Lucent Technologies
Bell Labs Innovations

DDM-2000 OC-12 Multiplexer Software Release Description

Release 5.2.3

363-206-259
Issue 3
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DDM-2000 OC-12 Multiplexer
Software Release Description
Release 5.2.3

Contents **Page**

Contents **Page**

Tables

1. Overview

1.01 The purpose of this software release description (SRD) is to provide information about Software Release 5.2.3 and its interaction with the DDM-2000 OC-12 System. This practice contains the following parts:

- **Software Release 5.2.3 Features:** This part provides a description of the features provided by Release 5.2.3.
- **Operating Issues Resolved:** This part provides the list of issues (problems) which existed in previous software releases that were resolved with this issue of software.
- **Operating Issues:** This part provides information about the existing issues (problems) in Release 5.2.3 that may become evident during the operation of the DDM-2000 OC-12 System.
- **DDM-2000 Interworking:** This part provides a description of the optical connections that are supported between OC-3 and OC-12 shelves and the software releases that can coexist in the same subnetwork.
- **DDM-2000 OC-12 Multiplexer DRI Software Compatibility:** This part provides the dual ring interworking (DRI) software compatibility table for the DDM-2000 OC-12 Multiplexer for both EC-1 and OC-3/IS-3 interfaces.
- **Inservice Upgrades:** This part provides the information required to upgrade the DDM-2000 OC-12 System software to Release 5.2.3.
- **Implementation Procedure:** This part provides the information required to install the DDM-2000 OC-12 System software, Release 5.2.3.

NOTE:
Read all parts of this practice before implementing the DDM-2000 OC-12 System software update.

1.02 This practice, Issue 3, supersedes the previous Issue 2. Issue 3 provides updated information for Software Release 5.2.3. The updated information is included in the Operating Issues Resolved (Sections 3.07 and 3.08) section of this practice. Margin bars are used to denote the added information. 363-206-259, *DDM-2000 OC-12 Multiplexer, Software Release Description, Release 5.2.2*, Issue 2 provided the coverage for Software Release 5.2.2.

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 5.2.3 may be resolved by contacting the Regional Technical Assistance Center in your area. Dial 1-800-225-RTAC (7822).

1.05 A tab designated **Software Release Description** has been provided in 363-206-290, *DDM-2000 OC-12 Multiplexer, Release 5 and Higher, User/Service Manual (TOP) - Volume II*, for convenient storage of this practice.

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

2. Software Release 5.2.3 Features

2.01 The features described below are for DDM-2000 OC-12 Release 5.2.3.

A. **Administration**

- Because of the spinoff of Lucent Technologies from AT&T, the default login ids and software download banners have been changed.

  - 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).

    If the CIT command **`init-sys:sysctl`** (or the TL1 command **`INIT-SYS`**) has been performed on the system, the new default login IDs will be active. However, it is not necessary to activate the new LUC default login IDs; the old ATT default login IDs can still be used.

    CAUTION:
    Execution of the **`init-sys:sysctl`** *command may affect service. The command should* **NOT** *be used on an in-service system. (In in-service systems, the user is encouraged to use the* **`set-lgn`** *command to customize the new logins, if needed).*

    The **`init-sys:sysctl`** *command should only be used at the end of installation before system turnup. This command should only be used after a* **SYSCTL** *is replaced.*

- The DDM-2000 TL1 login banner has been changed to include:
  - `Lucent Technologies` <system>, replacing `AT&T` <system>
  - `LUCENT TECHNOLOGIES - PROPRIETARY`, replacing `AT&T - PROPRIETARY` in the login proprietary banner.

- The DDM-2000 CIT login banner has been changed to include:
  - — `Lucent Technologies`, replacing `AT&T`
  - — `LUCENT TECHNOLOGIES - PROPRIETARY`, replacing `AT&T - PROPRIETARY` in the login proprietary banner.
- The reference to `AT&T` in the PC software download banner has been changed to `Lucent Technologies`.
- **Fourth Level of Security:** A new Maintenance security level, which allows access to Reports and some general level activities is provided in addition to the three current levels of privileged, general, and reports-only. This level allows the user to perform Maintenance operations, but not provisioning operations. Some examples are, all types of protection switching and loopback activities.

B. **Dual Ring Interworking (DRI)**

- **Enhanced DS3 Dual Ring Interworking:** For an in-service DS3 signal that has been STS-1 cross-connected in drop & continue (dc) mode, an incoming DS3 loss of signal (LOS) or bit error rate (BER) failure from the DSX-3 will result in an STS-1 AIS signal towards the fiber. This will cause the terminating node in the network to path protection switch to the other ring with a good incoming signal, if possible.

C. **Operations**

- **CPro-2000 and ITM SNC Support:** CPro-2000 Release 6.1 and ITM SNC Release 5.0 and later will include any change needed to accommodate the compatibility between CPro, ITM SNC, and DDM-2000 OC-12 Release 5.2.3, and therefore CPro-2000 Release 6.1 and ITM SNC Release 5.0 should be deployed with the DDM-2000 Release 5.2.3.

  OC-12 software Release 5.2.3 is incompatible with CPro-2000 Release 3.0.

D. **Operations Interworking (OI)**

- **Large Networks:** DDM-2000 OC-12 R5.2 supports OI for larger networks. Specifically, networks with only DDM-2000 products (OC-3 R9.1, OC-12 R5.2, or FiberReach WBS R2.1) may contain up to 50 network elements (NEs). Networks that include FT-2000 (Release 7.x) may include up to 32 NEs.

  In addition, the number of simultaneous logins supported by each TL1 RNE increases from 5 to 8, and the number of outgoing logins supported by each TL1 GNE increases from 69 to 105.

- **TL1 Enhancements:** To improve OS access performance during the period of heavy activity immediately following X.25 link resets, OSs provisioned to receive TL1 autonomous alarm and status maintenance messages will no longer receive an automatic alarm status refresh immediately after a successful TL1 login. Instead, DDM-2000 will await TL1 **RTRV-ALM-ALL** and **RTRV-ALM-ENV** commands from such OSs. Associated with this change, the **RTRV-ALM-ENV** command default has been changed to support retrieval of ALL environmental alarms.

  To reduce unnecessary routing of TL1 REPT PM messages, DDM-2000's default TL1 autonomous message map has been changed to exclude REPT PM from the OS type tl1Other1. This change is compatible with ITM SNC and any other OSs interested in TL1 autonomous maintenance and provisioning messages but not autonomous performance monitoring (PM) reports. The default OS type tl1Maintenance still includes REPT PM, and user provisioning can still override any of the default values.

- **Enhanced Software Download:** Provides a software copy capability which allows a new software generic to be downloaded to the DDM-2000 system and stored in its EEPROM memory as a dormant, non-executing software generic. This download activity takes place while the current generic is still running. When a new CIT command, apply, is initiated, the dormant generic replaces the current generic with no DCC (Data Communications Channel) disruption. In order to allow coordination of the cutover of multiple NEs in a subnetwork, the replacement of the generic takes place 30 minutes after the execution of the apply command.

E. **Synchronization**

- **S1 Byte Synchronization Messaging:** This feature uses the S1 byte of the SONET line overhead (bits 5-8) to pass timing status information to different nodes in a network. The synchronization messaging mode (S1 byte or K2 byte) is provisionable on a per OC-N basis. When K2 byte messaging is provisioned (default value), both K2 and S1 sync message information will be transmitted, but only the K2 byte will be interpreted on the receive side. When S1 byte messaging is provisioned, only the S1 sync message information will be transmitted and interpreted on the receive side. When an optical interface has its sync messaging disabled, "Don't Use" will be sent on that interface for both K2 and S1 bytes.

- **Provisionable AIS Threshold Level:** This feature allows the user to provision AIS generation on the DS1 output of the **BBF2B TGS** circuit pack using the **set-sync** CIT command or the **ENT-SYNCN TL1** command. When the received sync message quality level number on the OC-N optical source used for deriving the DS1 output is equal to or greater than the provisioned quality level and moving to a higher quality timing source is not possible, then DS1 AIS will be transmitted from the timing circuit packs.

F. **Network Topologies**

- **New 0X1 IS-3c/OC-3c Optical Interfaces:** This feature provides the ability of transporting STS-3c services on IS-3c or OC-3c low-speed **FUNCTION UNITS** optical interfaces that have been provisioned for 0X1 applications. The CIT **`set-oc3`** or the TL1 **`ENT-OC3`** commands are used to provision the low-speed OLIU circuit pack(s) to a "0X1" application. Then the command **`ent-crs-sts3c`** will be used with a **`twoway`** cross-connect type option.

3. Operating Issues Resolved

3.01 For information on Release 5.0.5, refer to 363-206-248, Issue 5, *DDM-2000 OC-12 Multiplexer, Software Release Description, Release 5.0.5*.

3.02 This part lists the operating issues (problems) which existed in Release 5.0.5 but are resolved in Release 5.1.1.

(1) **ISSUE:**
As network size grows, the bandwidth of the X.25 link to the GNE can become a bottleneck under heavy TL1 traffic conditions, causing the GNE's output buffers to overflow.

(2) **ISSUE:**
A network of DDM-2000 OC-3 R9.0, OC-12 R5.0, FT-2000 OC-48 R6.0, and FiberReach R1.0 nodes of greater than 24 network elements may experience significant load-related problems with DCC communication among the nodes.

NOTE:
For further information about network size, see the Operations Interworking sub-section of the Features section of this practice.

(3) **ISSUE:**
If the **BBG8 SYSCTL** circuit pack in an operational shelf is replaced with a circuit pack that has never been loaded with generic software (i.e. a fresh-from-the-factory circuit pack), the shelf-level parameters should be restored onto the **SYSCTL** from the backup copy on the **TGS**. Instead, they will be set to their default values. The specific parameters involved are: tid, dsne, site, ne, shelf, tbos parameters, power minor alarm level, co/rt, and us/ns settings for DCC links.

(4) **ISSUE:**
The **`rtrv-map-network`** report at the DSNE may have an inaccurate TID if the TID is changed shortly after enabling DCC communication with **`set-fecom`** command.

(5) **ISSUE:**
In a mixed DDM-2000/FT-2000 network, some DCC traffic patterns may cause one or more FT-2000 controllers to reset. Two known situations that can cause this problem are:

— Add or delete AGNEs beyond the first one.

— Doing a **`cpy-prog`** command such that the software being copied must pass through an FT-2000.

This problem was fixed in FT-2000 Release 6.0.2.

(6) **ISSUE:**
Periodic DCC-related alarms may be reported autonomously when there is no real problem. The most common of these is the `inconsistent DCC values` alarm which is usually followed within a few seconds by `inconsistent DCC values clrd`. Much less frequently reported are `section DCC channel failed` and `communication failure` alarms. Usually a corresponding clearing event is reported within about 20 seconds.

(7) **ISSUE:**
With remote TBOS reporting enabled, provisioning two or more network elements within the same alarm group to have the same TBOS display number value of 8 will cause the DSNE network element to reset continuously until the duplicate TBOS display provisioning is eliminated.

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

(8) **ISSUE:**
The first character of a login password, when accessing a DDM-2000 OC-12 system from TL1, must be alphabetic. The same restriction does not apply to the CIT interface.

(9) **ISSUE:**
No DDM-2000 system in a network will generate an alarm if there is no DSNE in the network. Without a DSNE in the network, network elements are unable to communicate via the DCC with any other network elements.

As of Release 5.1, each node in the network that is unable to contact a DSNE will report a major `DSNE not reachable` alarm.

(10) **ISSUE:**
The timeout for attempting to login via TL1 to a network element was set for two (2) minutes. Some OSs have a login timeout of 4 minutes.

At the request of customers, the DDM timeout value was raised to 3.5 minutes in order to bring these timers more closely into alignment.

(11) **ISSUE:**
When a slot is transitioned from the equipped to the auto state, the system clears the `CP removed` alarm with a `circuit pack inserted` autonomous TL1 message. It would be more accurate to send a `CP removed cleared` TL1 message. Under heavy load, this timeout may expire.

(12) **ISSUE:**
DDM-2000 does not adhere to the new Bellcore alarm clearing time requirements. The requirement was lowered from 15 seconds to 10 seconds.

(13) **ISSUE:**
The system does not properly handle failure of the phase locked loop (PLL) circuitry on the TGS circuit pack. The incorrect handling causes the system to go into holdover mode, with no alarm, indefinitely.

3.03 For information on Release 5.1.1, refer to 363-206-254, Issue 1, *DDM-2000 OC-12 Multiplexer, Software Release Description, Release 5.1.1*.

3.04 This part lists the operating issues (problems) which existed in Release 5.1.1 but are resolved in Release 5.1.2.

(1) **ISSUE:**
Removal of a "1+1" protected OC-3 **21G-U OLIU** circuit pack from a **FUNCTION UNITS** slot did not result in circuit pack protection switching, thereby, causing loss of service.

(2) **ISSUE:**
Resetting an externally timed shelf with the DS1 sync out mode, causes the DS1 output source of the **BBF2B TGS** circuit pack to switch to the default source (**`main-b-1`**) if the provisioned source prior to the reset was **`main-b-2`**.

(3) **ISSUE:**
The `inc. (from fiber) DS3 AIS` is not reported in the alarm and history reports when for the first time the DS3 port transitions to in-service (IS) state, unless the update (**upd**) command is used.

(4) **ISSUE:**
In rare circumstances, such as a loss of signal condition on both **MAIN** slot OLIU circuit packs, an erroneous `DSNE not reachable` alarm might be reported.

3.05 For information on Release 5.2.1, refer to 363-206-259, Issue 1, *DDM-2000 OC-12 Multiplexer, Software Release Description, Release 5.2.1*.

3.06 This part lists the operating issues (problems) which existed in Release 5.2.1 but are resolved in Release 5.2.2.

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

(1) **ISSUE:**
Under heavy TL1 traffic conditions, combining any two of the following RNE→GNE message traffic types on a single VC may cause some of the messages not be sent to the OS:

— Command Response Messages

— PM Related Autonomous Messages

— Other Autonomous Messages.

Unsent autonomous messages may still be retrieved using the **RTRV-AO** TL1 command.

(2) **ISSUE:**
After a power outage or after disconnecting the X.25 cable from a GNE, the X.25 session is temporarily lost (as expected). However, when the power is recovered or the X.25 cable is reconnected to the GNE, the shelf needs to be reset for it to recover the X.25 session.

(3) **ISSUE:**
Autonomous T1 PM reports for 15-minute or 1 to 24-hour intervals, sometimes cannot be turned off by the **SCHED-PMREPT-T1** command.

(4) **ISSUE:**
If an STS-3c pass-through cross-connect is active and a **23G-U OLIU** circuit pack is removed from a **MAIN B** slot, and then reinserted; a **TSI** circuit pack will be declared as Failed for the duration of 10 seconds and then the failure clears.

(5) **ISSUE:**
If one OLIU circuit pack is removed from a **MAIN B** slot, and then the second OLIU in a **MAIN B** slot fails due to both **TSI** circuit packs receiving parity errors; when the removed OLIU is replaced, both OLIU circuit packs are declared as failed, and transmission is lost on the active ring.

3.07 For information on Release 5.2.2, refer to 363-206-259, Issue 2, *DDM-2000 OC-12 Multiplexer, Software Release Description, Release 5.2.2*.

3.08 This part describes an operating issue (problem) that existed in Release 5.2.2 and earlier Release 5 software, but is resolved in Release 5.2.3. This problem did not appear in previous issues of the SRD because the problem was discovered between the time of the release of that SRD and the release of this software.

(1) **ISSUE:**
Intermittent DCC failures may occur on the OC-3 optical link between an OC-12 shelf **FUNCTION UNITS** slot and an interconnecting OC-3 shelf.

4. Operating Issues

4.01 This part lists information pertaining to recognized operating issues (problems) existing in Release 5.2.3. Suggestions to work around the operating issues are mentioned, if available.

4.02 The following list contains known problems in the software:

A. **Download**

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

WORK AROUND:
Do only one **cpy-prog** at a time in the same subnetwork.

(2) **ISSUE:**
When upgrading from DDM-2000 OC-12 Release 5.0.6 to Release 5.2.1, or higher, sometimes the remote install program (**ins-prog**) from a PC to a remote DDM-2000 fails with the following error response:

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

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

WORK AROUND:
Repeat the same remote install program (**ins-prog**) or copy program (**cpy-prog**) again.

B. **Operations Interworking (OI)**

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

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

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

WORK AROUND:
Before setting up an optical connection between DDM and FT, use the **`rtrv-fecom`** command to check the User Side/Network Side parameters on the DDM. Use the **`set-fecom`** command to change the User Side/Network Side parameters on the DDM, if necessary.

(5) **ISSUE:**
In a mixed DDM-2000/FT-2000 network, a duplicate DSNE will cause corruption of **`rtrv-map-network`** report in some nodes, which in turn disables the remote login capability to those sites from other network elements.

WORK AROUND:
Before mixing the two sub-networks, make sure there is only one node with DSNE=yes in the entire network.

C. **Maintenance**

(6) **ISSUE:**
When an **`opr-lpbk-t3`** CIT command with facility loopback type and address of **`all`** or **`rls-lpbk-t3:all`** CIT command is entered, the active **BBG11**/**BBG11B** circuit pack will fail and switch to the standby circuit pack. The failed pack then clears within a few seconds.

WORK AROUND:
Use these commands with a specific address of (**`a,b,c,d`**)-(**`1-3`**).

5. DDM-2000 Interworking

NOTE:
Interworking between products (DDM-2000, FT-2000, and DACS IV-2000, etc.) is evolving with EC-1, OC-3, IS-3, and DS3 interfaces. 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 for the same protection mode (1+1 or dual 0x1, for example).

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

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

OC-12 Release	OC-3 Release	Interconnection (Note 2) Method	Notes
5.0	7.2 and 9.0∗	22D-U†, 22F-Type†, 22G-Type†, 21D-Type‡, or 21G-Type OLIU	Supports OC-3/OC-12 interworking, 0x1 interfaces, and DRI
5.0	8.0 and 8.1	22D-U†, 22F-Type†, 22G-Type†, 21D-Type‡, or 21G-Type OLIU	Supports linear optical extensions
5.0	9.1∗	22D-U†, 22F-Type†, 22G-Type†, 21D-Type‡, or 21G-Type OLIU	Supports OC-3/OC-12 interworking, 0x1 interfaces, and DRI
5.1	9.1∗	22D-U†, 22F-Type†, 22G-Type†, 21D-Type‡, or 21G-Type OLIU	Supports OC-3/OC-12 interworking, 0x1 interfaces, and DRI
5.2	9.1∗	22D-U†, 22F-Type†, 22G-Type†, 21D-Type‡, or 21G-Type OLIU	Supports OC-3/OC-12 interworking, 0x1 interfaces, and DRI
5.2	11.0∗	22D-U†, 22F-Type†, 22G-Type†, 21D-Type‡, 21G-Type, or 24-Type§ OLIU	Supports OC-3/OC-12 interworking, 0x1 interfaces, and DRI
5.2	11.1∗	22D-U†, 22F-Type†, 22G-Type†, 21D-Type‡, 21G-Type, or 24-Type§ OLIU	Supports OC-3/OC-12 interworking, 0x1 interfaces, and DRI

Notes:

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

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

* 22D-U, 22F-Type, and 22G-Type OLIUs must be used in DDM-2000 OC-3 ring shelves in the **MAIN** and **FUNCTION UNITS** slots for optical extensions. 21D-Type and 21G-Type OLIUs are used in DDM-2000 OC-12 shelf.

† The 22D-U, 22F-Type, and 22G-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-3 shelf in place of the 21G-Type OLIU for short reach applications. 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 24-Type OLIU can only be used in the **MAIN** slots of the DDM-2000 OC-3 shelf.

6. DDM-2000 OC-12 Multiplexer DRI Software Compatibility

6.01 Table B lists the dual ring interworking (DRI) software compatibility for the DDM-2000 OC-12 Multiplexer for both EC-1 and OC-3 interfaces. The table lists all possible software combinations. Combinations not listed are not supported.

Table B. DDM-2000 OC-12 Multiplexer DRI Software Compatibility

DDM-2000 OC-12 and FT-2000	DDM-2000 OC-3	Notes
OC-12 Release 5.0 and FT-2000 Releases 4.1, 5.0, and 6.0	Release 7.2 and Release 9.0	FT-2000 Releases 4.1 and 5.0 have no DCC connectivity.
OC-12 Release 5.X and FT-2000 Releases 7.X	Release 9.1, 11.0, and 11.1	

See 824-102-147, *Lucent Technologies 2000 Product Family, Operations Interworking Guide*, for more information on operations interworking.

7. Inservice Upgrades

7.01 Table C lists the current software releases of the DDM-2000 OC-12 Multiplexer that can be directly upgraded inservice. Specific procedures for upgrades are provided in 363-206-290, *DDM-2000 OC-12 Multiplexer, Release 5 and Higher, User/Service Manual (TOP) - Volume II*.

Table C. DDM-2000 OC-12 Inservice Software Upgrade Compatibility (Notes)

Current OC-12 Release	Upgrade to*		
	5.0 (Ring)	5.1 (Ring)	5.2 (Ring)
3.0 (Ring)	C	C	C
3.1 (Ring)	C	C	C

Notes:

(1) All DDM-2000 OC-12 shelves in a subnetwork should be using the same version of software (except R3.0/3.1 and R5.0/5.1/5.2). Releases 3.0/3.1 and 5.0/5.1/5.2 can coexist in the same subnetwork.

(2) See attached **NTP-016** for information and procedures needed for upgrading Release 3 to Release 5 for a system in service.

* When doing an upgrade, it is recommended that the latest point release of software be used, if possible. 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. See 363-206-290, *DDM-2000 OC-12 Multiplexer, Release 5 and Higher, User/Service Manual (TOP) - Volume II*, for upgrade procedures.

8. Implementation Procedure

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

NOTE:
Before installing Release 5.2.3 software, the following hardware versions *must* be in place at all sites before continuing with the implementation procedure:

BBG8 SYSCTL: Series 1:1 or higher
BCP4 OHCTL: Series 1:1 or higher.

8.01 For Releases 5.0.1 and higher, the following parameters should be provisioned to support OSI interworking over the SONET DCC:

- The appropriate Network Side/User Side parameters on opposite ends of any optical span need to be set to opposite values with the **`set-fecom`** command. For instructions about setting the Network Side/User Side parameters, refer to 363-206-290, *DDM-2000 OC-12 Multiplexer, Release 5 and Higher, User/Service Manual (TOP) - Volume II*.

Software Installation and Upgrade Procedure

CAUTION:
While doing upgrades, incompatible software between two network elements may cause continuous resets on the shelf that is being upgraded (i.e. when an OC-12 Release 5.0 is connected to an OC-3 Release 7.1). To avoid this situation during upgrades that can result in software incompatibility, it is recommended that the DCC be temporarily disabled until the NE upgrade is completed. The DCC can be disabled through the **`set-fecom`** *command.*

DLP-520, **DLP-527**, and **DLP-530** contain the latest information and procedures needed for upgrading a DDM-2000 OC-12 System running any upgradable version of OC-12 software. **DLP-520** 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 software takes approximately 30 minutes to copy from one shelf in the subnetwork to another shelf if the DCC traffic is not excessive from other shelves. 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-520**, **DLP-527**, or **DLP-530** to install the new software.

How Are We Doing?

Document Title: *DDM-2000 OC-12 Multiplexer, Software Release Description, Release 5.2.3*

Document No.: 363-206-259 Issue 3 Date: June 2000

Lucent Technologies welcomes your feedback on this document. Your comments can be of great value in helping us improve our documentation.

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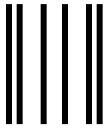

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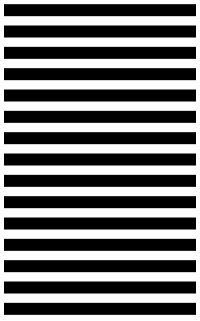

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Upgrade DDM-2000 OC-12
Release 3 to Release 5
System In Service

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

---

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

NOTE 1:
This procedure assumes that the DDM-2000 is in service and is being upgraded from Release 3 software to Release 5. Release 5 software requires that a new **BBG8 SYSCTL** and a **BCP4 OHCTL** be installed in the shelf. This procedure must be performed locally at all shelves in the same control network.

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

Use **`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:**
Transmission configuration information for in-service systems is stored on the **TGS** *circuit pack in* **TIMING** *slot* **1**. *Both* **TGS** *circuit packs must be installed before performing this procedure. During this procedure, downloading Release 3.x software to a shelf running OC-12 Releases 5.x requires you to remove the* **TGS** *circuit pack in* **TIMING** *slot* **1** *in order to "force" the system to run the new software. If both* **TGS** *circuit packs are not installed, removal of the only* **TGS** *circuit pack will cause service interruption*.

⇶ **NOTE 1:**
When upgrading from a Release 3 system to a Release 5 system, after the first shelf is upgraded, single ended operations will not be available and major alarms (section DCC channel failed) will exist until all shelves are upgraded.

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

⇶ **NOTE 3:**
If you are **sure** you are installing new **BBG8 SYSCTL** and **BCP4 OHCTL** controllers that contain the proper software or you are **sure** you will load the proper software from the PC, you may elect to remove the **TGS** circuit pack in **TIMING** slot **1** and allow the software to run without having to "force" the system to run the software.

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

Before performing this procedure on an in-service system, ensure that both **TGS** circuit packs are installed in the shelf and use the **`switch-sync:s=circuitpack,pri=manual`** command to switch to the protection **TGS-2** circuit pack if not already **ACTIVE**. Use **`rtrv-sync:`** command to verify that the **TGS-2** 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-509**]. See the "Commands and Reports" section of this manual for a description of the **`rtrv-( )`** commands. Note all the parameters that are set using the **`set-ne`** and **`set-fecom`** commands. These parameters may have to be reset when the controllers are replaced and the new software is installed.

5. When upgrading from Release 3 to Release 5, use the **`set-ne:gne=no`** command to discontinue the GNE shelf in the R3 ring.

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

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

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

Remove **BBG5 SYSCTL** circuit pack.

7. Remove **BCP1 OHCTL** circuit pack.

8. Install **BCP4 OHCTL**. **DLP-500**

9. ⇶ **NOTE 1:**
When upgrading from Release 3 to Release 5 (all shelves), after the software download is successfully completed, the **FAULT** LED on the **OHCTL** will flash and the **MJ** LED will be lighted until the other end is upgraded.

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

NOTE 2:
The default *privileged user* logins for Releases 5.0, 5.1, or later are LUC01 (uppercase LUC-zero-one), LUC02 (uppercase LUC-zero-two), and LUC03 (uppercase LUC-zero-three). The default password is DDM-2000.

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

10. **CAUTION:**
Do not designate any shelf as the DSNE (Step 12) until all shelves in the network have been upgraded to the new software. Designating the DSNE first will prevent the other nodes from completing the **set-ne** *command.*

NOTE:
Parameters that were previously set by switches on the **BCP1 OHCTL** and **BBG5 SYSCTL** are set by software commands on the new **BCP4 OHCTL** and **BBG8 SYSCTL** controllers: **TID, Site, NE, Shelf, PMN, TBOS, 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, Site, NE, Shelf, PMN, TBOS, 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.

DO ITEMS BELOW IN ORDER LISTED	FOR DETAILS, GO TO
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:dsne=yes`** command to designate one shelf as the DSNE.	
13. After all shelves have been upgraded to new software, use the **`set-ne:agne=yes`** command to designate one shelf as the AGNE.	

Install Software Generic Program
New Shelf Installation
Only BBG8 SYSCTL and BCP4 OHCTL Installed

1. **NOTE 1:**
This procedure is used to install a software program in a new DDM-2000 OC-3 shelf equipped only with the **BBG8 SYSCTL** and **BCP4 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-527**. For procedures to download software remotely to a fully equipped in-service shelf, see **DLP-530**.

NOTE 2:
It is assumed that the **BCP4 OHCTL** and **BBG8 SYSCTL** circuit packs have been installed per **DLP-500** and **DLP-557**.

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.

---

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2. Before beginning this 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-528**

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

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

      Reference: **DLP-528**

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

      Reference: **DLP-529**

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

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

4. **NOTE:**
   Software download procedure must be initiated from *MS-DOS* environment. It should not be initiated from a windows environment.

   Start *MS-DOS* operating system on the PC [**DLP-529**].

   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_511 for generic version 5.1.1).

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

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

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

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

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

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

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

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

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

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

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

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

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

10. **NOTE:**
The **FE ID** display on the **SYSCTL** will show one of the following preceding software installation:

a. The letter **P** displayed in the **FE ID** display indicates that no software is installed in the **SYSCTL**. If the **P** is followed by a period (**P.**), it means that a previous download attempt has failed and a new software download will have to be attempted either locally or remotely using the **`ins-prog:tid`** or **`cpy-prog:tid`** command. If there is no period (**P**) the software can only be downloaded locally.

b. Nothing displayed in the **FE ID** display indicates that compatible software is installed in the **OHCTL** and **SYSCTL**.

c. The letter **d** displayed in the **FE ID** display indicates the **OHCTL** has no software or that the software in the **OHCTL** and **SYSCTL** is incompatible.

d. The letter **U** displayed in the **FE ID** display indicates that **SYSCTL** Switch **S2** is not set properly for the type of shelf being equipped. Set circuit pack option switch [**DLP-510**].

e. The letter **E** displayed in the **FE ID** display indicates that the **SYSCTL** must be replaced. Replace the **SYSCTL** [**DLP-557**] and repeat this procedure.

f. The letter **F** displayed in the **FE ID** display indicates that the **SYSCTL** faceplate latch is not fully latched. Latch the faceplate. (A reset occurs after the faceplate is latched.)

g. A flashing letter **L** displayed in the **FE ID** display indicates a low voltage condition (brownout) on the shelf. Clear trouble using **TAP-111**.

Does the **FE ID** display on the **SYSCTL** display a "**P**"?

If **YES**, then continue with **Step 11**.
If **NO**, then proceed to **Step 15**.

Letter "P" in FE ID Display

11. **NOTE:**
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.

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.

approx. 15-45 min.

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.

12. Was response correct?

    If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
    If **NO**, then continue with **Step 13**.

13. If the download does not start, as indicated by the `In progress` message and rows of dots, within 2 minutes after pressing any key, try the following:

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

    b. Ensure diskette is inserted in correct drive.

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

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

    e. If the download still does not start, exit CTRM, restart TERM and change the CTRM baud rate as follows: 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 momentarily depressing the "Alt C" keys, using the RETURN key to move to the "Speed" field, pressing the "Space" bar until the desired rate appears, and then momentarily depressing the "Escape/Esc" key to activate the new baud rate.

    If the download starts and fails during its progress, refer to **Trouble Clearing: TAP-116**.

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

15. Is the **FE ID** display on the **SYSCTL** display blank?

    If **YES**, then continue with **Step 16**.
    If **NO**, then proceed to **Step 27**.

FE ID Display Blank

16. **NOTE:**
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.

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.

approx. 15-45 min.

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.
```

17. **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] =
```

18. Was response correct?

    If **YES**, then proceed to **Step 20**.
    If **NO**, then continue with **Step 19**.

19. Check PC to **CIT** port connections. Make sure the cable is connected between the PC **COM( )** port and the **CIT** port on the DDM-2000. If the rear **CIT** port is being used on the DDM-2000, make sure a null modem is installed on the port. Check CTRM setup and make sure the **comm** port selected matches the port (**COM( )**) on the PC that is connected to the **CIT** port on the shelf. Check if CIT bay mult cabling is connected to this shelf but not terminated at another shelf.

    Repeat this procedure from Step 16.

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

    Response: PC responds with:

```
login<
password<

    /************************************
    *                                   *
    *         Lucent Technologies       *
    *      DDM-2000 OC-12 Multiplexer   *
    *                                   *
    *           Release a.b.c           *
    *                                   *
    ************************************/

                     .
                     .
                     .

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

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

22. 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.

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

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

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

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

`Execute? y/n =`.

24. Was response correct?

    If **YES**, then continue with **Step 25**.
    If **NO**, then do **Trouble Clearing: TAP-116**.

25. Enter a *y* or *yes* and a carriage return to execute the program.

    approx. 15-45 min.

    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 */
    ```

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

26. Was response correct?

    If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
    If **NO**, then do **Trouble Clearing: TAP-116**.

Letter "d" in FE ID Display

27. **NOTE:**
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.

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.

approx. 15-45 min.

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.
```

28. 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).

approx. 15-45 min.

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.

29. Was response correct?

If **YES**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
If **NO**, then continue with **Step 30**.

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

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

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

    If the download starts and fails during its progress, refer to **Trouble Clearing: TAP-116**.

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

1. **NOTE 1:**
This procedure is used to install a new software program in a local in-service DDM-2000 OC-12 shelf. For procedures to download software in a new shelf (initial installation), see **DLP-520**. For procedures to download software to a remote shelf (using `ins-prog` or `cpy-prog` command), see **DLP-530**.

Verify that no DCC failures or transmission failures (OC-12 LOS, flashing **OLIU FAULT** LEDs, etc.) are present on the network element or system receiving the program.

2. **CAUTION:**
Transmission configuration information for in-service systems is stored on the **TGS** *circuit pack in* **TIMING** *slot* **1**. *In some instances (for example, during some upgrades, system tests, or training classes), if the system is in service and a version of software is being installed that is not compatible with the current transmission configuration, it may be necessary to remove the* **TGS** *circuit pack in* **TIMING** *slot* **1** *to force the system to run the software you are trying to download. If both* **TGS** *circuit packs are not installed, removal of the only* **TGS** *circuit pack will cause service interruption.*

NOTE 1:
When upgrading from releases without synchronization messaging to releases with this feature, it is suggested to upgrade first the shelves which are provisioned for "external timed" or "external mult" timed. This is to prevent timing "holdover" conditions at nodes that derive timing from the OC-12 line.

NOTE 2:
If a shelf is in the STS3c mode (**`sts3c`** mode enabled by the **`set-feat`** command) and a different software generic that does not have the STS3c feature is loaded, the **OLIU**s will stay in the **`sts3c`** mode until they are removed and reseated.

NOTE 3:
The following step is recommended to protect against a loss of service because of inadvertently loading incompatible software. But, if you are **sure** that you want to load incompatible software, you may elect to remove the **TGS** in **TIMING** slot **1** and allow the software to download without having to force the system to run the software.

Before performing this procedure, it is strongly suggested that both **TGS** circuit packs be installed in the shelf and the **`switch-sync:s=circuitpack,pri=manual`** command be used to switch to the protection **TGS-2** circuit pack if not already **ACTIVE**. Use **`rtrv-sync:`** command to verify that the **TGS-2** circuit pack is **ACTIVE**.

3. 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.

---

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4. Before beginning this 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-528**

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

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

      Reference: **DLP-528**

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

      Reference: **DLP-529**

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

5. 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.

6. **NOTE:**
   Software download procedure must be initiated from *MS-DOS* environment. It should not be initiated from a windows environment.

Start *MS-DOS* operating system on the PC [**DLP-529**].

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

7. 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_511 for generic version 5.1.1).

8. 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.

9. ⇒ **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.

10. **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`

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

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

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

12. **NOTE:**
The **FE ID** display on the **SYSCTL** will show one of the following preceding software installation:

a. The letter **P** displayed in the **FE ID** display indicates that no software is installed in the **SYSCTL**. If the **P** is followed by a period (**P.**), it means that a previous download attempt has failed and a new software download will have to be attempted either locally or remotely using the **`ins-prog:tid`** or **`cpy-prog:tid`** command. If there is no period (**P**) the software can only be downloaded locally.

b. Nothing displayed in the **FE ID** display indicates that compatible software is installed in the **OHCTL** and **SYSCTL**.

c. The letter **d** displayed in the **FE ID** display indicates the **OHCTL** has no software or that the software in the **OHCTL** and **SYSCTL** is incompatible.

d. The letter **C** displayed in the **FE ID** display indicates that software is installed in the **OHCTL** and **SYSCTL**, but it will not support the current shelf transmission configuration.

e. The letter **U** displayed in the **FE ID** display indicates that **SYSCTL** Switch **S2** is not set properly for the type of shelf being equipped. Set circuit pack option switch [**DLP-510**].

f. The letter **E** displayed in the **FE ID** display indicates that the **SYSCTL** must be replaced. Replace the **SYSCTL** [**DLP-501**] and repeat this procedure.

g. The letter **F** displayed in the **FE ID** display indicates that the **SYSCTL** faceplace latch is not fully latched. Latch the faceplate. (A reset occurs after the faceplate is latched.)

h. A flashing letter **L** displayed in the **FE ID** display indicates a low voltage condition (brownout) on the shelf. Clear trouble using **TAP-111**.

Does the **FE ID** display on the **SYSCTL** display a "**P**" or "**P.**"?

If **YES**, then continue with **Step 13**.
If **NO**, then proceed to **Step 18**.

Letter "P" in FE ID Display

13. **NOTE 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.

NOTE 2:
If a "**P.**" was displayed in the **FE ID** display, unseat and then 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.

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.

approx. 15-45 min.

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

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

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

`In progress . . . .`

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

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

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

14. Was response correct?

    If **YES**, then continue with **Step 15**.
    If **NO**, then proceed to **Step 16**.

15. 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 36**.

16. If the download does not start, as indicated by the `In progress` message and rows of dots, within 2 minutes after pressing any key, try the following:

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

    b. Ensure diskette is inserted in correct drive.

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

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

    e. If the download still does not start, exit CTRM, restart TERM and change the CTRM baud rate as follows: 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 momentarily depressing the "Alt C" keys, using the RETURN key to move to the "Speed" field, pressing the "Space" bar until the desired rate appears, and then momentarily depressing the "Escape/Esc" key to activate the new baud rate.

    If the download starts and fails during its progress, refer to **Trouble Clearing: TAP-116**.

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

18. Is the **FE ID** display on the **SYSCTL** display blank?

    If **YES**, then continue with **Step 19**.
    If **NO**, then proceed to **Step 31**.

FE ID Display Blank

19. **NOTE:**
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.

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.

approx. 15-45 min.

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

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

20. **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] =
```

21. Was response correct?

If **YES**, then proceed to **Step 23**.
If **NO**, then continue with **Step 22**.

22. Check PC to **CIT** port connections. Make sure the cable is connected between the PC **COM( )** port and the **CIT** port on the DDM-2000. If the rear **CIT** port is being used on the DDM-2000, make sure a null modem is installed on the port. Check CTRM setup and make sure the **comm** port selected matches the port (**COM( )**) on the PC that is connected to the **CIT** port on the shelf. Check if CIT bay mult cabling is connected to this shelf but not terminated at another shelf.

Repeat this procedure from Step 19.

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

    Response: PC responds with:

```
login<
password<

    /************************************
    *                                   *
    *         Lucent Technologies       *
    *      DDM-2000 OC-12 Multiplexer   *
    *                                   *
    *           Release a.b.c           *
    *                                   *
    ************************************/

                      .
                      .
                      .

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

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

25. 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.

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

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

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

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

    `Execute? y/n =`.

27. Was response correct?

    If **YES**, then continue with **Step 28**.
    If **NO**, then do **Trouble Clearing: TAP-116**.

28. Enter a *`y`* or *`yes`* and a carriage return to execute the program.

    approx. 15-45 min.

    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 */
    ```

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

29. Was response correct?

    If **YES**, then continue with **Step 30**.
    If **NO**, then do **Trouble Clearing: TAP-116**.

30. 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 36**.

Letter "d" in FE ID Display

31. ⇒ **NOTE:**
    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.

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.

approx. 15-45 min.

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

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

32. 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).

approx. 15-45 min.

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.

33. Was response correct?

If **YES**, then continue with **Step 34**.
If **NO**, then proceed to **Step 35**.

34. 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 36**.

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

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

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

    If the download starts and fails during its progress, refer to **Trouble Clearing: TAP-116**.

Letter "C" in FE ID display

36. **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 system transmission configuration that you have. Under normal upgrade procedures, this indication should not occur. But, 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. 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 37**.
If **YES**, then proceed to **Step 38**.

37. Exit CTRM (Alt-F2). Find new version of software and repeat this procedure from Step 31.

38. To *force* the system to run the current software, perform the following:
    a. Ensure that a **TGS** circuit pack is installed in the **TGS-2** slot.
    b. Remove the **TGS-1** circuit pack, if not already removed.
    c. Reset (unplug and reseat) the **SYSCTL** to force it to run the current software.
    d. After the current software is up and running (no alarm LEDs lighted or you can log into the shelf), reinstall the **TGS-1** circuit pack.

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

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

1. **NOTE 1:**
   This procedure uses the **cpy-prog** or **ins-prog** commands to install a new software program in a remote in-service DDM-2000 OC-12 shelf. It is assumed that the local shelf has already been upgraded and the software is running normally. For procedures to download software in a new shelf (initial installation), see **DLP-520**. For procedures to download software locally to a shelf, see **DLP-527**.

   Verify that no DCC failures or transmission failures (OC-12 LOS, flashing **OLIU FAULT** LEDs, etc.) are present on the network element or system receiving the program.

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

3. **CAUTION:**
   Transmission configuration information for in-service systems is stored on the **TGS** *circuit pack in* **TIMING** *slot* **1**. *In some instances (for example, during some upgrades, system tests, or training classes), if the system is in service and a version of software is being installed that is not compatible with the current transmission configuration, it may be necessary to remove the* **TGS** *circuit pack in* **TIMING** *slot* **1** *to force the system to run the software you are trying to download. If both* **TGS** *circuit packs are not installed, removal of the only* **TGS** *circuit pack will cause service interruption.*

NOTE 1:
If a shelf is in the STS3c mode (**`sts3c`** mode enabled by the **`set-feat`** command) and a different software generic that does not have the STS3c feature is loaded, the **OLIU**s will stay in the **`sts3c`** mode until they are removed and reseated.

NOTE 2:
The following step is recommended to protect against a loss of service because of inadvertently loading incompatible software. But, if you are **sure** that you want to load incompatible software, you may elect to remove the **TGS** in **TIMING** slot **1** and allow the software to download without having to force the system to run the software.

Before performing this procedure, it is strongly suggested that both **TGS** circuit packs be installed in the shelf receiving the program and the **`switch-sync:s=circuitpack,pri=manual`** command be used to switch to the protection **TGS-2** circuit pack if not already **ACTIVE**. Use **`rtrv-sync:`** command to verify that the **TGS-2** circuit pack is **ACTIVE**.

4. Obtain the following equipment:
   (1) IBM* compatible personal computer (PC) running an *MS-DOS*† computer program operating system, Release 2.1 or later, if the **ins-prog** command is being used,

   (2) RS-232 cable to connect PC **COM** port to User panel **CIT** port, if the **ins-prog** command is being used,

   NOTE:
   The PC or CIT 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.

---

* Registered Trademark of International Business Machines Corporation

† Registered Trademark of Microsoft Corporation

5. Before beginning this 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-528**

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

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

      Reference: **DLP-528**

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

      Reference: **DLP-529**

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

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

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

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

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

NOTE 5:
The software to be copied may be a non-executing, dormant copy of a software generic. When executing the **`cpy-prog`** command, the local network element will internally check whether the current executing software or a dormant software should be copied into the memory of the target network element, where it may reside as a dormant copy also.

The **`apply`** command is used later to overwrite the currently executing generic with a copy of the generic included in the dormant software.

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.

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

   If **CPY-PROG**, then continue with **Step 8**.
   If **INS-PROG**, then proceed to **Step 14**.

8. **CAUTION:**
   Only one **cpy-prog** *procedure at a time should be performed in the same maintenance subnetwork. Multiple simultaneous procedures in the same network may cause the software copying procedure to fail.*

   Connect and establish session with local shelf being used for new program download.

   Reference: **DLP-516**

9. **NOTE:**
   In order to accomplish the same results obtained in previous releases through the **cpy-prog** command, after the new task of **cpy-prog** is accomplished successfully (the dormant software generic in the source network element is copied into the target network element's flash memory as a dormant software generic), a new command called **apply** is to be used. This new command has the same effect as the **cpy-prog** did in previous releases.

   Enter the command **cpy-prog:***tid*

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

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

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

   `Execute? y/n =`.

10. Was response correct?

    If **YES**, then continue with **Step 11**.
    If **NO**, then do **Trouble Clearing: TAP-116**.

11. Enter a *y* or *yes* and a carriage return to execute the program.

    approx. 15-45 min.

    Response: **ABN** LED lights on User Panel and a "**P.**" is displayed in **SYSCTL FE ID** display in the far-end shelf receiving the program. 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 **SYSCTL** resets. The LEDs go off on the User Panel and **SYSCTL**.

12. Was response correct?

    If **YES**, then continue with **Step 13**.
    If **NO**, then do **Trouble Clearing: TAP-116**.

13. 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 32**.

14. **NOTE:**
Software download procedure must be initiated from *MS-DOS* environment. It should not be initiated from a windows environment.

Start *MS-DOS* operating system on the PC [**DLP-529**].

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

15. 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_511 for generic version 5.1.1).

16. 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.

17. **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.

18. **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`

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

NOTE 2:
The cable from the **CIT** port on the DDM-2000 must be connected to the **COM** (**COM1 or COM2**) RS-232 port of the PC.

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 local DDM-2000 **CIT** port.

20. **NOTE 1:**
The **FE ID** display on the remote **SYSCTL** must show one of the following preceding software installation. Other conditions represent failure conditions or conditions that will not allow a remote software download.

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

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.

NOTE 2:
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.

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.

approx. 15-45 min.

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.
```

21. **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] =
```

22. Was response correct?

If **YES**, then proceed to **Step 24**.
If **NO**, then continue with **Step 23**.

23. Check PC to **CIT** port connections. Make sure the cable is connected between the PC **COM( )** port and the **CIT** port on the DDM-2000. If the rear **CIT** port is being used on the DDM-2000, make sure a null modem is installed on the port. Check CTRM setup and make sure the **comm** port selected matches the port (**COM( )**) on the PC that is connected to the **CIT** port on the shelf. Check if CIT bay mult cabling is connected to this shelf but not terminated at another shelf.

Exit CTRM (Alt-F2) and repeat this procedure from Step 20.

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

    Response: PC responds with:

```
login<
password<

    /***********************************
    *                                  *
    *         Lucent Technologies      *
    *      DDM-2000 OC-12 Multiplexer  *
    *                                  *
    *           Release a.b.c          *
    *                                  *
    ***********************************/

                      .
                      .
                      .

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

25. **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-ne`** command to retrieve the name (*tid*) of the shelf having new program installed.

26. 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.

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

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

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

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

    `Execute? y/n =`.

28. Was response correct?

    If **YES**, then continue with **Step 29**.
    If **NO**, then do **Trouble Clearing: TAP-116**.

29. Enter a *y* or *yes* and a carriage return to execute the program.

    approx. 15-45 min.

    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 */
    ```

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

30. Was response correct?

    If **YES**, then continue with **Step 31**.
    If **NO**, then do **Trouble Clearing: TAP-116**.

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

    If **NO**, then **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**
    If **YES**, then continue with **Step 32**.

Letter "C" in FE ID display

32. **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 system transmission configuration that you have. Under normal upgrade procedures, this indication should not occur. But, 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. 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 33**.
If **YES**, then proceed to **Step 35**.

33. Exit CTRM (Alt-F2). Load new version of software locally using procedures of **DLP-527**.

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

35. To *force* the system to run the current software, perform the following:
    a. Ensure that a **TGS** circuit pack is installed in the **TGS-2** slot.
    b. Remove the **TGS-1** circuit pack, if not already removed.
    c. Reset (unplug and reseat) the **SYSCTL** to force it to run the current software.
    d. After the current software is up and running (no alarm LEDs lighted or you can log into the shelf), reinstall the **TGS-1** circuit pack.
36. **STOP. YOU HAVE COMPLETED THIS PROCEDURE.**