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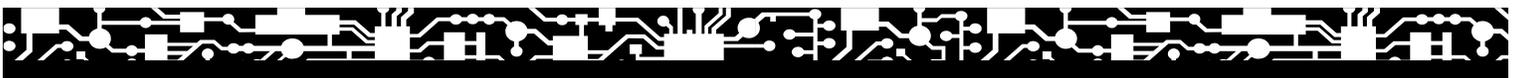


***WaveStar*[®] Transport Management System (TMS)**

Release 1.0

Provisioning Guide

365-309-801
Issue 1
July 2001



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WaveStar® Transport Management System (TMS)
Release 1.0
Provisioning Guide
365-309-801 Issue 1 July 2001

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Level of detail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Readability and clarity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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About this information product

Purpose	<p>This chapter is a preface that provides an overview of this information product.</p> <p>The purpose of this Provisioning Guide is to describe the provisioning tasks that can be performed with <i>WaveStar</i>[®] Transport Management System (TMS), Release 1.0.</p>
Reason for reissue	<p>This Provisioning Guide, Issue 1, is a new document that supports a new product, WaveStar TMS, Release 1.0.</p>
Safety labels	<p>This information product does not use safety labels.</p>
Intended audience	<p>This guide is written primarily for network planners, engineers, and sales teams. It may be used by anyone desiring specific information about the features, applications, and operations of WaveStar TMS.</p>
How to use this information product	<p>This section provides information that will help users of this information product.</p>

The following table describes the information in each chapter of this document.

Section	Title	Description
Preface	About this information product	Describes this document's purpose and intended audience, how to use the document, and how to comment on it.
Chapter 1	Chapter 1, "System Overview"	Provides a product overview of WaveStar TMS.
Chapter 2	Chapter 2, "The WaveStar TMS Provisioning Process "	Provides an overview of the WaveStar TMS provisioning process.
Chapter 3	Chapter 3, "Network Element Configuration Tasks"	Describes tasks relate to network element provisioning.
Chapter 4	Chapter 4, "Provisioning Tasks"	Describes tasks related to traffic provisioning.
Chapter 5	Chapter 5, "Provisioning Concepts"	Describes provisioning concepts associated with WaveStar TMS.
Chapter 6	Chapter 6, "Digital Transmission Rates"	Describes the SDH hierarchies, the relationships among digital links, paths, circuits, and the digital transmission hierarchy WaveStar TMS supports.
Chapter 7	Chapter 7, "Network Element Port Addresses "	Lists the port addresses associated with WaveStar TMS network elements.
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Conventions used

This document uses the following typographical conventions to distinguish between computer input and output.

- When describing the WaveStar TMS software, fields in windows and field entries are identified with **this font**.
- When describing the *UNIX*[®] environment, text and numbers that the user inputs to the computer are identified with boldface type.
- In the UNIX environment, text and numbers that the computer outputs to the user are identified with monospace type.

Related documentation

This information product is part of a set of documents that supports WaveStar TMS.

List of documents

The document set that supports WaveStar TMS includes:

1. *WaveStar TMS Administration Guide*, (365-309-800) - instructs users on how to administer WaveStar TMS and the network. This document includes tasks and conceptual information.
2. *WaveStar TMS Provisioning Guide*, (365-309-801) - instructs users how to use WaveStar TMS to provision and manage a network. This document includes tasks and conceptual information.

On-line documentation

An on-line HTML version of the WaveStar TMS document set is integrated into the product software.

Screen help

This release of WaveStar TMS does not include screen help for each window.

Additional documents

The document set that supports WaveStar Network Management System (NMS) also provides valuable information for the users of WaveStar TMS. The document set that supports WaveStar NMS includes:

1. *WaveStar NMS Getting Started Guide*, (365-309-240) - provides information needed when you are learning how to use the WaveStar NMS software. It describes how to start and stop WaveStar NMS, how to use the software, and how to interpret the graphical user interface.

This document includes tasks and conceptual information.

2. *WaveStar NMS Applications and Planning Guide*, (365-309-236) - describes the WaveStar NMS features and applications, provides a product description and the hardware platforms for the product, and describes system planning and engineering, ordering, and product support.

This document contains conceptual information only.

3. *WaveStar NMS Administration Guide*, (365-309-239) - instructs users on how to administer WaveStar NMS and the network.

This document includes tasks and conceptual information.

4. *WaveStar NMS Maintenance Guide*, (365-309-238) - instructs users on how to maintain WaveStar NMS and the network.

This document includes tasks and conceptual information.

5. *WaveStar NMS Provisioning Guide*, (365-309-237) - instructs users how to use WaveStar NMS to provision and manage a network.

This document includes tasks and conceptual information.

Glossary

The *WaveStar NMS Administration Guide* contains a glossary that will be helpful to users of WaveStar TMS.

How to comment Customer satisfaction is extremely important to Lucent Technologies. All users are encouraged to provide feedback on the WaveStar TMS information products.

A customer comment form appears immediately after the title page of this document. Please fill out the form and submit it as instructed on the form.

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1 System Overview

Overview

Purpose This chapter provides a system overview of the *WaveStar*[®] Transport Management System (TMS) application.

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Product Definition

Overview

Purpose This section provides a product definition for the *WaveStar*[®] Transport Management System (TMS) software product.

Definition WaveStar TMS is a single transport management system designed for transport management across multiple, multi-vendor network management systems.

The set of nodes under the control of one network management system, such as Lucent NMS, is defined as a domain. Within the GUI, a domain is referred to as an area.

On the Network Map, domains are represented by an icon for an area, so in WaveStar TMS, domains and areas are synonymous terms.

Capabilities WaveStar TMS has the following capabilities:

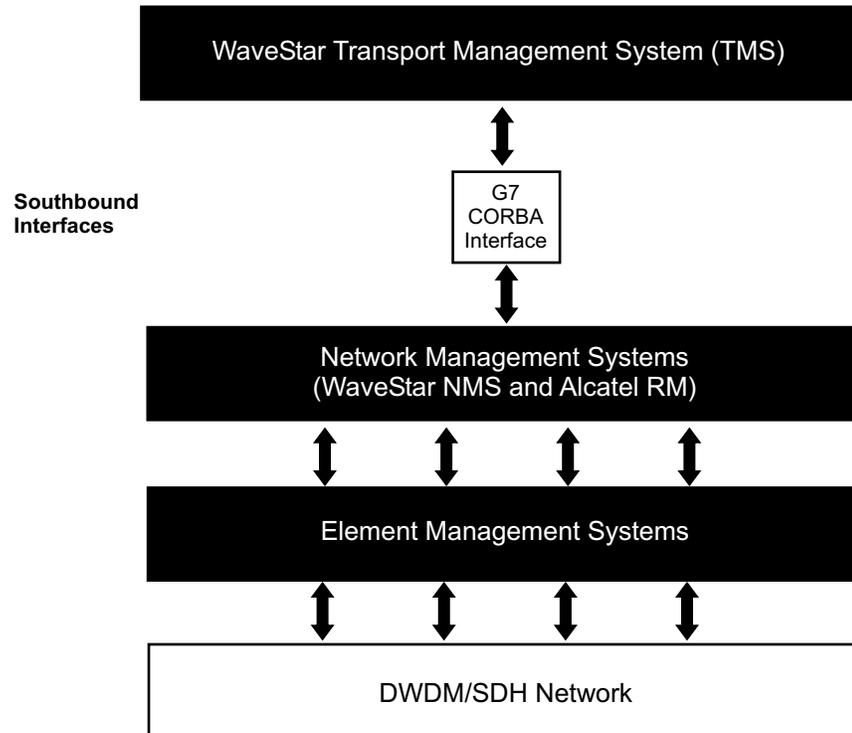
- Provisioning of digital links between network elements that are in different domains
- Provisioning of circuits between network elements that are in different domains
- Provisioning of circuits between network elements that are in the same domain



External interfaces

Introduction The WaveStar TMS interfaces are shown in the following figure.

Northbound Interfaces



Southbound Interfaces

Northbound interfaces WaveStar TMS has no northbound interfaces.

Southbound interfaces WaveStar TMS has one southbound interface.

G7 2.0 CORBA interface to NMSs

WaveStar TMS interacts with network management systems through an interface based on the G7 CORBA standard.

Interfaces to other systems

WaveStar TMS interacts with some other systems that supply information used to manage the network. The following sections describe the interfaces to other systems.

Xpercom

Xpercom[™] provides WaveStar TMS with the physical details associated with network elements and topological links so that the end-to-end circuit can be displayed in the Graphical Layout form. Xpercom is a third-party product.



Supported network management systems (NMSs)

Introduction WaveStar TMS manages the network by interacting with the NMSs in the network. WaveStar TMS is multi-vendor in nature and interacts with NMSs from Lucent Technologies and other vendors such as Alcatel.

List of supported NMSs WaveStar TMS interacts with the following network management systems (NMSs):

- WaveStar Network Management System (NMS), Release 4.0
- Alcatel 1354 RM Network Manager, Release 5.4 with interface TMS R1.0



Supported digital links

Introduction The networks that can be managed with WaveStar TMS include a variety of digital links.

List of supported digital links The WaveStar TMS supports the following rates of digital links:

- For inter-domain digital links, the following Synchronous digital hierarchy (SDH) links are supported depending on the network element capabilities:
 - STM-64: 9,953.28 Mb/s
 - STM-16: 2,488.32 Mb/s
 - STM-4: 622.08 Mb/s
 - STM-1: 155.52 Mb/s
- For intra-domain digital links, refer to the NMS vendor documentation. Note that intra-domain digital links cannot be provisioned with WaveStar TMS, but they can be viewed. Any intra-domain digital links that can be created by a supported NMS can be viewed by WaveStar TMS.



Benefits

Introduction The benefits delivered by WaveStar TMS include fast service activation, state-of-the-art provisioning, reduced operating and equipment costs, and accurate record keeping.

These benefits enable service providers to capture market share and offer an improved level of service to customers, and to efficiently manage their resources.

- List of benefits** WaveStar TMS provides service providers with the ability to:
- Control up to 24 NMS domains from a single seat
 - Provision digital links and circuits between network elements that are in different domains
 - Provision digital links and circuits between network elements from different vendors.
 - Provision of digital links and circuits between network elements from different vendors.
 - Manage multi-technology SDH equipment
 - Perform end-to-end SDH circuit provisioning (semiautomatic and manual routing)
 - View optical layers throughout the transport network
 - Management of all network management systems (NMSs) in a network
 - Simplify operational complexity using the user-friendly graphical user interface (GUI)
 - Maximize bandwidth utilization with flexible provisioning options
 - Engineer cost-effectiveness by using scalable platforms to effectively support different network sizes
 - Maintain access security and establish a hierarchy of access levels
 - Interface to Xpercom for the extraction of physical details onto the Graphical Layout form
 - Support for 64 simultaneous user logins
 - Storing of maps for use as background of Network Map

Customer support WaveStar TMS customers are provided with responsive field support, effective user documentation, and high-quality product training.



Features per functional area

Overview

Purpose The features of WaveStar TMS are classified into several functional areas. This chapter gives a description of these features within each functional area.

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User support facilities

- Introduction** WaveStar TMS provides a number of capabilities to facilitate the task of managing a network.
- Graphical User Interface (GUI)** WaveStar TMS supports the user in his/her daily operations with an easy-to-use graphical user interface (GUI).
- Network Map** The main feature of the GUI is a Network Map on which all the domains in the network and all the links between domains are displayed. .
- Important** On the Network Map, domains are represented by an icon for an area, so in WaveStar TMS, domains and areas are synonymous terms.
- Other user support facilities** WaveStar TMS has the following user support facilities:
- WaveStar TMS is capable of handling up to 64 simultaneous user logins.
 - Screen help is provided for each form.
 - On-line access to the product documentation set is integrated into the WaveStar TMS software.
 - Help facilities (context-sensitive) are supported. Help texts contain context-sensitive hyperlinks.



Security issues

Introduction WaveStar TMS security management allows authorized users to have different levels of access.

For each user, WaveStar TMS stores a login ID, password, user type, and user profile.

Controlling access Only authorized users with correct login ID/password combinations are able to access WaveStar TMS.

User type There is only one user type, which everyone is assigned.

User profile The user profile controls which of the task groupings a user is allowed to perform. One or more user profiles can be assigned to each user.

Task groupings

There are four task groupings that can be used to build a user profile:

- Configuration Management
- NE Management
- Sys Admin
- Configuration Management (View Only)

Predefined user profiles

WaveStar TMS comes with the following three predefined user profiles:

User profile	Allowed task groupings
Initial	<ul style="list-style-type: none"> • Configuration Management • NE Management
Provisioning (View Only)	<ul style="list-style-type: none"> • Configuration Management (View Only)
Combined	<ul style="list-style-type: none"> • All Tasks

Customized user profiles

The system administrator can create and assign additional user profiles.

Default behavior

By default, all new users are assigned to the Initial user profile.



Configuration management

Introduction WaveStar TMS provides configuration management capabilities and features. From the Network Map, a user can complete all the steps needed for end-to-end manual provisioning of subnetwork connections and inter-domain digital links. In addition, semi-automatic circuit provisioning is provided.

Digital link provisioning Digital links between two network elements in the same domain are known as “intra-domain digital links.” Intra-domain digital links cannot be provisioned using WaveStar TMS. Intra-domain digital links are added to the network at the NMS level, and can be viewed through a submap of the WaveStar TMS Network Map.

WaveStar TMS provides the user with an easy way to provision an SDH digital link between two network elements managed by two different NMSs. These digital links are known as “inter-domain digital links.” To provision, the user selects the first network element and then specifies the transmission rate and port addresses. The user then selects the second network element, which belongs to a different domain, and specifies the transmission rate and port addresses. The result is a digital link that spans two domains — an inter-domain digital link.

Inter-domain digital links can also be disconnected with WaveStar TMS as long as the link is not carrying any circuits.

Optical links Optical links are not provisionable with WaveStar TMS.

Trail and circuit provisioning Trail and circuit provisioning can be done after digital links are in place. Both inter-domain circuits and intra-domain circuits can be provisioned using WaveStar TMS.

Two modes for trail and circuit provisioning

Only bidirectional connections can be set up. Broadcast and one-way connections are not supported.

WaveStar TMS provides two modes for path and circuit provisioning: semi-automatic or manual.

- **Semi-automatic:** Using the semi-automatic mode, the user selects the link, the transmission rate of the path or circuit, the bridges that are part of the path or circuit, and the endpoints of the connection. The system then selects the channel on each link.
- **Manual:** Using the manual mode, the user completely specifies the path in terms of links, facilities, and managed element cross-connections.

One-Step (Combo) Circuit Provisioning

One-Step provisioning is an optional feature in which a 24N, 30N, 480N, 672N, 672N, and 1920N circuits/paths can be provisioned without an explicit provisioning of TU12-VC11S, VC-12, VC-3, VC-3, AU3S and VC-4 respectively. The 24N, 30N, 480N, 672N, 672N, and 1920N circuits/paths provisioned using the One-Step provisioning are identified using VC12S-30N, VC3S-480N, VC3S-672N, AU3S-672N, and VC4S-1920N respectively. The selection of either TU12-VC11S-24N, VC12S-30N, VC3S-480N, VC3S-672N, AU3S-672N, or VC4S-1920N for provisioning is the selection of 24N, 30N, 480N, 672N, 672N, or 1920N provisioning respectively. However, there are some differences to note. These One-Step provisioned paths/circuits will have the characteristic of the SDH (“Skipped SDH”) circuits/paths and as such inherit Performance Monitoring (PM) and Path Trace Identifier (PTI) capabilities from their SDH parents. In addition they inherit the Fault Management (FM) and Pre-Plan (PP) characteristics of the SDH circuits/paths they skipped as defined in FM and PP documentation.

The system precludes the existence of One-Step provisioned circuits/paths with “traditional” provisioned circuits/paths. Thus, once a selection is made to use One-Step provisioning during WaveStar NMS installation, explicit provisioning of 24N, 30N, 480N, 672N, and 1920N will not be available to the user.

□

Other features

Introduction This section describes some of the other features of WaveStar TMS.

Improper disconnects This feature identifies improper disconnects in the network. Improper disconnect occurs when an intra-domain portion of a connection is disconnected or rearranged by the NMS for that domain. This applies only to an inter-domain connection created by WaveStar TMs. This is detected in the WaveStar TMS when one of the channels associated with cross-connect in the layout has been disconnected.

On-line documentation This feature provides on-line access to the product document set, integrated into the WaveStar TMS software.

The documentation set consists of the following documents:

- *WaveStar TMS Administration Guide*
- *WaveStar TMS Provisioning Guide*

The on-line documentation is accessed from the Help menu on the Network Map.

Trench ID In order to provide physical separacy between protected and service route, WaveStar TMS supports associations of trenches to inter-domain digital links. One or more trenches can be associated to one link or a number of links can be associated with one trench.

Xpercom Xpercom provides WaveStar TMS with the physical details associated with network elements and topological links so that the end-to-end circuit can be displayed in the Graphical Layout form. Xpercom is a third-party product.



Strategies for ensuring high-availability

Overview

Purpose Many customers use WaveStar TMS in a network where a high degree of system availability is a necessity. This section describes the high-availability strategies that can be used with WaveStar TMS to protect against system downtime.

Two high-availability strategies There are two high-availability strategies:

- Uninterruptible Power Supply (UPS)
- Mirrored disks

Contents

<u>Uninterruptible Power Supply (UPS)</u>	1-18
<u>Mirrored Disks</u>	1-19



Uninterruptible Power Supply (UPS)

Description An Uninterruptible Power Supply (UPS) protects against power failures. It is used to protect the main servers and their essential peripherals from minutes of power failure. In the case of a longer power loss, the UPS enables the system to shut down gracefully.

When to use The use of UPS is recommended in all cases. However, due to the site-specific nature of power requirements, it is not a mandatory requirement.



Mirrored Disks

Description Mirrored disks protect against disk failures. When mirrored disks are used, all data is written to two disk systems. In the event of a disk failure, no data is lost and there is no interruption of system operation at the time of the disk failure. The damaged disk will need to be replaced, which may require a system shutdown, but this can be done as part of scheduled maintenance and will not cause any unexpected downtime.



Applications

Overview

Purpose This section describes the applications supported by WaveStar TMS.

Contents

<u>Supported applications</u>	1-21
-------------------------------	----------------------



Supported applications

Introduction One standard application has been defined for WaveStar TMS.

This application is used to define the hardware platforms for the application. The hardware required to support WaveStar TMS depends upon the size of the network to be managed. The size is measured using a unit called NE equivalents (NEQ), which considers the number of network elements and the relative “weight” of each of the network elements. (One NEQ equals the loading of an ISM-4.) The network element weight is significant because some network elements require more hardware resources for management than others.

The hardware platforms for the application are described later in this chapter.

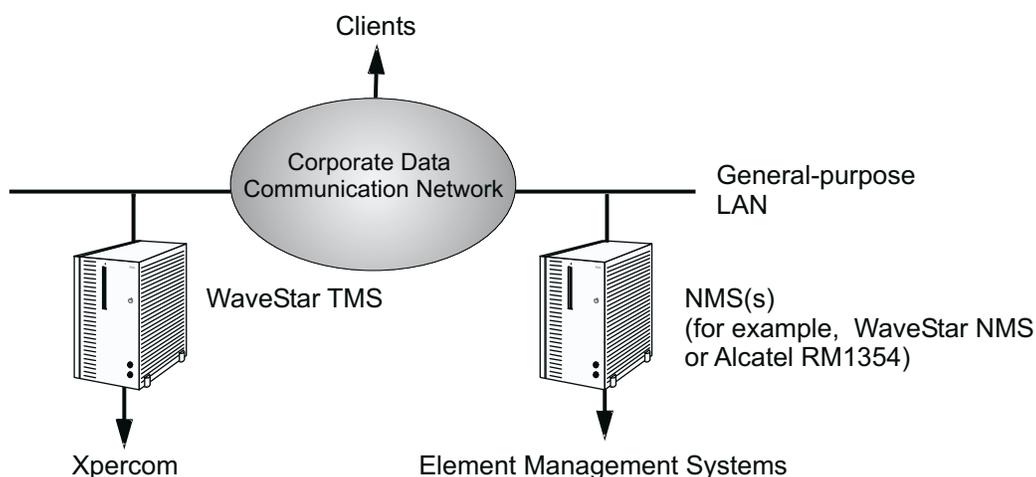
List of applications One standard application has been defined for WaveStar TMS.

The standard application is:

- Large

Large application size In the large application, each instance of WaveStar TMS is loaded on its own server. WaveStar TMS can communicate with all of the NMSs in the network, and with the network elements they manage.

The following figure illustrates the large application.



Characteristics The large application has the following characteristics:

- Support for up to 24 NMSs in the network
- Support for 64 simultaneous user logins



Hardware Platforms

Overview

Purpose This chapter describes the supported hardware architectures for WaveStar TMS.

Contents

<u>About the client-server architecture</u>	1-24
<u>Supported server hardware configurations</u>	1-25
<u>Supported client hardware configurations</u>	1-27
<u>Supported server platforms</u>	1-28
<u>Supported client platforms</u>	1-29



About the client-server architecture

Introduction WaveStar TMS and its communicating NMS systems are each based upon a client-server architecture that works in the following way:

- “Client” software components provide graphical user interfaces (GUIs).
- “Server” software components support the clients and interface with similar components of peer management systems.

The architecture of the system is such that each software component is capable of being hosted separately on distributed networked platforms. This architecture provides scalability, since each user has access to their own WaveStar TMS and NMS GUIs, which may be widely distributed on relatively lightweight client software platforms. At the same time, the architecture ensures that each user remains connected to centralized information on a powerful, protected server platform.

Server configurations Two server configurations are supported. The different server configurations provide scalability and degrees of high availability. The server configurations are described in the next section, “Supported server hardware configurations” (1-25). Each server configuration is capable of interworking with any of the supported client configurations.

Client configurations A number of client configurations are supported. The different client configurations provide scalability, consolidation with EMSs, and multi-platform support. The client configurations are described in “Supported client hardware configurations” (1-27), later in this chapter. Each client configuration is capable of interworking with any of the supported server configurations.

□

Supported server hardware configurations

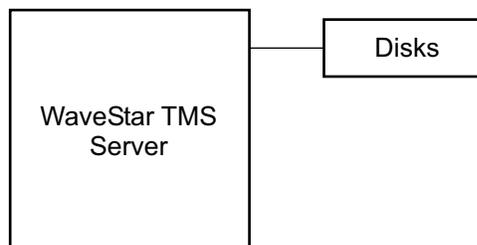
Introduction

The following server hardware configurations are supported for WaveStar TMS:

- Single server
- Single server with disk mirroring

Single server

The following figure illustrates the single server hardware configuration.

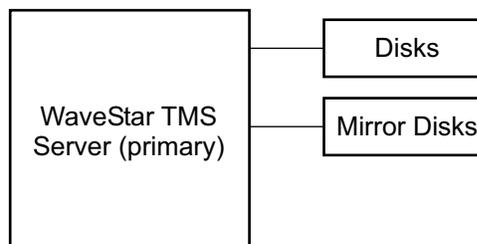


This configuration is an entry-level solution for customers without stringent high-availability requirements.

The WaveStar TMS server is an HP server running the HP-UX operating system.

Single server with disk mirroring

The following figure illustrates the single server hardware configuration.



This configuration is an entry-level solution that provides automatic disk failure detection and recovery of all functionality following a disk failure.

Supported server hardware configurations

The WaveStar TMS server is an HP server running the HP-UX operating system.



Supported client hardware configurations

Introduction The following client hardware configurations are supported for WaveStar TMS:

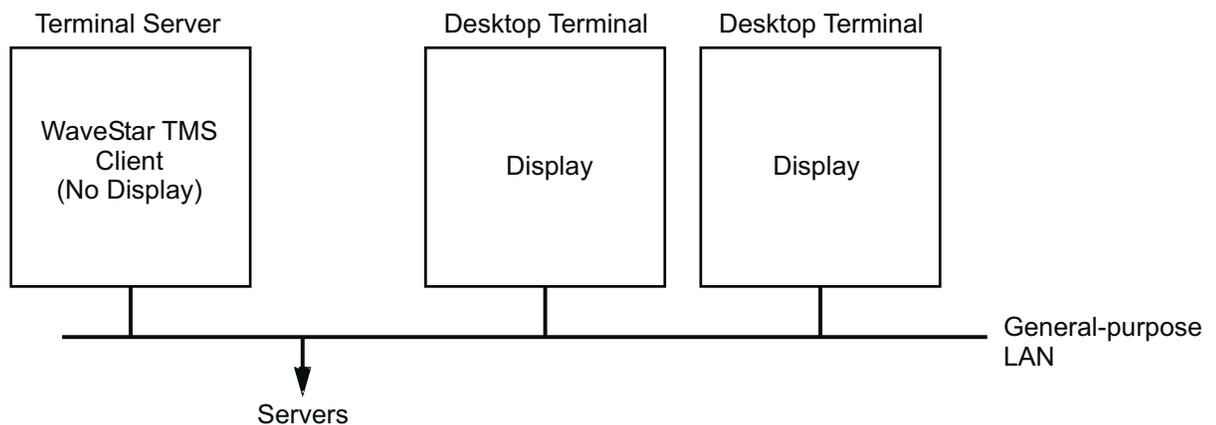
- Terminal server

Terminal server The terminal server hosts client software, but exports the display to a separate machine, which is known as a “desktop terminal.” The terminal server is not used by a user to view the display.

The desktop terminal can also:

- Launch WaveStar TMS via SAGE
- Co-display the GUI of other NMSs and EMSs alongside the WaveStar TMS GUI using SAGE

The following figure illustrates the terminal server hardware configuration.



This configuration allows multi-platform integration with existing preferred desktop platforms. It also provides a simple upgrade path. (Growth in system or user requirements may be addressed by upgrading a single terminal server without upgrading each desktop terminal.)

The WaveStar TMS terminal server may be an HP NetServer running Windows NT or Windows 2000

□

Supported server platforms

Introduction The supported server platforms are designed to cost-effectively support each WaveStar TMS application and hardware configuration.

The hardware required for a WaveStar TMS server depends upon the size of the network to be managed. The network size is measured using a unit called Network Element Equivalents (NEQ), which considers the number of network elements and the relative “weight” of each of the network elements. (One NEQ equals the loading of an ISM-4.) The network element weight is significant because some network elements require more hardware resources for management than others.

Table The following table shows the different WaveStar TMS server platforms that are orderable for this release.

Components hosted	Application			Configurations		Platform Title	Hardware		
	# of users	# of NMSs	# of NEQs ^a	Singleserver	Single server with disk mirroring		HP 9000 server model	#CPUs	Memory
TMS server	64	40	5000	Y		Large TMS server	L2000	4	4 Gb
					Y	Large TMS server with disk mirroring	L2000	4	4 Gb
						Large TMS server with Local Redundancy	L2000	4	4 Gb

a. This value is subject to a Network Fan-out scaling factor.



Supported client platforms

Introduction The supported client platforms are designed to cost-effectively support each WaveStar TMS application, client-side operating system, and hardware configuration.

The supported client platforms permit consolidation of the client software of the following products onto the same platform:

- WaveStar TMS
- any NMS in the network
- any EMS in the network

Table The following table shows the different WaveStar TMS client platforms that are supported, and the applications that are supported for each.

Components hosted	Application		Configurations	Platform Title	Hardware		
	# of user sessions served per terminal server	# of Physical Network Elements	Two-Tier		Model	#CPUs	Memory
			Terminal server				
TMS client	8	5000	Yes	HP-UX TMS Terminal Server	HP A500	2	4 Gb
TMS client	8	5000	Yes	Large Windows PC TMS Terminal Server	HP LH6000	4	4 Gb

□

Ordering

Overview

Purpose This section describes how to order WaveStar TMS.

Contents

<u>How to order WaveStar TMS</u>	1-31
<u>Orderable items</u>	1-32



How to order WaveStar TMS

Overview This section describes how to order WaveStar TMS.

Ordering WaveStar TMS is ordered by calling a Lucent sales representative.



Orderable items

Overview This section lists the items that are orderable. The lists in this section should be used to help prepare an order before it is actually placed.

Application Software: Core The following table contains the comcodes for the application software core.

Description	Comcode
WaveStar TMS Release 1.0 Core DAT: NL R1.0	109149609
WaveStar TMS Release 1.0 Core DAT: Configuration Management	109149617

Application Software: Optional Features The following table contains the comcodes for the network element RTUs.

Description	Comcode
WaveStar TMS Release 1.0 Option: Xpercom Support	109149641
WaveStar TMS Release 1.0 Option: Information flow-through to DNA	109149658

Application Software: Lucent Management Connection RTUs The following table contains the comcodes for the Lucent management connection RTUs.

Description	Comcode
WaveStar TMS Release 1.0 Network Element RTU: Lucent NMS Interface	109149633
WaveStar TMS Release 1.0 Network Element RTU: Lucent Network Elements	109149625

Third-party Management Connection RTUs The following table contains the comcodes for the third-party management connection RTUs.

Description	Comcode
WaveStar TMS Release 1.0 Network Element RTU: Alcatel NMS Interface	TBD

Third-party Software The following table contains the comcodes for the third-party software.

Description	Comcode
Oracle RDMS Enterprise edition 8.0	TBD
BEA Tuxedo 6.5	TBD
IONA Orbix MT 3.0 (per CPU)	TBD
IONA Orbix Web 3.2	TBD
IONA Orbix Notification (required for northbound Corba interface)	TBD
IONA Orbix Notification (required for northbound Corba interface)	TBD
Roguewave (per CPU)	TBD

Documentation The following table contains the comcodes for the WaveStar TMS user documentation.

Description	Comcode
WaveStar TMS Release 1.0 Administration Guide - English (365-309-800)	TBD
WaveStar TMS Release 1.0 Provisioning Guide - English (365-309-801)	TBD



Product Support

Overview

Purpose This chapter describes product support available for WaveStar TMS.

Contents

<u>Technical Assistance</u>	1-35
<u>User Documentation</u>	1-36



Technical Assistance

Introduction Lucent Technologies is committed to providing excellence in technical support for its products.

A support structure is ready and available to resolve any technical issue related to WaveStar TMS.

Getting help In the continental United States, when you need additional technical assistance, the Lucent Technologies Global TSS Contact Center is your first point of contact. Technical assistance is available 24 hours a day, 7 days a week. Contact the Global TSS Contact Center at 800-225-4672.

Outside the continental United States, contact your Local Customer Support (LCS) or the support organization designated by your Lucent customer team representative. If you are unsure of who to call, contact the Global TSS Contact Center at 630-224-4672.

Local support procedures Some customers have established their own support procedures that involve escalation within their own companies. In these cases, be sure to follow the procedures established by your company.



User Documentation

Introduction This information product is part of a set of documents that supports WaveStar TMS.

List of documents The document set that supports WaveStar TMS includes:

1. *WaveStar TMS Administration Guide*, (365-309-800) - instructs users on how to administer WaveStar TMS and the network. This document includes tasks and conceptual information.
2. *WaveStar TMS Provisioning Guide*, (365-309-801)- instructs users how to use WaveStar TMS to provision and manage a network. This document includes tasks and conceptual information.

On-line documentation An on-line version, in HTML format, of this document set is provided with WaveStar TMS.

Screen help This release of WaveStar TMS does *not* include screen help for each window.

Additional documents The document set that supports WaveStar Network Management System (NMS) also provides valuable information for the users of WaveStar TMS. The document set that supports WaveStar NMS includes:

1. *WaveStar NMS Getting Started Guide*, (365-309-240) - provides information needed when you are learning how to use the WaveStar NMS software. It describes how to start and stop WaveStar NMS, how to use the software, and how to interpret the graphical user interface. This document includes tasks and conceptual information.
2. *WaveStar NMS Applications and Planning Guide*, (365-309-236) - describes the WaveStar NMS features and applications, provides a product description and the hardware platforms for the product, and describes system planning and engineering, ordering, and product support. This document contains conceptual information only.
3. *WaveStar NMS Administration Guide*, (365-309-239) - instructs users on how to administer WaveStar NMS and the network. This document includes tasks and conceptual information.

4. *WaveStar NMS Maintenance Guide*, (365-309-238) - instructs users on how to maintain WaveStar NMS and the network. This document includes tasks and conceptual information.
5. *WaveStar NMS Provisioning Guide*, (365-309-237) - instructs users how to use WaveStar NMS to provision and manage a network. This document includes tasks and conceptual information.

How to order

To order WaveStar TMS information products, do one of the following:

- Contact your Lucent Technologies customer team representative.
- Contact the Lucent Technologies Customer Information Center (CIC):
 - From the United States, call 1-888-LUCENT8, prompt 1.
 - From Canada, call 1-317-322-6619.
 - From Europe, the Middle East, and Africa, call 1-317-322-6416.
 - From Asia, the Pacific Region, China, the Caribbean, and Latin America, call 1-317-322-6411.





2 The WaveStar TMS Provisioning Process

Overview

Purpose This chapter provides an overview of the WaveStar TMS provisioning process.

Important note This document instructs users how to provision WaveStar TMS. This document contains two types of chapters:

- *Task* chapters describe provisioning tasks (that is, step-by-step instructions).
- *Conceptual* chapters contain detailed information related to the tasks.

Task chapters are located in the front of the document; conceptual chapters follow the task chapters.

Contents

<u>What is provisioning?</u>	2-2
<u>Terminology overview</u>	2-3
<u>Provisioning process description</u>	2-8



What is provisioning?

Overview Provisioning, as it pertains to WaveStar TMS, is the process of establishing a connection through a WaveStar TMS managed network and setting appropriate transmission parameters for an inter-domain digital link, and SDH circuit/trails for a specified rate.

This overview assumes that all of the administrative procedures needed to have the system fully operational have been completed.

Supported actions WaveStar TMS allows users to perform the following actions for provisioning:

- **Add:** users can provision new digital links and circuit/trails.
- **Delete:** users can delete existing digital links and circuit/trails.
- **Modify:** users can modify an existing circuit/trail to create a new route.
- **Merge:** users can merge two or more circuits/trails of the same rate to form one new circuit/trail.

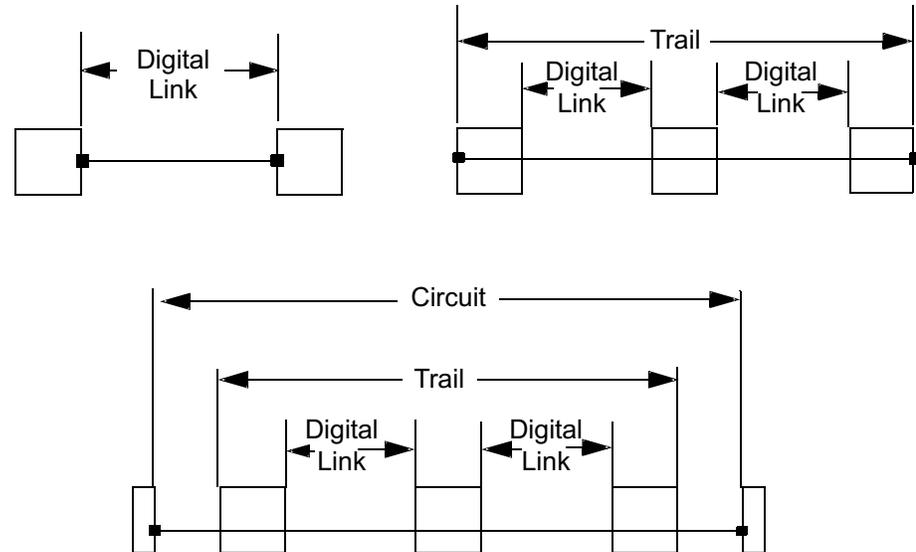
□

Terminology overview

- Overview** This section provides an overview of the common terms and concepts necessary to understand the WaveStar TMS provisioning process.
- For a complete listing of WaveStar TMS-related terms, refer to the glossary section of the *WaveStar NMS 4.0 Administration Guide*.
- Area** The Network Map displays fixed areas, each of which represents network elements managed by a particular network management system. With WaveStar TMS 1.0, areas cannot be expanded as in WaveStar NMS.
- On the Network Map, domains are represented by an icon for an area, so in WaveStar TMS, domains and areas are synonymous terms.
- Channels** When either a digital link or trail is channelized, it is subdivided into *channels*. For time division multiplexing (TDM) equipment, channels represent the time slots with which information is carried within a digital link or in a server trail. Channels are created by WaveStar TMS for use during circuit/trail provisioning. When creating channels for digital links, depending on the network element capability, alternate channels, to accommodate provisioning different rates of circuits/trails, are created.
- Circuits** *Circuits* generally carry customer service. Typically, circuits are plesiochronous digital hierarchy (PDH) and can ride on PDH channels or be mapped to SDH trails. Circuits can ride on trails and digital links.
- Circuits ride on:
- Paths (for example, a CEPT-1 circuit riding on a VC-12 path)
 - Digital links (a circuit can ride on a digital link directly if the digital link is channelized to one channel, such as a CEPT-1 circuit riding on a CEPT-1 digital link).
- PDH circuits can be provisioned over:
- PDH facilities (for example, a CEPT-1 circuit on a channel of a CEPT- 4 facility)
 - SDH paths (for example, a CEPT-1 circuit on a VC-12 path)
- SDH circuits cannot be provisioned over a PDH facility.

The following figure shows an example of the relationship among digital links, trails, and circuits.

Figure 2-1 Relationship between digital links, trails, and circuits



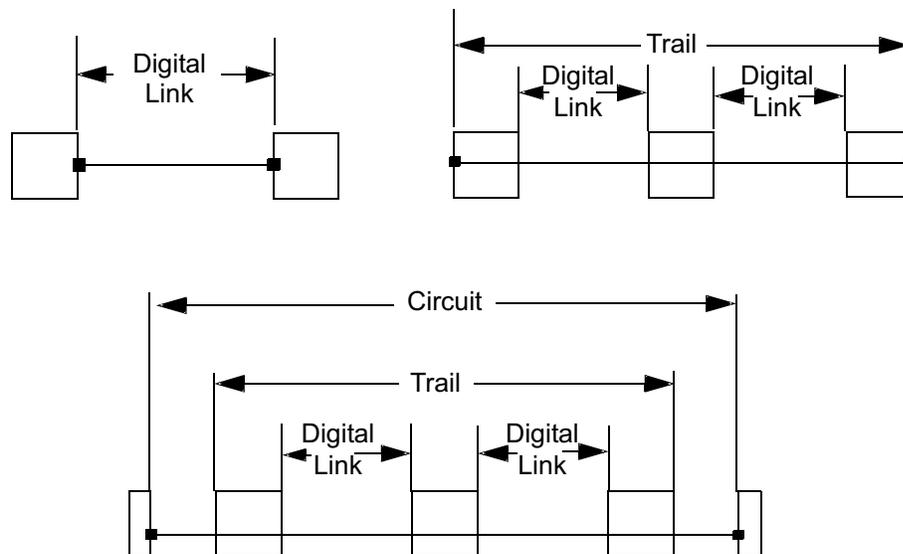
Digital links *Digital links* are fiber or electrical connections between two points. These transport facilities are assignable to high-order and low-order circuits to carry customer services. Digital links can be of two types: SDH digital links or PDH digital links.

SDH digital links connect two SDH network elements or an SDH network element and a black box or equipment.

PDH digital links are asynchronous connections between two PDH ports of the network elements assignable to the PDH circuits.

The following figure shows an example of the relationship among digital links, trails, and circuits.

Figure 2-2 Relationship between digital links, trails, and circuits



Domain The set of nodes under the control of one network management system, such as Lucent NMS, is defined as a domain. Within the GUI, a domain is referred to as an area.

On the Network Map, domains are represented by an icon for an area, so in WaveStar TMS, domains and areas are synonymous terms.

Equipment *Equipment* is a functional unit in a network that is not displayed on the Network Map and which WaveStar TMS cannot monitor or control. An example of equipment is customer premises equipment.

Network A *network* carries a payload from one point to another. This payload can consist of data, voice, video, or images. Digital links and trails carry the circuits that carry the data.

Network element A *network element* is a functional unit in a customer's network that displays on the Network Map and is controlled by the user. Network elements supply switching, transmission, or multiplexing functionality in a network and are either controlled or noncontrolled.

Optical layer An *optical layer* is a hierarchy of connections involving optical cross-connects and dense wavelength division multiplexing (DWDM) systems and network elements.

Subnetwork connection A *Subnetwork connection* is a subset of circuits located within one domain.

Synchronous Digital Hierarchy *Synchronous Digital Hierarchy* (SDH) is a standard that defines the transmission hierarchy of a synchronous network.

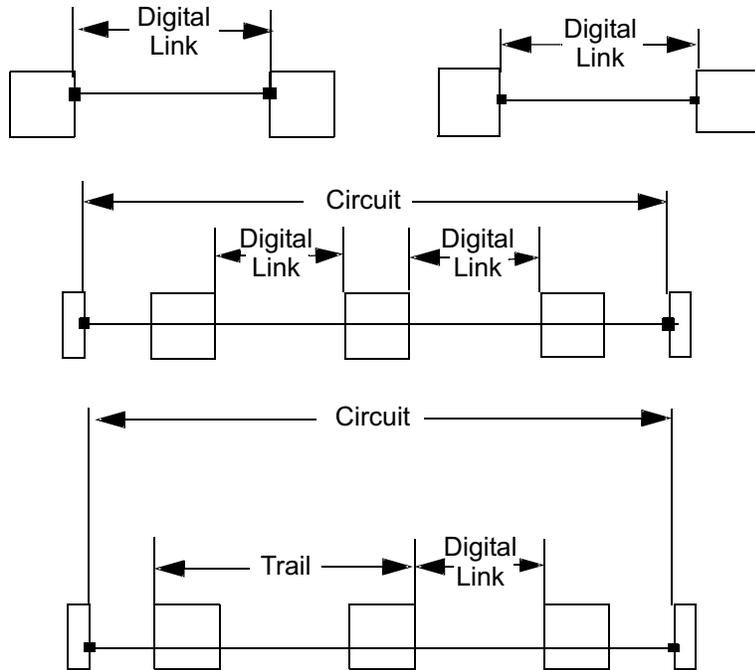
Trails A *trail* is a logical connection between two adjacent, or nonadjacent network element. It may traverse one or more channels and supports add/drop capability along the path.

Trails simplify provisioning by allowing users to establish routes through digital links and network elements so that circuits can be assigned to the path. This capability allows users to assign a circuit to a path at the path's A and Z ends without spelling out a list of digital links and cross-connections that make up the trail. Two or more trails may be connected as part of a circuit.

Trails ride on one or more digital links and also contain their own payload and overhead sections.

The following figure shows an example of the relationship between digital links, trails, and circuits.

Figure 2-3 Relationship between digital links, trails and circuits



□

Provisioning process description

Overview The following is an overview of the WaveStar TMS provisioning process as it relates to the order in which actions should occur.

Recommended order The order in which provisioning tasks should occur is as follows.

1. Load TMS database (system administrator).
2. Provision inter-domain digital links between network elements in different domains.
3. Provision trails and circuits (can be either inter-domain trails/circuits or intra-domain trails/circuits).





3 Network Element Configuration Tasks

Overview

Purpose This chapter contains tasks used to create, modify, and delete network elements.

Adding network elements to the network Network elements are added to the network at the NMS level. They appear on the WaveStar TMS Network Map only after a database synchronization is performed with the NMSs in the network, and the network elements are 'discovered.' Database synchronization can only be performed by those with appropriate security privileges.

Contents

<u>Section I: Noncontrolled Network Elements</u>	<u>3-2</u>
<u>Add equipment</u>	<u>3-3</u>
<u>Modify equipment</u>	<u>3-4</u>
<u>Display equipment list</u>	<u>3-5</u>
<u>Delete equipment</u>	<u>3-6</u>



Section I: Noncontrolled Network Elements

Overview

Purpose This section presents provisioning tasks for adding, modifying and deleting noncontrolled network elements, such as equipment.

Contents

<u>Add equipment</u>	3-3
<u>Modify equipment</u>	3-4
<u>Display equipment list</u>	3-5
<u>Delete equipment</u>	3-6



Add equipment

Purpose Use this procedure to add equipment to the Network Map.

Task Complete the following task to add equipment to the Network Map.

- 1 From the Network Map, select **Configuration > Equipment > Add**.

Result:

The Add equipment form is displayed. The **Model** field displays **EQPT**.

- 2 In the **Equipment ID** field, enter the network element identification.
-

- 3 In the **Acronym** field, enter an acronym.
-

- 4 In the **Customer Information** field, enter any information you wish other users to view.
-

- 5 Click **OK**.

Result:

A window informs you of the success or failure of the operation, and the newly added equipment can be viewed on the Equipment Display List.

END OF STEPS



Modify equipment

Purpose Use this procedure to modify existing equipment.

Task Perform the following steps to modify existing equipment.

- 1 From the Network Map, select **Configuration > Equipment > Display List**.

Result:

The Equipment Display List Query Box appears.

- 2 In the **Equipment ID** field, enter an equipment ID (or enter * to list all equipment).
-

- 3 Press **OK**.

Result:

The Equipment Display List window appears.

- 4 From the list, select the equipment you wish to modify.

Result:

The equipment becomes highlighted, and the **Actions** menu item becomes enabled.

- 5 Modify the acronym of the selected equipment.
-

- 6 Select **Actions > Update**.

Result:

The equipment is modified.

END OF STEPS



Display equipment list

Purpose Use this task to display a listing of existing equipment.

Task Perform the following steps to display a listing of existing equipment.

- 1 From the Network Map, select **Configuration > Equipment > Display List**.

Result:

The Equipment Display List Query Box form displays.

- 2 In the Equipment ID field, enter the ID of the equipment you wish to display (or enter * to list all existing equipment).
-

- 3 Click **OK**.

Result:

The Equipment Display List appears and displays all the equipment in the network with the specified ID.

END OF STEPS



Delete equipment

Purpose Use this procedure to delete equipment from the Network Map.

Task Complete the following task to delete equipment from the Network Map.

1 Display the equipment list (see last task).

2 Select an entry.

3 Select **Actions > Delete Node**.

Result:

The equipment is deleted from the Network Map.

END OF STEPS





4 Provisioning Tasks

Overview

Purpose This chapter presents provisioning tasks usable with WaveStar TMS.

Contents

<u>Section I: Inter-Domain Digital Links</u>	4-3
<u>Add an inter-domain digital link between two controlled network elements</u>	4-4
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<u>Add a regenerator to an inter-domain digital link</u>	4-8
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<u>Modify a trench ID</u>	<u>4-39</u>
<u>Delete a trench ID</u>	<u>4-40</u>



Section I: Inter-Domain Digital Links

Overview

Purpose This section discusses provisioning tasks associated with inter-domain digital links. With WaveStar TMS, user can provision digital links only on the inter-domain level. For information on how to provision digital links on the intra-domain level, consult the appropriate NMS vendor documentation. For Lucent's WaveStar NMS, refer to Chapter 3 of the *WaveStar NMS Provisioning Guide, Release 4.0*.

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Add a regenerator to an inter-domain digital link	4-8
Delete a regenerator from an inter-domain digital link	4-10
Modify an inter-domain digital link	4-12
Disconnect an inter-domain digital link	4-14



Add an inter-domain digital link between two controlled network elements

Purpose Use this procedure to add an inter-domain digital link between two controlled network elements that belong to different domains.

Task Complete the following task to add an inter-domain digital link between two controlled network elements on the Network Map. This task assumes that two controlled network elements are already provisioned in different domains.

- 1 From the Network Map, select two controlled (either ITM-SC or ITM-XM) network elements from different domains.

Tip: Right click on a network element to see the domain it belongs to.

Result:

The selected network elements are highlighted.

- 2 On the Network Map, select **Configuration > Digital Link > Add > (Select a digital link rate from the list)**.

Result:

The Network Map becomes the Provisioning Profile form. The **A Location** and **Z Location** fields are populated.

- 3 Under the **Essentials** tab, enter a circuit ID for **CKT/Trail ID**.
-

- 4 Press the **A port** button.

Result:

The Port Selection window appears.

- 5 Select a port and press **OK**.

Result:

The selected port appears within the Essentials tab as the **A port**.

-
- 6** Repeat steps 4 and 5 to add the **Z port** (of course, exchange any instances of **A port** with **Z port**).

Result:

The selected port appears within the Essentials tab as the **Z port**.

-
- 7** Under the **Parameters** tab, verify that **Order Action** is set to **Add**.

-
- 8** Press **OK**.

Result:

The graphical layout form appears.

-
- 9** Press **OK**.

Result:

A confirmation window appears.

-
- 10** Confirm all confirmation windows that appear.

Result:

The new inter-domain digital link connecting the two domains appears on the Network Map. If there is another interdomain link that is already provisioned between the same two domains, no new link will appear on the Network Map.

END OF STEPS



Add an inter-domain digital link between a controlled network element and an equipment (noncontrolled network element)

Purpose Use this procedure to add an inter-domain digital link between a controlled network element and an equipment (noncontrolled network element).

Task Complete the following task to add an inter-domain digital link between a controlled network element and an equipment (noncontrolled network element) to the Network Map. This task assumes that network elements are already provisioned in different domains.

- 1 From the Network Map, select a controlled network element and a noncontrolled network element (such as equipment) from different domains.

Tip: Right click on a network element to see the domain it belongs to.

Result:

The selected network elements are highlighted.

- 2 On the Network Map, select **Configuration > Digital Link > Add > (Select a digital link rate from the list)**.

Result:

The Network Map becomes the Provisioning Profile form. The **A Location** and **Z Location** fields are populated.

- 3 Under the **Essentials** tab, enter a circuit ID for **CKT/Trail ID**.
-

- 4 Press the **A port** button.

Result:

The Port Selection window appears.

- 5 Select a port and press **OK**.
-

Section I: Inter-Domain Digital Links
Add an inter-domain digital link between a controlled network element and an equipment (noncontrolled network element)

Result:

The selected port appears within the Essentials tab as the **A port**.

- 6** Repeat steps 4 and 5 to add the **Z port** (of course, exchange any instances of **A port** with **Z port**).

Result:

The selected port appears within the Essentials tab as the **Z port**.

- 7** Under the **Parameters** tab, verify that **Order Action** is set to **Add**.
-

- 8** Press **OK**.

Result:

The graphical layout form appears.

- 9** Press **OK**.

Result:

A confirmation window appears.

- 10** Confirm all confirmation windows that appear.

Result:

No interdomain link between a controlled network element and equipment will be shown on the Network Map. Only the Equipment List associated with the network element or domain will include the equipment ID.

END OF STEPS



Add a regenerator to an inter-domain digital link

Purpose Use this task to add a regenerator to a digital link.

Task Complete the following task to add a regenerator to a digital link.

- 1 From the Network Map, select a digital link.

Result:

The digital link becomes jagged.

- 2 Right click on the digital link.

Result:

The Link List form appears.

- 3 Select **Link List**.
-

- 4 Select the CKT/Trail ID corresponding to the digital link you wish to add the regenerator to.

Result:

The selection becomes highlighted, and the **Actions** menu item becomes enabled.

- 5 Select **Actions > Circuit/Trail List**.

Result:

The Circuit/Trail List form appears.

- 6 Select a circuit/trail ID.

Result:

The selection becomes highlighted and the **Action** menu item becomes enabled.

- 7 Select **Actions > Graphical Layout**.
-

Result:

The Graphical Layout form appears.

- 8** Select **Actions > Modify > Regenerators/Optical Amplifiers**.

Result:

The Regenerator Selection form appears.

- 9** Select a regenerator from the **Non-Members** sub-window.

Result:

The **Add** and **Remove** buttons become enabled.

- 10** Press **Add**.

Result:

The regenerator is moved to the **Service** window.

- 11** Specify the regenerator's left/right ports and the service protection.
-

- 12** Press **OK**.

Result:

A confirmation window appears.

- 13** Press **OK**.
-

- 14** From the Network Map, select **File > Query Again**.

Result:

A regenerator is added to the digital link.

END OF STEPS



Delete a regenerator from an inter-domain digital link

Purpose Use this task to delete a regenerator from a digital link.

Task Perform the following steps to delete a regenerator from a digital link.

1 From the Network Map, select a digital link.

2 Right click on the digital link.

Result:

The Link List form appears.

3 Select **Link List**.

4 Select the CKT/Trail ID corresponding to the digital link you wish to delete a regenerator from.

Result:

The selection becomes highlighted, and the **Actions** menu item becomes enabled.

5 Select **Actions > Circuit/Trail List**.

Result:

The Circuit/Trail List form appears.

6 Select the CKT/Trail ID corresponding to the digital link you wish to delete a regenerator from.

Result:

The selection becomes highlighted, and the **Actions** menu item becomes enabled.

7 Select **Actions > Modify > Regenerators/Optical Amplifiers**.

Result:

The Regenerator Selection form appears.

- 8** Select a regenerator from the **Service** window.

Result:

The **Add** and **Remove** buttons become enabled.

- 9** Press **Remove**.

Result:

The regenerator is moved to the **Non-Members** window.

- 10** Press **OK**.

Result:

A confirmation window appears.

- 11** Press **OK**.
-

- 12** From the Network Map, select **File > Query Again**.

Result:

The regenerator is deleted from the digital link.

END OF STEPS



Modify an inter-domain digital link

Purpose Use this procedure to modify the features of an existing digital link.

Task Perform the following procedure to modify the features of an existing digital link.

- 1 From the Network Map, select a digital link by clicking on it.

Result:

The digital links becomes jagged.

- 2 Right-click on the digital link.

Result:

The Link List form appears.

- 3 Select **Link List**.
-

- 4 Select a digital link from the list.
-

- 5 Select **Actions > Circuit/Trail List**.

Result:

The Circuit/Trail List form appears.

- 6 Select a circuit/trail ID.

Result:

Selection becomes highlighted and the **Actions** menu item becomes enabled.

- 7 Select **Actions > Graphical Layout**.

Result:

The Graphical layout form appears.

-
- 8** Select **Actions > Modify (make a selection)**.

Result:

A modification form will appear depending upon your selection.

- 9** Perform any modification to the digital link through the three available forms.
-

- 10** Once finished with your modifications, from the Network Map, select **File > Query Again**.

Result:

The digital link is modified.

END OF STEPS



Disconnect an inter-domain digital link

Purpose Use this procedure to disconnect a digital link. The below listed caveats apply to this procedure depending upon the type of digital link you wish to disconnect.

Before you begin Before disconnecting a digital link, note the following:

- Users are not required to stop already running performance monitoring data collection prior to disconnecting the digital link.
- Deletion of a digital link is permitted only if there are no in-effect and/or pending circuits or paths riding on it.
- Any circuits or lower-order paths riding on a higher order path, must be disconnected before there is any attempt at disconnecting a digital link.

Task Complete the following task to disconnect a digital link from a facility or circuit. Be sure to read the *Before You Begin* information for important considerations to make before attempting to disconnect a digital link.

1 From the Network Map, select an inter-domain digital link.

2 From the Network Map, select **Configuration > Digital Link > Disconnect**.

Result:

The Ckt/Trail Query Box is displayed.

3 In the **Order Number** field, enter the order number of the digital link to be disconnected.

4 Click **OK**.

Result:

A confirmation window appears.

5 Click **Yes**.

Result:

An action window appears.

- 6** Click **OK**.

Result:

The system disconnects the digital link if all validations are successful.

- 7** From the Network Map, select **File > Query Again**.

Result:

The digital link, linking the specified domains, disappears from the Network Map.

END OF STEPS



Section II: Connections

Overview

Purpose This section discusses provisioning tasks associated with circuits. With WaveStar TMS, user can provision circuits on both the inter-domain and intra-domain level. This guide only covers inter-domain provisioning tasks. For information on how to provision circuits on the intra-domain level, consult the appropriate NMS vendor documentation. For Lucent's WaveStar NMS, refer to Chapter 3 of the *WaveStar NMS Provisioning Guide, Release 4.0*.

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<u>Locate network discrepancies</u>	<u>4-24</u>
<u>Disconnect a circuit</u>	<u>4-26</u>
<u>Perform a virtual disconnect</u>	<u>4-28</u>



Add a circuit between two network elements

Purpose Use this procedure to add a circuit between two network elements. Note that this procedure applies to creating a circuit between: two controlled network elements, two noncontrolled network elements, or a controlled network element and noncontrolled network element.

Task Complete the following task to add a circuit between two network elements. This task assumes that network elements and digital links have already been provisioned.

- 1 On the Network Map, select two network element icons joined by an inter-domain digital link.

Tip: Right click on the network element to see the domain it belongs to.

Result:

The icons become highlighted.

- 2 On the Network Map, select **Configuration > Connection > Add > (Desired Circuit Rate)**.

Result:

The Provision Profile form is displayed.

- 3 Under the **Essentials** tab, enter a circuit ID for **CKT/Trail ID**.
-

- 4 Press the **A port** button.

Result:

The Port Selection form appears.

- 5 Select applicable ports (depending on the circuit type, you will have to select up to three ports) and press **OK**.

Result:

The selected port appears within the Essentials tab as the **A port**.

Add a circuit between two network elements

-
- 6 Repeat steps 4 and 5 to add the **Z port** (of course, exchange any instances of **A port** with **Z port**).

Result:

The selected port appears within the Essentials tab as the **Z port**.

- 7 Select either **Semi-Automatic** or **Manual**. This procedure will assume you select **Manual**.

Note: Semi-automatic allows users to provision a circuit through only digital link selection (channel selection is not required). Manual provisioning requires digital link and channel selection.

- 8 Right click on the inter-domain digital link you wish to add the circuit to.

Result:

A menu appears.

- 9 Select **Trail/Channel Selection**.

Result:

The Trail/Channel Selection window appears.

- 10 From the **Trail ID** panel, select a trail.

Result:

The **Channel** panel will alter to reflect the channels available through the trail selection.

- 11 From the **Channel** panel, select a channel (or channels depending on the trail selection) from the list.
-

- 12 Press **OK**.

Result:

The Connectivity tab is populated by your selections.

Add a circuit between two network elements

.....
13 Continue the procedure of selecting a digital link and channel for every interdomain link to establish connectivity between the two ends of the path/trail.
.....

14 Press **OK**.

Result:

The graphical layout form appears displaying the new circuit.
.....

15 Press **OK**.

Result:

A confirmation window appears.
.....

16 Confirm all confirmation windows.

Result:

The circuit is created.

END OF STEPS
.....



Display circuit list by type

Purpose Use this procedure to display a list of particular circuit types.

Task Perform the following procedure to display a list of particular circuit types.

- 1 From the Network Map, select **Configuration > Connection > Display > Circuit/Trail List**.

Result:

The Circuit/Trail List Query Box form appears.

- 2 Place a check in the **Free Form** box.

Result:

The Free Form field alters.

- 3 Within the **Free Form** field, enter *.

Result:

The **OK** button becomes enabled.

- 4 From the field's drop-down menu, specify a transmission rate.
-

- 5 For **Status**, specify an order status. Your query will show all the circuits that abide by this criteria. For example, if you select **Pending**, only pending circuits will be polled for.
-

- 6 For **Order Action**, select an order action if desired.
-

- 7 Press the **More** button if you wish to apply additional search criteria.

Result:

If pressed, the form lengthens to provide additional selections.

-
- 8** Click **OK**.

Result:

The Circuit/Trail List form appears and lists all existing circuits that fit the search criteria.

END OF STEPS



Modify circuit order transmission parameters

Purpose Use this procedure to modify circuit order transmission parameters.

Important! Modifying transmissions can only be done for in-effect circuits only.

Task Complete the following task to modify a circuit's order transmission parameters.

1 From the Network Map, select a circuit.

2 Right click on the circuit.

Result:

The Node menu appears.

3 Select **Circuit/Trail List**.

Result:

The Circuit/Trail List form appears.

4 Select the CKT/Trail ID corresponding to the circuit you wish to disconnect.

Result:

The selection becomes highlighted, and the **Actions** menu item becomes enabled.

5 Select **Actions > Graphical Layout**.

Result:

The Graphical Layout form appears.

6 Select **Actions > Modify > Order Parameters**.

Result:

The Order Parameters form appears.

.....
7 Make the modifications to the circuit's order parameters.
.....

8 Select **OK**.

Result:

The circuit's new transmission parameters are saved.
.....

9 From the Graphical Layout form, select **Actions > Modify > Transmission Parameters**.

Result:

The Transmission Parameters form appears.
.....

10 Make modifications to the circuit's transmission parameters.
.....

11 Select **Actions > Update**.

Result:

The circuit's order and transmission parameters are modified.

.....
E N D O F S T E P S
.....



Locate network discrepancies

Purpose Use this procedure to locate network discrepancies.

Task Complete the following task to locate and view network discrepancies.

- 1 From the Network Map, select **Configuration > Network Discrepancy > Display > Improper Disconnects**.

Result:

The Improper Disconnects Query Box form appears.

- 2 In the **CKT/Trail ID** field, enter a circuit/trail identification.
-

- 3 In the adjoining pull-down menu, select a rate.
-

- 4 If you know the network element you wish to query, enter its ID within the **NE ID** field. Otherwise, press the **NE ID** button.

Result:

The Selection Box form appears.

- 5 Using the **Filter** pull-down menu, select the domain you wish to view for network elements.

Result:

The **NE ID** panel lists all the network elements that belong to that domain.

- 6 From the **NE ID** panel, select a network element.

Result:

The **OK** button becomes enabled.

- 7 Press **OK**.
-

Result:

Your network element selection appears within the **NE ID** field.

- 8** For **Area ID**, select an area.
-

- 9** Press **OK**.

Result:

The Improper Disconnects form appears. If there are any improper disconnects or network discrepancies found, using the query information you entered, the affected circuit/trails will appear within the window.

END OF STEPS



Disconnect a circuit

Purpose Use this procedure to disconnect a circuit.

Important! A virtual disconnect should only be used when the normal disconnect is not working. With a virtual disconnect, all cross-connects will not be removed from the associated network elements.

Before you begin Before you disconnect a circuit, consider the following items:

- You are not required to stop data collection prior to disconnecting a circuit.
- Preplan paths, riding on a circuit to be disconnected, must be first disassociated from the service path they are protecting before there is any attempt at canceling them.
- If the circuit to be deleted is part of a broadcast circuit, the circuit that was added last *must* be disconnected first.
- When attempting to disconnect a circuit, note that a backbone circuit cannot be disconnected unless all its tributaries, or other backbones it is feeding, are disconnected first. Users may disconnect backbones and tributaries in the same manner as with any other circuit except for the first circuit that terminates at a customer's location containing the backbone.

Task Complete the following task to disconnect a circuit.

1 From the Network Map, select a circuit.

2 Right click on the circuit.

Result:

A menu appears.

3 Select **Link List**.

Result:

The Out of Area Connection form appears.

-
- 4 Select the CKT/Trail ID corresponding to the circuit you wish to disconnect.

Result:

The selection becomes highlighted, and the **Actions** menu item becomes enabled.

- 5 Select **Actions > Circuit/Trail List**.

Result:

The Circuit/Trail List form appears.

- 6 Select **Actions > Graphical Layout**.

Result:

The Graphical Layout form appears.

- 7 Select the CKT/Trail ID corresponding to the circuit you wish to disconnect.

Result:

The selection becomes highlighted, and the **Actions** menu item becomes enabled.

- 8 Select **Actions > Disconnect > Actual**.

Result:

A confirmation window appears.

- 9 Select **Yes**.

Result:

The circuit is disconnected.

END OF STEPS



Perform a virtual disconnect

Purpose Use this procedure to perform a virtual disconnect on a circuit.

Important! A virtual disconnect should only be used to remove TMS records that do not reflect a true connection. Some network elements may have failed to complete cross-connects so the recourse is to perform a virtual disconnect and try to add the circuits again. With a virtual disconnect, all cross-connects will not be removed from the associated network elements.

Task Complete the following task to perform a virtual disconnect on a circuit.

1 From the Network Map, select a circuit.

2 Right click on the circuit.

Result:

A menu appears.

3 Select **Link List**.

Result:

The Out of Area Connection form appears.

4 Select the CKT/Trail ID corresponding to the circuit you wish to disconnect.

Result:

The selection becomes highlighted, and the **Actions** menu item becomes enabled.

5 Select **Actions > Circuit/Trail List**.

Result:

The Circuit/Trail List form appears.

-
- 6** Select the CKT/Trail ID corresponding to the circuit you wish to disconnect.

Result:

The selection becomes highlighted, and the **Actions** menu item becomes enabled.

- 7** Select **Actions > Graphical Layout**.

Result:

The Graphical Layout form appears.

- 8** Select **Actions > Disconnect > Virtual (DB only)**.

Result:

A confirmation window appears.

- 9** Select **Yes**.

Result:

A virtual disconnect is performed on the circuit.

END OF STEPS



Section III: Optical Layers

Overview

Purpose This section discusses the provisioning tasks associated with optical layers.

With WaveStar TMS, the optical layer (links and trails) cannot be provisioned; it can only be viewed based on the data that was previously uploaded to WaveStar TMS through the bulk loading (off-line) tool.

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View an optical layer

Purpose Use this procedure to view an optical layer.

Task Perform the following steps to view an optical layer.

- 1 From the Network Map, select **Link View > Optical Layer > (select an optical layer type)**.

Result:

The Network Map alters to reflect the choice.

- 2 Select **File > Query Again**.

Result:

The Network Map updates itself to reflect the view according to your choice.

END OF STEPS



Section IV: Trenches

Overview

Purpose This section discusses provisioning tasks associated with trenches.

- Rules about trenches** Before you attempt to create a trench identification, consider the following item:
- A maximum of five trench identifications can be associated with a single digital link.
 - One trench identification can be used by multiple digital links.
 - A trench identification can not exceed 83 alphanumeric characters.
 - A trench identification description can not exceed 32 alphanumeric characters.
 - Trench identifications are only applicable to digital links, optical links and an OMS.

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<u>Display a list of trenches</u>	4-34
<u>Display the trenches associated with a digital link</u>	4-35
<u>Display the digital links associated with a trench</u>	4-36
<u>Associate a trench with a digital link</u>	4-37
<u>Modify a trench ID</u>	4-39
<u>Delete a trench ID</u>	4-40



Create a trench ID

Purpose Use this procedure to create a trench ID.

Task Complete the following task to create a trench ID.

- 1 On the Network Map, select **Configuration > Trench ID > Add**.

Result:

A window containing two fields appears.

- 2 In the **Trench ID** field, enter a unique identification for the trench.
-

- 3 In the **Description** field, provide a description of the trench so as to distinguish it from other trenches.
-

- 4 Click **OK**.

Result:

The trench ID is created.

END OF STEPS



Display a list of trenches

Purpose Use this procedure to display a list of existing trenches.

Task Complete the following task to display a list of existing trenches.

- 1 From the Network Map, select **Configuration > Trench ID > Display List**.

Result:

The Trench ID Display Query Box appears.

- 2 In the **Trench ID** field, enter a trench identification (or enter * to list all trenches).
-

- 3 Press **OK**.

Result:

The Trench Display List form appears and displays a list of all the existing trenches.

END OF STEPS



Display the trenches associated with a digital link

Purpose Use this task to display the trenches associated with a digital link.

Task Complete the following task to display the trenches associated with a digital link.

- 1 From the Network Map, select **Configuration > Connection > Display > Circuit/Trail List**.

Result:

The Circuit/Trail Query Box window appears.

- 2 In the **Order Status** field, specify an order status.
-

- 3 In the **Ckt/Trail ID** field, select a rate.
-

- 4 Press **OK**.

Result:

The Circuit Trail List window appears.

- 5 From the list, select a circuit/trail identification.

Result:

The selected identification is highlighted.

- 6 Select **Actions > Trench ID Associations/Display**.

Result:

A window appears showing all the trenches associated with the digital link.

END OF STEPS



Display the digital links associated with a trench

Purpose Use this task to display the digital links associated with a trench.

Task Complete the following task to display the digital links associated with a trench.

- 1 From the Network Map, select **Configuration > Trench ID > Display List**.

Result:

The Trench ID Display Query Box appears.

- 2 In the **Trench ID** field, enter a trench ID.
-

- 3 Press **OK**.

Result:

The Trench Display List form appears and lists the trenches according to the query information that was specified.

- 4 From the list, select a trench.

Result:

The selection is highlighted.

- 5 Select **Actions > Trench ID-Links Associations List**.

Result:

The Trench ID-Links Associations List form appears and displays all the digital links associated with the specified trench.

END OF STEPS



Associate a trench with a digital link

Purpose Perform the following procedure to associate a trench with a digital link.

Task Complete the following task to associate a trench with a digital link.

- 1 From the Network Map, select **Configuration > Connection > Display > Circuit/Trail List**.

Result:

The Circuit/Trail Query Box form appears.

- 2 In the **Order Status** field, specify an order status.
-

- 3 In the **Ckt/Trail ID** field, select a rate.
-

- 4 Press **OK**.

Result:

The Circuit/Trail List form appears.

- 5 From the list, select a circuit/trail identification.

Result:

The selected identification is highlighted.

- 6 Select **Actions > Trench ID Associations/Display**.

Result:

A form appears displaying all the trenches associated with the digital link.

- 7 Using the window's arrow icons, associate (or dissociate) trenches with a digital link.
-

8 Select **Apply**.

Result:

The trench is associated (or disassociated) with the digital link.

END OF STEPS



Modify a trench ID

Purpose Use this task to modify a trench ID.

Task Complete the following task to modify a trench ID.

- 1 From the Network Map, select **Configuration > Trench ID > Display List**.

Result:

The Trench ID Display List Query Box form appears.

- 2 In the **Trench ID** field, enter an existing trench identification. If you enter nothing, you will get a complete list of existing trenches.
-

- 3 Press **OK**.

Result:

The Trench Display List form appears.

- 4 In the **Trench ID** field, select a trench.
-

- 5 Select **Actions > Update**.

Result:

A form appears.

- 6 In the **New Trench ID** and **New Description** fields, enter new information for the trench.
-

- 7 Click **OK**.

Result:

The trench ID is modified.

END OF STEPS



Delete a trench ID

Purpose Use this procedure to delete a trench ID.

Task Complete the following task to delete a trench ID.

- 1 From the Network Map, select **Configuration > Trench ID > Display List**.

Result:

The Trench ID Display List Query Box form appears.

- 2 In the **Trench ID** field, enter an existing trench identification. If you enter nothing, you will get a complete list of existing trenches.
-

- 3 Press **OK**.

Result:

The Trench Display List form appears and lists the trenches according to the query information specified within the previous window.

- 4 From the list, select a trench.

Result:

The selection is highlighted.

- 5 Select **Actions > Delete**.
-

- 6 From the Network Map, select **File > Query Again**.

Result:

The trench ID is deleted.

END OF STEPS





5 Provisioning Concepts

Overview

Purpose This chapter provides a reference for conceptual information related to provisioning with WaveStar TMS.

Contents

How to find conceptual information about provisioning with WaveStar TMS

5-2



How to find conceptual information about provisioning with WaveStar TMS

Reference For conceptual material about provisioning circuits, facilities, paths, network elements, and subnets with WaveStar TMS, refer to Chapter 4 of the *WaveStar NMS Provisioning Guide*.

Exceptions The provisioning concepts for WaveStar TMS and WaveStar NMS are identical with the following exceptions:

- WaveStar TMS does not support broadcast circuits or one-way circuits.
- WaveStar TMS does not support the Clone feature.
- WaveStar TMS does not support Service Domain Partitioning or Geographic Domain Partitioning.
- WaveStar TMS does not support a geographic redundancy hardware configuration.
- WaveStar TMS does not support a local redundancy hardware configuration.
- WaveStar TMS does not support subnets.
- WaveStar TMS does not support black boxes.
- WaveStar TMS does not support tandem connection monitoring.
- Circuit/trails are specified using the free-format naming convention only; the M.1400 naming convention is not supported.
- WaveStar TMS does not support fault management.
- WaveStar TMS does not support performance monitoring.
- WaveStar TMS does not support optical link provisioning.

□



6 Digital Transmission Rates

Overview

Purpose This chapter discusses the digital transmission rates and interconnections of the circuits and digital links supported by WaveStar TMS.

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<u>Supported digital transmission rates</u>	6-3



Section I: Supported Transmission Rates

Overview

Purpose This section discusses the digital transmission rates supported by WaveStar TMS. Refer to the appropriate NMS documentation for information about the transmission rates supported by the lower level management systems.

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--	---------------------

□

Supported digital transmission rates

Overview This section discusses the digital transmission rates supported by WaveStar TMS.

Table The following table shows the digital transmission rates supported by WaveStar TMS.

Table 6-1 Supported Digital Link Rates

Designation	Description	User Label	Transmission Rate Mb/s	Notes
STM-64	Digital Link	64S	9,953.28	
STM-16	Digital Link	16S	2,488.32	
STM-4	Digital Link	4S	622.0	
STM-1	Digital Link	1S	155.52	

Table The following table shows the circuit rates supported by WaveStar TMS.

Table 6-2 Supported Circuit Rates

Designation	Description	User Label	Transmission Rate Mb/s	Notes
VC-4	Path	VC4S	150.336	
VC-3	Path	VC3S	48.960	
VC-12	Path	VC12S	2.240	
VC4-64c	Path	VC4-64c	9621.504	
VC4-16c	Path	VC4-16c	2405.376	
VC4-4c	Path	VC4-4c	601.344	
AU3	Path	AU3S	48.960	
VC-2	Path	VC2S	6.312	
VC11-TU	Path	TU12-VC11S	2.240	
CEPT-4	Circuit	1920N	139.264	
CEPT-3	Circuit	480N	34.368	
CEPT-1	Circuit	30N	2.048	
DS3	Circuit	672N	44.736	
DS1	Circuit	24N	1.544	





7 Network Element Port Addresses

Overview

Purpose This chapter describes the concepts associated with port addresses as they relate to WaveStar TMS.

Contents

<u>Network element port addresses</u>

7-2



Network element port addresses

Where to find For a complete listing of Lucent network element port addresses, refer to Chapter 6 of the *WaveStar NMSProvisioning Guide*.

For a complete listing of non-Lucent network element port addresses, refer to the vendor's documentation.

Important Note WaveStar TMS does not support black boxes.





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