Lucent Technologies
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DDM-2000 FiberReach Wideband Shelf Software Release Description

TARP Release 3.0.1

363-206-323
Issue 1
January 1998

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DDM-2000 FiberReach Wideband Shelf
Software Release Description
TARP Release 3.0.1

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1. Overview

1.01 The purpose of this software release description (SRD) is to provide information about Software Release 3.0.1 and its interaction with the DDM-2000 FiberReach Wideband Shelf (WBS). This practice contains the following parts:

- **Software Release 3.0.1 Features:** This part provides a description of the features provided by Release 3.0.1.
- **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 3.0.1 that may become evident during the operation of the DDM-2000 FiberReach WBS.
- **DDM-2000 Interworking:** This part provides a description of the optical connections that are supported between DDM-2000 FiberReach WBS and DDM-2000 OC-3 shelves and the software releases that can coexist in the same subnetwork.
- **Implementation Procedure:** This part provides the information required to install the DDM-2000 WBS software, Release 3.0.1.

NOTE:
Read all parts of this practice before implementing the DDM-2000 FiberReach WBS software.

1.02 This practice is issued to provide information for DDM-2000 FiberReach Software Release 3.0.1. 363-206-322, Issue 2, provided the coverage for Software Release 2.1.2.

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 3.0.1 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 363-206-305, *DDM-2000 FiberReach Multiplexer, Wideband/Narrowband Shelf, TARP Release 3, User/Service Manual*, for convenient storage of this practice.

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

2. Software Release 3.0.1 Features

2.01 DDM-2000 FiberReach Release 3.0.1 supports multi-vendor Operations Interworking (OI) and new transmission features in addition to the transmission features of Release 2.1.2.

NOTE:
DDM-2000 FiberReach Release 3.0.1 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 Release 3.0.1 when upgrading a subnetwork.

2.02 The features described below are for DDM-2000 FiberReach Release 3.0.1.

A. **Administration**

- **Default TID:** The default Target Identifier (TID) for DDM-2000 FiberReach Release 3.0.1 is LT-DDM-2000, instead of the previous default of Site#NE#.

B. **Transmission**

- **Single DS1 Facility Loopback with the New BBF3B DS1PM Circuit Pack:** The system will provide a facility loopback at the DS1 ports on the **BBF3B DS1PM** circuit packs. The **BBF3B DS1PM** circuit pack can be used as a replacement for the **BBF3 DS1PM** circuit pack in all applications. Operation of the loopback causes the selected incoming DS1 signal(s) on the selected circuit pack to be looped back towards the DSX.

C. **Applications**

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

D. **Operations**

- **Centralized Operations:** Because TL1/X.25 OS access is the standardized multi-vendor OI application, the following Remote NE Status features are not supported in DDM-2000 FiberReach Release 3.0.1:
  - — Remote Office Alarms
  - — Remote CIT Alarm Reports
  - — Remote User Panel Indications
  - — TBOS
  - — Parallel Telemetry.

  All of the above features depend on the proprietary exchange of information among Lucent NEs in a subnetwork, specifically the communication of each remote NE's alarm status to other NEs. Although the Remote NE Status features were supported in previous releases of DDM-2000, such Lucent only operations features in multi-vendor subnetworks would not include other-vendor NEs, due to the lack of applicable standards, and thus would be incomplete.
- **ITM SNC and CPro-2000 Support:** DDM-2000 FiberReach Release 3.0.1 is supported by ITM SNC Release 5.0 and CPro-2000 Release 7.0.

E. **Operations Interworking (OI)**

- **OI Standards Compliance:** DDM-2000 FiberReach Release 3.0.1 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 FiberReach Release 3.0.1 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.

  DDM-2000 FiberReach Release 3.0.1's 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.

- **Lucent OI Compatibility:** Although Lucent proprietary, the following OI applications are still supported by DDM-2000 FiberReach Release 3.0.1 even in multi-vendor subnetworks:
  - — Remote Craft Interface Terminal (CIT) Login
  - — Remote Software Download and Copy
  - — Remote NE to NE Automatic Time/Date Synchronization at Startup.

  The following compatible releases of DDM-2000 OC-3, DDM-2000 OC-12, DDM-2000 FiberReach, and FT-2000 OC-48 support OI among Lucent SONET products as well as with other-vendor NEs:
  - — DDM-2000 OC-3 Release 13.0.2 GA
  - — DDM-2000 OC-12 Release 7.0
  - — DDM-2000 FiberReach Release 3.0.1
  - — FT-2000 OC-48 Add/Drop Ring (ADR) Release 8.0.
- **TARP:** DDM-2000 FiberReach Release 3.0.1 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 FiberReach Release 3.0.1 supports subnetworks of up to 256 NEs by partitioning subnetworks into multiple areas connected via Level 2 Intermediate Systems (ISs). DDM-2000 FiberReach area address is user provisionable.

  FiberReach cannot be a Level 2 IS.
- **Network Maps:** Because DDM-2000 FiberReach Release 3.0.1 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 (not FiberReach), 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.

FiberReach cannot be a Level 2 IS.

- **Remote Communication Failures:** With TARP, either a remote NE is reachable from a local NE or TL1-GNE (not FiberReach) 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.

  FiberReach cannot be a TL1-GNE.

- **DCC Alarm Level:** DDM-2000 FiberReach Release 3.0.1 reports all Data Communications Channel (DCC) failures as minor alarms. With TARP, it is infeasible to escalate DCC alarms that result in remote communication failures to major alarms, as was done in previous releases of DDM-2000 FiberReach.

F. **Provisioning**

- **Subnetwork Partitioning:** DDM-2000 FiberReach Release 3.0.1 supports provisioning of the NSAP Area Address. This parameter is 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 FiberReach allows provisioning of the following TARP parameters. All TARP parameters are provisioned by the CIT and TL1 "**ENT-ULSDCC-L4**" command and include the following:

  (1) Lifetime

  (2) Manual Adjacency

  (3) Timers

  (4) Loop Detection Buffer (LDB) Flush Timer

  (5) TDC Enable/Disable

  (6) TDC TID-NSAP Entries.

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

- **Eliminated Provisioning:** Because DDM-2000 FiberReach Release 3.0.1 does not support Lucent Directory Services (LDS) or Remote NE Status features, the following OI-related provisioning is no longer necessary:
  - AGNE
  - Alarm Group Number
  - NE Number
  - Site Number
  - TBOS Parameters.

G. **TL1**

- **New TL1 RTRV-LOG Command:** Starting with FiberReach Release 3.0.1, a new TL1 command has been added "**RTRV-LOG**"; equivalent to the "**rtrv-hsty**" CIT command. The "**RTRV-LOG**" command can be initiated by users to generate a history log for the network element. This report contains up to 500 of the most recent events. Events include the start and end of alarm and status conditions, and all craft/OS input activities that affect or would affect the state of the network element that are successfully completed or denied. The history log displays the events in last in-first out order, and each event is time stamped.
- **New TL1 ENT/RTRV-FECOM Commands:** Starting with FiberReach Release 3.0.1, two new TL1 commands have been added "**ENT/RTRV-FECOM**"; equivalent to the "**set/rtrv-fecom**" CIT commands. "**ENT-FECOM**" command can be initiated by users to enable/disable remote access capabilities over the section data communication channels (DCC).

3. Operating Issues Resolved

3.01 For information on Release 2.0.1, refer to LTP 363-206-321, Issue 2, *DDM-2000 FiberReach Wideband Shelf, Software Release Description, Release 2.0.1*.

3.02 This part lists the operating issues (problems) which existed in Release 2.0.1 but are resolved in Release 2.1.1.

(1) **ISSUE:**
A network of DDM-2000 OC-3 R9.0, OC-12 R5.0, FT-2000 OC-48 R6.0, and DDM-2000 FiberReach WBS R1.0 or R2.0 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.

(2) **ISSUE:**
If the user attempts to download, to the shelf directly connected to a PC, a DDM-2000 FiberReach WBS generic to an DDM-2000 OC-3 shelf or vice-versa, the user will receive confirmation messages implying that the download will be allowed. If the user responds affirmatively to the confirmation request, the download attempt will eventually be denied, but the **BBG8 SYSCTL** circuit pack will be stuck displaying a "**P**" for about 5 minutes.

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

(4) **ISSUE:**
The history log for a FiberReach system directly connected to an OC-3 host shelf may show very brief DCC failures. The history log may be seen by executing the **`rtrv-hsty`** CIT command. Attempts to do remote logins to FiberReach shelves during the time around these brief failures may take up to a minute to complete.

(5) **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.

(6) **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.

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

3.03 For information on Release 2.1.1, refer to 363-206-322, Issue 1, *DDM-2000 FiberReach Wideband Shelf, Software Release Description, Release 2.1.1*.

(8) **ISSUE:**
If a system attempts to make multiple synchronization reference switches within about 2 seconds, only the first switch will take place. The subsequent synchronization reference switch attempts (within the 2 second window) will be silently ignored. Depending on the circumstances triggering a sequence of synchronization reference switches in a network, timing loops may be caused. These may, in turn, cause data errors on some circuits. A software change has been made to eliminate this problem.

A related problem concerns the synchronization quality reporting between DDM-2000 network elements. The current synchronization quality messages do not distinguish between a node set to free running timing mode and a node in holdover mode. In both cases, the shelf is relying upon its internal oscillator for timing and is not locked to any external timing source. Under some circumstances, timing loops can be created as a result of not distinguishing the two cases. This problem has been corrected by changing, for FiberReach nodes, the synchronization quality level reported when in holdover mode. Within DDM-2000 FiberReach nodes, this level is reported as "`Internal Clock Hldvr`" in the **`rtrv-sync`** report. A DDM-2000 OC-3 node receiving the new quality level message from a DDM-2000 FiberReach node would display the new level as "`Stratum 4`" in its **`rtrv-sync`** report.

3.04 This part lists the operating issues (problems) which existed in the previous release, but are resolved in Release 3.0.1.

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.

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

(10) **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 to 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-A0** TL1 command.

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

(12) **ISSUE:**
If a WBS is dropping traffic from its **MAIN** OLIUs to one or more DS1/T1 circuit packs in low speed slots, and BOTH **MAIN** OLIUs are removed (thereby disrupting transmission) and then re-inserted, transmission will not be restored unless the shelf is reset.

4. Operating Issues

4.01 This part lists information pertaining to recognized operating issues (problems) existing in Release 3.0.1. Suggestions to work around the operating issues are mentioned, if available.

4.02 The current plan calls for a resolution to the following operating issues in future DDM-2000 FiberReach WBS software releases. Information and procedures developed subsequent to the release of this practice will be made available to users via the diagnostic dictionary in the Lucent Technologies COACH system. To obtain a COACH login or additional information, please write or call:

COACH Software Development
Lucent Technologies
1600 Osgood Street
North Andover, MA 01845

Telephone: 1-800-238-4021

4.03 The following list contains known problems in the software:

A. **Operations Interworking (OI)**

(1) **ISSUE:**
When a remote DDM-2000 is reset, a DDM-2000 TL1/X.25 GNE may take up to 15 minutes to drop the TL1 logins to the remote DDM-2000. 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 DDM-2000 through the same TL1/X.25 GNE.

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

B. **Maintenance**

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

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

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

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

5. DDM-2000 Interworking

NOTE:
Interworking between products (DDM-2000 FiberReach WBS and DDM-2000 OC–3) is evolving with OC-1 interfaces. Care must be taken to check correct software releases and to check interface provisioning.

5.01 Table A lists the DDM-2000 FiberReach WBS software compatibility and interconnections with the DDM-2000 OC-3 Multiplexers. All configurations listed support IO. The table lists all possible software combinations. Combinations not listed are not supported.

Table A. DDM-2000 OC-3 and DDM-2000 FiberReach WBS Software Compatibility and Interconnections

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

6. Implementation Procedure

NOTE:
Before installing Release 3.0.1 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

6.01 For Releases 3.0.1 and higher, the following parameters should be provisioned to support OSI interworking over the SONET DCC:

- The appropriate User Side/Network 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 User Side/Network Side parameters, refer to TOP in LTP 363-206-301, *DDM-2000 FiberReach Multiplexer, Wideband/Narrowband Shelf, User/Service Manual*, Issue 2.

Software Installation Procedure

DLP-536 and DLP-537 contain the latest information and procedures needed for upgrading a DDM–2000 FiberReach System running any upgradable version of FiberReach software. DLP-525 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 20 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-525, DLP-536, or DLP-537 to install the new software.

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Document No.: 363-206-323 Issue 1 Date: January 1998

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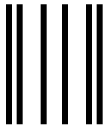

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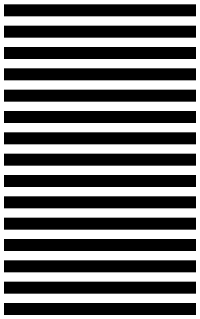

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