Meridian 1

Option 11C

General Release Bulletin - Release 22

P0834642 Issue 1.2 October 1996

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Contents

Introduction

This document provides an overview of the features developed for the Meridian 1 Generic X11 Release 22 software product. It describes the new features and enhancements offered in this release for North American market, therefore it is intended for North American use only.

X11 Global release 22 is a multi-purpose release designed to deliver a single global software stream to all markets. X11 Global Release 22 is supported on the following Meridian 1 systems: Option 11C, Option 51C, Option 61C, Option 81, and Option 81C. This document only applies to Option 11C systems. For other system details, please refer to Meridian 1 General release Bulletin (for other Meridian 1 systems) GR-046 Sept. 1996.

One of the major hardware deliverable for X11 Global Release 22 is the introduction Meridian 1 Option 11C system. This document provides a product overview of Option 11C, new Software Delivery Mechanism, and upgrade procedures.

For more details on feature installation and operation, hardware upgrade procedures, refer to the Option 11C Nortel Publications (NTPs).

For details on the Meridian Mail Option, the Central Answering Position feature, the Autoconfiguration feature, Model Sets and Administration Sets, as well as installation and operation, please refer to the Northern Telecom Publications (NTP) provided with the Option 11.

> ***Note:*** Not all features described in this document are offered in all countries. Please contact your local Northern Telecom sales representative for more information.

Note: For information on Real Time requirements, please contact your local Northern Telecom sales representative. For information on Memory calculations, please refer to publication 553-3011-100, and Technical Reference Guide.

IMPORTANT

Please read all included advisements, requirements, and enhancements prior to loading this software.

Chapter 1 — System Advisements

X11 Release 22 is a global software release with features that can be deployed worldwide. This document only contains information and features that are specific to North America.

Systems Supported

Generic X11 Release 22 supports the following machine types:

— Meridian 1 Option 11C, 51C, 61C, 81, 81C

This document includes information specific to Option 11C system only, for all other Meridian 1 systems, please refer to Generic X11 Release 22 General Release Bulletin and Nortel Publications (NTPs).

New System Hardware

With the introduction of Global X11 Release 22, Meridian 1 introduces the newest member to its commerical processor based system portfolio - Option 11C. The option 11C expands the functionality of the already popular Option 11/11E and introduces several new enhancements which establishes the Option 11C as the industry's most powerful, flexible, and feature rich system in the 30-400 line size.

Please refer to Product Overview chapter for more details.

Conversion

The Option 11/11E Systems running on pre Release 22 software require hardware upgrade in order to upgrade to the Release 22 software. The Option 11C system offers a menu driven installation and upgrade method. Please refer to Option 11C Installation guide and or Upgrade procedures Guide for additional information.

CAUTION

Please read the Option 11C NTPs thoroughly before performing any hardware/software conversions. All conversion procedures should be strictly followed step-by-step.

To avoid static discharge, wear a properly connected anti-static wrist strap when working on the Meridian 1 equipment.

Meridian Administration Tool

Meridian Administration Tools (MAT) Release 4.5 now supports X11 Release 22 as well as systems running X11 Release 14, 17, 19, 20 and 21. MAT Release 4.5 is designed for the Windows 3.1 operating system. MAT Release 4.5 provides the following Applications: Station Administration, Traffic Analysis, Call Accounting and Call Tracking.

Meridian Administration Tools (MAT) Release 5 is introduced with X11 Release 22 and requires the Windows 95 Operating System. MAT Release 5 provides the following applications: Station Administration, Traffic Analysis, Call Accounting, Call Tracking, Maintenance Windows, ESN Analysis and Routing Tool and Alarm Management.

MAT Release 5 also supports connectivity to Meridian 1 via Ethernet for System Options 11C, 51C through 81C running X11 Release 22. If MAT 5 is connected to a System type of 51C through 81C via Ethernet the following minimum vintage cards and cables are required:

- NT5D20BA (Release 01) - IOP/CMDU Card
- NT6D63BA (Release 01) - IOP Card (1 for each IOP/CMDU or IOP card)
- NT7D90DA (Release 01) - Ethernet Cable

Note: If MAT is connected via Ethernet a revised Parallel Upgrade procedure must be followed to ensure that the primary IP address remains active following a software upgrade. Please refer to the MAT Release 5 Common Services User Guide Release 5.0 (part number A0858266) for further details.

System Security

Nortel strongly recommends changing the default system passwords for both Meridian 1 and Meridian Mail systems during initial installation. These passwords should be changed again when the system is placed in active service. These actions will help deter unauthorized system access which can result in toll fraud or system abuse.

For more information, please refer to Sales and Marketing Bulletin #807G, or the System Security Management NTP (553-3001-302).

Audit Routine

As in the case of previous software releases, it is recommended that the Audit routine (Overlay 44) be specified as the background diagnostic to optimize the system capability to deal with call processing anomalies, especially in large line size and high traffic configurations.

Use of BKO command in LD 43

The BKO command is used to backup the customer data to an external data card (blank PCMCIA card) located in the slot “B” on the CPU faceplate.

Note: If the pre-programmed software PCMCIA card is used during BKO operation, then the card cannot be used to install software.

Minimum Vintage for TDS/DTR pack - NTAK03DA

The minimum vintage for TDS/DTR pack is NTAK03DA. For packs older than NTAK03DA version, SDI functionality will not function properly. The NTAK03DA version has been introduced in the market since Feb. 1993.

Please note that the new Small system controller pack (NTDK20) provides built-in TDS/DTR and SDI capabilities.

Backwards Compatible Daughterboard - NTDK26

The backward compatible daughterboard allows the Option 11/11E two cabinet (copper) systems to be upgraded to Option 11C maintaining copper connectivity.

The NTDK26 has a hardware key that prevents installation when the ethernet jumper (J7) is installed.

The ethernet jumper plug (J7) on the NTDK20 (Small System Controller) pack MUST be removed before the NTDK26 daughterboard is installed.

Note: Ethernet is not supported in this configuration

Upgrading Option 11 and 11E to Option 11C using Pre-Installed Flash Daughterboard

If the installers pre-installs customer feature set and data on the pre-programmed software daughterboard prior to delivery of the Option 11C hardware to the end customer, the following steps must be performed after they sysload their Option 11C with the pre-installed feature set and default data.

1. Ld 143 and type “upgrade”
2. Select option 3 “Utilities” from the main menu.
3. Select option 1 “Restore Backed up Database” from the Utilities menu.
4. Select option 4 “Option 11/11E CCBR File “ OR option 5 “Option 11/11E Software cartridge” (After selecting this option the user is prompted to insert the Database Upgrade Tool.)
5. Sysload.

The Trunk Anti Tromboning, Network Call ID, and Network Call Page

These features are supported for Option 11C in ISL/VNS configuration. The minimum vintage required for the SDI/DCH pack which supports these features is NTAK02BB.

Meridian Mail

A manufacturing installed patch (r2cfn.p) has been included in Release 22.08 software to address a Meridian Mail problem BV55521.

Without the patch in service, if a new AML link to Meridian Mail is configured on Release 22 software, the Meridian Mail will not be operational. Meridian Mail comes up fine for AML links on pre-configured data and on upgrade of existing data.

AML EC11 disabled after upgrade

If an EC-11 Mail connected to Option 11C through AML over the NTAK02 (SDI/DCH) pack, the AML link does not come back into service after a software upgrade of the Option 11C system.

WORKAROUND:

1) Disable the AML before the software upgrade, or

2) Re-seat the NTAK02 (SDI/DCH) pack after upgrade

M-1 Digital set template conversion to X11 Release 22

It has been determined that under rare circumstances during a software conversion from X11 Release 21 to X11 Release 22 there is a possibility of exceeding the maximum amount of memory that has been allowed for a BCS template. Reference PRS number BV54368. The problem will only occur if the following criteria are met:

- A telephone set is equipped with one or more add on modules
- The set template has more than 38 keys defined

The Option 11C Centralized Attendant Position (CAP), which is a specialized BCS set, may also be affected by this problem. To our knowledge this problem has not occurred on Global X11 Release 22 Software in North America.

If the amount of allowed memory for a template is exceeded the system will delete (null) keys that appear on an ascending basis, as the system converts beginning with keys 0-59. Therefore if the problem occurs, it will occur on the higher numbered keys.

This problem is applicable to conversion ONLY. In the event that the craftsperson is installing or modifying a TN in Overlay 11 and the amount of allowed memory for the template is exceeded, an SCH5222 message will be output.

New Input/Output Sysload codes

In the event that this problem occurs the system will notify the craftsperson during the Sysload Conversion process. Two new Sysload codes have been introduced to alert the craftsperson of this event. They are:

SYS4750

During the Sysload conversion process a template was found that exceeds the pre-defined system capacity. The Template is represented with a number sign (#) followed by the template number. Following the template number are the affected key(s) that are now null.

NOTE: The key numbers printed in the SYS4750 message may not correspond to the key numbers that have been removed. The keys that are removed are the highest numbered keys defined on the set.

SYS4751

A TN (s) appears with the Template number (#). This represents the TN (s) that was associated with the template that exceeded the pre-defined system capacity. Reference SYS4750. The key (s) mentioned in SYS4750 have become null on this TN (s).

For more details, please refer to X11 Release 22 Product Bulletin on Digital Set Template Conversion.

ISDN Q.Sig

ISDN Q-Sig is the standards-based definition of the Integrated Services Digital Network (ISDN) “Q” Signaling (Q-Sig) reference point for private PBX-to-PBX interworking. This ISDN Layer 3 protocol has been defined by the European Computer Manufacturer's Association (ECMA) and adopted by the European Telecommunications Standards Institute (ETSI) for Europe and by the International Standards Organization (ISO) for global introduction.

ISDN Q-Sig is in a “MONITORED SHIPMENT” status at this time because Lucent's Definity Generic 3 Version 4 is the only PBX vendor to complete an interworking trial with the Meridian 1 in North America. Any additional interworking trial requests to other ISDN Q-Sig compliant PBX's will be reviewed on a case-by-case basis. Patches are required for Lucent Definity Connectivity. Please contact ETAS.

Please refer to the ISDN Q-Sig Interworking Product Bulletin #96049 for further details.

Software Patches

There is one manufacturing installed patch for Release 22.08. The patch name is r2cfn.p which has been included to address Meridian Mail PRS BV55521.

Other patches (if any) which need to be installed must be placed in the following directory on drive C: c:/u/patch

All Option 11C patch files exist in the Global Patch Database. All patch files for the 11C should be placed in the following directory: c:/u/patch. There are 5 ways to get a patch file into this directory.

1 Patches can be downloaded to the switch by FTP over an ethernet connection.

2 Patches can be downloaded to the switch by FTP over a serial line using SLIP.

3 Patches can be downloaded to the switch by FTP over a serial line using PPP.

4 Program the patch file onto a PCMCIA card. Install the PCMCIA card in drive a. In pdt copy the patch file from the PCMCIA card to the c drive. e.g.: cp a:newpatch.p c:/u/patch/newpatch.p

5 Patches can be donwloaded to the switch using XMODEM file transfer over a serial line.

The following is the description of the pdt commands to **perform a file transfer using the XMODEM protocol**.

rx - command for receiving a file

sx - command for sending a file

To use rx, PDT Level 1 or Level 2 password login is required. To use sx, PDT Level 2 password login is required. This is done for security purposes so that you can't get any data out of the system unless you know the PDT Level 2 password.

To transfer a file from a PC/workstation to the switch

pdt> rx [path/]filename.ext

You then enter the appropriate commands to invoke xmodem file transfer on the PC/workstation

To transfer a file from the switch

pdt> sx [path/]filename.ext

Enter the appropriate commands to invoke xmodem file transfer on the PC/workstation. For binary files (e.g., patch files and database files), please ensure that the files are transferred in binary mode. When the transfer is completed, a transmission summary is displayed and the pdt prompt is shown.

total packets: 20
number of retries: 0
receive timeouts: 1
system errors: 0
unknown characters: 0
transfer cancelled: 0
packets received out of sequence: 0
packets with corrupted sequence: 0
packets failed checksum/crc check: 0
incomplete packets: 0
duplicate packets: 0
The following is an **example in a unix environment**:

Use tip to connect to the switch (if you telnet to the switch you can't use umodem).

To transfer a patch to the switch:

in pdt
cd c:/u/patch
rx newpatch.p
When the system prompts “Ready to receive...”, invoke local command mode by typing ~C (tilde C) and issue the umodem (s)end (b)inary command.

~C (tilde C to enter local command)
umodem -sb ~mydir/patches/newpatch.p

To transfer a file to the workstation

in pdt

cd to directory e.g. c:/p/sl1

sx direct.rec

When the system prompts “Ready to send...”, invoke local command mode by typing ~C (tilde C) and issue the umodem (r)eceive (b)inary command.

~C (tilde C to enter local command)

umodem -rb ~mydir/backup/direct.rec

The following is an **example in a PC/Window 95 environment**:

Use the HyperTerminal application to dial up to the switch.

To transfer a patch to the switch

in pdt

cd c:/u/patch

rx newpatch.p

When the system prompts “Ready to receive...”, invoke file transfer on the PC side using the (T)ransfer pull-down menu and selecting the (S)end File option. Select the file to be sent and select XMODEM as the Protocol. Then start the transfer on the PC side.

To transfer a file to the PC

in pdt

cd to directory e.g. c:/p/sl1

sx direct.rec

When the system prompts “Ready to send...”, invoke file transfer on the PC side using the (T)ransfer pull-down menu and selecting the (R)eceive File option. Select or create a file to be received as and select XMODEM as the Protocol. Then start the transfer on the PC side.

Patch Installation Steps:

1) In pdt use the pload command to load the patches. To make sure that these patches remain in service you must enter the pload command without the patch name. It will then prompt you for the patch name and ask the following questions:

Days patch vulnerable to sysload [3] - set this to 0

In-service initialize threshold [5] - enter a carriage return

In-service days to monitor inits[7] - set this to 0

2) After using the pload command use the pins command to put the patches in service.

Chapter 2 — Product Overview

Introduction

This Chapter provides a brief overview of the Meridian 1 Option 11C. It describes the system highlights, the required software, the new hardware components which make up the system, upgrade scenarios, and auxiliary product compatibilities.

Overview

The Meridian 1 incorporates many enhancements to the existing Option 11/11E product. The Option 11C is now the PBX system of choice in the 30-400 line size market, offering customers the power of a much larger system in a small package. The Option 11C can address the needs of a small single-site business establishments and that of a larger organization supporting multiple locations in a network.

Technical improvements to the product include a dramatic increase (>7 times over Option 11E) in the real time processing power. Increased real time is delivered through the use of a Motorola M68040 processor on the CPU board. The number of conference loops has been increased giving the Option 11C the capability of having up to 64 conferees (based upon system configuration). Currently the Option 11E offers fibre connectivity between the main and expansion cabinets up to a maximum length of 10 meters. Option 11C provides an additional option to extend remote fibre connectivity up to 3 km away from the main cabinet.

The software for all new system installations and systems converting from Option 11/11E to Option 11C will be delivered via a FLASH software daughterboard. The software daughterboard is installed on the CPU board and remains with the system permanently. The software daughterboard contains all components associated with a particular release of software including software patches, pre-configured customer data, feature sets and other pertinent databases and software.

The software upgrades to the existing Option 11C systems will be delivered via a 40 Mb PCMCIA card. Once the installation or modification is completed successfully, the PCMCIA card can be reused at other sites.

Installation of software, feature sets and ISM parameters is protected by a security keycode scheme. The installation is not allowed unless the correct keycodes are entered. Keycodes are required for all new installations as well as existing system upgrades. They are provided on a keycode datasheet supplied with the software and security device.

Systems wishing to upgrade from a two cabinet copper Option 11/11E to a two cabinet Option 11C have the opportunity to go to a two cabinet fibre interface or retain the copper interface. The copper interface is provided with the introduction of a backward compatible daughterboard.

System Highlights

The Meridian 1 Option 11C enhancements include:

- Commercially based CPU (M68040) providing significant increase in Real Time and memory capacity.
- The CPU will operate under Wind Rivers Systems VxWorks real time operating system which is the same as the Meridian 1 Option 51C, 61C, and 81.
- Ethernet Connectivity operating at 10Mbits.
- Tone service units on the CPU card provides the same tone functions as the following packs: TDS/DTR (NTAK03), XTD (NT5K48), MFR (NTAG26), and XMFC (NT5K21). The CPU card can co-exist with these existing packs, thus allowing customers to continue use these packs on an Option 11C system. Tone services units can now be configured as either 16 DRT/XTD units or 4 units of MFC/MFE/MFK5/MFK6/MFR plus 8 DTR/XTD units.

- Increased conference capacity for the system (additional 1 loop allowing 16 more conferees); 1 cabinet - 32 conference ports; 2 cabinets - 48 conference ports; 3 cabinets - 64 conference ports.
- Built-in Time of Day clock provides a minimum of 15 minutes hold up time when a +5 V power is removed. This will bridge short power outages and cover maintenance issues.
- Inclusion of Memory Daughterboard providing 24 Mb of flash ROM for program store and 8 Mb of flash ROM for the file system.
- RAM on SIMM can be upgraded should future applications require.
- DOS compatible file system.
- The main processor has a base configuration of 8Mb of DRAM for operating memory space
- Two PCMCIA slots accommodating two industry standard PCMCIA cards which can be used for a cost effective vehicle for software upgrading/updating or data storage devices. Slots are labelled as a: and b:. Slot a: is dedicated for the software delivery and patch delivery and slot b: is dedicated for External Data Card.
- New Software Delivery Process. Feature activation via keycodes which will be controlled via a security device specific to each site.
- New software installation/upgrade procedure.
- FLASH software daughterboard replacing Option 11 and 11E software cartridges remains with the system permanently.
- Flash daughterboard is expandable.
- Supports telenet, ftp, remote login for the SMP (System Management Products).
- New fibre interface for connecting up to two expansion cabinets to the main cabinet.
- Two new options of fibre-optic connectivity are provided - local 10m fixed length and remote up to 3 Km length.
- New fibre routing/cable management solutions.
- TTY improvements - 1 TTY on each expansion cabinet, 3 TTY ports on card 0 of main cabinet.

- Backward Compatible Daughterboard for copper connectivity upgrades.
- Database upgrade tool for data extraction from software cartridge for customers who don't have remote backup capabilities.

Software

Option 11C requires X11 Release 22 and later versions of software.

Note: Release 22 and later versions of software cannot be used with existing Option 11 and Option 11E systems.

Hardware

- Commercially Based System Core Card NTDK20 with built-in ethernet & PCMCIA interface.
- Flash ROM software daughterboard NTDK21.
- Fibre expansion daughterboards - 2 versions: 10m (NTDK22) and up to 3 Km (NTDK24).
- Expansion Cabinets fibre receiver packs - 2 versions: 10m (NTDK23) and upto 3 Km (NTDK25) provides interface to the main cabinet and includes local TTY port.
- Fibre Optic Cables:10m between cabinets (plastic) and up to 3 Km to remote cabinet (glass).
- Backward compatible CPU daughterboard - NTDK26 provides upgrade path for existing Option 11 systems.
- New expansion cabinet & backplane.
- Ethernet Connector Cable - NTDK27.
- PCMCIA Card used for software delivery. Two versions 40 Mb for software delivery and 3 Mb for patch delivery.
- Customer Database Upgrade tool - NTDK30 used for extracting customer database from old option 11 cartridge for upgrades where remote backup is not available.
- Security Device - NTDK57: Installation of software, feature set and ISM parameters is protected by a security device on the CPU board card and a site specific keycode scheme. The security device is installed as part of the new system installation.

Table 1Hardware Components

New Hardware	Description
NTDK20	System Core Card
NTDK21	Flash Software Daughterboard
NTDK22	10m Fibre Daughterboard
NTDK23	10m Fibre Receiver Pack
NTDK24	3 Km Fibre Daughterboard
NTDK25	3 Km Fibre Receiver Pack
NTDK26	Backward Compatible Daughterboard
NTDK27	Ethernet Cable
NTDK30	Customer Database Upgrade Tool
NTDK57	Security Device
P0816832	Fibre Routing Guide
A0633651	PCMCIA Card

NTAK02BB Introduction

The vintage of the NTAK02 has been advanced to incorporate new firmware that supports ISDN Signaling Link (ISL) Networking features developed in Release 21.41 and later, namely Trunk-Anti-Tromboning, Network call page and Network call park.

Customers planning to take advange of these features are required to upgrade the NTAK02 to the minimun vintage of NTAK02BB - A0658092 QUAD SERIAL I/O (SPORT).

All new shipments that require NTAK02 cards will automatically receive new vintage of NTAK02.

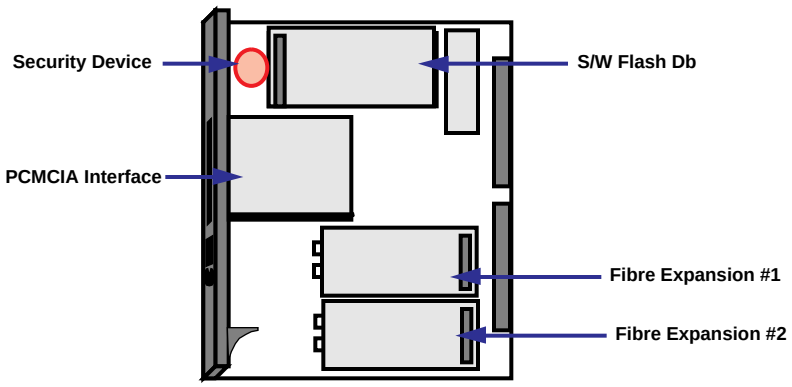
Product Description

System Core Card (NTDK20)

The Option 11C CPU pack is a standard size, single slot Meridian 1 style circuit pack that resides in slot 0 of the main cabinet.

The Option 11C CPU card introduces a commercially based CPU (M68040 family) as the primary call processor. The CPU operates under the Wind Rivers Systems VxWorks real time operating system which is the same as the Meridian 1 Option 51C, 61C, and 81. It provides a real time improvement of 8-10 times (based upon configuration) over the Option 11E. The main features include:

- Main CPU: MC68LC040 running VxWorks.
- Auxiliary CPU: MC68020.
- More than 7 times Real Time increase over 11E.
- Flash ROM program/file storage.
- Built-in ethernet interface.
- Built-in PCMCIA interfaces to support new software delivery mechanism.
- Built-in Time of Day device (holds for up to 15 minutes).
- Conference capability expanded (additional 1 loop allowing 16 more conferees).
- Provides on board XMFC/MF functions.
- 3 standard TTY ports.
- Expandable SIMM DRAM operations memory.



The following hardware items can be mounted on the system core card:

- Software Flash Daughterboard.
- Fibre Expansion Daughterboards.
- Backward Compatible Daughterboard (in place of fibre expansion daughterboard)
- Security Device
- Fibre Routing Guide

Note: NTBK45 (Option 11E System Core card) is not supported on Option 11C systems

PCMCIA Socket

The CPU has a faceplate accessible PCMCIA type III socket. This is a dual socket that can support either 2 PCMCIA type II cards such as FLASH cards, or a single PCMCIA type III card such as a Harddrive. The intent of the PCMCIA interface is to provide a software delivery interface to the system. All system software can be delivered on a PCMCIA card and transferred to the on-board FLASH software daughterboard.

Security Device

Installation of software, feature set and ISM parameters is protected by a security device on the CPU card and a site specific keycode scheme.The security device is installed as part of the new system installation. The Security ID (8 digit number encoded on the security device) is a key component of the system tracking database. Each security device has a unique identification number and is not changeable on the device. As long as the security device stays with the system, the Security ID of the system remains the same.

Tone Services

The Option 11C CPU pack extends the tone services and consolidates the remaining Meridian 1 tone services of MFC, MFE, KD3, & MF onto the CPU pack. While increasing the flexibility of the Option 11 product, it will also provide a cost reduction for those markets that require these signalling standards as they will no longer require a separate IPE pack for the function.

The Option 11C includes the capability of adding one of the following:XMFC or XMFE or KD3 or MF or DTR detection. This effectively imports the functionality of the (XMFC) or the (MF) packs. The new channels (4 MF/MFC or 8 XTD/DTR) will be able to support only one of the signalling protocols at a time as defined by software. This is not viewed as a limitation as the signalling protocols are primarily exclusive. That is, you would not require more than one of the protocols in a system at a time. If none of the new signalling protocols is required, an addition 8 channels of DTR can be supported.

Conference

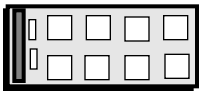
The CPU supports 32 ports (conferees) on the base system. The base configuration can support up to 10 three party conferences or up to 4 six party conferences.

Conference capabilities has been expanded in increments of 16 ports per expansion box via the fibre expansion daughterboard. Therefore, the conference capability extends to 48 ports for two cabinets, and 64 ports for 3 cabinets.

Flash Software Daughterboard (NTDK21)

The delivery of software and firmware has been significantly improved for Option 11C. Software operation and storage is now provided via FLASH based technology residing on a daughterboard mounted on the CPU pack. The software cartridges will not be supported on the Option 11C systems. **Software will be delivered on the new systems and systems converting from Option 11/11E to Option 11C by a pre-programmed flash daughterboard**. It contains a master copy of the software, pre-configured data, firmware, feature sets, and patches. The highlights include:

- Used for software storage and operating space.
- Used for software delivery for new systems and 11/11E conversions to Option 11C.
- 24Mb for program store and 8 Mb for file system.
- Mounted on CPU pack in the main cabinet.
- Re-programmable.



Note: Upgrades to Option 11C systems do not require a new software daughterboard. The software upgrades are done via a PCMCIA card.

Note: Option 11/11E software cartridges are not supported on Option 11C.

Fibre Daughterboards (NTDK22 & NTDK24)

Expansion to 2nd and 3rd cabinet is done via CPU mounted fibre daughterboards. The system core card supports up to 2 fibre daughterboards. Each expansion cabinet requires one fibre daughterboard mounted on the CPU pack and one expansion cabinet fibre receiver pack installed in the expansion cabinet - slot 0. There are two versions of fibre daughterboards to support two different solutions namely:

- 10m fibre connectivity
- 3 Km fibre connectivity

The 10m fibre connectivity provides up to 10m of separation between the cabinets (main and expansion) via a plastic fibre cable. This allows flexibility in locating expansion cabinets on different floors. For 10m fibre - NTDK22 fibre Daughterboard is required.

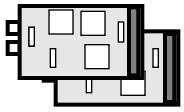
The 3 Km fibre connectivity provides up to 3 Km of separation between the cabinets (main and expansion) via a glass fibre cable (customer supplied). This allows flexibility in locating expansion cabinets on a remote site or a campus environment. For 3 Km fibre - NTDK24 fibre Daughterboard is required.

Both fibre connectivities can co-exist i.e. a system can be configured with a 10m fibre connectivity to local expansion cabinet and 3 Km fibre connectivity to the remote expansion cabinet.

Note: Copper and fibre connectivity can not co-exist i.e. a system can not be configured with a copper connection to one expansion cabinet and fibre connection to the other expansion cabinet.

The main features of the fibre daughterboards are:

- Fibre connection to expansion cabinets
- Mounted on System Core Card (CPU)
- Each expansion cabinet requires a fibre daughterboard on the main CPU maximum of two daughterboards are supported
- 2 versions (10m and upto 3 Km) - can co-exist on the same system
- Each daughterboard requires a corresponding fibre receiver pack to be installed in the expansion cabinet



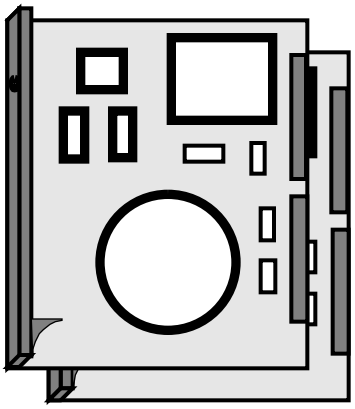
Fibre Receiver Packs (NTDK23 & NTDK25)

The expansion cabinet fibre receiver pack is introduced to provide fibre transmitter and receiver interface to the main cabinet. There are two version of fibre receiver packs:

- 10m version - NTDK23.
- 3 Km version - NTDK25.

The main features include:

- Installed in slot 0 of each expansion cabinet.
- Provides fibre interface to main cabinet.
- Includes local TTY port.
- Fibre Routing Guide mechanism.
- 2 versions (10m and 3 km).

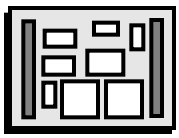


Backward Compatible Daughterboard

The Option 11C supports a CPU mounted daughterboard which provides a backward compatible solution for upgrades of existing Option 11/11E systems with copper expansion cable to the new Option 11C system maintaining copper connectivity. It is installed on the CPU board.

Note: This configuration

- Does not support ethernet interface (e.g. SMP ethernet connection).
- Does not support Option 11E fibre.
- Does not support Option 11C 10m and 3Km fibre expansion schemes.



Cabinets

The Option 11C introduces new expansion cabinets which are now same as main cabinets. The Option 11 /11E systems requiring conversions to Option 11C can maintain their old cabinets as long as no ethernet access and no fibre connectivity is required. The existing main cabinets can be maintained when converting to a 2 or 3 cabinet fibre Option 11C systems. The new cabinet code NTDK50 replaces the existing NTAK69, NTAK70, and NTBK79. There is no distinction between the main cabinet and expansion cabinets. The new codes are:

New Cabinet Codes	Description	Region
NTDK50BA	Main/Expansion cabinet (FCC CLASS A)	North America, CALA, and AP
NTDK50DA	Main/Expansion Cabinet (CISPR CLASS B)	Europe
NTDK50FA	Main/Expansion Cabinet (Holland)	Holland
NTDK50GA	Main/Expansion Cabinet (CISPR CLASS A)	Europe, Asia Pacific

Fibre Optic cables

There are two versions of fibre cable required for fibre connectivities:

- 10m plastic cable for 10m fibre connection between cabinets.
- Upto 3 Km glass cable for 3 Km fibre connection to remote cabinets.

Fibre Specification

Plastic Fibre Cable

This cable is not an industry standard. It is provided by Hewlett Packard to work with a proprietary plastic fibre interface. It must be 10 meters in length. This cable is supplied by Northern Telecom (A0632902).

Glass Fiber Cable Requirements

The cable is standard 62.5/125 um glass multimode duplex cable with ST style connectors. The cable is not provided by Nortel. Potential vendors are Hewlett Packard or AMP.

Typical Requirements:

Item	Min.	Typical	Max.
Glass Fibre Cable Length			3 Km.
Cable Attenuation (@1300 nm)		1.5 dB/Km	2.0 dB/Km
Model Bandwidth (@1300nm)	200 Mhz*Km	500 Mhz*Km	
Chromatic Dispersion (@1300nm)		6 ps/nm*Km	
Typical 3 DB Bandwidth		180 Mhz *Km	

Note: The optical power budget for the glass fiber link is typically 8 dB. Fiber link is limited to a maximum length of 3 km, even though with many optical cables the optical power budget of 8 dB could support greater lengths. To guarantee reliable operation a bandwidth budget of 150% should be maintained. If the link is increased beyond 3 km length, the 150% margin is deteriorated possibly resulting in link malfunction under some conditions.

Note: Glass cable is customer supplied and can not be ordered from Nortel

Ethernet Interface

The Option 11C CPU pack has a built-in 10 Mbps Ethernet port. This is consistent with the other members of the Meridian 1 family.

A 50 pin amphenol to 15 pin MAU adaptor cable is introduced to provide ethernet access.

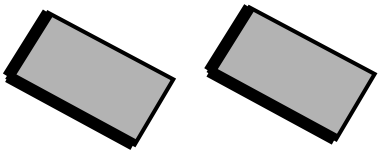
Note: Ethernet connectivity is not available if Backward Compatible Daughterboard is in use.

PCMCIA Cards

The software for Option 11C systems can be delivered via a plug-in commercial PCMCIA card containing the new software and software installation program. It is primarily intended to deliver software upgrades to the existing Option 11C systems. It contains a master copy of the software, pre-configured data, firmware, feature sets, and patches which can be used by the distributors for installation/upgrades for a number of sites. After programming the new software to the FLASH daughterboard (on the CPU), the PCMCIA card can be unplugged and used for other sites. This eliminates the cost of replacing the software cartridge. The main features include:

- Used for software, firmware, feature sets, and patches delivery
- Optional system hard drive
- Re-programmable
- Single device can be used to upgrade multiple sites
- 2 versions: 40 Mb for software delivery and 3 Mb for patch delivery only

Note: PCMCIA card is not required during initial installation of the system, where only a pre-programmed software daughterboard is required.



e 3 MByte

Customer Database Upgrade Tool

Upgrade of an existing Option 11/11E system to Option 11C requires the retrieval and conversion of the data. Two methods used are:

Remote Backup and Restore Feature: The upgrade procedure requires the use of a PC equipped with Remote Backup and Restore tools. The PC is used to extract the data file from an existing option 11 system and transfer it back to Option 11C CPU. The installation program running on Option 11C performs the conversion and database restore tasks.

Customer Database Upgrade Tool: The sites where remote backup and restore capabilities are not available, a Customer Database Upgrade Tool can be used to transfer the customer data contents from the existing 11/11E system cartridge to the Option 11C CPU. This is a tool which can be used at multiple sites and can be ordered from Nortel in addition to the Option 11C system hardware/software.

Tools Impact

Meridian Administration Tool

Meridian Administration Tools (MAT) Release 4.5 now supports X11 Release 22 as well as systems running X11 Release 14, 17, 19, 20 and 21. MAT Release 4.5 is designed for the Windows 3.1 operating system. MAT Release 4.5 provides the following Applications: Station Administration, Traffic Analysis, Call Accounting and Call Tracking.

Meridian Administration Tools (MAT) Release 5 is introduced with X11 Release 22 and requires the Windows 95 Operating System. MAT Release 5 provides the following applications: Station Administration, Traffic Analysis, Call Accounting, Call Tracking, Maintenance Windows, ESN Analysis and Routing Tool and Alarm Management.

MAT Release 5 also supports connectivity to Meridian 1 via Ethernet for System Options 11C, 51C through 81C running X11 Release 22. If MAT 5 is connected to a System type of 51C through 81C via Ethernet the following minimum vintage cards and cables are required:

- NT5D20BA (Release 01) - IOP/CMDU Card
- NT6D63BA (Release 01) - IOP Card (1 for each IOP/CMDU or IOP card)
- NT7D90DA (Release 01) - Ethernet Cable

Note: If MAT is connected via Ethernet a revised Parallel Upgrade procedure must be followed to ensure that the primary IP address remains active following a software upgrade. Please refer to the MAT Release 5 Common Services User Guide Release 5.0 (part number A0858266) for further details.

Meridian Configurator

Meridian Configurator has been modified to reflect Option 11C - Release 22.

Customer Database Upgrade Tool

This is a tool which is required for sites requiring upgrade to an Option 11C that do not have Remote Backup capabilities. This new tool allows the data to be extracted from the Option 11/11E software cartridge for an upgrade to an Option 11C. Once the site upgrade has been completed, the tool can be used for other sites.

Software Delivery Impact

The following two software delivery media are used for Option 11C:

- **Pre-Programmed Flash Software Daughterboard: all new system installations and Option 11/11E conversions to Option 11C**
- **PCMCIA Card: Ongoing Option 11C software upgrades**

The software delivery for all new Option 11C and upgrades from existing Option 11/11E system to Option 11C is done via a pre-programmed FLASH software daughterboard.

The software delivery for Option 11C sites (new software releases) is done via a re-programmable 40Mb PCMCIA card. The same PCMCIA card can be used to upgrade multiple sites and can be re-programmed for future upgrades. Pre-programmed or blank cards can be ordered from Nortel. The programmed PCMCIA card contains a generic copy of all the software components for a particular release and all the feature set options and customer default data available for that specific country/region. Feature upgrade for existing Option 11C sites do not require PCMCIA cards because Packaging, ISM parameters etc. can be upgraded via obtaining new keycodes.

The PCMCIA cards can be duplicated/re-programmed at the distributor locations with an appropriate hardware setup as described below.

> ***Note:*** Installation/upgrade of software, feature set, and ISM parameters requires site specific keycodes provided by Nortel.

PCMCIA Duplication Setup

To duplicate software from one PCMCIA card to other PCMCIA cards, the following hardware setup is required:

Hardware Set-up

- Personal Computer (386 or better)
- Windows (recommended)
- A PCMCIA drive & software for Flash ATA memory cards

There are many PCMCIA drive/PC combinations on the market. The following lists setups that have been tried within Nortel, however these are not the only configurations that will work. When dealing with a local PC distributor, let them know that you are tying to program:

PCMCIA Flash device 40Mb Type II ATA Manufactured by: Toshiba, Sundisk, IBM

Example Configurations

Setup # 1

- Pentium/75MHz
- PCNFS s/w
- Netscape
- Eiger ESA-2000. (2-slot PCMCIA ISA adapter)

Setup #2

- Go PC486 DX2/66
- Windows 3.11
- 3COM ethernet card (etherlink II 3c503)
- Netscape
- WFTP 4.00 s/w
- SCM Swapbox Classic X2 (works in windows)

Note: PCMCIA cards can be sent to Nortel for programming at nominal charge if distributors choose not to have the local software duplication setup.

Electronic Software Delivery

Nortel is planning to deliver any future software upgrades to Option 11C systems electronically. The downloading of the software is not required during initial introduction of Option 11C because the software is delivered via a pre-programmed software daughterboard. It will only be necessary when re-programming of a PCMCIA card is desirable which will not be applicable until the second up-issue of the post gate 3 software. During the first-up-issue, the software will be delivered via a pre-programmed PCMCIA card.

The software download process is required to take compressed software from the electronic media and download it to your PC for duplication. In addition to the duplication configuration listed above, the following is required:

- Hardware and software to access the media. e.g. If Internet is used (for most this will consist of a modem, Internet software and an Internet Service Provider).
- Registration with Nortel to access software Home Page (Registration process to be communicated on a later date).

  Note: Registration process to access software Home Page will be rolled out during Q4'96.

Keycode Process Flow

Installation of software, feature set and ISM parameters is protected by a security device on the CPU board card and a site specific keycode scheme.The security device is installed as part of the new system installation.

Keycodes are required for each new installation as well as existing system upgrades. They are unique to each site for a particular combination of such items as software release, feature set, ISM parameters and so on.

The following steps are required to obtain keycodes:

- Distributor places order for new keycodes (site specific)
- The keycode is prepared by Nortel and sent via fax (if requested) and shipped overland. For emergencies the keycodes can be provided over the phone.

Upgrading an existing Option 11/11E to Option 11C

When upgrading from an Option 11 or Option 11E, the customer database must be extracted from the existing system. As the new Option 11C system will not utilize the existing cartridge, it will not be able to directly extract customer data from old cartridge. There are two methods of extracting the database:

1. By using the **Customer Configuration Backup and Restore** (CCBR) feature and a Personal Computer (PC). The PC is used to extract the data from an existing Option 11/11E system and transfer it back to the Option 11C CPU. The installation program running on the Option 11C CPU will perform the conversion and database restore tasks.
2. Alternately, at sites where a PC is not available for remote backup and restore, a **Customer Database Upgrade Tool** (NTDK30) can be used to transfer the customer data contents from the cartridge to the Option 11C CPU.

The following table highlights the hardware required for upgrading an existing Option 11/11E systems to an Option 11C system under various configurations. For a detailed list of items, use standard tools.

Table 2: Upgrade Option 11/11E to Option 11C

Initial Configuration	Upgrade to	Physical Changes
1-cabinet Option 11 or 1-cabinet Option 11E	1-cabinet Option 11C	System Core Card Flash ROM Daughterboard Ethernet cable/adaptor
	2-cabinet Option 11C	System Core Card Flash ROM Daughterboard Ethernet cable/adaptor Expansion Cabinet Fibre Expansion Daughterboard Fibre Receiver Pack Fibre Optic Cable
	3-cabinet Option 11C	System Core Card Flash ROM Daughterboard Ethernet cable/adaptor Expansion Cabinet (2) Fibre Expansion Daughterboard (2) Fibre Receiver Pack (2) Fibre Optic Cable (2)

Table 2: Upgrade Option 11/11E to Option 11C

Initial Configuration	Upgrade to	Physical Changes
2-cabinet Option 11 or 2-cabinet Option 11E with copper cable connection	2-cabinet Option 11C with copper cable connection Note: No Ethernet Connectivity in this configuration	System Core Card Flash ROM Daughterboard Backward Compatible Daughterboard
	2-cabinet Option 11C	System Core Card Flash ROM Daughterboard Ethernet cable/adaptor Expansion Cabinet Fibre Expansion Daughterboard Fibre Receiver Pack Fibre Optic Cable
	3-cabinet Option 11C	System Core Card Flash ROM Daughterboard Ethernet cable/adaptor Expansion Cabinet (2) Fibre Expansion Daughterboard (2) Fibre Receiver Pack (2) Fibre Optic Cable (2)
2-cabinet Option 11E with fibre connection	2-cabinet Option 11C	System Core Card Flash ROM Daughterboard Ethernet cable/adaptor Expansion Cabinet Fibre Expansion Daughterboard Fibre Receiver Pack Fibre Optic Cable

Table 2: Upgrade Option 11/11E to Option 11C

Initial Configuration	Upgrade to	Physical Changes
	3-cabinet Option 11C	System Core Card Flash ROM Daughterboard Ethernet cable/adaptor Expansion Cabinet (2) Fibre Expansion Daughterboard (2) Fibre Receiver Pack (2) Fibre Optic Cable (2)
3-cabinet Option 11E	3-cabinet Option 11C	System Core Card Flash ROM Daughterboard Ethernet cable/adaptor Expansion Cabinet (2) Fibre Expansion Daughterboard (2) Fibre Receiver Pack (2) Fibre Optic Cable (2)

Auxiliary Products Compatibility

X11 Release 22 supports the following releases of Auxiliary products.

Auxiliary Processor	Release	Comments
Meridian Link	2-4 4B,5.x	Application Module and IPE Module
Visit Video (Mac)	1.0	
Visit Video (Windows)	1.1	
Visit Voice(Mac)	1.0	
Visit Voice(Windows)	1.1	
Visit Messenger	3.0	
Visit Personal Assistant	2.0	
Visit Fast Call (Windows)	1.1	
CPlus (Base)	3.11	
CPlus 2000	3.13 or later	
CPlus LANKey	1.0	
CPlus Performer	1.0 and later	
Meridian Mail	8.x-11.x	
Meridian Mail Card option	8.x-11.x	

Auxiliary Processor	Release	Comments
Meridian Customer Controlled Routing	2.x, 3.x 3B	Application Module Application Module & IPE Module
ACD MAX	4.x	
Meridian MAX	4.x-7.x	Application Module & IPE Module
IPE Max	4 or later	
Interactive Voice Response	1.x - 2.x 2.x	US, Canada, and Asia Pacific Europe
Meridian Interactive Voice Response	1.x - 3.x	
Open Interactive Voice Response	2.x+	
M911	1.x - 2.x	
Meridian Administration Tools (Windows 3.1) (Windows 95)	4.5 5	Station Admin., Traffic Analysis, Call Accounting, Call Tracking In Addition alarm management, Maint. windows, and ESN
Network Administration Center	1.x, 2.x	

Chapter 3 — Documentation

The Option 11C documentation has the same format as Option 11E. This chapter describes the new documentation codes for Option 11C for North American (English & French) versions. For other languages, please refer to regional price book.

Documentation Structure

Documentation is packaged as:

- Base package
- Optional documents

Base Package

Table 3
Base Package

NT Code	CPC Code	Region	Binding	Language
NT6R78AA	A0654626	North American	Coil	English
NT6R77	A0654624	North American	Binder	English
NT6R78BA	A0654627	North American	Coil	French

Table 4
North American English/French - Coil

Title	English	French
Read Me First Handbook	P0833301	P0835296
Installation Guide	P0833302	P0835306
Fault Clearing Guide	P0833297	P0835287
Software Installation Menu	P0833303	P0845232
Central Answering Position	P0835240	P0835268
Customer Configuration backup and restore Guide	P0835273	P0835276
Upgrade Procedure	P0833305	P0835322
X11 Software Guide	P0835516	P0835544

Table 5
North American English - Binder

Title	English
Overview, Installation, and Programming	P0835301
Post Installation Activities	P0835317
X11 Software Guide	P0835548

General information and planning-Read me first Handbook

Contains the contents of the former Read me first booklet plus new high-level information:

- Overview of the Option 11C
- Equipment Identification
- System and site requirements
- Regulatory and other information
- Important safety instructions
- Bracing cabinets against earthquakes

Installation guide

This guide outlines the process of installing a new Option 11C main cabinet system and expansion cabinets, if required. If you are upgrading an existing Option 11 or Option 11E system to an Option 11C, refer to the Upgrade Procedures Guide.

Fault clearing guide

This guide contains information required to maintain, clear faults, and replace defective components in the Option 11 system.

Software Installation Program Guide

This guide contains information required to use a menu-driven method of selecting from the various options for installing, modifying, or upgrading the software, customer data, and ISM parameters.

Central Answering Position guide

This guide contains information on how to configure and use a regular business telephone as a Central Answering Position in lieu of an attendant console. It includes:

- A description of what the CAP is and a list of the required equipment.
- Procedures for configuring the CAP.
- Procedures for installing and removing key expansion modules.
- Procedures for logging onto the ACD queue.
- A description of the common CAP features, including step-by-step procedures on how to use these features.

Customer Configuration Backup and Restore guide

This document describes the Customer Configuration Backup and restore feature. It contains information about Option 11 and computer equipment requirements and includes instructions on how to operate and use the feature from a remote location and on-site.

Upgrade procedures

This guide contains information required to upgrade an existing Option 11 or Option 11E system to Option 11C system. It also includes procedures for upgrading an existing Option 11C software to a new release.

X11 software guides

These books show the prompts and responses in each of the overlay programs and list maintenance and administration messages.

Optional Documents

Table 6
Optional Documents English/French - Coil

Title	English	French
Technical Reference Guide	P0837650	P0837651
1.5 Mb DTI/PRI Guide	P0837630	P0837631
2.0 MB DTI/PRI Guide	P0837637	P0837638
BRI Guide	P0837643	P0837644
X11 Software Feature Guide (Rls 22)	P0842661	

Chapter 4 — Features Overview

This section provides a summary of the new features and enhancements included in X11 Release 22. For more information on these features, refer to the documents listed under “Document References.”

Platform Evolution

68040 Call Processor For Options 51C/61C

This feature is an enhancement of the new 68040 product introduced in Release 21 for the Option 81/81C to support the Option 51C and 61C systems. The 68040 is a new processor pack which improves real time performance over the existing processor pack, the 68030. The 68040 uses the 68040 processor whereas the 68030 uses the 68030 processor. 68040 operations, features and functionality on Option 51C/61C are the same as for 68040 on Option 81/81C.

No new software package is introduced by this feature.

E.164/ESN Numbering Plan Expansion

CCITT (the International Telegraph and Telephone Consultative Committee) is mandating (recommendation E.164) that the capability of supporting 15 digit numbering plans be available and in effect by December 31, 1996 11:59 PM Universal Standard Time (Time T) for Integrated Services Digital Network (ISDN) and Public Switching Telephone Network (PSTN) dialing. The basic change is the mandate to support up to 15 digit International numbers versus the present dialing plan which supports up to 12 digit International numbers.

This development will affect 4 fundamental areas:

- **a** Screening digits as they relate to the Special Number Translation (SPN)
- **b** Numbering Plan modifications as they are mandated by CCITT
- **c** An enhancement to Supplemental Digit Restriction and Recognition (SDRR)
- **d** The capability to outpulse 31 digits in our current feature offerings.

A summary of changes follows:

ESN Changes	OLD	NEW
Max number of digits for an SPN	11	19
Max number of DMI deletion digits	15	19
Max number of DMI insertion digits`	24	31
Max number of SDRR tables with Bars	256	1500
Max number of SDRR tables with Nars	512	1500
Max number of digits in each SDRR entry	7	10
Max FNP FLEN number for SPN	16	24
Max number of digits for the FSNS SPN	11	19
Total number of digits for screening under FSNS	14	22
Number of possible SDRR entry types	8	9
Restriction for SDRR entry codes	Leftwise unique	None

ISDN Changes:	OLD	NEW
BRI Basic Call Service (BRIL)	24	31
Called Party IE for QSig Interface	24	31
Called Party IE for EuroISDN Interface	20	31
BRI Call Forward for NI-1 Standard	20	31
BRI Call Forward for ETSI Standard	20	31
Max OVLL digits	16	24

Base Feature Changes:	OLD	NEW
Max number of digits for ADL entry	23	31
Max number of digits for NHC target DN	23	31
Max number of digits for CFAC DN	23	31
Max number of digits for Internal CFW DN	23	31
Max number of digits for default CFW DN	23	31

No new software package is introduced by this feature.

Station Features

Call Redirection by Time of Day

This feature provides automatic redirection of an incoming call to a predefined DN depending on the time of day. Alternate time options are defined at the customer level in Overlay 15, with four alternate time options available per customer. The feature is then activated/deactivated on a per set basis in Overlays 10 and 11.

Call Redirection by Time of Day applies to: Hunt, Call Forward No Answer, and Call Forward / Hunt by Call Type.

No new software package is introduced by this feature.

Meridian Mail Password Suppression

Meridian Mail Password Suppression provides a new AML message which will prevent a Meridian Mail user's log on password digits from being echoed on a set's display.

No new software package is introduced by this feature but Meridian Mail Release 11 is required.

Flexible Feature Code Enhancements

This program comprises four feature developments:

- Call Forward Deactivation
- Called Party Control on Internal Calls
- Automatic Wake-up Delimiter
- Speed Call Delimiter

Call Forward Deactivation: This feature allows the receiver of forwarded calls to deactivate call forward to their DN. No special password is required. Example,

Set A (DN 2000) forwards to set B (DN 3000). Set B dials
CFDD FFC + DN 2000 + #
Result is that Set A is no longer forwarded to Set B.

No new software package is introduced by this feature.

Called Party Control on Internal Calls: This feature allows Called Party Control of a call if MCTA is configured on the station. Until the called station disconnects, the call remains “up”. Any disconnect treatment, such as Tone to Last Party, will not occur until the called station disconnects. If the calling party attempts to disconnect, the called station is put on hold. The called station can activate MCT any time up until they disconnect. This feature applies to internal calls only, and no activation by the user is required.

This feature requires a new package Called Party Control on Internal Calls (CPCI) package 310 and also requires Malicious Call Trace (MCT) package 107.

Automatic Wake-up Delimiter: A customer level option which allows the entry of an EOD delimiter at the end of the AWUA entry string. Example,

AWUA FFC + H1H2M1M2 + #

No new software package is introduced by this feature.

Speed Call Delimiter: A system level option which allows the speed call controller to now enter a delimiter in the programmed number string. Example,

SPCC FFC + speed call entry number + *** (delimiter)** + number to be dialed + #

No new software package is introduced by this feature.

Networking Features

ISDN QSig Basic Call (for 1.544 Mb PRI)

The initial offering of the QSig product supports basic call service plus other basic functions such as Calling Line Identification Presentation / Restriction (CLIP/CLIR) and Connected Line Identification Presentation / Restriction. This feature provides the basic call services on M1 ISDN 1.544 Mbps PRI on QSIG connectivity.

This feature requires a new package, QSIG Interface (QSIG), package 263.

Call Park Networkwide

Call Park Networkwide adds three new functions to Call Park:

1. Call Park Expansion
2. Network Call Park
3. Parked Call External Access

Call Park Expansion: Previously, the Call Park feature allowed each customer to have only one call park block. This new function will allow each customer to now have:

- up to 5 call park blocks
- unique attributes per block (i.e. recall timer, recall to Attendant option, number of system park DNs, first system park DN, and Music route)
- maximum Call Park recall time in each block increased from 240 to 480 seconds
- maximum number of System Park DNs expanded from 50 to 100 per block

Network Call Park: Previously, a call could only be parked by a parking party onto a station DN or a System Park DN that is on the same node as the parking party. The Network Call Park function provides the parking party an option to park a call onto a station DN or a System Park DN located at any Meridian 1 node within the same MCDN NAS network as the parking party. ROSE protocols are used for message encoding, and D-channels are required to support the Network Call Park feature.

Parked Call External Access: Previously, a parked call could only be accessed by an Attendant Console or telephone set located at the same node as the parking party. The Parked Call External Access function allows a call that is parked on a System Park DN to be retrieved by an outside caller via,

- ESN dialing, if within the private network, or
- DID dialing if calling from external resources

This feature requires a new package, Call Park Network Wide (CPRKNET) package 306.

Call Page Networkwide

Previously, paging routes could only be accessed by an internal Attendant Console via a Page key or route ACOD dialing, or by an internal telephone set via route ACOD dialing. This feature development will now allow an outside caller to access the paging route via ESN dialing. Additionally, Call Page Networkwide will provide an optional security protection. Service change will enable the system administrator to define a paging route as "Network Access Restricted", allowing external access only by an Attendant Console, or "Network Access Allowed", allowing external access by a set as well. Service change will also be at the set level, with a new class of service to allow or deny access to Call Page Networkwide.

Internal access to paging will not be affected by this feature, and will function as it does today. The intent of this feature is to support all Bars/Nars and CDP dialing for network page access.

This feature requires a new package, Call Page Network Wide (PAGENET), package 307.

ISDN CLID Enhancements

This feature enhances the Meridian 1 ISDN CLID networking capabilities in private and public ISDN networks. Enhanced capabilities include:

- allowing virtually any number to be programmed against any DN key on a per set basis
- allowing any LDN/dept LDN to be used on a per DN key, per set basis• supporting
- supporting multiple HNXX and location codes
- supporting 2-3 / 5-7 digit DNs
- generating CLID on incoming analog/DTI/ISDN trunks
- allowing users to program DISA DN to use a specific LDN or use the CLID arriving from the public ISDN Network.

No new software package is introduced by this feature.

ISDN QSig GF Transport

This development provides generic functional transport services over ISDN trunk interfaces for the support of ISDN supplementary services and networking applications. It is based on the ISO DIS 11582 and ETS 300 239 specifications, and supports three types of GF Transport services to the control entities:

- call related APDU transport - provides transport of supplementary service protocol information in association with a basic call
- call related notification transport - used to deliver additional information to an ISDN end user in association with a basic call
- call independent APDU transport - used for the transport of supplementary service protocol information which is entirely independent of any existing basic call (e.g. call forward).

ISDN QSig GF Transport also provides an MCDN conversion platform to allow migration of current MCDN features to the QSig GF platform. However, this protocol converter does not automatically support current MCDN features on the QSig network. Each MCDN feature will have to be individually ported to the QSig interface in the future.

This feature requires a new package, QSIG GF Transport (QSIGGF), package 305.

ISDN QSig Supplementary Services - Call Completion

This feature provides the Call Completion supplementary services: Call Completion to Busy Subscriber (CCBS), and Call Completion on No Response (CCNR).

The CCBS supplementary service allows a user placing a call to a busy extension to apply Ring Again against the busy extension. The calling party is alerted when the busy extension becomes free, and can have the call completed without having to make a new call attempt. The user operation is similar to the current NRAG feature (MCDN Network Ring Again). CCBS is supported for QSig protocol.

The CCNR supplementary service allows a user placing a call to an idle extension to apply Ring Again against that extension if the call is not answered. The calling party is alerted after a subsequent period of activity, and can have the call completed without having to make a new call attempt. CCNR is only supported at the Q reference point for QSig.

This feature requires a new package, QSIG Supplementary Services - Call Completion (QSIG-SS), package 316.

ISDN QSig Supplementary Services - Name Display

Name Display services consists of three components: Calling Name ID Presentation (CNIP), Connected Name ID Presentation (CONP), and Calling/Connected Name Restriction (CNIR).

CNIP is a service offered to the called party, and provides that user with the calling party's name. CONP is a service to the calling party, and provides that user with the connected party's name. CNIR is a service which prevents the called user's name from being presented to another user. It can apply to all calls, or can be invoked on a per call basis. CNIR can restrict the presentation of the called user's name not only during normal call establishment, but also when the possibility of name presentation arises during the operation of other Supplementary Services.

This development will also enhance the MCDN name display feature to have a similar level of service as the QSig Name Display services, and to provide Incoming Digit Conversion (IDC) trunk name, when available.

Both the QSig and MCDN gateways will be supported by this feature.

No new software package is introduced by this feature.

VNS / VDN Expansion

Currently, the VNS feature uses virtual DNs (VDN) to set up bearer calls. The number available per customer is equal to 100 consecutive DNs. This means that up to 100 simultaneous VNS calls (incoming and outgoing) can be supported on the Meridian 1.

This development will expand the available DNs for VNS to 4000, and will allow those to be configured on an individual rather than consecutive basis.

No new software package is introduced by this feature.

Trunk Anti-Tromboning

Trunk Anti-Tromboning (TAT) was developed on X11 Release 21.35 and later software to eliminate tromboning PRI B-Channels, ISL trunks, or VNS trunks due to call redirection (e.g. call forward or hunt) or call modification (e.g. call transfer or conference) between two Meridian 1 switches, or between Meridian 1 and DMS switches equipped with Release Link Trunks. It operates over ISDN PRI, ISL, or VNS networks.

An example of TAT follows:

Set B receives an incoming PRI call from Set A, or an incoming CO is tandemed to the terminating node. Set B answers the call, then activates network call transfer to Set C located at the originating node. Set B completes the call transfer, leaving Set A connected to Set C using PRI trunks. Set C answers the call. The call between Sets A and C will be cut-thru at the originating node, and the tromboning PRI trunks will be removed.

This feature introduces a new package, Trunk Anti-Tromboning (TATO), package 312.

Display of Calling Party Denied

Display of Calling Party Denied (DPD) was developed on X11 Release 21.35 and later software and permits Analog (500/2500 type) and Meridian 1 proprietary sets to either allow or deny associated name and number from being displayed on other sets when involved with a call. This feature is supported on internal calls (same node) and calls placed over a Meridian Customer Defined Network (MCDN) Integrated Digital Services Digital Network (ISDN). Display of Calling Party Denied Class of Service Options are programmed on a set basis.

No new software package is introduced by this feature.

Trunk-to-Trunk Connections

This development addresses four functions/areas. First, it will allow the transfer on ringing of an established external trunk call over a supervised network trunk. To ensure that available network resources are not tied up indefinitely, if the called party does not answer within a specified time, then the call will slow-answer-recall to the attendant on the transferring node.

Second, it will allow the connection of one outgoing external trunk to another via call transfer, as long as both of the external trunks are supervised.

Third, this development will allow external trunks to remain established in a conference call once the internal set disconnects, if all the external trunks involved offer disconnect supervision.

No new software package is introduced by this feature.

Fibre Remote IPE Phase II

Fibre Remote IPE Phase I was developed independently of software, compatible back to Release 19. It introduced the Fibre Remote IPE hardware, and an MMI connected directly to the hardware.

Phase II will consist of new service change capability for configuring remote FIRE systems, peripheral software download of the FNET and FPEC, and download of various operating parameters including time and date. Also, maintenance of the cards and fibre link will be provided, including:

- enable/disable FNET and FPEC
- enable/disable optical packlets
- card selftest and optical packlets test
- manual continuity tests
- print event and error messages according to cards' report
- read the log file of the cards to track history of problems
- print link's performance monitoring report upon demand.

Also, the loadware of the FNET and FPEC will be modified to report alarms and events to the software, in addition to the printouts on the MMI port.

No new software package is introduced by this feature.

Call Center

Meridian Link Release 5

Meridian Link Release 5 introduces the following new features:

1. Enhanced reporting of call release - provides information as to why a call was disconnected. This reporting will occur for abandoned calls only.

2. Hold/Unhold - allows the hold feature to be activated through the Meridian Link. When the host application sends out a Hold Request message, the result is equivalent to depressing the hold button on a BCS set, or flashing the switchhook on a PBX set. The cancellation of the hold is done by the Retrieve Original message, which is also enhanced to support PBX sets.

3. Additional ISDN progress messages for outbound calls - currently, Meridian Link receives only ringing and busy progress messages for outbound calls. This feature will provide several specific values identified from the ISDN cause IE values to be sent to the application. The values are: 1 unallocated; 3 no route to destination; 17 user busy; 18 no user responding; 22 number changed; 27 destination out of order; 28 invalid number format; 34 no circuit/channel available; 38 network out of order; 41 temporary failure; 42 switch equipment congestion; and 127 interworking unspecified with inband information available.

No new software package is introduced by this feature.

System Enhancements

Call Forward/Breakin/Hunt Internal & External Networkwide

This feature determines whether a call is internal or external on a network wide basis. A call should be treated as internal if it both terminates and originates within the private network. The available information (Numbering Plan Identifier[NPI] in the CLID, or NAS for MCDN) associated with a call is decoded to choose between different treatments for Break-In Indication Prevention, Call Forward by Call Type, or Hunt by Call Type.

If neither the CLID or NAS information is present, the route class mark defined in the route data block at the treating node will be used to determine if the call should be treated as internal or external. With QSig, the CLID and NPI information will be used. If it is not present, then the QSig specific data giving information on the farend of the call will be used.

No new software package is introduced by this feature.

M2216 ACD Set Voice Parameters

This feature will allow an increase of 6dB when downloading voice parameters to the M2216 sets, instead of using general ROLR values. In addition, a specific Receive Objective Loudness rating will be able to be configured for M2216 sets. The purpose of these changes is to correct reported transmission problems for M2216 sets when using a headset.

No new software package is introduced by this feature.

Meridian Mail Trunk Access Restriction

This feature will prevent direct or indirect call transfer or conference of external calls to Meridian Mail by 500/2500 and BCS sets. An external caller may be transferred or conferenced to Meridian Mail by the Attendant. This option will be configurable at a customer level.

No new software package is introduced by this feature.

CDR 100 Hour Call

This feature removes the current CDR limitation of the inability to record calls exceeding 99:59:59. A new three digit field will be created representing CDR duration hours in hundreds, thousands, and ten thousands. In effect, this will increase the maximum CDR duration to 99999:59:59.

The new field will be located on the third line of the Global CDR record with the following format (as an example):

&00:15N00:25 BLID M911 *001*

The format translates:

Indicate 3d line of TTY:Time to answer Billing line ID M911 call abandon 100th hour

No new software package is introduced by this feature.

Flexible Voice/Data TN

The initial application involves the VISIT product only. Note that existing BCS sets will not be able to use these new capabilities.

This feature will now allow each TN (channel) on an XDLC to be assigned as either voice or data on a dynamic (per call) or static basis. This will allow Visit Video to utilize the entire bandwidth of a TCM loop for video conferencing, using both channels as data. Visit also plans to offer simultaneous voice and fax on a single TCM loop using both channels as voice.

No new software package is introduced by this feature.

Init ACD Queue Call Restore

The existing system initialization process rebuilds calls that have reached the established state only, based on the content of the control memory. The Init ACD Queue Call Restore (ACDR) feature enables the Meridian 1 to restore transient calls in the ACD queues in the event of a system initialization. The following parameters apply:

- only trunk originated calls will be restored
- virtual calls will not be restored (e.g. Ntwk ACD call requests queued at target ACD-DNs)
- maximum of 1000 calls will be restored.

A special 16K of unprotected memory will be allocated for ACDR usage.

No new software package is introduced by this feature.

System Access Enhancements (SAE)

This development will provide enhancements to Meridian 1 system access for OA&M System Security and Toll Fraud Prevention. The enhancements cover the following seven areas.

SAE will limit the number of invalid attempts to access/enter PWD2 and LAPW in Overlays 15, 17, 21, 22, and 24. In addition, the system will perform corrective actions when the number of invalid login attempts exceeds the maximum threshold.

SAE changes the current default Class-of-Service value from UNR to CTD. This change will impact Overlays 10, 11, 14, 16, and 27.

SAE changes the current default TGAR/TARG value from "0" to "1". TGAR is changed for Overlays 10, 11, 14, 24, 27, and 88. TARG is changed for Overlay 16.

SAE will allow a Call Forward (All Calls) DN length to be any number in the allowable range from 4-23 digits. Also, the default length is changed from 16 to 4 digits.

SAE changes the commercial processors' PDT password from a fixed, unchangeable password to a system unique password of 6-12 characters. The password will be encrypted in a file that can be changed by the user with the highest password access level (unlimited system access).

SAE will store LAPW passwords and Login Names contiguously in an encrypted rather than unencrypted file format.

SAE will allow a user to configure an option to display a security banner in Overlay 17 when USER is defined as MTC or SCH.

No new software package is introduced by this feature.

OA & M

Alarm Management

Alarm Management is comprised of a series of sub-features developed to improve the handling of key alarm messages generated by the Meridian 1.

Event Handling

The current system History File content is lost after a sysload. With this development, a new disk-based log file, the System Event Log, will survive any sysload, initialization, or power failure. Users can browse the System Event Log through a new Overlay # 117.

The Event Server is required for all Option 11C, 51C, 61C, 81, and 81C machines. It provides an Event Default Table which appends messages with severity. The server also provides an Event Preference Table which contains site-specific preferences for event severities, as well as criteria for severity escalation.

Alarm Notification
The Major Alarm LED on the attendant console is lit when a power failure occurs. This function of the Major Alarm is preserved. However, for the Minor Alarm, all existing procedures which call for the Minor Alarm lamp to be lit are removed. The Minor Alarm lamp will now be lit from a central location based on alarm severity. There will be three alarm categories: critical, major, and minor. The minor lamp on the attendant console will now light when a critical alarm occurs. The severity of the Minor Alarm is determined by the Event Server.

Alarm Clean-up
The Meridian 1 currently generates some alarms that may be incorrectly reported, or that do not indicate the source of the fault. This feature improves the message content and/or consistency of these alarms. These alarms are centralized to ensure their capture under the new Event Handling mechanism. This functionality is applicable to all system types supported in Release 22.

No new software package is introduced by this feature.

SMP Platform

This development comprises two sub-features: Point-to-Point Protocol and Ethernet Productization.

Point-to-Point Protocol
Point-to-Point Protocol (PPP) provides a standard encapsulation scheme to transmit Internet Protocol (IP) datagrams over a serial link. Only asynchronous data link is supported. PPP also provides the communication interface for NT applications to perform administration and maintenance tasks. Therefore, the SDI port used for the PPP link must be configured for maintenance (MTC) and/or service change (SCH). In addition, the Meridian 1 must be configured as follows:

- baud rate is limited to the type of hardware the SDI port can provide
- 8 data bits, 1 stop bit
- no parity
- transmission mode set to DTE
- standard RS-232C interface

Due to the complexity of the modem types, only Hayes and Hayes AT command compatible modems are supported.

Ethernet Productization
This feature provides an interface for NT developed applications to communicate with the Meridian 1 over an Ethernet connection. This connection is reserved for NT connected applications.

An Ethernet address, which is a unique physical address, is assigned to the Ethernet controller equipped in the IOP. On a redundant M1 system, there are two IOPs, therefore two Ethernet addresses. However, both IOPs should be set to use only one Ethernet address for communication over the link.

An IP address, which is manually configured by the user, is associated with a host name. On a redundant M1 system, two IP addresses and host names, one primary and the other secondary, must be specified. The primary IP address is always the address used by the system. The secondary IP address is used only when the system is operating in split mode.

To communicate over the Ethernet link, the M1 system must be configured with both an Ethernet address and an IP address.

No new software package is introduced by this feature.

Maintenance Windows

Meridian Administration Tools (MAT) provides a number of Microsoft Windows applications to help users manage the Meridian 1. Maintenance Windows is a set of MAT applications being introduced with Release 22 for Windows 95 that requires MAT Release 5.x.

Maintenance Windows provides three new MAT applications.

Meridian 1 Equipment Views - provides a GUI replacement for the overlay-based hardware maintenance commands. An equipment view window contains a list of M1 hardware objects, such as network loops. The user can select an item in the list and choose a maintenance command from a pop-up menu. Only the commands appropriate for the selected object are displayed in the menu.

Event Monitor - provides a window for viewing M1 system error messages. In MAT, these messages are called 'events'. Each event has a severity of critical, major, minor, or information. Events with a severity of critical, major, or minor are considered events. The user can acknowledge and clear alarms, filter out selected alarms and events, view help on each event, and modify the Event Preference Table.

Overlay Passthru - provides on-line, context sensitive help for the existing overlay based user interface.

This feature requires two new packages, Open Alarms (OPEN ALARM), package 315 which depends on Meridian Administration Tools Management Interface (MAT_PKG), package 296.

Chapter 5 — Overlays

The following table summarizes the status changes of the administration overlays on Option 11C, compared to Option 11E.

Table 7: Administration Overlays Status Changes

Overlay	Description	11E	11C
OVL 13	DTRs, DTDs, MF Senders and Receivers	Supported	Modified
OVL 14	Trunks	Supported	Modified
OVL 17	Configuration Record 1	Supported	Modified
OVL 25	Move Data Blocks	Supported	Modified
OVL 29	Memory Management	Supported	Unsupported
OVL 97	Configuration Record 2	Supported	Modified
OVL 117	Alarm Management and Network Configuration	Unsupported	Supported

Administration Overlays

Overlay 13

This overlay has been modified to add 8 more XTD/DTR units (8-15) on card 0 or 4 MFC/MFE/MFR/MFK5/MFK6 units (8-11) on card 0.

Overlay 14

This overlay has been modified to add trunk level transmit level identifier. MFL prompt in overlay 14 is not supported for Option 11C.

Overlay 17

New prompts have been added to this overlay to allow for configuration of the new TTY ports introduced on Option 11C. Prompts are also added for defining flow control for the TTY ports.

The additional conference loop for Option 11c is configured automatically at sysload for an upgrade, however this overlay has been modified to allow manual removal and configuration of this additional conference loop.

Overlay 25

This overlay has been modified to add restriction for moving card 0.

Overlay 29

Not supported on Option 11C

Overlay 97

This overlay has been modified to allow two system level multifrequency transmit level identifiers.

Overlay 117

This overlay is now supported for Option 11C.

The following table summarizes the status changes to all maintenance and diagnostic overlays on Option 11C, compared to Option 11E.

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Table 8: Maintenance and Diagnostic Overlays Changes

Overlay	Description	11E	11C
OVL 7	Enhanced Maintenance	Supported	Unsupported
OVL 8	Debugger	Supported	Unsupported
OVL 9	Debugger	Supported	Unsupported

Table 8: Maintenance and Diagnostic Overlays Changes

Overlay	Description	11E	11C
OVL 32	Network and Peripheral Equipment Diagnostics	Supported	Modified
OVL 34	TDS and DTR Diagnostics	Supported	Modified
OVL 38	Conference Circuit Diagnostics	Supported	Modified
OVL 54	Multifrequency Signalling Diagnostics	Supported	Modified
OVL 135	Core Common Equipment Diagnostics	Unsupported	Modified
OVL 137	Core Input/Output Diagnostics	Unsupported	Modified
OVL 143	CCBR and upgrade	Unsupported	New
RESDB	Resident debug	Supported	Unsupported

Maintenance and Diagnostic Overlays

Overlay 32

This overlay is modified to support extended tone services units on the CPU card.

Overlay 34

This overlay has been modified to support tone services units which can now be defined as different types on the CPU card.

Overlay 38

This overlay has been modified to support a new conference loop which is provided with the second expansion cabinet on the Option 11C.

Overlay 54

This overlay has been modified to support MFC/MFE/MFK units on Card 0. Some of the functionality has also been moved to Overlay 34.

Overlay 135

Several new commands have been added to this overlay to support Option 11C fibre interface maintenance.

Overlay 137

Many commands in this overlay are not supported on Option 11C.

Overlay 143

This overlay has been introduced to invoke the Option 11C Installation program. The customer configuration backup and restore (CCBR) commands have been moved from Overlay 43 to this new overlay.

For more details on specific changes, refer to X11 Release 22 Software NTPs.

Chapter 6 – Software Packaging

Software Options and Package Dependencies

Please note that for software packages introduced prior to Release 20, dependencies within dependencies are not listed. However starting with Release 20, dependencies within dependencies are listed in some cases for new software packages.

Note: Packages which are not supported on any machine type are not included in this table

PKG#	Mnemonic	Name	Package Dependency	Comments
0	BASIC	Basic call Processing		
1	OPTF	Extended PBX Features		
2	CUST	Multiple Customer Operation		
4	CDR	Call Detail Recording		
5	CTY	CDR on Teletype Machine (TTY)	CDR-4	see pkg# 5, 24, 83, 108 Without pkg#5 CDR cannot output statistics or reports
7	RAN	Recorded Announcement	INTR - 11	
8	TAD	Time and Date		
9	DNDI	Do Not Disturb Indiv		
10	EES	End to Ens Sig.		
11	INTR	Intercept Treatment		
12	ANI	Auto. Number Ident.		
13	ANIR	ANI Route Selection	ANI - 12	
14	BRTE	Basic Routing	NCOS-32	
15	RPE	Remote Peripheral Equip.		Not supported on 11/11E/11C
16	DNDG	Do Not Disturb Group	DNDI -9	
17	MSB	Make set Busy		
18	SS25	2500 set features		
19	DDSP	Digit Display		

PKG#	Mnemonic	Name	Package Dependency	Comments
20	ODAS	Office Data Admin. System		
21	DI	Dial Intercom		
22	DISA	Direct Inward System Access		
23	CHG	Charge account for CDR	CDR -4, CAB - 24	
24	CAB	Charge Account/Authorization		
25	BAUT	Basic Auth. Code	CAB-24	
26	CASM	Centralized Attn. Service (main)		Not supported on 11/11E/11C
27	CASR	Centralized Attn. Service (Remote)		Not supported on 11/11E/11C
28	BQUE	Basic Queuing		
29	NTRF	Network Traffic measurement	BARS-57, NARS-58, CDP-59, PQUE-60, FCBQ-61, OHQ-62	One of Pkg. 57-62 must be equipped
32	NCOS	Network Class Of Service		
33	CPRK	Call Park		
34	SSC	System Speed Call		
35	IMS	Integrated Message service	ACDA-45, MWC-46	
36	ROA	Recorded Overflow Announcement	RAN-7	

PKG#	Mnemonic	Name	Package Dependency	Comments
37	NSIG	Network Signalling	NCOS-32	
38	MCBQ	Main Network Queuing	NSIG-37, FCBQ-61	
39	NSC	Network Speed Call	SSC-34, BARS-57, NARS-58	
40	BACD	Basic ACD		see also ACDA-45, ACDB-41, ACDC-42, LMAN-43, ACDD-50, LNK-51, CDRQ-83, TOF-111, DNIS-98
41	ACDB	ACD Package B	ACDA-45	
42	ACDC	ACD Package C1	ACDB-41	
43	LMAN	ACD Load Mgmt. C2	ACDC-42	
44	MUS	Music	RAN-7	
45	ACDA	ACD Package A	BACD-40	
46	MWC	Message Center		
47	AAB	Auto. Answer Back		
48	GRP	Group Call		
49	NCFR	Network Flexible Code Restriction	NCOS-32	
50	ACDD	ACD package D	ACDC-42, LNK-51	
51	LNK	Aux. Link Processor	ACDD-50	
52	FCA	Forced Charge Account	CHG-23	
53	SR	Set Relocation		
54	AA	Attn. Administration		

PKG#	Mnemonic	Name	Package Dependency	Comments
55	HIST	History File		
56	AOP	Attn. Overflow Position		Mutually exclusive with package 26, 27, or 159.
57	BARS	Basic Alternate Route Selection	BRTE-14, NCOS-32	
58	NARS	Network Alternate Route Selection	BRTE-14	
59	CDP	Coordinated Dialing plan	BRTE-14, FCBQ-61	
60	PQUE	Priority Queuing	NCOS-32	
61	FCBQ	Flexible Call Back Queuing	BQUE-28, BARS-57 or NARS-58 or CDP-59	
62	OHQ	Off-Hook Queuing	BQUE-28, BARS-57 or NARS-58	
63	NAUT	Network Aut. Code	BAUT-25, BARS-57 or NARS-58 or CDP-59	
64	SNR	Stored Number Redial		
65	TDET	Tone Detector		Not supported on 11/11E/11C
67	NXFR	Network Call Transfer	NSIG-37	
68	ATVN	Autovon		
69	ACDR	Autovon CDR		

PKG#	Mnemonic	Name	Package Dependency	Comments
70	HOT	Hot Line Services	NCOS-32, SSC-34, ISDN-145, PRA-146/ISL-147, NTWK-148	
71	DHLD	Deluxe Hold		
72	LSEL	Auto. Line Selection		
73	SS5	500 Set Features	SS25-18	
74	DNRG	Distinctive and new Dist. Ringing		
75	PBXI	PBX Interface for DTI		
76	DLDN	Dept. Listed DN		
77	CSL	Command Status Link		
79	OOD	Optional Outpulsing Delay		
80	SCI	Station Category Indication		
81	CCOS	Controlled Class of Service		
82	RESDB	Resident Debug		Not supported on Option 11C
83	CDRQ	ACD CDR Queue Record	CDR-4, BACD-40	
84	ATM	Auto. Trunk maint.		Not supported on Option 11/11E/11C
86	TENS	Mult. Tenant Service		
87	FTDS	Fast Tone and Digit Service		
88	DSET	Digital Sets		

PKG#	Mnemonic	Name	Package Dependency	Comments
89	TSET	Touchphone sets	DSET-88	
90	LNR	Last Number Redial		
91	DLT2	M2317 Digital Display	DSET-88	
92	PXLT	Pretranslation		
93	SUPV	Sup. Attn. Console		
95	CPND	Call Party Name Display	DDSP-19,DSET-88,TSET-89, ODAS-20 FOR DES, BGD-99	
97	JCO	Japan CO Trunk		
98	DNIS	Dialed Number Ident. service	DDSP-19, ACDA-45, APL-109, IDC-113	
99	BGD	background terminal	RMS-100, MR-101, AWU-102, PMSI-103	
100	RMS	Room Status	BGD-99, DNDI-9, MWC-46	
101	MR	Message Registration	BGD-99	
102	AWU	Auto. Wake-up	RAN-7, BGD-99	
103	PMSI	Property Mgmt. System Interface	RMS-100	
104	OPAO	Outpulsing of * and #		
105	LLC	Line Load Control		

PKG#	Mnemonic	Name	Package Dependency	Comments
106	SLP	Station Loop Preemption		
107	MCT	Malicious Call Trace	ISDN-145, PRA-146, or ISL-147, NAS-159, ISDNS-161	
108	ICDR	Internal CDR	CDR-4	
109	APL	Aux. Processor Link		
110	TVS	Trunk Verif. from a station		
111	TCF	ACD Timed Overflow	ACDB-41	
113	IDC	Incoming Digit Conversion	NFCR-49	
114	AUXS	ACD-D Aux. security	LNK-51	
115	DCP	Directed Call Pickup		
116	PAGT	ACD Priority Agent	ACDA-45	
117	CBC	Call By Call Service selection	PRA-146, IEC-149	
118	CCDR	Calling Line ID	CDR-4, ISDN-145	
119	EMUS	Enhanced Music	MUS-44	
120	PLDN	Group Hunt/DN access to SCL		
121	SCMP	Station Camp on		
122	COMDT	Common DAS/DPNSS DTRK Package		

PKG#	Mnemonic	Name	Package Dependency	Comments
123	DPNSS	DPNSS		
124	DASS2	DASS2		
125	FTC	Flexible Tone and cadences		
126	OPCB	Operator Call Back		
127	BKI	Attn. Break-in		
128	MFC	Multifrequency Compelled Sig.		
129	DTI2	2.0 Mb DTI2		
131	SUPP	International Supp. Features		
132	TABR	Trunk Baring		
133	ENS	Enhanced Night Service		
134	AFNA	Auto. Forward No Answer		
135	MFE	MFE Sig. (France)		
136	JDMI	2.0 Mb Digital MUX interface (Japan)		Not supported on Option 11/11E/11C
137	LSCM	Local Steering Code Modification		
138	DTD	Dial Tone Detector		

PKG#	Mnemonic	Name	Package Dependency	Comments
139	FFC	Flexible Feature Code	CCOS-81, SS5-73, NCOS-32, CCOS-81, ISDN-145, SS25-18, NCFR-49	
140	DCON	M2250 TCM Console	DSET-88	
141	MPO	Multi Party Operation	FTC-125	
144	ABCD	16-Button DTMF		
145	ISDN	ISDN Sig.	DCP-115, NTWK-148, PRA-146/BRI-2 16	
146	PRA	Primary Rate Interface	PBXI-75, ISDN-145, DDSP-19	
147	ISL	ISDN Sig. Link	ISDN-145	
148	NTWK	Advanced Network Services	NARS-58 or CDP-59, PRA-146 or ISL-147, NSIG-37	
149	IEC	Inter-exchange Carrier	PRA-146	
150	DNXP	Direct Number Expansion	CDRE-151	
151	CDRE	CDR Expansion	CDR-4, DNXP-150	
153	IAP3P	Application Module Link	CSL-77, IMS-35	

PKG#	Mnemonic	Name	Package Dependency	Comments
154	PRI2	2.0 Mb PRI		
155	ACNT	ACD Activity Code	AUXS-114	
157	THF	Centrex Switchhook Flash		
158	FGD	Feature Group D	BARS-57, NARS-58 (recommended)	
159	NAS	Network Attn. Services	BARS-57, NARS-58, or CDP-59, BQUE-28, NCOS-32, FCBQ-61, ISL-147	Mutually exclusive with packages 26, 27, and 57
160	FNP	Flexible Numbering Plan	BARS-57, NARS-58, or CDP-59	
161	ISDNS	ISDN Suppl.	Pkgs 14, 28, 32, 57, 58, 59, 61, 145, 159, 146, 147	
162	SAR	Scheduled Access Restriction	Pkgs 25, 52, 139, 32, and 86	
163	MIN	Message Intercept		
164	LAPW	Limited Access to overlays		
165	RPE2	2.0 Mb RPE2		Not supported on Option 11/11E/11C
166	HOSP	Hospitality Mgmt.		
167	GPRI	1.5/2.0 MB Gateway		

PKG#	Mnemonic	Name	Package Dependency	Comments
168	TMON	Traffic Monitoring		Not supported on Option 11/11E/11C
169	COOP	Console Operation		
170	ARIE	Meridian Modular Tel	DSET-88 or TEST-89	
171	JTDS	Japan Tone and Digit Service		
172	CPGS	Console Presentation Group Level Services	TENS-86	
173	ECCS	Enhanced CCS	CCOS-81	
174	AAA	Attn. Alternate Answering		
175	NMS	Network Message service	Pkgs. 10, 35,45, 46,77,145,148	
176	DTOT	DID to TIE		
178	EOVF	Enhanced Overflow	TOF-111	
179	HVS	Hosp. Voice services	Pkgs. 7, 10, 17, 35, 40, 45, 46, 77, 109, 103	
180	DKS	Digital Key Sig.	Pkgs. 7,10,17,35,40,45,46,77,109	
181	SACP	Semi-automatic camp-on		
182	TFM	Trunk Failure Monitor		
183	VNS	Virtual Network Services	Pkgs. 58,32,14,145,147,148,161	

PKG#	Mnemonic	Name	Package Dependency	Comments
184	OVPL	Overlap Sig.		
185	EDRG	Executive Distinctive Ringing		
186	POVR	Priority Override	FFC-139, MPO-141	
187	RPA	Radio Paging		
188	L1MF	L1-MFC Signalling		
189	SVCT	Sup. Console Tones		
190	UK	UK H/W support		
191	SECL	Series Call		
192	RVQ	Remote Virtual Queuing	Pkgs. 38,61,75,145,146,148	
193	RCK	Ring Change Key		
195	FAXS	HiMail Fax Server Interface		
196	OHOL	On Hold on Loudspeaker		
197	FTA	French Type Approval		
198	FFCSF	Boss Secretary Filtering		
200	AINS	Auto. Set Based Installation		
202	IPRA	International PRA		
203	XPE	Extended Peripheral Equip.	XCT1-205	

PKG#	Mnemonic	Name	Package Dependency	Comments
204	XCT0	Enhanced Conf., TDS, MFS	XCT1-205	
205	XCT1	Superloop Admin.		
206	MLWU	Multi-Language Wake-up	AWU-102,PMSI -103	
207	NACD	Network ACD	Pkgs. 28,148,178	
208	HSE	Hosp. Screen Enh.	ARIE-170	
209	MLM	Meridian Link Module	IAP3P-153	
210	MAID	Maid Identification	Pkgs. 81,99,100,103, 208	
211	MLIO	Multi-Language CPND		
212	VAWU	VIP Auto Wake-up	AWU-102	
214	EAR	Enhanced ACD Routing	ACDB-41	
215	CCR	Customer Controlled Routing	Pkgs. 77, 214, 247	
216	BRI	Basic rate Interface	Pkgs. 203, 222, 235	
218	IVR	Hold in Queue for IVR	CCR-215	
219	MWI	MWI Interworking with DMS		
221	CIST	DTI/3-wire analog trunk		

PKG#	Mnemonic	Name	Package Dependency	Comments
222	MSDL	Multi-purpose Serial Data Link	Pkgs. 145,146,147,227,228,35,77,153	
223	FC68	FFC Comp		
224	M911	Meridian 911	Pkgs. 19,153,214,247,225,209,40,41,45,4,5,42,43,50,51,95,107,118	If 50 and 51 are enabled, 42 i not needed
225	CWNT	Call Waiting Notification	DDSP-19, ACDB-41	
227	MSDL SDI	MSDL SDI		Not Supported on Option 11/11E/11C
228	STA	Single Terminal Access		Not Supported on Option 11/11E/11C
229	SSAU	Station Specific Authcode	BAUT-25	
230	MDP	Manufactured Delivered Patches		Not Supported on Option 11/11E/11C
231	DNWK	DPNSS Network Services		
232	PEMD	Pulsed EAM		Not Supported on Option 11/11E/11C
233	BRIT	BRI Trunk Application		
234	CDR-NEW	New Format CDR	CDR-4, CDR-5	
235	BRIL	BRI Line Application	BRI-216, ISDN-145	
236	ARCL	AC15 Timed Recall		

PKG#	Mnemonic	Name	Package Dependency	Comments
240	MCMO	Meridian Companion	Pkgs. 19, 46, 95, 145, 146, 147	
242	MULI	MultiUser Login		
243	ALMR_FILTER	Alarm Filtering	HIST-55	Supported on Option 11C
245	SML	System Message Look-up		Supported on Option 11C - requires use of EDC to store lookup table
246	VMB	Voice Mail Box	CPND-95, ALRM_FILTER-243 recommended	
247	CLID	Call ID		
248	MPH	Meridian 1 Package Handler		Not Supported on Option 11/11E/11C
250	DPNA	Direct Private Network Access	Pkgs. 22, 7, 25, 63	
251	SCDR	Station Activity Record	CTY-5	
252	KD3	Spanish KD3 DID/DOD Interface		
253	ARFW	Attn. Remote Call Forward	Pkgs. 139,73,145,58, 59	
254	PHTN	Phantom TN Operation	FFC-139	
255	INBD	Intn. nB+D		

PKG#	Mnemonic	Name	Package Dependency	Comments
256	ADMINSET	Set Based Admin.	Pkgs. 164, 139,19,88,95,170,200	Automatic Installation - add pkg. 200 for Option 11
258	ATX	Autodial Tandem Transfer	EES-10, THF-157	
259	CDRX	CDR Enhancements		
261	EURO	EURO ISDN		
262	SAMM	Stand-alone Meridian Mail		
263	QSIG	ECMA-QSIG		Full ISL & VNS not supported
264-280	SMLL	System Message Lookup (Country Specific)		Supported on Option 11C - requires country specific data on SDC plus EDC for storage
283	UIGW	ISDN/DPNSS DASS Gateway		
284	DPNSS 1891	DPNSS 1891		
285	CHINA	Attn. Monitor		
286	REM_IPE	Remote IPE		Not supported on Option 11/11E/11C
288	DPNSS ES	DPNSS Enhanced Services		
289	ADSP	ACD Disconnect Supervision		
290	CCB	Collect Call Blocking		
291	NI2	NI-2 TR-1268 PRI basic Call	ISDN-145,PRA-146,MSDL-222	
292	CHTL	China Toll Loss Plan		

PKG#	Mnemonic	Name	Package Dependency	Comments
293	TAT	Trunk Anti Tromboning		Pkg. replaced with TATO 312
294	BTD	Busy Tone Detection		
296	MAT	Network Access to M1 Maint. function	Pkgs. 164, 243	
297	MQA	Multiple Queue Assignment	Pkgs. 40,41,42,45,50, 51,88,170,116,139,254	
298	CPIO	Call Processor I/O		Not supported on Option 11/11E/11C
299	CPNET	CPI Processor Network		Not supported on Option 11/11E/11C
301	CPP	Calling Party Privacy	FFC-139	

PKG#	Mnemonic	Name	Package Dependency	Comments
305	QSIGGF	QSIG GF Transport	QSIG-263,ISDN-145,PRA-14, MSDL-222	
306	CPRKNET	Call Park Networkwide	CPRK-33, NAS-159	
307	PAGENET	Call Page - Networkwide		
309	MASTER	Euro ISDN Master Mode		
310	CPCI	China: Called Party Control on Int. Calls	MCT-107	
312	TATO	Trunk Anti Tromboning	ISDN-145,PRA-146 or ISL-147, MSDL-222; Recommended 148	
313	ISPC	ISDN Semi-Perm Connection -Australia		
315	OPEN ALARM	Open Alarms	ALRM_FILTER-243, MAT-296	
316	QSIG_SS	ISDN Qsig Supp. Services	QSIGGF-305	
323	EISDN	EISDN Supp. Services		

Packages Introduced in Release 22

The following table provides a list of the packages introduced in Release 22, their mnemonics, and their package numbers.

Table 1
Packages introduced for X11 Release 22.0x

Package Name	Mnemonic	Package Number
Call Page Network Wide	PAGENET	307
Call Park Network Wide	CPRKNET	306
Called Party Control on Internal Calls	CPCI	310
Euro Supplementary Service	ETSI_SS	323
Master Mode	MASTER	309
ISDN QSIG Generic Functional protocol	QSIGGF	305
ISDN Semi-Permanent Connections	ISPC	313
Open Alarms	OPEN ALARM	315
QSIG Supplementary Service	QSIG-SS	316
Trunk Anti-Tromboning	TATO	312

Packages not supported on Option 11C

The following table lists the packages which are not supported on Option 11 machine types.

Package Name	Mnemonic	Package Number
Remote Peripheral Equipment 1.5	RPE1.5	15
Centralized Attendant Service (Main)	CASM	26
Centralized Attendant Service (Remote)	CASR	27
Tone Detector	TDET	65
Automatic Trunk Maintenance	ATM	84
2 Mb. Digital Mux Interface (Japan)	JDMI	136
2 Mb RPE	RPE2	165
Traffic Monitoring	TMON	168
MSDL - SDI	MSDL SDI	227
Single Terminal Access	STA	228
Manufactured Delivered Patches	MDP	230
Pulsed EAM	PEMD	232
Meridian 1 Packet Handler	MPH	248
Remote IPE	REM_IPE	286
CP1 Processor I/O	CPIO	298
CP1 Processor Network	CPNET	299

References

Package Name	Mnemonic
Option 11C Documentation	General Information and Planning Handbook (553-3021-200) Software Installation Program Guide (553-3021-310) Upgrade Procedures (553-3021-250) Central Answering Position Guide (553-3011-320) Customer Configuration Backup and Restore Guide (553-3011-330) Fault Clearing Guide (553-3011-500) Installation Guide (553-3021-210) Technical Reference Guide (553-3011-100)
X11 Software Guides	X11 Administartion Input/Output Guide (553-3001-311) X11 System Message Guide (553-3001-411) X11 Maintenance Input/Output Guide (553-3001-511)

Package Name	Mnemonic
2216 ACD Set Voice Parameters	Input/Output Guide (553-3001-400) Automatic Call Distribution FeaturesDescription (553-2671-110) Commands and Reports (553-2671-112 X11 Features and Services (553-3001-305) Meridian Modular Telephone/Standard Telephone UseGuide M2216 ACD Telephone User Guide
Alarm Management	Input/Output Guide (553-3001-400) System Management Overview (553-3001-300) System Management Applications (553-3001-301) System Management Secuirty (553-3001-302) X11 Features and Services (553-3001-305)
Call Page Network-wide	Input/Output Guide(553-3001-400) ISDN PRI Description (553-2901-100) ISDN PRI Maintenance (553-2901-500) Meridian 1 Telephones (553-3001-108) Meridian Modular Telephone/Standard Telephone User Guide M1250/2250 Attendant Console User Guide
Call Park Network-wide	Input/Output Guide (553-3001-400) ISDN PRI Description (553-2901-100) ISDN PRI Maintenance (553-2901-500) Meridian 1 Telephones (553-3001-108) Meridian Modular Telephone/Standard Telephone UserGuide M1250/2250 Attendant Console User
Call Redirection by Time of Day	Input/Output Guide(553-3001-400) X11 Features and Services(553-3001-305)
CDR 100 Hour Call	Input/Output Guide(553-3001-400) X11 Features and Services(553-3001-305) Call Detail Recording (553-2631-100)

Package Name	Mnemonic
CFW, Break In and Hunt Int/Ext Networkwide	Input/Output Guide (553-3001-400) ISDN PRI Description (553-2901-100) ISDN PRI Maintenance (553-2901-500) Meridian 1 Telephones (553-3001-108)
Automatic Wake-Up	Input/Output Guide(553-3001-400) X11 Features and Services(553-3001-305)
Call Forward Destination Deactivation	Input/Output Guide (553-3001-400) X11 Features and Services(553-3001-305)
Call Party Control on Internal Calls	Input/Output Guide(553-3001-400) X11 Features and Services(553-3001-305)
Speed Call Delimiter	Input/Output Guide(553-3001-400) X11 Features and Services(553-3001-305)
E.164/ ESN Numbering Plan Expansion	Input/Output Guide(553-3001-400) ISDN PRI Description (553-2901-100) ISDN PRI Maintenance (553-2901-500)
Fiber Remote IPE Phase II	Input/Output Guide (553-3001-400)
Flexible Voice/Data TN	Input/Output Guide (553-3001-400) X11 Features and Services(553-3001-305)
Init ACD Queue Call Restore	X11 Features and Services(553-3001-305) Meridian 1 Telephones (553-3001-108) Automatic Call Distribution Features Description(553-2671-110) Commands and Reports (553-2671-112) Meridian Modular Telephone/Standard Telephone UserGuide M2216 ACD Telephone User Guide

Package Name	Mnemonic
ISDN Q-Sig Basic Call	Input/Output Guide(553-3001-400) ISDN PRI Description (553-2901-100) ISDN PRI Maintenance (553-2901-500)
ISDN Q-Sig GF Transport	Input/Output Guide(553-3001-400) ISDN PRI Description (553-2901-100) ISDN PRI Maintenance (553-2901-500)
Meridian Link Release 5 Enhancements	Input/Output Guide (553-3001-400)
Meridian Mail Trunk Access Restrictions	X11 Features and Services(553-3001-305)
System Access Enhancements	Input/Output Guide (553-3001-400) System Management Overview (553-3001-300) System Management Applications (553-3001-301) System Management Security (553-3001-302)
System Management Features	Input/Output Guide (553-3001-400) System Management Overview (553-3001-300) System Management Applications (553-3001-301) System Management Security (553-3001-302)
Trunk-to-Trunk Connections	Input/Output Guide (553-3001-400) ISDN PRI Description (553-2901-100) ISDN PRI Maintenance (553-2901-500) X11 Features and Services(553-3001-305)
VNS / VDN Expansion	Input/Output Guide (553-3001-400) ISDN PRI Description (553-2901-100) ISDN PRI Maintenance (553-2901-500)

Package Name	Mnemonic
Display of Calling Party Denied	Input/Output Guide (553-3001-400) ISDN PRI Description (553-2901-100) ISDN PRI Maintenance (553-2901-500)
Trunk Anti-Trombon-ing	Input/Output Guide (553-3001-400) ISDN PRI Description (553-2901-100) ISDN PRI Maintenance (553-2901-500) X11 Features and Services(553-3001-305)
Meridian Mail Pass-word Suppresion	X11 Features and Services(553-3001-305)
68040 Call Proces-sor for Options 51C/61C	Upgrade Overview (553-3001-101) Upgrade Engineering (553-3001-150) Spares Planning (553-3001-153) Equipment Identification (553-3001-154) Product Compatibility (553-3001-156) System Installation Procedures (553-3001-210) Upgrade system installation to X11 R22 (553-3001-258) Hardware Replacement (553-3001-520)

Meridian 1

Option 11C

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