The current database is restored from this directory if the Abort Upgrade option on the Live Upgrade Control menu is selected.

This step must be performed on both controllers.

Abort option: The upgrade can be aborted at this time. Choose option J on the upgrade menu.

3.3.5.2 Step 2: Back Up the Existing Database

Live Upgrade Control Menu: Option H—Database Store (Backup)

To initiate a back up of the existing database. choose option H on the upgrade menu while logged into the A-side and then, again, while logged into the B-side.

You should back up your current database in case it is necessary to restore the previous generic software version from floppy disk. The backup database option on the Live Upgrade Control menu is similar to the manual database backup utility.

You will be automatically prompted with "Store from C:/ to A:/ YES/NO _".

Type Y for Yes.

Abort option: The upgrade can be aborted at this time. To abort, choose option J on the upgrade menu.

3.3.5.3 Step 3: Install the New Software

Live Upgrade Control Menu: Option B—Install New Release

After the new directories are created and a database backup performed, install the new Generic software onto both Active and Standby system controllers.

Install the new software from floppy disks, or from another host with FTP or FTP and PPP, if Ethernet or a modem connection is available. The files are copied to the sub-directories under the C:/new directory.

Perform Step 3 on *both* system controllers before proceeding to the next step. After completing Step 3 on both controllers, continue the upgrade process on the standby controller. No further activity is performed on the active controller until the standby controller has been upgraded.

Abort option: The upgrade can be aborted at this time. To abort, choose option J on the upgrade menu.

Installing from floppy disks

When you choose the Install New Release option on the Live Upgrade Control menu, the VCO Installation screen is displayed as shown in Figure 3.4.

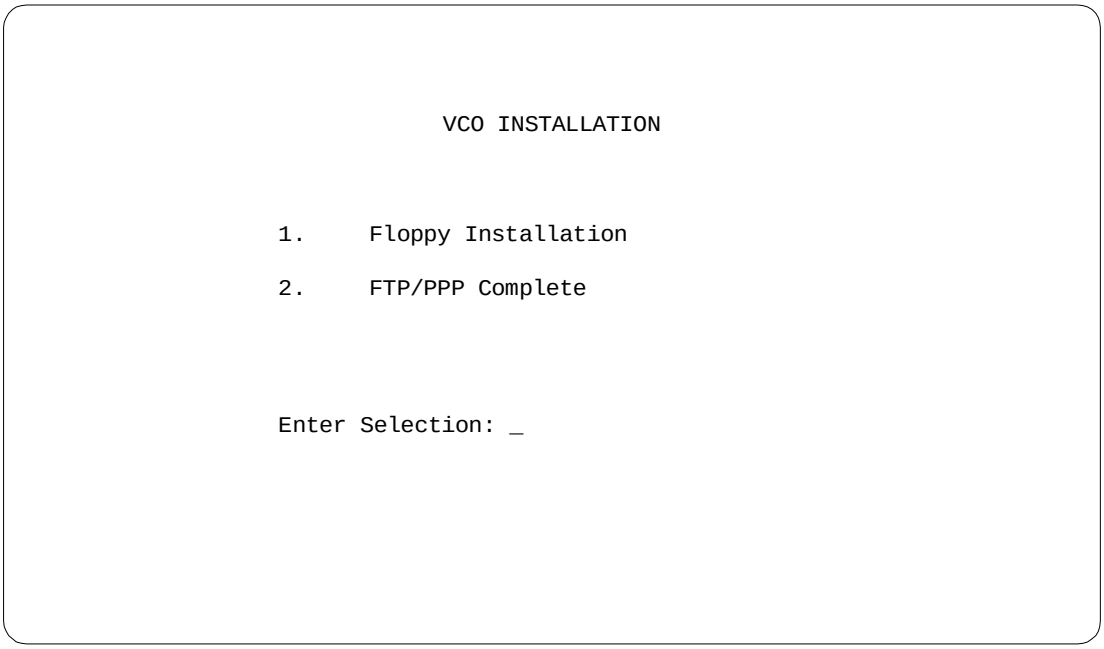

Figure 3.4: VCO Installation Screen

To install from floppy disks, choose option 1. The VCO Floppy Installation screen is displayed; see Figure 3.5.

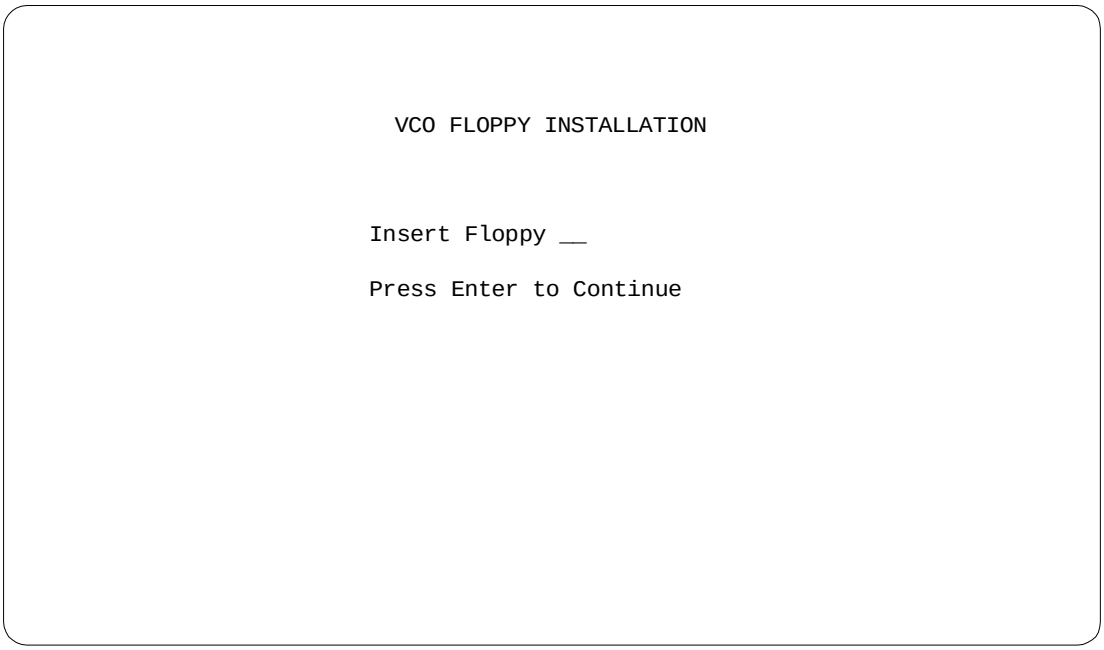

Figure 3.5: VCO Floppy Installation Screen

When you choose the floppy installation option you are prompted to insert the installation disks into the floppy drive so that the files can automatically be transferred into the appropriate directories. Pressing any key other than Enter or Return stops the loading of files from the floppy drive.

The floppy disk number is displayed in the VCO Floppy Installation screen; for example, Insert Generic Floppy 1. When the floppy is inserted the volume label is verified. Your response (for example, if you pressed the Enter key to continue) is logged in the upgrade log file along with the files that are being installed. If any files are missing from the floppy, or if there is a mismatch, the upgrade is aborted.

After all software disks have been installed, you are prompted to install optional software from the screen as shown in Figure 3.6. If no other software is to be installed, select option 2 as shown in Figure 3.6, and press the Enter key to exit the installation.

Optional software

After the Generic software is installed, you can install optional software package files; see Figure 3.6.

To install an optional software package select option 1.

After completing the installation of an option, the menu in Figure 3.6 appears again. Select option 1 again to install another software package, or select option 2 to terminate the installation.

In Step 5 **(**and in step 8 - on the remaining side) you will enable and configure the optional software.

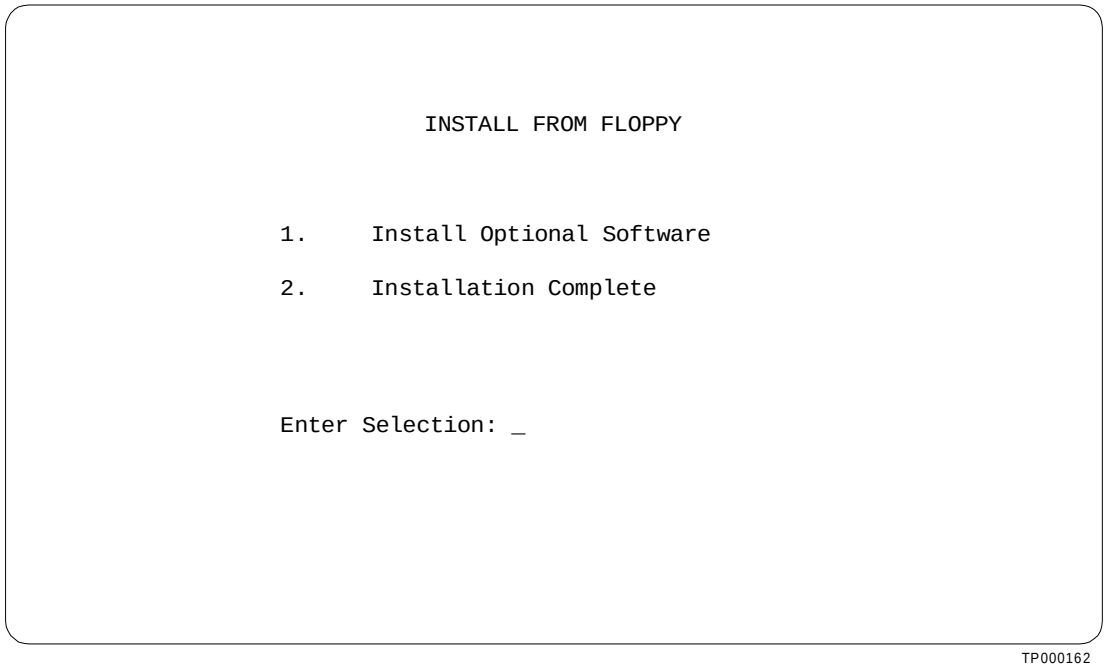

Figure 3.6: Install from Floppy Screen

Installing from another host

If you install the software from a remote computer using FTP via ethernet, or PPP, you control the process from the FTP client. You are required to select the needed files and copy them to the appropriate subdirectories under the C:/new directory. This option assumes that the user knows how to FTP files from the host computer to the SDS/VCO system.

When the transfer of the new generic software to the hard disk using FTP is complete, you must indicate that the transfer is complete by selecting option 2 in the VCO Installation screen; see Figure 3.4 on page 20. The generic software then verifies that the transfer is complete. Successful transfer is indicated by the message: Check for all Files Successful.

3.3.5.4 Step 4: Prepare to Upgrade the First Side

Live Upgrade Control Menu: Option C—Prepare for Live Upgrade

On the Standby side of the system initiate step 4 by choosing option C.

During this step, the Generic software automatically verifies that:

- The side being upgraded in this step is in standby mode and that the alternate side is active and running.
- The file synchronization (static database and dynamic state information) has completed.
- The new software release has been placed in the C:/new directory on the hard drive and that all needed files are available for the upgrade.

- The version number of the software release being installed is newer than the current software release.
- The switch configuration is suitable for the upgrade.

  Note: If the configuration is not suitable, information is logged and the upgrade is prohibited.

You are notified if there are single resources in the system that require updating. Note that updating a single resource causes a loss of capacity for that resource. See *Appendix B* for Live Upgrade messages.

When verification of the preceding has been successfully completed, the **existing** Generic software and the switch configuration is copied to the C:/old directory. Finally, the Generic copies the new boot files from C:/new/boot into the current boot area, C:/boot. During this and later steps, you are prevented from making any configuration changes on the system.

Abort option: The upgrade can be aborted at this time. To abort, choose option J on the upgrade menu.

3.3.5.5 Step 5: Enable/Disable/Configure Optional Software

Live Upgrade Control Menu: Option D—Enable/Disable/Configure Optional S/W

This step is optional. If you do not have optional software, skip this step.

To initiate step 5, choose option D. The screen illustrated in Figure 3.7 is displayed.

Note that only the optional software packages that have been installed are shown.

This step consists of two parts: enabling the options and configuring the options.

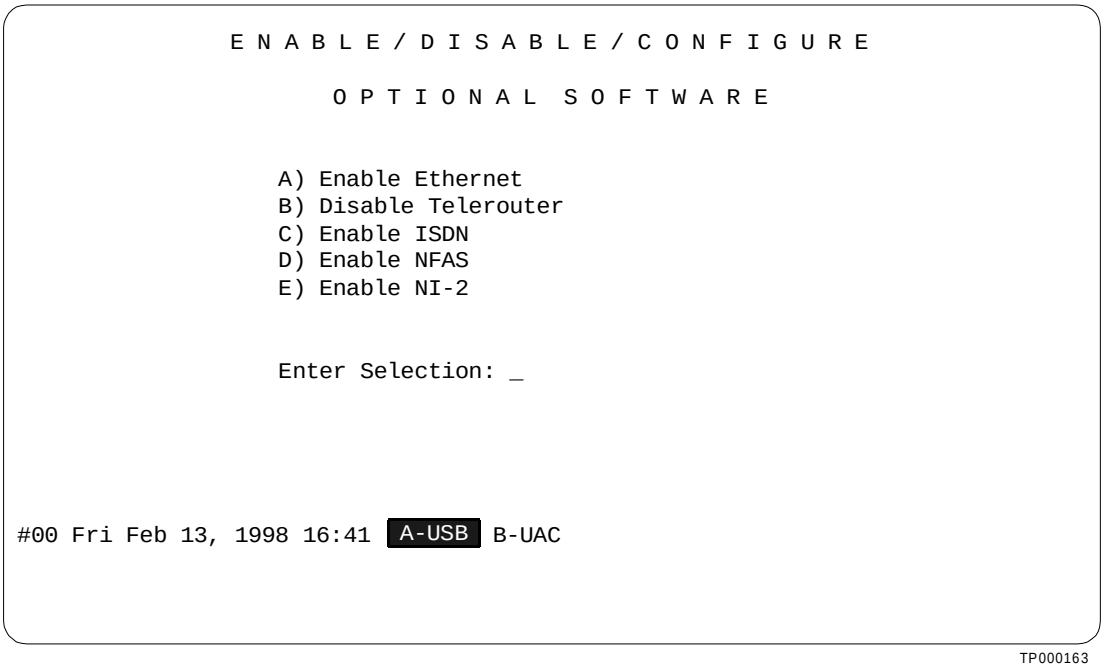

Figure 3.7: Enable/Disable/Configure Optional Software

You can enable or disable software depending on its current state. For instance, note in Figure 3.7 that the only software package enabled is Telerouter since the option for Telerouter is to Disable. All other options are to Enable, thereby indicating that the other software packages (Ethernet, ISDN, NFAS, NI-2) are currently disabled.

If Ethernet is enabled, you are prompted to set the parameters. The Ethernet configuration process is the same as the manual Ethernet configuration process.

Abort option: The upgrade can be aborted at this time. To abort, choose option J on the upgrade menu.

3.3.5.6 Step 6: Update the Generic

Live Upgrade Control Menu: Option E—Update Generic

Before initiating Option E, update the firmware on the standby NBC-3. (Canadian customers will also need to update their DTG/DTG-2 cards.)

Updating the NBC-3 Card

An NBC-3 card that is in standby mode can be removed while the system is running.

Note that when the NBC-3 card is removed, a DTG-2 card mounted on that NBC-3 is consequently also removed and updated (see the following subsection). If the DTG-2 card is the only tone generator in the SDS/VCO, the system will experience a loss of tone generation

resources while the NBC-3 and/or DTG-2 is upgraded. See the *Technical Description: NBC-3* for removal and replacement procedures.

After restoring the NBC-3 card, reset the standby CPU via the Alarm Arbiter card.

Updating the DTG-2 Card or the DTG Card's Firmware

> *Note: An update from V4.2 FSR00 (or subsequent PUN releases) to V4.2 FSR00 PUN28 only Canadian customers require a DTG update.*

You must take the DTG-2 out-of-service (OOS) when its firmware or hardware is updated.

The DTG-2 mounted on the standby NBC-3 should be upgraded, even if it is the active tone card. If your SDS/VCO has redundant tone cards, assure that the DTG-2 card on the standby NBC-3 is in standby mode. If the system does not have redundant DTG-2 cards, note that the system will experience a loss of tone generation resources while the DTG-2 is upgraded.

Perform this step on the standby side of the switch. This step results in an update of the Generic software.

> *Note: The system is non-redundant from the time you start the update of one side (step 6) until the time that new release is running on both sides of the system. Once both sides are running the new release of software, the system returns to a redundant mode of operation.*

When the Update Generic option is selected:

1. the standby side is rebooted
2. the new Generic does a database conversion (if needed)
3. a login screen appears on the console

To initiate step 6, choose option E.

> *Note: A database conversion is automatically performed by the software. The converted files are updated in the C:/dbase directory and loaded into memory as the static portion of the new database. Any new tables needed for the upgrade are obtained from the C:/new/dbase directory. (Some upgrades may not require a database conversion.)*

An automatic database conversion is performed as a part of Option E.

Abort option: The upgrade can be aborted at this time. To abort, choose option J on the upgrade menu.

3.3.5.7 Step 7: Switch the Active Side to Standby

Live Upgrade Control Menu: Option F—Switch to Standby

In step 7, the active side (controller) is placed in standby mode. When this is done, the previously active side, running the old generic software, becomes available to upgrade. In addition, the side which was in standby mode will become active *and be running the new software.*

> *Note: Make certain your console is on the active side of the SDS/VCO when performing the switchover.*

To initiate this step, *on the active side of the system*, choose option F.

Once the switchover has taken place—the reboot and NBC download completes, your console should be on the standby controller's side (the controller that needs to be updated).

Abort option: When this step is initiated, the upgrade can no longer be aborted. If restoring the old software release is required, you must perform a traditional reinstallation of the original software.

3.3.5.8 Step 8: Prepare to Upgrade the Remaining Side

Live Upgrade Control Menu: Option C—Prepare for Live Upgrade

On the new Standby side of the system initiate step 8 by choosing option C.

During this step, the Generic software automatically verifies that:

- The side being upgraded in this step is in standby mode and that the alternate side is active and running.
- The file synchronization (static database and dynamic state information) has completed.
- The new software release has been placed in the C:/new directory on the hard drive and that all needed files are available for the upgrade.
- The version number of the software release being installed is newer than the current software release.
- The switch configuration is suitable for the upgrade.

  Note: If the configuration is not suitable, information is logged and the upgrade is prohibited.

You are notified if there are single resources in the system that require updating. Note that updating a single resource causes a loss of capacity for that resource. See *Appendix B* for Live Upgrade messages.

When verification of the preceding has been successfully completed, the **existing** Generic software and the switch configuration is copied to the C:/old directory. Finally, the Generic copies the new boot files from C:/new/boot into the current boot area, C:/boot. During this and later steps, you are prevented from making any configuration changes on the system.

Abort option: The upgrade can no longer be aborted.

3.3.5.9 Step 9: Enable/Disable/Configure Optional Software

Live Upgrade Control Menu: Option D—Enable/Disable/Configure Optional S/W

This step is optional. If you do not have optional software, skip this step.

To initiate step 9, choose option D. The screen illustrated in Figure 3.8 is displayed.

Note that only the optional software packages that have been installed are shown.

This step consists of two parts: enabling the options and configuring the options.

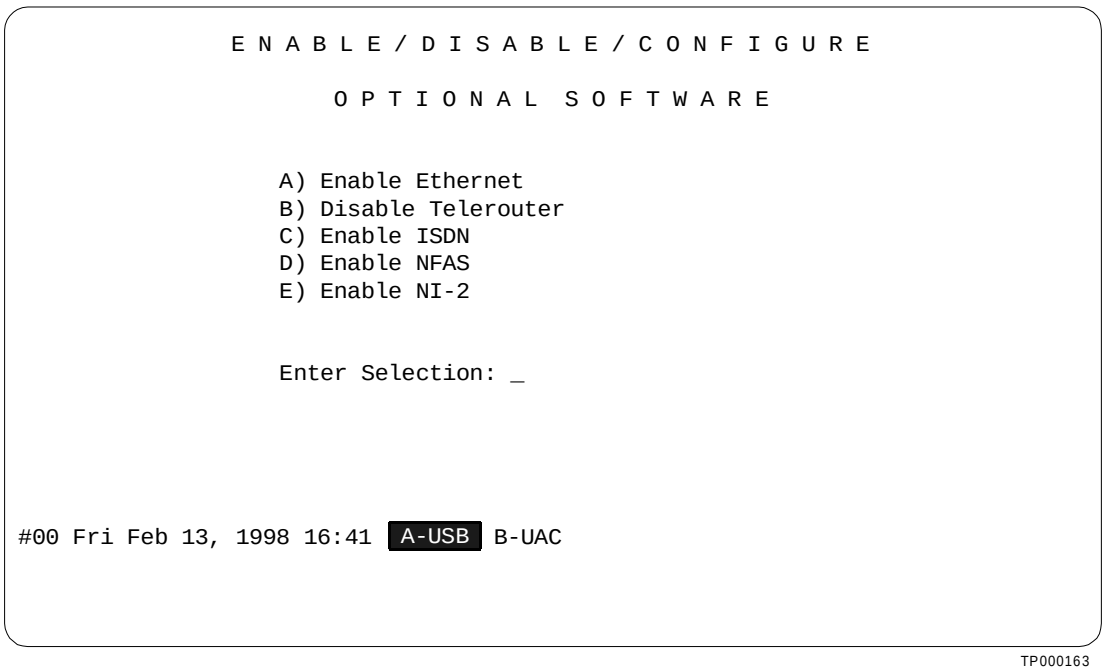

Figure 3.8: Enable/Disable/Configure Optional Software

You can enable or disable software depending on its current state. For instance, note in Figure 3.7 that the only software package enabled is Telerouter since the option for Telerouter is to Disable. All other options are to Enable, thereby indicating that the other software packages (Ethernet, ISDN, NFAS, NI-2) are currently disabled.

If Ethernet is enabled, you are prompted to set the parameters. The Ethernet configuration process is the same as the manual Ethernet configuration process.

Abort option: The upgrade can no longer be aborted.

3.3.5.10 Step 10: Update the Generic

Live Upgrade Control Menu: Option E—Update Generic

Before initiating Option E, update the firmware on the standby NBC-3. (Canadian customers will also need to update their DTG/DTG-2 cards.)

Updating the NBC-3 Card

An NBC-3 card that is in standby mode can be removed while the system is running.

Note that when the NBC-3 card is removed, a DTG-2 card mounted on that NBC-3 is consequently also removed and updated (see the following subsection). If the DTG-2 card is the only tone generator in the SDS/VCO, the system will experience a loss of tone generation resources while the NBC-3 and/or DTG-2 is upgraded. See the *Technical Description: NBC-3* for removal and replacement procedures.

After restoring the NBC-3 card, reset the standby CPU via the Alarm Arbiter card.

Updating the DTG-2 Card or the DTG Card's Firmware

> *Note: For an update from V4.2 FSR00 or subsequent PUN releases through PUN27 to V4.2 FSR00 PUN32, only Canadian customers require a DTG update.*

You must take the DTG-2 out-of-service (OOS) when its firmware or hardware is updated.

The DTG-2 mounted on the standby NBC-3 should be upgraded, even if it is the active tone card. If your SDS/VCO has redundant tone cards, assure that the DTG-2 card on the standby NBC-3 is in standby mode. If the system does not have redundant DTG-2 cards, note that the system will experience a loss of tone generation resources while the DTG-2 is upgraded.

Perform this step on the standby side of the switch. This step results in an update of the Generic software.

> *Note: The system is non-redundant from the time you start the update of one side (step 10) until the time that new release is running on both sides of the system. Once both sides are running the new release of software, the system returns to a redundant mode of operation.*

When the Update Generic option is selected:

1. the standby side is rebooted
2. the new Generic does a database conversion (if needed)
3. a login screen appears on the console

To initiate step 10, choose option E.

> *Note: A database conversion is automatically performed by the software. The converted files are updated in the C:/dbase directory and loaded into memory as the static portion of the new database. Any new tables needed for the upgrade are obtained from the C:/new/dbase directory. (Some upgrades may not require a database conversion.)*

An automatic database conversion is performed as a part of Option E.

Verifying File Synchronization

For redundant systems, after you have installed the software on both sides and rebooted the system, you must verify that file synchronization has occurred. Check the messages in the log file and verify that:

RED32:ACT FILE SYNC COMPLETED

from the ACT side, and

RED20:SBY FILE SYNC COMPLETED

from the SBY side, appear.

When file synchronization has been verified, the installation of system software is complete. Proceed to the next section to install the MIB software if you have a Network Management System.

Abort option: The upgrade can no longer be aborted.

3.3.5.11 Step 11: Cutover of Port and Service Cards

Live Upgrade Control Menu: Option G—Cutover Port and Service Cards

Once the new release is running on both sides of the system and the file sync is complete, cut over the port and service cards that need to be upgraded, from the active side of the system.

To initiate step 8, on the active side of the system, choose option G. When the Cutover Port and Service Cards option is selected, the Card Cut-Over screen is displayed. See Figure 3.9. This screen lists the cards needing an upgrade, and the type of upgrade (hardware, firmware, or software) that is needed.

You can control the card cutover by choosing the ordering and timing for the upgrade of the cards on the Card Cut-Over screen. You can select to upgrade a single card or several cards at a time; this depends on the call handling capacity that is to be maintained on the system. Take cards out of service and, if needed, upgrade the firmware or hardware and then place the card back in service. The new application (if applicable) is downloaded onto the card when it is placed back in service.

You do not have to wait until a card is completely OOS before starting the cutover process on another card. The OOS and Activate options operate on a single card, not a group of cards.

If you try to take the last active card of a resource type (the only card or the last active card of a group) out of service, the system notifies you and requests confirmation prior to performing the request. See *Appendix B* for a list of prompts, warnings and error messages.

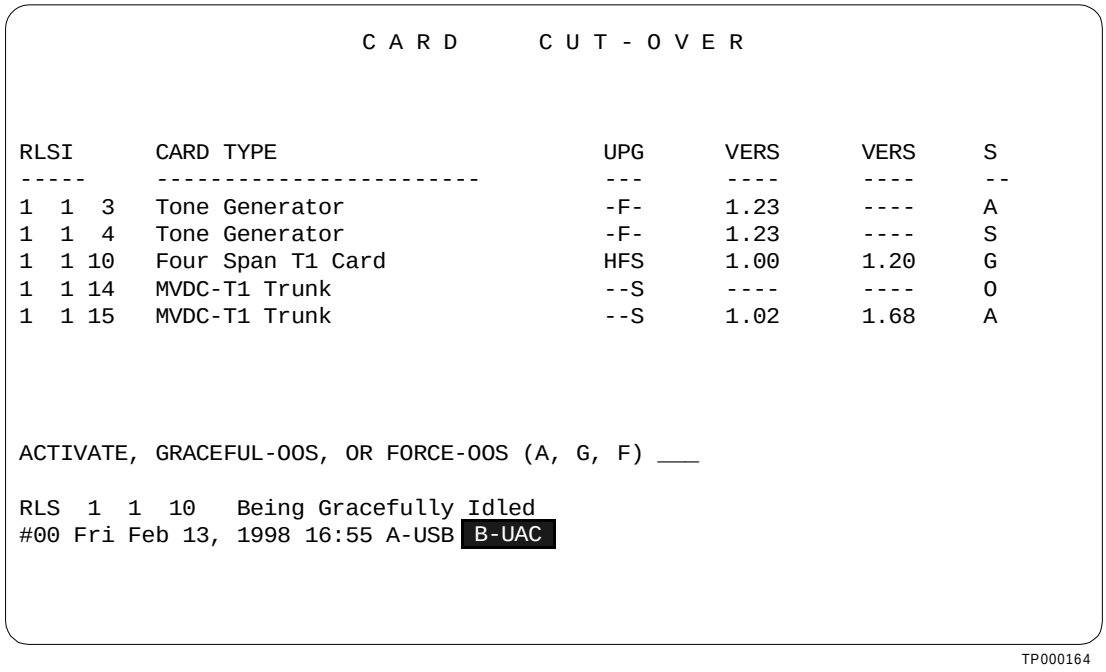

Figure 3.9: Card Cut-Over

The Card Cut-Over screen can display up to fourteen cards. There can be up to eleven screens, which can be navigated by pressing the Prev Screen key and the Next Screen key. To leave the Card Cut-Over screen without making any changes, press the Exit, Prev, Menu or Main Menu key. No changes are made unless Enter is pressed.

Field Definitions

The **RLSI** column contains the physical location of the card; rack, level, slot and interface that needs upgrading.

The **Card Type** column indicates the type of card in the location indicated in the corresponding column.

The **UPG** (upgrade) column contains information on the type of upgrade needed on the corresponding card. The UPG indicators are:

- **F** firmware update needed
- **H** hardware update needed
- **S** software update needed

The **FIRM VERS** column displays the current firmware version.

The **D/L VERS** column displays the current download version. If the card does not support a download, the field contains four dashes.

Note that the version number (**FIRM VERS** and **D/L VERS**) information is not available when the card is out of service (O).

The **S** column on the far right of that screen, indicates the status of the card, as noted below.

A Active — ports on this card can be involved in active calls, and can be allocated to new calls.

S Standby — valid for DTG (not DTG-2) cards or redundant BRC cards.

G Graceful idling (graceful-OOS) — ports on this card are currently involved in active calls, but cannot be allocated to new calls. The card remains in this mode until all ports are idle. The card then is placed OOS.

The card remains in a status of G until the card is OOS, at which time the G status changes to a status of O.

O Out-of-service (OOS) — no ports on this card are currently involved in active calls, and they cannot be allocated to new calls.

Card Cut-Over Options

The bottom of the screen contains the data entry field:

ACTIVATE, GRACEFUL-OOS, OR FORCE-OOS (A, G, F): __

The options for this field are explained below.

Activate (A)

If you choose option A the card is placed back in service. This causes an application download upgrade on the card, if appropriate. The Generic also verifies that the version number for the firmware is compatible with the application download for the card. If not compatible, you are notified and the activation is prohibited.

Once the card is active again, it is removed from the list in the Card Cut-Over screen, and information is written to the log file to indicate that the card has been upgraded. This information is sent to the standby side via the update channel so that both sides have current information about the status of the cards.

Graceful-OOS (G)

If you choose option G, all idle ports are taken out of service (OOS). The Generic waits for active ports to become idle before taking them out of service. Once all ports are idle, the card state is set to OOS. Until the card's status is O, indicating the card is out-of-service, the card is still involved in active call processing. This command may take some time to complete, depending upon the duration of the active calls using the card.

Force-OOS (F)

If you choose option F, the Generic tears down any active calls and places the card OOS (out-of-service). If you select this option, you must press the Enter key a second time, to confirm that this is what you want to do.

You can upgrade a card once the card state is OOS. You can remove cards which require firmware and/or hardware upgrades from the switch and update them after placing them in OOS. You can upgrade cards which require only a software upgrade by simply activating the card.

When both sides of the system are running the new software release, you can change the configuration of the system. This may be needed to modify the setup of cards to take advantage of new features and capabilities. It is strongly recommended however, that non-upgrade related changes *not* be made until the upgrade process is complete. This helps to isolate any potential problems.

Abort option: The upgrade can no longer be aborted.

3.3.5.12 Step 12: Backing Up the New Database

Live Upgrade Control Menu: Option H—Database Store (Backup)

Step 12 involves the backup of the new database. This is done if there was a database conversion resulting in a changed format.

To initiate step 12, choose the option H. This option is the same as the Database Store option on the Disk Utilities menu. See the *System Administration Guide* for further information.

You can also use the Copy Files option in the Disk Utilities menu, or FTP operations from a remote system, to store the database in an alternate location.

3.3.5.13 Step 13: Clean-up

Live Upgrade Control Menu: Option I—Post Live Upgrade Cleanup

To initiate the clean-up, choose option I.

- This step is not permitted until both sides are running the new software release
- Clean up should not be performed until card cutover has been completed.

When this option is selected, the Generic removes the files from the C:/old and the C:/new directory trees.

Once you have updated both sides of your switch via Live Upgrade, proceed to *Section 3.6*, Installing the MIB Software, on page 49.

3.4 MANUAL UPDATE PROCEDURE

Note: To perform a manual upgrade of the system and/or optional software, you must power down your redundant or non-redundant system for a brief period.

To manually upgrade a system you must perform six tasks.

1. Database backup and system power down (Section 3.4.1 through Section 3.4.3)
   Database backup is a precaution against any possible loss of data.
2. Update card firmware while the system is powered down (Section 3.4.4).
3. System software installation (Section 3.4.5)
   Install the Generic and optional software.
4. Database conversion (Section 3.4.6)
   Update the database tables.
5. Install software on the B-side (Section 3.4.7)
   Redundant systems only.
6. Verify file synchronization (Section 3.4.8).

Optional:

- Upgrade to 16Mb/33MHz CPUs (Section 3.5)
- Install the MIB on your network management system (Section 3.6).

Each of these tasks is organized as a separate section. Because redundant systems require software installation on both sides, and because the optional software varies from customer to customer, there will very likely be a slightly different path for each upgrade. If you follow the instructions sequentially and perform the tasks as they apply to your system, you will be assured of a successful upgrade.

As you perform the upgrade, note that task 3, system software installation, is more detailed because it also deals with optional software installation.

3.4.1 Backing up the Database and System Power Down

Back up the database prior to beginning this installation. Do not try to back up the system database during the installation or after replacing the hardware and firmware.

Note: During normal system operation, use the Database Store functions on the Disk Utilities menu to back-up the system database. For more information about the Disk Utilities menu, see the System Administration Guide.

To back-up the system database, follow these steps.

1. Sign onto the system and access the Maintenance menu. (See Figure 3.10.)

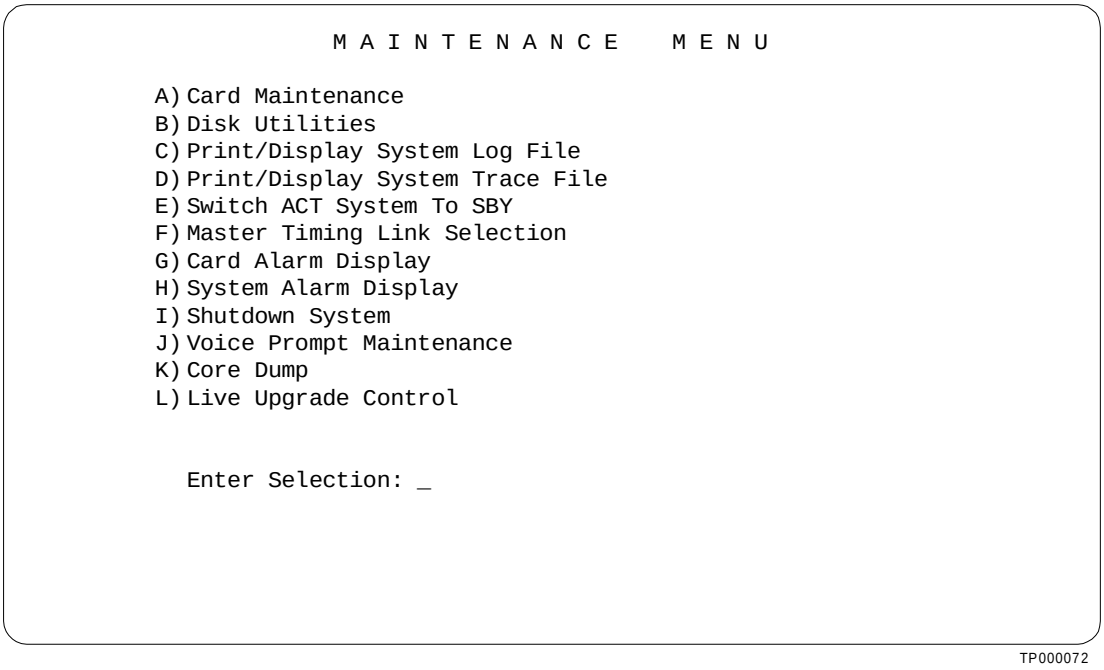

Figure 3.10: Maintenance Menu

2. Remove any diskette in the diskette drive on the A-side and insert a high-density diskette.

3. Type **B** to access the Disk Utilities, and press the **Return** key.
The Disk Utilities menu appears. (See Figure 3.11.)

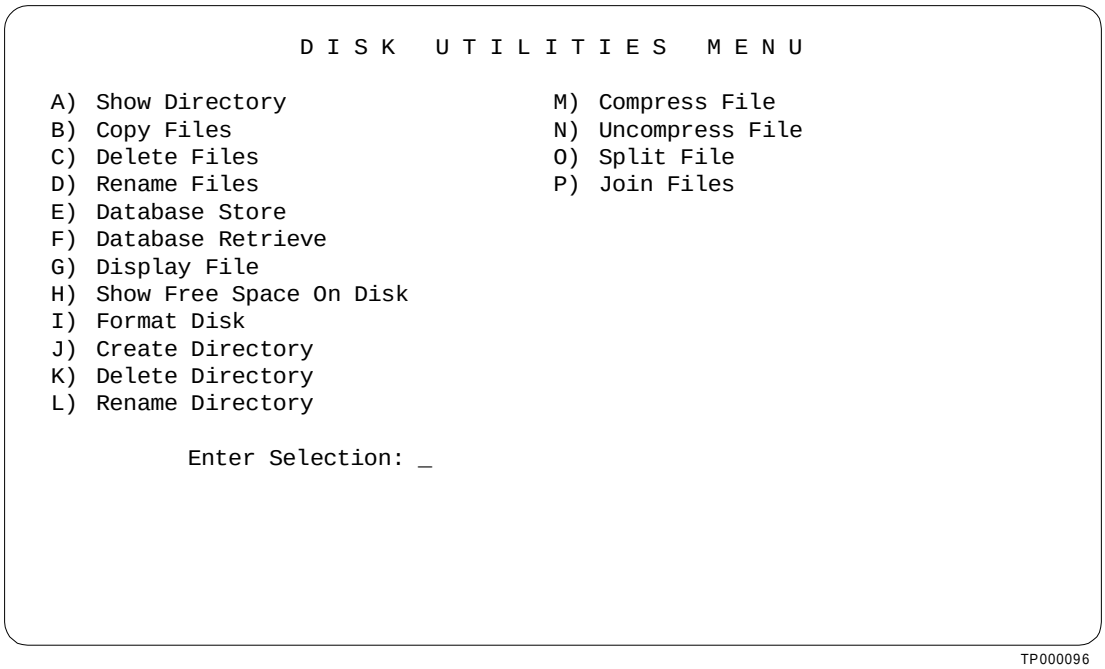

Figure 3.11: Disk Utilities Menu

4. a. To format the diskette, type **I** and press the **Return** key.
The following message appears:

F O R M A T D I S K

Format What Drive? ____
Disk Volume Label? _____
Do Bad Sector Scan During Format <Y/N>? ___

The cursor is in the first field waiting for your response.
Appropriate responses to the prompts are provided below:

Format What Drive?	Type **A:** then press the **Next Field** key.
Disk Volume Label?	This is optional. If you do not want to label the disk, press the **Next Field** key. If you want to label the disk, type in the label name and then press the **Next Field** key.
Do Bad Sector Scan During Format <Y/N>?	Type **Y.** This is optional. If you do not want to scan the disk for bad sectors, type **N**. *Note: This field is required and cannot be left blank.*

b. A message appears to confirm your responses.
For example:

F O R M A T D I S K

Format Drive:

A:

OKAY TO FORMAT DISK? <Y/N>? ___

Type **Y** and then press **Enter**.

5. When the formatting is complete the Disk Utilities menu appears.
   a. Type **E** for **Database Store** and press **Return**. The following message appears:

      Ok to Store Database From C: to A: <Y/N>?

   b. Type **Y** and press **Return**. A message at the bottom of the screen indicates the copying is taking place.
6. When the copy is complete, the message in Step 5 above reappears. Press **Exit** to return to the Disk Utilities menu.

   Note: If you use this backup diskette to restore the current database after the upgrade, you will have to do a database conversion after restoring. See Performing a Database Conversion*, in Section 3.4.6. If you do not do the conversion after restoring from this diskette, the database will not be compatible with the new version of software.*
7. Power down the system in accordance with the information appropriate to your system (Section 3.4.2 for V3.3, Section 3.4.3 for V4.0, 4.1, or earlier V4.2 Generics).

3.4.2 Power Down Procedure if Upgrading from Generic V3.3

Whether your switch is redundant or non-redundant, you must power down the switch to allow for the upgrade of the 8Mb CPU firmware and the replacement of NBC cards with NBC3 cards (NBC cards are **not** hot-swappable).

3.4.2.1 VCO-80

For a redundant VCO-80, turn off both VME power modules.

For a non-redundant VCO-80, turn off the A-side VME power module.

Locate the circuit breaker located on the back of the VCO-80 and place it in the down position. **Do Not** power down the power supplies individually. Proceed to Section 3.4.4.

3.4.2.2 SDS-1000

For a redundant SDS-1000, turn off both VME power modules.

For a non-redundant SDS-1000, turn off the A-side VME power module.

Proceed to Section 3.4.4.

3.4.2.3 SDS-500

Turn off the VME power supply. Proceed to Section 3.4.4.

3.4.3 Power Down Procedure if Upgrading from Generic V4.0, V4.1, or V4.2 FSR00 through V4.2 FSR00 PUN27

Note: If you are upgrading from V4.2 FSR00 or higher, the CPU firmware on an 8Mb/25MHz CPU does not need to be upgraded.

3.4.3.1 VCO-20

For a VCO-20, locate the circuit breaker located on the back of the VCO-20 and place it in the down position. Proceed to Section 3.4.4.

3.4.3.2 VCO-80

For a redundant VCO-80, turn off both VME power modules. Power will remain on the port subracks.

For a non-redundant VCO-80, turn off the A-side VME power module. Power will remain on the port subracks.

Proceed to Section 3.4.4.

3.4.3.3 SDS-1000

For a redundant SDS-1000, turn off both VME power modules.

For a non-redundant SDS-1000, turn off the A-side VME power module.

Proceed to Section 3.4.4.

3.4.3.4 SDS-500

Power down the VME power module. Proceed to Section 3.4.5.

3.4.4 Updating Card Firmware

With the switch powered down as directed above, update the card firmware as required. (See Table 3.2) *Appendix A* contains instructions for removal and replacement.

If you have NBC cards, swap them out for NBC-3 cards at this time.

3.4.5 Installing the Software

The following provides instructions for installing Generic V4.2 FSR00 PUN32 on systems currently running V4.0 FSR00 or later or V3.3 FSR00 through V3.3 FSR06. Installation procedures for Ethernet and optional software follow the installation of the Generic software as described below.

Notes: Contact Cisco Systems, Inc. Technical Support at 1-800-553-2447 or, via E-mail, at tac@cisco.com if you are running a Generic other than the above.

Before continuing, make certain that you have completed your database backup and hardware/firmware replacement.

CAUTION: Do not install the MIB - Supplemental Disk software on the switch. The MIB software is installed on a Network Management Station if you have one. See Section 3.6, *Installing the MIB Software*. Do this after completing the installation of the Generic software on the switch.

3.4.5.1 Installing the Generic Software

With the database backed up, the switch powered down, and with the new hardware and firmware in place (Sections 3.4.1 through 3.4.4); install the new Generic software on your system:

1. Insert Disk 1 into the floppy diskette drive A-side.
2. Connect or switch the administration console to the A-side CPU-TM (or if you have a VCO-20, the Storage/Control I/O Module), or go to the A-side system console.
3. Set the AAC Select Switch from Auto to the A position. (Non-redundant switches should always have the AAC Select Switch in the A position.)
4. Power up the A-side. The following messages appear:

```
Copyright Motorola Inc. 1988, 1989, 1990, 1991, 1992 All Rights Reserved

MVME147 Monitor/Debugger Release 2.43 - 6/30/92
CPU running at 25 MHx

FPC passed test
MMU passed test

COLD start

Onboard RAM start = $00000000, stop = $007FFFFF

147-Bug> Searching for ROM Boot


147-Bug>G FFA0002C
Effective address: FFA0002C


SDS Initializing...
Hard disk mounted successfully
Hard Disk dismounted successfully
Reading boot file from disk device A:/boot/boot.sds
Loading file A:/boot/install.exe
Hard disk mounted successfully
Hard Disk dismounted successfully
```

5. After the system performs diagnostic tests, the Installation Utilities menu appears (*Figure 3.12*).
6. The cursor is located in the Enter Selection data entry field. Type **2**, (for Incremental Install of Basic System Software) then press **Return**.

   Note: The "Incremental Install Basic System Software" option (option 2), from the INSTALLATION UTILITIES menu, installs the Generic software and downloads files onto the hard disk. This selection does not format the hard drive.

The following message appears:

Do You Wish To Back-Up The System Data Base? (Y/N) =N?_

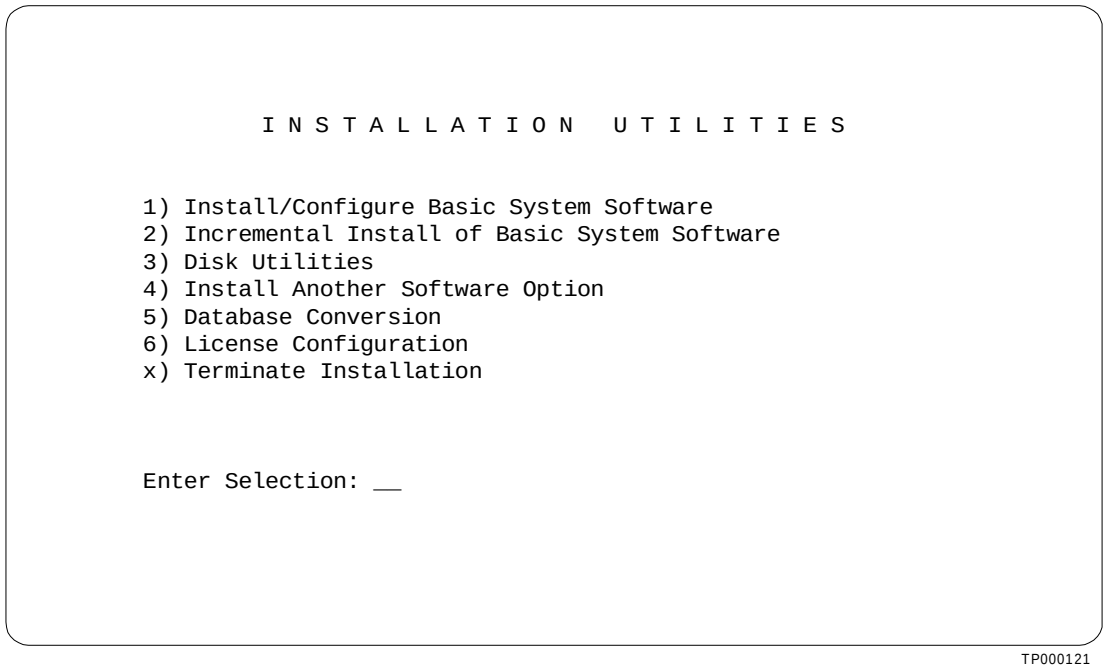

Figure 3.12: Installation Utilities Menu

7. Press **Return** (this defaults to N).
   The database will not be backed up at this time. Make certain that the database was backed up previously, as described in Section 3.4.1 of this installation procedure.
8. The following message appears:

   Insert disk 2 of Installation Set

   Press return to continue

   Remove the current diskette from the drive, insert Disk 2, and press **Return**. The system copies the files from Disk 2 to the C: drive.
9. When all the files from Disk 2 are copied, the following message appears:

   Insert disk 3 of Installation Set

   Press return to continue

   Remove the current diskette from the drive, insert Disk 3 then press **Return**. The system copies the files from Disk 3 onto the C: drive.
10. This pattern, of the system copying from the diskette then prompting for the next, continues until all five diskettes have been loaded and copied onto the system. Continue to remove and insert the installation diskettes when prompted to do so.

    When the installation is complete, the Installation Utilities menu appears again (*Figure 3.12*).

Note: If you are using a non-North American feature package, the Generic installation has overwritten your cpa.dwn file at this point. To restore your cpa.dwn file copy the file from your country features package diskette to the C: directory (item 3 in the Installation Utilities menu and then the Copy File command). Copy from A:\boot\cpa.dwn to C:\boot\cpa.dwn.

11. Optional software needs to be installed every time you update the Generic to ensure NVRAM update.

    Instructions for installing options are contained in the next two sections.

    Note: When you install a software option (such as TeleRouter, etc.) on a system, the installation process makes changes to the nonvolatile RAM (NVRAM) on the CPU. These changes make operation of software options specific to the CPU on which you installed the options. For this reason:

    - *Software options must be installed on both system controllers in a redundant system.*
    - *Optional software needs to be installed every time you update the Generic to ensure NVRAM update.*
    - *Software options must be reinstalled if the CPU is replaced. Although the database information resides on the hard disk, a new CPU is unable to access this information.*

    If you are installing Ethernet, go to Section 3.4.5.2 now. If you have other optional software to install after you have installed the Generic, see Section 3.4.5.3 for generalized installation instructions.

3.4.5.2 Installing Ethernet for Host and SNMP Communication and Configuring NFS

To install and configure the Ethernet optional software, follow these steps:

1. Insert the Ethernet software diskette, type **4**, Install Another Software Option, and then press the **Return** key (see Figure 3.12).

   The following message appears:

   ```
   Insert Another Install Disk
   Press Return to Continue
   ```

1. Insert the Ethernet software diskette and press the **Return** key. After the system loads the Ethernet files from the diskette, the Ethernet Installation Utilities menu appears with the cursor located in the Enter Selection field (see Figure 3.13).

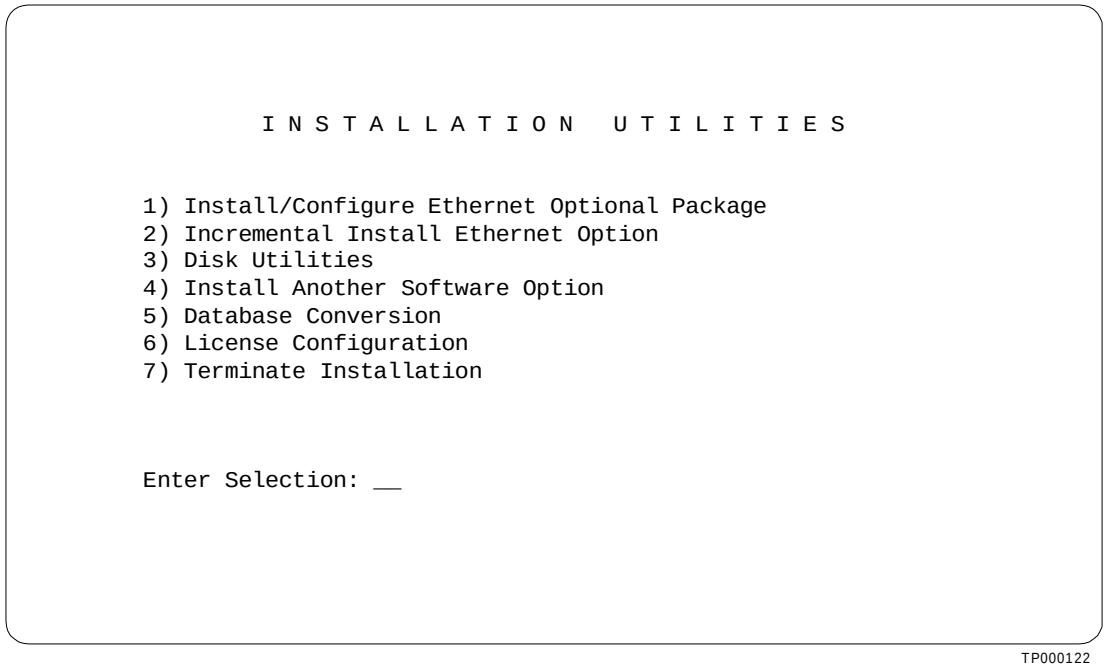

Figure 3.13: Ethernet Installation Utilities Menu

2. To install and configure the Ethernet software, type **1** and press **Return**. The following message appears:

   Do You Wish To Back-Up The System Data Base? (Y/N) =N?_

   Press **Return** (this defaults to N). Database backup should have been done in Section 3.4.1 of this installation.

   The Ethernet Configuration menu appears (see *Figure 3.14*).

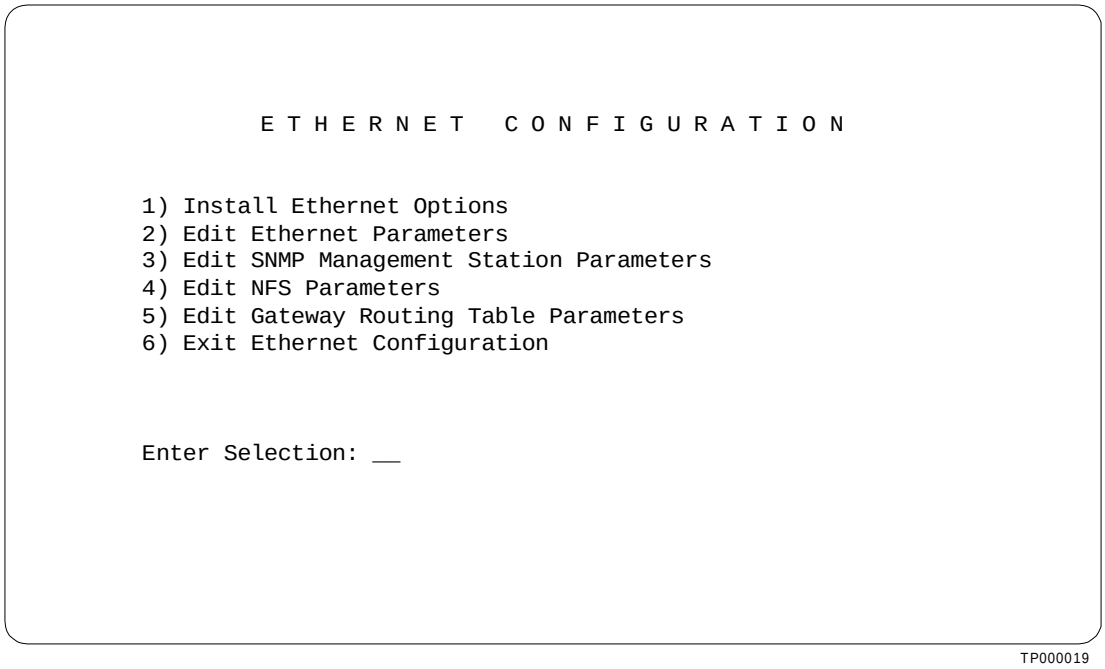

Figure 3.14: Ethernet Configuration Menu

3. Type **1** and press **Return**. The following message appears:

   Copy A:/BOOT/ETHERMGR.EXE
   1 files(s) copied
   Ethernet Option Enabled

   Note: Review steps 4, 5, 6, and 7, below before proceeding. If you do not need to edit Ethernet (System Ethernet Address/ Subset Mask) Parameters, SNMP Management Station Parameters, NFS Parameters, or Gateway Routing Parameters, proceed to Step 8.

4. To set the Ethernet Parameters (i.e., System Internet Address and Subnet Mask), type **2** and press **Return**. The following message appears:

   System Internet Address = 107.3.254.98?

   Note: The System Internet Address and Subnet Mask numbers that you see in this section are only examples. In your system these numbers are replaced by numbers that represent your system addresses.

   Press **Return**, if your System Internet Address remains unchanged (typically the case). The following message appears:

   No Change To System Internet Address
   System Subnet Mask = 255.0.0.0?_

   Otherwise, if you wish to change your System Internet Address, type in the new address and press **Return**. The following message appears:

   Set System Internet Addres To 107.3.254.99 (Y/N) = Y?

Type **Y** to confirm your selections. The following confirmation mesage appears:

System Internet Address Configured
System Subnet Mask = 255.0.0.0?_

Press **Return** if your System Subnet Mask remains unchanged (typically the case). The following message appears:

No Change To System Subnet Mask

and the ETHERNET CONFIGURATION menu reappears.

Otherwise, if you wish to change your System Subnet Mask, type in the new addressand press **Return**. The following message appears:

Set System Subnet Mask To 255.255.255.255 (Y/N)=Y?

Type **Y** to confirm your selection. The following mesage appears:

System Internet Address Configured

and the ETHERNET CONFIGURATION menu reappears.

5. If you are going to manage this system with SNMP, type **3** and press **Return** to set the SNMP Management Station Internet address. The following message appears:

   SNMP Management Internet Address = 0.0.0.0?

   Set the Internet address to the address of the system that you are using as the NMS (Network Management System). Press **Return**. The following message appears:

   Set SNMP Management Internet Station Address To 189.7.107.44 (Y/N) =Y?

   Type **Y** to confirm your selections. The following confirmation message appears:

   SNMP Management Station Internet Address Configured

   After you complete this step, the system will report SNMP trap messages to the NMS that you selected.

6. Type **4** to set the Network File System (NFS) server parameters. The following selections appear one at a time. Enter the information for your system. Type **Y** and press **Return** after each selection.

   Enable NFS Access (Y/N) =N?

   NFS Server Internet Address = 0.0.0.0?_

   NFS Server Name =xxx?_

   NFS Mount Directory Point =?_

   Target System Name =?_

   Target System User Id =0?_

   Target System Group Id =0?_

   Target System Umask =0?_

   Update NFS Configuration With Above Data (Y/N) =Y?_

After you update the NFS configuration with the new data, the following message appears:

NFS Configuration Updated

You can now save the log files and database to a remote location.

7. Type **5** to set Gateway Routing Table Parameters.

```
Route No. 1
        Destination Subnet Address =0.0.0.0?
        Gateway System Internet Address =0.0.0.0?
Route No. 2
        Destination Subnet Address =0.0.0.0?
        Gateway System Internet Address =0.0.0.0?
Route No. 3
        Destination Subnet Address =0.0.0.0?
        Gateway System Internet Address =0.0.0.0?
Route No. 4
        Destination Subnet Address =0.0.0.0?
        Gateway System Internet Address =0.0.0.0?
Update Gateway Routing Table Configuration With Above Data (Y/N) =Y?_
```

If you press N, you will see the following message:

"Gateway Routing Table Configuration Aborted"

and the ETHERNET CONFIGURATION menu re-appears.

Note: The "Destination Subnet Address" refers to the "Destination Subnet Address" field in the "GATEWAY ROUTING CONFIGURATION" screen. The "Gateway System Internet Address" refers to the "Gateway IP Address" field in the "GATEWAY ROUTING CONFIGURATION" screen.

8. Type **6** to exit the Ethernet installation. The Installation Utilities screen appears (see Figure 3.13).
9. Remove the Ethernet diskette from drive A.
10. If you have additional optional software to install, proceed to Section 3.4.5.3, *Installing Optional Software,* which follows.
11. If there is no optional software to install, proceed to Section 3.4.6, *Performing a Database Conversion*.

3.4.5.3 Installing Optional Software (Other Than Ethernet)

To install optional software, follow these steps:

1. Insert the optional software diskette, type **4**, and press the **Return** key.

   If you are installing optional software such as TeleRouter or ISDN-NFAS, the name of the optional software being installed appears in place of *Ethernet* in choices 1 and 2 (*Figure 3.15*).

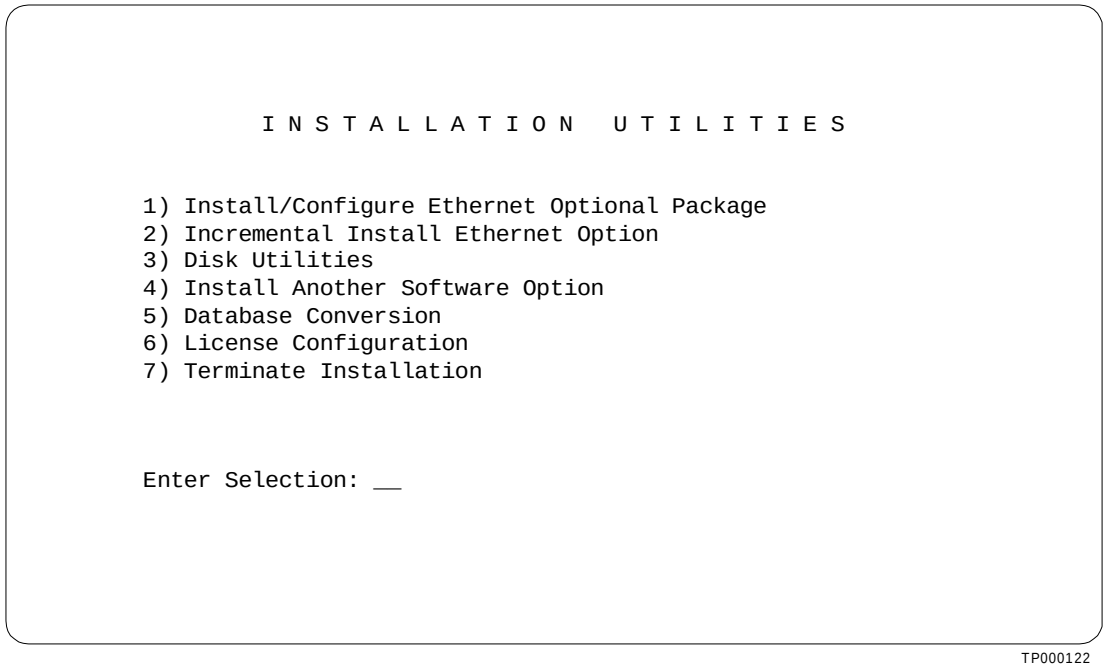

Figure 3.15: Optional Software Installation Utilities Menu

2. To install and configure the optional software, type **1** and press **Return**. The following message appears:

   Do You Wish To Back-Up The System Data Base? (Y/N) =N?_

   Press **Return** (this defaults to N). Database backup should have been done in Section 3.4.1 of this installation.

3. The following messages appears for most options:

   Copying A:/boot/*Option-name*.EXE...

   n file[s] copied

   Option-name Option Enabled

4. If you are installing additional software packages, press **4**, (Install Another Software Option) and repeat the steps above.

5. After you install the last optional software package, proceed to Section 3.4.6.

3.4.6 Performing a Database Conversion

Since the database tables have changed, it is mandatory that you do a database conversion.

1. Select option **5** in the Installation Utilities menu and press **Return**.

   The conversion takes a few seconds. The following message is displayed on the screen:

   Data base path for conversion: C:/dbase/

If the database does not need to be converted (i.e. it had previously been converted), no other messages are displayed. However, if the system does convert the database, several other messages may be displayed. For example:

```
Converting the System Configuration table ...
```

This will take just a few seconds.

If you are upgrading a non-redundant system or you have finished installing software on the B-side of a redundant system, the upgrade is complete after you perform the database conversion on both sides of the switch.

2. Type **7**, Terminate Installation (see *Figure 3.15*), and press **Return**. The system will prompt with

```
Terminate (Y/N)?
```

Enter **Y** and press **Return**. The following messages appear:

```
Remove Installation Diskette NOW!
Suspending Installation Process...
Rebooting.....
```

Under some conditions an additional meaage may appear:

```
Reset System NOW!
```

If this message appears, press the AAC Reset button corresponding to the side of the switch (A orB) that you are currently upgrading. The following messages then appear:

```
Copyright Motorola Inc. 1988, 1989, 1990, 1991, 1992 All Rights Reserved

MVME147 Monitor/Debugger Release 2.43 - 6/30/92
CPU running at 25 MHx

FPC passed test
MMU passed test

COLD start

Onboard RAM start = $00000000, stop = $007FFFFF

147-Bug> Searching for ROM Boot


147-Bug>G FFA0002C
Effective address: FFA0002C


SDS Initializing...
Hard disk mounted successfully
Hard Disk dismounted successfully
A: drive has no floppy or Unreadable/Unformatted Floppy
Trying C: drive

Reading boot file from disk device C:/boot/boot.sds
Loading file C:/boot/globals.exe
Loading file C:/boot/syswd.exe
Loading file C:/boot/hostmgr.exe
Loading file C:/boot/redmgr.exe
Loading file C:/boot/netmgr.exe
```

```
Loading file C:/boot/permgr.exe
Loading file C:/boot/snmp.exe
SW version loaded - Ver.Rev FSR PUN: 4.2 000 028
Hard disk mounted successfully
Hard Disk dismounted successfully


Loading File < syscnfg.TBL >...
Loading File < card.TBL >...
Loading File < port.TBL >...
Loading File < hostconfg.TBL >...
Loading File < resgroup.TBL >...
Loading File < supvtmpl.TBL >...
Loading File < iprule.TBL >...
Loading File < oprule.TBL >...
Loading File < isdnsupv.TBL >...
Loading File < isdnmsg.TBL >...
Loading File < routsum.TBL >...
Loading File < routetbl.TBL >...
Loading File < exroute.TBL >...
Loading File < nfasconfg.TBL >...
Loading File < promptlb.TBL >...
Loading File < subrate.TBL >...
Loading File < motomap.TBL >...
```

Finally, the login screen appears (see Figure 3.16).

```
S D S  S Y S T E M  L O G I N


Username: _______________
Password: _______


Copyright (c) 1986, 1996, 1997, 1998, Summa Four, Inc All Rights Reserved
```

TP000184

Figure 3.16: SDS System Login Screen

The A-side of the system (the side you have just completed upgrading) can now process calls. Continue to the next section to complete the upgrade by installing software on the B-side.

If you do not have a redundant system, proceed to Section 3.5, otherwise proceed to the next section.

3.4.7 Installing the Software on the B-Side

1. Connect or switch the administration console to the B-side CPU-TM, or go to the B-side system console.
2. Insert Disk 1 into the B-side drive.
3. Power on the B-side. The following messages appear:

```
Copyright Motorola Inc. 1988, 1989, 1990, 1991, 1992 All Rights Reserved

MVME147 Monitor/Debugger Release 2.43 - 6/30/92
CPU running at 25 MHx

FPC passed test
MMU passed test

COLD start

Onboard RAM start = $00000000, stop = $007FFFFF

147-Bug> Searching for ROM Boot


147-Bug>G FFA0002C
Effective address: FFA0002C


SDS Initializing...
Hard disk mounted successfully
Hard Disk dismounted successfully
Reading boot file from disk device A:/boot/boot.sds
Loading file A:/boot/install.exe
Hard disk mounted successfully
Hard Disk dismounted successfully
```

4. After the system performs diagnostic tests, repeat *Section 3.4.5, Installing the Software*, starting with Section 3.4.5.1, Step 5, to install the Generic software and optional software, and then Section 3.4.6, *Performing a Database Conversion*, on the B-side.
5. After you have installed the software and converted the database on the B-side, type **7**, Terminate Installation (see *Figure 3.15)*, and place the ACC switch back into the Auto position. The B-side will reboot itself. Proceed to the next section to verify file synchronization.

3.4.8 Verifying File Synchronization (Redundant Systems)

For redundant systems, after you have installed the software on both sides and rebooted the system, you must verify that file synchronization has occurred. Check the messages in the log file and verify that

RED32:ACT FILE SYNC COMPLETED

from the ACT side, and

RED20:SBY FILE SYNC COMPLETED

from the SBY side, appear.

When file synchronization has been verified, the upgrade to V4.2 FSR00 PUN28 is complete. Proceed to the next section to install the MIB software if you have a Network Management System.

3.5 UPGRADING TO THE 16MB/33MHZ CPU (OPTIONAL)

If you are swapping out your 8Mb/25MHz CPUs with 16Mb/33MHz CPUs, do so now. See the CPU Upgrade Procedure, Version 4.2 FSR00 PUN24 and higher, P/N 63104050100.

3.6 INSTALLING THE MIB SOFTWARE (OPTIONAL)

If you use SNMP to manage your switch, install the MIB software on your network management system. See Appendix C in the V4.2 FSR00 Release Notes.

This completes your upgrade to Generic V4.2.

Section 4
KNOWN DESIGN CONSTRAINTS

4.1 INTRODUCTION

Note: No new design constraints have been introduced with the V4.2 FSR00 PUN 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, or 32 releases.

Cisco Systems, Inc. has identified and evaluated design constraints in Generic V4.2 FSR00 software, firmware, and hardware. This section provides explanations of, and where applicable, workarounds for, design constraints in the following areas:

- Upgrading to V4.2 on SDS and VCO/80 Systems
- Simple Network Management Protocol (SNMP)
- System Configuration Utilities
- Systems Considerations
- Software Exceptions on System Controller
- Card Initialization
- DTG-2 Card Alarms
- T1 Trunk Card Support
- Digit Collection
- Inpulse Rule Processing
- Resource Group Processing
- Conferencing
- MVDC-T1
- Operational Constraints
- Connecting to Modems
- IP Addressing

Section 5
KNOWN FUNCTIONAL CONSTRAINTS

5.1 INTRODUCTION

Cisco Systems, Inc. has identified and evaluated functional constraints in Generic V4.2 FSR00 PUN32 software, firmware, and hardware.

This section provides explanations and, where applicable, workarounds for functional constraints for each PUN release in the following areas:

- System Administration
- System Configuration Utilities
- Special Redundant Systems Considerations
- Disk Operations
- Digit Collection
- Inpulse/Outpulse Rule Processing
- Call Processing
- Command/Report Processing
- Initialization
- Network Bus Controller-3 (NBC-3)
- Digital Tone Generator (DTG) and Digital Tone Generator-2 (DTG-2)
- Four Span Cards
- Miscellaneous Card Issues
- Multiple Host Connections
- TeleRouter
- Simple Network Management Protocol (SNMP)
- Ethernet
- ISDN Issues
- International Issues

5.2 SYSTEM ADMINISTRATION

Not all system administration tasks are supported by SNMP. (See the V4.2 FSR00 release notes for a list of the tasks not supported.) There is no SNMP support for Network Side NET5, the REORDER tone feature for Japanese networks, or for other V4.2 FSR00 PUN 22 to PUN 26 features.

5.2.1 U508295234/TR5234: Adding Cards to End of Configured Data Base

If you try to add cards to the end of a configured data base, you may see the following message: NO AVAILABLE PORT MEMORY. This is caused by port fragmentation, which means that there are enough total ports, but they are not contiguous.

This could happen, for example, if 1576 ports are assigned out of the 1776 that were licensed, and you try to add a 64-port IPRC.

Resolution

Rebuild the data base to reallocate the ports in a contiguous block.

5.3 SPECIAL REDUNDANT SYSTEM CONSIDERATIONS

5.3.1 CSCdm50255: Live Upgrade Causes Standby Failure

When you perform a live upgrade, the standby side fails.

Resolution

Live upgrade may be successful if the load on the system is less than 1000 BHC. However, a successful live upgrade cannot be assured, and the conventional method of upgrading should be used.

5.4 DISK OPERATIONS

5.4.1 U805280001: System Crashes when Reading a Floppy

Floppy disks formatted successfully on the switch may subsequently produce an error when a directory display is attempted or may cause a core dump and system reboot when a read is attempted.

This occurs only when the floppy is formatted with a volume label containing an illegal character is included in the file name. Illegal characters include the following:
*?/ \ | .,;:+=[]{}&^<>”.

Resolution

Change the volume label with Microsoft Windows or other external tools capable of writing MS-DOS format on floppies.

5.5 FOUR SPAN CARDS

5.5.1 U507185123: Processing WINK Command

Note: This was erroneously listed under the following number in the V4.2 FSR00 release notes: U507201007.

When the Four Span T1 is configured as FXO-LX, the card processes a WINK command after it seizes out. The card does not support a WINK, but will accept the command without an error; there is no indication that the customer's inpulse/outpulse rule is invalid.

Resolution

Do not use a WINK in an Outpulse rule when Four Span T1 cards are configured as FXO-LX.

5.5.2 U710290005: MVDC T1 Fails to Clear Alarms

When multiple MVDC T1 cards are installed in a subrack, some cards re-download after a warm restart. The cards finally clear alarms after the download is complete. Also, there are queue overflows with data lost on RED_TX_Q, SCR_MSG_Q, CP_TX_Q, and SNMP_MSG_Q.

5.5.3 U710300008: Aborted Download Does Not Resume After Switchover

In a redundant system, when a download is in progress and an Active to Standby switchover occurs, the MVDC download aborts on the previously Active side but does not resume on the new Active side.

5.5.4 U710310001: Display Card Data Screen Not Recording Slips

The Display Card Data screen does not record slips. The system was forced to slip by changing the AM2-D bulk call generator from internal to LINE A. Slips are recorded at the load box but the slip count does not increase on the Display Card Data screen.

5.6 MISCELLANEOUS CARD ISSUES

5.6.1 U609230005: Outgoing T1 Stuck in CP_OUTPUL

Outgoing ports on Single Span T1 cards intermittently became stuck in CP_OUTPUL after incoming seizures.

Appendix A
Replacing PROMs and PLDs

A.1 INTRODUCTION

This appendix describes the procedures for installing new firmware and programmable logic in circuit cards. Firmware is shipped in the form of programmable read only memory (PROMs), dual in-line packages (DIPs), integrated circuits (ICs) for through-hole mounting, and plastic leaded chip carriers (PLCC) for surface mount.

Programmable logic is shipped in the form of programmable logic devices (PLDs), DIPs for through-hole mounting, and PLCCs for surface mount.

PROMs are labelled with configuration data which should be checked, prior to installation, against the firmware requirements contained in *Section 2*. PLDs are labelled with their LP identification number.

A.2 REMOVING AND REPLACING THROUGH-HOLE PROMs and PLDs

The following sections provide information about removing and replacing through-hole PROMs and PLDs. Refer to the appropriate technical description for the physical locations of the PROMs and PLDs on each circuit card.

A.2.1 Removing Through-Hole PROMs and PLDs

To remove a through-hole PROM or PLD, follow these steps.

1. If the circuit card is currently installed in the system, follow the removal and replacement procedures in the appropriate technical description. Be sure to also locate affected circuit cards kept as spares.

   CAUTION: Observe antistatic precautions near circuit cards. Wear a ground strap connected to the equipment frame whenever servicing or cleaning circuit cards (ground points are indicated by labels on the system front).

2. Remove the PROM to be replaced from the circuit card. Use a PROM removal tool to grasp the integrated circuit and pull it straight up and away from the socket.

   CAUTION: Avoid using devices, such as screwdrivers, to remove PROMs. These devices can damage PROM pins and scratch the circuit card.

3. Remove the PROM chip from the shipping package. Refer to *Section 2* to verify that the label on the chip matches the software requirements.

A.2.2 Replacing Through-Hole PROMs and PLDs

To replace a through-hole PROM or PLD, follow these steps.

1. Before installing the new chip, verify that its pins are all evenly spaced and vertically aligned. If necessary, align the IC pins properly prior to installation. To align the pins, you can either use a commercially available pin-straightener tool, sized for a 28-pin DIP device, or you can lay the PROM or PLD on its side and gently press the top edge, being careful not to press on the pins (Figure A.1). Repeat this procedure for the other row of pins.

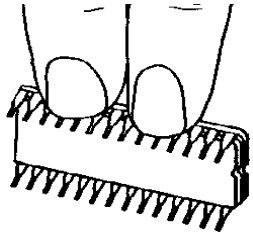

Figure A.1: Aligning PROM or PLD Pins

2. Orient the PROM or PLD chip so that the notch in the chip (Figure A.2) faces the notch on the circuit card.

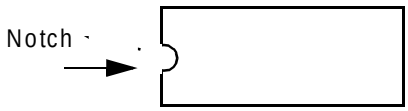

Figure A.2: Notch Orientation for Integrated Circuit

3. Carefully insert the pins on one side of the PROM or PLD chip into holes on the correct side of the socket (see Figure A.3).

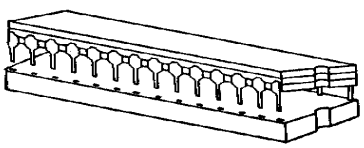

Figure A.3: Inserting Pins in One Side of Socket

4. Insert the pins on the other side of the PROM or PLD chip into holes on that side of the socket (see Figure A.4).

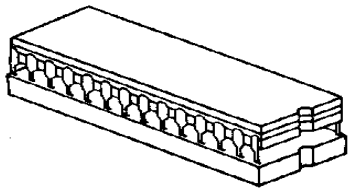

Figure A.4: Inserting Pins in Other Side of Socket

Note: If the pins are not aligned with the socket holes, remove the PROM or PLD chip and straighten the pins (see Step 1). After realigning the pins, repeat Step 2 through Step 4.

5. Carefully examine all the pins on the PROM or PLD chip. Be sure that none of the pins are bent or touching one another.
6. With all of the pins inserted into the socket holes, apply gentle and even pressure to the top of the chip until it is fully seated in the socket.
7. Re-install the circuit card in the system or return the card to spares stock.

A.3 REMOVING AND REPLACING SURFACE-MOUNT PROMs and PLDs

The following sections provide information about removing and replacing surface-mount PROMs and PLDs. Refer to the appropriate technical description for the physical locations of the PROMs and PLDs on each circuit card.

CAUTION: Make sure you use the proper tool to remove surface mount PROMs and PLDs, or you may damage the board.

A.3.1 Removing Surface-Mount PROMs and PLDs

To remove a surface-mount PROM or PLD, follow these steps.

1. If the circuit card is currently installed in the system, follow the removal and replacement procedures contained in the appropriate technical description. Be sure to also locate affected circuit cards kept as spares.

   CAUTION: Observe antistatic precautions near circuit cards. Wear a ground strap connected to the equipment frame whenever servicing or cleaning circuit cards (ground points are indicated by labels on the system front).

2. Use the surface-mount chip removal tool, provided by Cisco Systems, Inc. to remove the PROM or PLD that is to be replaced on the circuit card. To remove the PROM or PLD chip:
   a. Spread or compress the tool legs so the tongs fit into the slots of the chip carrier socket.

b. Insert the tool tongs into the slots of the socket, and push firmly so that the tool butts on the socket.

c. Place the thumb and forefinger on the tool's grip. Squeeze the thumb and forefinger together to remove the chip from the socket.

3. Remove the PROM or PLD chip from the shipping package. Refer to *Section 2* to verify that the label on the chip matches the software requirements.

A.3.2 Replacing Surface-Mount PROMs and PLDs

To replace a surface-mount PROM or PLD, follow these steps.

1. Before installing the new PLD, verify that the pins are all evenly spaced and properly aligned. If necessary, use tweezers to carefully align the IC pins prior to installation.
2. Align the notch or chamfered edge on the PLD to the silkscreened dot on the circuit card (see Figure A.5).

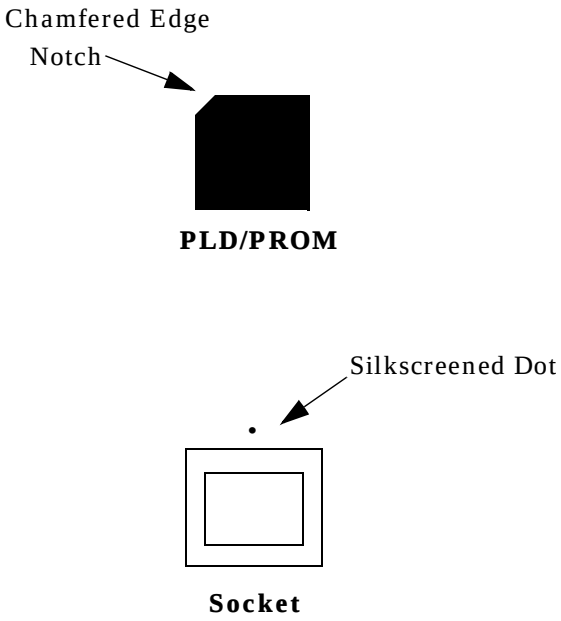

Figure A.5: PLD Alignment

3. With all pins aligned to the pins of the socket, apply gentle, even finger pressure to the top of the chip until it is fully seated in its socket. This completes the installation of the surface mount chip.
4. Reinstall the circuit card in the system or return the card to spares stock.

Appendix B
Live Upgrade Messages

B.1 INTRODUCTION

This appendix describes the Prompts, Warnings, and Error messages associated with the live upgrade feature.

B.1.1 Prepare for Install Messages

The following is a list of messages that may be displayed during the Prepare for Install step of the Live Upgrade process.

Creating Directory Structure on Device C:
: This indicates that the temporary directory structure required for the upgrade is being created.

Directory Structure Created
: This indicates that the temporary directory structure has been created.

BOOT and DBASE Files Saved
: This indicates that the files from the /BOOT and /DBASE directories have been copied to the temporary directories. The files are maintained there during the upgrade in case it is necessary to abort the upgrade and restore the original software.

B.1.2 Installing New Software Messages

The following is a list of messages that may be displayed during the Installing New Software step of the Live Upgrade process.

Installing from Generic Diskette #
: This indicates that the files from the specified diskette are being installed.

Copying File *filename*
: This indicates that a specific file is being copied to the hard disk.

File not found *filename*
: This indicates that the generic software expected a file to be present on the diskette during the install process. Instead, the file was not found. An abort of the upgrade will follow.

Note: This message may appear if there is insufficient space on the hard disk.

All Files from Floppy Copied
: This indicates that all files were successfully copied from the diskette.

Installing from *optional software* Diskette
: This indicates that the files from the optional software diskette are being installed.

Copying Optional Software Failed
: This indicates that the installation of the optional software package failed.

Invalid Optional Software Floppy
: This indicates that the diskette does not represent a valid software option.

B.1.3 Prepare for Upgrade Messages

The following is a list of messages that may be displayed during the Prepare for Upgrade step of the Live Upgrade process. An index of critical upgrade information (CUI) is generated during the Prepare for Upgrade step and recorded in the upgrade log. The critical upgrade information messages are described below.

All Files Present
: This indicates that the check of required files was successful.

Check For All Files FAILED
: This indicates that the check of required files failed. An abort of the upgrade process will follow.

Copying New Files
: This indicates that the newly installed software is being copied from the temporary directories into the system /BOOT and /DBASE directories.

Copied New Files
: This indicates that the copy of the newly installed software to the system /BOOT and /DBASE directories is complete.

Getting Single Resource Information
: This indicates that the generic is reviewing the current database configuration for information which may impact uninterrupted service provided by single resources.

Existing Version of *filename.tbl* is a.b.c. New Version is x.y.z.
: This indicates that the existing version of the specified database table is later than the newly installed version. This does not represent a valid upgrade. An abort of the upgrade will follow.

Cannot Upgrade to Lower Version. Aborting
: This indicates that the administrator has installed a version of software which is earlier than the existing software. This does not represent a valid upgrade. An abort of the upgrade will follow.

CUI#: Firmware Incompatible, Upgrade Required for *cardtype* at X,X,XX
: This indicates that the firmware presently installed on the specified card is not compatible with the newly installed software. It will be necessary for the administrator to upgrade the firmware during the Card Cutover step. The administrator should verify that the current version of firmware is available and that the loss of this resource during cutover will not impact service significantly.

CUI#: Firmware Compatible, Upgrade Recommended for *cardtype* at X,X,XX
: This indicates that the firmware presently installed on the specified card is compatible with the newly installed software, though it is not the current version. It is recommended that the administrator upgrade the firmware during the Card Cutover step. The administrator should verify that the current version of firmware is available and that the loss of this resource during cutover will not impact service significantly.

CUI#: Redundant BRC pair does not exist, active pair requires upgrade!!
: This indicates that the BRC requires an upgrade and a redundant BRC pair does not exist in the database. The process of upgrading the BRC pair will result in the loss of all resources in the subrack supported by the BRC pair. The administrator should verify that the loss of this subrack during cutover will not impact service significantly.

CUI#: *cardtype* at X,X,XX is the Last/Only Active Card of Resource Group #

CUI#: *cardtype* at X,X,XX, Limbo Card of NFAS Group # Requires Upgrade

CUI#: *cardtype* at X,X,XX, Last Resource of B Chnls of NFAS Group # for Upgrade

These messages indicate that the specified card types require upgrade, though the loss of these resources impact the groups with which they are associated.

CUI#: NBC3/DTG2 at X,X,XX Upgrade Required During Update Generic Step

This indicates that the NBC3/DTG2 upgrade(s) required cannot be done during the Card Cutover step. These cards must be upgraded during the Update Generic step of the Live Upgrade process.

CUI#: Critical Upgrade Information Present in Upgrade Log

This indicates that one or more critical upgrade information messages appear in the upgrade log. The administrator should review these before continuing with the upgrade.

B.1.4 Enable/Disable/Configure Optional Software Messages

The following is a list of messages that may be displayed when in the Enable/Disable/Configure Optional Software screen.

Optional Software Not Installed

This indicates that no software options were installed. There is nothing to enable, disable, or configure.

Optional Software Configure, Complete

This indicates that the configuration of software options is complete. This message is generated when the administrator leaves the Enable/Disable/Configure Optional Software screen.

SOFTWARE OPTION Enabled

This indicates that the specified software option was enabled in the Enable/Disable/Configure Optional Software screen. This message is also printed in the upgrade log to provide a record of the configuration of the software option.

SOFTWARE OPTION Disabled

This indicates that the specified software option was disabled in the Enable/Disable/Configure Optional Software screen. This message is also printed in the upgrade log to provide a record of the configuration of the software option.

ENTER To Confirm Disable

This prompts the user to confirm that the software option should be disabled.

Note: If accessing the switch via Ethernet, disabling the Ethernet optional software will prevent you from accessing the switch after the Update Generic step.

B.1.5 Card Cut-Over Messages

The following is a list of messages that may be displayed when in the Card Cut-Over screen.

Invalid Operation. Must be (A, G, or F)

The user enter an invalid option. Only A, G or F can be entered in the command field.

Card Does Not Require Upgrade

This message is displayed if the user entered a card location other than one from the list. Re-enter a card location from the displayed list, in accordance with the system convention for identifying rack, level, slot, and interface.

RLSI X,X,XX Being Forced OOS

This message appears after the user has entered the F command to force the card OOS. The system forces the card specified by the rack, level, slot and interface, out-of-service (OOS).

RLSI X,X,XX Being Gracefully Idled

This indicates that the user has entered the G command to gracefully idle the card. The system gracefully takes the card specified by the rack, level, slot and interface, out-of-service (OOS).

RLSI X,X,XX Is Now OOS

This indicates that the card, indicated by rack, level, slot and interface has become out-of-service (OOS).

RLSI X,X,XX Is Now Active

This indicates that the card indicated by rack, level, slot and interface has become active.

Taking Active BRC OOS, Continue?

This warns the user that a BRC card to be taken out-of-service (OOS), will cause a BRC switchover. The user can press the Enter key to continue or any other key to abort.

Last Active Card of ResGrp #! Continue?

Limbo Card of NFAS Group #!, Continue?

Last B chnls of NFAS Grp #!, Continue?

The user is taking the last card of the specified group out-of-service (OOS) as the result of a G or F command. The user can press the Enter key to continue or any other key to abort.

Active DTG, Will Lose Tones! Continue?

The user is taking the active DTG card out-of-service (OOS) as the result of a G or F command. If a standby DTG/'DTG-2 is present, a DTG switchover will occur. Otherwise, the switch will be without tone generation and outpulsing during the DTG upgrade.The user can press the Enter key to continue or any other key to abort.

Note: This applies only to DTG cards. This does not apply to DTG-2 cards.

Card Already OOS

The user tried to change the status of the card to OOS when the card was already out-of-service (OOS).

Not Allowed!! Card Gracefully Idling

The user tried to change the status of the card to OOS when the card was gracefully idling.

NBC3/DTG2 Cutover Not Allowed

The user selected an NBC3/DTG2 card for cutover. The NBC3/DTG2 card upgrade must be performed during the Update Generic step.

No Cards Require Cutover

This user selected the Card Cutover screen, however no cards require cutover.

B.1.6 General Live Upgrade Messages

The following is a list of messages that may be displayed during the Live Upgrade process.

Invalid Option

The user selected an option from the Live Upgrade Control Menu which is not valid.

Live Upgrade Aborting...

The Live Upgrade process has initiated an abort sequence. The abort sequence is initiated by the user or initiated automatically when a configuration issue has been identified.

Restored Original C:/BOOT and C:/DBASE files

This indicates that the original /BOOT and /DBASE files have been restored from the temporary directories as part of the abort sequence.

Live Upgrade Aborted...

This indicates that the abort sequence has completed.

Operation Not Allowed During Upgrade,

This indicates that the requested operation cannot be performed while the switch is undergoing a live upgrade.

Waiting for Stable State

This indicates that the switch is preparing itself for a reset of the standby controller. Upon reboot of this controller, the newly installed generic software will be running.

Resetting System ...

This indicates that switch has prepared itself for the reset of the standby controller and the reboot will follow shortly.

Switchover Not Allowed During Upgrade, (maint menu switchover)

The user has requested a manual switchover from the Maintenance Menu during a live upgrade. This is not allowed during the live upgrade process.

Appendix C
Card Information

C.1 INTRODUCTION

This appendix contains information by specific card. Table C.1 contains card identification information from several perspectives.

Table C.1: Card Identification

Card Name (Table 2.1)	Front Panel Name	Card Maintenance Screen Name	Live Upgrade CUI# <cardtype> Name
AAC	AAC	--	--
BRC	BRC	Bus Repeater Card	BRC
CPA	CPA	Call Progress Analyzer	CPA
CPU 8Mb 25MHz	CPU	--	--
CPU 16Mb 33MHz	CPU	--	--
DCC	DCC	Conference Card	CNF
DDI	DDI	Direct Inward Dial	DID
DID-2	DID-2	Direct Inward Dial	DID
DRC-8	DRC	8 Port DTMF Receiver	DRC
DRC-24	DRC-24	24 Port DTMF Receiver	DTMF
DRC-48	DRC-48	48 Port DTMF Receiver	DTMF
Drop & Insert	D+I	Drop and Insert Card	DNI
DTG	DTG	Tone Generator	TONE
DTG-2		Tone Generator	TONE
DVC	DVC	Announcement	DVC
E+M (2W or 4W)	E+M	E + M Trunk	TREM
E1-PRI	E1-PRI	Primary rate/DASS2 NT Primary rate/DPNSS	NTDASS2 or DPNSS
E1-PRI 120 ohm	E1-PRI 120 ohm	Primary Rate/NET5-EURO	NET5

Table C.1: Card Identification (Continued)

Card Name (Table 2.1)	Front Panel Name	Card Maintenance Screen Name	Live Upgrade CUI# <cardtype> Name
E1	E1	E1 Trunk	E1
ETC/LTC	ETC/LTC	ETC/LTC/UTC	
IPRC-8	IPRC	8 Port Prompt/Record	IPRC
IPRC-64	IPRC-64	64 Port Prompt/Record	IPRC
IPRC-128	IPRC-128	128 Port Prompt/Record	IPRC
MFCR2	MFCR2	MFCR2 Register	MFCR2
MRC	MRC	MF Receiver	MFRC
MVDC-T1	MVDC T1	MVDC-T1 Trunk	MVDCT1
NBC-3 Card Rev C0ER or later	NBC-3	Network Bus	NBC
NBC-3 Card Rev E0AR or later	NBC-3	Network Bus	NBC
PRI	PRI	Primary Rate Interface	PRI
PRI/N	PRI/N	Primary Rate/NFAS	PRIN or NTTPRI
SSC	SSC	Subrate Switch Card	SSC
SLIC-2	SLIC-2	Subscriber Line	LINE
SWI	SWI		
T1	T1	T1 Trunk	TRT1
UTC-2	UTC-2	ECT/LCT/UTC	UTC
4XE1	4 Span E1 4 Span E1-120 ohm	Four Span E1 Card	4XE1
4XT1	4 Span T1	Four Span T1 Card	4XT1

Table C.2: Live Upgrade CUI# Message Information

Card Maintenance Screen Name	Live Upgrade CUI# <cardtype> Name	Firmware Compatibility
Bus Repeater Card	BRC	Valid CUI# message for all system configurations
Call Progress Analyzer	CPA	Valid CUI# message for all system configurations
Conference Card	CNF	Valid CUI# message for all system configurations
Direct Inward Dial	DID	See Note 1
8 Port DTMF Receiver	DRC	See Note 1
24 Port DTMF Receiver	DTMF	Valid CUI# message for all system configurations
48 Port DTMF Receiver	DTMF	Valid CUI# message for all system configurations
Drop and Insert Card	DNI	Valid CUI# message for all system configurations
Tone Generator	TONE	See Note 1
Announcement	DVC	Valid CUI# message for all system configurations
E + M Trunk	TREM	See Note 1
Primary rate/DASS2 NT Primary rate/DPNSS	NTDASS2 or DPNSS	Valid CUI# message for all system configurations
Primary Rate/NET5-EURO	NET5	Valid CUI# message for all system configurations
E1 Trunk	E1	See Note 2
8 Port Prompt/Record	IPRC	Valid CUI# message for all system configurations
64 Port Prompt/Record	IPRC	Valid CUI# message for all system configurations
128 Port Prompt/Record	IPRC	Valid CUI# message for all system configurations
MFCR2 Register	MFCR2	See Note 3
MF Receiver	MFRC	Valid CUI# message for all system configurations
MVDC-T1 Trunk	MVDCT1	Valid CUI# message for all system configurations
Network Bus	NBC	Valid CUI# message for all system configurations
Network Bus	NBC	Valid CUI# message for all system configurations
Primary Rate Interface	PRI	Valid CUI# message for all system configurations
Primary Rate/NFAS	PRIN or NTTPRI	Valid CUI# message for all system configurations
Subrate Switch Card	SSC	Valid CUI# message for all system configurations
Subscriber Line	LINE	Valid CUI# message for all system configurations

Table C.2: Live Upgrade CUI# Message Information (Continued)

Card Maintenance Screen Name	Live Upgrade CUI# <cardtype> Name	Firmware Compatibility
T1 Trunk	TRT1	See Note 3
ECT/LCT/UTC	UTC	Valid CUI# message for all system configurations
Four Span E1 Card	4XE1	Valid CUI# message for all system configurations
Four Span T1 Card	4XT1	Valid CUI# message for all system configurations

Notes for Table C.2:

1 If you using other than the North American DTG/Tone Plan, make your firmware upgrade decision based on the Master Configurator Release Notes.

2 Applies only to E1-CAS/R2 (with CRC4) firmware. If you are using firmware other then this, see Section 2 of these release notes as the basis for your firmware upgrade decision.

3 Applies only to T1 E+M firmware.