Meridian SuperNode
Meridian SL-100
Service Operation Support

NORTEL
NORTHERN TELECOM

Meridian SuperNode

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Service Operation Support

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Information is subject to change without notice. Northern Telecom reserves the right to make changes in design or components as progress in engineering and manufacturing may warrant.
This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules, and the radio interference regulations of the Canadian Department of Communications. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense
Allowing this equipment to be operated in such a manner as to not provide for proper answer supervision is a violation of Part 68 of FCC Rules, Docket No. 89-114, 55FR46066
The SL-100 system is certified by the Canadian Standards Association (CSA) with the Nationally Recognized Testing Laboratory (NRTL).
This equipment is capable of providing users with access to interstate providers of operator services through the use of equal access codes. Modifications by aggregators to alter these capabilities is a violation of the Telephone Operator Consumer Service Improvement Act of 1990 and Part 68 of the FCC Rules

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About this document

Commitment policy

The commitments described in this document do not constitute a contractual obligation upon Nortel (Northern Telecom), but are generally in support of the terms and conditions of sale of the systems, and the System Support Agreement covering the system. Terms and conditions of individual contracts between Nortel and its customers supersede any conflicting policy or procedure listed in this document.

This publication describes the rules and guidelines for performing and receiving service for the Meridian SuperNode (MSL-100) switch, its components, and its features.

This document, *Service Operation Support*, is a part of the documentation package that supports MSL-100 products of Nortel.

Software applicable to a specific office is identified by a release number and by a Nortel product engineering code (PEC).

The information contained in this practice is applicable to offices having MSL06 software. It is also applicable to offices having a release greater than MSL06 unless reissued. The application of all Northern Telecom Publication (NTP) editions with respect to a given release is given in the *Commercial Systems Master Index of Publications*, 555-4031-001, or the *Defense Switched Network Master Index of Publications*, 555-4021-001.

The information contained in this NTP is subject to change because Nortel reserves the right, without notice, to make changes in equipment design or components as progress in engineering or manufacturing methods may warrant. Any such changes will be reflected in subsequent issues of this NTP.

When to use this document

This document is divided into seven chapters. Use it to find the services and contact information available for a MSL-100 switch.

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the *next* software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but rereleased in the *same* software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in the *Commercial Systems Master Index of Publications*, 555-4031-001, or the *Defense Switched Network Master Index of Publications*, 555-4021-001.

Related documentation

Prerequisite information

There is no prerequisite information needed to use this document.

Informative information

The following documents are informative references. They contain detailed information concerning other items mentioned in this practice. However, these documents are not essential to understanding the information contained in this book.

Documents that may be needed for a section's specific subject matter are referenced in appropriate places throughout this document. For further information, a complete list of MSL-100 documents can be found in the *Commercial Systems Master Index of Publications*, 555-4031-001, or the *Defense Switched Network Master Index of Publications*, 555-4021-001.

The following documents are referred to in this document:

- *Helmsman Viewer Application User's Guide for Macintosh*, P6313

- *Helmsman Viewer Application User's Guide for Windows*, P6319

- *One Night Process Software Delivery Procedures*, 297-8991-303

- *Resident Maintenance and Operations Standards Handbook*, 985-7560-100

What precautionary messages mean

The types of precautionary messages used in Nortel documents include attention boxes and danger, warning, and caution messages.

An attention box identifies information that is necessary for the proper performance of a procedure or task or the correct interpretation of information or data. Danger, warning, and caution messages indicate possible risks.

Examples of the precautionary messages follow.

ATTENTION Information needed to perform a task

ATTENTION

If the unused DS-3 ports are not deprovisioned before a DS-1/VT Mapper is installed, the DS-1 traffic will not be carried through the DS-1/VT Mapper, even though the DS-1/VT Mapper is properly provisioned.

DANGER   Possibility of personal injury

DANGER
Risk of electrocution
Do not open the front panel of the inverter unless fuses F1, F2, and F3 have been removed. The inverter contains high-voltage lines. Until the fuses are removed, the high-voltage lines are active, and you risk being electrocuted.

WARNING   Possibility of equipment damage

WARNING
Damage to the backplane connector pins
Align the card before seating it, to avoid bending the backplane connector pins. Use light thumb pressure to align the card with the connectors. Next, use the levers on the card to seat the card into the connectors.

CAUTION   Possibility of service interruption or degradation

CAUTION
Possible loss of service
Before continuing, confirm that you are removing the card
from the inactive unit of the peripheral module.
Subscriber service will be lost if you remove a card from
the active unit.

How commands, parameters, and responses are represented

Commands, parameters, and responses in this document conform to the
following conventions.

Input prompt (>)

An input prompt (>) indicates that the information that follows is a
command:

>BSY

Commands and fixed parameters

Commands and fixed parameters that are entered at a maintenance and
administration position (MAP) terminal are shown in uppercase letters:

>BSY CTRL

Variables

Variables are shown in lowercase letters:

>BSY CTRL ctrl_no

The letters or numbers that the variable represents must be entered. Each
variable is explained in a list that follows the command string.

Responses

Responses correspond to the MAP display and are shown in a different type:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

The following excerpt from a procedure shows the command syntax used in this document:

1   Manually busy the CTRL on the inactive plane by typing

>BSY CTRL ctrl_no
and pressing the Enter key.

where

ctrl_no   is the number of the CTRL (0 or 1)

Example of a MAP response:

```
FP 3 Busy CTRL 0: Command request has been submitted.
FP 3 Busy CTRL 0: Command passed.
```

Introduction to services

Platforms of support

The following three major platforms support the organization of Nortel services:

- warranty services

- post-warranty support

- maintenance support services

Warranty services introduce the core of Nortel's support. Post-warranty support, including the extended service plan (ESP), offers core services and value-added optional services. Maintenance support services integrate offerings grouped in three ways: remote services, field services, and performance support. Maintenance support services can be purchased individually from initial system in-service or as post-warranty services.

Training and other types of support

Nortel also supports its customers with a variety of educational and other support-related services. These services include documentation on compact disc-read-only memory (CD-ROM), technical training at one of the Nortel training centers, or MSL-100 hybrid software upgrades, and the disaster recovery plan that helps the customer quickly put a switch back into operation after it has been damaged in a disaster.

Warranty services

During the first year that a system is in service, warranty service provides routine and emergency repair and replacement services, technical assistance service (TAS), and design change support for hardware and software.

Repair and replacement

Nortel's repair and replacement service provides timely and efficient service for units during (or beyond) the warranty period—in routine and TAS situations.

Warranty

Repair or replacement warranty

All replaced or repaired parts are under warranty by Nortel for a period of 30 days commencing five days after the date of shipment or for the balance of the original warranty, whichever is longer.

Non-warranty services

Nortel requires a purchase order number for all non-warranty services. This may be either a blanket purchase order number or an individual purchase order number issued at the time of the request for service.

Note: A purchase order is required before any services are rendered.

The Nortel service administration department assists you in establishing your individual process for providing purchase order numbers. Call your MSL-100 service administration representative at the following numbers:

- Commercial systems—(972) 684-7805

- Federal systems—(972) 685-7715

Repair order classifications

Routine repair service

Nortel provides routine repair service during Nortel business hours: Monday through Friday, 8:00 a.m. to 5:00 p.m. central time. If assistance is needed, you call (800) 684-7888 or (800) 578-7421 to reach a repair and replacement representative.

The Remote Service Center (RSC) receives calls from 5:00 p.m. to 8:00 a.m. (central time) and on weekends and holidays. The RSC contacts an on-call repair and replacement representative in emergency conditions.

Within three days after receipt of a return part from the customer, Nortel ships a like-for-like replacement. Nortel does not ship prior to receipt of a routine repair item.

Emergency service

Nortel provides emergency service 24 hours per day, 7 days per week. Only defective parts vital to the call processing ability of the system qualify as emergency parts.

The following circumstances determine emergency replacement:

- The last spare of a circuit pack has been used to replace a defective pack in the system and all similar packs in the system are carrying live traffic.

- A TAS representative advises the repair center that an emergency situation has occurred that requires emergency service to correct the situation.

Note: A separate order must be placed for each project number. Nortel assesses the customer a surcharge for emergency service. All emergency repair or replacement orders require a valid distributor purchase order.

Counter-to-counter

Counter-to-counter service is the same as emergency service except shipment will be made to the customer specified airport and held for pick up there.

Nortel ships a like-for-like part in the most expedient manner within 24 hours of the request. The customer is responsible for sending the defective part to Nortel; however, the defective part does not need to arrive prior to shipment of the replacement part. (Depending on the circumstances, Nortel may choose to schedule on-site repair of defective equipment.)

If Nortel does not receive defective equipment within 30 days after shipment of the replacement part, Nortel invoices the customer for the current commercial list price (CLP) for the part.

Note: A separate order must be placed for each order classification or project number (routine or emergency). Nortel assesses the customer a surcharge for counter-to-counter service. This service requires a valid distributor purchase order.

Material on loan

Part of the emergency services, counter-to-counter for warranty, extended service plan (ESP), and post warranty services is the material on loan (MOL), or advance replacement. The receiver (distributor and/or end-user) of the MOL is responsible for returning the defective material within 30 days after receipt, as instructed verbally or in writing by Nortel. The receiver is also responsible for all return shipping charges. Failure to return the defective material in the specified time will result in issuance of an invoice for the current CLP. Returns cannot be accepted after 30 days. All returns must be packed correctly and accompanied by the appropriate paperwork. Direct any questions you may have to a service administration representative by calling (972) 684-7805.

Order types

PCP repair or replacement

The printed circuit pack (PCP) is a circuit pack manufactured by Nortel that bears Nortel's coding: NT. A repair sticker must be attached to all defective PCPs and other equipment being returned for repair. Refer to the Return Material Information Procedure under the section "Shipping Procedures" for information on the repair sticker. A replacement PCP represents a new or repaired, functionally equivalent replacement pack.

Original equipment manufacturer/vendor repair

Original equipment manufacturer (OEM)/vendor equipment refers to equipment that is manufactured by another vendor, but is purchased through Nortel as an integral part of the system. OEM/vendor equipment repair can fall into one of the following categories:

- OEM/vendor normal repair/replacement. The equipment is shipped directly to the Nortel location for like-for-like replacement.

- OEM/vendor tracking repair. The equipment is shipped directly to the vendor and tracked by Nortel.

- On-site vendor repair. The vendor repairs the equipment on the customer premises.

Proprietary station equipment

Proprietary station equipment (PSE), also called customer premises equipment (CPE), represents station equipment designed to be used specifically with Nortel switching systems. Customer service in Richardson, Texas processes this type of equipment as a tracked order and prepares the equipment for repair. Nortel bills all update orders to the customer and requires a purchase order at the time the order is placed.

Consumables

Consumables are items that are used but considered non-repairable. These items include, but are not limited to, the following items:

- light bulbs
- printer ribbons
- drive belts
- fuses
- printer paper
- magnetic tapes
- circuit breakers
- filters

Nortel delivers a supply of consumables with the system. Consumables may also be provided as part of a support contract. After a customer uses the initial supply, the customer may purchase more consumable items from Nortel by calling the appropriate Merchandise Order Entry department. Nortel requires a $50.00 minimum order on consumable item orders. The customer must provide a purchase order number when placing the order.

Disk drives, though not considered consumables, are still considered to be customer-replaceable units for the purpose of upgrades.

The following numbers can be dialed to reach the appropriate Merchandise Order Entry department:

- MSL-100 Commercial: (972) 684-5839
- MSL-100 Federal: (703) 712-8273

Repair order procedures

PCP repair and replacement

The following procedure shows the steps to follow for PCP repair or replacement:

Procedure 2-1
PCP repair/replacement procedure

1   Call Nortel Richardson at (800) 684-7888, (972) 684-7888, or (800) 578-7421.

2   Provide the following information when you call:
   - order type (on-site, routine, emergency, or counter-to-counter)
   - project number

- purchase order number (required for all non-warranty services and is required to cover expedite fees on all emergency orders)
- requestor name and phone number
- part number (product engineering code [PEC] or corporate product code [CPC] or manufacture part number)
- quantity
- shipping instructions (site with address where item is to be shipped)

   Note: Vendor ship-to address instructions are provided at the time the order is placed.

3   A unique order ID number is issued for each transaction. This number must be referenced on the defective return packing list and failure stickers accompanying all shipments. This number is critical for tracking individual orders and must appear on all correspondence.

4   Be sure to include the order ID number on the shipping label. Return defective items to Nortel at the following address:

Nortel CSO

400 N. Industrial

Richardson, TX 75081

Order ID #

Shipping procedures

Return material information procedure

Nortel provides a mandatory return authorization number each time an order is placed. This number must be indicated on the return material information sticker and attached to the faceplate of each defective unit. Figure 2-1 shows an example of a repair sticker. For line cards, such as 6X18AB or 6X17AB, use one sticker per line-card box or drawer.

Figure 2-1
Repair sticker

Procedure 2-2 gives instructions for completing the circled fields in Figure 2-2 of the return material information sticker.

Procedure 2-2
Completing the return material authorization sticker

1 Return authorization number (R.A.#)—order ID number printed on the Record of Shipment

2 TELCO/SITE—telephone company name/office name and state where unit failed

3 FAULT—system failure message/problem with the equipment

4 SITE ID—characters that identify the site which is returning the material.

Return all material to:

Nortel CSO

400 N. Industrial

Richardson TX   75081

Customer ID #

5 PACK SERIAL #—for customer repair/replacement returns.

If you have any questions, call the customer service department in Richardson at (800) 684-7888, (972) 684-7888, or (800) 578-7421.

Defective return packing list

Figure 2-2 shows an example of the defective return packing list. The customer must complete a defective return packing list for the material to be shipped. A copy of the defective return packing list should be placed in the carton (#1) and the original attached to the outside.

Figure 2-2
Defective return packing list


```
TO:                              1    FROM:

    NORTEL
    400 N. INDUSTRIAL
    RICHARDSON, TX
    75081
    972-684-7888   800-684-7888
    ATTN: Repair and Replacement
```

CUSTOMER P.O. NO. ⑤	CUSTOMER NO.	REPAIR ORDER NO. ⑥	PROJECT NO. ⑦
SHIP DATE ②	SHIP VIA ③	④ WAYBILL NO.	

ITEM ⑧ ORDERED	SHIPPED ⑨	NT PART# ⑩	DESCRIPTION ⑪	SERIAL NO. ⑫

REMARKS:

SHIPMENT REQUESTED BY: ⑬   DATE: ⑭

Procedure 2-3 describes the circled fields of the defective return packing list shown in Figure 2-2.

Procedure 2-3
Completing the defective return packing list

1 FROM—address and phone number of the site returning the material

2 SHIP DATE—date the parts are shipped

3 SHIP VIA—carrier name

4 WAYBILL NUMBER—carrier number

5 CUSTOMER P.O. NUMBER—customer purchase order number. It is required on updates and repairs when applicable.

6 REPAIR ORDER NUMBER—RMA number that is issued by Nortel when the customer calls in the order

7 PROJECT NUMBER—four or five-digit switch number

8 ITEM—item number/ORDERED—quantity

9 SHIPPED—quantity shipped

10 PART NUMBER—part number

11 DESCRIPTION—description of the item

12 SERIAL NUMBER—serial number of the item

13 SHIPMENT REQUESTED BY—signature of the requestor

14 DATE—date the shipper was originated

Note: Note: Nortel provides the defective return packing lists on request. Call (800) 684-7888, (972) 684-7888, or (800) 578-7421 to order defective return packing lists.

Packaging

It is the customer's responsibility to make sure that the parts are properly packed using antistatic containers of standardized design for circuit packs or specific equipment. The couriers can provide the proper packaging materials. Use the following guidelines when packaging equipment:

- Ensure that the repair sticker is properly attached to the defective part and to the outside the equipment container.

- Wrap parts individually in antistatic bags and proper containers to protect the parts from being damaged by static electricity when packed in styrofoam. Please avoid using styrofoam peanut material, if possible.

- Place at least five inches of packing material on the bottom and top of the container to protect parts from being damaged in transit.

- Print the RMA number on the outside of each box, and indicate the total number of boxes in the shipment (for example, 1 of 5, 2 of 5).

Shipping

The customer must ensure that the units are adequately insured to cover possible loss regardless of the warranty status, unless contract specifies otherwise.

Return the material to the appropriate repair facility using the following guidelines:

- Return the material pre-paid (depending on the contract) using a desired means of transportation. Allow adequate time for delivery.

- Update your shipping log with the shipping information and RMA number.

Other site procedures

Spares testing

Nortel recommends that the customer replace the on-site spare with the new replacement pack as soon as it arrives. Run a full set of MAP workstation-level diagnostics on the replacement pack to assure satisfaction with the pack. This method improves the probability that the shelf spares are operable. If the replacement pack does not pass the diagnostic test, it should be tagged immediately with a repair sticker and returned the pack to Nortel. Nortel issues a second RMA and ships a replacement within 24 hours after Nortel receives notification of the failure.

Repair and return circuit pack log

Nortel recommends that customers track all repair and replacement of equipment in a repair log. Shipping information and the RMA number should be included with each entry. Maintaining an accurate repair log helps identify repetitive problems and helps control inventory levels. A template for this log can be obtained from Nortel Customer Service Operations (CSO). Figure 2-3 shows a sample repair and return log.

Figure 2-3
Repair and return circuit pack log

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Repair and Return Circuit Pack Log

Location						Period			
a. Failed circuit pack			b. Trouble indication	c. Requisition		d. Date unit received	e. Put in service		f. Remarks
Code	Serial	Location		Number	Date MM DD YY	MM DD YY	T.O.K.	Fail	

Policies

Request for parts repair service

Handle a request for parts repair according to one of the following levels:

- system level—it is essential that all requests for parts repair service, including equipment from other vendors, be handled through Nortel. This method allows Nortel to administer the warranty and ensure that the customer is billed correctly according to the contractual terms.

- merchandise level—contact the appropriate sales channel.

Damaged/abused returns

If the damage is determined to be caused by the customer, the warranty does not apply, and the customer must purchase the material at the current merchandise price. Nortel requires a purchase order number.

Merchandise order service

The customer can order equipment that does not require engineering or installation through the Merchandise Order Service. Off-the-shelf equipment orders are placed quickly and efficiently with this service.

Place merchandise orders by telephone at (972) 684-2891, by fax at (972) 684-3991 during normal working hours, or by mail. The ordering process requires the company name, caller name, and phone number, shipping and billing addresses, purchase order number, quantity, product description and code, and shipping instructions. Use the following mailing address:

Nortel

Attn: Merchandise Order Service

2221 Lakeside Blvd, Mailstop C-1206

Richardson, TX 75082-4399

Billing recovery services

Lost billing data can mean several thousands of dollars in lost revenue. To reduce the potential for this kind of loss, Nortel customer service has an effective process to aid MSL-100 customers in recovering billing data from corrupted billing files. Nortel provides this service free to all sites within the original warranty period and for those disk drives that are specified within a current extended service plan (ESP).

Nortel processes requests for billing recovery through the Customer Service Repair and Replacement department at (800) 684-7888 or (972) 684-7888. Nortel provides billing recovery service for MSL-100 systems that are

equipped with an input/output controller (IOC) and that use either the 8- or 14-inch disk drive unit (DDU).

If technical assistance is required to determine if billing data corruption has occurred, customers should first contact Nortel TAS at (800) 684-7777. If TAS determines that billing recovery is required, the customer is then transferred to the customer service department where the request for billing recovery is generated.

After contacting Nortel customer service, customers are issued an order ID number and are instructed to return the damaged disk drive to Nortel customer service. After customer service receives the disk drive, it is put into an MSL-100 environment and the proprietary recovery application is administered. If successful, Nortel captures the recovered files to magnetic tape and returns them to the customer. The typical turn-around time is two days, but this time may vary depending on the magnitude of the damage and the number of files to be recovered.

All out-of-warranty MSL-100 recovery requests must be accompanied by a customer purchase order number. The customer will be billed for recovery services.

For more information, please call Nortel customer service at (800) 684-7888 or (972) 684-7888.

Technical Assistance Services

Nortel provides TAS for routine and emergency matters during the initial warranty period, as it is defined in the terms and conditions of the customer contract.

TAS is a centralized team of highly trained personnel located in Richardson, Texas. TAS has access to complete MSL-100 documentation, the latest developments in hardware and software, plus access to captive offices for verification of problems and implementation of solutions.

In-service customers who experience operational difficulties may contact the Nortel TAS group. Special remote terminals in the TAS center communicate with a customer's system to diagnose fault conditions and recommend corrective action.

MSL-100 TAS provides three basic classifications of assistance to the customer:

- emergency technical assistance service
- routine technical assistance service
- technical information service

Emergency technical assistance service

This service is available to customers who require immediate assistance with operational problems (such as loss of call processing or loss of billing). This service is available 24 hours a day, seven days a week. Through verbal reports and remote diagnoses of the system, TAS engineers recommend actions to restore the system to stable operation as quickly as possible.

Routine technical assistance service

This service is available to customers who require problem isolation/ resolution in a non-emergency situation. This service is available during business hours (Monday through Friday, 8:00 a.m. to 5:00 p.m. central time, excluding Nortel holidays). This service's primary use is for analysis of routine technical problems using verbal reports from site personnel and system generated information.

Technical information service

The technical information service distributes emergency warning bulletins (EWB) and customer advisory bulletins (CAB).

Nortel publishes both EWBs in an effort to inform customers of problems that may exist within the DMS family of switches and procedures to avoid them.

As a guide for the maintenance staff, a prioritized index for all active bulletins accompanies the EWB package. Nortel recommends that the customer carefully adhere to the information in the EWBs to avoid any undue problems.

A prioritized index for all active bulletins also accompanies the CABs, which are MSL-100-specific bulletins. It is recommended that the customer carefully adhere to the information contained in the CABs to avoid any undue problems.

Non-warranty services

Some situations may arise during the no-charge warranty period that result in a service request that is billable. This category of service is non-warranty services.

The following list contains some of the situations that are handled by Nortel's non-warranty services:

- requests resulting from problems with equipment not furnished by Nortel

- problems in which the solution was available in Nortel documentation such as Northern Telecom Publications (NTP), advisory bulletins, and MSL release documents

- requests that result from post-release software units (PRSU) that alter the design intent of standard software in order to provide customer requested changes in operations

- requests for on-site assistance in place of remote testing

- non-emergency requests outside normal business hours (Monday through Friday, 8:00 a.m. to 5:00 p.m., central time, excluding Nortel holidays), unless scheduled in advance with appropriate TAS manager

- requests for assistance in performing system data changes or changes to write-restricted tables

- requests for assistance in identifying faulty hardware or software for which standard maintenance fault-locating procedures exist

Priority classification

The service priority classification system establishes an interrelationship between the problems and the appropriate level of reaction and resolution. A problem's direct or potential effect on subscriber service is the basis of this priority system.

The commitments described in this document do not constitute a contractual obligation upon Nortel, but are generally in support of the terms and conditions of sale of the systems, and the System Support Agreement covering the system. System problems are assigned one of three priority levels that are identified by a two-letter abbreviation and defined as follows:

- critical (CR)
  — degradation or outage
  — the potential for degradation or outage
- major (MJ)
  – non-emergency
  – service affecting (intermittent or continuous)
  – follow-up on a degradation or outage
- minor (MN)
  — non-emergency
  — non-service affecting

The system or the switch personnel perform actions that could result in an emergency condition only during the maintenance window, unless an emergency condition is imminent. When the inoperability of a major redundant component of the system causes situations in which large numbers of subscribers have impaired or endangered service, the priority is CR.

Critical priorities that exist due to non-MSL-100 family-related equipment or facilities are handled as the same service condition and with the same resolution objective as MSL-100 family-related CR priority. The switch operator opens a customer service report (CSR) as a CR or MJ priority to track the non-MSL-100 family related incidents. The system charges no downtime towards the MSL-100 downtime for these non-MSL-100 family-related outages, such as fiber cuts, power outages, or problems with Signaling Transfer Points (STP) or distributed control points.

Major priorities cover non-emergency service conditions in which different levels of subscribers are directly affected at varying frequencies.

Minor priorities cover non-emergency, non-service affecting problems such as maintenance, administrative, and operational measurement difficulties that do not directly affect the subscribers served by the system. Priority MN also covers potential problems. Therefore, it indicates a non-emergency, non-service affecting problem.

Critical (CR) conditions

CR: degradation, outage, or the potential degradation or outage as follows:

- CC or CM transient errors resulting in repeated loss of synchronization
- image test failure or image not restartable
- inability to take an office image, due to problems other than magnetic tape drive (MTD), disk, or system load module (SLM)
- both remote terminal interfaces (RTIF) out of service
- central control (CC) or computing module (CM)
  - inability to recover from initialization on active CPU
  - manual bootstrap or system-initiated image reload
  - unscheduled restarts, such as warm, cold, reload. (applies only to the host switch)
  - standby CC or CM CPU out of service
- call processing
  - 10% of ports, 100 or more lines out of service
  - ineffective machine attempts affecting greater than 10% of total call attempts
  - trunk group 100% out of service and no alternate route or work around available
  - consistently slow dial tone (8-second delay or greater)
- Signaling System 7 (SS7)/Consultative Committee International Telephone and Telegraph system #6 (CCITT #6) related
  - one or more routesets unavailable, resulting in call processing isolation to the affected point codes, where the associated trunk group does not have an alternate route
  - one or more SS7 routesets with only one route (linkset) available
  - 33% of available SS7 links out of service
- call processing features (including ISDN)
  - 100% loss of call processing feature, that results in call blockage, such as travel card number, N00, Authcode, Call Transfer, or Operator Service
  - 50% loss of call processing feature, that results in calls being blocked (such as travel card number, N00, Authcode, Call Transfer, Operator Services)
  - intermittent individual trunk group problems
- billing recovery

— non-usable billing data being written on the active recording device

— no billing data being written on active recording device

— 50% loss of DDU or MTDs with no parallel billing collection device or parallel device on the same IOC as the active device

- general

— loss of any XPM, LCM, IPE, DLM, or LM

— any central message control (CMC), message switch (MS), master clock, or both planes of a network module (NM) out of service

— 100% loss of ability to load multiple peripheral processors, DTC, or MTM

— CPU occupancy 75% or higher, with no known acceptable cause such as peak traffic period or major facility failure

— loss of redundancy to any XPM, LCM, DLM, or LM

Resolution objective: Immediate and continuous assistance until the service level is restored to pre-incident operation.

Major (MJ) conditions

MJ: non-emergency, service affecting conditions (intermittent or continuous), or follow-up on a degradation or outage as follows:

- general

— software errors or hardware troubles directly and continuously affecting any subscriber's service or the ability to collect revenue

— software or hardware faults only intermittently affecting service to one or more classes of subscribers

— MTD or DDU problems, except for maintenance and administration

— peripheral processor, such as MTM or network plane, out of service

— IOC out of service

— CC or CM CPU receiving transient errors resulting in a loss of synchronization more than twice per day

— 25% of message switch buffers (MSB) out of service

— less than 33% of SS7 links out of service for one or more route sets

— one or more interperipheral message links (IPML) out of service (both interperipheral channels [IPC] going to the same DTC)

— system related documentation errors that categorically result in or lead to service impairment

- — problems where the customer can show significant impact upon traffic operations and upon its ability to plan office extensions
- — peripheral circuit failures
- call processing features (including ISDN)
  - — intermittent problems, such as travel card number, N00, AUTHCODE, Call Transfer, Operator Services
  - — 100% loss of digital recorded announcement machines (DRAMs) (announcements)
  - — problems related to individual trunk circuit
  - — intermittent individual trunk group problems
- maintenance
  - — maintenance actions that cannot be performed due to a software or hardware problem, but if unperformed could lead to a service affecting problem (no alternate method)
- any problem that seriously affects subscriber service at in-service (IS) date
- follow-up to outage CSRs

Resolution objective: 15 days.

Minor (MN) conditions

MN: non-emergency, non-service affecting conditions as follows:

- general
  - — non-service affecting software inconsistencies
  - — service analysis
  - — individual recorded announcement
  - — operational measurements
  - — network management problems
  - — system related documentation inaccuracies, that do not affect call processing or revenue collection capabilities
- maintenance
  - — peripheral equipment diagnostic failures, not already defined previously, that cannot be corrected by the customer
  - — circuit pack testing problems

— repetitive CC/CM transient errors, with no loss of synchronization, that cannot be corrected by the customer

— requests to analyze store dump of a single-occurrence initialization

— automatic trunk testing or individual trunk testing problems

— test equipment failures for which a backup or manual alternate can be employed

Resolution objective: 90 days. Upon the completion of the investigation, a fix, if applicable, is scheduled for a future standard software, hardware, or documentation update or revision.

Customer service report system

System overview

Nortel uses a priority driven, automated CSR system to manage and report all customer reported service calls.

This valuable service performance information system allows Nortel to serve the customer organization in a number of ways:

- expedites Nortel daily service control and responsiveness. The CSR system tracks each request for service to make sure that it is quickly attended to and closed. The system highlights all emergency situations or those that might need extended repair time.

- provides telephone system performance data. As the CSR system accumulates data, it can analyze very specific system and service performance trends. Nortel is committed to providing service that is above national industry standards.

CSR procedures

Customer responsibility

To ensure proper day-to-day operation of Nortel equipment, Nortel recommends all of the customer's engineering and technical support personnel attend specific training courses so that they can make proper use of existing Nortel documentation and diagnostic resources. The customer should understand and determine all engineering parameters and use all locally available resources to troubleshoot and isolate system problems prior to calling Nortel TAS for assistance. In emergency situations, such as system outages, however, the customer should notify TAS immediately.

When a customer places a service call with TAS, the following information must be provided:

- nature of call (routine or emergency)

- company name and switch site location

- main telephone number
- contact name and telephone number
- equipment type
- detailed problem description with the following information:
  - all appropriate datafill
  - duplicated fault scenario, if possible
  - any corrective action already taken
  - other significant switch activities in progress (for example, new MSL, new spans).

The customer should capture all appropriate system logs to disk or to a store file device (SFDEV).

After a customer places a service call, customer site personnel must be available to take direction from TAS to perform on-site activity required to isolate and resolve the problem. Nortel also recommends that on-site technicians keep a CSR log to maintain a record of all trouble conditions referred to TAS for resolution. Figure 2-4 provides a blank TAS Referred Trouble Log that can be used in tracking CSRs.

TAS provides CSR resolution status to the contact name as provided at the time that TAS opens the CSR.

Figure 2-4
TAS referred trouble log

TAS Referred Trouble Log					Office _____	
CSR No./ Site Tech.	Trouble Description	Priority Date/Time NT TAS Eng.	Trouble Clearance Action Taken	Date/Time TAS Engineer	NT CSR Status/Date	Remarks

TAS responsibility business hours

Routine or emergency service calls are taken during business hours (Monday through Friday, 8:00 a.m. to 5:00 p.m. central time, except Nortel holidays).

Customers requiring routine MSL-100 technical assistance during business hours should call (972) 684-7777. At this phone number, the customer is prompted from the automated attendant service.

This service provides the following menu choices:

- Press 1: Region 1 support

- Press 2: Region 2 support

- Press 3: Region 3 support

- Press 4: SCOPEDIAL/BIDDS Region 4 support

- Press 5: Repair and Replacement

Note: Regions are divided according to individual customer contract, distributor, and geographic location.

The automated attendant service then routes the call accordingly. If a representative is unavailable, a message may be left on Meridian Mail. TAS is committed to a same day reply or response to all messages. The first available TAS representative responds to emergency calls immediately.

The TAS representative, taking the service call, requests the required customer information. TAS opens a CSR with the appropriate priority classification. The TAS representative documents the service call on the CSR with all required information. This action ensures that the CSR is input to the CSR database within 24 hours from the time it was opened with the customer.

If the problem appears to expose a feature that falls short of design intent, the TAS representative refers the CSR to the design authority (Nortel Technologies).

The design authority investigates the problem and affects resolution in the form of a design change authorization (hardware) or a post-release software unit (PRSU).

All solutions must be acceptable to the customer who authorizes closure of the CSR.

Outside business hours (emergency service only [CR])

After-hours service calls are taken by a Nortel service representative who records the calling party name, company, and telephone number and activates the emergency pager service to page the designated ETAS representative on call. If there is no response within 3 minutes, the service representative attempts paging the emergency pager again. If there is no response within three minutes, the service representative begins calling home phone numbers and pagers of ETAS managers and other ETAS representatives until contact is made. The responding Nortel representative contacts the customer immediately and takes appropriate action to resolve the trouble. The service call is formally documented on the next regular business day.

CSR definitions

Status code:

- AN (answer)—Nortel departments provide an answer to the problem. TAS analyzes the reply and takes appropriate action.

- CA (customer advised)—Nortel advises the customer of the time when Nortel will deliver the final solution to the problem (for example, the delivery date of a new load or hardware fix).

- CL (closed)—solution to the problem is applied or the problem no longer exists.

- IS (interim solution)—TAS provides an acceptable work-around and delivers a temporary solution (PRSU) to the problem. Nortel restores service to the preincident level and is still investigating the cause of the problem.

- OP (open)—Nortel is investigating the problem.

- SA (solution available)—Nortel finds a solution and is waiting to deliver it.

- RA (reply accepted)—Nortel delivers a final solution to the problem MSL/data corrected/pack changed to the customer.

- SD (solution delivered)—solution to the problem is applied.

Fault type code:

- CD (customer data)—any data table changes that are under direct customer control.

- HD (hardware design)—a design problem with the hardware, likely resulting in an engineering change document (ECD).

- HF (hardware failure)—malfunctioning or defective hardware causing failure.

- MP (maintenance procedure)—site operationally did not follow procedures during a maintenance activity.

- NT (Northern Telecom Activity)—Nortel or Nortel Technologies activity caused the problem.

- SD (software design)—software fault, either defective or missing software contractually leased according to site's purchase agreement.

- OT (other)—any other customer requests for service that do not fall into the other fault types.

Escalation procedure

The Nortel TAS number for routine and emergency service 24 hours a day, 7 days a week, is (972) 684-7777.

If customer needs are not met at the TAS representative level, the customer escalates the matter during normal business hours by calling the following persons, in sequential order:

- TAS, Manager Region I & IV: (972) 684-0103

- TAS, Manager Region II & III: (972) 684-7163

- Global Customer Support Services, Senior Manager: (972) 684-7615

- Global Customer Support Services, AVP: (972) 684-2828

Design change support

Design change support provides ongoing upgrades, enhancements, and maintenance for both hardware and software in a timely, coordinated manner.

Design change support (hardware)

Design change support services for hardware (also known as change control) are formal means to apply product changes required as a result of a design deficiency, feature enhancement, or product evolution that affect the hardware of Nortel equipment.

Change control

Change control (CC) maintains the extended product inventory control (EPIC) database, that coordinates change control. EPIC is a customer-accessible database that represents the specific site inventory and revision status of Nortel hardware. EPIC compares inventory and revision status data to baseline release levels and provides notification of design changes and requirements. The Nortel employee uses the EPIC database to identify the packs, modules, or frames requiring upgrade when design changes are identified. The database contains the product engineering code

(PEC) release level, frame, shelf, and slot location obtained from physical audits from the customer's Nortel equipment.

EPIC provides the following major benefits:

- controls hardware inventory and release levels (network-wide)

- reduces customer engineering efforts through knowledge of hardware quantities and location

- eliminates a troubleshooting variable by assuring all packs are above baseline release levels

- involves no additional costs (EPIC runs on existing hardware.)

- ensures that the most-current technology is installed to provide optimal switch and network performance

Nortel Technologies initiates a design change in the form of an ECD and classifies the design change into one of the following categories:

- Class A (service affecting)

- Class E (non-service affecting)

- Class D (introduces new feature or PEC)

Change control introduces the service affecting changes (Class A) into a database. An 88KB order identifies the equipment requiring modification. Change control delivers the 88KB orders on field modifications to field change applications for scheduling.

Field change applications typically apply Class E changes as customers return printed circuit packs for repair.

Description of Class D changes

Field change applications

The field change applications (FCA) department is a centralized team of highly skilled personnel trained to work on in-service Nortel equipment. The group is located in Richardson, Texas, and has access to complete MSL-100 documentation, the latest developments in hardware, and to captive offices for verification of problems and their solutions.

FCA receives authorization to upgrade equipment on customer sites in the form of an 88K order. FCA contacts the site, describes the changes, provides upgraded circuit packs, and dispatches the technicians to make the changes. Nortel upgrades each customer location 100% when the FCA team visits the location.

FCA applies the design changes while performing MSL related hardware modifications and feature enhancements, such as memory upgrade, CPU

upgrade, or peripheral module (PM) enhancement. The FCA applies only to field modifications.

Verification worksheets

Verification worksheets are frame, module, and slot specific representation of the switching equipment. The Nortel personnel use the worksheet to perform physical audits of the systems. The system stores the obtained information in the EPIC database.

88K orders

When Nortel identifies design changes, EPIC generates 88K Orders, the work order vehicle to authorize the technicians to perform the design changes. 88K orders are site specific and include all the cards, modules, and frames that need to be modified.

Key contacts

- Change Applications Engineering: (972) 684-7650

- Customer Service Operations Repair/Replacement Manager: (972) 684-7744

- Field Change Application (88K): (972) 684-8018

- Integrated Services Manager: (972) 684-8018

- EPIC Help Desk: (972) 684-7561

Design change support (software)

Single change supplements (PRSU) correct software enhancements or design deficiencies discovered between MSL releases.

PRSU generation

Nortel Technologies writes PRSUs in response to software related CSRs, writes a PRSU; and tests the software extensively in a captive office. A switch technician then sets the PRSU to V status and applies the PRSU to a verification office (VO) for testing in an in-service switch. After a five day soak, the PRSU is set to R status and released for distribution to all affected sites.

PRSU definitions

Emergency PRSUs represent a service affecting software design deficiency that Nortel switch personnel correct by the application of a PRSU as soon as possible.

General PRSUs represent a software design change or correction that the switch personnel applies according to the pre-established application schedule.

PRSU downloading

PRSU administration coordinates all application activity with the customer. Each warranty and ESP site is on a 28-day schedule. The PRSU administration contacts each of these types of sites once during this time cycle. PRSU administration downloads all new approved PRSUs to the site into the store file or onto a disk. PRSU administration spool critical or emergency PRSUs immediately. PRSU administration also produces a file listing of the PRSUs spooled. TAS schedules and applies the PRSUs.

PRSUs applied by site

Sites may schedule and do their own PRSU application after TAS trains the on-site personnel. TAS supervises the PRSU application until the site personnel are comfortable with the entire procedure. VO application of PRSUs is done exclusively by TAS personnel. If the site requires additional support, they must coordinate this before the date of application.

PRSU testing

All PRSUs require testing by site personnel immediately after application. The customer develops critical call test plans to execute after PRSU application. If this cannot be accomplished, the customer develops a call test plan that encompasses the call scenario to which the PRSU was applied.

Trouble reporting

The customer reports any problems or side effects caused by a PRSU application immediately to TAS for analysis. If a PRSU needs to be removed, TAS directs the procedure. If an emergency occurs, the site personnel carefully tracks any removed PRSUs, saves all logs, keeps a written record of the symptoms experienced, and records the time the symptoms occurred.

Emergency and faulty PRSU procedure

To prevent or resolve possible CR service degradations, TAS and Support Administration track critical or emergency PRSUs and spool these PRSUs to all sites within 2 working days after Nortel releases the PRSU. Site personnel must review these types of PRSUs quickly for application to their systems. The switch personnel remove faulty or obsolete PRSUs during the normal time cycles unless they are service affecting. The switch personnel remove service affecting PRSUs as soon as possible.

Key contacts

- Supervisor, PRSU Administration: (972) 684-7869

- Commercial Systems PRSU Technician: (972) 684-7693

- Federal Systems PRSU Technician: (972) 684-7693

Post-warranty support

Nortel offers post-warranty support by way of the extended service plan (ESP). With ESP, the customer continues to receive the high caliber of service provided under the initial warranty. The customer has the option of choosing complete coverage with an ESP.

Extended service plan

The Nortel ESP is a comprehensive package of services with a pre-established price designed to extend the support offered during warranty. It offers core services as well as optional coverage on station equipment, OEM equipment, and maintenance services, which are included in the single contract cost.

Available on a one-year minimum basis and renewable with 90 days notice, the ESP has significant benefits for the customer:

- By offering a single contract cost instead of individual purchase orders, an ESP reduces administrative efforts and costs for services.

- Predetermined monthly costs are identified for the complete calendar year; periodic billing eases customer planning and budgeting for maintenance expenses.

- Working relationships established with customers during the warranty continue; no momentum is lost during a transition.

- Customers continue to receive all available software enhancements (post-release software units [PRSUs]), downloaded on a monthly basis.

ESP coverage includes the following core services. Refer to Chapter 2 for detailed descriptions of these services.

- printed circuit pack (PCP) repair and replacement—like-for-like

  Note: This service provides for PCP repair and replacement only, not for a full repair and replacement service.

- emergency technical assistance services (ETAS)
- design change support

The following optional services are available through ESP:

- station equipment repair support
- original equipment manufacturer (OEM) equipment support
- maintenance support services

Station equipment support

Station equipment support provides a repaired, functionally equivalent replacement station set in exchange for a customer's defective station set. A proprietary station set is defined as proprietary to the MSL-100 system, manufactured by Nortel, and bearing the coding NT. Certain non-proprietary station sets, as identified in the ESP, may be included. As a routine service, Nortel ships a replacement proprietary set (in exchange) within 20 days of receiving the customer's defective proprietary set.

Original equipment manufacturer/vendor repair

Original equipment manufacturer (OEM)/vendor equipment refers to equipment that is manufactured by another vendor but is purchased through Nortel as an integral part of the system.

OEM/vendor equipment repair can fall into one of the following categories:

- OEM/vendor normal repair and replacement. The equipment is shipped directly to the Nortel location for like-for-like replacement.
- OEM/vendor tracking repair. The equipment is shipped directly to the vendor and tracked by Nortel.
- On-site vendor repair. The equipment is repaired by the vendor on the customer premises.

Maintenance support services

Maintenance support services are grouped into the following areas:

- remote services
- performance support
- field services

Maintenance support is covered in detail in another chapter. The following are some highlights.

Remote services

From the Remote Service Center (RSC), experienced personnel monitor customer switching activity around the clock, 365 days per year.

The RSC offers a progression of the following options, each option increasing the level of support:

- remote surveillance

- remote maintenance

Remote surveillance provides an activity report that includes the following information:

- troubles by type, number, and reason for call-out

- status of customer service reports (CSR)

Remote maintenance includes all features and benefits delivered by remote surveillance and adds important corrective and preventive remote controls. Service-affecting conditions are not only detected, but action is taken to correct these conditions. Remote maintenance uses preventive software tools such as switch performance monitoring system (SPMS), focused maintenance for trunks and lines, operational measurement thresholds, and network integrity analysis. Remote maintenance also sets up and controls various control and administrative logs.

Performance support

Translations support This service evaluates the customer's database for the purpose of increasing the efficiency of present services, supporting the implementation of new features and services, making routing changes to the system, or redesigning the dial plan or console positions.

Integrated services

Field support This service offers short- or long-term technical expertise for unusual or unplanned occurrences. Trained and experienced Nortel personnel serve as a resource to complement the knowledge of the customer's own maintenance staff.

Data services Data services provides field service representatives trained to service data processing and telecommunications systems, office automation products, local and wide-area networks, and personal computers.

Time and materials

Post-warranty customers (end users and distributors alike) who decline an ESP contract may receive services through an annual time and materials agreement and a not-to-exceed/open purchase order.

Maintenance support services

Nortel tailors flexible maintenance plans to fit customer organization requirements. Custom increments of one year, six months, one month, one week, or even one day are available to provide on-site maintenance to augment customer maintenance personnel. Nortel offers the services of the Remote Service Center (RSC), a centralized group of highly skilled technicians with expertise in all areas of switch maintenance. The purpose of custom service is to meet specific customer needs and to make sure that Nortel equipment and associated equipment from other vendors are maintained at peak performance level. In addition, translations support provides information for management purposes, as well as for making appropriate adjustments.

Offered individually or in packages, maintenance support services are available at all stages of system in-service. These services are available during the one-year warranty period, included as options in the pre-established price of an extended service plan (ESP).

For additional information regarding Nortel's maintenance support services, contact your service account manager. To initiate a request for Maintenance Support Service, contact your service Contract Administrator at (972) 684-7805.

Maintenance support services are grouped into the following areas:

- remote services
- performance support
- field services

Remote services

From the Nortel RSC, experienced personnel monitor customer switching activity around the clock, every day of the year.

Remote services offers a progression of the following options, each option increasing the level of support:

- remote surveillance
- remote maintenance

Remote surveillance

Nortel personnel monitor customer networking switching activity around the clock, 365 days a year from the Remote Service Center. Remote surveillance provides monitoring of critical and major indicators on customer networks from the RSC. Immediate response to alarms keeps the customer informed of any potential problems before they become major performance issues. Remote surveillance initiates call-out procedures as necessary.

Remote surveillance includes the following features:

- customized alarm system and verification to ensure monitoring of the critical areas
- 24 hour monitoring of pre-established alarms
- verification of the communication link and network sanity check three times a day. Each monitored location is manually accessed at least once one each shift to check system status and integrity.
- pre-business day check

Nortel provides an activity report that contains the following information:

- troubles by type, number, and reason for call-out
- trend monitoring to illustrate comparison with recommended network standards
- analysis of switch performance monitoring system (SPMS)

Remote maintenance

Remote maintenance includes all features and benefits delivered by remote surveillance and adds corrective and preventive maintenance controls.

Nortel monitors and provides routine network maintenance activity around the clock, 365 days a year. Nortel initiates call-out procedures as necessary and in coordination with customer-designated personnel.

Remote maintenance includes all the the features of remote surveillance. In addition, remote maintenance provides the following:

- setup, control, and coordination of all preventive maintenance tasks:
  — focused maintenance
  — network integrity

    — carrier maintenance alarms

    — OM thresholding

- control logs and administration
- trouble reporting and tracking
- assistance for software and hardware changes
- guidance and assistance to on-site technicians
- single point of contact for the customer

Performance support

This category of maintenance service support involves a variety of services that ensures peak performance from the MSL-100 system.

This category includes the following services:

- translations support
- maintenance and operations guide

Translations support

Translations support provides experienced technical personnel to perform a variety of database-related activities to ensure that the network is properly configured to optimize cost and to utilize efficient traffic routing patterns on the system.

Translation support and feature implementation include the following:

- redesign of dial plan
- routing changes
- evaluation of present services
- SERVORD moves, adds, changes
- implementation support of new features and services
- redesign of console positions

Maintenance and operations guide

The *Resident Maintenance and Operations Standards Handbook* (NTP 985-7560-100) incorporates key, product-specific tools, plans, procedures, and reference information in a single, easy-to-use technical document. Developed by Nortel service personnel working in the field with customers, the handbook provides a minimum starting point for achieving acceptable and realistic levels of service and performance. Supported by sound technical and administrative advice, this document puts a powerful learning

tool into the hands of those faced with specific service performance and operating cost requirements.

This document provides information on the following topics:

- administrative procedures

- preventive maintenance

- corrective maintenance

- system performance plans

- reference information

- examples and forms

Integrated services

Nortel integrated services provide on-site support for all the customer's business information systems, based on customer-defined requirements and time intervals. With resources available in over 100 cities, 24 hours a day, 365 days a year, field services supply the short- or long-term expertise to cover unusual or unplanned situations and to fill specialized needs. Trained and experienced Nortel field services representatives complement the knowledge of the existing maintenance staff, as both business systems advisors and service engineers.

Field support

Nortel field support service offers networks operational personnel a variety of technical support activities and information ranging from preventive maintenance tasks to performance measurement.

Field support is available on a daily, weekly, or monthly basis. It provides technical support to keep unexpected events from disrupting service, allowing customers to effectively manage costs and adapt to changing workloads. Field service offers a wide range of activities:

- preventive and corrective maintenance activities

- implementation of new features and products

- training in system test tools

Data services

Data services provides field service representatives trained to service data equipment, such as data processing systems, office automation products, local and wide-area networks, and personal computers. A single, toll-free call to the Nortel National Service Center—open 24 hours a day, 365 days a year—brings a Nortel field service representative to the customer's site. The Nortel National Service Center can be reached at (800) 527-0797.

Data service assures customers of prompt and complete service, not only on Nortel equipment, such as Norstar and Vantage key systems, enhanced operator service, and DPN packet switches, but also on equipment purchased through other companies, such as DEC, Apple, HP, Compaq, Epson, Hayes, and Novell.

Network support services

Nortel offers a variety of network support services that are not related to a service contract. These services include product documentation, training services, Meridian software load (MSL), one-night process and hybrid software upgrades, the disaster recovery plan, service billing guidelines, and service provider policies.

Documentation services

Nortel offers customers electronic documentation through the compact disc-read-only memory (CD-ROM) documentation system. Features of CD-ROM result in effective retrieval of required information and therefore quick problem resolution. Improved system understanding through a non-intimidating documentation medium provides the customer with the most benefit from Nortel equipment.

Typically each MSL-100 system is shipped with an initial set of documentation that includes (but is not limited to) the following:

- Northern Telecom Publications (NTP)
- marketing documents
- customer-specific specifications and drawings

The prime medium for documentation is Helmsman CD-ROM, though Nortel still provides some limited documents on paper. Nortel provides one compact disc with software to read documentation with each new switch sold, unless the customer specifically requests the paper or microfiche format at an additional cost. An IBM PC compatible workstation to run the application may be purchased separately through Nortel. For more information concerning these services call 1-800-NTI-CARE between the hours of 08:00 a.m. and 05:00 p.m., central time, weekdays.

CD-ROM library

The documentation library resides on a single CD-ROM disc and is read from an on-site personal computer, which provides sophisticated search capabilities to find the desired information rapidly.

Static documents, such as NTPs, are available on the CD-ROM to allow rapid access to information required to ensure effective operation of the Nortel equipment.

Note: Nortel delivers some documents, such as vendor documents and engineering forms, in hard copy form because they are not easily compatible to an electronic medium, such as CD-ROM.

Operation and description

Use of Nortel's CD-ROM system allows operational personnel to quickly select, search, and use the most current information available from the product line documentation. Search facilities quickly and easily get users to the right place in a document. Switch personnel may access information related to switch operation, feature descriptions, and database information through the CD-ROM system using a compact disc drive. Once a user accesses a document, the user can easily retrieve, search, and print the document.

A single CD-ROM system stores over 200,000 pages, eliminating the need for volumes of paper documentation. The user may access graphics from CD-ROM for printing.

CD-ROM services include comprehensive help menus for entering queries and moving through the system. These help menus are embedded at every functional level to guide users. Also, Nortel offers hard copy user guides for the CD-ROM workstation. Once a customer has tried all self helps, the customer directs questions regarding the use of CD-ROM through the Helmsman support line (1-888-435-6762).

Implementation

Nortel provides documentation in CD-ROM format with all new systems and software upgrades for installed systems. Nortel no longer distributes paper copies of documentation as the standard documentation medium.

Customers receive a CD-ROM application program on the compact disc containing the documentation for the applicable version release. Nortel determines the quantities to ship based on contractual requirements. Additional CD-ROM copies are available, depending on customer requirements.

Nortel provides recommended hardware lists on CD-ROM for DOS, Macintosh, and Unix applications to assist customers in identifying the proper equipment for installing and operating the CD-ROM.

Benefits

By providing its product documentation in electronic format, Nortel produces an information resource far superior to paper documentation. This new capability offers the following significant advantages to customers:

- Operational personnel can quickly access answers to their questions through an electronic search, instead of through labor intensive manual searches through volumes of paper documentation.

- CD-ROM eliminates the time previously devoted to updating volumes of paper documentation and physically filling the orders.

- Because of the simplified electronic access to information, CD-ROM saves customers money by reducing the need to call the Nortel technical assistance service (TAS) group to solve problems that can be answered by referring to the documentation.

Availability

The CD-ROM electronic documentation system is available for software releases BCS28 (batch change supplement 28) and later.

CD-ROM documentation may be ordered through the customer's account manager.

As a user of Nortel documentation, the customer is reminded that these documents and the software programs required to read them are confidential and fall under federal government copyright laws. The customer must exercise confidentiality as expressed in the original switch purchase agreement with Nortel.

The customer may use the documentation furnished solely for the purpose of the study, operation, and maintenance of the Nortel products to which such documentation pertains. The customer shall not sell, license, otherwise convey or allow, either directly or indirectly, access to the Nortel Library or use of the documentation, to any other person, firm, corporation, or other entity without prior consent from Nortel.

Required equipment for CD-ROM

DOS environment

Nortel recommends the following platform for DOS, which includes components generally available on the market today.

For customers using or planning to use Windows 95:

- Windows 95

- pentium processor (any clock rate) or 486 processor (50 MHz clock rate, minimum)

- VGA or SVGA color monitor and graphics card
- 16 MB RAM, (8 MB minimum)
- 500 MB hard disk minimum, 5 MB hard disk free
- mouse (Windows compatible)
- graphics-capable printer (PostScript or non-PostScript) supported by Windows
- CD-ROM
  — Sony CD-ROM external drive (must support High Sierra format) that is ISO 9660 compliant (double-speed reader is recommended)
  — Sony interface card—CDB-231

For customers using Windows 3.1:

- MS-DOS 6.2 with SMARTDRV caching
- Windows 3.1 with TrueType installed and enabled
- Pentium processor (any clock rate) or 486 processor (50 MHz clock rate, minimum)
- VGA or SVGA color monitor and graphics card
- 8 MB RAM for 386/20: 4 MB RAM for other processors
- 250 MB hard disk minimum, 5 MB hard disk free
- mouse (Windows compatible)
- graphics-capable printer (PostScript or non-PostScript) supported by Windows
- CD-ROM
  — Sony CD-ROM external drive (must support High Sierra format) that is ISO 9660 compliant (double-speed reader is recommended)
  — Sony interface card—CDB-231

Note: The 486 model provides a faster response time than the minimum computer that can operate the CD-ROM.

Note: The performance characteristics of CD-ROM drives vary greatly. Among different drives at a particular speed, differences in access times exist. Typically, the fewer number of milliseconds quoted for access time, the better Helmsman performs.

Refer to the *Helmsman Viewer Application User's Guide for Windows* (P6319) on your Helmsman CD-ROM for more information on the software and hardware recommendations and requirements.

Macintosh environment

Nortel recommends the following Macintosh platform, which includes components generally available on the market today.

Note: Helmsman performance under Macintosh depends on the Macintosh model and available RAM.

The Macintosh computer for CD-ROM can be one of the following types:

- MAC SE/30
- MAC II family
- MAC Quadra family
- MAC Centris family
- MAC Performa family

The following minimal features are required:

- PowerMac, 68030, 68040, or PowerPC processor
- 8 MB RAM minimum for 680X0; 16 MB RAM minimum for PowerMac (24 MB RAM minimum recommended)
- 5 MB hard disk free (250 MB hard disk recommended)
- 13-inch or larger color display
- PostScript laser printer (Apple Laser Writer Series recommended)
- CD-ROM
  — Apple CD-ROM drive unit that is ISO 9660 compliant (double-or triple-speed reader is recommended)
  — Apple SCSI cable (if CD-ROM drive is external to computer)
  — Apple SCSI cable terminator (if CD-ROM drive is external to computer)
- System 7.0 or higher

Refer to the *Helmsman Viewer Application User's Guide for Macintosh* (P6313) on your Helmsman CD-ROM for more information on the software and hardware recommendations and requirements.

UNIX environment

Helmsman is provided in three UNIX environments: HP Series 700/800, SUN SPARC, and IBM RS/6000. The following is a list of the different UNIX environments and the requirements for each.

For customers using the Hewlett Packard environment, HP Series 700/800 X-Windows workstations:

- MOTIF 1.0
- 12 MB RAM
- monochromatic or color monitor
- X-Windows X-11 release 4 or later 4.X release
- 150 MB SCSI hard-drive
- mouse
- HP-UX 8.0 or later

For customers using the SUN SPARC Station II Series workstations:

- MOTIF 1.1
- 16 MB RAM
- Monochromatic or color monitor
- X-Windows X-11 Release 4 or later 4.X release
- 200 MB SCSI hard-drive
- mouse
- SUN OS 4.1 or later 4.X release

For customers using the IBM RS/6000-350-1 workstation:

- MOTIF 1.1 or later
- AIX Windows 3.2 or later
- 30 MB available disk space
- X-Windows X-11 Release 4 or later 4.X release
- Monochromatic or color monitor
- 3-button mouse
- 32 MB RAM

For CD-ROM players, CD-ROM drives with SCSI adapters that support High Sierra/ISO 9660 format are required.

local area networks (LAN):

- Novell
- Banyan
- 3Com Plus

- LANTASTIC
- NETBIOS
- AppleShare

UNIX:
- Ethernet TCP/IP
- PostScript-compatible printers

Training services

Nortel designed its technical training center programs to ensure optimum results from the customer's telecommunications investment.

The following information lists some of the benefits of the Nortel technical training center:

- job-based training—Nortel's variety of captive switches allows customer personnel to improve their job performance through intensive hands-on training.

- computer-based training—This training technology allows training of personnel while saving customers money and time.

- convenient locations—Training classes on Enterprise Networks products, (MSL-100 and Meridian 1 products) are offered in Richardson, TX, and on each coast at La Palma, CA, and Parsippany, NJ for customer convenience and to minimize the customer's travel and living expense for training. There are also training centers in Raleigh, NC, Sacramento, CA and Canada that offer training on the DMS family, wireless and some MCS products.

- training consultation services—These services assist customers in analyzing performance objectives and deciding what types of training improves performance.

Course registration

Nortel offers all technical training on a space-available basis. Customers should plan to register early, as classes reach capacity prior to class start dates. Classes consist of a maximum of 12 students and a minimum of 6 students unless otherwise indicated. Consult with the Nortel technical training center regarding any necessary prerequisites. Meeting the established course prerequisites is an important part of successful training.

To register for courses conducted in Richardson, La Palma, or Parsippany, contact the Nortel training coordinators at (972) 684-8777.

Nortel sends a confirmation letter containing specific information about the course to enrolled individuals approximately 45 days prior to the course start

date. Individuals who have not received a confirmation letter one week prior to class should contact the training coordinator at (972) 684-8777.

Cancelation of any registration less than 10 working days prior to the starting date is subject to forfeiture of tuition. On-site field training courses canceled in writing less than 30 days prior to the class start date are subject to forfeiture of tuition. If a registered student fails to appear for a scheduled class or fails to complete the entire course, the full tuition is charged. When a cancelation request is made, the training center issues a cancelation number. If you receive no cancellation number, contact the training center at (972) 684-8777.

Nortel reserves the right to change course schedules, modify course content, limit class size, and cancel courses when necessary. In case of class cancelation, every effort is made to notify students two weeks prior to the scheduled class start date.

Class procedures

Technical training center personnel post incoming messages for students on the student bulletin board. Technical training center policy prohibits class interruption for telephone calls except in cases of emergency.

The confirmation letter indicates class dates and times. For successful course completion, 100% attendance is mandatory. Please be sure that travel arrangements allow for sufficient travel time to accommodate class hours.

Nortel requests that participants wear normal business attire to class, (no sandals, t-shirts, halter tops, or shorts, please).

Nortel copyrights course documentation and printed matter provided in Nortel's technical training courses. This material may not be reproduced without prior permission. No audio or visual recording of Nortel technical training courses or Nortel personnel teaching such courses may be made or reproduced electronically without prior permission.

Courses offered

The following are examples of the courses offered through the Nortel technical training center:

- Introduction to Meridian SL-100—provides a basic knowledge of the function and operation of the MSL-100 product.

- Meridian SL-100 Maintenance—provides training for technicians responsible for the maintenance and troubleshooting of the MSL-100 product.

- Meridian SL-100 Translations—provides the skills and knowledge of MSL-100 call processing database information for controlling and operating the MSL-100 software system.

- Meridian SL-100 Operational Measurements Implementation—trains the student to analyze operational measurements (OM) in order to monitor the overall health and performance of the switch, and to identify problem areas.

Software upgrade

The MSL software upgrade is Nortel's means of enhancing existing features and adding new features to the system software. This process enables Nortel to provide the latest software design to customers in an efficient and controlled manner.

Software upgrades are available through authorized MSL-100 distributors either purchased independently or as an optional enhanced service provider (ESP) service. Generic software upgrades typically include new maintenance and administration features and provide the platform for other available customer-specified features.

Meridian SuperNode software support policy

Nortel's DMS Evolution program is designed to deliver the advanced services and applications our users need to succeed in increasingly competitive markets. As a result, Meridian SuperNode software support is moving from a release-based policy to a time-based policy. Nortel technical assistance service (TAS) and Nortel Technologies field support are available for two years on each release, regardless of the number of releases during the period.

Software support categories

Nortel provides the following levels of support categories for installed MSL software that is covered by a current Nortel Software License Agreement:

- current (C)—production software that is generally available for shipment until the next release is generally available. Nortel TAS and post-release software unit (PRSU) Administration support feature and operational functionality and PRSU activity.

- active (A)—When a new release becomes generally available, the previous current release is designated as an active release. Nortel TAS and PRSU Administration support feature and operational functionality and PRSU activity.

- retired (R)—A release achieves retired status two years after it became generally available. Nortel TAS limits support to problem diagnosis on a reasonable-effort basis only. PRSUs are not available.

Nortel TAS support

Nortel TAS support is staffed by trained personnel that are available 24 hours per day, seven days a week to provide remote emergency and routine technical assistance. Personnel have the ability to diagnose fault conditions and affect resolution. Support may or may not be billable depending on warranty and ESP status. Nortel TAS provides full support for each current release.

When a load is designated active, TAS continues to offer technical support for critical, major, and minor priority levels. Patch support is provided during the software warranty period (12 months after in-service date).

A software release is retired two years after it goes into production. TAS support is limited to reasonable effort only on retired loads. Patch support is not available.

TAS continues to provide support services during emergency outages for all current, active, and retired releases.

PRSU administration support

Software updates are available to correct service-affecting software faults that are caused by failure to meet the specifications outlined in the applicable design documents for a specific software load. Support may or may not be billable depending on warranty and ESP status.

Table 5-1 shows each release status and the applicable support levels. Table 5-2 shows software status of the MSL-100 NT40 and SuperNode including Commerical and Federal sites up to MSL06.

Support policy

The software support policy became effective with MSL03, which was the first GA load of the DMS evolution software structure. The software support policy applicable to MSL-load releases is governed by the previous software support policy.

Table 5-1
Software support category applications

Status	Definition	Applicability	Support levels
Current (C)	Until the next release becomes Generally Available (GA)	Available for initial deliveries and upgrades	Critical, major, and minor are supported. Full patch support.
Active (A)	Prior release excluding production	Not available for initial deliveries. Available for upgrades if in-service within 12 months after becoming GA.	Critical, major, and minor are supported. Patch support provided during software warranty period.
Retired (R)	No longer in production or active	Not recommended for in-service switches. Not available for upgrades.	Critical only is supported. Patch support is not available.

Table 5-2
MSL-100 software status

| Release | NT40 | | SuperNode | |
	Commercial	Federal	Commercial	Federal
BCS36 (and before)	R	R	R	R
MSL03 (8/95)	N/A	N/A	A	A
MSL04 (2/96)	N/A	N/A	A	A
MSL05 (6/96)	N/A	N/A	A	A
MSL06 (2/97)	N/A	N/A	C	C
Note 1: C=current, A=active, R=retired, and N/A=not available				

Software warranty

During the warranty period provided that the software is not altered, there will be no failure of the software to function as specified in the applicable NTPs. The warranty period for all software covers a period of 18 months from the date of shipment or a period of 12 months from the date that Nortel first places the software in service with an end-user, whichever period

expires first. The warranty period for software ordered as extended software to be added to an existing system covers a period of 12 months from the date that the software is placed in-service. The addition of extended software to a system does not extend the warranty period on any previously ordered or installed software of that system.

Nortel normally develops PRSUs to correct service-affecting deficiencies identified in MSL loads that operate in a live environment. Customers or Nortel personnel report deficiencies through the Customer Service Report (CSR) system. The CSR system contains classifications of emergency (CR) and non-emergency (MJ and MN) so that corrective development can be prioritized. Nortel normally corrects deficiencies classified as non-service (minor) affecting in a subsequent issue.

Initial switch warranty or extended service plan

While under warranty or an ESP, Nortel sends the customer site emergency and routine service-affecting PRSUs as part of their warranty or ESP service. Software administration ensures that all in-warranty or ESP offices are maintained at an up-to-date PRSU level and coordinates all application activity with the maintainer. Each warranty and ESP site is on a 28-day schedule and once during this time cycle receives released PRSUs. PRSU Administration spools emergency PRSUs immediately. Technical assistance, during the initial switch warranty period or ESP term, is part of the warranty or ESP, except as specified in the Service Billing Guidelines.

Stand-alone software upgrade (non-ESP)

Nortel maintains stand-alone software upgrade (non-ESP) sites on a 28-day schedule for the duration of the software warranty period to receive released PRSUs. Nortel covers software-related technical assistance during the software warranty period as part of the software warranty, except as specified in the Service Billing Guidelines.

Beyond software warranty

Nortel removes out-of-warranty and non-ESP sites from the 28-day schedule. Software-related technical assistance beyond the software warranty period is billable at the then current TAS rates. Nortel applies PRSUs (if available in the support category) as part of CSR resolution.

One night process and hybrid software delivery

The one night process (ONP) is an automated or accelerated software delivery (ASD) process that shortens the software delivery time from 7–10 days into 1 night. There are no data modification (DMO) restrictions, no frozen image capture, and no journal file maintenance by the site. This process increases accuracy in the software delivery process.

With the one-night delivery process, Nortel builds the new software load at Nortel with all the features and packages requested by the customer and ships it to the job site with no office-specific data required on it. When switch personnel load the tape into the inactive side of the processor, all of the office data transfers to the new program as they exist at that point in time. This greatly reduces the possibility of error and shortens the time required for this transition.

This software delivery process provides software tools for the identification and correction of datafill inconsistencies. These tools make the switch operating system extremely maintainable. The switch uses these tools in the new delivery process and then as part of the operating system. They reside in the central controller for use by the customer at any time.

For a summary of activities that are performed prior to the software delivery date, refer to *One Night Process Software Delivery Procedures*, 297-8991-303.

Disaster recovery plan

If a customer experiences a physical disaster that results in the complete loss of service of the customer's Nortel switching equipment, Nortel immediately activates the disaster recovery plan.

Nortel places its disaster recovery team on alert and immediately dispatches an on-site coordinator to the site to assess the extent of damage to the switch and facilities.

The on-site coordinator communicates an assessment to the Richardson coordinator, who assembles all team members to formulate a detailed disaster recovery plan. Each team member has access to appropriate resources to direct towards the recovery effort.

The primary objective of the disaster recovery plan is to restore basic telephone service to key personnel in the customer organization as soon as possible.

The secondary objective of the disaster recovery plan is to restore the customer's Nortel switching equipment to complete operational status as soon as possible.

Nortel assigns top priority to the remedy of any customer disaster and dedicates recovery efforts to achieve a high quality and expedient recovery to pre-incident status. The modular design of the Meridian family of switches and the high level of production in both Raleigh, North Carolina, and Brockville, Ontario, provide immediate access to the equipment

required for a customer in a disaster situation. Procedure 5-1 details the procedure Nortel takes to implement the disaster recovery plan.

Procedure 5-1
Disaster recovery plan implementation

1   The customer notifies Nortel TAS as soon after the disaster as possible and relates the severity of the situation.

2   The TAS representative immediately notifies the TAS director.

3   TAS Director immediately activates the disaster recovery team.

4   The disaster recovery team, consisting of the TAS Director, the Engineering/Administration Director, the Installation and Commissioning Senior Manager, and the Senior Manager, Customer Service, assembles and identifies an On-site Coordinator to be dispatched immediately to the customer site.

5   The disaster recovery team identifies installation and commissioning personnel who it immediately dispatches to the customer site.

6   The On-site Coordinator determines the extent of damage and relates an assessment to the disaster recovery team in Richardson.

7   The disaster recovery team determines, locates, and directs to the site the exact configuration of the replacement equipment, as required.

8   On-site Coordinator directs the installation and commissioning of the replacement equipment 24 hours a day, seven days a week until permanent service is restored.

Assumptions

Response times are contingent on availability of materials, transportation, disaster site facilities, and other contractual obligations.

The customer is responsible for maintaining current backup software (image) on a magnetic tape off-site, Nortel recommends archiving monthly.

Hospitals, medical centers, and other public health and safety facilities have priority in case of multiple disasters.

The customer assumes all time, materials, travel, and living expenses incurred by Nortel involved in the recovery effort.

The customer and Nortel personnel jointly make all decisions affecting the customer site.

Service billing guidelines

Hardware warranty

Initial and extension hardware

Hardware is under warranty 12 months from the date of customer acceptance (K date), unless otherwise defined in purchase agreement.

Repaired or replaced hardware

Repaired or replaced hardware is under warranty 30 days from the date of shipment or remainder of the 12-month initial warranty, whichever is greater.

Nortel charges an emergency surcharge of $50 for each emergency/expedite parts repair request, previously known as merchandise on loan (MOL). Nortel charges $150 for counter-to-counter service. The customer must return the defective part within 30 days of the Nortel ship date or Nortel invoices the current purchase price for the replacement part. This policy applies regardless of warranty status, unless the customer has an on-site Nortel representative responsible for returning parts.

Emergency technical assistance service

Nortel provides customers with on-going technical assistance for the identification and resolution of technical issues.

Nortel provides technical assistance free of charge during the initial warranty period or ESP, as it is defined in the terms and conditions of the customer contract.

Some situations may arise during this no-charge warranty period that result in Nortel judging a service request as billable. Such situations include, but are not limited to the following:

- requests resulting from problems with equipment not furnished by Nortel

- requests where the problem solution was available in Nortel documentation, such as NTPs, advisory bulletins, and MSL or release documents

- requests that result in PRSUs that alter the design intent of standard software in order to provide customer-requested changes in operations

- requests for on-site assistance instead of remote testing
- requests for MJ and MN (non-emergency) outside business hours (Monday through Friday, 8:00 a.m. to 5:00 p.m., central time), unless scheduled with the appropriate ETAS manager in advance

After the expiration date of the warranty, Nortel may bill service requests at the published rate. The following situations are exceptions in which Nortel does not bill after warranty expiration:

- reporting of customer-solved system outages or service degradations
- problems caused by Nortel or Nortel Technologies personnel activity

Service provider policies

The purpose of these policies is to define the current service relationship between Nortel and the prime service provider for MSL-100 equipment. The prime service provider is the principal agency that is maintaining and supporting the MSL-100 system.

This policy covers services of all current and future installations of MSL-100 equipment and software. Nortel categorizes all systems according to this policy and renders service accordingly.

Service categories

Distributor-maintained systems

Distributor-maintained systems are systems maintained in whole or in part by a Nortel Authorized Meridian Distributor. The end user signs a software registration form with the distributor or designated prime service provider.

Distributor-maintained system customers must purchase service and maintenance support from the distributor of their choice. It is to the advantage of customers, distributors, and Nortel that supporting distributors are as informed as possible regarding written and verbal communication between Nortel and their customers.

Requests for service initiated by distributor-maintained customers are not honored unless the distributor authorizes the customers to contact Nortel directly. This authorization must be in the form of an authorization list, initiated by the distributor, and sent to:

MSL-100 Service Contract Administration

Nortel

P.O. Box 833858

M/S C-1206 Attention: Service Contracts

Richardson, TX 75083-3858

While it is preferable that an appropriate distributor representative be online during telephone conversations between end user customers and Nortel personnel, this is not always practical or appropriate. Therefore, it is the responsibility of Nortel employees who are contacted by a customer to notify the appropriate distributor of such calls and to brief the distributor on the nature of the request, commitments made, and ensuing action that is promised or expected. This policy also pertains to written correspondence sent directly to Nortel.

Customers should make every effort to resolve product and service dissatisfaction through their distributor. However, if a customer expresses a complaint directly to Nortel, Nortel works with the distributor to resolve the referenced issues.

The following list contains all current Nortel authorized MSL-100 United States distributors:

- Ameritech Information Systems

- BellAtlantic Meridian Systems

- BellSouth Communications Systems

- GTE Services Corporation

- IPC Information Systems

- Nortel Communications Systems, Inc.

- Southwestern Bell Telecom

- Sprint-United Management Svcs. Inc./United Telecom, Inc.

- USWEST Communications Services, Inc.

- WilTel Communications Systems

Facility maintained systems

Facility maintained systems (FMS) are MSL-100 systems repurchased or sold under the Nortel networks facility management program. This program removes all system responsibility from the end user and ensures a commitment from the facility maintainer to provide telecommunication services with guaranteed service levels. Nortel customers also have the option of contracting for network-wide performance reports, station message detail recording (SMDR) processing and billing generation, and design and engineering consulting services. Nortel also offers turnkey network-wide feature implementation. Specific requirements are identified in the FMS program.

List of telephone numbers

This chapter consists of Table 6-1 that lists the telephone numbers mentioned in this document.

ATTENTION

Effective September 21, 1996, all Nortel locations in Richardson, Texas, have a new area code: 972. Please be aware that automated fax services or other similar applications need to be updated to reflect the new area code.

Table 6-1
Telephone list

Service or support organization	Market (if applicable)	Telephone number
Billing recovery services		972/684-7888
		800/684-7888
Change applications engineering		972/684-7650
Consumables replacement		972/684-7650
Customer service operations repair and replacement		972/684-7888
		800/684-7888
		972/684-8862 (Fax)
Customer service operations repair and replacement senior manager		972/684-7744
Defective return packing list forms		972/684-7888
		800/684-7888
—continued—		

Table 6-1
Telephone list (continued)

Service or support organization	Market (if applicable)	Telephone number
EPIC help desk		972/684-7561
Extended service plan	Commercial systems	972/684-7805
	Federal systems	703-712-8148
Field change application (88K)		972/684-8018
Global customer support services senior manager		972/684-7615
Global customer support services (AVP)		972/684-2828
Helmsman support		888/435-6762
Integrated services manager		972/684-8018
Merchandise order services		972/684-2891
Non-warranty services	Commercial systems	972/684-7805
	Federal systems	703-712-8148
National Service Center		800/527-0797
OEM repair		972/684-7888
		800/684-7888
Order entry (CD-ROM documentation) distributors only		972/684-5839
		800/NTI-CARE (684-2273)
Order entry (switch consumables)		972/684-2891
Printed circuit pack (PCP) repair		972/684-7888
		800/684-7888
Post-release software unit (PRSU) supervisor		972/684-7869
Post-release software unit (PRSU) supervisor	Commercial systems	972/684-7693
	Federal systems	972/684-7693

—continued—

Table 6-1
Telephone list (continued)

Service or support organization	Market (if applicable)	Telephone number
Station equipment emergency repair		972/684-7888
		800/684-7888
Station equipment routine repair		972/684-7758
Remote service center		972/684-7074
Remote services manager		972/684-7399
Repair stickers		972/684-7888
		800/684-7888
Service administration representative	Commercial systems	972/684-7805
	Federal systems	703-712-8148
Service administration manager		972/684-7805
Shipping and packing lists		972/684-7888
		800/684-7888
TAS manager, region I & IV		972/684-0103
TAS manager, region II & III		972/684-7163
TAS (routine and emergency)		972/684-7777
		972/684-3824 (Fax)
		972/684-7888
Training course catalog and registration		972/684-8777
—end—		

List of terms

ASD

See automated software delivery or

accelerated software delivery.

accelerated software delivery (ASD)

The accelerated software delivery (ASD) process is a one night process (ONP) that shortens the software delivery time from 7–10 days into one night.

AUTHCODE

See authorization code.

authorization code

A unique multi-digit group of characters identifying a valid subscriber

automated software delivery (ASD)

The automated software delivery (ASD) process is a one night process (ONP) that shortens the software delivery time from 7–10 days into one night.

batch change supplement (BCS)

Prior to MSL03, an MSL-100 software release.

BCS

See batch change supplement.

CAB

See customer advisory bulletin.

CASL

See customer account site location.

CBT

See computer-based training.

CCITT #6

> *See* Consultative Committee on International Telephony and Telegraphy Standard No. 6.

CCM

> *See* change control management.

central message controller

> A hardware device that provides an interface between the central processing unit (CPU), network module controllers (NMC), and input/output controllers (IOC).

change control (CC)

> In the MSL-100 switch, the log used to keep track of hardware and software changes and related information.

change control management (CCM)

> The standardized method of keeping track of hardware and software changes and related information in the MSL-100 switch.

compact disk-read only memory

> Read-only memory that resides on a small floppy disk

computer-based training (CBT)

> A method of learning to use an interactive computer program.

Consultative Committee on International Telephony and Telegraphy Standard No. 6.

> A standardized out-of-band (common channel) signaling system that is suitable for terminals working (inside the same world zone) and transit working (between world zones). CCITT #6 normally uses a 2.4-kbits/s transmission rate.

corporate product code (CPC)

> A series of characters that uniquely identify a product sold by a company.

CPC

> *See* corporate product code.

CPE

> *See* customer premises equipment.

CSO

> *See* Customer Service Operations

CSR

> *See* customer service report.

customer account site location
          The geographical place at which a customer's account can be found.

customer advisory bulletin (CAB)
          A notice to Nortel customers to make them aware of a possible switch
          problem.

customer premises equipment
          Equipment that is located at the customer site.

customer service operations
          The group responsible for repair and replacement of parts.

customer service report
          The system generates this notice and assigns a priority to track the
          non-MSL-100 family related incidents.

data modification order (DMO)
          A request to change MSL-100 information. The request can be made
          through either the table editor or the service order system (SERVORD).

DDU
          See disk drive unit.

digital recorded announcement machine (DRAM)
          A peripheral module developed for the DMS switch in which voice
          messages are stored in digital form, providing access to various service
          voice announcements.

digital trunk controller (DTC)
          A peripheral module that connects DS30 links from the network with digital
          trunk circuits.

disk drive unit (DDU)
          A hardware device that consists of a disk drive and a power converter card
          installed in an input/output equipment frame

DMO
          See data modification order.

DRAM
          See digital recorded announcement machine.

DTC
          See digital trunk controller.

ECD

> *See* engineering change document.

EIOC

> *See* enhanced input/output controller.

emergency technical assistance service (ETAS)

> A 24-hour-a-day, seven-day-a-week service available to customers who require immediate assistance with operation problems, such as loss of call processing or loss of billing.

engineering change document (ECD)

> A Nortel form that must be submitted to start the process of changing the design of a product.

enhanced input/output controller (EIOC)

> Enhanced hardware that provides an interface between I/O devices and the central message controller. The IOC contains a peripheral processor that performs local tasks, thus relieving the load on the central processing unit.

EPIC

> *See* extended product inventory control.

ESP

> *See* extended service plan.

ETAS

> *See* emergency technical assistance service

ETAS warning bulletin (EWB)

> A notice that a customer's switch is likely to experience problems of a specified nature.

EWB

> *See* ETAS warning bulletin.

extended product inventory control (EPIC)

> Used to coordinate change control, a customer-accessible database that represents the specific site inventory and revision status of Nortel hardware. EPIC compares inventory and revision status data to baseline release levels and provides notification of design changes or requirements or both. The EPIC database identifies the packs, modules, or frames requiring upgrade when design changes are identified.

extended service plan (ESP)

> Optional service coverage that a customer may purchase to lengthen the time that Nortel will provide service for a customer switch.

facility maintained systems (FMS)
>MSL-100 systems repurchased or sold under the Nortel networks facility management program. This program removes all system responsibility from the end user and ensures a commitment from the facility maintainer to provide telecommunication services with guaranteed service levels.

FCA
>*See* field change application.

field change application (FCA)
>A centralized team of highly skilled personnel trained to work on in-service Nortel equipment. The group, located in Richardson, Texas, has access to complete MSL-100 documentation, the latest developments in hardware, and to captive offices for verification of problems and their solutions.

FMS
>*See* facility maintained systems.

general specification (GS)
>A document that provides general information about the associated product so that marketing, programming, and engineering personal can evaluate the product.

GS
>*See* general specification.

input/output controller (IOC)
>Hardware that provides an interface between input/output devices and the central message controller. The IOC contains a peripheral processor that independently performs local tasks, thus relieving the load on the CPU.

integrated services digital network (ISDN)
>A set of standards proposed by the CCITT to establish compatibility between the telephone network and various data terminals and devices. ISDN is a fully digital network, in general evolving from a telephone integrated digital network. It provides end-to-end connectivity to support a wide range of services, including circuit-switched voice, circuit-switched data, and packet-switched data over the same local facility.

interperipheral connection (IPC)
>A connection in the interperipheral message link in common channel interoffice signaling. Two IPCs can share the message handling load.

interperipheral message link (IPML)

        A path between the message switch and buffer and the digital trunk controller. An IPML consists of two nailed-up cross-connections called interperipheral connections, that share the message handling load. Each is capable of handling the full load if the other fails.

IPC

        See interperipheral connection.

IPML

        See interperipheral message link.

ISDN

        See integrated services digital network.

K date

        The date Nortel completes the switch installation and the customer accepts the job.

LCM

        See line concentrating module.

LM

        See line module.

line concentrating module (LCM)

        A peripheral module that connects the line trunk controller or line group controller and subscriber lines using two to six DS30A links.

line module

        A peripheral module that connects to subscriber lines using four DS30 links.

magnetic tape drive (MTD)

        In an MSL-100 switch, a device used to record data. Switch personnel can mount an MTD on either a magnetic tape center frame or an input/output equipment frame. Also known as a tape drive.

maintenance trunk module (MTM)

        In a trunk module equipment frame, a peripheral module that is equipped with test and service circuit cards and contains special buses to accommodate test cards for maintenance. The MTM provides an interface between the MSL-100 digital network and the test and service circuits.

merchandise on loan (MOL)

        An emergency or expedite parts repair request.

Meridian software load (MSL)
> After BCS36, an MSL-100 release.

message switch (MS)
> A high communications facility that functions as the messaging hub of the dual-plane combined core of a DMS SuperNode processor. The MS controls messaging between the DMS-Bus components by concentrating and distributing messages and by allowing other DMS-STP components to communicate directly with each other.

MOL
> See merchandise on loan.

MSB7
> *See* message signaling buffer 7.

MSL
> *See* Meridian software load.

MS
> *See* message switch.

MTD
> *See* magnetic tape drive.

MTM
> *See* maintenance trunk module.

Nortel (Northern Telecom)
> A leading telecommunications company that produces the MSL-100 switch.

Northern Telecom
> *See* Nortel.

Northern Telecom Publication (NTP)
> A document that contains information about Nortel hardware or software modules and performance-oriented practices for installing, testing, or maintaining the system. This document is often supplied as part of the standard documentation package provided to a customer.

NTP
> *See* Northern Telecom Publication.

OAU
> *See* office alarm unit.

office alarm unit (OAU)
>A peripheral module located in the trunk module equipment frame. The OAU is similar to the maintenance trunk module, but is equipped with circuit cards that provide an interface with various types of office alarm circuits instead of test circuits.

office release record (ORR)
>A document used in the MSL-100 change control procedures. The ORR contains a list of all hardware product codes and software module edition codes used in a specific MSL-100 switch.

OM
>*See* operational measurements.

one night process (ONP)
>An automated software delivery process that shortens the software delivery time from 7–10 days into one night.

ONP
>*See* one night process.

operational measurements (OM)
>The hardware and software resources of the MSL-100 switches that control the collections and display of measurements taken on an operating system. The OM subsystem organizes the measurement data and manages its transfer to displays and records.

ORR
>*See* office release record.

PCP
>printed circuit pack.

PEC
>*See* product engineering code.

peripheral module (PM)
>A generic term referring to all hardware modules in the MSL-100 switches that provides interfaces between external line, trunk, or service facilities.

PM
>*See* peripheral module (PM).

post-release software unit (PRSU)
>A nonwarranty service to alter the design intent of the standard software in order to provide customer requested changes in operations.

product engineering code (PEC)
>   An eight character unique identifier for each marketable hardware item manufactured by Nortel.

proprietary station unit (PSU)
>   Also called customer premises equipment. Represents station equipment designed to be used specifically with Nortel switching systems.

PRSU
>   *See* post-release software unit.

PSU
>   *See* proprietary station unit

remote service center (RSC)
>   Nortel's RSC provides remote surveillance and remote maintenance of the customers switch.

reset terminal interface (RTIF)
>   In DMS SuperNode, a user interface terminal used to reboot and monitor the status of the system. The RTIF can be either a remote terminal that is connected through a modem or a local terminal. Also known as remote terminal interface.

RSC
>   *See* remote service center.

RTIF
>   *See* reset terminal interface.

SCP
>   *See* service control point.

service control point (SCP)
>   A node in a common channel signaling #7 signaling network that supports application databases. The function of an SCP is to accept a query for information, retrieve the requested information from one of its application databases, and send a response message to the originator of the request.

SFDEV
>   *See* store file device.

SI
>   *See* system index.

Signaling System Number 7 (SS# 7)

A version of Signaling System 7 (SS7) for international use based on the CCITT specification of procedures involved in the interpretation and use of the complete list of signals, together with the hardware, software, or both needed for their generation, transmission, and reception.

signaling transfer point (STP)

A node in a Common Channel Signaling 7 network that routes messages between nodes. Signaling transfer points transfer messages between incoming and outgoing signaling links but, with the exception of network management information, do not originate or terminate messages.

SLM

See system load module.

SMDR

See station message detail recording.

SPMS

See switch performance monitoring system.

SS# 7

See Signaling System Number 7.

station message detail recording (SMDR)

A system that provides recording facilities for the details of billable and nonbillable calls for each customer group.

store file device (SFDEV)

A file that captures all appropriate system logs to a storage device.

STP

See signaling transfer point.

switch performance monitoring system (SPMS)

A system that monitors all areas of switch operations and creates regular reports on performance. The reports are based on a range of index values computed from operational measurements generated by the switch.

system index (SI)

A list of key equipment structures, provisioning information, and marketable products applicable to a specific MSL-100 switch.

system load module (SLM)

A mass storage system in a DMS SuperNode processor that stores office images. From the SLM, new loads or stored images can be booted into the computing module.

TAS

>   *See* technical assistance service.

technical assistance service (TAS)

>   Nortel's technical services organization for customers in the United States.
>   TAS handles all emergency and nonemergency support, cutovers, and
>   software updates including patches and technical queries not related to
>   pricing and product availability.

UMI

>   *See* user-machine interface.

user-machine interface (UMI)

>   The series of commands and responses used by switch personnel to
>   communicate with the MSL-100 switch.

verification office (VO)

>   An office in which new equipment, new features, or both are tested prior to
>   general release.

VO

>   *See* verification office.

XMS

>   A workstation-based microprocessor with networking capabilities based on a
>   Motorola 68000 microprocessor with system software written in
>   Bell-Northern Research Pascal.

XMS-based peripheral module (XPM)

>   The generic name for XMS peripheral modules that use the Motorola 68000
>   microprocessor. An XPM has two processors in a hot-standby configuration:
>   a master processor and a signaling processor.

XPM

>   *See* XMS-based peripheral module.

Meridian SuperNode
Meridian SL-100
Service Operation Support

Information is subject to change without notice. Northern Telecom reserves
the right to make changes in design or components as progress in
engineering and manufacturing may warrant.This equipment has been tested
and found to comply with the limits for a Class A digital device pursuant to
Part 15 of the FCC Rules, and the radio interference regulations of the
Canadian Department of Communications. These limits are designed to
provide reasonable protection against harmful interference when the
equipment is operated in a commercial environment. This equipment
generates, uses and can radiate radio frequency energy and, if not installed
and used in accordance with the instruction manual, may cause harmful
interference to radio communications. Operation of this equipment in a
residential area is likely to cause harmful interference in which case the user
will be required to correct the interference at the user's own expense
Allowing this equipment to be operated in such a manner as to not provide
for proper answer supervision is a violation of Part 68 of FCC Rules, Docket
No. 89-114, 55FR46066
The SL-100 system is certified by the Canadian Standards Association
(CSA) with the Nationally Recognized Testing Laboratory (NRTL).
This equipment is capable of providing users with access to interstate
providers of operator services through the use of equal access codes.
Modifications by aggregators to alter these capabilities is a violation of the
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