Lucent Technologies
Bell Labs Innovations

DDM-2000 OC-3 Multiplexer Software Release Description

TRCU3 Release 13.5.3

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Software Release Description
TRCU3 Release 13.5.3

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1. Overview

1.01   Release 13.5.3 supports the Lucent DDM-2000 OC-3 shelf in a specific
application with the Lucent 5ESS switching system. Two new function unit circuit
packs, the NCT (BNP1) and the NCT2 (BNP2), have been added to provide the NCT
and NCT2 optical interfaces, respectively, for supporting the 5ESS. The DDM-2000
OC-3 shelf in this application is referred to as the TRCU3 (Transmit Receive Converter
Unit 3). The TRCU3 provides a standard SONET OC-3 or OC-12 STS-1 path switched
ring interface for connecting the 5ESS with an associated remote switch module through
a SONET network. The TRCU3 collocated with the 5ESS is the **host** TRCU3 while the
TRCU3 located with the **remote** switch module is referred to as a remote. The
connection between the 5ESS and the low-speed side of the host TRCU3 is via a
proprietary optical link which is an extension of the 5ESS internal link referred to as the
NCT (Network Control and Timing) or NCT2 link. The same NCT or NCT2 connection is
used between the remote TRCU3 and the remote switch module.

⚠ **WARNING:**

*The TRCU3 provides the same options for synchronization as the DDM-2000 OC-3
shelf (Line, FreeRun, External). The* **host** *TRCU3 shelf must be syncronized to the
same reference clock as the 5ESS. Similarly the* **remote** *TRCU3 must be
synchronized to the same clock as the remote switch module. Under normal
conditions TRCU3s as well as the 5ESS and remote switch modules will have
synchronization traceable to a common reference clock.*

1.02   The purpose of this software release description (SRD) is to provide information
about Software Release 13.5.3 and its interaction with the DDM-2000 OC-3
System. This practice contains the following sections:

- **Software Release 13.5.3 Features:** This section provides a description of the
  features provided by Release 13.5.3.

- **Operating Issues Resolved:** This section provides the list of issues (problems)
  which existed in previous software releases that were resolved with this issue of
  software.

- **Operating Issues:** This section provides information about the existing issues
  (problems) in Release 13.5.3 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.

- **Inservice Upgrades:** No inservice upgrade from previous releases is supported.

- **Implementation Procedure:** This section provides the information required to
  install the DDM-2000 OC-3 System software, Release 13.5.3.

⟹ **NOTE:**
  Read all sections of this practice before installing the DDM-2000 OC-3 Release
  13.5.

This practice, Issue 2, supersedes the previous Issue 1. Issue 2 provides updated |
information for DDM-2000 OC-3 GA Software Release 13.5.3. The updated information |
is included in the Overview (Sections 1.01 and 1.02), Software Release 13.5.3 Features |
(Section 2.02), Operating Issues Resolved (Section 3.03), Operating Issues (Section |
4.03), DDM-2000 Interworking (Sections 5.01, 5.02, 5.03, 5.04, 5.05, and 5.06), DDM- |
2000 OC-3 Multiplexer DRI Software Compatibility (Section 6.01), and Inservice |
Upgrades (Section 7.01) sections of this practice. Margin bars are used to denote the |
added information. 363-206-258, *DDM-2000 OC-3 Multiplexer, Software Release* |
Description, Release 13.5.2, Issue 1 provided the coverage for FSA Software Release |
13.5.2. |

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

1.04 Any difficulty encountered while implementing Release 13.5.3 may be resolved
    by contacting the Regional Technical Assistance Center in your area. Dial
1-800-225-RTAC (7822).

1.05 Since Release 13.5.3 is built from DDM-2000 OC-3 Release 13.0.2, a tab has
    been provided in 363-206-285, *DDM-2000 OC-3 Multiplexer, TARP Release 13,*
User/Service Manual - Volume I, to cover features specific to Release 13.5.

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

2. Software Release 13.5.3 Features

2.01   Release 13.5.3 is intended for the specific application described and does not support other low-speed services such as DS3, DS1, EC-1 or OC-3. In addition, Release 13.5.3 requires a new shelf configuration which is a modifcation of a DDM-2000 OC-3 Group 4 shelf.

2.02   Release 13.5.3 evolved from DDM-2000 OC-3 R13.0 and inherits the operations interworking features implemented in that earler release including the TARP protocol. Hence Release 13.5.3 interworks with DDM-2000 OC-3 R13.0 and the other members of the 2000 Product Family that implement TARP.

2.03   DDM-2000 OC-3 Release 13.5.3 supports multi-vendor Operations Interworking (OI) and new transmission features that support the interconnection of the 5ESS with remote switch modules through a SONET network.

⇒ **NOTE:**
DDM-2000 OC-3 Release 13.5.3 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 release when upgrading a subnetwork.

2.04   The features described below are for DDM-2000 OC-3 Release 13.5.3.

A. **Transmission**

- R13.5.3 provides two new transmission circuit packs for use in function unit slots. The NCT (BNP1) circuit pack provides a 32 MB optical interface while the NCT2 (BNP2) provides a 65 MB optical interface. In the transmit direction (towards the SONET network), the circuit packs convert the optical signal to electrical and map the NCT or NCT2 signal into the payload of a SONET STS-1 for crossconnection to the Main SONET OC-3 or OC-12 ring interface. In the receive direction, they perform the reverse functions. The NCT/NCT2 optical links are monitored and controlled by the 5ESS through an embedded data channel in the NCT or NCT2 optical link. The TRCU3 controller, SYSCTL, provides alarming and 1X1 protection switching of the NCT and NCT2 circuit packs.

B. **Network Topologies**

- The TRCU3 can function as a network element in an OC-3 or OC-12 STS-1 unidirectional path switched ring (UPSR). Through its Main OC-3 or OC-12 ring interface the TRCU3 can interconnect with a high capacity OC-12 or OC-48 system in a ring-on-ring configuration. Although the TRCU3 does not support add/drop to DS1, DS3 or SONET low-speed interfaces, a TRCU3 can exist on the same ring with other network elements that do support these interfaces.

C. **Operations**

- **DDM-2000 TL1/X.25 GNE:** DDM-2000 OC-3 Release 13.5.3 can serve as the TL1/X.25 GNE for FT-2000 Release 8.0 and later remote NEs.

- **IntrAOffice LAN (IAO LAN) Interface:** The IAO LAN provides an extension of the SONET DCC for operations data communications. All NE-to-NE features supported over the DCC are supported over the IAO LAN, plus:

  — ITM SNC software download to DDM-2000[*].

  — ITM SNC as the TL1 GNE.

  A new CIT command "`test-iaolan`" is available to test a DDM-2000's IAO LAN connection to an IAO LAN hub. (The command page is attached because it is not included in the DDM-2000 OC-3 User Manual as yet.)

- **ITM SNC and CPro-2000 Support:** DDM-2000 OC-3 Release 13.5.3 is supported by ITM SNC Release 6.0 and CPro-2000 Release 8.0.

D. **Operations Interworking (OI)**

- **OI Standards Compliance:** DDM-2000 OC-3 Release 13.5.3 supports the standard TID Address Resolution Protocol (TARP) and the standard Open Systems Interconnect (OSI) protocol stack on the DCC. The key, standard multi-vendor OI application is OS access via TL1/X.25 interfaces.

- **Multi-Vendor OI Compatibility:** DDM-2000 OC-3 Release 13.5.3 is developed to be compatible with any other-vendor NEs that also support TARP, OSI and TL1/X.25 as specified in Bellcore GR-253. In addition, DDM-2000 OC-3 Release 13.5.3's TARP Manual Adjacency feature enables DDM-2000 to operate in networks that include CMISE-based NEs which may not support TARP propagation.

  In network configurations where both Lucent Technologies DDM-2000 and FUJITSU FLM products co-exist (or where both are planned to co-exist) in the same subnetwork, the TIDs used on the Lucent DDM-2000 network elements must be at least seven (7) characters long.

  DDM-2000 OC-3's TARP Release compatibility with Tellabs TITAN 5500/S DCS Feature Package (FP) 5.0, including TL1/X.25 OS access with TITAN 5500/S DCS serving as the TL1/X.25 GNE for DDM-2000 remote NEs, has been confirmed through cooperative joint testing between Lucent and Tellabs.

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

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[*] This feature may be used to upgrade *from* DDM-2000 OC-3 Release 13.5.3 and later to subsequent releases.

- **Lucent OI Compatibility:** Although Lucent proprietary, the following OI applications are still supported by DDM-2000 OC-3 Release 13.5.3 even in multi-vendor subnetworks:

    — Remote Craft Interface Terminal (CIT) Login

    — Remote Software Download and Copy

    — Remote NE to NE Automatic Time/Date Synchronization at Startup.

  The following compatible releases of DDM-2000 OC-3, DDM-2000 OC-12, DDM-2000 FiberReach, and FT-2000 OC-48 support OI among Lucent SONET products as well as with other-vendor NEs:

    — DDM-2000 OC-3 TRCU3 Release 13.5.3

    — DDM-2000 OC-3 Release 13.0

    — DDM-2000 OC-12 Release 7.0

    — DDM-2000 FiberReach Release 3.0

    — FT-2000 OC-48 Add/Drop Ring (ADR) Release 8.0.

- **TARP:** DDM-2000 OC-3 Release 13.5.3 supports TARP instead of Lucent Directory Services (LDS). To reduce the frequency of TARP propagation and to improve the performance of the OI applications, each DDM-2000 can support a TARP Data Cache (TDC).

- **Subnetwork Size:** DDM-2000 OC-3 Release 13.5.3 supports subnetworks of up to 256 NEs by partitioning subnetworks into multiple areas connected via Level 2 Intermediate Systems (ISs). DDM-2000's area address and Level 2 IS capability are user provisionable.

- **Network Maps:** Because DDM-2000 OC-3 Release 13.5.3 does not support Lucent Directory Services (LDS) or Remote NE Status features, the following information about remote NEs is no longer reported in the CIT and TL1 "`RTRV-MAP-NEIGHBOR`" and "`RTRV-MAP-NETWORK`" command responses:

    — Alarm Group Number

    — Communications Status

    — NE Type (e.g., DSNE)

    — Product Type (e.g., DDM-2000 OC-3).

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

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

- **Remote Communication Failures:** With TARP, either a remote NE is reachable from a local NE or TL1-GNE and TID-NSAP information is available for the remote NE, or a remote NE is unreachable and there is no further knowledge of such an isolated remote NE. Thus, TL1-GNE remote communication failure alarms that report isolated remote NEs are now transient conditions instead of standing conditions, and remote communication failure error responses from local NEs and TL1-GNEs on behalf of isolated remote NEs are no longer feasible, instead "Unknown TID" error responses are returned with TARP.

- **DCC Alarm Level:** DDM-2000 OC-3 Release 13.5.3 reports all Data Communications Channel (DCC) failures as minor alarms. Non-TARP releases of DDM-2000 products may report DCC failures as major alarms.

E. **Provisioning**

- **Subnetwork Partitioning:** DDM-2000 OC-3 Release 13.5.3 supports provisioning of the following parameters:

    (1) NSAP Area Address

    (2) Level 2 IS.

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

- **TARP Provisioning:** Although TARP functions automatically using standard default values without any user provisioning, DDM-2000 allows provisioning of the following TARP parameters. All TARP parameters are provisioned by the CIT and TL1 "**ENT-ULSDCC-L4**" command and include the following:

    (1) Lifetime

    (2) Manual Adjacency

    (3) Timers

    (4) Loop Detection Buffer (LDB) Flush Timer

    (5) TDC Enable/Disable

    (6) TDC TID-NSAP Entries.

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

- Two new CIT/TL1 commands are available for provisioning the NCT/NCT2 circuit packs (See attachments). The SET-NCT (ENT-NCT) command configures the circuit pack for either the host or remote mode and enables/selects timeslots in the NCT/NCT2 link for use as embedded overhead communicaton channels. The RTRV-NCT command provides a report of the current value at these parameters.

- The TRCU3 supports CIT/TL1 commands provided in DDM-2000 OC-3 Release 13.0.2 applicable to the SONET and general administrative functions of the shelf. The TRCU3 supports the STS-1 path trace provisioning and reporting for STS-1 paths that terminate on the BNP1 or BNP2 circuit packs.

- Release 13.5.3 supports all ring pass-through cross-connects (STS-1, VT1.5, or STS-3c), but only supports a two-way STS-1 add/drop cross-connect to an NCT or NCT2 port.

F. **Alarming**

- SONET level alarm reporting is the same as provided in a DDM-2000 OC-3 Release 13.0.2 shelf. The TRCU3 provides two new alarms to indicate a BNP1 or BNP2 circuit pack failure. Alarm reporting is through the same interfaces supported by DDM-2000 Release 13.0.2.

  The TRCU3 also provides two additional non-service affecting fuse alarms that are reported through miscellaneous dscrete inputs 1 and 2. The fuses are located in a fuse alarm module added to the shelf backplane to provide isolation diodes in the battery return path as required for operation in the 5ESS environment.

  Monitoring and Alarming of the NCT/NCT2 optical link is provided through the 5ESS and is not supported through the TRCU3 alarm reporting interfaces.

3. Operating Issues Resolved

3.01 For information on Release 13.5.2, refer to 363-206-235, Issue 1, *DDM-2000 OC-3 Multiplexer, Software Release Description, Release 13.5.2*.

3.02 This section lists the operating issues (problems) which existed in Release 13.5.2 but are resolved in Release 13.5.3.

(1) **ISSUE:**
The TRCU3 software fails the NCT/NCT2 circuit packs when the 5ESS switch is not in service.

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

(3) **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`.

4. Operating Issues

4.01 This section lists information pertaining to recognized operating issues (problems) existing in Release 13.5.3. Suggestions to work around the operating issues are mentioned, if available.

4.02 The following list contains known problems in the Release 13.5.3 software:

A. **Download**

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

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

B. **Operations Interworking (OI)**

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

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

C. **Maintenance**

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

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

5. DDM-2000 Interworking

⟹ **NOTE:**

Interworking between products is evolving to include both transmission interworking (with EC-1, OC-1, OC-3, IS-3, and DS3 interfaces) and operations interworking (OI). Multi-vendor transmission interworking was supported in previous releases. DDM-2000 OC-3 Release 13.5.3, supports multi-vendor OI compatibility. Care must be taken to check correct software releases and to check interface provisioning. For OLIU interfaces, care must be taken to ensure that both ends of a span are provisioned/equipped for the same protection mode (1+1 or dual 0x1, for example).

5.01 The following tables list the software compatibility within a subnetwork for the DDM-2000 OC-3 Multiplexers with Release 13.5.3 software. All configurations listed support OI. The tables list all possible Lucent Technologies software combinations. Software combinations not listed are not supported. The tables reflect that DDM-2000 OC-3 Release 13.5.3 is not expected to be deployed in the same networks as *earlier* non-TARP DDM-2000 OC-12, FiberReach, FT-2000, or DDM-2000 OC-3 software releases. DDM-2000 OC-3 Release 13.5.3 is targeted specifically for large subnetworks and multi-vendor applications, e.g., with Tellabs TITAN 5500/S DCS Feature Package 5.0.

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

Table A. DDM-2000 OC-3 (TRCU3) and OC-12 Software Compatibility

OC-3 (TRCU3) Release	OC-12 Release	Interconnection (Notes) Method	Notes
13.5.3 (Ring)∗	7.0 (Ring)	22-Type†, 21G-Type, or 21D-Type‡ OLIU	Supports OC-3 interworking, 0x1 interfaces.
		24-Type, or 23-Type OLIU	Supports OC-12 interworking via ring interfaces

Notes:

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

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

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

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

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

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

Table B. DDM-2000 OC-3 (TRCU3) Software Compatibility

OC-3 (TRCU3) Release	OC-3 Release	Interconnection (Note) Method	Notes
13.5 (Ring)∗	13.0/ 15.0 (Ring)∗	22-Type OLIU	Supports OC-3/IS-3 ring interworking
		24-Type OLIU†	Supports OC-12 interworking ring interworking

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

∗   Requires 22-Type OLIUs in **MAIN** slots

†   24-Type OLIUs in **MAIN** slots only.

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 (TRCU3) and TITAN 5500/S DCS Software Compatibility

OC-3 (TRCU3) Release	TITAN Feature Package	DDM-2000 (Notes) Interconnection Method	Notes
13.5∗	5.0	22-Type†	Supports OC-3/TITAN ring interworking

Notes:

(1)   All NEs in a ring network, which may be part of a larger network, must be running
compatible software.

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

∗   22-Type OLIUs must be used in DDM-2000 OC-3 TRCU3 ring shelves in **MAIN**.

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

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

Table D. DDM-2000 OC-3 (TRCU3) and DDM-2000 FiberReach Software Compatibility

Software Release		Interconnecting Circuit Pack	
DDM-2000 OC-3 (TRCU3)	**DDM-2000 FiberReach**	**DDM-2000 OC-3 (TRCU3)**	**DDM-2000 FiberReach**
13.5 (Ring)	3.0 (Ring) 3.1 (Ring)	Direct interconnection is not possible.	
	4.0 (Ring)	24-Type OLIU	29-Type OLIU

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

Table E. DDM-2000 OC-3 (TRCU3) and FT-2000 OC-48 Software Compatibility

Software Release		Interconnecting Circuit Pack	
DDM-2000 OC-3 (TRCU3)	**FT-2000 OC-48**	**DDM-2000 OC-3 (TRCU3)(Note)**	**FT-2000 OC-48**
13.5 (Ring)	8.0 (Ring)	22-Type OLIU	LAA10 OC3 or LAA5 IS3 Optical Interface
		24-Type OLIU	TN939 OC12

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

6. Inservice Upgrades

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

Table F. DDM-2000 OC-3 (TRCU3) Inservice Software Upgrade Compatibility

	Upgrade to*
Current Release	**13.5.x (Note)**
13.5.2 / 13.5.3 (Ring)	X

Note: All DDM-2000 OC-3 shelves in a subnetwork should be using Release 13.x/15.x |
software. All TRCU3 shelves should be using Release 13.5.3. |

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

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

7. Implementation Procedure

⟹ **NOTE:**
>
> Before installing Release 13.5.3 software, the following hardware versions *must* be in place at all sites before continuing with the implementation procedure:
>
> **BBG8B SYSCTL**: Series 1:1 or higher
> **BBG9 OHCTL**: Series 1:1 or higher.

Software Installation and Upgrade Procedure

It is not expected that there will be a need to upgrade software from a previous DDM-2000 OC-3 release to the TRCU3 Release 13.5.3.

The following is a brief description of scenarios that may be encountered while upgrading to OC-3 Release 13.5.3 software:

⟹ **NOTE:**
>
> When using the "`apply`" command to upgrade OC-3 Release 9.1 or 11.0 to OC-3 Release 13.5, 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 13.5 to Release 13.5.**

⟹ **NOTE:**
>
> No Forced Software Download will be necessary.

- If the `ins-prog` command was initiated to install Release 13.5 in an NE running Release 13.5, the following scenarios will take place:

  — Compressed software of the new Release is downloaded and installed into the DORMANT area.

  — The `apply` command will then be used to schedule the installation of the new generic over the currently running generic.

    ⟹ **NOTE:**
    >
    > Since the apply resets the **SYSCTL**, the apply should be scheduled when no 5ESS® CM reconfigurations will take place, which would require the **SYSCTL** to configure the **NCT** packs.

  — Issuing the `cpy-prog` command (before the apply takes place) from this NE will send the DORMANT (compressed) generic to the remote NE.

- If the `cpy-prog` command was initiated to copy Release 13.5 into a remote NE currently executing Release 13.5 the following scenario will take place:

    — The `cpy-prog` downloads and installs the new software into the DORMANT area of the NE.

    — The `apply` command with then be used to schedule the instalation of the new generic over the currently running generic.

    ⇒ **NOTE:**
    Since the apply resets the **SYSCTL**, the apply should be scheduled when no 5ESS CM reconfigurations will take place, which would require the **SYSCTL** to configure the NCT packs.

B. **Upgrading OC-3 Release 9.0 to Release 13.5**

⇒ **NOTE:**
Software upgrades from OC-3 Release 9.0 to OC-3 Release 13.5 cannot be done remotely.

- If a NE running OC-3 Release 9.0 is upgraded to OC-3 Release 13.5 through a Forced Software Download, the following scenarios will take place:

    — Uncompressed software of Release 13.0 is downloaded and installed as the EXECUTING generic.

    — No compressed software version will be available in the dormant area of the NE receiving the software.

- If the "`ins-prog`" command was initiated to install Release 13.5 to a NE running Release 9.0, the following scenarios will take place:

    — Uncompressed software of Release 13.5 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.

C. **Upgrading OC-3 Release 9.1 to Release 13.5**

- If a NE running OC-3 Release 9.1 is upgraded to OC-3 Release 13.5 through a Forced Software Download, the following scenarios will take place:

  — Compressed software of Release 13.5 is downloaded and installed into the DORMANT area of the NE receiving the software.

  — The "`apply`" command must be used in that NE to install or overwrite the currently executing Release 9.1 software. When executing the "`apply`" command in Release 9.1, a 30 minute delay is encountered before starting to overwrite Release 9.1 with Release 13.5.3 (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 13.5 in a NE running Release 9.1, the following scenarios will take place:

  — Compressed software of Release 13.5 is downloaded and installed into the DORMANT area of the NE receiving the software.

  — The "`apply`" command must be used in that NE to install or overwrite the currently executing Release 9.1 software.

  When executing the "`apply`" command in Release 9.1, a 30 minute delay is encountered before starting to overwrite Release 9.1 with Release 13.5.3(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.

- If the "`cpy-prog`" command was initiated to copy Release 13.5 into a remote NE running Release 9.1, the following scenarios will take place:

  — Compressed software of Release 13.5 is downloaded and installed into the DORMANT area.

  — The "`apply`" command must be used in remote NE to install or overwrite the currently executing Release 9.1 software.

  When executing the "`apply`" command in Release 9.1, a 30 minute delay is encountered before starting to overwrite Release 9.1 with Release 13.5.3(For more information, refer to the DLP attachments).

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

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

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

How Are We Doing?

Document Title: *DDM-2000 OC-3 Multiplexer, Software Release Description, TRCU3 Release 13.5.3*

Document No.: 363-206-235   Issue 2   Date: September 2000

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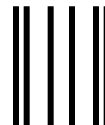
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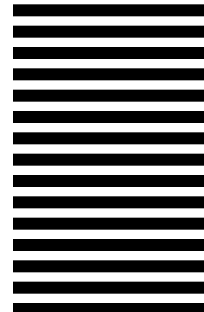
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NAME

set-nct: Set NCT Characteristics

INPUT FORMAT

set-nct:*Address*[:**ctsEnabled=***enable*]
    [,**cts=***ControlTimeslot*]
    [,**tcts=***Trcu3ControlTimeslot*]
    [,**mode=***Mode*];

DESCRIPTION

This command sets several characteristics (parameters) of a specified NCT or NCT2 line pair. This command is valid only for Release 13.5.

The input parameters are:

Address   Address identifies the NCT or NCT2 line pair(s).
            Valid NCT or NCT2 Line Pair Addresses: **all, fn-{a,b,c,all}**

ctsEnabled
            ctsEnabled specifies whether to enable end-to-end control messaging. The valid values are `no` (default) and `yes`.

cts   ControlTimeslot specifies the timeslot to be used as the end-to-end message conduit. The value of this parameter has a range of 0 to 255. The default value is 0. This parameter is only prompted for if ctsEnabled=yes. The user must assign a different ControlTimeslot value to each NCT and NCT2 line pair in the same shelf.

tcts   Trcu3ControlTimeslot specifies the timeslot to be used as the message conduit between this DDM system and the 5ESS equipment at the far end of this NCT link. The value of this parameter has a range of 0 to 255. The default value is 0. The user must assign a different Trcu3ControlTimeslot value to each NCT and NCT2 line pair in the same shelf.

mode   Mode specifies whether this system is at a 5ESS host location or at a remote location. The valid values are `host` (default) and `remote`. The user should assign the same mode value to all NCT and NCT2 in the same shelf.

When input, this command will cause the following confirmation request to be displayed:

```
/* Caution! Execution of this command may affect service.
   You have selected the set-nct command with these parameters:

   Address = x
   ctsEnabled = value
   ControlTimeslot = value
   Trcu3ControlTimeslot = value
   mode = value

Execute? (y/n or CANcel/DELete to quit) =
```

RELATED COMMANDS

rtrv-nct

NAME

rtrv-nct: Retrieve NCT

INPUT FORMAT

rtrv-nct[:*Address*];

DESCRIPTION

This command displays the configuration of NCT and NCT2 line(s), as set by the `set-nct` command.

This command is available with OC-3 Release 13.5.

The input parameter is as follows:

Address   Address identifies the NCT/2 line(s). The default is **all**.
Valid NCT/2 Addresses: **all, fn-all, fn-{a,b,c}-all**

The output report appears as follows:

```
/* NCT Line Provisioning Report
===================================================================
Line      CTS     CTS    TCTS    Mode
Address   Enabled
===================================================================
address   xxx      n      n      xx
address   xxx      n      n      xx
   .        .      .      .       .
*/
```

The output parameters are:

`CTS Enabled`	If CTS messaging is enabled. Valid values are:
	no
	yes
`Line Address`	Address of the NCT line.
`CTS`	The provisioned control timeslot is a number between 0 and 255, or - if disabled.
`TCTS`	The provisioned TRCU3 control timeslot is a number between 0 and 255.
`Mode`	Where the shelf is located. Valid values are:
	host 5ESS host location (default)
	remote location of optical remote module (ORM) or extended switch module (EXM)

RELATED COMMANDS

set-nct

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 **OLIU FAULT** LEDs, etc.) are present on the network element or system receiving the program.

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

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

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

	Upgrade to*	
Current Release	**13.0**	**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 **OLIU**s 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 **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 **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 **SYSCTL** Switch **S1** is not set properly for type of shelf being equipped.

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

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

Indicates **SYSCTL** must be replaced.

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

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

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

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

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

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

Letter "P" in FE ID Display

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

   ⟹ **NOTE:**
      After the terminal emulator (**term**) is started, the software download
      automatically begins. The download may take 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**.

DDM-2000 OC-3 MULTIPLEXER

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

DDM-2000 OC-3 MULTIPLEXER

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

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

Letter "C" in FE ID display

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

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

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

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

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

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

25. To *force* the system to run the current software, perform the following:

    a.   Ensure that a **TGS/TG3** circuit pack is installed in **TIMING** slot **2**.

    b.   Remove the **TGS/TG3** circuit pack in **TIMING** slot **1**.

    c.   Reset (unplug and reseat) the **SYSCTL** to force it to run the current software.

DDM-2000 OC-3 MULTIPLEXER

    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 **TIM-ING** 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**.

DDM-2000 OC-3 MULTIPLEXER

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

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

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

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

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

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

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

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

    When the `apply:` command is executed during an upgrade from Release 11.0 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**

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[*]   Registered trademark of Microsoft Corporation.

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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.

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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**.

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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**.

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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 **OLIU FAULT** LEDs, etc.) are present on the network element or system receiving the program.

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

4. ⚠ **CAUTION:**

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

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

	Upgrade to*	
Current Release	**13.0**	**15.0**
7.1.n (Ring)	$C^\dagger$	$C^\dagger$
7.2.n (Ring)	$C^\dagger$	$C^\dagger$
8.0.n (Linear)	$C^\dagger$	$C^\dagger$
8.1.n (Linear)	$C^\dagger$	$C^\dagger$
9.0.n (Ring)	$U^\dagger$	$U^\dagger$
9.1.n (Ring)	$X^\dagger$	$X^\dagger$
11.0.n (Ring)	$X^\dagger$	$X^\dagger$
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 **OLIU**s will stay in the `concat` mode until they are removed and reseated.

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➡ **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.

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⟹ 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**

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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**.

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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.

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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**.

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

>   Reference: **DLP-522**

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

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

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

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

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

    When the **apply:** command is executed during an upgrade from Release 11.0 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 **rlgn:**tid command to login again to the remote shelf, then execute the **apply:** command.

    > Response: At the local shelf, a "**P**" appears in the \f3FE ID\f1 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**.

DDM-2000 OC-3 MULTIPLEXER

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**.

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†   Registered trademark of Microsoft Corporation.

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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.

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‡   Registered trademark of Microsoft Corporation.

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

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

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

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

9. ⇒ NOTE:
   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**.