Lucent Technologies
Bell Labs Innovations

DDM-2000 OC-3 Multiplexer Software Release Description

TARP Release 13.0.3

363-206-258
Issue 3A
July 2000

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DDM-2000 OC-3 Multiplexer
Software Release Description
TARP Release 13.0.3

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1. Overview

1.01 The purpose of this software release description (SRD) is to provide information about Software Release 13.0.3 and its interaction with the DDM-2000 OC-3 System. This practice contains the following sections:

- **Software Release 13.0.3 Features:** This section provides a description of the features provided by Release 13.0.3.
- **Operating Issues Resolved:** This section provides the list of issues (problems) which existed in previous software releases that were resolved with this issue of software.
- **Operating Issues:** This section provides information about the existing issues (problems) in Release 13.0.3 that may become evident during the operation of the DDM-2000 OC-3 System.
- **DDM-2000 Interworking:** This section provides a description of the optical connections that are supported between DDM-2000 OC-3, DDM-2000 OC-12, DDM-2000 FiberReach, FT-2000 OC-48, and/or TITAN 5500/S DCS and the software releases that can coexist in the same subnetwork.
- **DDM-2000 OC-3 Multiplexer DRI Software Compatibility:** This section provides information on dual ring interworking software compatibility for the DDM-2000 OC-3 Multiplexer.
- **Inservice Upgrades:** This section provides the information required to upgrade the DDM-2000 OC-3 System software to Release 13.0.3.
- **Implementation Procedure:** This section provides the information required to install the DDM-2000 OC-3 System software, Release 13.0.3.

NOTE:
Read all sections of this practice before implementing the DDM-2000 OC-3 System software update.

1.02 This practice, Issue 3A, supersedes the previous Issue 3. Issue 3A provides updated information for DDM-2000 OC-3 GA Software Release 13.0.3. The updated information is included in Software Release 13.0.3 Features (Section 2.02) and Operating Issues Resolved (Section 3.04) sections of this practice. Margin bars are used to denote the added information.

1.03 Lucent Technologies welcomes your comments on this practice. Your comments will aid in improving the quality and usefulness of Lucent Technologies documentation. Please use the Feedback Form provided at the end of this practice.

1.04 Any difficulty encountered while implementing Release 13.0.3 may be resolved by contacting the Regional Technical Assistance Center in your area. Dial 1-800-225-RTAC (7822).

1.05 A tab designated **Software Release Description** has been provided in 363-206-285, *DDM-2000 OC-3 Multiplexer, TARP Release 13, User/Service Manual (TOP) - Volume II*, for convenient storage of this practice.

1.06 This practice is issued by Lucent Technologies Customer Training and Information Products organization.

2. Software Release 13.0.3 Features

2.01 DDM-2000 OC-3 Release 13.0.3 supports multi-vendor Operations Interworking (OI) and transmission interworking supported in DDM-2000 OC-3 Release 13.0.2.

NOTE:
DDM-2000 OC-3 Release 13.0.3 is not compatible with previous non-TARP releases of DDM-2000 OC-3, OC-12, FiberReach, and/or FT-2000 OC-48, thus care should be taken to avoid isolating NEs that have not yet been upgraded to Release 13.0.3 when upgrading a subnetwork.

2.02 The features described below are for DDM-2000 OC-3 Release 13.0.3.

A. **Administration**

- **Windows NT*:** Starting with OC-3 Release 13.0.3, users will able to use Windows NT for installing software (**`ins-prog:`** command) releases. Because Windows NT does not support the DOS mode currently available for Windows 3.1* and Windows 95/98*, users will now use the MS-DOS* Command Prompt for installing DDM-2000 software with Windows NT.

B. **Transmission**

- **BBG20 TMUX Circuit Pack for OC-3 Shelf:** The new **BBG20** Transmultiplexer (**TMUX**) circuit pack is used in the **FUNCTION UNITS** slots of an DDM-2000 OC-3 shelf. The circuit pack provides path termination for an M13 or C-bit parity formatted DS3 signal. It also provides path termination functions for an STS-1 and 28 VT1.5 signals. It demultiplexes the DS3 signal into 28 DS1s, maps each DS1 into a floating VT1.5, multiplexes the 28 VT1.5s into an STS-1, performs the reverse process, and performs DS1 performance monitoring.

* Windows NT, Windows 3.1, Windows 95/98, and MS-DOS are registered trademarks of Microsoft Corporation.

- **Stratum 3 BBF4 TG3 Circuit Pack:** The new **BBF4 TG3** circuit pack uses a Stratum 3 clock. OC-3 Release 13.0 continues to support the **BBF2 TGS** and **BBF2B TGS** timing circuit packs. Both hardware and software upgrades will not be service affecting. The **BBF4 TG3** will support all **BBF2B TGS** timing options:
  - — It will be line-timed from Main or Fn-c OC-N interfaces.
  - — External timing from DS1 framed reference.
  - — Mult and Sync-out modes will be supported.

  The **BBF4 TG3** is treated just like the **BBF2B TGS**. The system will not allow the mixing of **BBF4 TG3** with **BBF2/BBF2B TGS** in the same NE. Downstream line-timed **BBF4 TG3** should not receive their timing from an upstream NE equipped with **BBF2/BBF2B TGS** circuit packs. The reverse situation works. The hardware for the Stratum 3 **BBF4 TG3** circuit pack will be available in 6/99.
- **Single DS1 Facility Loopback with the New BBF3B DS1PM Circuit Pack:** The system will provide a facility loopback at the DS1 ports on the **BBF3B DS1PM** circuit packs. The **BBF3B DS1PM** circuit pack can be used as a replacement for the **BBF3 DS1PM** circuit pack in all applications. Operation of the loopback causes the selected incoming DS1 signal(s) on the selected circuit pack to be looped back towards the DSX.
- **High Density Digital Subscriber Line (HDSL) Using the BBF8 HDSL Circuit Pack:** This feature provides an HDSL interface capability on the OC-3 shelf. HDSL is an access technology that allows efficient transport of DS1 payloads over metallic twisted pairs. It splits the DS1 payload into two 784 Kb/s data streams. These two data streams are combined at the far end to reconstruct the original DS1 payload.

  The **BBF8 HDSL** circuit pack fits into a **LOW SPEED** slot and provides two, four wire (2 pair) HDSL interfaces. These interfaces are compatible with PairGain HDSL equipment which may be located up to 12,000 feet away. Each interface provides a full DS1 payload capacity which is mapped to a SONET VT1.5. As with the **BBF1B DS1** circuit pack, a **BBG2 MXRVO** circuit pack must be used in the associated **FUNCTION UNITS** of the OC-3 shelf. Once in SONET, the DS1 payload is treated as a normal DS1.

  Due to the increased power needs of the **BBF8 HDSL** circuit pack, only three **BBF8 HDSL** circuit packs per Low Speed Group may be used.
- **Data Services Interface:** A new **BBG19 DS3** circuit pack and cross-connect software provide the DDM-2000 interface to an external Local Area Network (LAN) router/Asynchronous Transfer Mode (ATM) switch to provide Native Mode LAN or general data services via the SONET network.

- **Native Mode LAN Interface:** By deploying DDM-2000 with an adjunct LAN router/ATM switch, Release 13.0.3 provides a Native Mode LAN interface. DDM-2000 offers up to 4 LAN ports per STS-1 of bandwidth. Point-to-point and point-to-multi-point service is provided.

C. **Network Topologies**

- **Enhanced FiberReach Topologies Using the 26G2-U OLIU:** The **26G2-U OLIU** supports enhanced routing with one fiber-pair running at the OC-1 rate. This OLIU can only be used in **FUNCTION UNITS** slots. The **26G2-U OLIU** with built-in multiplexer capabilities can drop DS1 signals without the need for the **BBG2 MXRVO** or **BBF5 JMPR** jumper circuit packs. The **26G2-U OLIU** supports OC-1 ring pass-through, OC-1 ring hairpin with one subtending single-homed FiberReach ring or two subtending dual-homed FiberReach rings. In addition, the **26G2-U OLIU** supports a hairpin local drop cross-connection within a single **FUNCTION UNITS** group (Intra-function hairpinning).

D. **Applications**

- **Retrieving Active Users:** Starting with OC-3 Release 13.0.1, the (CIT) "**`rtrv-secu`**" command report will report on the user's login id that is currently logged in to the Network Element via the communication port. TL1 will also support this feature and the command is "**`RTRV-CID-SECU`**".
- **Disconnect CIT Remote Login Session:** A new CIT command "**`Ctl-F`**" is available to force the local DDM-2000 to cancel an established CIT remote login session. The new command provides a quick and easy way to terminate a CIT remote login session when a remote NE is not responding, for example, when a remote NE is undergoing a reset. (The command page is attached because it is not included in the DDM-2000 OC-3 User Manual as yet.)

E. **Operations**

- **Centralized Operations:** Because DDM-2000 OC-3 Release 13.0.3 is intended to facilitate OS based centralized operations and because TL1/X.25 OS access is the standardized multi-vendor OI application, the following Remote NE Status features are not supported in DDM-2000 OC-3 Release 13.0.3:
  - — Remote Office Alarms
  - — Remote CIT Alarm Reports
  - — Remote User Panel Indications

— TBOS

— Parallel Telemetry.

All of the above features depend on the proprietary exchange of information among Lucent NEs in a subnetwork, specifically the communication of each remote NE's alarm status to other NEs. Although the Remote NE Status features were supported in previous releases of DDM-2000, such Lucent only operations features in multi-vendor subnetworks would not include other-vendor NEs, due to the lack of applicable standards, and thus would be incomplete.

- **DDM-2000 TL1/X.25 GNE:** DDM-2000 OC-3 Release 13.0.3 can serve as the TL1/X.25 GNE for FT-2000 Release 8.0 and later remote NEs.
- **IntrAOffice LAN (IAO LAN) Interface:** The IAO LAN provides an extension of the SONET DCC for operations data communications. All NE-to-NE features supported over the DCC are supported over the IAO LAN, plus:

  — ITM SNC software download to DDM-2000†.

  — ITM SNC as the TL1 GNE.

  A new CIT command "**`test-iaolan`**" is available to test a DDM-2000's IAO LAN connection to an IAO LAN hub. (The command page is attached because it is not included in the DDM-2000 OC-3 User Manual as yet.)
- **ITM SNC and CPro-2000 Support:** DDM-2000 OC-3 Release 13.0.3 is supported by ITM SNC Release 5.0 and CPro-2000 Release 7.0.

F. **Operations Interworking (OI)**

- **OI Standards Compliance:** DDM-2000 OC-3 Release 13.0.3 supports the standard TID Address Resolution Protocol (TARP) and the standard Open Systems Interconnect (OSI) protocol stack on the DCC. The key, standard multi-vendor OI application is OS access via TL1/X.25 interfaces.
- **Multi-Vendor OI Compatibility:** DDM-2000 OC-3 Release 13.0.3 is developed to be compatible with any other-vendor NEs that also support TARP, OSI and TL1/X.25 as specified in Bellcore GR-253. In addition, DDM-2000 OC-3 Release 13.0.3's TARP Manual Adjacency feature enables DDM-2000 to operate in networks that include CMISE-based NEs which may not support TARP propagation.

  DDM-2000 OC-3 Release 13.0.3's compatibility with Tellabs TITAN 5500/S DCS Feature Package (FP) 5.0, including TL1/X.25 OS access with TITAN

† This feature may be used to upgrade *from* DDM-2000 OC-3 Release 13.0.2 and later to subsequent releases.

5500/S DCS serving as the TL1/X.25 GNE for DDM-2000 remote NEs, has been confirmed through cooperative joint testing between Lucent and Tellabs.

DDM-2000 OC-3 Release 13.0.3's compatibility with some other-vendor NEs has also been tested by independent third-parties such as Bellcore on behalf of the SONET Interoperability Forum (SIF).

- **Lucent OI Compatibility:** Although Lucent proprietary, the following OI applications are still supported by DDM-2000 OC-3 Release 13.0.3 even in multi-vendor subnetworks:
  - — Remote Craft Interface Terminal (CIT) Login
  - — Remote Software Download and Copy
  - — Remote NE to NE Automatic Time/Date Synchronization at Startup.

  The following compatible releases of DDM-2000 OC-3, DDM-2000 OC-12, DDM-2000 FiberReach, and FT-2000 OC-48 support OI among Lucent SONET products as well as with other-vendor NEs:
  - — DDM-2000 OC-3 Release 13.0.3 GA
  - — DDM-2000 OC-12 Release 7.0
  - — DDM-2000 FiberReach Release 3.0
  - — FT-2000 OC-48 Add/Drop Ring (ADR) Release 8.0.
- **TARP:** DDM-2000 OC-3 Release 13.0.3 supports TARP instead of Lucent Directory Services (LDS). To reduce the frequency of TARP propagation and to improve the performance of the OI applications, each DDM-2000 can support a TARP Data Cache (TDC).
- **Subnetwork Size:** DDM-2000 OC-3 Release 13.0.3 supports subnetworks of up to 256 NEs by partitioning subnetworks into multiple areas connected via Level 2 Intermediate Systems (ISs). DDM-2000's area address and Level 2 IS capability are user provisionable.
- **Network Maps:** Because DDM-2000 OC-3 Release 13.0.3 does not support Lucent Directory Services (LDS) or Remote NE Status features, the following information about remote NEs is no longer reported in the CIT and TL1 "**RTRV-MAP-NEIGHBOR**" and "**RTRV-MAP-NETWORK**" command responses:
  - — Alarm Group Number
  - — Communications Status
  - — NE Type (e.g., DSNE)
  - — Product Type (e.g., DDM-2000 OC-3).

The NE to which "**RTRV-MAP-NEIGHBOR**" and "**RTRV-MAP-NETWORK**" commands are addressed continues to report its product type. The "**RTRV-MAP-NEIGHBOR**" and "**RTRV-MAP-NETWORK**" reports include other-vendor remote NEs, also. The Network Services Access Point (NSAP) and Target Identifier (TID), if available from TARP, for all NEs, both local and remote, are included in the reports.

In partitioned subnetworks, both reports identify Level 2 IS NEs. The default "**RTRV-MAP-NETWORK**" report includes all reachable NEs in the same area. If the addressed NE is a Level 2 IS, the "**RTRV-MAP-NETWORK**" report can report all reachable Level 2 IS NEs in the subnetwork. Thus, successive "**RTRV-MAP-NETWORK**" commands can identify all NEs in a partitioned subnetwork. The area address of each NE is embedded within the NSAPs included in the reports.

- **Remote Communication Failures:** With TARP, either a remote NE is reachable from a local NE or TL1-GNE and TID-NSAP information is available for the remote NE, or a remote NE is unreachable and there is no further knowledge of such an isolated remote NE. Thus, TL1-GNE remote communication failure alarms that report isolated remote NEs are now transient conditions instead of standing conditions, and remote communication failure error responses from local NEs and TL1-GNEs on behalf of isolated remote NEs are no longer feasible, instead "`Unknown TID`" error responses are returned with TARP.
- **DCC Alarm Level:** DDM-2000 OC-3 Release 13.0.3 reports all Data Communications Channel (DCC) failures as minor alarms. With TARP, it is infeasible to escalate DCC alarms that result in remote communication failures to major alarms, as was done in previous releases of DDM-2000.

G. **Provisioning**

- **Subnetwork Partitioning:** DDM-2000 OC-3 Release 13.0.3 supports provisioning of the following parameters:

  (1) NSAP Area Address

  (2) Level 2 IS.

  These parameters are provisioned by the CIT or TL1 "**ENT-ULSDCC-L3**" command.

- **TARP Provisioning:** Although TARP functions automatically using standard default values without any user provisioning, DDM-2000 allows provisioning of the following TARP parameters. All TARP parameters are

provisioned by the CIT and TL1 "**ENT-ULSDCC-L4**" command and include the following:

(1) Lifetime

(2) Manual Adjacency

(3) Timers

(4) Loop Detection Buffer (LDB) Flush Timer

(5) TDC Enable/Disable

(6) TDC TID-NSAP Entries.

It is recommended that the TARP default values always be used, with the possible exceptions of Manual Adjacency and the TDC parameters. TARP Manual Adjacencies may be used to propagate TARP messages beyond any non-TARP nodes in a subnetwork, if necessary. In the unlikely event that the TDC contains inaccurate information, the TDC parameter provisioning may be used to update the TDC.

- **Eliminated Provisioning:** Because DDM-2000 OC-3 Release 13.0.3 does not support Lucent Directory Services (LDS) or Remote NE Status features, the following OI-related provisioning is no longer necessary:
  - AGNE
  - Alarm Group Number
  - DSNE
  - DSNE "**DLT-TADRMAP**" (CIT and TL1 Command)
  - NE Number
  - Site Number
  - TBOS Parameters.

H. **TL1**

- **New TL1 RTRV-LOG Command:** Starting with OC-3 Release 13.0.1, a new TL1 command ("**RTRV-LOG**") has been added; equivalent to the "**rtrv-hsty**" CIT command. The "**RTRV-LOG**" command can be initiated by users to generate a history log for the network element. This report contains up to 500 of the most recent events. Events include the start and end of alarm and status conditions, and all craft/OS input activities that affect or would affect the state of the network element that are successfully completed or denied. The history log displays the events in last in-first out order, and each event is time stamped.

- **New TL1 ENT/RTRV-FECOM Commands:** Starting with OC-3 Release 13.0.1, two new TL1 commands ("**ENT/RTRV-FECOM**") have been added; equivalent to the "**set/rtrv-fecom**" CIT commands. "**ENT-FECOM**" command can be initiated by users to enable/disable remote access capabilities over the section data communication channels (DCC) and IAO LAN.

I. **Performance Monitoring**

- **Intermediate Node STS Performance Monitoring:** This feature allows the collection, reporting and thresholding of PM status for the SONET STS-1 Path (B3 - STS-1 Path Overhead Byte) derived parameters at intermediate NEs. This feature provides the same set of STS-1 Path Performance information as currently provided for STS-1 path terminations, but extends monitoring to all incoming OC-n and EC-1 low speed interfaces to a Network Element independent of whether the STS-1 terminates on the Network Element.

J. **Maintenance**

- **Detect and Alarm STS/VT Path Unequipped Condition for Non-Ring Interface:** "STS/VT path unequipped" alarm reporting is added to line protected SONET interfaces on ring shelves. On a non-ring interface (i.e: in a **FUNCTION UNITS** slot), the unequipped condition is reported only at a path termination point. The unequipped condition is treated like a path AIS for Yellow/FERF response and performance monitoring.

3. Operating Issues Resolved

3.01 For information on Release 11.0.4, refer to 363-206-217, Issue 4, *DDM-2000 OC-3 Multiplexer, Software Release Description, Release 11.0.4*.

3.02 This section lists the operating issues (problems) which existed in Release 11.0.4 but are resolved in Release 13.0.1.

NOTE:
Some operating issues (problems) which existed in Release 11.0.4 are not applicable in Release 13.0.1 because Release 13.0.1 is not intended to be deployed in the same networks as earlier non-TARP releases of DDM-2000 OC-12, FiberReach, and/or FT-2000. Such operating issues, which are simply not applicable, are not listed here.

(1) **ISSUE:**
Multiple "**cpy-prog**" executions in the same subnetwork may result in interactions that cause one or more of the executions to fail.

(2) **ISSUE:**
If the **BBG8/BBG8B SYSCTL** circuit pack in an operational shelf is replaced with any other **BBG8/BBG8B SYSCTL** circuit pack (either a fresh-from-the-factory circuit pack or one that has previously been used in another shelf), the shelf-level parameters should be restored onto the **SYSCTL** from the backup copy on the **TGS/TG3**. Instead, the values stored on the newly-inserted **SYSCTL** are retained. The specific parameters involved are: tid, shelf, power minor alarm level, co/rt, and us/ns settings for DCC links.

(3) **ISSUE:**
If a VT1.5 drop and continue cross-connection is established in DDM-2000 OC-3 Release 13.0.1 and one of the **MAIN** OLIU circuit packs fails or is removed, the second **MAIN** OLIU circuit pack reports a minor circuit pack failure alarm itself. As indicated in the alarm message, this condition is nonservice-affecting (NSA), and there is really nothing wrong with the second **MAIN** OLIU circuit pack.

(4) **ISSUE:**
Sync autoreconfiguration does not work properly with a recently reset shelf and line timing from the **FN-C** input with S-byte synchronization status messaging.

(5) **ISSUE:**
If all synchronization status messages are equal and less than SQU, a system reset will cause a line-timed system to switch from **FN-C** to **MAIN 2(P)**.

(6) **ISSUE:**
If an OLIU is put into **FN-C**, an automatic protection switch will occur to the **FN-C** line and then back to the previously active **MAIN** OLIU. This action is not service affecting.

(7) **ISSUE:**
If an DDM-2000 OC-3 Release 9.1 shelf is equipped with an **OLIU** circuit pack in **FUNCTION UNITS** slot **1** and the associated **FUNCTION UNITS** slot **2(P)** is unequipped, and a remote software download (**`ins-prog`**) of OC-3 Release 11.0.4 is initiated to this shelf, the software download may not complete successfully.

(8) **ISSUE:**
To verify Operations System (OS) to Network Element (NE) TL1 communications, an OS had recently used "**`ping-ping:<tid>:: <ctag>;`**" as the command to send to the NE rather than "**`rtrv-hdr:<tid>::<ctag>;`**". A problem was seen recently where the TL1 interface would lock up after a couple of weeks of this stimuli and the shelf would have to be reset to recover TL1 communications.

(9) **ISSUE:**
Under some circumstances, one or more alarms indicating the presence of maintenance signals (such as AIS) will be reported even though the maintenance signal either is not or should not be present.

3.03 This section lists the operating issues (problems) which existed in Release 13.0.1 but are resolved in Release 13.0.2.

(1) **ISSUE:**
When upgrading from DDM-2000 OC-3 Release 9.1.1 or 11.0.4 to Release 13.0.2, sometimes the remote install program (**`ins-prog`**) command from a PC to a remote DDM-2000 fails with the following error response:

```
ins-prog: TID DENY
SSTP
/* Status, execution SToPped */
/* Program installation failed due to Communication
   failure.  Network Element will restart current
   program, if possible.  Retry installation to remote
   NE if it does not restart.  Try a forced download
   to local NE if it does not restart. Check the User's
   Manual to review a list of possible problems and
   their solutions. A successful installation is
   required to restore the system to normal
   operation. */
```

The similar error response may occasionally result from copy program (**`cpy-prog`**) command.

(2) **ISSUE:**
In some instances, a user might initiate a "**`cpy-prog`**" of DDM-2000 OC-3 Release 11.0.4 software from a NE into a target NE, and shortly after that "**`cpy-prog`**" starts, the user issues another "**`cpy-prog`**" command for Release 11.0.4 (by accident) to the same target NE within the same subnetwork, but from a different source NE. In this event, the first "**`cpy-prog`**" attempt may fail and the second attempt will succeed.

(3) **ISSUE:**
If a user enters a TL1 "**`ENT-FECOM`**" command to disable the DCC for a **FUNCTION UNITS** slot, e.g., dcc-c, that is not equipped with an OLIU circuit pack, one of the main ring DCCs, e.g., dcc-m2, is disabled instead. A local "**`RTRV-FECOM`**" report will not reflect that, but the ring neighbor will report a "`section DCC channel failed`" alarm.

(4) **ISSUE:**
If over an extended period, hundreds of TL1 "**`ACT-USER`**" and "**`CANC-USER`**" commands are sent to the same NE, that NE will eventually reset its controllers.

(5) **ISSUE:**
On turnup, if an FT NE and DDM NE are optically connected, sometimes the FT will report a DCC failure and the DDM does not indicate any failure. This condition is caused by the User Side/Network Side parameters not being assigned properly between DDM and FT.

(6) **ISSUE:**
In a DDM-2000 network, with hairpin local drop cross-connections between OC-1 **27G2-U** or **26G2-U OLIU**s in **FUNCTION UNITS** group **A** or **B** and the **BBG2 MXRVO** circuit packs in **FUNCTION UNITS** group **C**; if the following scenarios are encountered, the SA (Service Affecting) condition is incorrectly reported as NSA (Non Service Affecting):

— The removal of the OLIU in **FUNCTION UNITS** slot **A-1** or **B-1** and the subsequent removal of the corresponding OLIU in **MAIN-2(P)**, which will naturally cause Loss Of Service.

— Similarly the removal of the OLIU in **FUNCTION UNITS** slot **A-2(P)** or **B-2(P)** and the subsequent removal of the corresponding OLIU in **MAIN-1**, which will cause Loss Of Service as well.

3.04 This section lists the operating issues (problems) which existed in Release 13.0.2 but are resolved in Release 13.0.3.

NOTE:
It is possible a problem listed below as resolved may not have appeared in previous issues of the SRD because the problem was discovered between the time of the release of that SRD and the release of this software.

(1) **ISSUE:**
The TARP Life Time Parameter is being changed from 255 to 127 in order to interwork with all Fujitsu OC-3 software releases. Consequently, the maximum number of hops between two Network Elements is being reduced from 255 hops to 127 hops when a multi-vendor network path includes Fujitsu NEs. The TARP Life Time Parameter is currently a fixed value and is not user provisionable.

4. Operating Issues

4.01 This section lists information pertaining to recognized operating issues (problems) existing in Release 13.0.3. Suggestions to work around the operating issues are mentioned, if available.

4.02 The following list contains known problems in the software:

A. **Download**

(1) **ISSUE:**
When performing a forced software download to an incompatible controller pair (the **SYSCTL** and the **OHCTL** circuit packs contain different software, indicated by a **d** in the **SYSCTL** window) and the **SYSCTL** contains software that is able to accept compressed format (OC-3 Release 9.1 and OC-12 Release 5.1), the software download will complete but, the **SYSCTL** might display a **d** again.

WORK AROUND:
A second forced software download attempt should clear the **d** (software incompatibility condition) from the **SYSCTL** display.

B. **Transmission**

(2) **ISSUE:**
When the **MAIN** slots of an OC-3 shelf with Release 13.0.3 are equipped with **24G-U OLIU** circuit packs, and when those circuit packs are used to establish VT1.5 cross-connects between **MAIN** and **FUNCTION UNITS** slots the following applies:

- If a **FUNCTION UNITS** slot address is specified as *Address1* (e.g., **a-2-2**) and the **MAIN** slot address is specified as *Address2* (e.g., **m-4-1-1**), for the first VT1.5 cross-connect (only) on the specified STS-1, the following will take place:
  - — Good transmission is NOT established on that first VT1.5 cross-connect for the specified STS-1.

WORK AROUND:
When using **24G-U OLIU** circuit packs in **MAIN** slots of an OC-3 shelf with Release 13.0.3, and when establishing VT1.5 cross-connects, always specify the **MAIN** slot address as *Address1*, and the **FUNCTION UNITS** address as *Address2*.

C. **Operations Interworking (OI)**

(3) **ISSUE:**
This issue applies only to the DCC on an OC-3 1+1 interface between DDM-2000 and FT-2000. Under certain installation and failure scenarios, including a single OC-3 fiber cut, the DDM-2000 may be receiving DCC on the protection fiber while the FT-2000 is transmitting DCC on the service fiber. This results in a DCC failure. Specifically, this occurs if both transmit and receive are active on the protection OC-3 fibers (for example, **MAIN-2(P)**) and the DDM-2000 active (protection) transmit fiber fails. In that case, the FT-2000 switches to transmit the DCC on the service fiber, but the DDM-2000 is still expecting DCC (and OC-3) on the protection fiber, thus the DCC fails.

WORK AROUND:
The first priority is to repair any fiber cuts. If the DCC doesn't restore automatically, the DCC can be restored with a manual protection switch at either DDM-2000 or FT-2000, using the "**`switch-line:manual`**" command to realign the FT-2000 DCC transmit and DDM-2000 DCC receive.

(4) **ISSUE:**
When a remote NE is reset, a DDM-2000 TL1/X.25 GNE may take up to 15 minutes to drop the TL1 logins to the remote NE. Therefore, there is a delay of approximately 10 minutes after the typical DDM-2000 reset duration of 5 minutes before the OS can login again to that remote NE through the same TL1/X.25 GNE.

WORK AROUND:
The typical OS automatic TL1 login retry should succeed after the delay.

(5) **ISSUE:**
After an DDM-2000 OC-3 NE is reset, it is possible that the subtending DDM-2000 FiberReach NE would indicate a "`section DCC failure`" alarm, whereas the hosting DDM-2000 OC-3 NE would not be indicating any DCC failures. To verify this event, run the "**`rtrv-map-neighbor`**" command from each NE, and notice that neither the DDM-2000 OC-3 hosting NE, nor the subtending DDM-2000 FiberReach NE (declaring the "`section DCC failure`" alarm) declares the other as its neighbor.

WORK AROUND:
Disable the DCC on the DDM-2000 OC-3 NE, and then enable it through the "**`set-fecom`**" command.

D. **Maintenance**

(6) **ISSUE:**
Cutting and restoring power to a DDM-2000 FiberReach shelf while it is connected to an DDM-2000 OC-3 shelf under the conditions described below will cause VT1.5 channels in the OC-3 shelf that are receiving AIS to transition incorrectly to "In Service". This will in turn lead to `inc. VT AIS` alarms. The conditions leading to this problem are:

— OC-1 interface (**27G-U/27G2-U OLIU**) in OC-3 shelf in **MAIN** slots.

— STS cross-connects in the OC-3 shelf between **MAIN** and **FUNCTION UNITS** slots containing **BBG2 MXRVO** circuit packs. In this situation, VT1.5 channel states are defined even though the cross-connect is at the STS level.

WORK AROUND:
Execute update (**upd**) command at the OC-3 shelf. This will cause VT1.5 channels receiving AIS to revert to the "AUTO" state.

(7) **ISSUE:**
The Alarm Escalation/De-escalation feature does not operate as intended in some cases.

WORK AROUND:
Leave the Alarm Escalation/De-escalation feature provisioned to "off" (default).

(8) **ISSUE:**
If a shelf is equipped with **BBF3B DS1PM** circuit packs in the **LOW SPEED** slots, and the shelf's input voltage was ramped or lowered slowly between -48V and 0V, this will result (as expected) in a Brownout condition; and some of the **BBF3B DS1PM** circuit packs will be declared as failed in the alarm report. When the Brownout condition is cleared, the shelf might be out of service.

WORK AROUND:
Reseat the alarmed **BBF3B DS1PM** circuit packs and reset the shelf.

(9) **ISSUE:**
After having established STS-1 hairpin cross-connections between **22G2-U OLIU** OC-3 circuit packs in **FUNCTION UNITS C** slots, and **BBG4/BBG4B DS3** circuit packs in either **FUNCTION UNITS A** or **B** slots; if an "STS-1 LOP" condition is applied to the active (receive) OC-3 OLIU circuit pack, the alarm report will unexpectedly show "`SA inc. STS1 AIS`" alarms on the cross-connected STS-1s. The applicable alarm in this event is "`SA inc. STS1 LOP`".

WORK AROUND:
Check if there is an upstream "STS1 AIS" failure; if there is none, then the user might have to replace the OLIUs in **FUNCTION UNITS C** slots. At this point, if the "`inc. STS1 AIS`" alarms are still being reported, call Technical Support.

5. DDM-2000 Interworking

NOTE:
Interworking between products is evolving to include both transmission interworking (with EC-1, OC-1, OC-3, IS-3, and DS3 interfaces) and operations interworking (OI). Multi-vendor transmission interworking was supported in previous releases. DDM-2000 OC-3 Release 13.0.3, supports multi-vendor OI compatibility. Care must be taken to check correct software releases and to check interface provisioning. For OLIU interfaces, care must be taken to ensure that both ends of a span are provisioned/equipped for the same protection mode (1+1 or dual 0x1, for example).

5.01 The following tables list the software compatibility within a subnetwork for the DDM-2000 OC-3 Multiplexers with Release 13.0.3 software. All configurations listed support OI. The tables list all possible Lucent Technologies software combinations. Software combinations not listed are not supported. The tables reflect that DDM-2000 OC-3 Release 13.0.3 is not expected to be deployed in the same networks as *earlier* non-TARP DDM-2000 OC-12, FiberReach, FT-2000, or DDM-2000 OC-3 software releases. DDM-2000 OC-3 Release 13.0.3 is targeted specifically for large subnetworks and multi-vendor applications, e.g., with Tellabs TITAN 5500/S DCS Feature Package 5.0.

5.02 Table A lists the software compatibility within a subnetwork for the DDM-2000 OC-3 and OC-12 Multiplexers. All configurations listed support OI. The table lists all possible software combinations. Combinations not listed are not supported.

Table A. DDM-2000 OC-3 and OC-12 Software Compatibility (Note 1)

OC-3 Release	OC-12 Release	Interconnection (Note 2) Method	Notes
13.0 (Ring)*	7.0 (Ring)	22-Type†, 21G-Type, or 21D-Type‡ OLIU	Supports OC-3/OC-12 interworking, 0x1 interfaces, and DRI

Notes:

(1) All NEs in a ring network, which may be part of a larger network, must be running the same software. Similarly, all NEs in a linear network, which may be part of a larger network, must be running the same software. In a subnetwork, which may consist of a mixture of ring and linear networks, all NEs must be running compatible software according to the table.

(2) The OLIU types referenced in Table A are as follows: 21D-Type - 21D and 21D-U, 21G-Type - 21G, 21G-U, and 21G2-U, 22F-Type - 22F, 22F-U, and 22F2-U, 22G-Type - 22G-U, 22G2-U, and 22G3-U, and 22D-U.

* 22-Type OLIUs must be used in DDM-2000 OC-3 ring shelves in **MAIN**, or in **FUNCTION UNITS** slots for optical linear extensions. 21-Type OLIUs used in OC-12.

† The 22-Type OLIUs can only be used in the DDM-2000 OC-3 shelf.

‡ The 21D-Type OLIU can be used in the DDM-2000 OC-12 shelf in place of the 21G-Type OLIU for short reach applications.

5.03 Table B lists the software compatibility for the DDM-2000 OC-3 Multiplexers. All configurations listed support OI. The table lists all possible software combinations. Combinations not listed are not supported.

Table B. DDM-2000 OC-3 Software Compatibility

OC-3 Release	OC-3 Release	Interconnection (Note) Method	Notes
13.0 (Ring)*	13.0 (Ring)*	22-Type OLIU	Supports OC-3/IS-3 interworking between OC-3 ring networks.

Note: The OLIU types referenced in Table B are as follows: 22F-Type - 22F, 22F-U, and 22F2-U, 22G-Type - 22G-U, 22G2-U, and 22G3-U, and 22D-U.

* Requires 22-Type OLIUs in **MAIN** and **FUNCTION UNITS** slots for DDM-2000 OC-3 ring shelves.

5.04 Table C lists the software compatibility within a subnetwork for the DDM-2000 OC-3 and Tellabs TITAN 5500/S DCS. All configurations listed support OI. The table lists all possible software combinations. Combinations not listed are not supported.

Table C. DDM-2000 OC-3 and TITAN 5500/S DCS Software Compatibility (Note 1)

OC-3 Release	TITAN Feature Package	DDM-2000 (Note 2) Interconnection Method	Notes
13.0*	5.0	22-Type†	Supports OC-3/TITAN interworking

Notes:

(1) All NEs in a ring network, which may be part of a larger network, must be running the same software. Similarly, all NEs in a linear network, which may be part of a larger network, must be running the same software. In a subnetwork, which may consist of a mixture of ring and linear networks, all NEs must be running compatible software according to the table.

(2) The OLIU types referenced in Table C are as follows: 22F-Type - 22F, 22F-U, and 22F2-U, 22G-Type - 22G-U, 22G2-U, and 22G3-U, and 22D-U.

* 22-Type OLIUs must be used in DDM-2000 OC-3 ring shelves in **MAIN**, or in **FUNCTION UNITS** slots for optical linear extensions.

† The 22-Type OLIUs can only be used in the DDM-2000 OC-3 shelf.

5.05 Table D lists the DDM-2000 FiberReach software compatibility for the DDM-2000 OC-3 Multiplexers. All configurations listed support OI. The table lists all possible software combinations. Combinations not listed are not supported.

Table D. DDM-2000 OC-3 and DDM-2000 FiberReach Software Compatibility

Software Release		Interconnecting Circuit Pack	
DDM-2000 OC-3	DDM-2000 FiberReach	DDM-2000 OC-3	DDM-2000 FiberReach
13.0 (Ring)	3.0 (Ring)	27G-U/27G2-U and 26G2-U OLIU	26G-U/26G2-U OLIU

5.06 Table E lists the DDM-2000 OC-3 software compatibility for the FT-2000 OC-48. All configurations listed support OI. The table lists all possible software combinations. Combinations not listed are not supported.

Table E. DDM-2000 OC-3 and FT-2000 OC-48 Software Compatibility

Software Release		Interconnecting Circuit Pack	
DDM-2000 OC-3	FT-2000 OC-48	DDM-2000 OC-3 (Note)	FT-2000 OC-48
13.0 (Ring)	8.0 (Ring)	22-Type, 21G-Type, or 21D-Type OLIU	LAA10 OC3 or LAA5 IS3 Optical Interface

Note: The OLIU types referenced in Table E are as follows: 21D-Type - 21D and 21D-U, 21G-Type - 21G, 21G-U, and 21G2-U, 22F-Type - 22F, 22F-U, and 22F2-U, 22G-Type - 22G-U, 22G2-U, and 22G3-U, and 22D-U.

6. DDM-2000 OC-3 Multiplexer DRI Software Compatibility

6.01 Table F lists the dual ring interworking (DRI) software compatibility for the DDM-2000 OC-3 Multiplexer for both EC-1 and OC-3 interfaces. The table lists all possible software combinations. Combinations not listed are not supported.

Table F. DDM-2000 OC-3 Multiplexer DRI Software Compatibility

DDM-2000 OC-3	DDM-2000 OC-12	FT-2000 OC-48	Notes
Release 13.0 (Ring)	Releases 7.0 (Ring)	Release 8.0 (Ring)	

See 824-102-144, *Lucent Technologies 2000 Product Family, Multi-Vendor Operations Interworking Guide*, for more information on operations interworking.

7. Inservice Upgrades

7.01 Table G lists the current software releases of the DDM-2000 OC-3 Multiplexer that can be directly upgraded inservice. Specific procedures for upgrades are provided in 363-206-285, *DDM-2000 OC-3 Multiplexer, TARP Release 13, User/Service Manual (TOP) - Volume II*.

Table G. DDM-2000 OC-3 Inservice Software Upgrade Compatibility (Notes)

	Upgrade to*
Current Release	**13.0**
7.1 (Ring)	C†
7.2 (Ring)	C†
8.0 (Linear)	C†
8.1 (Linear)	C†
9.0 (Ring)	U†
9.1 (Ring)	X†
11.0 (Ring)	X†
13.0 (Ring)	X

Notes:

(1) All DDM-2000 OC-3 shelves in a subnetwork should be using Release 13.0 software.

(2) See attached **NTP-046** for information and procedures needed for upgrading Release 7.1/7.2 to Release 13.0 for a system in service.

∗ When doing an upgrade, it is recommended that the latest point release of software be used, if possible.

U Requires local software download only to upgrade the system.

X Requires local or remote software download only to upgrade the system.

C Requires an upgrade procedure with on-site equipment/fiber changes as well as software download to upgrade the system. Additional changes to software and equipment provisioning may be needed to use features of the new release.

† Incompatible OSI stack requires special upgrade procedure. See 363-206-285, *DDM-2000 OC-3 Multiplexer, TARP Release 13, User/Service Manual (TOP) - Volume II* and 842-102-144, *Lucent Technologies 2000 Product Family, Multi-Vendor Operations Interworking Guide* for subnetwork upgrade procedures.

8. Implementation Procedure

CAUTION:
If this software is to be used in the SONET subsystem of a SLC-2000 Access System, a compatible version of the digital loop carrier (DLC) subsystem software must be installed before upgrading the SONET subsystem software.

NOTE:
Before installing Release 13.0.3 software, the following hardware versions *must* be in place at all sites before continuing with the implementation procedure:

BBG8/BBG8B SYSCTL: Series 1:1 or higher
BBG9 OHCTL: Series 1:1 or higher.

NOTE:
DDM-2000 OC-3 Release 8.0.1, 8.0.2, 8.1.1, 9.0.1 through 9.0.6, 9.1.1, and 11.0, and 11.1 shelves using **BBG8** System Controller (**SYSCTL**), **BBG9** Overhead Controller (**OHCTL**) and **BCP4 OHCTL** circuit packs manufactured in June 1997 or earlier are susceptible to developing corrupted memory locations in the controllers boot flash devices that can result in the loss of controller functionality in the event of a software reboot. When upgrading from any of the above releases, refer to th e attached Engineering Change Procedure ECP-N81076MV to test for this condition (associated with CCN-81076MV).

NOTE:
After Release 13.0.3 has been installed and is the operating generic for the shelf, use the **RTRV-ULSDCC-L4** CIT command to verify that the L4TLIF parameter is correctly provisioned with a default value of 100. If instead, the L4TLIF parameter is set to 0, set it to 100 using the **ENT-ULSDCC-L4** CIT command.

Verify that the L4ETDC parameter is set to enable. If it is set to disable, set it to enable using the **ENT-ULSDCC-L4** command.

Software Installation and Upgrade Procedure

The following is a brief description of scenarios that may be encountered while upgrading to OC-3 Release 13.0.3 software:

NOTE:
When using the "**apply**" command to upgrade OC-3 Release 9.1 or 11.0 to OC-3 Release 13.0, see the description of the "**apply**" command in 363-206-280, *DDM-2000 OC-3 Multiplexer, Release 8 and Higher, User/Service Manual, Volume I*, Issue 3.

A. **Upgrading OC-3 Release 9.0 to Release 13.0**

NOTE:
Software upgrades from OC-3 Release 9.0 to OC-3 Release 13.0 cannot be done remotely.

- If a NE running OC-3 Release 9.0 is upgraded to OC-3 Release 13.0 through a Forced Software Download, the following scenarios will take place:
  - — Uncompressed software of Release 13.0 is downloaded and installed as the EXECUTING generic.
  - — No compressed software version will be available in the dormant area of the NE receiving the software.
- If the "**ins-prog**" command was initiated to install Release 13.0 to a NE running Release 9.0, the following scenarios will take place:
  - — Uncompressed software of Release 13.0 is downloaded and installed as the EXECUTING generic.
  - — No compressed software version will be available in the dormant area of the NE receiving the software.

B. **Upgrading OC-3 Release 9.1 to Release 13.0**

- If a NE running OC-3 Release 9.1 is upgraded to OC-3 Release 13.0 through a Forced Software Download, the following scenarios will take place:
  - — Compressed software of Release 13.0 is downloaded and installed into the DORMANT area of the NE receiving the software.
  - — The "**apply**" command must be used in that NE to install or overwrite the currently executing Release 9.1 software. When executing the "**apply**" command in Release 9.1, a 30 minute delay is encountered before starting to overwrite Release 9.1 with Release 13.0. (For more information, refer to the DLP attachments).
  - — Initiating the "**cpy-prog**" command from this NE will send the DORMANT (compressed) generic if the receiving NE is running Release 9.1.
- If the "**ins-prog**" command was initiated to install Release 13.0 in a NE running Release 9.1, the following scenarios will take place:
  - — Compressed software of Release 13.0 is downloaded and installed into the DORMANT area of the NE receiving the software.
  - — The "**apply**" command must be used in that NE to install or overwrite the currently executing Release 9.1 software.

    When executing the "**apply**" command in Release 9.1, a 30 minute delay is encountered before starting to overwrite Release 9.1 with Release 13.0. (For more information, refer to the DLP attachments).
  - — Issuing the "**cpy-prog**" command from this NE will send the DORMANT (compressed) generic to the remote NE if that remote NE is running Release 9.1.
- If the "**cpy-prog**" command was initiated to copy Release 13.0 into a remote NE running Release 9.1, the following scenarios will take place:
  - — Compressed software of Release 13.0 is downloaded and installed into the DORMANT area.
  - — The "**apply**" command must be used in remote NE to install or overwrite the currently executing Release 9.1 software.

    When executing the "**apply**" command in Release 9.1, a 30 minute delay is encountered before starting to overwrite Release 9.1 with Release 13.0. (For more information, refer to the DLP attachments).

C. **Upgrading OC-3 Release 11.0 to Release 13.0**

- If a NE running OC-3 Release 11.0 is upgraded to OC-3 Release 13.0 through a Forced Software Download, the following scenarios will take place:
  - — Compressed software of Release 13.0 is downloaded and installed into the DORMANT area of the NE receiving the software..
  - — The uncompressed software of Release 13.0 is automatically installed as the EXECUTING generic (i.e., "**apply**" command not needed in this case).
  - — Initiating the "**cpy-prog**" command from this NE will send the DORMANT (compressed) generic, if the receiving NE is running Release 11.0.

- If the "**ins-prog**" command was initiated to install Release 13.0 in a NE running Release 11.0, the following scenarios will take place:
  - — Compressed software of Release 13.0 is downloaded and installed into the DORMANT area of the NE receiving the software.
  - — The "**apply**" command must be used in that NE to install or overwrite the currently executing Release 11.0 software.

    The "**apply**" command in Release 11.0 can be scheduled thru the date and time parameters. If the date and time parameters are not provisioned, a 15 minute delay is encountered before starting to overwrite Release 11.0 with Release 13.0. (For more information, refer to the DLP attachments).
  - — Issuing the "**cpy-prog**" command from this NE will send the DORMANT (compressed) generic to the remote NE if that remote NE is running Release 11.0.

D. **Upgrading OC-3 Release 13.0 to Release 13.0**

- If a NE running OC-3 Release 13.0 is upgraded to OC-3 Release 13.0 through a Forced Software Download, the following scenarios will take place:
  - — Compressed software of Release 13.0 is downloaded and installed into the DORMANT area.
  - — The uncompressed software of Release 13.0 is automatically installed as the EXECUTING generic (i.e., "**apply**" command not needed in this case).
  - — Initiating the "**cpy-prog**" command from this NE will send the DORMANT (compressed) generic, if the receiving NE is running Release 13.0.

DLP-532 and **DLP-562** contain the latest information and procedures needed for upgrading a DDM-2000 OC-3 System running any upgradable version of OC-3 software. **DLP-561** contains the latest information and procedures needed for installing software in new shelf installations where the **SYSCTL** and **OHCTL** are new and contain no software.

This release of software takes approximately 15 to 25 minutes to download to a local shelf using a newer PC with the autobaud feature. This release of software takes approximately 45 minutes to download to a local shelf using an older PC set to 9600 baud. This release of uncompressed software takes approximately 20 minutes to copy from one shelf in the subnetwork to another shelf if the DCC traffic is not excessive from other shelves. Copying compressed software from one shelf to another takes about 10 minutes. The download time will be longer (even without excessive DCC traffic) when there are additional spans between the source and target network elements.

Use the attached copies of **DLP-532**, **DLP-561**, **DLP-562**, and **DLP-566** to install the new software.

How Are We Doing?

Document Title: *DDM-2000 OC-3 Multiplexer, Software Release Description, TARP Release 13.0.3*

Document No.: 363-206-258 Issue 3A Date: July 2000

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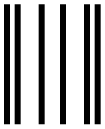

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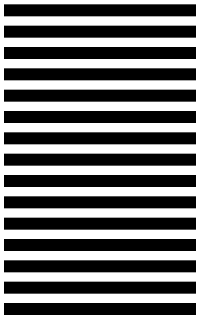

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Install New Software Generic Program
In-Service System
Local Shelf Download

1. Before beginning the software installation, refer to the "Software Installation and Upgrade Procedure" section of the Software Release Description. This section contains a description of any special considerations required when installing this version of software.

2. **NOTE 1:**
   This procedure is used to install a new software program in a local in-service DDM-2000 OC-3 shelf. For procedures to download software in a new shelf (initial installation), see **DLP-561**. For procedures to download software to a remote shelf (using **`ins-prog`** or **`cpy-prog`** command), see **DLP-562**.

   NOTE 2:
   If upgrading from earlier software releases to Release 13.0, after the first shelf is upgraded, single ended operations will not be available and major alarms (`section DCC channel failed`) will exist until all shelves are upgraded. The node farthest away should be upgraded first, working back to the local node.

   Verify that no DCC failures or transmission failures (OC-3 LOS, flashing **OLIU FAULT** LEDs, etc.) are present on the network element or system receiving the program.

3. **CAUTION:**
   TIMING *slot* **2** *should always be equipped with a* **TGS/TG3** *circuit pack and be active prior to software download. To clear a "***C***" condition from the* **SYSCTL FE ID** *display, procedures will require removal of the* **TGS/TG3** *circuit pack from* **TIMING** *slot* **1** *to force the system to run the new software. See Table A.*

NOTE 1:
When upgrading from releases without synchronization messaging to releases with this feature, it is suggested to upgrade first the shelves which are provisioned for "external timed" or "external mult" timed. This is to prevent timing "holdover" conditions at nodes that derive timing from the OC-3 line.

Table A. DDM-2000 OC-3 Inservice Software Upgrade Compatibility (Note)

	Upgrade to*
Current Release	**13.0**
7.1.n (Ring)	C†
7.2.n (Ring)	C†
8.0.n (Linear)	C†
8.1.n (Linear)	C†
9.0.n (Ring)	U†
9.1.n (Ring)	X†
11.0.n (Ring)	X†
13.0.n (Ring)	X

Note: All DDM-2000 OC-3 shelves in a subnetwork should be using TARP Release 13.0 software.

***** When doing an upgrade, it is recommended that the latest point release of software be used, if possible.

U Requires local software download only to upgrade the system.

X Requires local or remote software download only to upgrade the system.

C Requires an upgrade procedure with on-site equipment/fiber changes as well as software download to upgrade the system. Additional changes to software and equipment provisioning may be needed to use features of the new release.

† Incompatible OSI stack requires special considerations. See 824-102-144, *Lucent Technologies 2000 Product Family, Multi-Vendor Operations, Interworking Guide,* Issue 1, for special considerations.

NOTE 2:
If a linear shelf is in the STS3c mode (**`concat`** mode enabled by the **`set-oc3`** command) and a different software generic that does not have the STS3c feature is loaded, the **OLIU**s will stay in the **`concat`** mode until they are removed and reseated.

NOTE 3:
If the "**`ins-prog`**" command is used for software upgrades from Release 9.1 or later, the software is loaded as a dormant copy in the **SYSCTL** receiving the software. At the end of the download, the **`rtrv-alm`** report will show a status message of "*`dormant/exec code mismatch`*". The **`apply`** command must be used to overwrite the original executing copy of software with the new dormant software version. See the "Commands and Reports" section in Volume 1 of this manual for a description of the TARP Release 13.0 "**`apply`**" command.

Before performing this procedure, ensure that both **TGS/TG3** circuit packs are installed in the shelf, then use the **`switch-sync:s=circuitpack,pri=manual`** command to switch to the protection **TGS/TG3** circuit pack in **TIMING** slot **2**, if not already **ACTIVE**. Use **`rtrv-sync:`** command to verify that the protection **TGS/TG3** circuit pack in **TIMING** slot **2** is **ACTIVE**.

4. **NOTE:**
If you are using a PC operating in a *Windows** environment, you must **exit** *Windows* and restart your PC in *MS-DOS*† mode before performing these download procedures. For example, if your PC is running *Windows 95* you must exit *Windows* by clicking on the **Start** button, then **Shut Down**, then **Restart the computer in** *MS-DOS* **mode**.

Obtain equipment, check software, and connect PC for download.

Reference: **DLP-566**

---

* Windows is a registered trademark of Microsoft Corporation.

† MS-DOS is a registered trademark of Microsoft Corporation.

5. Observe one of the following indications on the **FE ID** display. Note the indication and follow the suggested procedure.

   A. **Letter "P" in FE ID Display**

   Indicates no software installed in **SYSCTL**. Software must be downloaded locally using these procedures.

   Continue with **Step 6.**

   B. **Letter "P." in FE ID Display**

   Letter "**P**" followed by a period (**P.**) indicates a previous download attempt has failed. New software must be downloaded locally using these procedures.

   Proceed to **Step 19.**

   C. **FE ID Display Blank:**

   Indicates compatible software is installed in **OHCTL** and **SYSCTL**. This procedure assumes the installed software version is not the correct version. (Depress **ACO** button for longer than 2 seconds to display software version on the **FE ID** display.)

   Proceed to **Step 9.**

   D. **Letter "d" in FE ID Display:**

   Indicates **OHCTL** has no software or that software in **OHCTL** and **SYSCTL** is incompatible.

   Proceed to **Step 19.**

   E. **Letter "C" in FE ID Display:**

   Indicates software is installed in **OHCTL** and **SYSCTL**, but it will not support the current shelf provisioning.

   Proceed to **Step 23.**

F. **Letter "U" in FE ID Display:**

Indicates **SYSCTL** Switch **S1** is not set properly for type of shelf being equipped.

Remove **SYSCTL**. Repeat procedures of **DLP-501** to correct switch settings and to reinstall **SYSCTL**.

G. **Letter "E" in FE ID Display:**

Indicates **SYSCTL** must be replaced.

Get replacement **SYSCTL** and repeat procedures of **DLP-501**.

H. **Letter "F" in FE ID Display:**

Indicates **SYSCTL** faceplate latch is not fully seated. If **SYSCTL** has just been replaced, unplug **SYSCTL** and repeat procedures of **DLP-501**. If original **SYSCTL** has just been unplugged and reseated, properly seat the faceplate latch. (A reset occurs after the faceplate is seated.)

I. **Flashing Letter "L" in FE ID Display:**

Indicates a low voltage condition (brownout) on the shelf.

Clear trouble using **Trouble Clearing: TAP-121**.

Letter "P" in FE ID Display

6. **CAUTION:**
If PC hard drive is being used, ensure you are in the correct directory. If floppies are being used, ensure the first (number 1) diskette is installed in floppy drive. Ensure PC is connected to the front CIT (CIT-1) connector.

NOTE:
After the terminal emulator (**`term`**) is started, the software download automatically begins. The download may take up to 45 minutes.

Enter **`term`** or **`term COM`***n* command, where *n* = 1 or 2. If **`term`** is entered without the **`COM`***n* option, then **COM1** will be selected by default. Disregard message "`Can't find script <init>`" if you see it after starting the terminal emulator.

Response: Two brief messages are printed and you are instructed to `Press any key to continue . . .` after the second message. After you press any key, the terminal emulator is loaded and the terminal responds as follows within 2 minutes:

```
Interface ready. (Type Alt-h for help.)
Communications established.

Searching for optimal transfer rate.
Handshake established at <baudrate> baud.
```

```
In progress . . . .
```

The dots continue to print until program installation is complete. If using floppies, insert each diskette when prompted. After installation is completed, the PC prints the following completion message:

```
ins-prog:TID COMPLD
/* Generic a.b.c is installed */
```

The **SYSCTL** resets and the terminal is logged off the system.

7. Was response correct?

   If **YES**, then continue with **Step 8**.
   If **NO**, then proceed to **Step 27**.

8. Did the letter "**C**" appear in the **FE ID** display?

   If **NO**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
   If **YES**, then proceed to **Step 23**.

FE ID Display Blank

9. **CAUTION:**
If PC hard drive is being used, ensure you are in the correct directory. If floppies are being used, ensure the first (number 1) diskette is installed in floppy drive.

Enter **`term`** or **`term COM`***n* command, where *n* = 1 or 2. If **`term`** is entered without the **`COM`***n* option, then **COM1** will be selected by default. Disregard message "`Can't find script <init>`" if you see it after starting the terminal emulator.

Response: Two brief messages are printed and you are instructed to `Press any key to continue . . .` after the second message. After you press any key, the terminal emulator is loaded and the terminal responds as follows:

```
Interface ready. (Type Alt-h for help.)
Communications established.
```

10. **NOTE:**
The default shelf is the shelf physically connected to the PC. To set baud rate automatically, enter two carriage returns (**<cr>**), two lower case "a"s (**aa**), or two upper case "A"s (**AA**). All other characters are ignored.

Enter two carriage returns.

Response: PC prompts with:

```
/* Enter a shelf number from 1 to 8 */
shelf [default] =
```

11. Was response correct?

If **YES**, then continue with **Step 12**.
If **NO**, then proceed to **Step 28**.

12. Enter the shelf number for the shelf being used for new program download.

    Response: PC responds with:

```
login<
password<

    /************************************
    *                                   *
    *                                   *
    *         Lucent Technologies       *
    *      DDM-2000 OC-3 Multiplexer    *
    *                                   *
    *           Release a.b.c           *
    *                                   *
    ************************************/

                      .
                      .
                      .

    TID date time
 M  rtrv-alm: all COMPLD
    /* Active Alarms and Status Report
```

13. **NOTE:**
    After the system prompt (<), the system will respond normally to commands entered. The "Commands and Reports" section of Volume 1 of this manual gives a description of the commands.

Use **`rtrv-ne`** command to retrieve the name (*tid*) of the shelf having new program installed or see `TID` in response above.

14. Enter the command **`ins-prog:`***`tid`*

    Where tid = the target identifier (shelf name) for the DDM-2000 shelf having the new program installed.

    Response: `/* Testing For Program Installation... */`

    After several seconds, the PC prints a `Caution!` message followed by the prompt:

    `Execute? y/n =.`

15. Was response correct?

    If **YES**, then continue with **Step 16**.
    If **NO**, then do **Trouble Clearing: TAP-116**.

16. Enter a *`y`* or *`yes`* and a carriage return to execute the program. Software download may take up to 45 minutes.

    Response: **ABN** LED lights on User Panel and a **P** is displayed in **SYSCTL FE ID** display in the shelf receiving the program. PC starts download and prints the following message:

    ```
    Searching for optimal transfer rate.
    Handshake established at <baudrate> baud.
    ```

    `In progress . . . .`

    The dots continue to print until program installation is complete. If floppy disks are being used, insert each diskette when prompted. After installation is completed, the PC prints the following completion message:

    ```
    ins-prog:TID COMPLD
    /* Generic a.b.c is installed */
    ```

17. Was response correct?

    If **YES**, then continue with **Step 18**.
    If **NO**, then do **Trouble Clearing: TAP-116**.

18. Did the letter "**C**" appear in the **FE ID** display?

    If **NO**, then proceed to **Step 33**.
    If **YES**, then proceed to **Step 23**.

Letter "d" or "P." in FE ID Display

19. ⚠ **CAUTION:**
    If PC hard drive is being used, ensure you are in the correct directory. If floppies are being used, ensure the first (number 1) diskette is installed in floppy drive. Ensure PC is connected to the front CIT (CIT-1) connector.

Enter **`term`** or **`term COM`***n* command, where *n* = 1 or 2. If **`term`** is entered without the **`COM`***n* option, then **COM1** will be selected by default. Disregard message "`Can't find script <init>`" if you see it after starting the terminal emulator.

Response: Two brief messages are printed and you are instructed to `Press any key to continue . . .` after the second message. After you press any key, the terminal emulator is loaded and the terminal responds as follows:

```
Interface ready. (Type Alt-h for help.)
Communications established.
```

20. Unplug and reseat the **SYSCTL** and immediately push and hold the **FE SEL** and **UPD/INIT** buttons at the same time until a **P** appears in the **FE ID** display (takes approximately 15 seconds). The software download automatically begins and may take up to 45 minutes.

    Response: PC starts download and prints the following message:

    ```
    Searching for optimal transfer rate.
    Handshake established at <baudrate> baud.

    In progress . . . .
    ```

    The dots continue to print until program installation is complete. If using the floppy disks, insert each diskette when prompted. After installation is completed, the PC prints the following completion message:

    ```
    ins-prog:TID COMPLD
    /* Generic a.b.c is installed */
    ```

    The **SYSCTL** resets and the terminal is logged off the system.

21. Was response correct?

    If **YES**, then continue with **Step 22**.
    If **NO**, then proceed to **Step 27**.

22. Did the letter "**C**" appear in the **FE ID** display?

    If **NO**, then proceed to **Step 33**.
    If **YES**, then continue with **Step 23**.

Letter "C" in FE ID display

23. **CAUTION:**
If the system is in service and is forced to run the current software that is displaying a **C***, service interruption may result.*

NOTE:
Indications are that there may be a problem with the version of software you are installing or you are trying to install a version of software that will not support the current shelf provisioning. If you are downloading an older version of software or upgrading to a new version of software which has major changes or is incompatible with the version that you have, this indication will occur (See Table A). You can *force* the system to run the current software or back out of this procedure by loading another version of software.

You must decide if you want the system to run this current version of software that has been loaded or if you want to download another version (original version or new version) of software.

Do you want to run the current version of software in the **SYSCTL**?

If **NO**, then continue with **Step 24**.
If **YES**, then proceed to **Step 25**.

24. Exit TERM (Alt-F2). Find new version of software and repeat this procedure from Step 19.

25. To *force* the system to run the current software, perform the following:
    a. Ensure that a **TGS/TG3** circuit pack is installed in **TIMING** slot **2**.
    b. Remove the **TGS/TG3** circuit pack in **TIMING** slot **1**.
    c. Reset (unplug and reseat) the **SYSCTL** to force it to run the current software.
    d. After the current software is up and running (no alarm LEDs lighted or you can log into the shelf), reinstall the **TGS/TG3** circuit pack in **TIMING** slot **1**.

26. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

27. Did the download start as indicated by the `In progress` message and rows of dots?

    If **NO**, then continue with **Step 28**.
    If **YES**, then proceed to **Step 30**.

28. Perform the following:

    A. Check that the DDM-2000 is connected to the PC through the **COM** port. If it is not, reconnect the PC to DDM-2000 using the **COM** port and repeat this procedure.

    B. Ensure first (number 1) disk of program being installed is inserted, if using floppies.

    C. Ensure diskette is inserted in correct drive.

    D. Ensure the proper command was used to go to the drive with the diskette or to the proper directory containing the software.

    E. Check for invalid COM port. Exit TERM (Alt-F2), then restart TERM using **term COM1** or **term COM2**.

    F. If the download still does not start, as indicated by the `In progress` message and rows of dots, within 2 minutes after the **P** appears in the **FE ID** display, change the baud rate as follows and repeat this procedure: if the baud rate is currently set to 9600, change it to 4800 or if the baud rate is currently set to 4800, change it to 9600. The baud rate is changed by:

        1. Momentarily depress the "Alt C" keys.

        2. Use the RETURN key to move to the "Speed" field.

        3. Press the "Space" bar until the desired rate appears.

        4. Momentarily depress the "Escape/Esc" key to activate the new baud rate.

    G. If the download still does not start, refer to **Trouble Clearing: TAP-116**.

29. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

30. If the download *starts and fails* during its progress, exit term (Alt-F2) and then restart a new term session.

31. Unplug and reseat the **SYSCTL** and immediately push and hold the **FE SEL** and **UPD/INIT** buttons at the same time until a **P** appears in the **FE ID** display (takes approximately 15 seconds).

    If the download still does not complete, refer to **Trouble Clearing: TAP-116**.

32. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

33. Use the **`rtrv-alm`** command to display alarm and status information.

34. Does status message "`dormant/exec code mismatch`" appear in the report for this shelf?

    If **NO**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
    If **YES**, then continue with **Step 35**.

35. ⇒ **NOTE:**
    The software you downloaded has been loaded as a dormant copy in this shelf. The original software is still the executing software. The "**`apply`**" command must be used at this shelf to install the dormant copy of software as an executing copy. When the "**`apply`**" command is executed during an upgrade from Release 9.1, there is 30-minute delay before the dormant copy installation begins.

    When the "**`apply`**" command is executed during an upgrade from Release 11.0, if you do not specify a "**`time`**" and "**`date`**" parameter, there is a default 15-minute delay before the dormant copy installation begins. Once the installation begins, the dormant copy is installed in approximately 10 minutes.

    See the "Commands and Reports" section of Volume 1 of this manual for a description of the "**`apply`**" command. The "**`apply`**" command allows you to coordinate the software download across the network.

Are you going to use the **`apply`** command at this time to install the dormant version of software?

If **YES**, then continue with **Step 36**.
If **NO**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

36. Execute the **`apply`** command at the shelf to receive the software.

    Response: A "**P**" appears in the **FE ID** display when the installation begins.
    The **SYSCTL** resets after the software is installed.
    LEDs and **FE ID** display go off on **SYSCTL** and User Panel.
    You are logged off the system.
    After approximately 5 minutes you can log back into the shelf and reestablish communications.

37. Was response correct?

    If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
    If **NO**, then continue with **Step 38**.

38. Did the letter "**C**" appear in the **FE ID** display?

    If **NO**, then do **Trouble Clearing: TAP-116**.
    If **YES**, then proceed to **Step 23**.

Install Software Generic Program - New Shelf Installation Only BBG8/BBG8B SYSCTL and BBG9 OHCTL Installed

1. **NOTE 1:**
This procedure is used to install a software program in a new DDM-2000 OC-3 shelf equipped only with the **BBG8/BBG8B SYSCTL** and **BBG9 OHCTL** controller circuit packs. The circuit packs may be new from the factory or circuit packs used previously that may be loaded with software. For procedures to download software locally to a fully equipped in-service shelf, see **DLP-532**. For procedures to download software remotely to a fully equipped in-service shelf, see **DLP-562**.

NOTE 2:
It is assumed that the **BBG9 OHCTL** and **BBG8/BBG8B SYSCTL** circuit packs have been installed per **DLP-500** and **DLP-549**.

NOTE 3:
If you are using a PC operating in a *Windows** environment, you must **exit** *Windows* and restart your PC in *MS-DOS*† mode before performing these download procedures. For example, if your PC is running *Windows 95* you must exit *Windows* by clicking on the **Start** button, then **Shut Down**, then **Restart the computer in** *MS-DOS* **mode**.

Obtain equipment, check software, and connect PC for download.

Reference: **DLP-566**

---

* Windows is a registered trademark of Microsoft Corporation.

† MS-DOS is a registered trademark of Microsoft Corporation.

2. Observe one of the following indications on the **FE ID** display. Note the indication and follow the suggested procedure.

   A. **Letter "P" in FE ID Display**

   Indicates no software installed in **SYSCTL**. Software must be downloaded locally using these procedures.

   Continue with **Step 3.**

   B. **Letter "P." in FE ID Display**

   Letter "**P**" followed by a period (**P.**) indicates a previous download attempt has failed. New software must be downloaded locally using these procedures.

   Proceed to **Step 6.**

   C. **FE ID Display Blank:**

   Indicates compatible software is installed in **OHCTL** and **SYSCTL**. This procedure assumes the installed software version is not the correct version. (Version is displayed on the **FE ID** display when the **ACO** button is depressed for longer than 2 seconds.)

   Proceed to **Step 6.**

   D. **Letter "d" in FE ID Display:**

   Indicates **OHCTL** has no software or that software in **OHCTL** and **SYSCTL** is incompatible.

   Proceed to **Step 6.**

E. **Letter "U" in FE ID Display:**

Indicates **SYSCTL** Switch **S1** is not set properly for type of shelf being equipped.

Remove **SYSCTL**. Repeat procedures of **DLP-549** to correct switch settings and to install **SYSCTL**.

F. **Letter "E" in FE ID Display:**

Indicates **SYSCTL** must be replaced.

Get replacement **SYSCTL** and repeat procedures of **DLP-549**.

G. **Letter "F" in FE ID Display:**

Indicates **SYSCTL** faceplate latch is not fully latched.

Unplug **SYSCTL** and repeat procedures of **DLP-549**. Ensure you properly latch the faceplate when installing **SYSCTL**.

H. **Flashing Letter "L" in FE ID Display:**

Indicates a low voltage condition (brownout) on the shelf.

Clear trouble using **Trouble Clearing: TAP-121**.

Letter "P" in FE ID Display

3. Ensure PC is connected to the front CIT (CIT-1) connector of shelf receiving software. If floppies are being used, ensure the first (number 1) diskette is installed in floppy drive. If hard drive is being used, ensure you are in the correct directory.

4. **NOTE:**
   After the terminal emulator (**`term`**) is started, the software download automatically begins. The download may take up to 45 minutes.

   Enter **`term`** or **`term COM`***n* command, where *n* = 1 or 2. If **`term`** is entered without the **`COM`***n* option, then **COM1** will be selected by default. Disregard message "`Can't find script <init>`" if you see it after starting the terminal emulator.

   Response: Two brief messages are printed and you are instructed to `Press any key to continue . . .` after the second message. After you press any key, the terminal emulator is loaded and the terminal responds as follows within 2 minutes:

   ```
   Interface ready. (Type Alt-h for help.)
   Communications established.

   Searching for optimal transfer rate.
   Handshake established at <baudrate> baud.

   In progress . . . .
   ```

   The dots continue to print until program installation is complete. If using floppies, insert each diskette when prompted. After installation is completed, the PC prints the following completion message:

   ```
   ins-prog:TID COMPLD
   /* Generic a.b.c is installed */
   ```

   The **SYSCTL** resets and the terminal is logged off the system.

5. Was response correct?

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
   If **NO**, then proceed to **Step 10**.

Letter "d" or "P." in FE ID Display or **Display Blank**

6. Ensure PC is connected to the front CIT (CIT-1) connector of shelf receiving software. If floppies are being used, ensure the first (number 1) diskette is installed in floppy drive. If hard drive is being used, ensure you are in the correct directory.

7. Enter **`term`** or **`term COM`***n* command, where *n* = 1 or 2. If **`term`** is entered without the **`COM`***n* option, then **COM1** will be selected by default. If after starting the terminal emulator you see the message "`Can't find script <init>`", disregard it.

   Response: Two brief messages are printed and you are instructed to `Press any key to continue . . .` after the second message. After you press any key, the terminal emulator is loaded and the terminal responds as follows:

   ```
   Interface ready. (Type Alt-h for help.)
   Communications established.
   ```

8. Unplug and reseat the **SYSCTL** and immediately push and hold the **FE SEL** and **UPD/INIT** buttons at the same time until a **P** appears in the **FE ID** display (approximately 15 seconds). Software download may take up to 45 minutes.

   Response: PC starts download and prints the following message:

   ```
   Searching for optimal transfer rate.
   Handshake established at <baudrate> baud.

   In progress . . . .
   ```

   The dots continue to print until program installation is complete. If using the floppy disks, insert each diskette when prompted. After installation is completed, the PC prints the following completion message:

   ```
   ins-prog:TID COMPLD
   /* Generic a.b.c is installed */
   ```

   The **SYSCTL** resets and the terminal is logged off the system. After approximately three minutes, you can log into the system.

9. Was response correct?

   If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
   If **NO**, then continue with **Step 10**.

10. Did the download start as indicated by the `In progress` message and rows of dots?

    If **NO**, then continue with **Step 11**.
    If **YES**, then proceed to **Step 18**.

11. Check that the DDM-2000 is connected to the PC through the **COM** port. If it is not, reconnect the PC to DDM-2000 using the **COM** port and repeat the procedure.

    If the download still does not start, as indicated by the `In progress` message and rows of dots, within 2 minutes after the **P** appears in the **FE ID** display, change the CTRM baud rate as follows and repeat this procedure: if the baud rate is currently set to 9600, change it to 4800 or if the baud rate is currently set to 4800, change it to 9600. The baud rate is changed by:

    1. Momentarily depress the "Alt C" keys.
    2. Use the RETURN key to move to the "Speed" field.
    3. Press the "Space" bar until the desired rate appears.
    4. Momentarily depress the "Escape/Esc" key to activate the new baud rate.

12. Ensure first (number 1) disk of program being installed is inserted, if using floppies.

13. Ensure diskette is inserted in correct drive.

14. Ensure the proper command was used to go to the drive with the diskette or to the proper directory containing the software.

15. Check for invalid COM port. Exit TERM (Alt-F2), then restart TERM using **term COM1** or **term COM2**.

16. If the download still does not start, refer to **Trouble Clearing: TAP-116**.

17. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

18. If the download *starts and fails* during its progress, exit TERM (Alt-F2), unplug and reseat the **SYSCTL** and immediately push and hold the **FE SEL** and **UPD/INIT** buttons at the same time until a **P** appears in the **FE ID** display (approximately 15 seconds). Repeat this procedure from **Step 3**.

    If the download still does not complete, refer to **Trouble Clearing: TAP-116**.

19. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

Install New Software Generic Program
In-Service System
Remote Shelf Download

1. Before beginning the software installation, refer to the "Software Installation and Upgrade Procedure" section of the Software Release Description. This section contains a description of any special considerations required when installing this version of software.

2. **NOTE 1:**
   This procedure uses the **cpy-prog** or **ins-prog** commands to install a new software program in a remote in-service DDM-2000 OC-3 shelf. It is assumed that the local shelf has already been upgraded and the software is running normally or has been installed as a dormant copy. For procedures to download software in a new shelf (initial installation), see **DLP-561**. For procedures to download software locally to a shelf, see **DLP-532**.

   NOTE 2:
   If upgrading from earlier software releases to TARP Release 13.0, after the first shelf is upgraded, single-ended operations will not be available and major alarms (`section DCC channel failed`) will exist until all shelves are upgraded. The node farthest away should be upgraded first, working back to the local node. See 824-102-144, *Lucent Technologies 2000 Product Family, Multi-Vendor Operations Interworking Guide*, for guidelines in subnetwork upgrade procedures.

   Verify that no DCC failures or transmission failures (OC-3 LOS, flashing **OLIU FAULT** LEDs, etc.) are present on the network element or system receiving the program.

3. Use **`rtrv-fecom`**/**`set-fecom`** command to verify/enable far-end communications (fecom).

4. ⚠ **CAUTION:**
TIMING *slot* **2** *should always be equipped with a* **TGS/TG3** *circuit pack and be active prior to software download. To clear a "***C***" condition from the* **SYSCTL FE ID** *display, procedures will require removal of the* **TGS/TG3** *circuit pack from* **TIMING** *slot* **1** *to force the system to run the new software. See Table A.*

Table A. DDM-2000 OC-3 Inservice Software Upgrade Compatibility (Note)

	Upgrade to*
Current Release	**13.0**
7.1.n (Ring)	C†
7.2.n (Ring)	C†
8.0.n (Linear)	C†
8.1.n (Linear)	C†
9.0.n (Ring)	U†
9.1.n (Ring)	X†
11.0.n (Ring)	X†
13.0.n (Ring)	X

Note: All DDM-2000 OC-3 shelves in a subnetwork should be using TARP Release 13.0 software.

***** When doing an upgrade, it is recommended that the latest point release of software be used, if possible.

U Requires local software download only to upgrade the system.

X Requires local or remote software download only to upgrade the system.

C Requires an upgrade procedure with on-site equipment/fiber changes as well as software download to upgrade the system. Additional changes to software and equipment provisioning may be needed to use features of the new release.

† Incompatible OSI stack requires special considerations. See 824-102-144, *Lucent Technologies 2000 Product Family, Multi-Vendor Operations, Interworking Guide,* Issue 1, for special considerations.

NOTE 1:
If a linear shelf is in the STS3c mode (**concat** mode enabled by the **set-oc3** command) and a different software generic that does not have the STS3c feature is loaded, the **OLIU**s will stay in the **concat** mode until they are removed and reseated.

NOTE 2:
When the "**ins-prog**" or "**cpy-prog**" command is used for software upgrades from Release 9.1 or later, the software is loaded as a dormant copy in the **SYSCTL** receiving the software. At the end of the download, the **rtrv-alm** report will show a status message of "*dormant/exec code mismatch*". The **apply** command must be used to overwrite the original executing copy of software with the new dormant software version. See the "Commands and Reports" section in Volume 1 of this manual for a description of the TARP Release 13.0 "**apply**" command.

Before performing this procedure, ensure that both **TGS/TG3** circuit packs are installed in the shelf receiving the program, then use the **switch-sync:s=circuitpack,pri=manual** command to switch to the protection **TGS/TG3** circuit pack in **TIMING** slot **2**, if not already **ACTIVE**. Use **rtrv-sync:** command to verify that the protection **TGS/TG3** circuit pack in **TIMING** slot **2** is **ACTIVE**.

5. **NOTE 1:**
If you want to load new software to a remote shelf (if allowed) directly **from a PC**, use the **ins-prog:***tid* command where the TID entered is that of the remote shelf where you want to install the new software. After using the **ins-prog:***tid* command to download software to one shelf, you must exit **term** (Alt F2) and re-execute **term** before starting a second **ins-prog:** command. If **term** is not exited, it will stop running if a second **ins-prog:** is started within the same **term** session. The PC will not respond or return any message and the **ins-prog:** will not progress.

NOTE 2:
If remote software downloading is allowed and you want to load new software to a remote site via the DCC **from a local shelf** which already contains the new software, log in (either locally or remotely) to the shelf containing the new software, and then enter the **`cpy-prog:`***`tid`* command (where *`tid`* = the tid of the shelf in which you want to install the software). [The tid is the name given to a shelf (network element) using the **`set-ne:`** command.] The **`cpy-prog:`***`tid`* command will only copy software from a local controller to a remote controller; it is not used to download software from a PC.

NOTE 3:
The download time will be longer (even without excessive DCC traffic) when there are additional spans between the source and target network elements. To minimize the download time and reduce DCC traffic, it is recommended that multi-span software downloading be avoided by remotely logging into the nearest shelf of the same type and remotely downloading the new program from that shelf.

NOTE 4:
When upgrading from releases without synchronization messaging to releases with this feature, it is suggested to upgrade first the shelves which are provisioned for "external timed" or "external mult" timed. This is to prevent timing "holdover" conditions at nodes that derive timing from the OC-3 line.

NOTE 5:
If you are using a PC operating in a *Windows** environment, you must **exit** *Windows* and restart your PC in *MS-DOS*† mode before performing these download procedures. For example, if your PC is running *Windows 95* you must exit *Windows* by clicking on the **Start** button, then **Shut Down**, then **Restart the computer in** *MS-DOS* **mode**.

Obtain equipment, check software, and connect PC for download.

Reference: **DLP-566**

---

* Windows is a registered Trademark of Microsoft Corporation

† MS-DOS is a registered Trademark of Microsoft Corporation

6. Are you using **ins-prog** or **cpy-prog** command to download software to far-end shelf?

   If **CPY-PROG**, then continue with **Step 7**.
   If **INS-PROG**, then proceed to **Step 14**.

7. **CAUTION:**
   Only one **`cpy-prog`** *procedure at a time should be performed in the same maintenance subnetwork. Simultaneous* **`cpy-prog`** *procedures in the same network may fail.*

   Connect and establish session with local shelf being used as a source for the new remote program download.

   Reference: **DLP-521**

8. Enter the command **`cpy-prog:`***`tid`*

   Where tid = the target identifier (shelf name) for the remote DDM-2000 shelf receiving the new program.

   Response: `/* Testing For Program Installation... */`

   After several seconds, the PC prints a `Caution!` message followed by the prompt:

   `Execute? y/n =`.

9. Was response correct?

   If **YES**, then continue with **Step 10**.
   If **NO**, then do **Trouble Clearing: TAP-116**.

10. Enter a *y* or *yes* and a carriage return to execute the program. Software download may take up to 20 minutes.

    Response: **ABN** LED lights on User Panel. A "**P.**" is displayed in **SYSCTL FE ID** display in the far-end shelf receiving the program (for uncompressed executing copy download, not if dormant copy is being loaded). At DDM-2000 shelves connected directly to the shelf receiving the program, **MJ** and **NE ACTY** LEDs light on User Panel and **FAULT** LED flashes on **OHCTL**. At other shelves in the same control system, **MJ** and **FE ACTY** LEDs light on User Panel. Download begins and the following message is displayed:

    ```
    In progress . . . .
    ```

    The dots continue to print until program installation is complete. After installation is completed, the PC prints the following completion message:

    ```
    ins-prog:TID COMPLD
    /* Generic a.b.c is installed */
    ```

    The LEDs go off on the User Panel and **SYSCTL**.

11. Was response correct?

    If **YES**, then proceed to **Step 27**.
    If **NO**, then continue with **Step 12**.

12. Wait approximately 10 minutes for network to stabilize then repeat this procedure from Step 7. If the second attempt to download software fails, then do **Trouble Clearing: TAP-116**. You may have to go to the remote site.

13. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

14. **NOTE:**
The **FE ID** display on the remote **SYSCTL** must show one of the following preceding software installation. Other conditions represent failure conditions or conditions that will not allow a remote software download.

A. The letter (**P.**) displayed in the **FE ID** display indicates that a previous software download has failed and you may be able to download software from another shelf, or locally. Try again to download software from same shelf. If there is no period after the (**P**), the software can only be downloaded locally using the procedures of **DLP-532**.

B. Nothing displayed in the **FE ID** display indicates that compatible software is installed in the **OHCTL** and **SYSCTL** and you may download software remotely if remote software downloading is permitted for this release.

Ensure PC is connected to the front CIT (CIT-1). If floppies are being used, ensure the first (number 1) diskette is installed in floppy drive. If hard drive is being used, ensure you are in the correct directory.

15. Enter **`term`** or **`term COM`***n* command, where *n* = 1 or 2. If **`term`** is entered without the **`COM`***n* option, then **COM1** will be selected by default. If after starting the terminal emulator you see the message "`Can't find script <init>`", disregard it.

Response: Two brief messages are printed and you are instructed to `Press any key to continue . . .` after the second message. After you press any key, the terminal emulator is loaded and the terminal responds as follows:

```
Interface ready. (Type Alt-h for help.)
Communications established.
```

16. **NOTE:**
The default shelf is the shelf physically connected to the PC. To set baud rate automatically, enter two carriage returns (**<cr>**), two lower case "a"s (**aa**), or two upper case "A"s (**AA**). All other characters are ignored.

Enter two carriage returns.

Response: PC prompts with:

```
/* Enter a shelf number from 1 to 8 */
shelf [default] =
```

17. Was response correct?

If **YES**, then proceed to **Step 19**.
If **NO**, then continue with **Step 18**.

18. Check PC to **CIT** port connections. Make sure the cable is connected between the PC **COM( )** port and the **CIT** connector on the DDM-2000. If the rear **CIT** connector is being used on the DDM-2000, make sure a null modem is installed on the port. Check term setup and make sure the **com** port selected matches the port (**COM( )**) on the PC that is connected to the **CIT** port on the shelf. If CIT bay mult cabling is connected to this shelf verify that it is terminated.

Exit term (Alt-F2) and repeat this procedure from Step 14.

19. Enter the shelf number for the local shelf being used for new program download.

    Response: PC responds with:

```
login<
password<

    /***********************************
    *                                  *
    *                                  *
    *         Lucent Technologies      *
    *      DDM-2000 OC-3 Multiplexer   *
    *                                  *
    *           Release a.b.c          *
    *                                  *
    ***********************************/

                    .
                    .
                    .

    TID date time
 M  rtrv-alm: all COMPLD
    /* Active Alarms and Status Report
```

20. **NOTE:**
    After the system prompt (<), the system will respond normally to commands entered. The Commands and Reports section of this manual gives a description of the commands.

    Use **`rtrv-map-network`** command to retrieve the name (*tid*) of the remote shelf having new program installed.

21. Enter the command **`ins-prog:`***`tid`*

    Where tid = the target identifier (shelf name) for the far-end DDM-2000 shelf having the new program installed.

    Response: `/* Testing For Program Installation... */`

    After several seconds, the PC prints a `Caution!` message followed by the prompt:

    `Execute? y/n =`.

22. Was response correct?

    If **YES**, then continue with **Step 23**.
    If **NO**, then do **Trouble Clearing: TAP-116**.

23. Enter a *y* or *yes* and a carriage return to execute the program. Software download may take up to 45 minutes.

    Response: **ABN** LED lights on User Panel. A "**P.**" is displayed in **SYSCTL FE ID** display in the far-end shelf receiving the program (for uncompressed executing copy download, not if dormant copy is being loaded). PC starts download and prints the following message:

    ```
    Searching for optimal transfer rate.
    Handshake established at <baudrate> baud.
    ```

    ```
    In progress . . . .
    ```

    The dots continue to print until program installation is complete. If floppy disks are being used, insert each diskette when prompted. After installation is completed, the PC prints the following completion message:

    ```
    ins-prog:TID COMPLD
    /* Generic a.b.c is installed */
    ```

    The **SYSCTL** resets, and the terminal is logged off the system. The LEDs go off on the User Panel and **SYSCTL**.

24. Was response correct?

    If **YES**, then proceed to **Step 27**.
    If **NO**, then continue with **Step 25**.

25. Wait approximately 10 minutes for the network to stabilize, exit **`term`**, then repeat this procedure from **Step 14**. If the second attempt to download software fails, do **Trouble Clearing: TAP-116**. You may have to go to the remote site.

26. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

27. Wait approximately 5 minutes then verify communications can be reestablished with far-end shelf using **`rtrv-map-network`** command. Verify that *`Comm. Status`* is good (not *`FAILED`*) as indicated by a blank in the report.

28. Is communication status good between local and remote shelf?

    If **YES**, then proceed to **Step 31**.
    If **NO**, then continue with **Step 29**.

29. Dispatch technician to remote site and perform local software download procedures.

    Reference: **DLP-532**

30. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

31. Use **`rlgn:`*`tid`*** command to remotely login to far-end shelf.

    Reference: **DLP-522**

32. **NOTE:**
    If a dormant copy was loaded into the far-end shelf and its release version is different than the currently executing version, a status alarm message of "*`dormant/exec code mismatch`*" will appear in the **`rtrv-alm`** report.

    Use **`rtrv-alm`** command at far-end shelf to check for alarm status message of "*`dormant/exec code mismatch`*".

33. Does alarm report indicate "*`dormant/exec code mismatch`*"?

    If **YES**, then continue with **Step 34**.
    If **NO**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

34. **NOTE:**
The software you downloaded has been loaded as a dormant copy in this shelf. The original software is still the executing software. The "**apply**" command must be used at this shelf to install the dormant copy of software as an executing copy. When the "**apply**" command is executed during an upgrade from Release 9.1, there is 30-minute delay before the dormant copy installation begins.

When the "**apply**" command is executed during an upgrade from Release 11.0, if you do not specify a "**time**" and "**date**" parameter, there is a default 15-minute delay before the dormant copy installation begins. Once the installation begins, the dormant copy is installed in approximately 10 minutes.

See the "Commands and Reports" section of Volume 1 of this manual for a description of the "**apply**" command. The "**apply**" command allows you to coordinate the software download across the network.

Are you going to use the **apply** command at this time to load dormant version of software?

If **YES**, then continue with **Step 35**.
If **NO**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

35. Use the **`rlgn:`*`tid`*** command to login again to the remote shelf, then execute the **`apply`** command.

    Response: At the local shelf, a "**P**" appears in the **FE ID** display when the installation begins.
    The **SYSCTL** resets after the software is installed.
    LEDs and **FE ID** display go off on **SYSCTL** and User Panel.
    The remote login session is terminated.
    After approximately 10 minutes, you can remote login again to the remote shelf.

36. Was response correct?

    If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
    If **NO**, then continue with **Step 37**.

37. Dispatch technician to remote site to perform trouble clearing procedures and/or install software locally using the procedures of **DLP-532**.

38. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

Obtain Equipment, Check Software, Prepare and Connect PC for Software Download

1. Obtain the following equipment:
   (1) IBM* compatible personal computer (PC) running an *MS-DOS*† computer program operating system, Release 2.1 or later.

   (2) RS-232 cable to connect PC **COM** port to User panel **CIT** port.

   NOTE:
   The PC may be connected to either the front or rear CIT port, or remotely through a dial-up modem. If connected to the rear **CIT** port, a null modem is required between the RS-232 cable and the rear **CIT** port.

   (3) Working copies of the new system generic program diskette(s).

   (4) Software Release Description for software being installed.

---

* IBM is a registered trademark of International Business Machines Corporation.

† MS-DOS is a registered trademark of Microsoft Corporation.

2. Before beginning the software installation procedure, the following is strongly suggested:
   a. Become familiar with the characteristics and operating procedures of your PC and the *MS-DOS* operating system.

      Reference: **DLP-533**

   b. Operate laptop PCs on AC power during download procedures.

   c. Follow proper procedures in handling the diskette(s) (floppies).

      Reference: **DLP-533**

   d. Make working copies and backup copies of the original new generic program diskettes.

      Reference: **DLP-534**

   e. **Read the Software Release Description for software being installed.**

3. Before beginning the software installation, refer to the Software Release Description for the software being installed for a description of any special considerations required when installing this version of the software.

4. ⇒ **NOTE:**
   If you are using a PC operating in a *Windows*‡ environment, you must **exit** *Windows* and restart your PC in *MS-DOS* mode before performing these download procedures. For example, if your PC is running *Windows 95* you must exit *Windows* by clicking on the **Start** button, then **Shut Down**, then **Restart the computer in** *MS-DOS* **mode**.

   Start *MS-DOS* operating system on the PC [**DLP-534**].

   Response: PC displays the prompt (for example, `C>`, `C:\DOS>`) determined by the PC.

‡ Windows is a registered trademark of Microsoft Corporation.

5. If you are going to use the PC hard disk to load software to the shelf, **copy** all files on the source diskettes(s) (floppies) to a directory on the hard disk (for example, GEN_1301 for generic version 13.0.1).

6. If you are going to load the software from the hard disk, use the **cd** command to change to the appropriate hard drive directory containing the software.

   If you are going to load the software from the floppies, use the appropriate *MS-DOS* command (for example, **a:** or **b:**) to go to the drive where the floppy disk will be installed.

   Response: PC displays the appropriate prompt (A>, B>, C>, C:\DOS>, etc.) determined by the PC.

   Comment: If you are using floppies and get a disk error message, verify the drive latch is locked and that you have the proper diskette installed in the drive.

7. ⇒ **NOTE:**
   The new generic program may be on many floppy disks. If you are using the floppy disks, the PC will prompt you to insert disks as needed after the first disk is installed.

   If you are using the floppy disks, insert the first (number 1) floppy disk into the PC drive.

8. ⇒ **NOTE:**
The **`checkpgm`** command may take up to 25 minutes to complete.

Execute the command **`checkpgm`** to check the version number of the program you are installing. If using floppy disks, insert each diskette when prompted.

approx. 15 min. if using hard drive
approx. 25 min. if using floppy drive

Response: `PC has DDM-2000 program version a.b.c`

9. ⇒ **NOTE 1:**
The shelf rear access CIT port is configured for a modem. A null modem is required to use this port with the PC.

⇒ **NOTE 2:**
The cable from the **CIT** port on the DDM-2000 must be connected to the **COM** (**COM1 or COM2**) RS-232 port of the PC. If a "**P**" or "**d**" is displayed in the **FE ID** display, the PC must be connected to the front **CIT** port.

Connect PC to **CIT** port by connecting one end of an RS-232 cable to the **COM( )** port of the PC and the other end of the cable to the front or rear DDM-2000 **CIT** port.

10. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

Upgrade DDM-2000 OC-3
Release 7.1 or 7.2 to TARP Release 13
System In Service

DO ITEMS BELOW IN ORDER LISTED . . . . FOR DETAILS, GO TO

---

1. ⚠ **CAUTION:**
DDM-2000 circuit packs contain static sensitive components which can be damaged by electrostatic discharge. A static ground wrist strap must be worn when handling the circuit packs. See electrostatic discharge considerations in **Trouble Clearing: TAD-100.**

NOTE 1:
This procedure assumes that the DDM-2000 is in service and is being upgraded from Release 7.1 or 7.2 software to TARP Release 13. TARP Release 13 or later software requires that a new **BBG8/BBG8B SYSCTL** and a **BBG9 OHCTL** be installed in the shelf. This procedure must be performed locally at all shelves in the same control network.

NOTE 2:
If the DDM-2000 fails to respond in the indicated manner, refer to **Trouble Clearing: IXL-001**.

Use the **`rtrv-alm`** command to verify that no alarms, locks, loops, or switches are present.

---

2. Notify maintenance center that alarms will be generated.

DO ITEMS BELOW IN ORDER LISTED . . . . FOR DETAILS, GO TO

3. **CAUTION:**
Both **TGS/TG3** circuit packs must be installed before performing this procedure. During this procedure, downloading TARP Release 13 software to a shelf running OC-3 Release 7.x requires you to remove the **TGS/TG3** circuit pack in **TIMING** slot **1** in order to "force" the system to run the new software. If both **TGS/TG3** circuit packs are not installed, removal of the only **TGS/TG3** circuit pack will cause service interruption.

NOTE 1:
If upgrading from a Release 7.1 system to a TARP Release 13 system, after the first shelf is upgraded, single ended operations will not be available and major alarms (section DCC channel failed) will exist until all shelves are upgraded.

NOTE 2:
This procedure will not affect transmission when properly performed.

Before performing this procedure on an in-service system, ensure that both **TGS/TG3** circuit packs are installed in the shelf and use the **`switch-sync:s=circuitpack,pri=manual`** command to switch to the protection **TGS/TG3-2** circuit pack if not already **ACTIVE**. Use **`rtrv-sync:`** command to verify that the **TGS/TG3-2** circuit pack is **ACTIVE**.

DO ITEMS BELOW IN ORDER LISTED . . . . FOR DETAILS, GO TO

4. From system records, work orders, or the retrieve [RTRV-( )] commands, retrieve all parameters that might have been set using the SET commands [**DLP-512**]. See the "Commands and Reports" section of this manual for a description of the **`rtrv-( )`** commands. Note all the parameters that are set using the **`set-ne`** and **`set-fecom`** commands. These parameters may have to be reset when the controllers are replaced and the new software is installed.

5. If upgrading from Release 7.1 to TARP Release 13, use the **`set-ne:gne=no`** command to discontinue the GNE shelf in the R7.1 ring.

DO ITEMS BELOW IN ORDER LISTED . . . . FOR DETAILS, GO TO

6. ⚠ **CAUTION:**
Removing the **BBG5 SYSCTL** *without performing a 10-second countdown sequence on the* **FE ID** *display (see* **Note***) may result in unexpected and undesirable protection switches, incorrect circuit pack fault indications, or incoming signal failure indications.*

⇶ **NOTE:**
Before removing the **SYSCTL**, you must momentarily depress the **ACO** pushbutton on the User Panel and the **FE SEL** pushbutton on the **SYSCTL** at the same time to start a 10-second countdown on the **FE ID** display (9, 8, 7, etc.). During this countdown, the **SYSCTL** may be safely removed. If the **SYSCTL** is failed, the countdown may not occur.

Remove **BBG5 SYSCTL** circuit pack.

7. Remove **BBG7 OHCTL** circuit pack.

8. Install **BBG9 OHCTL**. **DLP-500**

9. ⇶ **NOTE 1:**
If upgrading from Release 7.1 to TARP Release 13 (all shelves), after the software download is successfully completed, the **FAULT** LED on the **OHCTL** will flash and the **MJ** LED will be lighted until the other end is upgraded.

DO ITEMS BELOW IN ORDER LISTED . . . . FOR DETAILS, GO TO

NOTE 2:
Users who receive software upgrades or new **SYSCTL** circuit packs from the factory may find that a new default login (LUC01, LUC02, or LUC03) is needed to allow access into the system. If none of the new default logins permits access to the system, the user should try one of the old default logins (ATT01, ATT02, ATT03). The default password is DDM-2000.

Install new **BBG8/BBG8B SYSCTL**. **DLP-501**

10. **NOTE:**
Parameters that were previously set by switches on the **BBG7 OHCTL** and **BBG5 SYSCTL** are set by software commands on the new **BBG9 OHCTL** and **BBG8/BBG8B SYSCTL** controllers: **`TID, Shelf, CO/RT, Network Side/User Side (NS/US) parameters`**.

Use the **`set-ne`** and **`set-fecom`** commands to set these parameters on the new controllers: **`TID, Shelf, CO/RT, Network Side/User Side (NS/US)`**. If other parameters have to be reset from default during this upgrade, use the Commands and Reports section of this manual for a description of the **`set-`** commands.

11. Repeat this procedure from Step 2 for all shelves being upgraded, if not already performed.

Identification and Correction for DDM-2000 Controller Circuit Pack Corrupted Flash Memory Condition

CCN Number: CCN N81076 MV

General

Description

This Engineering Change Procedure (ECP) provides instructions for testing DDM-2000 OC-3, OC-12, and FiberReach Wideband shelves to determine if the controllers' boot flash devices have either, corrupted memory locations, or have the potential to develop corrupted memory locations. This condition may develop over time and, in shelves running certain software generics, can result in the loss of controller functionality in the event of a software reboot.

Only DDM-2000 BBG8 System Controller (SYSCTL), BBG9 Overhead Controller (OHCTL) and BCP4 OHCTL circuit packs manufactured in June 1997 or earlier **and** running the following software generics are susceptible to developing this condition:

OC-3 Releases 8.0.1, 8.0.2, 8.1.1, 9.0.1 through 9.0.6, and 9.1.1

OC-12 Releases 5.0.1 through 5.0.6, 5.1.1 and 5.1.2

FiberReach Releases 1.0.1 through 1.0.5, 2.0.1, 2.1.1and 2.1.2

This ECP provides instructions to eliminate this potential problem by

1. Replacing shelf controller circuit packs that are determined to have corrupted memory locations.
2. Updating the shelf to a higher software generic that will prevent the problem from occurring in controllers that do not presently have corrupted memory locations but are susceptible to developing the problem.

This procedure, when performed on a DDM-2000 OC-3 shelf, should be done in conjunction with CCN N81077 (BBG9 OHCTL) or, when performed on a DDM-2000 OC-12 shelf, should be performed in conjunction with CCN N81078 (BCP4 OHCTL).

This ECP consists of the following general steps:

1. Obtain the DDM-2000 or FiberReach shelf's operating software generic to determine if the shelf requires any of the changes provided by this CCN.
2. If the network is operating on one of the generics listed above, obtain each controller pack's date of manufacture to determine if the DDM-2000 OC-3, OC-12 or FiberReach network requires any of the changes provided by this CCN.
3. Apply the appropriate change described in this CCN if the software generic together with the controller pack manufacturing date indicate the need

Time Estimates

PHASE I	Preconditioning	See page 8	15 minutes
PHASE II	Determining if Change is Required	See page 10	5 minutes/node
PHASE III	Determining Condition of Controllers	See page 13	5 minutes/node
PHASE IV	Software Upgrade and Controller Pack Replacement	See page 15	55 minutes/node
PHASE V	Alarm Monitoring	See page 17	5 minutes

Training Requirements

The Craftsperson performing this procedure should be familiar with the DDM-2000 network, have experience accessing individual DDM-2000 shelves within the network via the shelf User Panel Craft Interface Terminal (CIT) connector. If you have any questions regarding these requirements, contact your RTAC representative at 1-800-225-RTAC (7822)

.

Installer Information

One Craftsperson is required to implement the change in the times listed above. Familiarize yourself with each procedure and monitor the system for alarms or trouble reports for a period of 48 hours prior to implementing the change.

Technical Support

If any problems are encountered, or if any of the steps specified in this procedure cannot be completed as indicated, the next level of support should be contacted. If it becomes necessary, the installer/craftperson should contact the Lucent Technologies Regional Technical Assistance Center (RTAC) at the following phone number for assistance.

1-800-225-RTAC (7822) (24 hours a day)

Risk Assessments

Application Risk Assessment

Rating:

MEDIUM This procedure has a **MEDIUM** Application risk rating, since there is a potential for a service interruption to the end customer if any procedural deviations or procedure specific equipment failures occur during the procedure. This procedure should be performed at low traffic periods, such that the effect on service on the system would be minimal in the event of a failure during implementation of the procedure.

Additional Application Risk Assessments

Although controller circuit pack replacement is not service affecting, protection switching and alarm reporting will **not** be available while the controller pack is removed and during software download. Controller circuit pack replacement will result in loss of all history and performance monitoring data. The date and time will be lost and rediscovered from the far end or set to default. No provisioning information is lost or changed.

Service Risk Assessment

Rating:

MEDIUM This procedure has a **MEDIUM** Service risk rating since there is **NO** potential service loss if this procedure is not implemented immediately. A software reboot in a shelf containing a controller with corrupted memory **and** running one of the listed software generics will cause the controller to become inoperative with a resulting loss of protection switching and alarm

reporting. A reboot will occur if software is downloaded, a controller is reseated, or a shelf software reset command is initiated.

Materials Supplied By Lucent

CAUTION:
All tools must be insulated for this procedure.

This ECP will determine whether a DDM-2000 or FiberReach shelf requires hardware and/or software upgrading and procedures for implementing the appropriate change. The following table provides a list of material, some of which may be required as determined by the procedures in this ECP.

PART #	QTY (if required per ECP test results)	DESCRIPTION
ED8C724-41, G1, M2W, P2W	1 per OC-3 shelf	OC-3 R11.1.2 software for upgrading from R9.0.1 through 9.0.6
ED8C724-41, G1, M2V, P2V	1 per OC-3 shelf	OC-3 R11.1.2 software for upgrading from R9.1
ED8C724-39, G1, M2S, P2S	1 per OC-3 shelf	OC-3 R8.1.2 software for upgrading from R8.0.1 or 8.0.2
ED8C724-39,G1, M2T	1 per OC-3shelf	OC-3 R8.1.2 software for upgrading from R8.1.1
ED8C727-36, G1, M3W, P3W	1 per OC-12 shell	OC-12 R5.2.2 software for upgrading shelf from R5.0.1 through 5.0.6
ED8C727-36, G1, M3S, P3S	1 per OC-12 shelf	OC-12 R5.2.2 software for upgrading shelf from R5.1.1 or 5.1.2
ED8C843-34, G1, M3S, P3S	1 per FiberReach shelf	FiberReach R2.2.1 software for upgrading shelf from R2.0.1, 2.1.1, or 2.1.2

NOTE:
Refer to the associated Product Change Notice (PCN) for instructions for ordering the necessary software.

Materials Supplied By Customer

PART #	QTY	DESCRIPTION
		ESD Wrist Straps
	1	PC and RS232 cable (for DDM-2000 software download, if required)

Reference Documents

PART #	DESCRIPTION
363-206-230	DDM-2000 OC-3 Release 11.1.2 Software Release Description (if required, see note)
363-206-259	DDM-2000 OC-12 Release 5.2.2 Software Release Description (if required, see note)
363-206-329	DDM-2000 FiberReach Release 2.2.1 Software Release Description (if required, see note)
363-206-280	DDM-2000 OC-3 Multiplexer User/*S*ervice Manual
363-206-290	DDM-2000 OC-12 Multiplexer User/Service Manual
363-206-301	DDM-2000 FiberReach User/Service Manual

NOTE:
A copy of the Software Release Description documentation is provided with each set of software generic diskettes.

Precautions and Recommendations

- Coordinate the procedure with the alarm monitoring group, if applicable.
- The person(s) performing this procedure should be trained and have an understanding of the DDM-2000 system.
- All jewelry (rings, watches, etc.) should be removed before starting this procedure.
- Read each step completely before performing the action specified.
- ESD wrist straps should be worn when handling circuit packs during this procedure.
- ESD straps should be tested before starting the procedure.
- Do not enter a second command until the first command has completed. Wait for the appropriate response before continuing to the next step.
- Do not proceed if a command does not successfully complete; contact your next level of support.
- Perform the procedure in the sequence provided beginning with Step **1**.
- If any problems or service loss occur, contact your next level of support immediately. If the solution is known, have one person continue correcting the problem while the other person calls the next level of support.
- A communication line not going through the DDM-2000 (i.e. Cellular Phone, FAX, etc.) may be required while implementing this change.

Phase I - Preconditioning

Description

This section will ensure that all required materials are available.

Precautions

CAUTION:
After entering an input command into the DDM-2000 Shelf*, the installer/craft-person must wait for its associated output message response before entering another command.*

When working on the DDM-2000 *Shelf, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.*

Procedure

Use the boxes to check off the steps as they are completed.

❑	Step 1.	Contact your next level of support to verify that the procedure to be used is the current version. **CAUTION:** *If the procedure to be used is not the current version, do not continue.*
❑	Step 2.	Test all wrist straps before beginning the procedure. Use an approved wrist strap tester or an ohmmeter. Follow the directions for the wrist strap tester when using this method or if using an ohmmeter, approximately 1 Meg ohm must be measured from the banana plug to the webbing of the wrist strap. **NOTE:** Use wrist straps at all times.
❑	Step 3.	Notify the alarm monitoring system that this procedure will be implemented on the system.

❑	Step 4.	Carefully read the precautions and recommendations listed on page **7** before continuing.
❑	Step 5.	If a communication line not going through the DDM-2000 shelf is required, verify it is present and functional (i.e. phone attached and working).
❑	Step 6.	This completes the Preconditioning Phase of this procedure. Proceed to the next section “Determining if Change is Required”.

PHASE II Determining If Change is Required

Description

This section verifies the operating version of software and the date of controller manufacture.

Precautions

CAUTION:
After entering an input command into the DDM-2000 *shelf, the installer/craftperson must wait for its associated output message response before entering another command.*

When working on the DDM-2000 *shelf, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.*

Procedure

Use the boxes to check off the steps as they are completed.

❑	Step 7.	Connect a terminal or PC to the CIT connector of the DDM-2000 shelf.

❑	Step 8.	Login to the DDM-2000 or FiberReach shelf. After a successful login, the shelf will display the system header followed by the alarm and status report:
		
		`DDM-2000 OC-x Release a.b.c`
		`TID date time`
		`/* Active Alarms and Status Report */`
		`<`
		
		NOTE:
		Release a.b.c is the software release. TID is the Target Identifier of the shelf. Date and time are the current system time of the shelf.

❑ Step 9. Determine from the header the generic of the software currently operating in the shelf. The software generic at remote sites may be determined by remotely logging in to the site, using the ***rlgn-***(TID) command and observing the generic listed in the response header.

If the software generic is not one of the following list of generics, the shelf is not susceptible to the problem and no change is required. It the software generic is one of the following generics, proceed to Step 10 to check the manufacturing date of the controllers.

- OC-3 Releases 8.0.1, 8.0.2, 8.1.1, 9.0.1 thru 9.0.6, and or 9.1.1
- OC-12 Releases 5.0.1 thru 5.0.6, 5.1.1 and 5.1.2
- FiberReach Releases 1.0.1 thru 1.0.5, 2.0.1, 2.1.1and 2.1.2

❑ Step 10. Determine the manufacturing date of the SYSCTL pack, and also the OHCTL pack (in an OC-3 or OC-12 shelf) using the following command:

```
RTRV-EQPT:ALL;
```

The shelf controllers will be listed at the bottom of the equipment list response. The serial number for each controller is at the far right on the response table. The first two numbers before the letters MV in the serial number indicate the year of manufacture. The first two numbers after the letters MV in the serial number indicate the month of manufacture.

ex: 96MV05 indicates that the pack was manufactured in May of 1996.

NOTE:
For a complete listing of the normal output response, refer to the appropriate DDM-2000 Multiplexer *User/Service* manual listed in the Reference Documents table of this procedure.

❑ Step 11. Perform a remote login to each of the other shelves in the network, in turn, using the ***rlgn***-(TID) command. After logging in to the remote shelf, perform the ***rtrv-eq:all*** command and determine the manufacturing date of the controllers in each of the shelves. After determining the manufacturing dates of all controllers in the network, proceed to Step 12.

❑	Step 12.	If **any** controllers in any of the shelves in the network have manufacturing dates of 97MV06 or earlier, the software in **all** shelves in the network should be upgraded to the following release: Replace OC-3 Release 9.0.1 thru 9.0.6 or 9.1.1 software with Release 11.1.2 Replace OC-3 Release 8.0.1, 8.0.2, or 8.1.1 software with Release 8.1.2 Replace OC-12 Release 5.0.1 thru 5.0.6, 5.1.1 or 5.1.2 software with Release 5.2.2 Replace FiberReach Release 1.0.1 thru 1.0.5, 2.0.1, 2.1.1 and 2.1.2 software with Release 2.2.1
❑	Step 13.	Before upgrading software, using the procedure in Phase IV of this ECP, proceed to Step 14 to determine whether any of the shelves in the network have controllers that are in a corrupted state and need to be replaced.

PHASE III Determining Condition of Controllers

Description

The following procedure uses the ***test-sysctl*** command to test each shelf in the network that has a controller manufactured in June 1997 or earlier to determine whether a controller is currently in a corrupted state and needs to be replaced.

Performance of the ***test-sysctl*** command will not affect shelf operation. However, if the controller fails the test, the shelf will indicate a Major Alarm (SYSCTL FAIL) until the defective controller is replaced. A controller failing this test will continue to function properly as long as a shelf software reboot does not occur. A software reboot will result in the failed controller becoming inoperative.

NOTE:
In an OC-3 or OC-12 shelf, the ***test-sysctl*** response will identify which controller (SYSCTL or OHCTL) failed the test. However, the shelf alarm and history reports will indicate the failed pack as a SYSCTL.

Precautions

When working on the DDM-2000 *system, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.*

Procedure

Use the boxes to check off the steps as they are completed.

❑	Step 14.	Verify that the network is free of alarms. Any existing alarms should be cleared before performing the following steps

❑ Step 15. Perform a test of shelf controller packs by entering the following command:

test-sysctl

After completing the test, a response of pass or fail should be indicated. If a controller fails the test, the response will also indicate, on an OC-3 or OC-12 shelf, whether the failed pack is a SYSCTL or OHCTL, or both. On a FiberReach shelf, failure of the test will indicate that a SYSCTL failed.

NOTE:
In an OC-3 or OC-12 shelf, the ***test-sysctl*** response will identify which controller (SYSCTL or OHCTL) failed the test. However, the shelf alarm and history reports will indicate the failed pack as a SYSCTL.

❑ Step 16. Instructions for replacement of controllers failing this test and instructions for upgrading software in each shelf in the network will be covered in the following procedure. Proceed to Step 17.

PHASE IV Software Upgrade and Controller Pack Replacement

Description

The following procedure provides instructions for replacing controller packs, where necessary, and upgrading software in each shelf in the network.

In any shelves that were determined to have defective controllers, that controller should be replaced and the shelf upgraded with the appropriate software as described in the following procedure.

Procedure

Use the boxes to check off the steps as they are completed.

❑	Step 17.	Verify the availability of materials listed on page 5 and documents listed on page 6, if a controller or software upgrade is determined to be required as a result of the tests in this procedure. **NOTE:** Verify that all of the material is available and not damaged. If all the material and documents are not available or any equipment is missing or damaged, do not continue, contact your next level of support.
❑	Step 18.	Step-by-step instructions for downloading new software to a shelf are in TOPS procedures included as part of the Software Release Description provided with the software diskettes. Verify that the appropriate Software Release Description is available: ■ DDM-2000 OC-3 Software Release Description 363-206-230 ■ DDM-2000 OC-12 Software Release Description 363-206-259 ■ DDM-2000 FiberReach Software Release Description 363-206-329
❑	Step 19.	If the SYSCTL or OHCTL pack is to be replaced, perform the following replacement procedure. If the shelf only requires upgrading the software, proceed to Step 23.

❑ Step 20. Remove the SYSCTL or OHCTL pack from the shelf.

⚠ CAUTION:
DDM-2000 circuit packs contain static sensitive components which can be damaged by electrostatic discharge. A static ground strap must be worn when handling the shelf or the circuit packs.

NOTE:
Shelf protection switching and alarm reporting capabilities will be lost once a controller is removed from the shelf and will not restored until the new pack has been installed, new software loaded, and the shelf has rebooted.

❑ Step 21. If replacing a SYSCTL pack, verify that the switches on the new pack are set the same as those on the pack that was removed from the shelf.

❑ Step 22. Install the replacement SYSCTL and/or OHCTL pack. Its FAULT LED should light initially and then extinguish after several seconds. If both the SYSCTL and OHCTL are being replaced in an OC-3 or OC-12 shelf or a SYSCTL is being replaced in a FiberReach shelf, a **P** will appear in the window on the faceplate of the SYSCTL. If, in an OC-3 or OC-12 shelf, only one of the controllers is being replaced, a **d** will appear in the window.

❑ Step 23. Download the new generic of software to the shelf using the software download procedures provided with the Software Release Description.

NOTE:
Software may be downloaded either locally or remotely to shelves that did not require controller circuit pack replacement. Software must be downloaded locally to shelves that required controller circuit pack replacement. The software download procedures provided with the Software Release Description include instructions for both local and remote software downloads.

PHASE V Alarm Monitoring

❑	Step 24.	After all shelves in the network have been upgraded to the same software generic, verify that the system is free of alarms with the following command: `rtrv-alm;` **NOTE:** For information on clearing alarms, refer to the trouble clearing procedures in the appropriate DDM-2000 Multiplexer, User/ Service Manual.
❑	Step 25.	Notify the alarm monitoring center that this procedure has been completed on this system.
❑	Step 26.	If it was necessary to replace a BBG8, BBG9 or BCP4 controller circuit pack, return the defective circuit pack for repair. Lucent Technologies Inc. will repair and/or replace affected BBG8, BBG9 or BCP4 S1:1 packs at no expense to the customer. When using an established repair order process, contact your Lucent Technologies Inc. service representative for further information. For all other cases, return units to the address below accompanied by a Repair and Return Order form SD44-326 specifying to modify per CCN-N81076MV (for BBG8), CCN-N81077MV (for BBG9), or CCN-N81078mv (for BCP4). Shipments should be addressed to: **LUCENT TECHNOLOGIES INC.** **RS&R** **Special Upgrade per CCN N81076MV** (for BBG8) or **CCN N81077MV** (for BBG9) or **CCN N81078MV** (for BCP4) **1600 Osgood St.** **North Andover, MA 01845**
❑	Step 27.	This completes the Alarm Monitoring Phase of this procedure.

Conclusion

Signatures

This procedure was completed by:

Date:

This procedure was completed at:

Office location:

STOP! THIS COMPLETES ECP -81076 IMPLEMENTATION