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DMS-100 Family

Equal Access

Maintenance Guide

BCS36 and up Standard 04.01 December 1993

northern telecom

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Maintenance Guide

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Revision bars in the table of contents identify the sections where technical information has been changed. Revision bars in the outside margin of a page indicate text that has been added or revised.

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About this document

This document provides Equal Access maintenance information needed to ensure DMS-100/200 switch performance at levels acceptable to the operating company. The underlying Equal Access maintenance philosophy is to provide high-quality service with minimal interruption.

When to use this document

Northern Telecom (NT) software releases are referred to as batch change supplements (BCS) and are identified by a number, for example, BCS29. This document is written for DMS-100 Family offices that have BCS36 and up.

More than one version of this document may exist. The version and issue are indicated throughout the document, for example, 01.01. The first two digits increase by one each time the document content is changed to support new BCS-related developments. For example, the first release of a document is 01.01, and the next release of the document in a subsequent BCS is 02.01. The second two digits increase by one each time a document is revised and rereleased for the same BCS.

To determine which version of this document applies to the BCS in your office, check the release information in *Guide to Northern Telecom Publications*, 297-1001-001.

How to identify the software in your office

The *Office Feature Record (D190)* identifies the current BCS level and the NT feature packages in your switch. You can list a specific feature package or patch on the MAP (maintenance and administration position) terminal by typing

>PATCHER;INFORM LIST identifier

and pressing the Enter key.

where

identifier is the number of the feature package or patch ID

You can identify your current BCS level and print a list of all the feature packages and patches in your switch by performing the following steps. First, direct the terminal response to the desired printer by typing

>SEND printer_id
and pressing the Enter key.

where
printer_id is the number of the printer where you want to print the data

Then, print the desired information by typing

>PATCHER;INFORM LIST; LEAVE
and pressing the Enter key.

Finally, redirect the display back to the terminal by typing

>SEND PREVIOUS
and pressing the Enter key.

How Equal Access documentation is organized

This document is part of Equal Access documentation that supports the NT line of Equal Access products. Equal Access documentation is a subset of the DMS-100 Family library.

The DMS-100 Family library is structured in numbered layers, and each layer is associated with an NT product. To understand Equal Access products, you need documents from the following layers:

- DMS-100 Family basic documents in the 297-1001 layer
- Equal Access documents in the 297-2101 layer

Equal Access documents and other documents that contain related information are listed in "Finding Equal Access information" in *Equal Access Product Guide*, 297-2101-011.

References in this document

The following table lists the documents that are referenced in *Equal Access Maintenance Guide*.

Related documents	
Number	**Title**
297-1001-001	*Guide to Northern Telecom Publications*
297-1001-362	*Core Translations Guide*

-continued-

Related documents (continued)	
Number	**Title**
297-1001-520	*Maintenance System Man-Machine Interface Description*
297-1001-840	*Log Report Reference Manual*
297-2101-011	*Equal Access Product Guide*
297-2101-300	*Equal Access Administration Guide*
297-2101-352	*Equal Access Translations Guide*
End	

How commands, parameters, and responses are presented in this document

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

Input prompt (>)

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

>IBNPICLIST

Commands and fixed parameters

Commands and fixed parameters entered at a MAP terminal are shown in uppercase letters:

>IBNPICLIST ALL

Variables

Variables are shown in lowercase letters:

>IBNPICLIST carrier

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

Optional parameters and variables

Optional parameters and variables are enclosed in square brackets:

>IBNPICLIST carrier [SUMMARY]

Lists of options

A vertical bar (|) indicates that only one of the options listed can be specified. For example,

>IBNPICLIST carrier [IBNLINE | PBXTRUNK]

indicates that either the IBNLINE or PBXTRUNK option can be specified.

Responses

Responses correspond to the MAP display and are shown in `courier` type font:

```
FROM_NXX SHOULD BE LESS THAN OR EQUAL TO TO_NXX
```

Understanding Equal Access maintenance

Equal Access maintenance consists of taking the necessary action to correct line and equipment faults that are reported by subscribers or detected by the system. There is no specific Equal Access equipment or hardware in the DMS switch.

The DMS switch is designed to operate without operating company intervention; however, as with all systems, some maintenance activity is required to ensure optimum performance. The DMS switch provides automatic fault location information and diagnostic testing to maintain lines and trunks by monitoring the quality of signaling and transmission. Alarms are generated when the quantity of failures reaches or exceeds the threshold limits defined by the operating company.

Equal Access maintenance activities vary according to the line and trunk arrangements from office to office. Typically, maintenance consists of using network performance data, such as call completion rates or traffic statistics, to determine reasons for network operational problems.

Indicators such as call registers should be monitored regularly to detect potential trouble areas. Maintenance personnel typically use operational measurements and log reports to monitor Equal Access service and to take the necessary corrective action.

Performing basic maintenance functions

This chapter provides Equal Access maintenance information. However, because there are no hardware components associated with Equal Access, there is a limited amount of maintenance to perform. The primary tools for Equal Access maintenance are register reports, datafill, and table entry verification.

Other maintenance items, such as trunks, lines, and equipment testing procedures, are described in the appropriate reference documentation. Such maintenance is necessary so that the DMS-100 Family switch performs at levels acceptable to the operating company.

Interpreting operational measurements

Maintenance personnel can use the operational measurements (OM) to track how well Equal Access calling traffic is handled by the office. To monitor and evaluate Equal Access performance, the DMS-100 Family switch provides maintenance personnel with OM reports. Table 2- 1 lists the OM groups and associated registers that are relevant to Equal Access. See *Equal Access Administration Guide*, 297-2101-300, for a description of OM groups specific to Equal Access.

Table 2-1
OMs used to evaluate Equal Access performance

Operational measurement	Description
DPATMPT (ISDD group)	The dial pulse attempts register increases when a series-2 peripheral module detects a seizure on an incoming dial pulse trunk.
INCATOT (TRK group)	The incoming attempts total register counts incoming seizures on a trunk group, including seizures that subsequently fail or are abandoned before routing. This register is produced for all valid office types.

-continued-

Table 2-1
OMs used to evaluate Equal Access performance (continued)

Operational measurement	Description
INFAIL (TRK group)	On a trunk that originated a call, or appears to have originated a call, the incoming failures register is increased if any of the following conditions occur: ▪ permanent signal ▪ partial dial timeouts and false starts ▪ bad digits, including bad ST digit ▪ incoming seizures on one-way outgoing trunks ▪ lost integrity on the network path while connected to a service circuit or to another trunk prior to answer ▪ failure to attach a receiver after two attempts ▪ receiver queue overflow ▪ receiver queue wait timeout ▪ failure to time-out after 30 seconds while waiting for a multifrequency (MF) receiver ▪ progress message of a type unexpected in the current call context ▪ force-release prior to connection
MFATMPT (ISDD group)	The MF attempts register is increased when a series-2 peripheral module detects an incoming seizure on an incoming MF trunk.
NOVFLATB (TRK group)	The number of overflows, all trunks busy register is increased when a call that is allowed access to the trunk group overflows the group and is routed onwards because no idle trunk is available. Overflow occurs if the first trunk is unusable because of seizure, failure, glare, or network blockage. This register is increased when no idle trunk is found on the first or subsequent access.
PMPSERR (PM group)	The peripheral module P-side error register counts errors on the P-side interface of a series-2 peripheral module. The register counts errors that occur in trunk interface cards or on trunks.
PMPSFLT (PM group)	The peripheral module P-side fault register counts faults on the P-side interface of a series-2 peripheral module. These faults affect service and require maintenance action.
RCVOVFL (RCVR group)	The receiver overflow register is increased when a request for a receiver cannot be satisfied because all receivers are busy. When all receivers are busy, the request attempts to enter the wait queue for the receiver type.

-continued-

Table 2-1
OMs used to evaluate Equal Access performance (continued)

Operational measurement	Description
RCVQOVFL (RCVR group)	The receiver queue overflow register is increased when a request for a register that attempts to enter the wait queue fails because the queue is full. The size of the wait queue for Digitone receivers is half the number datafilled in table RECEIVER or 100, whichever is less. Incoming calls overflowing from the receiver queue are routed to a no-service-circuit treatment.
RCVSZRS (RCVR group)	The receiver seizures register is increased when a receiver is assigned to a call. The register is increased before the network path is set from the receiver to the line, trunk, or position. If the path is unavailable the receiver is released.
TOTU (TRK group)	The total usage register records whether any trunk in a trunk group is busy. It is a usage register with 100-second scan times.

End

User interface commands

This section describes the Equal Access maintenance commands used in the DMS-100 Family switch. Operating company personnel use a variety of user interface commands to perform maintenance. The user interface commands presented in this section are typical trunk and carrier user interface commands and can be applied to Equal Access maintenance activities.

The user interface consists of the MAP (maintenance and administration position) terminal and the software required to convert human information to machine information, and the reverse, for two-way communication. The maintenance system is used to identify faults in the switch and to assist maintenance personnel in taking corrective action.

> ***Note:*** For detailed user interface information, see *Maintenance System Man-Machine Interface Description, 297-1001-520*.

Input functions

Maintenance personnel input user interface commands into the DMS-100 Family switch for the following activities:

- testing equipment
- determining equipment configuration
- requesting status
- altering equipment status
- displaying equipment location

Output functions

In response to user interface commands, the DMS-100 Family switch provides maintenance personnel with the following information:

- a menu of available commands
- a display of equipment status
- a display of equipment location
- a display of system results
- a display of user request results

DNLPCDMO command

The DNLPCDMO command simplifies the initial datafill process for table DNLPIC by creating a bulk data modification order (DMO) file. This file can be used by the DMOPRO command, which reads formatted files of table input and automatically performs requested table modifications. The DNLPCDMO command is useful when a range of consecutive directory numbers (DN) with an identical primary inter-LATA carrier (PIC) must be datafilled in table DNLPIC. The following table describes the DNLPCDMO command parameters and variables.

DNLPCDMO command parameters and variables

Command	Parameters and variables
>DNLPCDMO	**filedev fname npa nxx from_no to_no carrier**

Item	Description
filedev	specifies the alphanumeric name of any valid DMS device where the bulk DMO file will be stored (for example, SFDEV, tape, disk, or CONSOLE).
fname	specifies the alphanumeric name of the DMO file to be created. The file name may be up to 17 characters.
npa	specifies the three-digit NPA code (200 to 999) for the desired DN range.
nxx	specifies the three-digit exchange code (200 to 999) for the desired DN range.
from_no	specifies the lower boundary (0000 to 9999) for the desired DN range.
to_no	specifies the upper boundary (0000 to 9999) for the desired DN range. This number must be equal to or greater than the FROM_NO value.
carrier	specifies the alphanumeric carrier name associated with the DN range. Numeric carrier names must be enclosed in single quotes.

Error responses

The following table lists the error responses associated with the DNLPCDMO command.

Error responses for the DNLPCDMO command

MAP output	Meaning and action
CARRIER NAME SPECIFIED IS NOT IN TABLE PICNAME	**Meaning:** The carrier name selected is not datafilled in table PICNAME. **Action:** Datafill table PICNAME with the carrier name you wish to use.
FROM-NXX SHOULD BE LESS THAN OR EQUAL TO TO_NXX	**Meaning:** The value entered for field TO_NO was less than the value entered for field FROM_NO. **Action:** Correct the values for fields FROM_NO and TO_NO and re-enter the command.
NPA SHOULD BE OF THE FORM N0/1X	**Meaning:** The entered NPA code was not in the correct form. It must be in the following format: 1. the first digit must not be 0 or 1 2. the second digit must be 0 or 1 3. the third digit must not be 0 **Action:** Correct the values for field NPA and re-enter the command.
THERE ARE NO DNS DATAFILLED WITHIN SPECIFIED RANGE	**Meaning:** The DNs specified by the FROM_NO and TO_NO parameters are not datafilled in table DNPIC. **Action:** Correct the values for fields FROM_NO and TO_NO and re-enter the command.
THIS IS NOT A VALID CARRIER NAME FOR REPORTING	**Meaning:** The carrier name entered is not valid. **Action:** Correct the values for field CARRIER and re-enter the command.

DNPICDMO command

The DNPICDMO command generates a bulk DMO file containing a range of DNs within an NPA-NXX and their associated Equal Access data. This file is later processed using the DMOVER and DMOPRO commands to datafill table DNPIC. This command is intended for initial datafill of table DNPIC, and therefore generates the bulk DMO file in input mode. The following table describes the DNPICDMO command parameters and variables.

DNPICDMO command parameters and variables

Command	Parameters and variables
>DNPICDMO	**filedev fname npa nxx from_no to_no carrier choice**

Item	Description
filedev	specifies the alphanumeric name of any valid DMS device where the bulk DMO file will be stored (for example, SFDEV, tape, disk, or CONSOLE).
fname	specifies the alphanumeric name of the DMO file to be created. The file name may be up to 17 characters.
npa	specifies the three-digit NPA code (200 to 999) for the desired DN range.
nxx	specifies the three-digit exchange code (200 to 999) for the desired DN range.
from_no	specifies the lower boundary (0000 to 9999) for the desired DN range.
to_no	specifies the upper boundary (0000 to 9999) for the desired DN range. This number must be equal to or greater than the FROM_NO value.
carrier	specifies the alphanumeric carrier name associated with the DN range. Numeric carrier names must be enclosed in single quotes.
choice	specifies the value (Y or N) of the CHOICE field associated with all the DNs in the range.

Usage notes

The following notes apply to command DNPICDMO:

- The value supplied for the carrier does not have to be datafilled in table PICNAME when the DNPICDMO command is issued. This allows administration personnel to generate the bulk DMO file before table datafill. However, the carrier name must be defined in table PICNAME before the bulk DMO file is processed with the DMOPRO or DMOVER command.
- Command DNPICDMO supplies the value N for the carrier toll denied field of table DNPIC.

Error responses

The following table lists the error responses associated with the DNPICDMO command.

Error responses for the DNPICDMO command

MAP output	Meaning and action
CANNOT CLOSE FILE - DO NOT USE FILE	**Meaning:** A file system error occurred while the system was closing the output file. The command terminates. This message is followed by the standard file system error message. **Action:** Enter the command later.
CANNOT CREATE FILE	**Meaning:** A file system error occurred, and the output file cannot be opened. The command terminates. This message is followed by the standard file system error message. **Action:** Enter the command later.
CARRIER MUST BE 16 CHARACTERS OR LESS	**Meaning:** The carrier name entered is too long. The command terminates. **Action:** Enter the command with a carrier name of 16 characters or less.
ERROR WRITING TO FILE - DO NOT USE FILE	**Meaning:** A file system error occurred while writing to the output file. The command terminates. This message is followed by the standard file system error message. **Action:** Enter the command later.
FILENAME MUST BE 17 CHARACTERS OR LESS	**Meaning:** The filename entered is too long. The command terminates. **Action:** Enter the command with a filename of 17 characters or less.
FROM_XXXX MUST BE LESS THAN OR EQUAL TO TO_XXXX	**Meaning:** An invalid range of station digits was entered. The command terminates. **Action:** Enter the command with a valid range of station digits.

-continued-

Error responses for the DNPICDMO command (continued)

MAP output	Meaning and action
NPA MUST BE OF THE FORM N0/1X	**Meaning:** An invalid NPA was entered for the third parameter. The command terminates. **Action:** Enter the command using a valid NPA.
End	

DNPICLIST command

The DNPICLIST command generates a DNPIC presubscription report that lists the DNs associated with a carrier. The carrier is the PIC of the DN. A total count of DNs assigned to specific carriers is generated. The following table describes the DNPICLIST command parameters and variables.

DNPICLIST command parameters and variables

Command	Parameters and variables
>DNPICLIST	**carrier | DEFAULT | ALL [DNRANGE npa from_nxx to_nxx] [SUMMARY] [INTER | INTRA | BOTH]**

Item	Description
carrier	specifies the carrier name for which the report is generated. The carrier name must be in table PICNAME. Numeric names must be enclosed in single quotes. Values NILCAR and NOCAR can be specified for this variable.
DEFAULT	specifies that the report includes only DNs that do not have a PIC (NOCAR is datafilled in table DNPIC for this DN).
ALL	specifies that the report is generated for all interexchange carriers (IEC) and international carriers (INC) datafilled in table PICNAME, including tuple NILCAR.
DNRANGE	specifies that the report is generated for a specific range of DNs datafilled in table DNPIC.
npa	specifies the three-digit NPA code (200 to 999) for the desired DN range.
from_nxx	specifies the lower boundary (0000 to 9999) for the desired DN range.
to_nxx	specifies the upper boundary (0000 to 9999) for the desired DN range. This number must be equal to or greater than the FROM_NO value.
SUMMARY	specifies that the report displays only carrier names and totals, without a list of DNs and billing numbers.
INTER	specifies that only inter-LATA information is produced.
INTRA	specifies that only intra-LATA information is produced
BOTH	specifies that the information for both inter-LATA and intra-LATA is produced.

Usage notes

The following notes apply to the DNPICLIST command:

- It is recommended that command DNPICLIST be executed when the traffic load is low. Depending on the traffic load, the output device specified, and the number of lines in table DNPIC, report generation can take a significant amount of time. For example, a report sent to a 1200 BAUD printer using the DNPICLIST ALL command for 7 carriers, with 50 000 lines total, and no traffic load, takes 3 hours 26 minutes to print. A summary takes only 12 seconds for the same scenario.
- During report generation, editing tables DNPIC and PICNAME is not allowed.
- If NOCAR is entered as the carrier name parameter, the report is generated as if DEFAULT had been entered.

Error responses

The following table lists the error responses associated with the DNPICLIST command.

Error responses for the DNPICLIST command

MAP output	Meaning and action
`CARRIER NAME SPECIFIED IS NOT IN TABLE PICNAME`	**Meaning:** An invalid carrier is given for the first parameter (carrier). The report request is terminated. **Action:** Enter the command using a valid carrier name.
`COULD NOT ALLOCATE DNPICLIST EVENT`	**Meaning:** Software resources are not available at this time. The report request is denied. **Action:** Try generating the report later.
`EDITING TABLE DNPIC IS NOT ALLOWED WHILE THE DNPICLIST COMMAND IS EXECUTING`	**Meaning:** Data changes to table DNPIC are not allowed during report generation. Editing of table DNPIC is denied. **Action:** Edit table DNPIC after report generation is complete.

-continued-

Error responses for the DNPICLIST command (continued)

MAP output	Meaning and action
EDITING TABLE PICNAME IS NOT ALLOWED WHILE THE DNPICLIST COMMAND IS EXECUTING	**Meaning:** Data changes to table PICNAME are not allowed during report generation. Editing of table PICNAME is denied. **Action:** Edit table PICNAME after report generation is complete.
FROM_NXX SHOULD BE LESS THAN OR EQUAL TO TO_NXX IN DNRANGE PARAMETER	**Meaning:** An invalid range of office codes was entered for the second parameter (DNRANGE, NPA, FROM_NXX, or TO_NXX). The report request is terminated. **Action:** Enter the command using a valid range of office codes.
NPA SHOULD BE OF THE FORM N0/1X	**Meaning:** An invalid NPA was entered for the second parameter (DNRANGE, NPA, FROM_NXX, or TO_NXX). The report request is terminated. **Action:** Enter the command using a valid NPA.
PACKAGE NTX829AA IS NOT PRESENT FOR INTRA-LATA DATA	**Meaning:** The package for LATA Equal Access System intra-LATA PICs (NTX829AA) is not equipped on this system. **Action:** None
THERE ARE NO DNS IN THE DATAFILL WITHIN THE SPECIFIED RANGE	**Meaning:** There are no DNs datafilled in table DNPIC within the specified range. The report request is terminated. **Action:** Enter the command using a range of office codes that are datafilled in table DNPIC.
THERE ARE NO NORTH AMERICAN DNS IN THE DATAFILL	**Meaning:** There are no DNs datafilled in table DNPIC. The report request is terminated. **Action:** Datafill table DNPIC for report generation.

-continued-

Error responses for the DNPICLIST command (continued)

MAP output	Meaning and action
THERE ARE NO TUPLES DATAFILLED IN TABLE tablename	**Meaning:** The table specified (either DNPIC or DNLPIC) in the response is not datafilled. If this message is displayed in response to the BOTH parameter, the information for the table datafilled is displayed. If this message is displayed in response to either the INTER or INTRA parameter, no information is displayed. **Action:** None
THIS IS NOT A VALID CARRIER NAME FOR REPORTING	**Meaning:** An invalid carrier is given for the first parameter (carrier). The report request is terminated. **Action:** Enter the command using a valid carrier name.

End

IBNPICLIST command

The IBNPICLIST command generates an Equal Access presubscription report that lists Meridian Digital Centrex (MDC) lines and private branch exchange (PBX) trunks associated with a carrier. (The carrier is the PIC for the MDC DN or PBX billing number.) A total count of DNs assigned to specific carriers is produced. The following table describes the IBNPICLIST command parameters and variables.

IBNPICLIST command parameters and variables

Command	Parameters and variables
>IBNPICLIST	**carrier | DEFAULT | ALL [IBNLINE | PBXTRUNK] [DNRANGE npa from_nxx to_nxx] [SUMMARY]**

Item	Description
carrier	specifies the carrier name for which the report is generated. The carrier name must be in table OCCNAME. Numeric names must be enclosed in single quotes.
DEFAULT	specifies that the report includes only MDC lines and PBX trunks that do not have a PIC.
ALL	specifies that the report is generated for all IECs and INCs datafilled in table OCCNAME. The NILC tuple is included as well as the default carrier total.
IBNLINE	specifies that the report includes only MDC lines.
PBXTRUNK	specifies that the report includes only PBX trunks.
DNRANGE	specifies that the report is generated for a specific range of DNs and billing numbers.
npa	specifies the three-digit NPA code (200 to 999) for the desired DN range.
from_nxx	specifies the lower boundary (0000 to 9999) for the desired DN range.
to_nxx	specifies the upper boundary (0000 to 9999) for the desired DN range. This number must be equal to or greater than the FROM_NO value.
SUMMARY	specifies that the report displays only carrier names and totals, without a list of DNs and billing numbers.

Usage notes

Because of the potential volume of IBNPICLIST reports, you may need to store the data in a form that can be accessed later (for example, a hard copy listing or an SFDEV file). Furthermore, the IBNPICLIST command may take a considerable amount of time to generate a report. To minimize the repercussions:

- Create a command file which will execute the IBNPICLIST command at a later time and store the results on a tape file. A sample command file called IBNREP is shown as follows:

  - MOUNT T1
  - SLEEP 255 MINS
  - SEND T1 IBNPICS
  - IBNPICLIST ALL
  - SEND PREVIOUS
  - DEMOUNT T1

- Use the LOGIN command to avoid tying up a device for the duration of the command file execution. The following sample command will log in USER1 at device TERM2, execute the IBNREP command file, and then log out USER1:

  >LOGIN USER1 PASS1 IBNREP TERM2

Meanwhile, the device from which the LOGIN command was entered, and TERM2, are still available for other processing.

The following limitations and restrictions apply to this command:

- Plain old telephone service (POTS) lines with a line class code of PBX are included in the report generated with the PICLIST command. Therefore, these lines are excluded from the IBNPICLIST report. Only PBX trunks (type P2 and PX) are included in the IBNPICLIST report.
- For standard MDC 500/2500 sets, only individual line PICs datafilled in table IBNFEAT are included in the IBNPICLIST report. For electronic business sets and data units, only PICs datafilled in table KSETFEAT are included in the reports. Any MDC line that uses the customer group translator PIC or the NCOS translator PIC in table IBNXLA is included in the default carrier listing.

- Unlike POTS lines, MDC lines and PBX trunks do not use the default carrier specified in table OFCENG. MDC lines that are not assigned a PIC use the carrier specified by the Equal Access option in table IBNXLA. If the EA option is not present on the NCOS translator or customer group translator in table IBNXLA, attempted Equal Access calls are sent to treatment. For PBX trunks, if the EA option is not present in table TRKGRP, attempted Equal Access calls are sent to treatment. Therefore, the IBNPICLIST report does not list a default carrier or treatment with the DEFAULT count.
- No changes can be made to tables IBNFEAT, KSETFEAT, TRKGRP, HUNTMEM, and OCCNAME during report generation. This restriction includes changes made with the Service Order System to tables IBNFEAT, KSETFEAT, and HUNTMEM.

Error responses

The following table lists the error responses associated with the IBNPICLIST command.

Error responses for the IBNPICLIST command

MAP output	Meaning and action
CARRIER NAME SPECIFIED IS NOT IN TABLE OCCNAME	**Meaning:** An invalid carrier name was entered for the first parameter. The report is terminated. **Action:** Enter the command using a valid carrier name.
COULD NOT ALLOCATE IBNPICLIST EVENT	**Meaning:** Software resources are not available at this time. The report request is denied. **Action:** Enter the request later.
EITHER INCORRECT OPTIONAL PARAMETER(S) OR TOO MANY PARAMETERS	**Meaning:** An invalid syntax was entered for the IBNPICLIST command. The report request is denied. **Action:** Re-enter the command using a valid syntax.

-continued-

Error responses for the IBNPICLIST command (continued)

MAP output	Meaning and action
FROM_NXX SHOULD BE LESS THAN OR EQUAL TO TO_NXX IN DNRANGE	**Meaning:** An invalid range of office codes was entered for the third parameter. The report request is denied. **Action:** Enter the command using a valid range of office codes.
IBNPICLIST REPORT IN PROGRESS	**Meaning:** An attempt was made to edit table IBNFEAT, KSETFEAT,TRKGRP, HUNTMEM, or OCCNAME while the report was generated. Editing is denied. **Action:** Edit the table after the report generation is complete.
NPA SHOULD BE OF THE FORM N0/1X	**Meaning:** An invalid NPA was entered. The report request is denied. **Action:** Re-enter the command using a valid NPA.
OUT OF RANGE: <FROM_NXX> (200 TO 999)	**Meaning:** An invalid DN was entered for the lower boundary of the DN range. The report request is denied. **Action:** Re-enter the command using a valid NXX.
OUT OF RANGE: <TO_NXX> (200 TO 999)	**Meaning:** An invalid DN was entered for the upper boundary of the DN range. The report request is denied. **Action:** Re-enter the command using a valid NXX.
THERE ARE NO DNS IN THE DATAFILL WITHIN THE SPECIFIED RANGE	**Meaning:** No DNs exist in the office datafill for the range entered. The report request is denied. **Action:** Datafill DNs or re-enter the command with a valid range.

-continued-

Error responses for the IBNPICLIST command (continued)

MAP output	Meaning and action
THERE ARE NO NORTH AMERICAN DNS IN THE DATAFILL	**Meaning:** No DNs are datafilled in the office. The report request is denied. **Action:** Datafill DNs and re-enter the command later.
End	

Evaluating log reports

This section describes the Equal Access maintenance log reports that can be used to evaluate the performance of dedicated Equal Access trunk groups. The trunk maintenance subsystem log reports are generated to indicate a range of conditions affecting the performance of incoming and outgoing trunks. Most of the log reports deal with maintenance conditions usually requiring or resulting from diagnostic activity.

The log reports listed in table 2-2 are representative of the system-generated reports. See *Log Report Manual*, 297-1001-840, for more specific information about log reports. This document also explains how the log reports can be used to evaluate the performance of dedicated E911 trunk groups.

Table 2-2
Log reports used to evaluate Equal Access performance

Log report	Description
ATB100	The all trunks busy subsystem generates this log report when an attempt to seize a trunk to a specific NPA or central office is blocked and the call is advanced to another route. Usually, all trunk busy conditions are encountered on high-traffic days or when there are not enough trunks allocated to carry traffic to the specified NPA or central office.
DFIL122	The datafill subsystem generates this log report whenever an Equal Access call incoming on an ISDN user part (ISUP) trunk has an initial address message containing a transit network selection (TNS) parameter whose contents are not recognized by table CKTDIGIT.
DFIL125	This log report is generated when an attempt is made to complete an Equal Access call that is originating from or terminating to a common channel signaling 7 (CCS7) supported circuit without either the CCS7 ISUP Inter-LATA Connection EAEO (NTXE13) or CCS7 ISUP Inter-LATA Connection AT (NTXE14) feature package installed.
DFIL126	This log report is generated when an attempt is made to complete an interexchange call using an unsupported originating or terminating trunk group type.

-continued-

Table 2-2
Log reports used to evaluate Equal Access performance (continued)

Log report	Description
DFIL133	The datafill subsystem generates this report when the outpulsed routing sequence does not have an associated key in table CKTDIGIT. Equal access calls routed from an end office to an access tandem (AT) over MF trunks outpulse the digit stream KP-0ZZ-XXX-ST. The XXX digits identify the carrier upon which the call is to be completed and the 0ZZ digits are used for routing at the AT. If an ISUP trunk is used to transport the call to the AT, the 0ZZ is mapped into the circuit code field of the TNS. This mapping is done with table CKTDIGIT; each element in this table has a key consisting of the carrier and the circuit code. The element of the table is the 0ZZ sequence. If an outpulsed 0ZZ sequence does not have an associated key in table CKTDIGIT, a DFIL133 log report is generated and the subscriber is given busy treatment.
DNPC100	The DN PIC subsystem generates this log report when a DN lookup is performed for a DN that is not in customer table DNPIC. When this error condition exists, the trunk group data for the incoming trunk group (in table TOPEATRK) is used to determine the carrier associated with the inter-LATA call.
ISUP102	The ISUP subsystem generates this log report when a CCS7 connection is released because of an abnormal condition.
OM2200	The OM subsystem generates this log report when a threshold condition defined in table OMTHRESH is exceeded by a register. This log report is associated with the OM threshold feature (NTX385).
OMPR2nn	These log reports contain raw measurement data from OMs as defined in table OMPRT. Up to 32 different reports, consisting of accumulating classes, holding classes, OM groups, or groups in an OM class, are supported by the table.
PM108	The peripheral module (PM) subsystem generates this log report when a firmware or hardware error is detected in the peripheral processor.
PM110	The PM subsystem generates this log report when a change occurs in the service count level and a threshold has been reached.
PM125	The PM subsystem generates this log report when a firmware or hardware error is detected in the peripheral processor.
PM128	The PM subsystem generates this log report when the PM encounters trouble during normal operation. The PM changes state as a result of a system or manual request.
PM180	The PM subsystem generates this log report when a software exception is encountered. A software exception is an occurrence of improper execution by the software. The software exception can be hardware related.
TRK110	The trunk maintenance subsystem generates this log report when the system changes the trunk state to system busy lockout from call processing busy. Usually, TRK110 indicates a facility problem.

-continued-

Table 2-2
Log reports used to evaluate Equal Access performance (continued)

Log report	Description
TRK111	The trunk maintenance subsystem generates this log report when trouble is encountered or a treatment is assigned during routing of an incoming trunk-to-trunk call.
TRK112	The trunk maintenance subsystem generates this log report when a trunk is taken off the lockout list, and is returned to service as a result of a system request or a manual request from the line test position level. The TRK112 report is generated to confirm the return to service of a specific trunk that was on the lockout list.
TRK116	The trunk maintenance subsystem generates this log report when trouble is encountered during MF reception for an incoming call over a trunk, and the call destination was not determined. Usually, the TRK116 report is generated when either a foreign electromagnetic force is distorting the signal, or when a customer hangs up during outpulsing on the trunk. The DMS switch may initiate diagnostic testing depending on the trouble encountered.
TRK117	The trunk maintenance subsystem generates this log report when trouble is encountered during MF reception for an incoming call over a trunk, and the call destination was not determined. The DMS switch may initiate diagnostic testing depending on the trouble encountered.
TRK121	The trunk maintenance subsystem generates this log report when trouble is encountered during outpulsing on a specific outgoing trunk. The TRK121 report is generated when the DMS switch does not receive an acknowledgment wink from the far-end equipment, indicating it is ready to receive digits. This log report indicates either the first or second occurrence of trouble. There is a maximum of two trial failures for a trunk-to-trunk call. The call is taken down after the second failure. The DMS switch may initiate diagnostic testing depending on the trouble encountered.
TRK122	The trunk maintenance subsystem generates this log report when the central control detects that integrity was lost on both planes of the trunk equipment. Typically, there is a hardware problem with the circuit pack or with the link between the peripheral and the network.

End

Locating and clearing faults

This chapter describes how to interpret fault indicators and how to use the MAP (maintenance and administration position) terminal. It also explains how to analyze alarms and lists sample trouble indicators.

Interpreting fault indicators

Audible and visible alarms are provided in the system to alert maintenance personnel of trouble conditions. Whenever a failure is detected, the status system information displayed on the MAP terminal is updated to indicate the fault.

Alarm status indications

When a failure is detected in a DMS Family switch, the system status information is displayed at the MAP terminal and is updated immediately to indicate a fault. An alarm status indication is displayed along with the system status information.

Accessing the system

The operation of the MAP terminal is described by showing how it is used for maintenance functions. To gain access, the craftsperson enters commands at the MAP keyboard. The commands and their associated responses are displayed on the MAP screen. These responses can be, for example, the information requested or requests from the system for more information.

Isolating faults

To facilitate the isolation of faults in the DMS Family switch, the MAP terminal has a telescoping feature. Telescoping is a branching process to determine the smallest replaceable unit which should be changed to restore the system status to normal.

Using the MAP terminal

The MAP terminal provides an interface between the DMS Family switch and the operating company, and it enables maintenance personnel to input and extract performance data from the DMS Family switch.

Tasks performed at the MAP terminal include general maintenance functions for error detection and diagnosis. Different levels of system/subsystem status are displayed in the system status and the work areas of the MAP screen. The data at each of these levels is updated in real time.

Analyzing alarms

Alarms are generated when the quantity of Equal Access-defined failures exceeds the threshold values defined by the operating company. Audible and visual alarms are provided in the DMS switch to alert maintenance personnel of trouble conditions.

Alarm detection subsystem

The alarm detection subsystem is a software and hardware component of the DMS switch. It performs the following functions:

- receives hardware-detected alarms from within the DMS switch from alarm scan points
- interprets the alarm type and its severity
- routes alarm messages to the appropriate maintenance subsystem
- sends messages to the routing and reporting subsystem for status display updates
- resets alarm conditions on a manual reset or when a problem has been resolved

Sample trouble indicators

The trouble indications shown in table 3-1 are representative Equal Access troubles. This information is provided as a guide to using translations tables as a troubleshooting aid.

Table 3-1
Trouble indicators

Trouble indication	Possible cause
Reaching CARRIER ACCESS CODE (CAC) DIALED IN ERROR announcement: CACE treatment	▪ CAC unassigned or changed, or ACCESS = NONE in table OCCINFO ▪ Equal Access plan (EAP) prefix 10XXX dialed instead of 950-WXXX ▪ 10XXX + service access code, 800 or 900 dialed
Reaching DIAL CARRIER ACCESS CODE (DCAC) announcement: DACD treatment	10XXX not dialed, line does not have a primary inter-LATA carrier, and the default carrier in table OFCENG is set to treatment

-continued-

Table 3-1
Trouble indicators (continued)

Trouble indication	Possible cause
Reaching DENIED TOLL announcement: TDND treatment	Line marked TDN in table LENLINES
Reaching DIALING RESTRICTION announcement: ILRS treatment	Line marked CTD in table LENFEAT
Reaching VACANT CODE announcement: VACT treatment	▪ inter-LATA restriction; INTER = N for carrier in table OCCINFO ▪ intra-LATA restriction; INTRA = N for carrier in table OCCINFO ▪ AD1 dialed, AD = N for carrier in table OCCINFO ▪ code not in subtable HNPACONT.HNPACODE ▪ numbering plan area code added to subtable HNPACONT.HNPACODE or HNPACONT.FNPACODE and not added to table LATAXLA ▪ 950-WXXX dialed instead of 10XXX, ACCESS = EAP for carrier in table OCCINFO
Reaching REORDER OR OTC announcement: STOB treatment	Equal Access end office (EAEO) does not receive access tandem (AT) wink signal after two attempts
Reaching REORDER OR OCC announcement: STOC treatment	EAEO does not receive interexchange carrier (IEC) or international carrier (INC) wink signal after two attempts
Reaching ALL CIRCUITS BUSY announcement: treatment depends on trunk group	▪ all trunks busy from the EAEO to the AT or IEC/INC ▪ all trunks busy from the AT to IEC/INC
Traffic not being sent to proper IEC from the EAEO	▪ wrong route in subtable STDPRTCT.STDPRT ▪ wrong recursive STDPRTCT.STDPRT subtable name in first STDPRTCT.STDPRT subtable ▪ wrong common language location identifier (CLLI) in table OFRT ▪ wrong OFRT index in subtable STDPRTCT.STDPRT ▪ wrong IEC name in subtable STDPRTCT.STDPRT ▪ incorrect IEC code in table OCCINFO

-continued-

Table 3-1
Trouble indicators (continued)

Trouble indication	Possible cause
Traffic not routed to the proper IEC from the AT	▪ wrong XXX code in table OCCNAME at the EAEO ▪ wrong CLLI in table OFRT
Not receiving validation wink from the IEC	▪ call being sent to IEC in the wrong format ▪ IEC listed in table OCCINFO as feature group C (FGC) rather than EAP or INTERIM
Call being sent to IEC in the wrong format	▪ table OFRT at EAEO not set to delete 15 digits or calls being routed to AT ▪ IEC listed in table OCCINFO as FGC rather than EAP or INTERIM
Not billing originating access charges	▪ subtable STDPRTCT.STDPRT not set to EA selector with direct dialed or operator assisted calls ▪ option HIGHREV in table AMAOPTS set to ON and call code 110 not set in table BCCODES or ATTCODES
Not billing terminating access charges	▪ option OCCTERM in table AMAOPTS not set to ON ▪ option HIGHREV in table AMAOPTS set to ON and call code 119 not set in table BCCODES or ATTCODES
End	

TRAVER

The translation verification (TRAVER) command is designed to assist maintenance personnel with translation and routing table datafill. For a particular originator and digits dialed, TRAVER simulates a call and displays the associated translation and routing tables. For example, it can display each element of the route list.

When calls route to a treatment (route, tone, or announcement), or do not follow their intended route, TRAVER helps determine specific call routing data. The TRAVER command provides the following call route and translation information:

- the tables used to translate and route a call
- each element of the route list with digits outpulsed
- each alternate conditional route
- each line, trunk, console, or position destination of the call

TRAVER displays the tables used to route a call to a line with call forwarding capabilities. TRAVER does not display the tables involved in forwarding a call from one line to another.

Note: The TRAVER command only supports Bellcore traditional signaling.

Using TRAVER

The TRAVER command can be entered from either the command interpreter (CI) level or from the MAP level as a CI command. The command syntax is the following:

>TRAVER orig cgn cdn trace

where

orig is one of the following originating agents:

- L is the originating call is from a line
- TR is the call is coming from a trunk

cgn is the calling party number

cdn is the called party number

trace is one of the following trace options:

- B both tables and terminators are shown
- T all tables and associated entries referenced by this call are displayed

- NT no tables are displayed, only the actual terminators are shown.

Note: Only the TRAVER command parameters applicable to Equal Access are defined in this section. For detailed information about the TRAVER command, see *Core Translations Guide*, 297-1001-362. Also see TRAVER examples in *Equal Access Translations Guide*, 297-2101-352.

Command example

In the TRAVER command shown in this example

- L indicates the originator is a line
- 6211235 is the DN originating the call
- 9502345 is the DN receiving the call
- B indicates that a report on both table entries and results is desired

TRAVER output example when TRAVER is used to verify this package

Line	Output
	>TRAVER L 6211235 9502345 B
1	TABLE LINEATTR
2	0 1FR NONE NT FR01 0 613 P621 L613 N TSPS N 10 NIL NILSFC LATA1 0 NIL NIL 00 Y RESGRP 0 2
3	LCABILL OFF - BILLING DONE ON BASIS OF CALLTYPE
4	TABLE DNATTRS
5	TUPLE NOT FOUND
6	TABLE DNGRPS
7	TUPLE NOT FOUND
8	TABLE STDPRTCT
9	P621 (1) (1)
10	. SUBTABLE STDPRT
11	. 9502345 9502345 FGB DD 0 CARB Y OFRT 905 7 7
12	. . TABLE OFRT
13	. . 905 N D FGBCAR2W 0 N N
14	. . EXIT TABLE OFRT
15	. SUBTABLE AMAPRT
16	. KEY NOT FOUND
17	. DEFAULT VALUE IS: NON OVRNONE N
18	
19	+++TRAVER: SUCCESSFUL CALL TRACE +++

-continued-

TRAVER output example when TRAVER is used to verify this package (continued)

Line	Output
20	DIGIT TRANSLATION ROUTES
21	
22	1 FGBCAR2W 9502345 ST
23	TREATMENT ROUTES. TREATMENT IS: GNCT
24	1 T120
25	
26	
27	+++TRAVER: SUCCESSFUL CALL TRACE +++

End

Automatic message accounting billing record recovery procedures

System recovery procedures are designed to recover call processing to an acceptable level. When performing system recovery procedures for Equal Access, two automatic message accounting (AMA) formats, Northern Telecom (NT) and Bellcore, are supported in the DMS switch. Procedure 3-1 is recommended in an office that is currently set to NT format.

CAUTION
Service interruption or degradation
If procedure 3-1 is not followed, AMA records will be a mixture of both formats and will have invalid headers. The only solution is to reload from tape or disk.

Procedure 3-1
AMA record recovery

Step	Action
1	Ensure that a current office image is available.
2	Ensure that the central controls (CC) have no hardware problems.
3	Match store from CC level of MAP CI (MTCH command).
4	Make the CC inactive.
5	Drop sync (from CC level of MAPCI-DPSYNC).

-continued-

Procedure 3-1
AMA record recovery (continued)

6	Ensure that the inactive CC comes up with the A1 message flashing.
7	On the inactive CPU, position the enable switch to UP, set the thumbwheel to 5, press Reset, and ensure that the inactive CPU comes up with the A1 message flashing.
8	At a terminal, access table CRSFMT and change the AMA tuple to ATTFMT.
9	Perform a RESTART RELOAD on the active CC. This activates Bellcore format AMA and closes all active AMA files. New files should be opened for testing, and rotated as necessary.
10	On the inactive CPU, set the thumbwheel to 5, and press Reset. Ensure that the inactive CC comes up with the A1 message flashing. If the A1 message is not flashing within 1 minute, repeat this step.

End

Note: Switching between NT and Bellcore AMA recording formats is not recommended.

List of terms

access tandem (AT)

A switching system that provides a traffic concentration and distribution function for interexchange traffic originating or terminating within a local access and transport area (LATA). The AT provides the interexchange carrier (IEC) with access to more than one end office within the LATA. The AT also acts as a toll tandem for intra-LATA traffic. The AT technical functions include automatic message accounting (AMA) recording, routing, and call supervision.

all trunks busy (ATB)

The condition indicated when all the circuits in a group are occupied.

AMA

automatic message accounting

ANI

automatic number identification

AT

access tandem

ATB

all trunks busy

automatic message accounting (AMA)

An automatic recording system that documents the necessary billing data for subscriber-dialed long distance calls.

automatic number identification (ANI)

A system whereby a calling number is identified automatically and transmitted to the automatic message accounting (AMA) office equipment. This number is used for billing records generated by an interexchange carrier (IEC) or international carrier (INC).

batch change supplement (BCS)

A DMS Family software release.

BCS

batch change supplement

CAC

carrier access code

carrier access code (CAC)

A set of digits (10XXX, 101XXXX, or 950-WXXX) in the Equal Access and interim dialing plan that is used to access a carrier.

carrier identification code (CIC)

A set of three or four digits (XXX or XXXX) in the Equal Access and interim dialing plans that designates the interexchange carrier (IEC) or international carrier (INC) that handles a call. The digits are either dialed by the subscriber or added to the dialed digits by the system software.

carrier toll denied (CTD)

A service that denies access to specified carriers for a designated line. When this service is assigned to a line, the carriers that are denied access are also identified.

CC

central control

CCITT

Consultative Committee on International Telephony and Telegraphy

CCS7

common channel signaling 7

cellular mobile carrier (CMC)

A utility that provides telephone service to mobile customers by using radio cell sites connected to a CMC switching office.

central control (CC)

A part of the NT40 processor that consists of the data processing functions with the associated data store and program store.

central processing unit (CPU)

The hardware unit of a computing system that contains the circuits controlling and performing the execution of instructions.

CI

command interpreter

CIC

carrier identification code

CLLI

common language location identifier

CMC

cellular mobile carrier

command interpreter (CI)

A component in the Support Operating System that functions as the main interface between machine and user. Its principal roles include the following:

- reading lines entered by a terminal user
- breaking each line into recognizable units
- analyzing the units
- recognizing command-item numbers on the input lines
- activating these commands

common channel signaling 7 (CCS7)

Digital, message-based, network signaling Consultative Committee on International Telephony and Telegraphy (CCITT) standard. It separates call signaling information from voice channels so that interoffice signaling is exchanged over a separate signaling link.

common language location identifier (CLLI)

A standard identification method for trunk groups in the form:

aaaa bb xx yyyy

where

aaaa	=	city code
bb	=	province or state code
xx	=	trunk group identifier
yyyy	=	trunk number

Consultative Committee on International Telephony and Telegraphy (CCITT)

One of the four permanent groups within the International Telecommunication Union. The CCITT is responsible for studying technical, operating, and tariff questions. This organization also prepares recommendations relating to telephony and telegraphy, including data and program services.

CPU

central processing unit

CTD

carrier toll denied

data modification order (DMO)

A request initiated by operating company personnel to change DMS information. The request can be made through either the table editor or the Service Order System (SERVORD).

DD

direct dial

Digital Multiplex System (DMS)

A central office switching system in which all external signals are converted to digital data and stored in assigned time slots. Switching is performed by reassigning the original time slots.

Digitone

A service-related telephony feature that allows address information to be generated from a telephone set in the form of a dual-tone multifrequency (DTMF) signals by manually pressing nonlocking buttons. Also known as dual-tone multifrequency dialing.

direct dial (DD)

A call that requires no operator intervention.

directory number (DN)

The full complement of digits required to designate a subscriber's station within one numbering plan area (NPA)-usually a three-digit central office code followed by a four-digit station number.

DMO

data modification order

DMS

Digital Multiplex System

DMS-100

A member of a family of digital multiplexed switching systems. The DMS-100 is a local switch.

DMS-100 Family switches

A family of digital multiplexed switching systems, which includes the following: DMS-100, DMS-100/200, DMS-100 switching cluster, DMS-100 switching network, DMS-200, DMS-250, and DMS-300.

DMS-100/200

A member of a family of digital multiplexed switching systems. A DMS-100/200 is a switch of mixed function, in this case a combined local/toll switch.

DMS-200

A member of a family of digital multiplexed switching systems. The DMS-200 is a toll switch.

DN

directory number

DTMF

dual-tone multifrequency

dual-tone multifrequency (DTMF) signaling

A signaling method that uses set combinations of two specific voice-band frequencies. One of these voice-band frequencies is selected from a group of four low frequencies, and the other is selected from a group of three or four relatively high frequencies.

EAEO

Equal Access end office

EAP

Equal Access plan

EBS

electronic business set

electronic business set (EBS)

A telephone set that provides subscribers with push-button access to various business features. Also known as electronic telephone set.

end office

A local switching office that interconnects subscriber station lines to each other and to trunks.

Equal Access

A software feature, or group of features, that allows an operating company to offer subscribers a choice of carriers every time they make a long distance call. Subscribers choose their long distance carriers either by presubscription or by dialing a carrier access code (CAC) to reach a specific interexchange carrier (IEC) or international carrier (INC).

Equal Access end office (EAEO)

An end office that provides the required Equal Access features.

Equal Access plan (EAP)

This final plan implements the Modification of Final Judgement requirements by providing end offices with access to interexchange carriers (IEC) and international carriers (INC). With this plan, subscribers can choose their long distance carriers through presubscription.

The EAP uses a prefix (10XXX or 101XXXX) that accesses either a feature group C (FGC) or feature group D (FGD) carrier. The first digits (10 and 101) of the prefix form a reserved access code for universal services. The last digits (XXX and XXXX) represent the carrier identification code (CIC). The EAP prefix is either dialed by the subscriber or added by the system software.

feature group A (FGA)

A switching arrangement that provides line-side access from an end office switch to an interexchange carrier (IEC). The FGA carrier uses conventional signaling and is billed by the local exchange carrier (LEC) on a flat rate basis for local access or leased facilities.

feature group B (FGB)

A plan that allows an Equal Access end office (EAEO) or a non-EAEO to provide its subscribers with trunk-side access to FGB carriers. An FGB carrier uses conventional signaling and is billed by the local exchange carrier (LEC) according to the actual usage of its facilities. To use this plan, a subscriber must dial 950-WXXX.

feature group C (FGC)

The FGC switching arrangement provides the end office with trunk-side access to the interexchange carrier (IEC) and international carrier (INC) toll networks. It implements the Equal Access plan (EAP) with the following exceptions: it uses pre-divestiture signaling and additional trunk group types.

feature group D (FGD)

A switching arrangement that implements the Modification of Final Judgement requirements by providing end offices with trunk-side access to interexchange carriers (IEC) and international carriers (INC). Three dialing plans are available for FGD: interim, transitional, and Equal Access. *See also* interim plan, transitional plan, *and* Equal Access plan.

FGA

feature group A

FGB

feature group B

FGC

feature group C

FGD

feature group D

IAM

initial address message

IEC

interexchange carrier

INC

international carrier

initial address message (IAM)

The first message in a call (connection-oriented or connectionless). It contains information required to route the call to its destination.

integrated services digital network (ISDN)

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

interexchange carrier (IEC)

Any carrier authorized to carry customer transmissions between local access and transport areas (LATA) interstate or intrastate.

inter-LATA carrier

Any carrier authorized to carry customer transmissions between local access and transport areas (LATA) interstate or intrastate.

interim plan

A switching arrangement that uses feature group D (FGD) signaling but feature group B (FGB) dialing. In this plan, the subscriber dials the interim prefix (950-WXXX) to access the carrier. The first three digits (950) dialed form a reserved central office code. The fourth digit (W) is a predetermined filler digit (0 to 9) defined by the operating company. The remaining digits (XXX) represent the carrier identification code (CIC).

international carrier (INC)

Any carrier that handles overseas portions of an international call.

intra-LATA carrier

An operating company or carrier that has regulatory approval to provide intra-LATA services.

ISDN

integrated services digital network

ISDN user part (ISUP)

A level of the common channel signaling 7 (CCS7) layered protocol. The main functions of ISUP include the signaling functions required to provide switched services and user facilities for voice and non-voice applications in the integrated services digital network (ISDN). *See also* common channel signaling 7 *and* integrated services digital network.

ISUP

ISDN user part

LATA

local access and transport area

LATA Equal Access System (LEAS)

The LEAS adds many of the capabilities of an Equal Access end office (EAEO) to a non-EAEO. It provides the capability of routing incoming calls from a non-EAEO to the DMS-200 access tandem (AT) switch for completion to carriers. It performs screening and translations functions like an EAEO. With a LEAS, non-EAEO subscribers can access an interexchange carrier (IEC) or international carrier (INC) by selecting one primary inter-LATA carrier (PIC) or dialing the carrier access code (CAC).

LEAS

LATA Equal Access System

LEC

local exchange carrier

local access and transport area (LATA)

A fixed, non-overlapping geographic area, referred to as an exchange or exchange area, where an operating company offers telecommunications services.

local exchange carrier (LEC)

A local phone company. LECs used to be called telephone companies or telcos.

log report

A message sent from the DMS switch whenever a significant event has occurred in the switch or one of its peripherals. A log report includes state and activity reports as well as reports on hardware and software faults, test results, and other events or conditions likely to affect the performance of the switch. A log report can be generated in response to a system or manual action.

maintenance and administration position (MAP)

A group of components that provides a user interface between operating company personnel and the DMS Family switches. The interface consists of a visual display unit and keyboard, a voice communications module, test facilities, and special furniture.

MAP

maintenance and administration position

master position

A Traffic Operator Position System (TOPS) position used by on-site personnel to perform diagnostics.

MDC

Meridian Digital Centrex

Meridian Digital Centrex (MDC)

A special DMS business services package that uses the data-handling capabilities of DMS-100 Family offices to provide a centralized telephone exchange service. Formerly known as Integrated Business Network (IBN).

MF

multifrequency

Modification of Final Judgement

The ruling from an antitrust suit between the U.S. Justice Department and the American Telephone and Telegraph (AT&T) company. This ruling stated that subscribers should be able to choose their long distance carriers. It also stated that all carriers must provide services that are equal in type, quality, and price to those provided by AT&T.

multifrequency (MF)

A signaling method that uses pairs of standard tones to transmit signaling codes, digit pulsing, and coin-control signals. This method is used by interregister signaling on analog trunks. *See also* interregister signaling.

non-EAEO

non-Equal Access end office

non-Equal Access end office (non-EAEO)

An end office that does not provide the Equal Access features required by the Modification of Final Judgement.

NPA

numbering plan area

NT

Northern Telecom

numbering plan area (NPA)

Any of the designated geographical divisions of the United States, Canada, Bermuda, Caribbean, Northwestern Mexico, and Hawaii within which no two telephones have the same seven-digit number. Each NPA is assigned a unique three-digit area code. Also know as area code.

OA

operator assisted

OM

operational measurements

operating company

The owner/operator of a DMS switch.

operational measurements (OM)

The hardware and software resources of the DMS switches that control the collection and display of measurements taken on an operating system. The OM subsystem organizes the measurement data and manages its transfer to displays and records. The OM data is used for maintenance, traffic, accounting, and provisioning decisions.

operator-assisted (OA) calls

Calls that are dialed by the subscriber but require help from the operator.

outpulsing

The transmission of digital address information over a trunk from one switch to another.

overflow

Traffic in excess of the capacity of the circuits on a particular route. The overflow traffic is offered to an alternate route.

PBX

private branch exchange

peg count

The number of times an event occurs; for example, the number of telephone calls originated during a specified period of time.

peripheral module (PM)

A generic term referring to all hardware modules in the DMS Family of switches that provide interfaces between external line, trunk, or service facilities. A PM contains peripheral processors, which perform local routines, thus relieving the load on the CPU.

PIC

primary inter-LATA carrier

plain old telephone service (POTS)

Basic telephone service with no frills or special facilities.

PM

peripheral module

POTS

plain old telephone service

presubscription

The choice by a subscriber of a selected interexchange carrier (IEC).

primary inter-LATA carrier (PIC)

The carrier designated by a subscriber to provide long distance service automatically without requiring the subscriber to dial an access code for Equal Access services. The subscriber chooses whether to designate any carrier as a PIC.

private branch exchange (PBX)

A telephone exchange, either automatic or attendant-operated, that provides telephone service within an organization as well as connections to the public network.

route list

In DMS call processing, the software used to specify route identification.

SAC

service access code

service access code (SAC)

A code that replaces a numbering plan area (NPA) in the dialing sequence. Subscribers use SACs to access a particular service provided by an

interexchange carrier (IEC), international carrier (INC), or operating company.

Service Order System (SERVORD)

A user interface consisting of commands used to change, add, or delete subscriber lines. The format used for commands in the SERVORD comply with the standard telephone industry command format; for example, 3WC is three-way calling, ADO is add option, DEL is delete, and CWT is call waiting.

SERVORD

Service Order System

time-out

The action taken when equipment receives no response from an addressed location within a specified time.

TNS

transit network selection

TOPS

Traffic Operator Position System

TOPS Equal Access

An operating company tariff offering for Traffic Operator Position System (TOPS) local access transport area (LATA) access equal in type, quality, and price for all inter-LATA carriers.

Traffic Operator Position System (TOPS)

A call processing system made up of a number of operator positions. Each operator position consists of a virtual display unit, a controller, a keyboard, and a headset.

transitional plan

One of the three dialing plans available for feature group D (FGD). The transitional plan uses the dialing procedures of both the transitional plan and the Equal Access plan (EAP).

transit network selection (TNS)

A parameter included in the initial address message (IAM) for national and international calls routed to the access tandem (AT) and for international calls routed directly to the interexchange carrier (IEC). The TNS parameter contains the carrier identification code (CIC).

translation verification (TRAVER)

A diagnostic tool that allows the operating company to access and simulate a telephone call in software and display the tables and tuples used to establish the lines, trunks, or positions to which a call is routed.

TRAVER

translation verification

treatment

A software-generated reaction to a call-failure condition.

usage counts

Sampled measurements (states) used to determine the degree of usage of switching hardware and software.

DMS-100 Family

Equal Access

Maintenance Guide

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