

Lucent Technologies
Bell Labs Innovations



DDM-2000 OC-3 Multiplexer Software Release Description

TARP Release 15.0.3

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Contents

1. Overview	5
<hr/>	
2. Software Release 15.0.3 Features	7
<hr/>	
3. Operating Issues Resolved	20
<hr/>	
4. Operating Issues	23
<hr/>	
5. DDM-2000 Interworking	24
<hr/>	
6. DDM-2000 OC-3 Multiplexer DRI Software Compatibility	30
<hr/>	
7. Service Upgrades	31
<hr/>	
8. Implementation Procedure	32

List Of Tables

Table A. DDM-2000 OC-3 and OC-12 Software Compatibility	25
Table B. DDM-2000 OC-3 Software Compatibility	26
Table C. DDM-2000 OC-3 and TITAN 5000/S DCS Software Compatibility	27
Table D. DDM-2000 OC-3 and DDM-2000 FiberReach Software Compatibility	28
Table E. DDM-2000 OC-3 and FT-2000 OC-48 Software Compatibility	29
Table F. DDM-2000 OC-3 Multiplexer DRI Software Compatibility	30
Table G. DDM-2000 OC-3 Inservice Software Upgrade Compatibility	31

DDM-2000 OC-3 Multiplexer

Software Release Description

TARP Release 15.0.3

1. Overview

- 1.01 The purpose of this software release description (SRD) is to provide information about Software Release 15.0.3 and its interaction with the DDM-2000 OC-3 System. This practice contains the following sections:
- **Software Release 15.0.3 Features:** This section provides a description of the features provided by Release 15.0.3.
 - **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 15.0.3 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 15.0.3.
 - **Implementation Procedure:** This section provides the information required to install the DDM-2000 OC-3 System software, Release 15.0.3 with recommendations on operating the product.



NOTE:

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

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1. Overview (Continued)

- 1.02** This practice, Issue 3, provides information for DDM-2000 OC-3 Software Release 15.0.3. Information is included in the Overview (Sections 1), Software Release 15.0.3 Features (Section 2), Operating Issues Resolved (Section 3), Operating Issues (Section 4), DDM-2000 Interworking (Sections 5), DDM-2000 OC-3 Multiplexer DRI Software Compatibility (Section 6), Inservice Upgrades (Section 7), and Implementation Procedures (Section 8) sections of this practice.
- 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 15.0.3 may be resolved by contacting the Regional Technical Assistance Center in your area. Dial 1-800-225-RTAC (7822).
- 1.05** This practice is issued by Lucent Technologies Customer Training and Information Products organization.

2. Software Release 15.0.3 Features

- 2.01** DDM-2000 OC-3 Release 15.0.3 supports multi-vendor Operations Interworking (OI) and new transmission features in addition to the transmission features of Release 11.1 and 13.0.

⇒ NOTE:
DDM-2000 OC-3 Release 15.0.3 is not compatible with previous non-TARP releases of DDM-2000 OC-3, OC-12, FiberReach, and FT-2000 OC-48, thus care should be taken to avoid isolating NEs that have not yet been upgraded to a TARP compatible release when upgrading a subnetwork.

- 2.02** The features described below are for DDM-2000 OC-3 Release 15.0.3

A. Transmission

- **New OC-12 (29G-U) OLIU Circuit Pack for the OC-3 Shelf:** The new **29G-U OLIU** circuit pack provides enhanced OC-12 VT/STS path switched ring interface. The **29G-U OLIU** is allowed in the Main slots only of the DDM-2000 OC-3 shelf and can be linked with other similarly equipped (with **29-Type** or **24-Type OLIUs**) OC-3 shelves, or OC-12 shelves with Release 7.X to create an OC-12 ring.

Any of the 12 STS-1s on the OC-12 interface can be selected for STS-1 or VT cross-connections to function units or for pass-through cross-connections.

- Up to 12 STS-1s, 4 STS-3c, or 336 VT1.5s can be cross-connected as pass through on the OC-12 ring.
- Up to 7 STS-1 channels or 196 VT1.5 channels can be add-drop cross-connected on the OC-12 ring. The 196 VT1.5s can be selected from any of the 336 VT1.5s.

2. Software Release 15.0.3 Features (Continued)

- **BBF9/BBF10 IMA LAN Circuit Pack:** Starting with OC-3 Release 15.0.2, the Low Speed slots of the DDM-2000 OC-3 shelf will support the new Inverse Multiplex over ATM Local Area Network (**IMA LAN**) circuit pack. Connectors on the circuit pack faceplate provide a 10BaseT/100BaseT or 10BaseFL/100BaseFL IEEE standard 802.3 compliant LAN interface for interconnecting to a Wide Area Network (WAN).

The IEEE 802.3 MAC interface performs a bridging (layer 2) function where MAC frames not on the local segment are forwarded to the SONET network. The selected MAC frames are mapped into ATM cells using either the AAL5* multi-protocol encapsulation or VC multiplexed format. All ATM cells have single (default provisioned) VP/VC addresses. The ATM cells are round-robin distributed to DS1 channels using the ATM Forum specification for IMA†. Each DS1 is mapped into a SONET VT1.5 channels for transmission through the SONET network. In the receive direction, the circuit pack performs the reverse process to recover the MAC packets for forwarding to the 802.3 LAN.

The **IMA LAN** circuit pack occupies two adjacent low speed (DS1) slots and can use up to 8 DS1/VT1.5 channels on an OC-3 or OC-12 ring. Any available VT time slot can be assigned to the LAN interface. Up to three **IMA LAN** circuit packs can be installed in a DDM-2000 OC-3 Low Speed group (a, b or c) when the associated Function Unit is equipped with the **BBG2** or **BBG2B MXRVO**.

Other Low Speed circuit packs (**BBF1**, **BBF1B**, **BBF3**, **BBF3B**, **BBF6**) can be mixed with the **IMA LAN** circuit pack.

* IETF-RFC-1483

† AF-PHY-0086.00 Version 1.2

2. Software Release 15.0.3 Features (Continued)

New Commands: The **BBF9/BBF10 IMA** LAN circuit pack provides new CIT/TL1 commands to support the provisioning and reporting of the IMA LAN internal data.

The new commands are:

- **set-lan/ENT-LAN**: Set the **IMA** circuit pack parameters.
- **rtrv-lan/RTRV-LAN**: Reports provisioned IMA parameters.
- **rtrv-pm-lan/RTRV-PM-LAN**: Reports the IMA PM data.

The **IMA** LAN circuit pack requires the following new alarms for port state management:

lan-cp-failed

inc.-(from-fiber)-ds1-lof

inc.-(from-fiber)-ds1-ais

LAN-I/F-fail-(from cust_lan)

LAN-I/F-fail-(from fiber_lan)

LAN-I/F-fail-(from fiber_sonet)

- **BBF6 T1 Extension Circuit Pack**: Starting with OC-3 Release 15.0.2, the DDM-2000 OC-3 shelf supports the **BBF6 T1EXT** circuit pack. The **BBF6 T1EXT** circuit pack terminates two bidirectional T1 carrier signals. A shelf with **BBF6s** in every Low Speed slot of a single Low Speed group provides 14 extensions.

To provide each T1 carrier line with constant 60 mA simplex DC line power, the **BBF6 T1EXT** requires the new **BBG2B MXRVO** in the associated Function Units. Lightning protection is also required if the T1 Extension circuit pack is used for outside plant applications.

Other Low Speed circuit packs (**BBF1**, **BBF1B**, **BBF3**, **BBF3B**, **BBF9/BBF10**) can be mixed with the **BBF6 T1EXT** circuit pack. The Low Speed slot "ls-{a,b,c}-8" position is the protection slot for all other slots equipped with packs of a kind it can protect.

The **BBF6 T1 EXT** circuit pack provisioning of line code and DS1 path performance monitoring is equivalent to that provided by the **BBF3-Type DS1** circuit pack.

2. Software Release 15.0.3 Features (Continued)

- **DCC Mode Provisioning on Main:** OC-3 Release 15.0.3 allows the DDM-2000 OC-3 shelf to support “identical” DCC data link mode on the Main OC-3/OC-12 ring interface. This will allow an OC-3 shelf to interconnect through its Main ring interface to an OC-N 1+1 Low Speed interface on another NE (e.g. Function Unit of the host NE). When interconnecting with a 1+1 interface on the host NE, the user must provision the remote (hosted) OC-3 NE for “identical” DCC mode on the Main interfaces. For normal ring interconnection, the Main interface will use the “distinct” DCC mode (default).

In the distinct DCC mode, the DCC Bytes transmitted on line 1 and line 2 are different. At the far end, the DCC channels from both lines are received and processed. Provisioning of the DCC mode is through the “`set-oc3/ENT-OC3`” “`set-oc12/ENT-OC12`” command.

In the identical DCC mode, transmitted DCC messages are copied or bridged on both Main 1 and Main 2; also the K2-Bytes (S1-Bytes) are set to indicate a 1+1 protected interface. In the receive direction, the system must be able to handle duplicate messages received on Main 1 and Main 2. There is no need to process the K2-Bytes (S1-Bytes) for protection switching in the receive direction.

- **STS-1/VT 0X1 Low Speed Interface:** The new STS-1/VT 0X1 Low Speed interface feature provides the ability of transporting STS-1/VT1.5 services on OC-3 low speed Function Units optical interfaces provisioned for 0X1 applications. The Application value for the **22-Type OLIU** in the Function Unit is provisioned to “0X1” using the `set-oc3` CIT command or the `ENT-OC3` TL1 command. The STS-1/VT 0X1 Low Speed interface feature can be supported with **29/24/22-Type OLIUs** in Main and **22-Type** in Function Unit slots of the Host OC-3 shelf and **22-Type OLIUs** in the Main Units slots of the remote OC-3 shelf.

Path selection is locked (main-1 is locked to fn-x-1, or main-2 is locked to fn-x-2). Mixing of STS-1 0x1 and VT 0x1 in the same Function unit is allowed but not within the same STS-1. Failures on the OC-3 0x1 interface will always generate Service Affecting alarms.

2. Software Release 15.0.3 Features (Continued)

The STS-1/VT 0X1 Low Speed interface supports Single Homed and Dual Homed 0X1 configurations.

- **Dual Homed (Single 0X1) configuration:** For Dual Homed applications the two host DDM-2000 OC-3 shelves are equipped with a **22-Type OLIU** in one of the Function Unit slot and then provisioned for "0X1" using the `set-oc3` CIT command or the `ENT-oc3` TL1 command. On the remote DDM-2000 OC-3 shelves the Main interface must be provisioned for "distinct" DCC mode using the `set-oc3` CIT command or the `ENT-oc3` TL1 command. For dual-homed 0x1 ring applications, one function unit slot must be empty in the host OC-3 shelves.
- **Single Homed (Single 0X1) configuration:** For single homed applications the host DDM-2000 OC-3 shelf is equipped with two **22-Type OLIU** in the function unit slots and then provisioned for "0X1" using the `set-oc3` CIT command or the `ENT-oc3` TL1 command. On the remote DDM-2000 OC-3 shelf the DCC mode must be provisioned for "identical" using the `set-oc3` CIT command or the `ENT-oc3` TL1 command. For the single homed 0x1 application the two OC-3 function unit interfaces in the host OC-3 shelf must connect to the same remote OC-3 shelf. Only one remote DDM-2000 OC-3 shelf is allowed in this configuration.
- **STS-3c 0X1 Interface:** The STS-3c 0X1 interface provides STS-3c transport services between the **29G-U OLIU** in Main slots and **22-Type OLIU** in Function Unit slot C. The Application value for OC-3 OLIU (**22-Type**) in Function Unit slot C is provisioned to "0X1" (using `set-oc3` CIT command or the `ENT-oc3` TL1 command). The CIT `ent-crs-sts3c` or the TL1 `ENT-CRS-STs3c` command is used with a two-way cross-connect type option.

Ring path switching is not done on the DDM-2000 OC-12 ring; rather STS-3c level path switching is done elsewhere in the network. For instance, ATM STS-3c traffic is normally protected by the external ATM-based router.

2. Software Release 15.0.3 Features (Continued)

B. Network Topologies

- **Configurations supported by 29G-U:** All the same options for dropping traffic at low speed ports that were supported on a DDM-2000 OC-3 system equipped with the **22-Type OLIUs** and running Releases 13.0 or 11.1 continue to be supported when **29G-U OLIUs** are installed in Main slots. A DDM-2000 shelf equipped with the **29G-U OLIU** can be linked to other similarly equipped OC-3 shelves (**29** or **24-Type OLIUs** in Main slots), or DDM-2000 OC-12 Release 7.X shelves to create an OC-12 ring. This ring can connect with other OC-12, OC-3 or FT-2000 rings.

DDM-2000 FiberReach rings with OC-1 in Main slots can be connected to DDM-2000 OC-3 shelves equipped with **29G-U OLIUs** in either dual or single-homed configurations.

C. Applications

- **TL1 CIT Ports and TL1 over Asynchronous X.25:** Starting with OC-3 Release 15.0.2, TL1 messages can be exchanged over the CIT asynchronous port(s) as well as allow the provisioning of the synchronous X.25 port and used as the TL1 asynchronous interface. This feature enables the user to execute remote TL1 access to Lucent and Non-Lucent (e.g., *TITAN 5500/S DCS, FLM*) products from the CIT port.

Either the front (DCE) or rear (DTE) CIT ports can be provisioned to receive and transmit TL1 messages. Only one CIT port can be provisioned to run TL1. Up to 5 associations to non-PF2000 NEs can be established with a total of 50 TL1 remote associations allowed to be initiated from the CIT port. The TL1 baud rate can be set to: 1200, 2400, 4800, 9600 (Default), and 19200.

The commands affected are:

CIT	TL1
set-secu	ENT-CID-SECU
rtrv-secu	RTRV-CID-SECU
ent-osacmap	ENT-OSACMAP
rtrv-osacmap	RTRV-OSACMAP

2. Software Release 15.0.3 Features (Continued)

D. Remote Alarm Status

- **Alarm Groups and Alarm Gateway:** This feature partitions a network into maintenance domains (alarm groups) for alarm and status information. An Alarm Group is a set of NEs that share status type information. Alarm Groups can be nodes in a ring or any logical grouping such as maintenance group or geographic group.
- All NEs are defaulted to an Alarm Group (number 255). Users can provision NEs into Alarm Groups by assigning each member an Alarm Group number. For example, 24 NEs can be provisioned into three Alarm Groups of 8 NEs each. In order to minimize network traffic, the following is strongly recommended:
 1. No more than two AGNEs in an Alarm Group.
 2. No AGNE should be defined as a GNE.

In a partitioned large network area: Each Level 1 Area can be identified as a separate Alarm Group. Provisioning of one alarm gateway network element (AGNE) using the CIT `set-ne` or the TL1 `ENT-sys` command is required to support remote office alarm and remote alarm information in the local alarm report. By default, a subnetwork contains a single alarm group and at least one AGNE is provisioned per subnetwork. A second AGNE can be provisioned as a back-up. The disadvantage of backup AGNEs is degradation of network performance.

The position of the NE in a subnetwork determines whether a NE should be defined as AGNE. Considerations for choosing an NE as the AGNE include being central to the group to minimize communication links and being easily accessible for maintenance. For performance considerations, an NE defined as AGNE should not be used as the GNE.

2. Software Release 15.0.3 Features (Continued)

AGNE Communication: Every NE broadcasts its network status through the AGNE to other NEs in the same Alarm Group depending on provisioning, a member of an alarm group can:

- **Remote Alarm Reports:** List a report of the alarms and status conditions of all members in an Alarm Group, and if the NE is at the CO, activate the audible office alarms for the Alarm Group.
- **ACO:** Send/Receive ACO requests to and from members of the same Alarm Group or Level 1 area.
- **Miscellaneous Discretes:** Send/Receive miscellaneous discrete alarm/status closure states to and from Alarm Group members at the CO.

If a Network Element cannot establish communication with the AGNE, or the AGNE cannot establish communication with an NE in the same Alarm Group, the alarm message "AGNE communication failure" will be created.

2. Software Release 15.0.3 Features (Continued)

- **Procedural Recommendations:** When establishing or maintaining Alarm Group(s), the following steps are strongly recommended:
 1. Provision the NEs with their Alarm Group numbers.
 2. When the Alarm Group provisioning is completed, enable the AGNE.

⇒ **NOTE:**

If more than one AGNE needs to be defined (for the same or a different Alarm Group), allow a waiting period of 30 seconds before provisioning the next AGNE.

⇒ **NOTE:**

The TARP Data Cache (TDC) should always be enabled (default) at each PF-2000 NE prior to establishing Alarm Groups.

If an already established Alarm Group needs to be divided further into two or more Alarm Groups the following steps are recommended:

- Do not change the current AGNE(s) provisioning.
 - Change the Alarm Group numbering on the NE(s) to be moved to a new Alarm Group.
 - When the new Alarm Group(s) provisioning is completed, enable the new AGNE(s), and then refer to Notes 1 and 2.
- **ITM SNC and CPro-2000 Support:** DDM-2000 OC-3 Release 15.0.3 is supported by ITM SNC Release 10.0 and CPro- 2000 Release 10.0.

2. Software Release 15.0.3 Features (Continued)

E. Operations Interworking (OI)

- **OI Standards Compliance:** DDM-2000 OC-3 Release 15.0.3 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.
- **Subnetwork Size:** DDM-2000 OC-3 Release 15.0.3 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.

F. Cross-Connect Provisioning

- **STS-3c crossconnects:** STS-3c cross-connections (twoway) provisioning commands (CIT & TL1) have been updated for OC-12 rings using OC-3 shelves equipped with **29G-U** in Main and **22-Type OLIUs** in **Function Unit C** slots. Pass-through and add-drop STS-3c cross-connection are allowed when using the **29-Type OLIU** in main slots as shown below:

```
ent-crs-sts3c:m-{1,4,7,10},m-{1,4,7,10}; (pass-through)
```

```
ent-crs-sts3c:m-{1,4,7,10},c-1;(add-drop, 0X1)
```

⇒ NOTE:

The STS3c add-drop cross-connection command requires the Function Unit application be provisioned first to 0X1(**set-oc3 / ENT-OC3**).

2. Software Release 15.0.3 Features (Continued)

- **STS-1/VT 0X1 Crossconnects:** Starting with OC-3 Release 15.0.2, STS-1 and VT1.5 0X1 cross-connection can be made when the **29G/24/22-Type OLIU** is in main slots and the **22-Type OLIU** is in Function Unit slots. Mixing of STS-1 and VT1.5 cross-connections within the same OC-3 is allowed, but not within the same STS-1.
- 1. **STS-1 Two-Way 0X1 Cross-Connections:** When a function unit interface is OC-3, STS-1 (add/drop) cross-connections to the OC-3 interface are provisioned as 0X1 by setting the application parameter to "0X1".
 - a When the **24/29-Type OLIUs** are equipped in the main slots and Function Unit slots **A, B,** and/or **C** are equipped with **22-Type OLIU** circuit packs, the following STS-1 0X1 cross-connections are allowed:
 - m-{1-12} to {a,b}-{1,2} STS- rate
 - m-{1-12} to c-{1-3} STS- rate
 - b When the **22-Type OLIU** circuit packs are equipped in both the main slots and the Function Unit slots **A, B,** and/or **C,** the following STS-1 0X1 cross-connections are allowed:
 - m-{1-3} to {a,b}-{1,2} (STS- rate)
 - m-{1-3} to c-{1-3} (STS- rate)

2. Software Release 15.0.3 Features (Continued)

2. **VT1.5 Two-Way 0X1 Cross-Connections:** When Main Unit slots are equipped with:
 - a With **24/29-Type OLIU** in Main and Function Unit slots **A**, **B**, and/or **C** equipped with **22-Type OLIU** circuit packs, the following VT1.5 0X1 cross-connections are allowed:

m-{1-12}-{1-7,all}-{1-4,all} to {a,b}-{1,2}-{1-7,all}-{1-4,all}

m-{1-12}-{1-7,all}-{1-4,all} to {c}-{1-3}-{1-7,all}-{1-4,all}
 - b With **22-Type OLIU** in Main and the Function Unit slots **A**, **B**, and/or **C** equipped with **22-Type OLIU** circuit packs, the following VT1.5 0X1 cross-connections are allowed:

m-{1-3}-{1-7,all}-{1-4,all} to {a,b}-{1,2}-{1-7,all}-{1-4,all}

m-{1-3}-{1-7,all}-{1-4,all} to c-{1-3}-{1-7,all}-{1-4,all}

⇒ NOTE:

Notice differences between AIDs for **24/29-Type OLIUs** and **22-Type OLIUs** in Main Unit slots.

- **Low Speed LAN cross-connections:** Up to three **BBF9/10 IMA** circuit packs can be equipped in a Low Speed Group of the DDM-2000 Release 15.0.3 OC-3 shelf if the associated Function Unit is equipped with the **BBG2** or **BBG2B MXRVO** circuit pack. An **IMA** LAN circuit pack supports 1 to 8 DS1 channels which can be VT1.5 cross-connected as follows:

29/24-Type OLIU: m-{1-12}-{1-7}-{1-4,all} to {a,b,c}-{1-7}-{1-4,all}

22-Type OLIU: m-{1-3}-{1-7}-{1-4,all} to {a,b,c}-{1-7}-{1-4,all}

Two adjacent low speed slots occupied by the **BBF9/10 IMA** circuit pack are addressed as if they were separate circuit packs. For instance, if an **IMA** LAN circuit pack is inserted in slots ls-a-1 and ls-a-2, the cross-connect addressing is as follows:

a-1-{1-4,all}

a-2-{1-4,all}

2. Software Release 15.0.3 Features (Continued)

- **T1 Extension cross-connections:** Starting with Release 15.0.2 OC-3 shelf, the **BBF6 T1EXT** circuit pack is supported in the DDM-2000 OC-3 shelves. When the **T1EXT** circuit pack is equipped in low speed slots the associated Function Unit must be equipped with the **BBG2B MXRVO** circuit pack. A **T1EXT** circuit pack supports only two DS1 channels (1,2, or all) which are cross-connected as follows:

29/24-Type OLIU: m-{1-12}-{1-7}-{1-4} to {a,b,c}-{1-7}{1,2,all}

22-Type OLIU: m-{1-3}-{1-7}-{1-4} to {a,b,c}-{1-7}-{1,2,all}

G. Performance Monitoring

- **New Direction Parameter for DS-1 Performance Monitoring:** Starting with Release 15.0.2, the “direction” parameter appears in the `rtrv-pm-t1` report. The new parameter indicates the direction from which the signal is monitored (DSX or SONET). The value “`dsx`” indicates that the data counts are based on the signal incoming from the low speed side. The value “`sonet`” is applicable when the DS1 path is terminated by the **BBF9/BBF10 IMA LAN** circuit pack and indicates that data counts are based on the signal incoming from the high speed side.
- **New LAN Performance Monitoring:** Starting with Release 15.0.2, new CIT/TL1 commands to support the provisioning and reporting of performance monitoring for the **BBF9/BBF10 IMA LAN** circuit pack. The new command is:

`rtrv-pm-lan/RTRV-PM-LAN`: Reports the PM data associated with the LAN pack.

3. Operating Issues Resolved

3.01 This part lists the operating issues (problems) which existed in Release 13.0.3 but are resolved in Release 15.0.2.

A. Download

(1) ISSUE:

⇒ NOTE:

A **d** in the **SYSTL** window indicates an incompatible controller pair (the **SYSTL** and **OHCTL** circuit packs contain different software).

When performing a forced download to an incompatible controller pair where the **SYSTL** 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 **SYSTL** might display the **d** again.

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 the **FUNCTION UNITS** slot address is specified as *Address1* (e.g., **a-2-2**) and the **MAIN** slots 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.

C. Operations Interworking (OI)

(3) 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 OC-3 reset duration of 5 minutes before the OS can login again to that remote NE through the same TL1/X.25 GNE.

3. Operating Issues Resolved (Continued)

(4) ISSUE:

After the 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 for 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.

(5) ISSUE:

This issue applies only to DCC on an OC-3 1+1 interface between DDM-2000 and FT-2000 and are resolved by FT-2000 Software Releases 7.2.7 and 9.1. Under certain installation and failure scenarios, including a single fiber cut, the DDM-200 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 protection OC-3 fibers (for example **MAIN-2(P)**) and the DDM-2000 active (protection) transmit fibers fail. In that case, the FT-2000 switches to transmit the DCC on the service fiber, but the DDM-2000 is expecting DCC (and OC-3) on the protection fiber, thus the DCC fails.

D. Maintenance

(6) ISSUE:

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

3. Operating Issues Resolved (Continued)

3.02 This part lists the operating issues (problems) which existed in Release 15.0.2 but are resolved in Release 15.0.3.

A. Miscellaneous Upgrades

(1) ISSUE:

After upgrading from **24G OLIUs** to **29G OLIUs**, the `rt-egpt` command shows the **29G** as being 29B. CPro-2000 interprets this OC-12 NE as an OC-3 NE.

B. Operations Interworking (OI)

(2) ISSUE:

In the event that the `L4TLIF` parameter is found to be set to a value of 0, reprovisioning it to a valid value can not be done via the TL1 command `ENT-ULSDCC-L4`.

(3) ISSUE:

If a VT1.5-type cross-connect is used on a WBS pass-through shelf that is connected to another WBS Add/Drop shelf and an OC-3 Add/Drop shelf and all three shelves are equipped with **29G OLIUs**, then the signal degrade on the WBS Add/Drop shelf will remain on the `RTRV-ALM` report even after the condition has cleared.

4. Operating Issues

- 4.01 This part lists information pertaining to unresolved operating issues (problems) existing in Release 15.0.3. Suggestions to work around the operating issues are mentioned, if available.
- 4.02 The current plan calls for resolution to the following operating issues in future DDM-2000 OC-3 software releases.
- 4.03 The following list contains known problems in Release 13.0.3 software.

A. Maintenance

(1) 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.

(2) ISSUE:

When the **29G-Type OLIUs** are in main slots and the low speed groups **A**, **B**, or **C** are equipped, additional commands are required to clear the VT Path AIS alarms described below.

With cross-connections in place for **m-x-y-all** (where "x" is the STS-1 channel number and "y" is the VT1.5 group), removing the associated signal source results in "incoming VT path AIS" alarms for the following VT paths: **m1-x-y-2**, **m1-x-y-3**, and **m1-x-y-4**. Entering the CIT update command will clear the **m1-x-y-2** incoming VT path AIS alarm, but the TL1 autonomous messages for **m1-x-y-3** and **m1-x-y-4** incoming VT path AIS alarms do not clear.

WORK AROUND:

To clear the remaining incoming VT Path AIS alarms reported by TL1, enter the "**set-state**" CIT command to change the primary state to NMON and then reenter the "**set-state**" CIT command to change the primary state to AUTO. The required CIT commands are shown below:

```
set-state-vt1:m-x-y-all:ps=nmon;
```

```
set-state-vt1:m-x-y-all:ps=auto;
```

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 15.0.3, 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 15.0.3 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 15.0.3 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 15.0.3 is targeted specifically for large subnetworks and multi-vendor applications, e.g., with Tellabs *TITAN* 5500/S DCS Feature Package 5.0.

5. DDM-2000 Interworking (Continued)

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 Method (Note 2)	Notes
13.0 (ring)*	7.0 (ring)	22-Type[†] or 21G-Type, 21D-Type[‡] or 24-Type OLIU^{**}	Supports OC-3/OC-12 Interworking 0x1 interfaces and DRI
15.0 (ring)*	7.0 (ring)	22-Type[†] or 21G-Type, 21D-Type[‡], 24-Type or 29Type 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 this table are as follows: **21D-Type** - **21D** and **21D-U**, **21G-Type** - **21G**, **21G-U**, **21G2-U**, and **21G4-U**, **22F-Type** - **22F**, **22F-U**, and **22F2-U**, **22G-Type** - **22G-U**, **22G2-U**, **22G3-U**, and **22G4-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** are used in **FUNCTION UNITS** slots of 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.
 - ** The **24G-U** and **29G-U** can only be used in **MAIN** slots of DDM-2000 OC-3 shelf.

5. DDM-2000 Interworking (Continued)

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 Method (Note 1)	Notes
15.0.3 (ring)	13.0 (ring)	22-Type OLIU* 24-Type OLIU† 29-Type OLIU‡	Supports OC-3/IS-3 Interworking between OC-3 ring and linear networks

Notes:

- (1) The **OLIU** types referenced in this table are as follows: **22F-Type - 22F, 22F-U, and 22F2-U, 22G-Type - 22G-U, 22G2-U, 22G3-U, and 22G4-U and 22D-U.**
- * **22-Type OLIU** in **MAIN UNIT** slots with **22-Type OLIUs** in **FUNCTION UNITS** slots allow interworking between DDM-2000 OC-3 ring networks
- † **24-Type OLIUs** in **MAIN UNIT** slots of Release 15.0.3 OC-3 NEs for ring networks with mixture of Release 13.0 OC-3 NEs equipped with **24-Type OLIUs** in **MAIN UNIT** slots
- ‡ **29-Type OLIUs** in **MAIN UNIT** slots of Release 15.0.3 OC-3 NEs for ring networks with mixture of Release 15.0.3 and Release 13.0 OC-3 NEs equipped with **24-Type OLIUs** in **MAIN UNIT** slots.

5. DDM-2000 Interworking (Continued)

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* 5000/S DCS Software Compatibility
(Note 1)

OC-3 Release	<i>TITAN</i> Feature Package	DDM-2000 Interconnect Method (Note 2)	Notes
13.0*	5.0	22-Type OLIU †	Supports OC-3/ <i>TITAN</i> Interworking
15.0*	5.0	22-Type OLIU †	Supports OC-3/ <i>TITAN</i> 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 this table are as follows: **22F-Type - 22F, 22F-U, and 22F2-U, 22G-Type - 22G-U, 22G2-U, 22G3-U, and 22G4-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. DDM-2000 Interworking (Continued)

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 and 3.1 (ring)	27G-U/27G2-U, 26G2-U OLIU or 22-Type OLIU	26G-U/26G2-U OLIU, 28-Type OLIU
15.0 (ring)	3.0 and 3.1 (ring)	27G-U/27G2-U, 26G2-U OLIU or 22-Type OLIU	26G-U/26G2-U OLIU, 28-Type OLIU
15.0 (ring)	4.0	27G-U/27G2-U, 26G2-U OLIU or 22/24/29-Type OLIU	26G-U/26G2-U OLIU, 28-Type or 29-Type OLIU

5. DDM-2000 Interworking (Continued)

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	FT-2000 OC-48
13.0 (ring)	8.x and 9.x (ring)	22-Type or 21G-Type, 21D-Type OLIU, 24-Type OLIU	LAA10 OC3, LAA5 IS3 Optical Interface, or T939A OC-12
15.0 (ring)	8.x and 9.x (ring)	22-Type or 21G-Type, 21D-Type OLIU, 24-Type OLIU, 29-Type OLIU	LAA10 OC3, LAA5 IS3 Optical Interface, or T939A OC-12

Notes:

- (1) The **OLIU** types referenced in this table 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**, **22G3-U**, and **22G4-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)	Release 7.0 (ring)	Release 9.x (ring)	
Release 15.0 (ring)	Release 7.0 (ring)	Release 9.x (ring)	

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

7. Service Upgrades

7.01 Table G lists the current software releases of the DDM-2000 OC-3 Multiplexer that can be directly upgraded while in service. Specific procedures for upgrades are provided in 363-206-285, *DDM-2000 OC-3 Multiplexer, TARP Release 15, User/Service Manual (TOP) - Volume II*.

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

Current Release	Upgrade to*
	15.0
7.1 (ring) [†]	C [‡]
7.2 (ring) [†]	C [‡]
8.0 (linear)	C [‡]
8.1 (linear)	C [‡]
9.0 (ring)	C [‡]
9.1 (ring)	C [‡]
11.0 (ring)	X
11.1 (ring)	X
13.0 (ring)	X
15.0 (ring)	X

Notes:

- * When doing an upgrade, it is recommended that the latest point release of software be used, if possible.
- † See attached NTP-046 for information and procedures needed for upgrading Release 7.1/7.2 to Release 13.0 or 15.0 for a system in service.
- ‡ Incompatible OSI stack requires special upgrade procedure. See 363-206-285, *DDM-2000 OC-3 Multiplexer, TARP Release 13 and Later, User/Service Manual (TOP) - Volume II* and 842-102-144, *Lucent Technologies 2000 Product Family, Operations Interworking Guide For TARP Releases* for subnetwork upgrade procedures
- 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.

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 15.0.3 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.



CAUTION:

*When upgrading to **29-Type OLIU** circuit packs, the second circuit pack will end up causing “CP Fail” alarms. Before concluding that this is a real circuit pack failure case, ensure that the faceplate connector is securely connected to both OLIUs. This should clear the “CP Fail” alarm. If the alarm persists, then the user can conclude that it is a real circuit pack failure alarm.*



NOTE:

Removing or reseating a 29-Type OLIU will also cause a “CP Fail” alarm until the faceplate connection is securely connected to both OLIUs.



NOTE:

Before upgrading the software in an OC-12 shelf functioning as a TL1/X.25 GNE, disconnect the X.25 cable from J61 on the rear of the shelf. Reconnect the cable after the new software has been downloaded and is functioning.

8. Implementation Procedure (Continued)

⇒ **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, 11.0, 11.1, and 13.0 shelves using **BBG8** System Controller (SYSCTL), **BBG9** Overhead Controller (OHCTL) and **BGP4** OHCTL circuit packs manufactured in June 1997 or earlier are susceptible to developing corrupted memory locations in the controller's 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 the attached Engineering Change Procedure ECP-N81076MV to test for this condition (associated with CCN-81076MV).

⇒ **NOTE:**
After Release 15.0.3 or any other OC-3 TARP software release has been installed and is the operating generic for the shelf, use the **RTRV-ULSDCC-L4** 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** 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.

8. Implementation Procedure (Continued)

Software Installation and Upgrading

The following is a brief description of scenarios that may be encountered while upgrading to OC-3 Release 15.0.3 software:



NOTE:

When using the “**apply**” command to upgrade OC-3 Release 9.1, 11.0 or 11.1 to OC-3 Release 15.0.3, 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 15.0



NOTE:

Software upgrades from OC-3 Release 9.0 to OC-3 Release 15.0.3 cannot be done remotely.

- If a NE running OC-3 Release 9.0 is upgraded to OC-3 Release 15.0.3 through a Forced Software Download, the following scenarios will take place:
 - Uncompressed software of Release 15.0.3 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 15.0.3 to a NE running Release 9.0, the following scenarios will take place:
 - Uncompressed software of Release 15.0.3 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.

8. Implementation Procedure (Continued)

B. Upgrading OC-3 Release 9.1 to Release 15.0

- If a NE running OC-3 Release 9.1 is upgraded to OC-3 Release 15.0.3 through a Forced Software Download, the following scenarios will take place:
 - Compressed software of Release 15.0.3 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 15.0.3. (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 15.0 in a NE running Release 9.1, the following scenarios will take place:
 - Compressed software of Release 15.0.3 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 15.0.3. (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.

8. Implementation Procedure (Continued)

- If the “**cpy-prog**” command was initiated to copy Release 15.0 into a remote NE running Release 9.1, the following scenarios will take place:
 - Compressed software of Release 15.0.3 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 15.0.3. (For more information, refer to the DLP attachments).

C. Upgrading OC-3 Release 11.0 or 11.1 to Release 15.0

- If a NE running OC-3 Release 11.0 or 11.1 is upgraded to OC-3 Release 15.0.3 through a Forced Software Download, the following scenarios will take place:
 - Compressed software of Release 15.0.3 is downloaded and installed into the DORMANT area of the NE receiving the software.
 - The uncompressed software of Release 15.0.3 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 or 11.1.
- If the “**ins-prog**” command was initiated to install Release 15.0.3 in a NE running Release 11.0 or 11.1, the following scenarios will take place:
 - Compressed software of Release 15.0.3 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.x software. The “**apply**” command in Release 11.x can be scheduled three 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 or 11.1 with Release 15.0.3. (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 or 11.1.

8. Implementation Procedure (Continued)

D. Upgrading OC-3 Release 13.0 to Release 15.0

- If a NE running OC-3 Release 13.0 is upgraded to OC-3 Release 15.0 through a Forced Software Download, the following scenarios will take place:
 - Compressed software of Release 15.0 is downloaded and installed into the DORMANT area.
 - The uncompressed software of Release 15.0 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.

8. Implementation Procedure (Continued)

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 to 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 **NTP-046**, **DLP-532**, **DLP-561**, **DLP-562**, and **DLP-566** to install the new software.

How Are We Doing?

Title: DDM-2000 OC-3 Multiplexer Software Release Description
TARP Release 15.0.3

Identification No.: 363-206-231 Issue No.: 4 Date: October 2000

Lucent Technologies welcomes your feedback on this Customer Information Product (CIP). Your comments can be of great value in helping us improve our CIPs.

1. Please rate the effectiveness of this CIP in the following areas:

	Excellent	Good	Fair	Poor	Not Applicable
Ease of Use					////////////////////
Clarity					////////////////////
Completeness					////////////////////
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Examples					
Illustrations					
Overall Satisfaction					////////////////////

2. Please check the ways you feel we could improve this CIP.

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| <input type="checkbox"/> Improve the table of contents | <input type="checkbox"/> Add more step-by-step procedures/tutorials |
| <input type="checkbox"/> Improve the organization | <input type="checkbox"/> Add more troubleshooting information |
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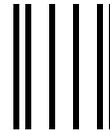
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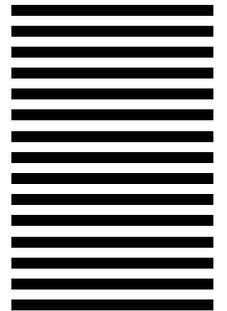
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Upgrade DDM-2000 OC-3 Release 7.1 or 7.2 to TARP Release 13 or 15 System In Service

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:**
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 or 15. 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:**
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 or 15 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:**
BBF4 TG3 circuit packs **cannot** be mixed with **BBF2/BBF2B/BBF2C TGS** circuit packs in the same DDM-2000 OC-3 shelf.

 **NOTE:**
If upgrading from a Release 7.1 system to a TARP Release 13 or 15 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:**
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** circuit pack in **TIMING** slot 2, if not already **ACTIVE**. Use `rtrv-sync:` command to verify that the protection **TGS/TG3** circuit pack is **ACTIVE**.

-
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.
-

DO ITEMS BELOW IN ORDER LISTED FOR DETAILS, GO TO

5. If upgrading from Release 7.1 to TARP Release 13 or 15, use the `set-ne:gne=no` command to discontinue the GNE shelf in the R7.1 ring.

-
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:**
If upgrading from Release 7.1 to TARP Release 13 or 15 (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.

 **NOTE:**
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

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

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.

-
12. After all shelves have been upgraded to new software, use the **set-ne:tid=TID,rnestat=enabled,agne=yes** command to designate one shelf as the AGNE, if required.
-

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

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:**
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:**
If upgrading from earlier non-TARP software releases to TARP Release 13.0 and later, 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 **OLIUFault** 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:**
 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)

Current Release	Upgrade to*	
	13.0	15.0
7.1.n (Ring)	C†	C†
7.2.n (Ring)	C†	C†
8.0.n (Linear)	C†	C†
8.1.n (Linear)	C†	C†
9.0.n (Ring)	U†	U†
9.1.n (Ring)	X†	X†
11.0.n (Ring)	X†	X†
13.0.n (Ring)	X	X
15.0.n (Ring)	X	X

Note: All DDM-2000 OC-3 shelves in a subnetwork should be using TARP Release 13.0 or 15.0 software.

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.

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

† Incompatible OSI stack requires special considerations. See 824-102-144, *Lucent Technologies 2000 Product Family, Operations Interworking Guide For TARP Releases* for special considerations.

- ⇒ NOTE:
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 **OLIUs** will stay in the **concat** mode until they are removed and reseated.
- ⇒ NOTE:
If the **ins-prog:** command is used for software upgrades from non-TARP Release 9.1 or later, the software is loaded as a dormant copy in the **SYCTL** 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 **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**

* 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**

Indicates corrupted application software. New software must be force 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 **SYCTL** Switch **S1** is not set properly for type of shelf being equipped.

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

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

Indicates **SYCTL** must be replaced.

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

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

Indicates **SYCTL** faceplate latch is not fully seated. If **SYCTL** has just been replaced, unplug **SYCTL** and repeat procedures of **DLP-501**. If original **SYCTL** 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 20 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:

```
CTRM 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.  **NOTE:**
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:
`CTRM 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:

```
/******  
*  
*          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** or
ins-prog:tid,prmttype=nesw

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

Where pgmtype = the type of software you want to install.

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 20 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:
`CTRM ready. (Type Alt-h for help.)`
`Communications established.`

20. Unplug and reseal 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 20 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 reseal) 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 **Esc**(Escape) 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 reseal 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 or later, 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 Network Element Software New Shelf Installation Only **BBG8/BBG8B SYSCTL** and **BBG9 OHCTL** Installed

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

* Registered trademark of Microsoft Corporation.

3. 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 4**.

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

Indicates corrupted application software. New software must be downloaded locally using these procedures.

Proceed to **Step 7**.

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 7**.

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

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

Proceed to **Step 7**.

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

4. 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.
5.  **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:

```
CTRM 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.

6. Was response correct?

If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
If **NO**, then proceed to **Step 11.**

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

7. 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.

8. 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:
`CTRM ready. (Type Alt-h for help.)`
`Communications established.`

9. 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.

10. Was response correct?

If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**

If **NO**, then continue with **Step 11.**

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

If **NO**, then continue with **Step 12.**

If **YES**, then proceed to **Step 19.**

12. 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 **Esc**(Escape) key to activate the new baud rate.
13. Ensure first (number 1) disk of program being installed is inserted, if using floppies.
 14. Ensure diskette is inserted in correct drive.
 15. Ensure the proper command was used to go to the drive with the diskette or to the proper directory containing the software.
 16. Check for invalid COM port. Exit TERM (**Alt F2**), then restart TERM using **term COM1** or **term COM2**.
 17. If the download still does not start, refer to **Trouble Clearing: TAP-116**.
 18. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
 19. 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 4**.

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

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

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

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:**
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:**
If upgrading from earlier software releases to TARP Release 13.0 and later, 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, Operations Interworking Guide For TARP Releases*, for guidelines in subnetwork upgrade procedures.
- Verify that no DCC failures or transmission failures (OC-3 LOS, flashing **OLIUFault** 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)

Current Release	Upgrade to*	
	13.0	15.0
7.1.n (Ring)	C†	C†
7.2.n (Ring)	C†	C†
8.0.n (Linear)	C†	C†
8.1.n (Linear)	C†	C†
9.0.n (Ring)	U†	U†
9.1.n (Ring)	X†	X†
11.0.n (Ring)	X†	X†
13.0.n (Ring)	X	X
15.0.n (Ring)	X	X

Note: All DDM-2000 OC-3 shelves in a subnetwork should be using TARP Release 13.0 or 15.0 software.

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.

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

† Incompatible OSI stack requires special considerations. See 824-102-144, *Lucent Technologies 2000 Product Family, Operations Interworking Guide For TARP Releases* for special considerations.

 **NOTE:**
 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 **OLIUs** will stay in the **concat** mode until they are removed and reseated.

⇒ **NOTE:**
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 and 15 `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:**
If you want to load new software to a remote shelf (if allowed) directly **from a PC**, use the `ins-prog:tid` or `ins-prog:tid,pgmtype=nesw` command where the tid entered is that of the remote shelf where you want to install the new software and the pgmtype is the type of software you want to install. After using the `ins-prog:tid` or `ins-prog:tid,pgmtype=nesw` 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:**
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` or `cpy-prog:tid,pgmtype=nesw` command (where tid = the tid of the shelf in which you want to install the software and the pgmtype is the type of software you want to install). [The tid is the name given to a shelf (network element) using the `set-ne:` command.] The `cpy-prog:` command will only copy software from a local controller to a remote controller; it is not used to download software from a PC.

- ⇒ **NOTE:**
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:**
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:**
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**

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**

* Registered trademark of Microsoft Corporation.

8. Enter the command `cpy-prog:tid` or `cpy-prog:tid,pgmtype=nesw`.

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

Where `pgmtype` = the type of software you want to install.

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 5 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 corrupted application software 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:
`CTRM 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` or `ins-prog:tid,pgmtype=nesw`.

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

Where `pgmtype` = the type of software you want to install.

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 5 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 `r1gn: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 or later, 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 **r1gn: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.
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.**

* Registered trademark of International Business Machines Corporation.

† Registered trademark of Microsoft Corporation.

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.

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.

‡ Registered trademark of Microsoft Corporation.

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.

<p>approx. 15 min. if using hard drive</p> <p>approx. 25 min. if using floppy drive</p>

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

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

 **NOTE:**
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.**

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, 2.1.1 and 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/Service 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.

-
- | | | |
|--------------------------|---------|---|
| <input type="checkbox"/> | Step 4. | Carefully read the precautions and recommendations listed on page 7 before continuing. |
|--------------------------|---------|---|
-
- | | | |
|--------------------------|---------|--|
| <input type="checkbox"/> | 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). |
|--------------------------|---------|--|
-
- | | | |
|--------------------------|---------|--|
| <input type="checkbox"/> | 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/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 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. If 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, 2.1.1 and 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 be 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